Incremental Adaptation to Yaw Head Movements During 30 RPM Centrifugation

by

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ABSTRACT

Artificial Gravity (AG) provided by short-radius centrifugation is a promising countermeasure against the harmful physiological effects of prolonged weightlessness. However, the vestibular stimulus associated with making head movements while rotating presents a challenge. During a head movement, the semicircular canals are excited by a cross-coupled angular acceleration, resulting in tumbling sensations, perceived body tilt, non-compensatory vertical nystagmus, and motion sickness. Past experiments in the Man Vehicle Lab have studied adaptation to yaw head movements while rotating at 23 RPM.

To investigate adaptation to head movements at a higher rotation rate, 28 subjects participated in a 3-Day protocol in which centrifuge velocity was incremented from 14 RPM on Day 1, to 23 RPM on Day 2, to 30 RPM on Day 3.

Key findings included:

1) 24 subjects completed the protocol with average motion sickness levels remaining below 5 (out of 20). Feasibility of head movements at 30 RPM was demonstrated, suggesting that adaptation to higher rotation rates may be possible.
2) A motion sickness model used in conjunction with a quantitative semi-circular canal sensory conflict model and an adaptation parameter was effective in making general predictions of motion sickness and adaptation over the 3 days.
3) Intensity and duration of tumbling sensations adapted significantly over the 3 days.
4) The VOR time constant decreased significantly over the 3 days and appeared to reach a limit of approximately 3.5 seconds, which is near the estimated cupular time constant.

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List of Abbreviations

AG	Artificial Gravity
ANOVA	Analysis of Variance
CCS	Cross-Coupled Stimulus
CNS	Central Nervous System
GIF	Gravito-inertial Force
GLM	General Linear Model (Repeated Measures Analysis of Variance)
HT	Head Turn
MS	Motion sick
nMS	non motion sick
NUP	Nose-Up
POST	Last 6 head turns of each day while rotating at 23 RPM
PRE	First 6 head turns of each day while rotating at 23 RPM
RED	Right-Ear-Down
SCC	Semi-circular canal(s)
SPV	Slow phase velocity (of vertical nystagmus)
SRC	Short Radius Centrifuge
STIM	30 head turns at 14, 23, or 30 RPM after the PRE phase
To-RED	Yaw head turn to the Right-Ear-Down position
To-NUP	Yaw head turn to the Nose-Up position
VOR	(Angular) Vestibulo-ocular reflex

1 Introduction

1.1 Value of studying human responses in rotating environments

The human response to centrifugation is of interest for both immediate practical applications as well as basic scientific knowledge with unforeseen utility. Centrifugation can be a powerful tool for eliciting or preventing physiological changes through application of a static load through the long axis of the body. In the context of human spaceflight, Artificial Gravity (AG) applied through centrifugation has great potential as a countermeasure against the many harmful effects of microgravity [1]. Similarly, the application of an inertial centrifugal force may be of use in the medical field for a number of bedridden patients [2]. The unusual sensory stimulation that arises during movements in a rotating environment offers unique insight into vestibular function and Central Nervous System (CNS) processing. The focus of this research is on the neurovestibular aspect of short-radius centrifugation, in particular the issue of making head movements during rotation.

1.2 Artificial Gravity for achievement of space exploration goals

1.2.1 Physiological effects of spaceflight

Sustained exposure to microgravity causes significant deficiencies in normal human homeostasis. Effects of microgravity include skeletal muscle atrophy [3], bone mineral density loss [4, 5], cardiovascular deconditioning [6], renal impairment [6], and alterations in vestibular function [7]. Although the changes seen in spaceflight are largely adaptive for the environment, some are detrimental both in space and especially upon re-entry into a gravity environment. A range of countermeasures has been proposed and tested, but most are aimed at alleviating a single problem at a time and have not been completely effective. Artificial gravity, however, has the potential to prevent many of the normal consequences of microgravity from even beginning to take place. By substituting a centrifugal force for earth's gravity, one ideally removes the major stimuli for physiological adaptation. Although AG has not been thoroughly tested in space, centrifugation in ground-based simulations of microgravity has provided promising results [8].

1.2.2 Short-radius centrifugation for Artificial Gravity

While many people agree that artificial gravity will be necessary for future space missions, there is an ongoing discussion regarding the best way to implement AG. More specifically, the debate revolves around the benefits and drawbacks of a short-radius centrifuge versus a medium or large-radius centrifuge. The factors at play include lift costs, architectural and engineering constraints, human adaptation limitations within a rotating environment, and the question of whether AG should be provided continuously or intermittently. Considering the first two factors, a short-radius centrifuge is attractive for its simplicity and convenience. With a piece of equipment roughly the size of a bed, one would minimize volume and mass requirements. Within the area swept out during rotation it is also feasible to have two or more centrifuges with a common center of rotation (Figure 1-1). The high rotation rates needed to generate the desired accelerations represent the major drawback [1].

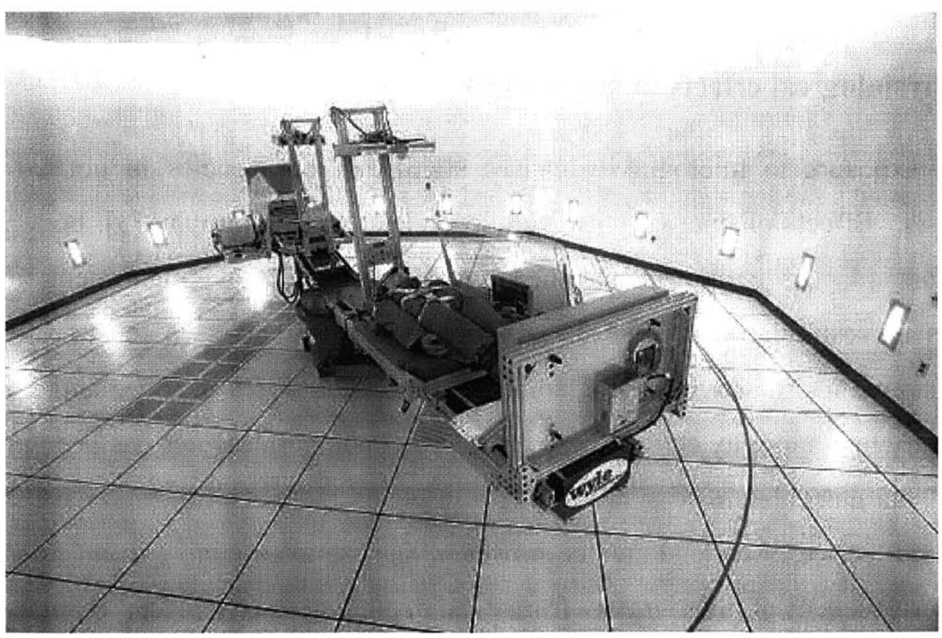


Figure 1-1 NASA short-radius centrifuge (University of Texas Medical Branch in Galveston)

(http://www.nasa.gov/vision/space/preparingtravel/human_centrifuge_08315.html)

1.2.3 Short-radius centrifugation challenges

Although AG may hold great potential as a countermeasure against the physiological problems of spaceflight, it poses several challenges as well. The fundamental problem of centrifugation is that humans are not accustomed to living in a rotating environment. Coriolis and cross-coupled accelerations result in unexpected motions and sensations when one commands a typical movement. These effects are more severe as the rotation rate of the centrifuge increases. For the specific issue of head movements during centrifugation such as in Figure 1-1, a yaw head turn (about the long axis of the neck) results in vertical and torsional nystagmus, tumbling and spinning sensations, disorientation, and motion sickness. For movements such as arm-reaching, one perceives the limb to deflect from the desired path [9, 10]. Considering that the centripetal acceleration associated with centrifugation varies with the square of the angular velocity and linearly with distance from the center of rotation, one can minimize Coriolis and cross-coupled accelerations by increasing the radius and spinning at a slower speed. Of particular interest is the fact that humans exhibit adaptation to these effects even at high rotation rates when the stimuli are strong [11]. This adaptation, however, remains to be fully described and characterized. Additionally, the likely intermittent application of AG presents the issue of transitioning between rotating and non-rotating environments. Adaptation gained to AG ideally would be context-specific, such that transitions between environments would not cause aftereffects and motion sickness. The broad goal of this research is to understand and quantify adaptation to head movements in order to develop efficient adaptation protocols with minimal side effects.

1.3 Experiment context, objective, and hypothesis

1.3.1 Moving from 23 to 30 RPM

Many of the previous experiments on the MIT short-radius centrifuge were conducted at a rotation rate of 23 RPM, corresponding to an acceleration of approximately 1-g at foot level and 0.3 g at heart level [11-19]. If 1-g at heart level were desired to prevent cardiovascular deconditioning in micro-gravity, and the head is positioned near the center of rotation, a speed on the order of 45-50 RPM is required. It is unclear to what extent humans could potentially adapt to operating in such an environment. In particular, the vestibular stimulation associated with a head movement during 45 RPM rotation would be very intense and might cause overwhelming disorientation and motion sickness. As an intermediate step, this work aims to demonstrate feasibility of adaptation allowing head movements at 30 RPM.

1.3.2 A strategy to minimize motion sickness

In order to adapt individuals to 30 RPM rotation, precautions must be taken to avoid the motion sickness associated with head movements at high rotation rates. An incremental approach provides a good general strategy for adaptation, but a specific predictive capability would be helpful for designing efficient and eventually optimal protocols. Despite the variability and subjective aspects of motion sickness, several theories for the etiology of motion sickness have been developed, and dynamics of motion sickness progression have been described [20]. To reach the goal of adaptation to head movements at 30 RPM, a motion sickness model based on the neural mismatch sensory conflict theory is modified for this research and employed for use in design of an effective protocol.

1.3.3 Hypothesis

Based on predictions of a motion sickness model, it was hypothesized that a 3-Day protocol incrementing centrifuge velocity from 14 RPM on Day 1, to 23 RPM on Day 2, to 30 RPM on Day 3, would be sufficient to provide subjects enough adaptation to complete 30 head movements at 30 RPM without excessive motion sickness.

2 Background

2.1 Vestibular physiology

The vestibular system acts to sense angular and linear motion of the head, and to provide this information to the central nervous system. It is located within the inner ear, which is itself embedded in the bony labyrinth of the skull's temporal bone. The motion sensing organs are found in the membranous labyrinth of the vestibular system, which is immersed in perilymph fluid. Perilymph is derived from cerebrospinal fluid and contains a relatively high sodium concentration. Inside the membranous labyrinth resides a fluid called endolymph, which has lower sodium and higher potassium concentrations than the perilymph. This difference in ionic concentrations of the two fluids is crucial for hair cell neural transduction and is maintained by active transport. The inner ear is connected to several other systems of body in various ways. It is connected to the blood supply, to the CNS by the 8^{th} cranial nerve, to the cerebrospinal fluid through the endolymphatic duct, and to the middle ear by the round and oval windows. The motion-sensing organs of the vestibular system include the semi-circular canals and the otoliths. The canals detect angular accelerations, while the otolith organs detect linear accelerations and gravity. Nerve fibers from the organs join together near a region called Scarpa's ganglion to form the vestibular portion of the 8^{th} cranial nerve [21].

2.1.1 Semicircular canals

There are three semicircular canals (Anterior, Posterior, Horizontal) on each side of the head. The canals are nearly orthogonal to one another (to within approximately 5 degrees) [22], acting as a 3-dimensional angular accelerometer. Each canal is maximally sensitive to rotation about an axis nearly perpendicular to the plane of the canal [23]. The canals are arranged such that the system on the right side of the head is the mirror image of the system on the left side. The reliability of canal (and otolith) measurements is increased by this redundancy. The anterior canal on one side of the head is nearly coplanar with the posterior canal on the opposite side, forming a functional pair (Figure 2-1).

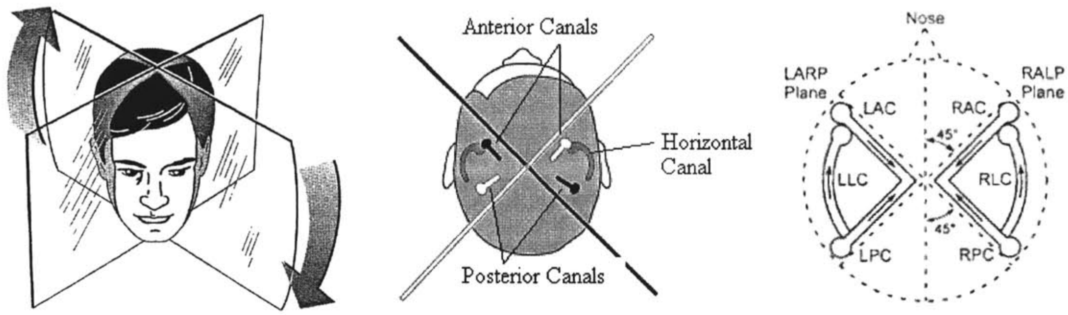
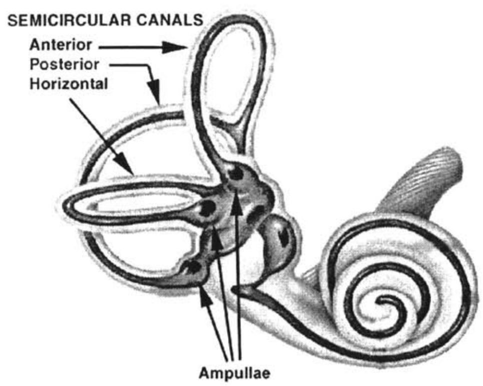


Figure 2-1 Depictions of Anterior and Posterior Canal Orientation [24] [25]

Figure 2-2 shows a schematic diagram of the semicircular canals and a high resolution MRI image. The canals sense angular acceleration based on displacements of the endolymph fluid with respect to the canal. The canal has an enlarged region called the ampulla (Figure 2-3), within which sits a gelatinous plug called the cupula. At the base of the cupula are cilia extending upward from hair cells located within a region of sensory epithelium called the crista. As the head rotates, the fluid in the canal displaces in the opposite direction with respect to the canal due to its inertia, and thus exerts a force on the cupula. As the cupula is deflected or distorted, the cilia are also deflected, leading to a depolarization or hyperpolarization of the hair cell and a subsequent increase or decrease in the associated nerve fiber afferent firing rate. For brief head movements, the forces on the endolymph due to cupula distortion (i.e. elastic restoring forces) are negligible compared to the viscous drag forces from the canal walls. With this heavy damping, the angular velocity of the endolymph flow is proportional to the angular acceleration of the head within a certain range of head motions. Approximating the system as a perfect integrator leads to the conclusion that the cupula deflection will be proportional to the change in head angular velocity. For long-duration stimuli, the dynamics of cupula distortion become much more significant.



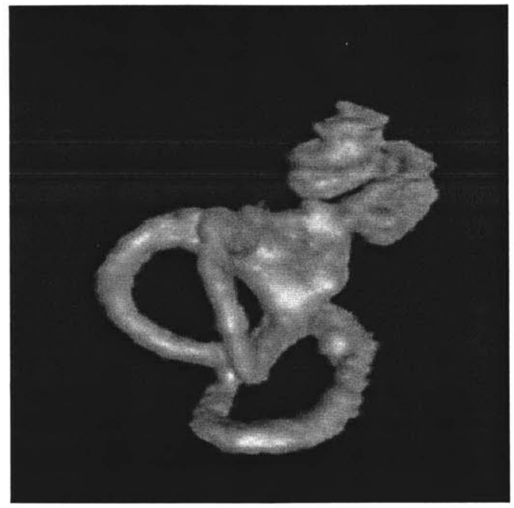


Figure 2-2 Semicircular canals: Schematic (Left)[21] and MRI image (Right) [26]

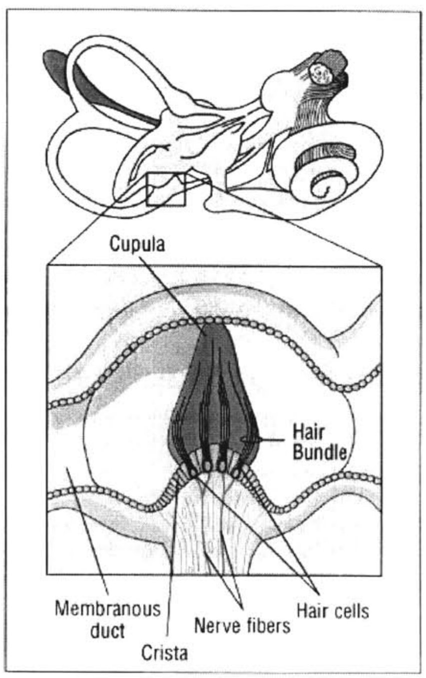


Figure 2-3 View of the ampulla [21]

Each canal has an asymmetric response to clockwise and counterclockwise rotation about the sensitive axis. While one direction is inhibitory (i.e. firing rate decreases below resting) and the other is excitatory (firing rate increases relative to resting), the excitatory response is significantly greater than the inhibitory one. Since the canals are arranged in a mirror image pattern on the left and right sides of the head, the asymmetry in one pair is opposite in the other. Nerve signals are combined in the vestibular nuclei.

2.1.2 Otoliths

The otolith organs consist of the utricle and saccule. Although they are not orthogonal and not strictly planar, the utricle detects acceleration primarily in the horizontal plane and the saccule primarily in the vertical plane (Figure 2-4). Each organ has a fibro-gelatinous membrane, and like in the canals, deflection of hair cells provides the indication of acceleration. The deflection of cilia in the otolith organs is mechanically provided by calcium carbonate crystals (otoconia) embedded in the gelatinous substrate (Figure 2-4). When the head is accelerated, the otolithic membrane is displaced relative to the surrounding structure and deflects the cilia of the hair cells. The afferent firing rates of the associated nerve fibers are changed, indicating motion or a tilt of the head. As the otolith responses arising from linear acceleration or a change in head orientation with respect to gravity are not distinguishable, the information provided by the otoliths is inherently ambiguous.

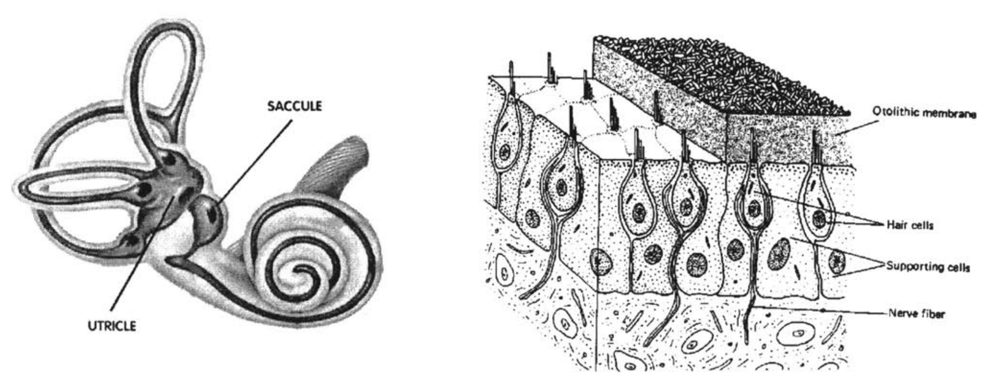


Figure 2-4 Otolith organs: (Left) Anatomic location. (Right) View of the otolithic membrane [21]

2.2 Understanding the physical vestibular stimulus associated with a head movement during centrifugation

2.2.1 Derivation of cross-coupled angular acceleration stimulating the semicircular canals

To derive the acceleration applied to the semicircular canals during a head turn, one can begin by writing the absolute angular velocity of the head as the vector sum of the carrying angular velocity of the centrifuge and the angular velocity of the head relative to the centrifuge (Equation 2-1). The centrifuge is assumed to rotate clockwise as viewed from above with angular velocity ω_c, and the head turn is made from the Nose-Up (NUP) position to the Right-Ear-Down (RED) position (Figure 2-5) with angular velocity ω_R relative to the centrifuge. Differentiation of the absolute angular velocity yields the absolute angular acceleration (Equation 2-2). The acceleration stimulus as viewed from the equilibrated canals is an inertial acceleration equal and opposite to the absolute acceleration of the head. The same result can be derived using rotation matrices as in [27], but the following vector representation has the advantage of simplicity and clear visualization. Interestingly, the result can also be found through an analysis of linear coriolis accelerations applied to the particles of the endolymph and integrated around the canal [28].

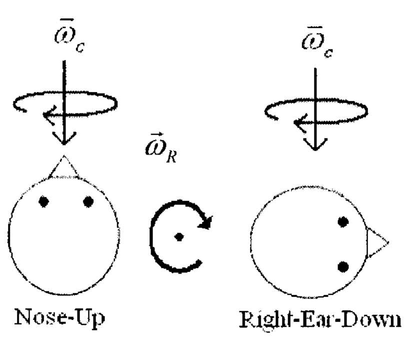


Figure 2-5 Head turn from NUP to RED [17]

$\vec{\omega}_H$ = Absolute angular velocity of head with respect to inertial space
$\vec{\omega}_C$ = Angular velocity of centrifuge with respect to inertial space
$\vec{\omega}_R$ = Angular velocity of head relative to centrifuge
$\vec{e}_R$ = Unit vector pointing from head to foot along the length of the centrifuge (rostral-caudal)
$\vec{e}_C$ = Unit vector pointing upward in the earth-vertical direction

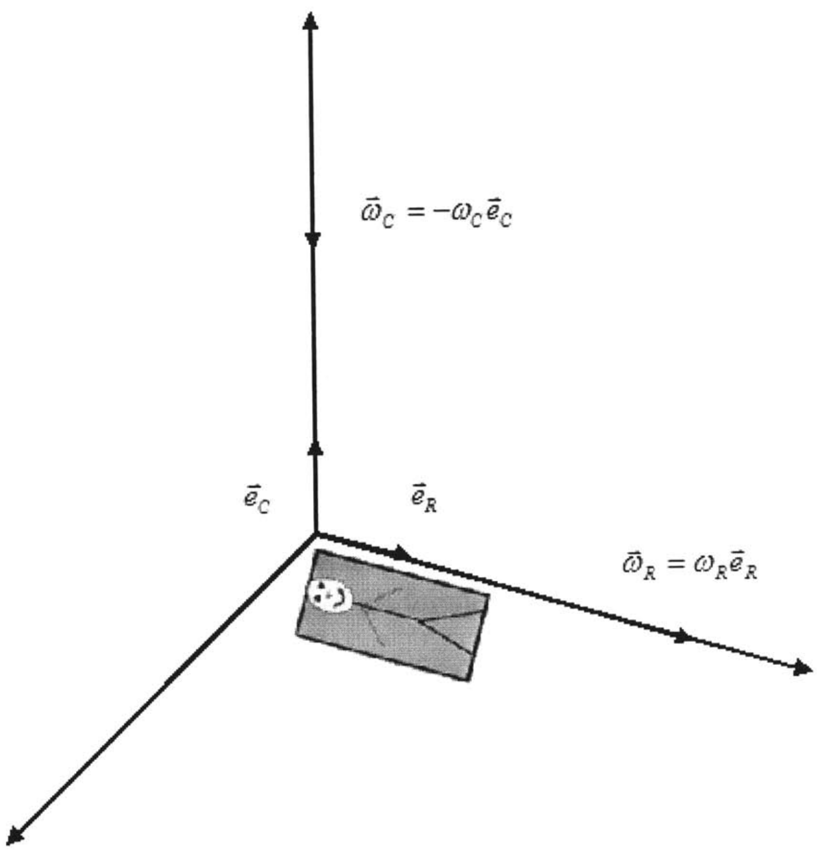


Figure 2-6 Vector representation of angular velocities during a head turn

$$\vec{\omega}_H = \vec{\omega}_C + \vec{\omega}_R = -\omega_C \vec{e}_C + \omega_R \vec{e}_R$$

Equation 2-1 Absolute angular velocity of the head turning a yaw head movement while rotating

$$\dot{\vec{\omega}}_H = -\dot{\omega}_C \vec{e}_C - \omega_C \dot{\vec{e}}_C + \dot{\omega}_R \vec{e}_R + \omega_R \dot{\vec{e}}_R$$

$\dot{\omega}_C = 0$ (Centrifuge angular velocity remains constant while head turns are made)

$\dot{\vec{e}}_C = 0$ (Centrifuge axis of rotation remains fixed)

$$\dot{\vec{e}}_R = \vec{\omega}_C \times \vec{e}_R$$

$$\dot{\vec{\omega}}_H = \dot{\omega}_R \vec{e}_R + \omega_R \dot{\vec{e}}_R$$

$$\dot{\vec{\omega}}_H = \dot{\omega}_R \vec{e}_R + \omega_R \left(\vec{\omega}_C \times \vec{e}_R\right)$$

$$\boxed{\dot{\vec{\omega}}_H = \dot{\omega}_R \vec{e}_R + \left(\vec{\omega}_C \times \vec{\omega}_R\right)}$$

Equation 2-2 Absolute angular acceleration of the head during a yaw head movement while rotating

Equation 2-2 states that the absolute angular acceleration of the head is equal to the sum of the angular acceleration of the head relative to the centrifuge and the cross product of the centrifuge angular velocity with the relative head angular velocity. The endolymph in the canals is excited by an inertial acceleration equal and opposite to the absolute angular acceleration of the head. A projection of the cross-coupled acceleration vector with appropriate sign on the sensitive axes of the canals provides the angular acceleration experienced by each canal during a head movement. One can also consider idealized "pitch", "roll", and "yaw" canals in the head to obtain the accelerations in these directions throughout the head movement.

2.2.2 Derivation of otolith stimulation during head movements

To calculate the approximate acceleration of the otoliths during a head movement on the centrifuge, several assumptions are made. First, each otolith organ will be treated as a point mass. Next, it will be assumed that the centrifuge axis of rotation passes through the center of the head, which is modeled as a sphere. Each otolith is assumed to be located 4 cm from the center of the head along a line parallel to the interaural line and perpendicular to the centrifuge axis of rotation (y-direction in Figure 2-7). The midpoint of the line connecting the otoliths is assumed to intersect with the centrifuge axis of rotation, such that when the head is turned 90 degrees (to RED), the otoliths are both aligned with the centrifuge axis of rotation.

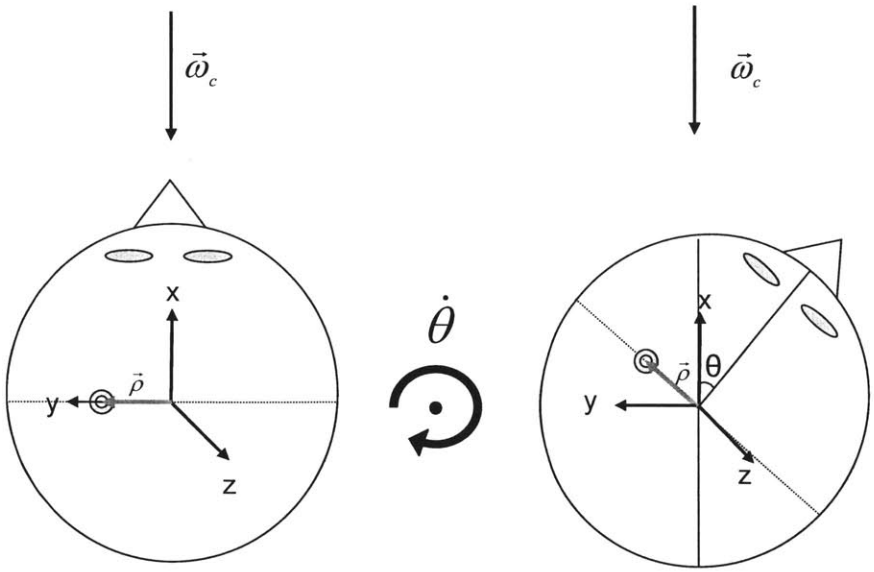


Figure 2-7 Head turn showing idealized position of an otolith organ

Consider a right-handed coordinate system with origin at the center of the head, y-direction parallel to the interaural line from right to left ear, x-direction parallel to a naso-occipital axis from back to front of the head, and z direction parallel to a rostral-caudal axis from foot toward the head. The coordinate system is attached to the centrifuge reference frame, not to the head reference frame. Equation 2-3 describes the absolute acceleration of a particle moving within a rotating reference frame. The reference frame has no translational motion. The acceleration is composed of the carrying acceleration of the reference frame (centrifuge acceleration), the acceleration relative to the moving reference frame (otolith motion relative to centrifuge), and a Coriolis acceleration equal to twice the cross-product of the centrifuge angular velocity with the relative linear velocity of the particle. From the geometry of Figure 2-7, one can identify each term for the moving otolith and the resultant acceleration is given in Equation 2-4.

$\vec{\rho} = x\vec{i} + y\vec{j} + z\vec{k}$ (position vector locating the otolith)

$\dot{\vec{\rho}} = (\dot{x}\vec{i} + \dot{y}\vec{j} + \dot{z}\vec{k}) + x\dot{\vec{i}} + y\dot{\vec{j}} + z\dot{\vec{k}}\ ,\quad (\dot{\vec{i}} = \vec{\omega}\times\vec{i}, \dot{\vec{j}} = \vec{\omega}\times\vec{j}, \dot{\vec{k}} = \vec{\omega}\times\vec{k})$

$\dot{\vec{\rho}} = (\dot{x}\vec{i} + \dot{y}\vec{j} + \dot{z}\vec{k}) + x(\vec{\omega}\times\vec{i}) + y(\vec{\omega}\times\vec{j}) + z(\vec{\omega}\times\vec{k})$

$\dot{\vec{\rho}} = \dot{\vec{\rho}}_r + \vec{\omega}\times(x\vec{i} + y\vec{j} + z\vec{k}) = \dot{\vec{\rho}}_r + \vec{\omega}\times\vec{\rho}$

$\ddot{\vec{\rho}} = (\ddot{x}\vec{i} + \ddot{y}\vec{j} + \ddot{z}\vec{k}) + (\vec{\omega}\times\dot{\vec{\rho}}_r) + (\dot{\vec{\omega}}\times\vec{\rho}) + (\vec{\omega}\times\dot{\vec{\rho}})$

$$\ddot{\vec{\rho}} = \ddot{\vec{\rho}}_r + (\vec{\omega}\times\dot{\vec{\rho}}_r) + (\vec{\omega}\times\dot{\vec{\rho}}_r) + (\dot{\vec{\omega}}\times\vec{\rho}) + \vec{\omega}\times(\dot{\vec{\rho}}_r + \vec{\omega}\times\vec{\rho})$$

$$\boxed{\ddot{\vec{\rho}} = (\dot{\vec{\omega}}\times\vec{\rho}) + \vec{\omega}\times(\vec{\omega}\times\vec{\rho}) + \ddot{\vec{\rho}}_r + 2\vec{\omega}\times\dot{\vec{\rho}}_r}$$

Equation 2-3 Acceleration of a particle moving within a rotating reference frame

$(\dot{\vec{\omega}}_c \times \vec{\rho})$ = **Acceleration of the otolith due to the carrying angular acceleration of the centrifuge**

$\vec{\omega}_c \times (\vec{\omega}_c \times \vec{\rho})$ = **Centripetal Acceleration due to the carrying angular velocity of the centrifuge**

$2\vec{\omega}_c \times \dot{\vec{\rho}}_r$ = **Coriolis Acceleration due to linear motion in the rotating reference frame**

$\ddot{\vec{\rho}}_r$ = **Acceleration of the otolith relative to the centrifuge**

$\dot{\vec{\omega}}_c \times \vec{\rho} = 0$ (Angular acceleration of the centrifuge is 0 during constant velocity rotation)

$$\vec{\omega}_c \times (\vec{\omega}_c \times \vec{\rho}) = -\omega_c^{\,2}\rho\cos\theta(t)\vec{j}$$
$$\ddot{\vec{\rho}}_r = -\rho\ddot{\theta}\sin\theta\vec{j} + \rho\ddot{\theta}\cos\theta\vec{i} - \rho\dot{\theta}^2\cos\theta\vec{j} - \rho\dot{\theta}^2\sin\theta\vec{i}$$
$$2\vec{\omega}_c \times \dot{\vec{\rho}}_r = 2\omega_c\dot{\rho}_r\sin\theta\vec{k} = 2\omega_c\rho\dot{\theta}\sin\theta\vec{k}$$

$$\boxed{\ddot{\vec{\rho}} = (\rho\ddot{\theta}\cos\theta - \dot{\theta}^2\rho\sin\theta)\vec{i} - (\omega_c^{\,2}\rho\cos\theta + \rho\ddot{\theta}\sin\theta + \dot{\theta}^2\rho\cos\theta)\vec{j} + 2\omega_c\rho\dot{\theta}\sin\theta\vec{k}}$$

Equation 2-4 Acceleration of the left otolith during a yaw head movement on the centrifuge

Equation 2-4 represents the absolute acceleration of the left otolith during a head turn from nose-up to right-ear-down.

2.3 Biophysical modeling of canal dynamics

The fluid mechanics of the semi-circular canals have been studied in detail, including the interactions of the 3 canals [29]. For a fundamental understanding of the canal mechanics, one can consider a single canal and obtain a reasonable approximation for the true behavior. One difference between the idealized single canal model and the full 3-canal system is that in the latter scenario the direction of angular acceleration eliciting the greatest afferent nerve response from a canal is not about an axis perpendicular to the canal plane [29]. Models have suggested that this deviation of the true axis of maximal sensitivity from the idealized axis is on the order of 10 degrees. A recent estimate proposes smaller deviations of 0.7°, 1.1°, and 5.7° for the horizontal, anterior, and posterior canals, respectively [22, 23].

The endolymph and cupula in a semicircular canal can be modeled approximately as a heavily damped torsion pendulum whose motion is described by an ordinary second order differential equation (Equation 2-5) [30, 31].

$$\Theta\ddot{\xi} + \Pi\dot{\xi} + \Delta\xi = \Theta\alpha(t)$$

Equation 2-5

In Equation 2-5, ξ is the angular deflection of the endolymph ring, α is the head acceleration, Θ is the moment of inertia of the endolymph and cupula, Π is the damping coefficient due to endolymph viscosity, and Δ is the cupula spring constant.

While this model does not take into account the actual canal geometry, the idealized canal represents a reasonable approximation to true motion of the cupula and endolymph [25, 29, 30, 32]. The system is highly overdamped, and thus the time constants are real and there is no inherent oscillatory motion of the fluid. There is also no overshoot of the cupula. The time constants are given as approximately 0.003 and 5.7 seconds, based on experimental results and theoretical consideration. The fast time constant describes the deflection of the cupula under a fluid motion, while the slow time constant describes the restoration of the cupula from its deflected position. The heavy damping of the system causes the endolymph flow to be proportional to acceleration of the head, implying that cupula deflection is proportional to the change in angular velocity when starting from rest or from a constant angular velocity rotation with equilibrated canals [33]. The endolymph therefore acts as an integrator throughout an applied acceleration profile. This approximation is only true, however, for a range of accelerations. As one approaches a frequency corresponding to the fast or slow time constants, the fluid behavior will deviate from the integrating behavior. Specifically, for a very low frequency the restoring force of the cupula attenuates the fluid displacement. For very high frequencies, the inertia of the fluid within the most narrow part of the canal attenuates the response [29].

The first-order canal afferents, however, cannot be described entirely in terms of the torsion pendulum model of cupula deflection. An adjusted relationship between head acceleration and canal afference is represented in the Laplace domain in terms of several time constants (Equation 2-6). τ_1 and τ_2 represent the cupula mechanical time constants arising out of Equation 2-5 and given as 0.003 and 5.7 seconds. τ_L accounts for the rate sensitivity of cupula deflection at high frequencies, and is given as 0.049 seconds. τ_A, estimated at 80 seconds, represents the adaptation time constant. Adaptation in this context refers to a modulation of firing rate that takes place during a sustained stimulus, such as constant acceleration [30].

$$H(s) = \frac{\tau_A s}{1 + \tau_A s} \frac{(1 + \tau_L s)}{(1 + \tau_1 s)(1 + \tau_2 s)}$$

Equation 2-6 Transfer Function relating first order canal afferents to head angular acceleration

For head movements on the centrifuge of duration 1-2 seconds, cupula deflection is thought to approximately follow the idealized integrating behavior. An integration of the angular acceleration between the initial and final head angles yields the change in angular velocity. This change in angular velocity is proportional to the cupula displacement and is thus the stimulus to the canal. An interpretation of the $(1 + \tau_L s)$ term in Equation 2-6 reveals that canal afferents depend not only on the cupula deflection, but also on the rate of deflection. This suggests that head turn velocity can affect the vestibular response for high frequencies. It follows that velocity of the head turn should not have a large affect on the vestibular response within a normal range of velocities (approximately 50 to 130 °/sec) [34]. The change in endolymph angular velocity will depend only on the centrifuge angular velocity and the angle of the head turn.

2.4 Effects of cross-coupled and Coriolis accelerations during centrifugation

2.4.1 Vestibulo-ocular Reflex

The angular vestibulo-ocular reflex (VOR) acts primarily to stabilize gaze while the head is rotating. The basic function is to drive the eyes in the opposite direction of the head rotation in order to keep the desired image stable on the retina. If the head undergoes a yaw turn to the left, the semicircular canals send an afferent signal resulting in rotation of the eyes to the right (Figure 2-8). The pathway for the VOR starts from the canal afferent nerve fibers that become part of the vestibular nerve. The vestibular nerve runs to the brainstem and synapses in the vestibular nucleus. From the vestibular nucleus, additional pathways lead to the six extraocular muscles which drive the eyes in the appropriate direction.

The gain of the VOR refers to the ratio of eye velocity to head velocity. For a gain of 1, the eye moves with the same speed as the head during a rotation. Since vision and other sensory modalities can contribute to the gain of compensatory eye movements, the pure VOR is best studied in a dark environment [35].

When the head is rotated beyond the mechanical limitation of the eyes, the eyes have to reset themselves to maintain a stable retinal image. This process is called nystagmus. During nystagmus, the eyes make involuntary rhythmic movements consisting of slow movement in one direction followed by a rapid saccade in the other direction. The slow phase corresponds to the normal compensatory tracking behavior of the VOR, while the saccades reset the eyes once they have rotated to their limit [35].

During a head turn on the centrifuge, the cross-coupled stimuls applied to the semicircular canals induces a strong VOR response and rapid nystagmus. The slow phase velocity of nystagmus gives an insight into the vestibular processing. In particular, the time constant of decay of nystagmus can reflect adaptation to the cross-coupled stimulus [35].

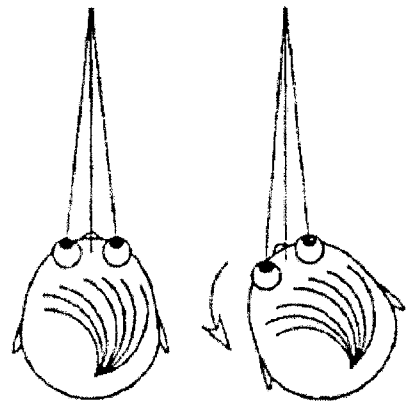


Figure 2-8 Compensatory angular VOR [35]

2.4.2 Motion sensations due to head movements

The major factor responsible for the tumbling sensation associated with head turns on the centrifuge is the cross-coupled acceleration acting on semi-circular canals. After the canals have equilibrated during constant velocity rotation, there is no vestibular cue to inform the CNS of the centrifuge rotation. With each head turn, the anterior and posterior canals receive the unexpected cross-coupled stimulus that is normally interpreted by the CNS as a combination of pitch and roll [15]. The otoliths also receive a Coriolis stimulus, but the overwhelming feeling of rotation from the canals is the dominant sensation.

Interestingly, the sensation of tumbling can persist beyond the physical stimulus to the canals, and sometimes terminate before the physical stimulus has ended. At the conclusion of a head turn, the cross-coupled acceleration has ended and the cupula of an anterior or posterior canal is presumably at maximum deflection. The cupula deflection decays to approximately 5 % of maximum after 3 time constants have elapsed. The time constant for cupula restoration has been estimated at 4-6 seconds, so if the sensation duration correlated with cupula deflection, the tumbling would end after approximately 12 -18 seconds for every head movement. While experimental results often fall into this range, it is not uncommon for the sensation to last longer. The reason for the sustained sensation is a CNS property known as velocity storage [36]. The "velocity storage integrator" helps the CNS to deal with low frequency stimuli which are not interpreted well by the vestibular sensors. For head movements in a non-rotating environment, there is typically both an acceleration and deceleration to indicate the state of the head after the movement. On the centrifuge, the cross-coupled stimulus is similar to an acceleration impulse (or velocity step) without a corresponding deceleration. With the absence of deceleration or visual cues, the CNS can prolong the sensation of motion since the cupula restoration does not by itself indicate a cessation of rotation. The process of adaptation to cross-coupled stimulation has been attributed in large part to reductions in velocity storage [37].

2.4.3 Perceived body tilt

After a head turn has been made and the subsequent motion sensations cease, there is often a persistent feeling of the centrifuge being tilted up or down. This perceived steady-state body tilt is likely due in part to the static gravitoinertial force composed of the centrifugal force and earth's gravity (Figure 2-9). Although the head is located at the center of rotation, the existence of somatic graviceptors has been postulated [38]. Such graviceptors would explain the tilt perception in the absence of large otolith stimulation. It appears, however, that the vestibular stimulation associated with the head turn also plays a role in tilt perception. There is a correlation between the rotational perception from the canal stimulus and the steady-state tilt perception following the head turn. Specifically, for head turns to RED the canals ideally receive a "feet-up" pitch sensation, while the steady-state tilt is close to horizontal or sometimes "feet-up". Head turns to NUP result in "feet-down" pitch sensations that correlate strongly with a reported "feet-down" body tilt after cessation of the perceived motion [15]. When the direction of pitching is concordant with the GIF direction, the sensation of tilt is increased. When the pitch direction conflicts with the GIF direction, the stead-state tilt is closer to horizontal. An examination of loading on the otoliths during head turns reveals that they are unlikely to play a significant role in the tilt sensation. Equation 2-4 shows that the Coriolis acceleration stimulating each otolith during a head movement is rostral-caudal along the body axis. Such an acceleration would be consistent with otolith stimulation during feet-up or feet-down tilt sensations on the centrifuge. However, the otolith organs on opposite sides of the head are stimulated by Coriolis accelerations in opposite directions. The magnitude of the accelerations may be on the order of 0.5 m/s^2 for a fast head turn at 30 RPM, but it is not clear how oppositely directed accelerations on each otolith would be interpreted by the CNS and whether a tilt sensation would arise. If the otoliths did contribute to the tilt, the Coriolis accelerations would be consistent with tilts of around 5 degrees.

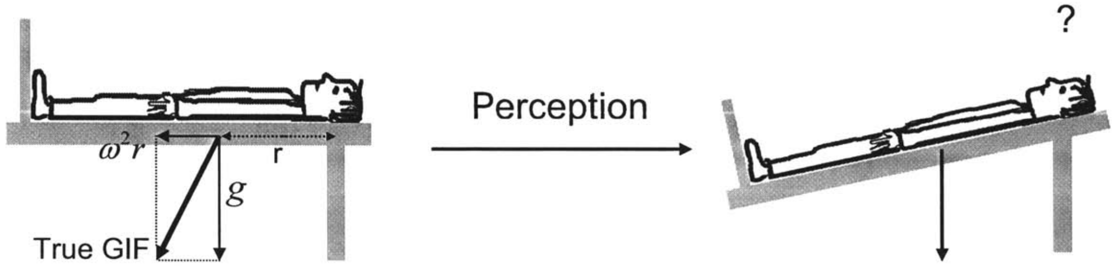


Figure 2-9 Illustration of Perceived Body Tilt during centrifugation. (Left) True body orientation and GIF. (Right) Tilt down perception due to association of GIF with the vertical direction

2.4.4 Motion sickness

Motion sickness can be described in terms of a variety of symptoms, including "vomiting, retching, pallor, cold sweating, yawning, belching, flatulence, stomach discomfort, nausea, headache, feeling of warmth, and drowsiness" [39, 40].

Early explanations for the etiology of motion sickness included lack of adequate cerebral blood flow, and mechanical stimulation of afferent signals from the abdominal area. These ideas were eventually dismissed, in part because it was noted that people without vestibular function generally cannot be made motion sick. Given the necessity of the vestibular system in the process, it was then considered that vestibular "overstimulation" might be the major cause of motion sickness. This idea was also dismissed based on several scenarios conflicting with the theory. The "overstimulation" theory could not explain why previous exposure to a motion environment made one less susceptible to motion sickness, or why people could be made motion sick by stimuli without vestibular input such as flight simulators or special eye glasses. It was also noted that passive motions are far more provocative of motion sickness that active motions [39, 40].

In 1931, Claremont proposed that motion sickness is due to a difference between two sets of sensors (e.g. the visual and vestibular systems) that are normally in agreement [41]. The inside of a boat provides a very common example, in which the eyes indicate a stationary environment while the vestibular system senses motion. It was initially thought that a sensory conflict was generated by directly comparing the afferent signals of the sensory modalities. In 1978, Reason pointed out that a direct comparison of afferent signals would not make sense for various modalities in which resting and excitatory firing rates are different. As an alternative, it was proposed that the sensory conflict was between the afferent signal and an expected or anticipated afferent signal. This was referred to as the "neural mismatch" theory [40, 42].

In detail, Reason suggested that the brain has a "neural store" of paired motor commands and associated sensory afference. This store is updated based on motion experience within various environments. For a commanded movement, expected sensory afference is compared with the actual afference and the difference forms the sensory conflict. Motion sickness is then driven by the number and magnitude of sensory conflict signals. Adaptation is presumed to consist of an updating of the neural store or internal model [40, 42].

Oman extended the idea into a quantitative state-space control model and also added a link to the emetic pathway driving the motion sickness symptoms. The control model utilizes an observer to represent the internal model. The model of motion sickness dynamics consists of both a slow path and a fast path with time constants of approximately 10 minutes and 1 minute, respectively. The slow path represents the ongoing buildup to prolonged sensory conflict or repeated short stimuli, while the fast path represents the short-term discomfort that can be generated with an intense stimulus. The gain of the slow path is approximately 5 times that of the fast path. The slow path also feeds as a multiplicative factor into the fast path stimulus, reflecting an amplification of the fast path response as motion sickness levels rise. This phenomenon is termed "sensitization" in Figure 2-10 [20, 40].

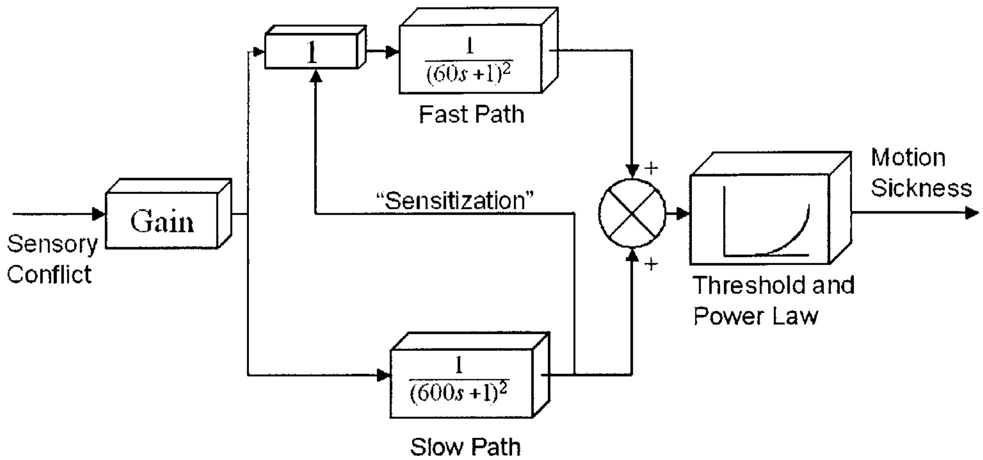


Figure 2-10 Block Diagram of the Oman Motion Sickness Model

Bos and Bles modified the sensory conflict theory to suggest that motion sickness generation is related exclusively to the estimation of the vertical direction. Specifically, they conclude that "All situations which provoke motion sickness are characterized by a condition in which the sensed vertical as determined on the basis of integrated information from the eyes, vestibular system, and the nonvestibular proprioceptors is at variance with the subjective vertical as expected from past experience" [43-45].

It should be noted that conflict between sensory modalities is still considered to be a driving factor for motion sickness. A strong argument is presented in the fact that astronauts in the SkyLab flights did not become motion sick while making head movements during yaw rotation. The same stimulus on earth had produced significant nausea [46-48]. In terms of the sensory conflict model, the presence or absence of otolith cues would play a role in determining the overall expected sensory afference for movements in a particular environment. The persistent otolith cue in earth gravity presumably drives the expected afference away from congruence with the canal signals of rotation since it is not possible to be tumbling yet having stationary otolith stimulation. In microgravity, the lack of persistent gravitational otolith stimulation likely allows the CNS to drive the expected afference closer to the actual afference. If one were tumbling in microgravity, the otoliths would not get the normal stimulus associated with changing one's orientation with respect to gravity on earth.

2.5 Incremental adaptation

For the purposes of this research, the phrase "adaptation" refers to changes across a period of days. Changes within a day will be referred to as "habituation." In general, adaptation is a purposeful or useful change in a reflex, while habituation refers to a decreased response to repeated stimuli [49]. Note that in some of the previous literature to be reviewed, "adaptation" is used to describe changes both within and across days.

Early work in the Pensacola Slow Rotation Room (SRR) demonstrated that the motion sickness usually experienced upon exposure to 6-10 RPM rotation could be minimized by gradually increasing the speed from very low rates and allowing subjects to adapt or habituate at each step [50-52]. Additional experiments investigating directional effects of head movements and centrifuge velocity also used an incremental approach [53, 54].

Incremental adaptation has not been successful in all cases. The particular increments used and the fraction of time spent at each rotation rate have significant effects on adaptation. Graybiel et al. successfully adapted 4 subjects to live at 10 RPM in the SRR by using 9 incremental steps in rotation rate over a period of 16 days [55]. Adaptation was determined based on a lack of motion sickness symptoms, and stood in contrast to the high sickness levels observed with immediate exposure to 10 RPM in a previous study [56]. However, this result was achieved only after two previous unsuccessful attempts at reaching adaptation to 10 RPM in less than 3 days. The failures underscored the necessity of using small increments and allowing sufficient exposure at each successive rotation rate.

Reason and Graybiel also used an incremental approach to reach 10 RPM in the SRR, but attempted to do so on a single day with fixed steps in rotation rate of 1 RPM [57]. The tasks while rotating consisted of controlled head and body movements, after which the subjects would report whether or not a sensation was perceived. If no sensations were detected after 3 sequences of movements, and the subject was not motion sick, the rotation rate was incremented. The protocol was only partially successful, with 4 out of 10 subjects failing to reach the 10 RPM endpoint due to motion sickness. A major result was that the number of head movements needed to gain a specified habituation level increased with the rotation rate. Habituation in this case referred to the criterion of not detecting a sensation from the rotating environment. While the 10 RPM goal was not reached for all subjects, the protocol illuminated features of the habituation process and may have facilitated tolerance when compared to a sudden high RPM exposure.

More recently, Bruni conducted a 5-Day incremental adaptation experiment on the MIT Short-radius Centrifuge [58]. Centrifuge velocity started at 3 RPM on Day 1, and was incremented to rates of 5, 8.5, 14, and 23 RPM over the subsequent 4 days. Subjects performed 30 yaw head movements at the speed of the day, in addition to 12 head movements at 23 RPM on each day. 6 subjects completed the experiment with minimal motion sickness, while only 1 subject aborted. Despite the small number of subjects, the results clearly confirmed that incremental adaptation keeps motion sickness levels significantly lower than sudden exposure to high rotation rates.

The positive results of previous work provide a solid motivation for using incremental adaptation to facilitate head movements at 30 RPM. To design an appropriate incremental protocol, a quantitative description of sensory conflict based on the neural mismatch theory was developed and used in conjunction with the Oman motion sickness model.

2.6 Developing the motion sickness model

2.6.1 Overview

In order to use the Oman motion sickness model for designing an effective protocol, it was first necessary to define the sensory conflict input to the motion sickness model. For the scenario of head movements in a rotating environment, the sensory conflict can be considered as the difference between the actual and expected vestibular, visual, tactile, and proprioceptive afferent signals. The expected afferent signals would initially be those associated with a head movement in a non-rotating environment. Since the difference between actual and expected sensory afference forms a multidimensional vector, the magnitude of the conflict is assumed proportional to the magnitude of the vector [40]. It should be noted that one can also consider weightings for different elements of the conflict vector. The weighting would likely be based on experimental results indicating what sensorimotor environments are most nauseogenic and which sensory conflicts are most prominent in those scenarios. For example, an otolith conflict might be weighted differently than a canal conflict or tactile conflict.

With a quantitatively defined sensory conflict and a model to describe motion sickness dynamics, it was desired to predict a subject's nausea for a given artificial gravity protocol. Due to high variability among individuals in motion sickness susceptibility, the model was considered to possess utility only for a specific subpopulation whose susceptibility has been characterized. Assuming accurate predictions could be made for a given subpopulation, an adaptation parameter was necessary to make predictions for experiments lasting several days.

The Oman model was implemented using the Simulink program in MATLAB (Appendix D) .

2.6.2 Sensory Conflict: semicircular canals

The initial model described here only included the semicircular canals, which are a major factor in motion sickness production from cross-coupled stimulation [59]. The sensory conflict was defined as the difference between the actual and expected afferent firing rate for the canals.

The transfer function used to describe semicircular canal afferents was developed by Borah and Young [60], based on work by Van Egmond et al [61], and neural recordings of Fernandez and Goldberg [30]. While this particular transfer function was developed for the horizontal canal, it is applied here also as an approximation for the anterior and posterior canals. The input is angular acceleration and the output is afferent firing rate.

Afferent firing rates are considered relative to resting rates. The angular accelerations of interest include those associated with yaw head turns in both the rotating environment of the centrifuge and the normal non-rotating environment. With regard to transfer functions developed to describe sensory afference, it must be noted that individual neurons are quite different from one another, and there is no single mathematical representation to describe all of their behaviors.

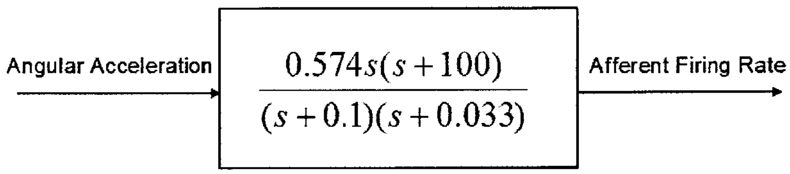


Figure 2-11 Semicircular Canal Transfer Function

Projecting the cross-coupled acceleration vector on the sensitive axes of the horizontal, anterior, and posterior semicircular canals yields the stimulus applied during a head movement. At this stage, an idealized cyclopean model of the canals was assumed. Additionally, the sensitive axes of the canals were presumed to coincide with the respective earth horizontal and vertical axes. The angular acceleration components along each canal axis (anterior, posterior, and horizontal, respectively) are expressed in column matrix a_a (Equation 2-7) for an actual head movement on the centrifuge. a_e represents the accelerations in a non-rotating reference frame.

$$a_a = \begin{bmatrix} \omega_H \omega_C \sin\theta \\ \omega_H \omega_C \cos\theta \\ \dot{\omega}_H \end{bmatrix} \qquad a_e = \begin{bmatrix} 0 \\ 0 \\ \dot{\omega}_H \end{bmatrix}$$

Equation 2-7 Acceleration components on idealized anterior, posterior, and horizontal canals for head turns in the rotating (left) and non-rotating (right) environments

The head velocity was assumed to take a trapezoidal profile with a maximum velocity of 80 degrees/sec. The total angle for each head turn was assumed to be 90 degrees.

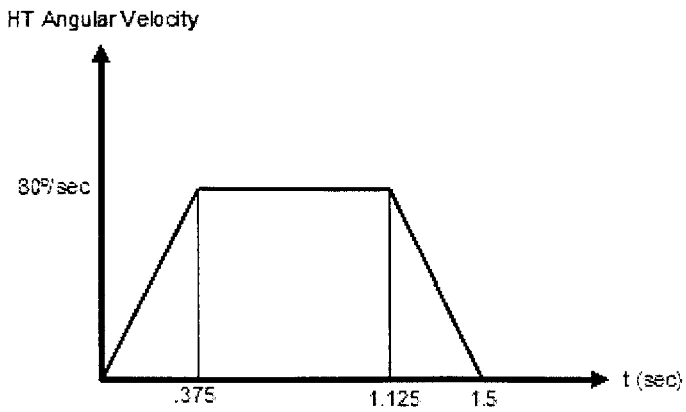


Figure 2-12 Head Turn Angular Velocity Profile

To calculate the sensory conflict, the angular acceleration components were passed through the canal transfer function to get the afferent firing rate as a function of time. Noting that the cross-coupled acceleration has a zero projection on the horizontal canal axis, it was concluded that the actual and expected afference for the horizontal canal are the same and no conflict is present. As such, the conflict vector has only 2 non-zero elements, which are attributed to the anterior and posterior canals. The magnitude of the vector was taken as the conflict input to the Oman motion sickness model. Figure 2-13 shows a schematic representation of the canal sensory conflict.

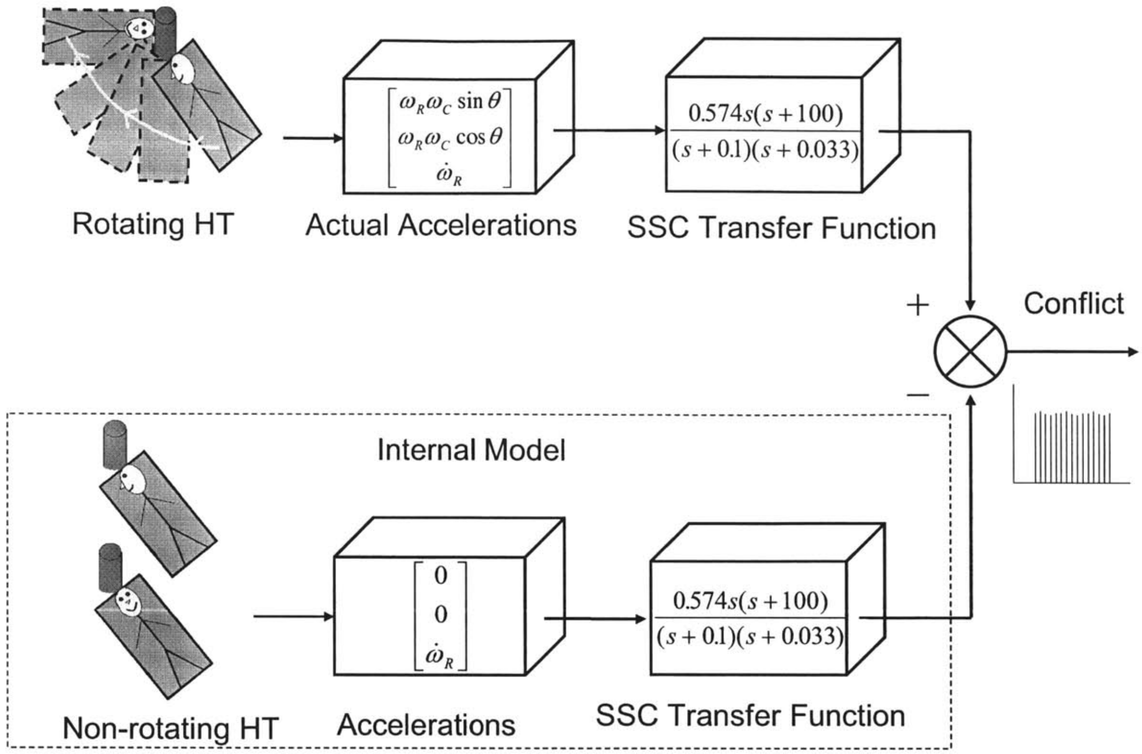


Figure 2-13 Semicircular canal sensory conflict for head turns during centrifugation

2.6.3 Comparison between model and experimental results without adaptation

With the sensory conflict defined, it was necessary to see whether the input produced an output similar to actual experimental results. The subpopulation to model included those subjects who suffer significant motion sickness at 23 RPM. More specifically, the subjects of interest typically reach a motion sickness level of at least 7 on the first day of testing. In general, these subjects complete the 23 RPM experiment with a severity of motion sickness that makes a step up to 30 RPM unlikely without prior adaptation. Additionally, head movements at 30 RPM in a rotating chair have been shown to be highly provocative of motion sickness [62]. 7 subjects were identified from recent experiments that fit the motion sickness criterion based on the results of their respective experiments. The data from these subjects was used simply to determine whether the model would reproduce a motion sickness profile similar to actual experimental results. To represent the peak motion sickness level of this group on the standard 0 – 20 scale used in experiments, the scores were normalized so each subject's maximum was 11.

Given that the subjects were all significantly motion sick, retrospectively assigning them the same score was considered reasonable. In order to compare the actual motion sickness data with the model prediction, a gain was applied to the sensory conflict model input such that motion sickness output was on the desired scale. The protocol simulated by the model consisted of 42 right head turns at a rotation rate 23 rpm. The time between simulated head movements was 40 seconds, which is similar to the time interval during actual experiments. As seen in Figure 2-14, the motion sickness model simulation was generally similar to the experimental results, indicating potential utility for predicting realistic profiles.

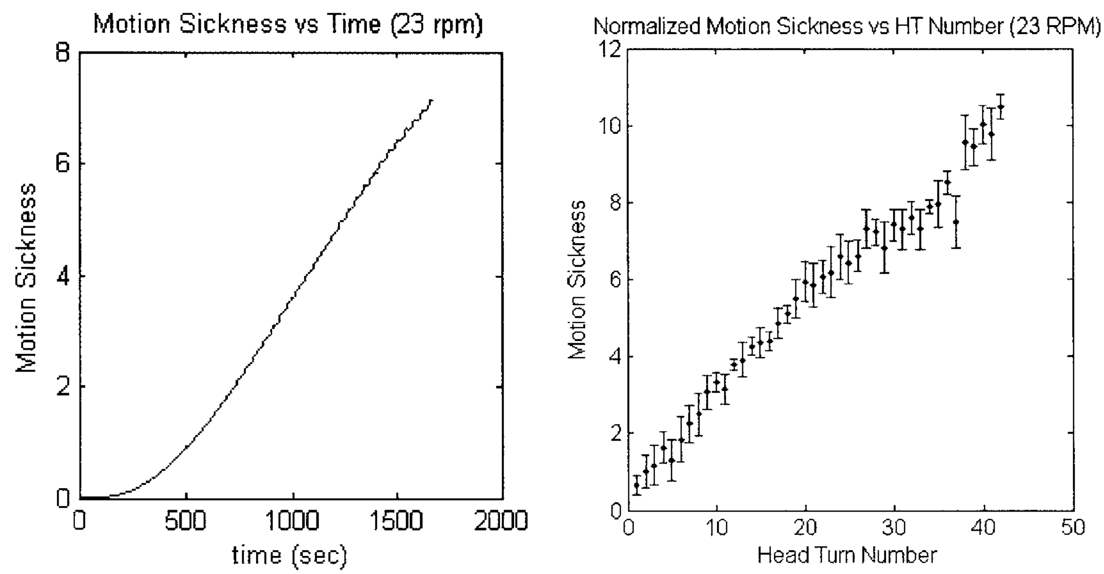


Figure 2-14 (Left) Model prediction for 42 head turns at 23 RPM (Right) Normalized experimental results for 7 subjects with standard errors shown. Head turns were done approximately every 40 seconds, so the abscissa nearly matches the 0 to 2000 sec scale of the model predictions.

For the subject population of interest, the motion sickness model also suggested that head turns at 30 rpm would likely be intolerable without prior adaptation. The model predicted levels of 16 (0-20 scale) or higher by the end of an experiment consisting of 6 head turns at 23 rpm, followed by 30 head turns at 30 rpm, and 6 more head turns at 23 rpm. A motion sickness score of 16 represents a very high level of discomfort, and therefore was unacceptable.

2.6.4 Adaptation parameter

To define an adaptation parameter, experimental results from a 5 day incremental adaptation protocol [58] were compared with model predictions lacking adaptation. The difference between the results was attributed to adaptation and described as a function of accumulated sensory conflict. The adaptation itself was represented in the motion sickness model by a reduction in the gain of the sensory conflict input. This was an alternative to the difficult task of describing internal model adjustments quantitatively. (Adaptation could also be reflected in changes to the fast or slow path time constants, the threshold for motion sickness onset, or the relative fast and slow path gains.) The gain reduction necessary to match experimental results with model predictions was plotted as a function of accumulated sensory conflict (Figure 2-15). Accumulated sensory conflict refers to the integral over time of the computed sensory conflict, which gives a result in terms of total number of afferent spikes. Limitations of this approach included the unbounded adaptation accumulation and lack of adaptation decay over time. It is therefore assumed that the parameter describes adaptation gained over a period of recent and consecutive days.

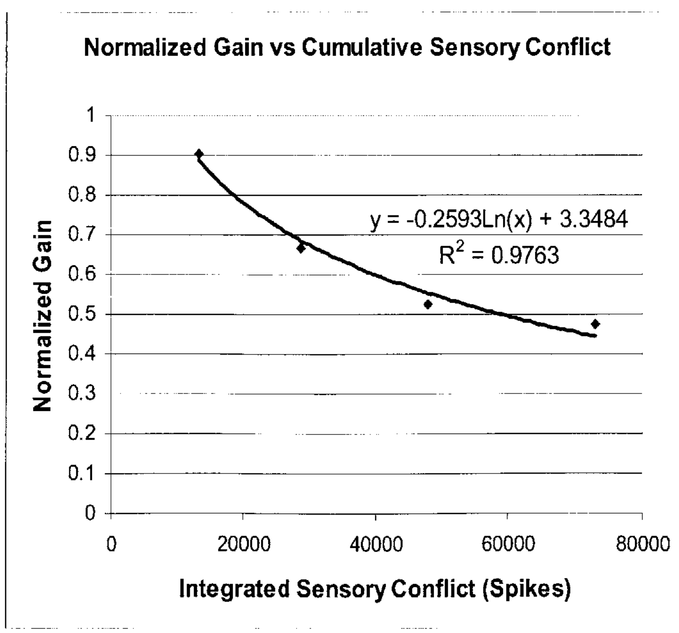


Figure 2-15 Gain Reduction as a Function of Cumulative Sensory Conflict

With the plot of gain reduction versus sensory conflict, various protocols were examined to determine the likelihood that a 30 rpm protocol could be reached in less than 5 days. The model suggested that in three days of training, subjects could complete the 30 rpm protocol. Specifically, increasing the centrifuge velocity from 14 rpm on day 1 to 23 rpm on day 2, to 30 rpm on day 3 would result in a maximum predicted motion sickness level around 6. By keeping the same general protocol as other recent experiments (6 HT at 23 rpm, 30 HT at X rpm, 6 HT at 23rpm), we retained the ability to directly compare results of one experiment with another.

3 Methods

3.1 Equipment

3.1.1 Centrifuge

All experiments were conducted on the MIT short-radius centrifuge (Figure 3-1) [15]. The centrifuge has a 2-meter radius and currently operates at angular velocities up to 30 RPM (180 degrees/sec). Rotation is about an earth-vertical axis with the head positioned at the center of rotation. A tachometer in combination with a Visual Basic® interface allows for velocity monitoring. The centrifuge velocity can be adjusted manually by a knob on the control box, or via a computer program. For the experiment described here, velocity was controlled manually and monitored visually using the computer interface. Subjects on the centrifuge are restrained from moving radially by a seatbelt and a fixed footplate. The centrifuge also has an emergency stop button that cuts power to the centrifuge when pressed.

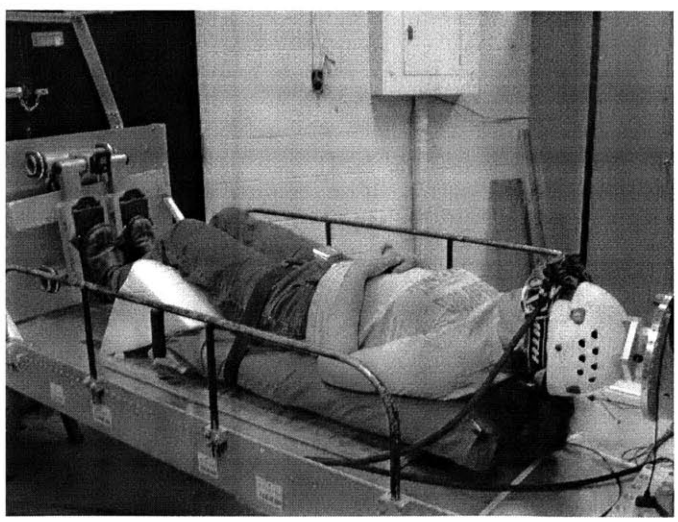


Figure 3-1 MIT short-radius centrifuge (picure: by author)

3.1.2 Helmet

Head movements were restrained to yaw motion by an adjustable helmet and chinstrap (Figure 3-2). The maximum angle for a head turn was imposed via pins that acted as stoppers. The helmet turns with low friction such that there is little resistance throughout the head movement, mimicking a normal yaw head turn outside of the helmet. Experiments were desired to be in the absence of light to eliminate visual cues, so subjects wore a fleece blindfold and the lights in the room were turned off.

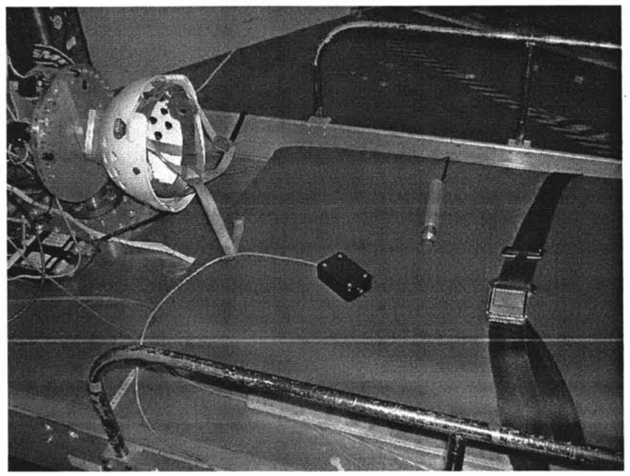


Figure 3-2 Helmet, tumbling button, seatbelt, and emergency stop button (picture: J.Pouly)

3.1.3 Eye data collection

Eye movements were tracked using an ISCAN® infrared system (Model RK-716PCI) mounted to a modified pair of ski goggles (Figure 3-3). The binocular system consists of infrared LEDs, reflecting mirrors, and cameras, along with eye-tracking software. The LEDs shine infrared light from above the eyes where it is differentially reflected by the pupil, iris, and surrounding areas. The reflected light is directed by the mirrors to the cameras where the image is composed and fed to monitors. During the reflection, the pupil absorbs more of the light than the surrounding parts of the eye, and thus creates a darker image. The software illuminates the darkest part of the image (pupil) and makes it appear white. The illuminated pupil is then tracked by cross-hairs and eye position data is recorded at a sampling rate of 60 Hz.

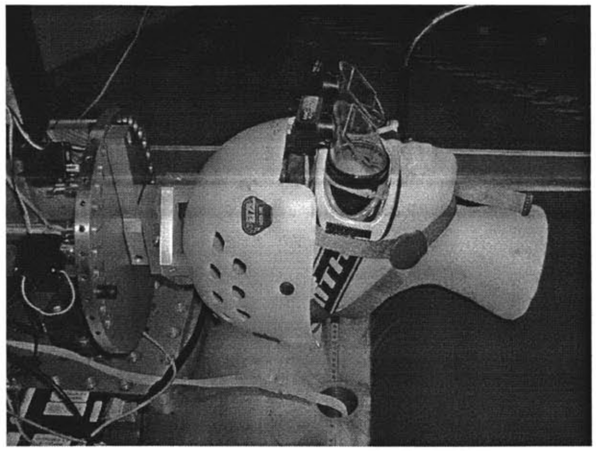


Figure 3-3 ISCAN camera system (picture: J. Pouly)

To extract the slow phase velocity, the raw position data goes through a series of filtering, differentiation, and extraction steps. For a detailed description of the MATLAB eye analysis software, see [34].

Prior to recording data, a calibration for the eye tracking software was done. The tracking system is calibrated by instructing subjects to look at 5 LEDs mounted above the centrifuge. The LEDs are spaced such that the subject's gaze rotates through an angle of 10 degrees between any two vertical or horizontal dots (Figure 3-4). The calibration is done for both vertical and horizontal eye movements.

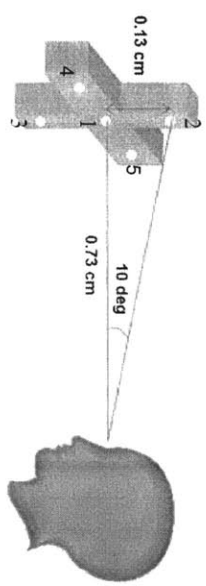


Figure 3-4 ISCAN calibration setup with subject lying supine on the centrifuge[34]

3.1.4 Tumbling Button

To measure the duration of the motion sensation associated with a head movement, a simple switch was employed (Figure 3-2). Subjects were instructed to press the switch at the moment they began each head movement and to keep it pressed until all motion sensations subsided. Subjects were also instructed to audibly say "release" upon releasing the switch, so that the experimenter was aware that the sensation was no longer present. The prompt to begin head movements was given by the instructor saying "One-Two-Start-Stop".

3.2 Experimental protocol

3.2.1 Pre-experiment procedure

Upon arriving at the lab, subjects were given a full description of the experiment, and encouraged to ask any questions they had. They were also shown the emergency stop button and instructed on the circumstances in which it would be appropriate to use the button. Subjects were explicitly informed of their right to abort the experiment at any time. Following the explanation, the consent form was presented and briefly described to the subjects. They were instructed to read the form and ask questions. After signing the consent form, a computer questionnaire regarding motion experience, handedness, motion sickness, etc. was administered. After completion of the questionnaire, subjects were helped onto the centrifuge, fitted with the equipment, and trained to perform head turns, report scores, and press the tumbling button. ISCAN cameras were calibrated, and the centrifuge was walked once around the room to make sure it was clear of all potential obstructions. The experiment was then conducted.

3.2.2 Head movement protocol

Subjects preformed 42 yaw head movements in the right quadrant (NUP to RED and RED to NUP while rotating on each of 3 consecutive days. Before and after the rotation period, subjects also made 6 head movements without rotating and went through the ISCAN calibration sequence 3 times. The 42 head movements during rotation were divided into 3 phases, denoted PRE, STIM, and POST. The PRE and POST phases consisted of 6 head turns at 23 RPM (3 turns to-RED, 3 turns to-NUP), and remained the same throughout the 3 days. The STIM phase consisted of 30 head movements, with the velocity varying over the 3 days from 14 RPM on Day 1, to 23 RPM on Day 2, to 30 RPM on Day 3 (Figure 3-5, Figure 3-6). Head movements were performed approximately every 30-40 seconds.

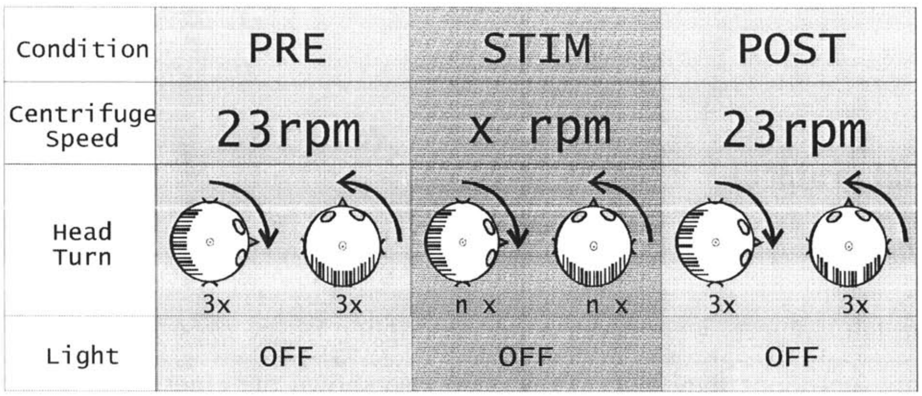


Figure 3-5 Experimental protocol for each day

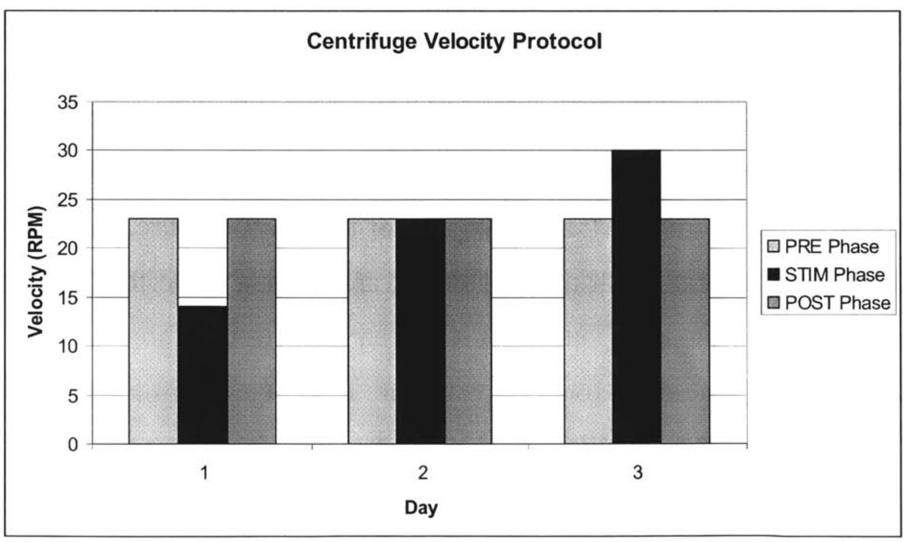


Figure 3-6 Centrifuge Velocity For Each Day and Phase

3.2.3 Subjects

24 subjects completed the experiment. 15 subjects were male, 9 were female. 4 subjects had previous experience on the centrifuge, though 1 of them had not made head movements during centrifugation for several months. 4 additional subjects began the experiment, but aborted during Day 1 due to motion sickness. Of the 4 dropouts, 3 were female and 1 was male. Subjects were screened for vestibular pathologies and other medical conditions noted in the consent form in Appendix A. Subjects were recruited using flyers posted around the MIT campus.

3.3 Subjective experimental measures

3.3.1 Motion sickness

Motion sickness was rated on a scale from 0 to 20. A score of 0 corresponded to "I feel fine", whereas 20 meant "I am about to vomit". While this scale is not as comprehensive as the full Pensacola Motion Sickness score, it has been effective in past experiments for monitoring subjects' well-being ([18] [58] [17] [27]). The experimenter operated with guidelines that if scores reached a value of 13, the experiment would be halted.

3.3.2 Tumbling intensity and duration

Subjects were asked to rate the intensity of their tumbling or spinning sensation resulting from head movements. The scale was based on assigning the sensation associated with the first head movement a value of 10. All other ratings for the 3 days were to be relative to the initial score of 10. Subjects were instructed that the scale is linear, such that a sensation twice as intense as the initial 10 would be scored a 20. Similarly, a sensation half as intense as the initial one would be a 5. As described previously, the duration of the tumbling or spinning sensation was indicated by subjects pressing a switch throughout the head turn and the subsequent sensation.

3.3.3 Body Tilt

To rate the sensation of body tilt after the tumbling sensation subsided, subjects were instructed to imagine their body as the minute hand of a large clock, with their head at the center of the clock (Figure 3-7). They were told to indicate their subjective body tilt by reporting the minute value on the clock they perceived their feet to be pointing at. If horizontal, the feet would point at 45 minutes. If tilted up, the feet would point at a value larger than 45 and vice versa for a tilt downward. Subjects were explicitly told that this measurement was to reflect their sensation after all tumbling and spinning sensations had ceased.

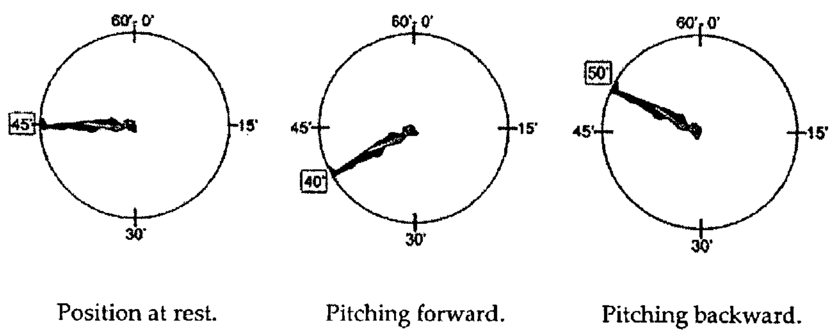


Figure 3-7 Perceived Body Tilt Scale

3.4 Eye movement data and analysis

The nystagmus associated with a head movement on the centrifuge has both a fast and slow component. The fast component represents the resetting activity of the eye muscles, while the slow phase characterizes the tracking behavior of the VOR. After filtering and differentiating the eye position data, the slow phase velocity of the vertical nystagmus is extracted. As the non-compensatory nystagmus is predominantly vertical in our applications, horizontal eye data was not analyzed. It should be noted, however, that there was a horizontal component in the data of many subjects. The decay of slow phase nystagmus has been described in terms of two time constants, one representing the response due to cupula mechanics, and the other representing the CNS velocity storage integrator [63]. While the velocity storage integrator is a sensory processing phenomenon, the majority of adaptation in this theory takes place within this "central" time constant [37]. The cupula dynamics are not changed with repeated stimulation, and it is thus expected that this "peripheral" time constant does not adapt to a large extent. Nystagmus decay can also be described well in terms of a single exponential. While the previously described model may be more appropriate, the resolution in the ISCAN recordings is not high enough to consistently enable determination of the two time constants. As such, the nystagmus in this study is characterized by the peak slow phase velocity amplitude and a single time constant of decay ($Ae^{-t/\tau}$).

Figure 3-8 shows typical slow phase velocity profiles. The eye data analysis software employs a semi-automatic curve fitting routine that allows for manual editing. Due to a limitation in the algorithm for extracting slow phase velocity, the peak amplitudes as calculated by the software may be in error to some degree [34]. As such, only the time constant of decay was used in the analysis since it does not depend on the peak amplitude of an exponential curve.

Details of the eye movement analysis algorithms and interface can be found in [34]. The original algorithm was developed by Balkwill [64].

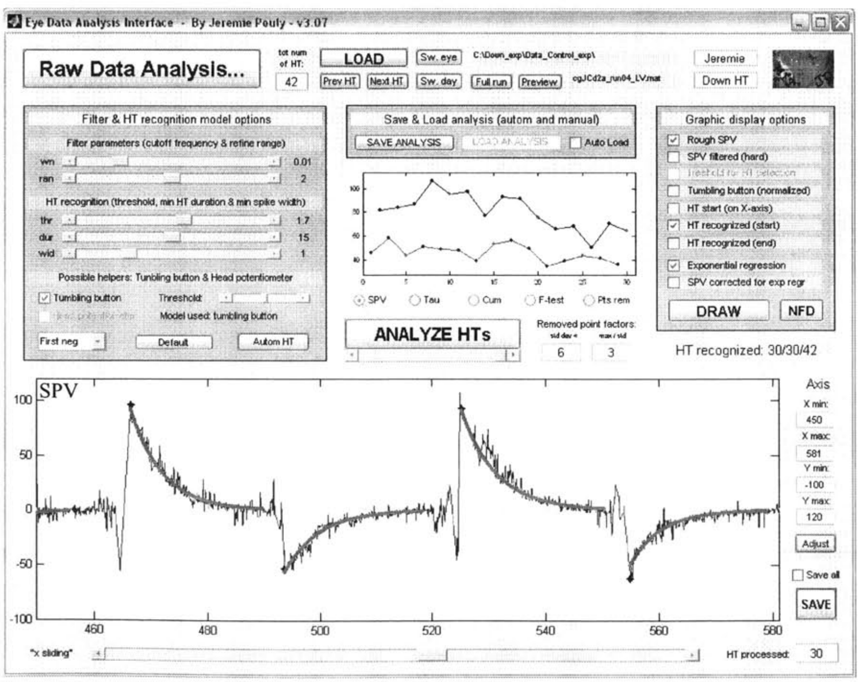


Figure 3-8 Eye Data Analysis Interface showing slow phase velocity (SPV) versus time (Figure: J. Pouly)

3.5 Statistics

The SYSTAT® Version 11 statistics package was used for all statistical analysis in the experiment. Statistical significance for the measures tested was established at $p \leq 0.05$ using a General Linear Model (GLM) Repeated Measures Analysis of Variance (ANOVA) with Huynh-Feldt corrections [65] when applicable. Individual contrasts were also deemed significant for $p \leq 0.05$.

4 Results

4.1 Overview

Of the 24 subjects who completed the experiment, 9 were characterized as having significant motion sickness. Average motion sickness scores for these subjects remained below 5 throughout the 3 days.

The VOR time constant decreased significantly within each day as well as over the 3 days of the experiment. Time constants decayed to an apparent limit of approximately 3.5-4.0 seconds by the end of Day 2 and did not decay significantly further on Day 3. Time constants for head turns to-RED, though longer on average, were not significantly different from turns to-NUP.

PRE phase tumbling intensity decreased significantly across the 3 days, while STIM phase intensity decreased within each day. To-NUP head turns were on average 40 % more intense than those to-RED. POST phase intensities reached a minimum of 4.2 for to-NUP turns and 2.9 for to-RED turns on Day 3. Intensity ratings for motion sick subjects were on average 24% greater than those of non motion sick subjects.

PRE phase tumbling duration decreased significantly between Day 2 and Day 3. Durations for to-NUP turns were 2.1 seconds longer on average than turns to-RED. Motion sick subjects had tumbling durations approximately 2.5 seconds longer than non-motion sick subjects.

Body tilt did not show significant decreases for the subject population as a whole. An examination of only non-horizontal body tilts showed clear trends of decreasing PRE phase tilt and increasing STIM phase tilt over the 3 days.

4.2 Statistical effects tested

In the GLM repeated measures model, the effects of Day, Microphase, Pair, and Direction were tested. Microphase refers to groups of 6 head turns, such that the 42 head turns on each day are divided into 7 microphases and the entire 3-Day experiment has 21 microphases. Pair refers to groups of 2 head turns, while Direction refers to the direction of the head movement (i.e. to NUP or to RED). The entire experiment consisted of 3 Days, 7 Microphases per day, 3 Pairs per Microphase, and 2 Directions per Pair.

4.3 Motion sickness

62 % of the subjects that completed the experiment reported little or no motion sickness. To categorize subjects as "motion sick" or "non motion sick", a criterion was used requiring a steadily increasing motion sickness profile reaching a level of at least 4 on one or more days. By imposing this requirement on the slope of the motion sickness profile in addition to the numerical threshold, subjects with little motion sickness but an isolated value of 4 or higher were excluded. This criterion differed from that used for subjects in the motion sickness model in order to account for the lower rotation speed on Day 1 (14 RPM). 9 subjects fulfilling the motion sickness condition were identified.

Average motion sickness is shown in Figure 4-1 for the 9 subjects who had a significant amount of motion sickness. The data points in Figure 4-1 represent the average motion sickness score for each group of 6 head movements.

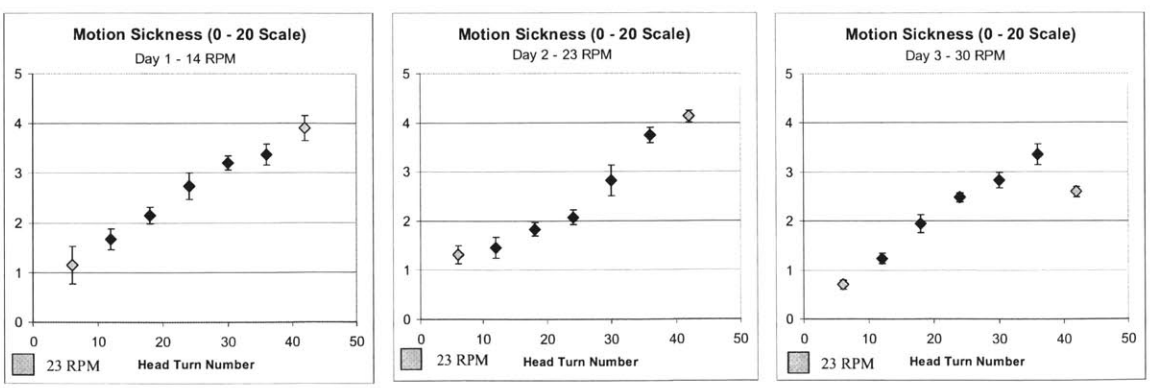


Figure 4-1 Average motion sickness with standard errors over the 3 days. (Left) Day 1 – 14 RPM. (Center) Day 2 – 23 RPM. (Right) Day 3 – 30 RPM.

4.4 VOR time constant

The GLM repeated measures ANOVA was performed for 18 subjects with complete sets of time constant eye data over the 3 days. Results are summarized in Table 4-1.

Significant effects of Day, Microphase, and Pair were found on the VOR time constant. Significant cross-effects were found for Day*Microphase, Day*Pair, Microphase*Pair, and Microphase*Direction.

Table 4-1 GLM results for VOR time constant (significant results shaded)

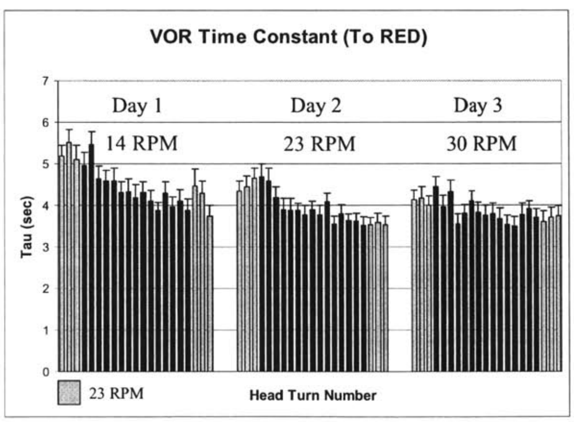
Effect	df	F-value	P-Value
Day	2,34	15.790	<0.0005
Microphase	6,102	22.250	<0.0005
Pair	2,34	11.551	<0.0005
Direction	1,17	2.903	0.107
Day*Microphase	12,204	2.562	0.004
Day* Pair	4,68	3.306	0.016
Day*Direction	2,34	0.007	0.993
Microphase*Pair	12,204	1.857	0.056
Microphase*Direction	6,102	2.284	0.052
Pair*Direction	2,34	0.859	0.433
Day*Microphase*Pair	24,408	0.955	0.526
Day*Microphase*Direction	12,204	1.073	0.386
Day*Pair*Direction	4,68	0.895	0.895
Microphase*Pair*Direction	12,204	1.220	0.271
Day*Microphase*Pair*Direction	24,408	1.474	0.071

Individual contrasts revealed that PRE phase VOR time constants were significantly larger than those of the POST phase on all three days. Additionally, PRE phase values decreased significantly over the 3 days. Contrasts are summarized in Table 4-2.

Table 4-2 Constrasts between phases for VOR time constant (significant results shaded)

Contrast	P-Value
Day 1 PRE v Day 1 POST	0.003
Day 2 PRE v Day 2 POST	<0.0005
Day 3 PRE v Day 3 POST	0.046
Day 1 PRE v Day 2 PRE	0.005
Day 1 PRE v Day 3 PRE	0.001
Day 2 PRE v Day 3 PRE	0.028
Day 1 POST v Day 2 POST	0.008
Day 1 POST v Day 3 POST	0.033
Day 2 POST v Day 3 POST	0.350
Day 1 POST v Day 2 PRE	0.207
Day 1 POST v Day 3 PRE	0.691
Day 2 POST v Day 3 PRE	0.005

The time constant of decay of vertical nystagmus is shown in Figure 4-2 (to NUP and to RED) plotted against head turn number over the 3 days.



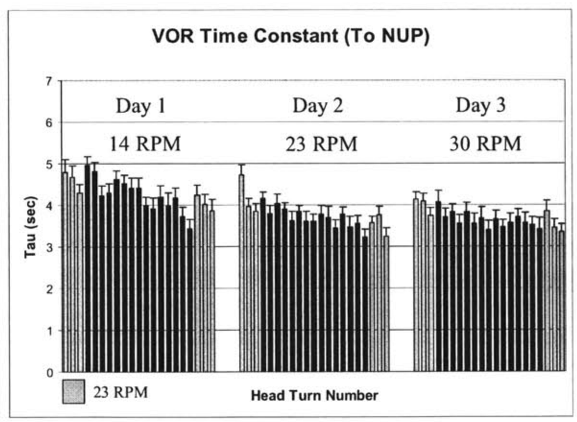


Figure 4-2 VOR Time Constant over the 3 Experimental Days. (Left) to-RED. (Right) to-NUP

The average PRE phase time constant (Figure 4-3 Left) decreased by 0.60 seconds from Day 1 (4.93 s) to Day 2 (4.33 s) and 0.29 seconds from Day 2 to Day 3 (4.04 s), for a total of 0.89 seconds (18.0 %) from Day 1 to Day 3.

The average time constant for all phases (Figure 4-3 Right) decreased 0.53 seconds from Day 1 to Day 2 and 0.07 seconds from Day 2 to Day 3, for a total of 0.60 seconds (13.7 %) overall from Day 1 to Day 3.

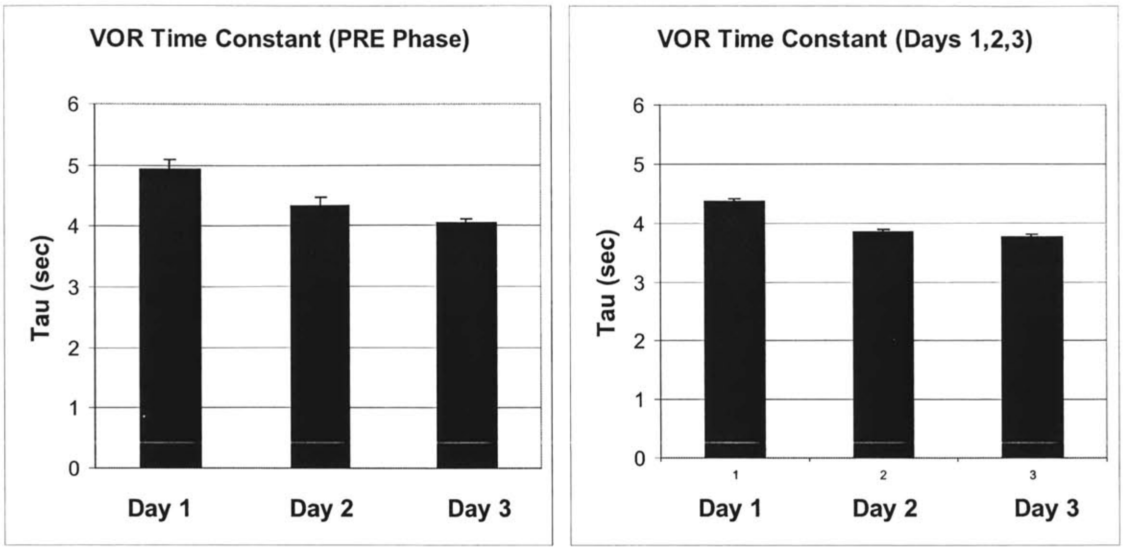


Figure 4-3 VOR Time Constant decay with standard errors. (Left) PRE phase averages. (Right) Averages over all phases.

Average time constants for to-NUP and to-RED down head turns are shown for the 3 days in Figure 4-4 (Left). While not statistically different, the to-RED time constants were longer on average for all 3 days. Although there was no overall effect of direction, a contrast between to-NUP and to-RED head turns in the PRE phase of Day 1 was significant with $p = 0.026$. Average time constants for the PRE phase of Day 1 are shown in Figure 4-4 (Right).

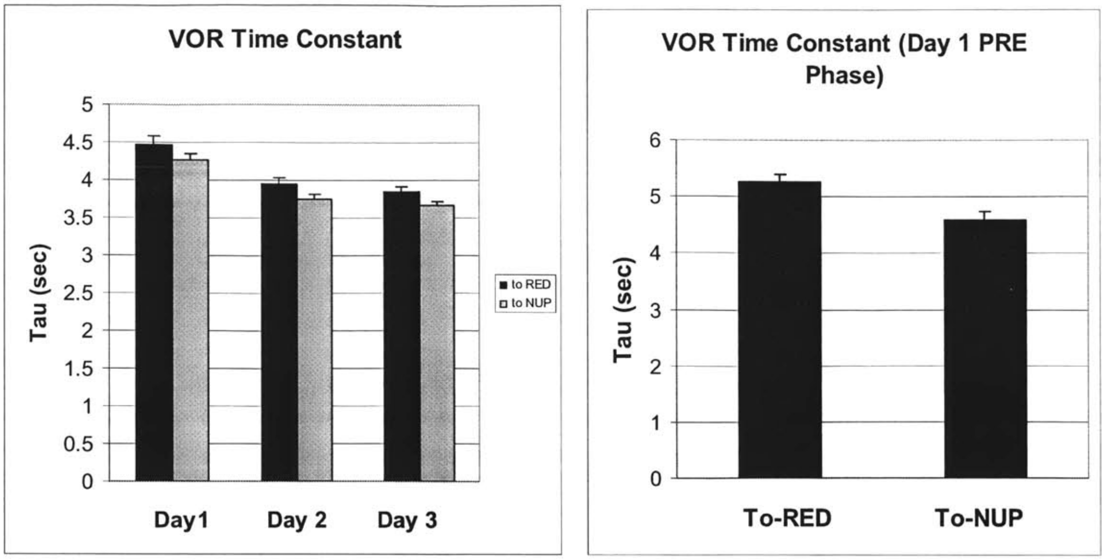


Figure 4-4. VOR Time constant with standard errors. (Left) 3 Days separated by head turn direction. (Right) Day 1 PRE phase separated by head turn direction

Figure 4-5 shows the average time constant over the 3 days for subjects classified as "motion sick" and "non motion sick". The values were not statistically different for any of the 3 Days, though time constants for the motion sick subjects were slightly longer on average.

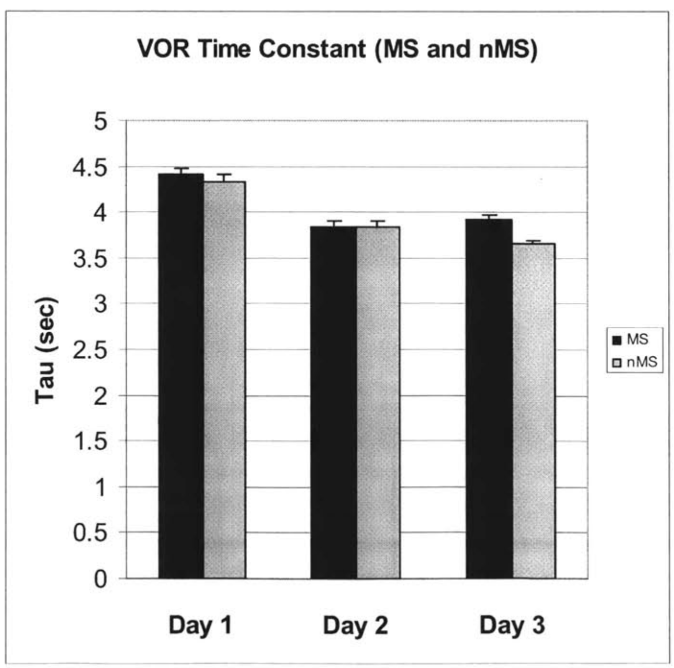


Figure 4-5. VOR time constant with standard errors, separated by motion sickness group

4.5 Tumbling intensity

All 24 subjects had complete intensity profiles that were analyzed with the GLM ANOVA.

The results showed significant effects of Day, Microphase, Pair, and Direction. Cross-effects of Day*Microphase, Microphase*Direction, Pair*Direction, and Day*Microphase were also significant. GLM results are summarized in Table 4-3.

Table 4-3 GLM ANOVA results for tumbling intensity (significant results shaded)

Effect	df	F-value	P-Value
Day	2,46	3.550	0.039
Microphase	6,138	20.515	<0.0005
Pair	2,42	17.110	<0.0005
Direction	1,23	43.923	<0.0005
Day*Microphase	12,276	41.958	<0.0005
Day* Pair	4,92	0.588	0.606
Day*Direction	2,46	3.282	0.057
Microphase*Pair	12,276	1.534	0.197
Microphase*Direction	6,138	6.204	0.002
Pair*Direction	2,46	3.383	0.043
Day*Microphase*Pair	24,552	1.192	0.281
Day*Microphase*Direction	12,276	5.179	<0.0005
Day*Pair*Direction	4,92	2.806	0.043
Microphase*Pair*Direction	12,276	0.627	0.754
Day*Microphase*Pair*Direction	24,552	1.347	0.151

Individual contrasts between PRE and POST phases among the days are summarized in Table 4-4. PRE phase intensity was significantly higher than POST phase intensity on all three days. Additionally, PRE phase intensity and POST phase intensity both decreased significantly over the 3 days.

Table 4-4 PRE and POST phase contrasts for tumbling intensity (significant results shaded)

Contrast	P-Value
Day 1 PRE v Day 1 POST	0.015
Day 2 PRE v Day 2 POST	<0.0005
Day 3 PRE v Day 3 POST	<0.0005
Day 1 PRE v Day 2 PRE	<0.0005
Day 1 PRE v Day 3 PRE	<0.0005
Day 2 PRE v Day 3 PRE	<0.0005
Day 1 POST v Day 2 POST	<0.0005
Day 1 POST v Day 3 POST	<0.0005
Day 2 POST v Day 3 POST	<0.0005
Day 1 POST v Day 2 PRE	0.131
Day 1 POST v Day 3 PRE	0.003
Day 2 POST v Day 3 PRE	0.006

Figure 4-6 displays the average tumbling intensity for each head turn over the 3 days, separated by direction (to-RED and to-NUP). Note PRE and POST phase decreases across the 3 days, as well intensity decay within the STIM phase of each day.

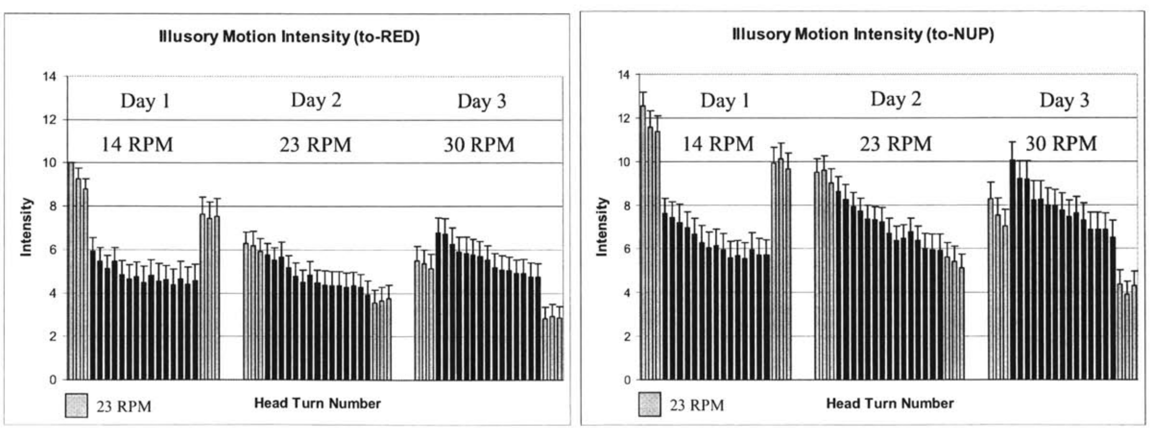


Figure 4-6. Average Tumbling Intensity with standard error for every head turn, separated by head turn direction. (Left) To-RED (Right) To-NUP

PRE phase intensities for to-RED and to-NUP directions are shown in Figure 4-7 over the 3 days. To-RED intensity decreased 34% from Day 1 (9.3) to Day 2 (6.1), and a total of 43% from Day 1 to Day 3 (5.3). To-NUP intensity decreased 21 % from Day 1 (11.8) to Day 2 (9.4), and a total of 41 % from Day 1 to Day 3 (7.0).

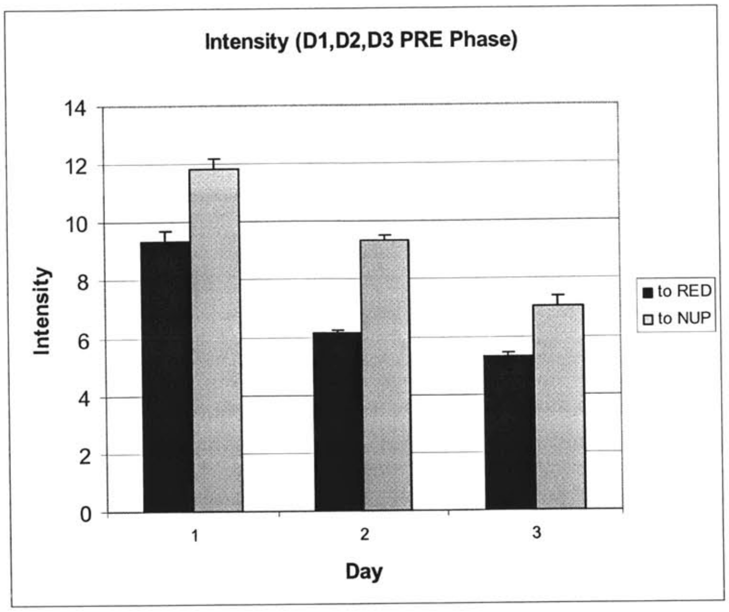


Figure 4-7. PRE phase Tumbling Intensity with standard errors

STIM phase intensities are shown in Figure 4-8 for the 3 days. For to-RED head turns, Day 2 intensity at 23 RPM (4.7) was slightly lower (3%) than Day 1 intensity at 14 RPM (4.8), while Day 3 intensity at 30 RPM (5.5) was 14 % higher than Day 1. For to-NUP turns, Day 2 STIM Phase intensity (7.0) was 11 % higher than Day 1 (6.3), while Day 3 intensity (7.9) was 25 % higher than Day 1.

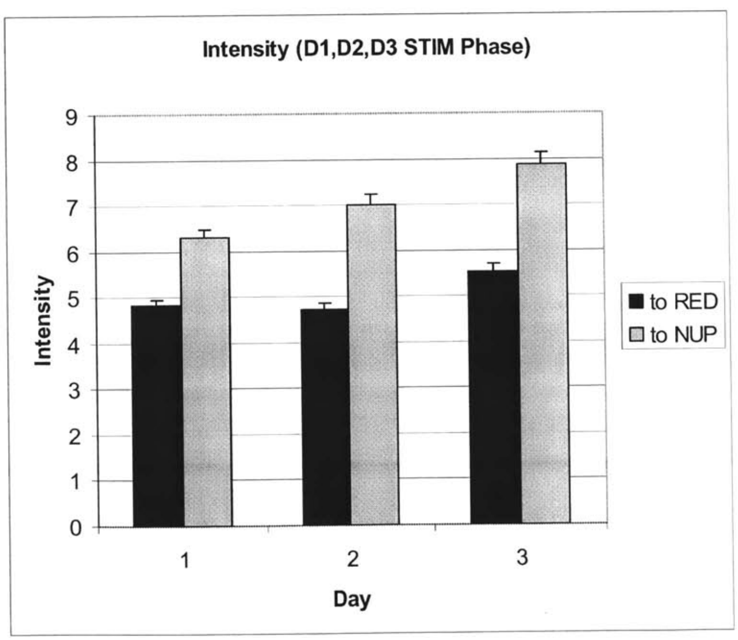


Figure 4-8 STIM phase Tumbling Intensity with standard errors

POST phase intensities are given in Figure 4-9. For to-RED head turns, Day 2 intensity (3.7) was 52% lower than Day 1 (7.5), while Day 3 intensity (2.9) was 62 % lower than Day 1. For to-NUP head turns, Day 2 intensity (5.4) was 46% lower than Day 1 (9.9), while Day 3 intensity (4.2) was 58 % lower than Day 1.

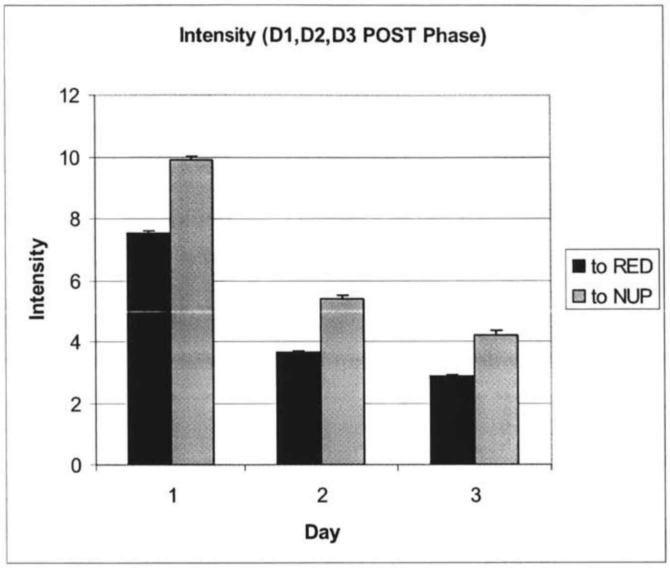


Figure 4-9 POST phase Tumbling Intensity with standard errors

Figure 4-10 shows average intensity scores for motion sick and non motion sick subjects. Average intensity for motion sick subjects was 24 % higher than for non motion sick.

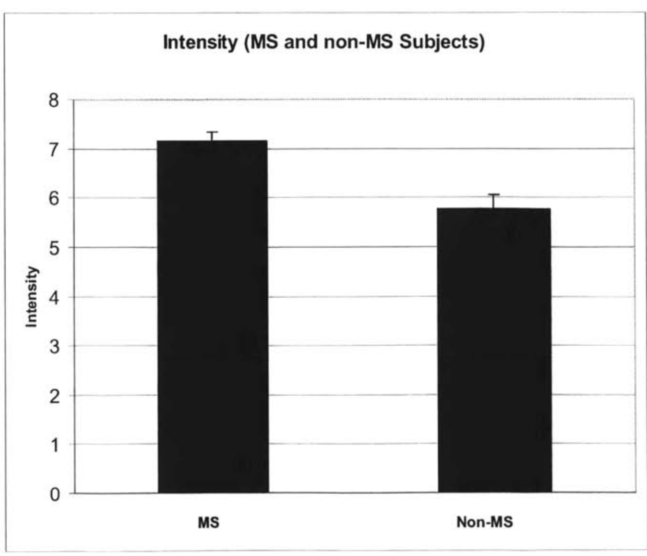


Figure 4-10 Average Tumbling Intensity with standard error, separated by motion sickness group.

To-NUP head turns were on average 40% more intense than to-RED turns over the 3 Days (Figure 4-11).

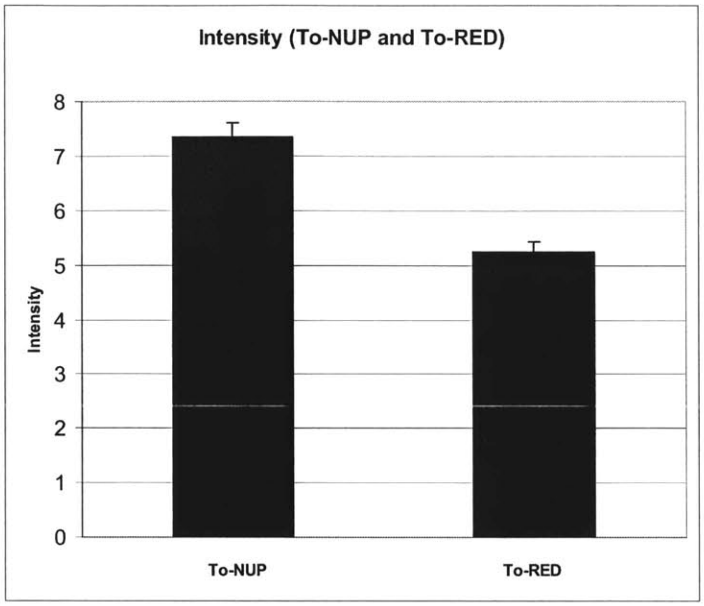


Figure 4-11 Average Tumbling Intensity with standard error for To-NUP and To-RED head turns

4.6 Tumbling duration

In the tumbling duration data, 9 head turns out of 3024 (0.3 %) were identified in which subjects clearly did not use the button correctly. In these cases, subjects forgot to press the button, forgot to release it, or inadvertently released it too soon. For such head turns in the STIM phase, an average value from the adjacent two head turns of the same direction was substituted for the missing or erroneous value. If the head turn was in a PRE or POST phase, the average of the two other turns of the same direction was substituted. These adjustments were made because the GLM ANOVA discards all of the data for a subject if any values are missing. The adjustments did not change the significance of statistical results.

After the adjustments, 23 subjects had full data sets for the statistical analysis.

The GLM ANOVA revealed significant effects of Direction and Pair, but no overall effect of Day or Microphase. There was a significant cross effect of Pair*Direction. Results are summarized in Table 4-5.

Table 4-5 GLM ANOVA results for Tumbling Duration (significant results shaded)

Effect	df	F-value	P-Value
Day	2,44	0.794	0.424
Microphase	6,132	1.583	0.219
Pair	2,44	4.298	0.020
Direction	1,22	66.959	<0.0005
Day*Microphase	12,264	15.725	<0.0005
Day* Pair	4,88	2.476	0.073
Day*Direction	2,44	0.517	0.582
Microphase*Pair	12,264	1.903	0.065
Microphase*Direction	6,132	1.368	0.240
Pair*Direction	2,44	6.473	0.006
Day*Microphase*Pair	24,528	0.795	0.633
Day*Microphase*Direction	12,264	0.706	0.613
Day*Pair*Direction	4,88	0.316	0.852
Microphase*Pair*Direction	12,264	2.167	0.070
Day*Microphase*Pair*Direction	24,528	0.776	0.662

Individual contrasts between PRE and POST phases are summarized in Table 4-6. Contrasts showed that that PRE phase duration decreased significantly from Day 2 to Day 3. The difference between Day 1 and Day 2 PRE phase durations showed a possible trend (p=0.072) but did not reach statistical significance.

Table 4-6 PRE and POST phase contrast for Tumbling Duration (significant results shaded)

Contrast	P-Value
Day 1 PRE v Day 1 POST	0.953
Day 2 PRE v Day 2 POST	0.037
Day 3 PRE v Day 3 POST	0.002
Day 1 PRE v Day 2 PRE	0.072
Day 1 PRE v Day 3 PRE	0.030
Day 2 PRE v Day 3 PRE	0.034
Day 1 POST v Day 2 POST	<0.0005
Day 1 POST v Day 3 POST	<0.0005
Day 2 POST v Day 3 POST	0.017
Day 1 POST v Day 2 PRE	0.024
Day 1 POST v Day 3 PRE	<0.0005
Day 2 POST v Day 3 PRE	0.567

Figure 4-12 shows average duration for each group of 6 head turns across the 3 days. PRE phase duration decreased 2.1 seconds (18%) between Day 1 and Day 3.

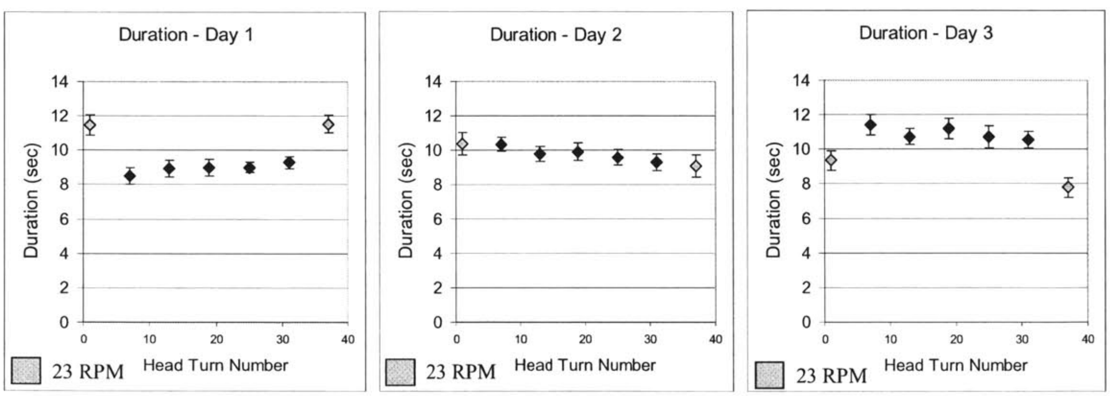


Figure 4-12 Tumbling Duration with standard errors for the 3 Days. (Left) Day 1 – 14 RPM. (Center) Day 2 – 23 RPM. (Right) Day 3 – 30 RPM.

Figure 4-13 displays tumbling duration across the 3 days, separated into motion sick and non-motion sick subjects. Motion sick subjects showed longer durations on average, by 2.5 seconds. Additionally, motion sick subjects showed an increasing duration profile during the STIM phase of Day 1, which was not observed in any other phases.

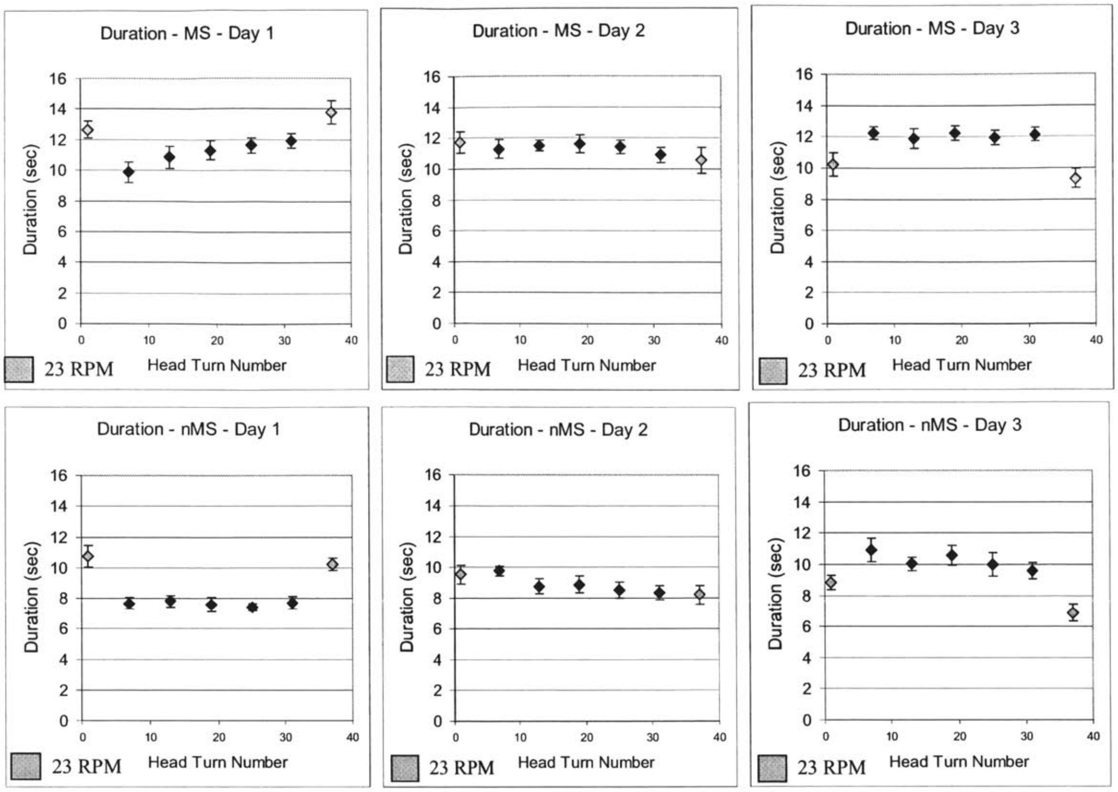


Figure 4-13 Tumbling Duration with standard errors, separated by motion sickness groups. (Top) motion sick subjects for Days 1, 2, and 3, from left to right – 14 RPM, 23 RPM, 30 RPM. (Bottom) Non motion sick subjects for Days 1, 2, and 3 from left to right -14 RPM, 23 RPM, 30 RPM.

Duration for to-NUP head turns was on average 2.1 seconds (24%) longer than for to-RED turns (Figure 4-14).

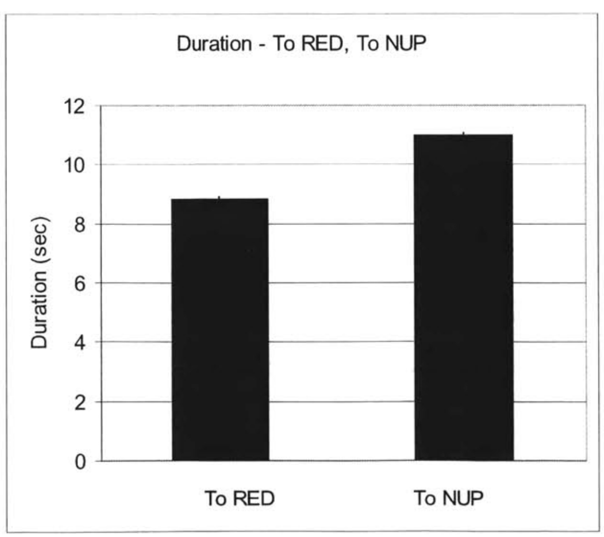


Figure 4-14 Average Tumbing Duration with standard error for To-RED and To-NUP head turns

4.7 Body tilt

All 24 subjects had complete sets of perceived body tilts and were used in the statistical analysis. It should be noted that many subjects reported little or no body tilt throughout the experiment, and that this may affect the GLM results. The GLM showed a potential trend for the effect of day, but it did not reach statistical significance (p = 0.076). There was a significant effect of Direction and a significant cross-effect of Day*Microphase. Contrasts between PRE phases on the 3 days were not significant. GLM results and individual contrasts are summarized in Table 4-7 and Table 4-8, respectively.

Table 4-7 GLM ANOVA results for Body Tilt (significant results shaded)

Effect	df	F-value	P-Value
Day	2,46	3.165	0.076
Microphase	6,138	1.085	0.365
Pair	2,46	1.716	0.192
Direction	1,23	7.017	0.014
Day*Microphase	12,276	4.501	0.005
Day* Pair	4,92	0.523	0.678
Day*Direction	2,46	0.300	0.717
Microphase*Pair	12,276	1.499	0.156
Microphase*Direction	6,138	1.709	0.176
Pair*Direction	2,46	0.543	0.574
Day*Microphase*Pair	24,552	0.585	0.854
Day*Microphase*Direction	12,276	0.648	0.635
Day*Pair*Direction	4,92	0.813	0.813
Microphase*Pair*Direction	12,276	0.434	0.849
Day*Microphase*Pair*Direction	24,552	0.956	0.477

Table 4-8 PRE and POST phase contrasts for Body Tilt (significant results shaded)

Contrast	P-Value
Day 1 PRE v Day 1 POST	0.623
Day 2 PRE v Day 2 POST	0.166
Day 3 PRE v Day 3 POST	0.303
Day 1 PRE v Day 2 PRE	0.470
Day 1 PRE v Day 3 PRE	0.148
Day 2 PRE v Day 3 PRE	0.577
Day 1 POST v Day 2 POST	0.866
Day 1 POST v Day 3 POST	0.116
Day 2 POST v Day 3 POST	0.018
Day 1 POST v Day 2 PRE	0.379
Day 1 POST v Day 3 PRE	0.254
Day 2 POST v Day 3 PRE	0.079

For an indication of average body tilt deviating from horizontal, Figure 4-15 (Left) shows PRE phase to-NUP body tilt for all head movements in which the subjects reported a value different from 45 minutes. Note that values have been converted to represent degrees tilted down from the horizontal.

PRE phase body tilt for non-horizontal values decreased from 11.4 degrees on Day 1, to 7.3 degrees on Day 2, to 6.7 degrees on Day 3.

Figure 4-15 (Right) displays to-NUP tilt in the STIM phase over the 3 days (non-horizontal tilt reports). STIM phase tilt increased from 4.7 degrees on Day 1 to 9.3 degrees on Day 2, to 11.1 degrees on Day 3. A schematic representation of the perceived body tilt is given in Figure 4-16.

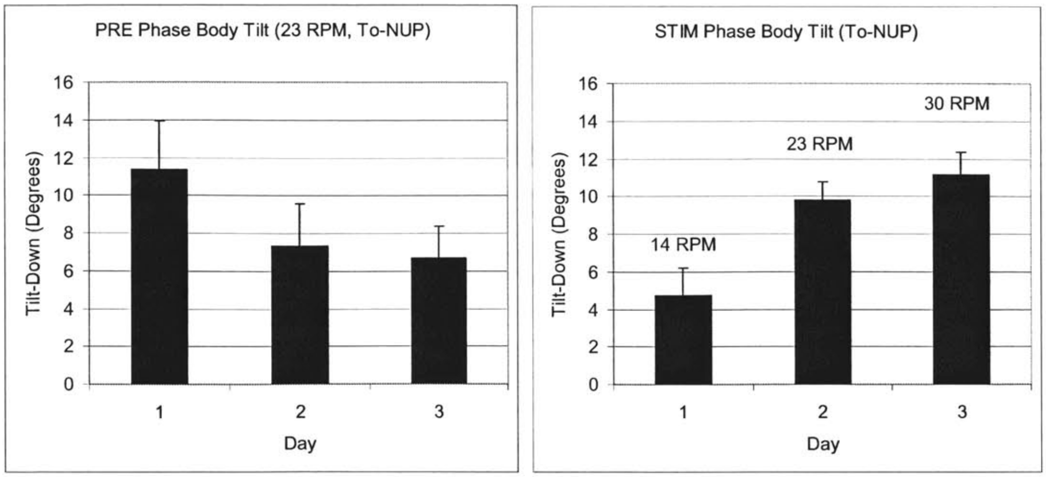


Figure 4-15 Average non-horizontal body tilt with standard errors. (Left) PRE phase (Right) STIM phase

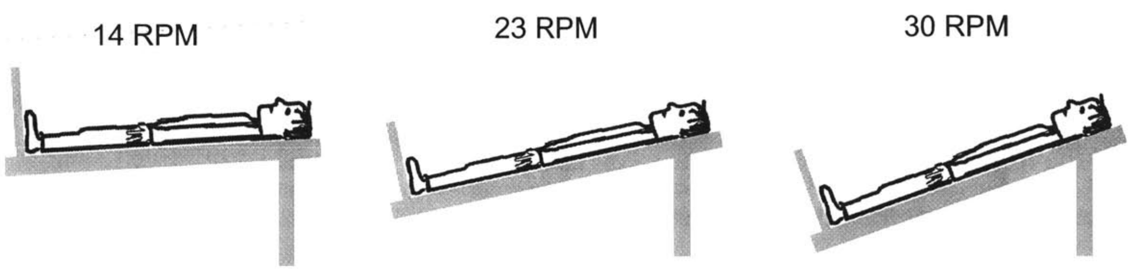


Figure 4-16 Depiction of perceived body tilt estimates for increasing rotation rates (angles exaggerated for emphasis). Drawing by J. Edmonds.

5 Discussion

5.1 Key findings

1) A 3-Day incremental adaptation protocol is sufficient to enable most individuals to make head movements during 30 RPM rotation without excessive motion sickness.

2) The Oman motion sickness model, in conjunction with a quantitative SCC sensory conflict model and an adaptation parameter, has utility in predicting motion sickness trends over several days of CCS exposure.

3) The VOR time constant shows significant adaptation, but appears to have a lower limit consistent with the estimated cupular time constant of 3.5 – 4.0 seconds.

4) Tumbling intensity and duration show significant adaptation over the 3 days. In both cases the response to 30 RPM head turns on Day 3 is greatly diminished relative to the expected response for an unadapted subject.

5) PRE phase body tilt perception adapts towards the true horizontal over the 3 days. STIM phase body tilts diverge from the horizontal as the centrifuge velocity increases on each day.

5.2 Motion sickness

5.2.1 General feasibility of 30 RPM head movements

The motion sickness results of the experiment support the use of the model. With only 4 out of 28 subjects aborting due to motion sickness symptoms during the experiment, the dropout rate (14%) was markedly less than previous experiments starting at 23 RPM. Additionally, all 4 of the subjects aborted the experiment on Day 1 during the 14 RPM session. This indicates that the individuals were highly susceptible to motion sickness from this kind of stimulation, and would have required a significantly lower rotation speed to tolerate head movements. No subjects aborted during the 2nd day at 23 RPM, indicating that in all cases the adaptation gained on Day 1 was sufficient to tolerate the increased stimulus. Similarly, the fact that no subjects aborted during 30 RPM rotation reflects the high degree of adaptation gained over the previous 2 days and demonstrates that head movements at 30 RPM are clearly feasible. The strategy of using 14 RPM as the STIM phase speed for Day 1 was successful based on the small number of dropouts, and thus provided a good balance between driving adaptation and keeping discomfort at a tolerable level for most subjects. In order to include even more subjects, such as those that dropped out of this experiment, a lower initial rotation rate could be used. Based on the large degree of adaptation observed between days, it is likely that almost any person could be adapted to make head movements at 30 RPM if the initial speed is low and the velocity increments are small.

5.2.2 Model predictions compared to experimental results

The model predictions showed qualitative agreement with experimental results in certain respects, but also displayed some significant differences (Figure 5-1). Overall, the model proved to be quite useful in estimating how the peak motion sickness level would be affected on each day by the vestibular stimulus and the previous adaptation gained. In particular, the finding that peak motion sickness did not show large changes on Days 2 and 3 with the increasing stimulus was correlated well with the model predictions. Experimental motion sickness levels were actually slightly lower on Day 3 (30 RPM) than Day 2 (23 RPM), which was predicted. The precise numerical values showed less agreement, though the overestimation by the model might be advantageous as a "factor of safety". The overestimation is due in part to the initial gain chosen for the sensory conflict input to the model. The gain was selected to produce a motion sickness endpoint of approximately 11 for an experiment at 23 RPM with no previous adaptation. The value of 11 was arbitrary, and could well have been chosen as 9 or 10, which would decrease all subsequent predictions. The precise numerical values are less important than the overall results, namely that motion sickness remained at a tolerable level throughout the experiment, as predicted. The model was not expected to predict every subtle change in motion sickness, but rather to forecast major trends.

Nonetheless, one can identify two obvious deviations from the model predictions on Day 1 and Day 3 during the transitions between STIM and POST phases. On Day 1, the model predicts a sharp increase in motion sickness upon transitioning from 14 RPM to 23 RPM, while the actual transition is only a slight increase. One explanation for the difference is that the time for decelerating the centrifuge is not accounted for in the model. This period of relatively little vestibular stimulation (the centrifuge was decelerated slowly), may have helped to keep motion sickness from increasing rapidly upon returning to 23 RPM. The centrifuge acceleration period might similarly help explain why motion sickness decreased upon transition from 30 to 23 RPM on Day 3 when it was predicted to plateau. Additionally, adjustments of the fast and slow path time constants might be necessary to improve the model's accuracy. In particular, a shorter time constant for fast path symptoms might be warranted based on observations of rapid subject responses to individual head movements.

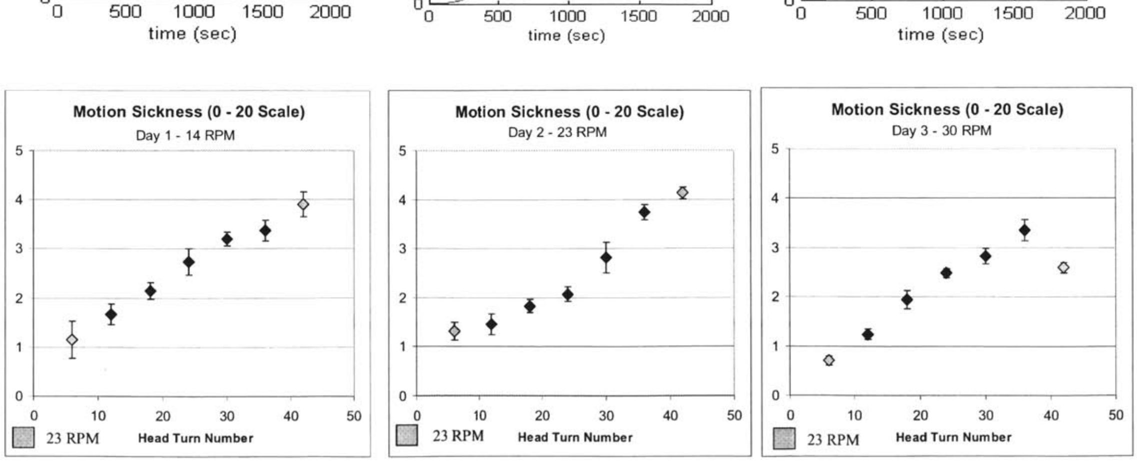


Figure 5-1 MS model predictions (top) and experimental results with standard errors (bottom). The abscissa for the predictions and results have a similar time scale (see Figure 2-14 caption).

5.2.3 Otolith sensory conflict

For a more complete description of sensory conflict, the otoliths are crucial due to their significant role in motion sickness generation. Although the otoliths were not included in formulating the motion sickness predictions, one method for implementation of otolith sensory conflict is included. Consider a single otolith as in Figure 2-7, which is assumed as an ideal 3-dimensional linear accelerometer with equal sensitivity in the orthogonal directions. The difference between actual and expected firing rates for the otolith is initially due to the Coriolis force associated with the head movement on the centrifuge and the centrifugal force from the centrifuge rotation. The transfer function used for the otolith is from Borah and Young (1988), and is based on work by Young and Meiry [66] and Fernandez and Goldberg [67-69]. Equation 2-4 gives the acceleration of the otolith.

Figure 5-2 illustrates how the otolith contribution to sensory conflict would be computed. The resulting conflict vector including the canals becomes 6-dimensional.

While the otolith contribution to sensory conflict may initially be of a smaller magnitude than the canal conflict in the model, the otoliths play a crucial role. The otoliths and other sensory modalities are thought to be important in determining the expected afference for a given context. The expected afference does not remain based simply on movements in the non-rotating frame, but rather is updated with repeated exposure to the centrifuge environment. This updating of the internal model likely depends heavily on otolith input.

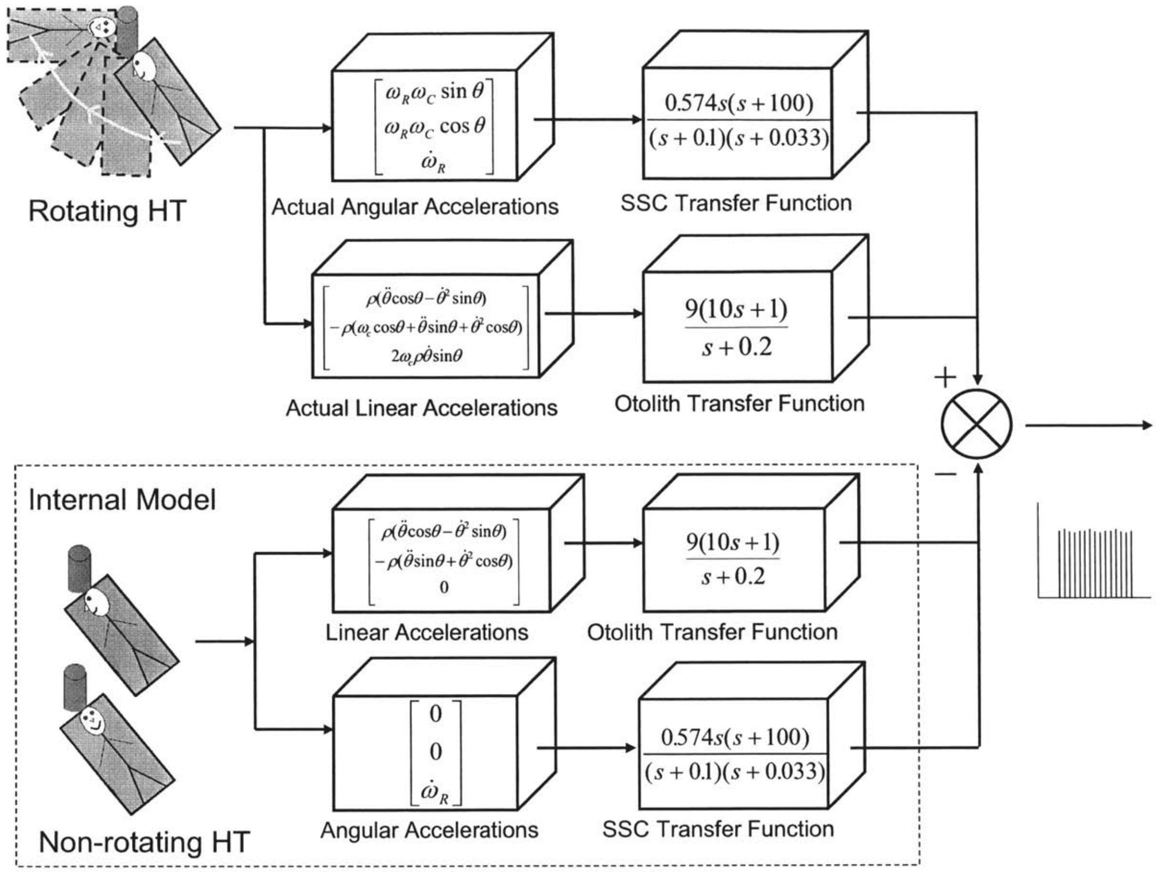


Figure 5-2 Sensory Conflict Including Semicircular Canals and Otoliths

5.2.4 Model limitations and potential improvements

While the motion sickness model has displayed utility in predicting major symptom trends within and across days, there are many areas for improvement. It must first be recognized there was much variability even among the 9 subjects designated as motion sick. To gain more confidence in the model, it would be desirable to examine a much larger population sample and perhaps divide it further into subsets of motion sickness susceptibility.

In defining the sensory conflict, using a more accurate representation of the vestibular apparatus would be an important addition. Directional sensitivity of the utricle and saccule could be considered, as could a more thorough description of canal stimulation during cross-coupling.

To improve the adaptation parameter, it would be useful to implement a decay factor to reflect the loss of adaptation over time. A limit for daily adaptation accumulation based on the stimulus and previous level of adaptation might also be appropriate.

Implementation of canal-otolith interactions and relative weightings into the sensory conflict model would be essential to arrive at a more realistic conflict definition. It is a formidable challenge to describe how these interactions change the expected afference for a head movement on the centrifuge. While the problem of describing adjustment of internal model dynamics was bypassed by simply adjusting a downstream gain, a rigorous hypothesis and implementation would lend credibility to the modeling. This is particularly important in the absence of physiological experimental results that could directly verify the existence and adaptation properties of an internal model.

Angelaki et al. have made progress in the physiological identification of neurons potentially involved in the coding of an internal model [70]. Neurons in the cerebellum and brainstem were identified which behaved differently in response to equivalent accelerations imposed by head tilt and translational acceleration. Through application of a variety of tilt and translation stimuli, a correlation was found between the patterns of neuronal firing rates and the equations of motion.

Merfeld et al. have shown correlation between VOR eye movements and a postulated internal model algorithm that separates gravity from linear acceleration [71]. Their theory suggests that an internal estimate of gravity is subtracted from the physiologically sensed gravito-inertial acceleration in order to determine linear acceleration. Post-rotary head tilt experiments, designed to produce a conflict between the true and estimated gravity vector, elicited eye movements consistent with this theory. In particular, eye movements compensatory for a linear acceleration could be predictably evoked in the absence of an actual linear acceleration.

Future research into the physiological and functional bases for internal models will add critical contributions to the understanding of motion sickness.

5.3 VOR time constant

The decrease in PRE Phase VOR time constant over the 3 Days reveals that a significant amount of adaptation took place. The majority of adaptation was between Day 1 and Day 2, with relatively little between Days 2 and 3. The fact that adaptation decreases after Day 2, despite the increased vestibular stimulus, indicates that VOR eye movements likely cannot be eliminated entirely. It appears that a limit may be reached between 3.5 and 4 seconds. This is evident in the similarity of habituation profiles on Days 2 and 3, and particularly in the result that POST phase averages are not significantly different between the two days. If 30 head turns at 30 RPM cannot drive the POST phase time constant below Day 2 levels, it seems unlikely that further adaptation will take place. It would be interesting to observe whether the PRE phase of an additional day following the 30 RPM would be reduced compared to Day 3. It was pointed out that VOR time constants in similar experiments approach the cupular time constant estimated at approximately 4 seconds [34, 63]. POST phase time constants for Days 2 and 3 in this experiment were respectively 3.5 and 3.6 seconds, and thus reasonably consistent with the estimated cupular time constant.

5.4 Tumbling intensity

5.4.1 Adaptation

The intensity of the tumbling sensation showed a large degree of adaptation over the 3 days, as seen by the overall PRE phase decrease of approximately 40% for both to NUP and to RED head turns. While the amount of adaptation was nearly the same for the directions, the decay profiles were different. For to RED, the majority of adaptation took place between Day 1 and Day 2, with relatively little between Days 2 and 3. For to NUP turns, the amount of adaptation was nearly equal between Days 1 and 2, and Days 2 and 3. So while both directions adapt the same amount for the same stimulus, adaptation to to-RED turns is initially faster. For both directions, the rate of adaptation does not seem to increase in proportion to the increased stimulus on Day 2.

The POST phase intensities in Figure 4-6 describe the combined effects of adaptation across days and habituation within each day. The fact that POST phase intensities on Day 3 reach a level below 5 for to-NUP turns and below 3 for to-RED turns indicates the extent to which 3 Days of exposure can diminish the tumbling sensation. Decreases of more than 50% for to-NUP turns and 70% for to-RED turns suggest that subsequent days of adaptation might potentially make the sensation for a 23-RPM head turn negligible. The total number of head turns completed while rotating (126) was small in comparison with past experiments in the SRR [53]. For practical application of such training, increasing the number of Days (e.g. to 1 week) could be easily accomplished. With each session taking approximately 30 minutes of rotation, the total time for 7 Days of training would involve less than 4 hours of making head movements.

5.4.2 Habituation profiles

While adaptation over the 3 days can only be seen in the two discrete steps between days, habituation within each day allows for a more detailed analysis. To better predict the response to repeated cross-coupled stimulation, a quantitative description of habituation is useful. Figure 5-3 shows the STIM phases for each day, separated by direction. Interestingly, an exponential curve fits each set of data quite well ($R^2 > 0.85$ for all). The exponential fits do not decay to zero, but to an apparent asymptote on each day. To determine whether this is a true asymptote would require an extension of the protocol to include more head movements. It is possible that additional head turns would eventually drive the stimulus below the apparent plateau with enough repetitions. Alternatively, the asymptote could be firm, in which case a temporal latency might be necessary to decrease the intensity further. Such a scenario would be consistent with theories of motor consolidation, in which several hours, or even periods of sleep, are necessary to begin adapting to a motor task or environment. The value of an asymptote likely depends on both the magnitude of repeated stimulation and the individual's previously acquired adaptation. With the data obtained from this experiment, it may be possible to begin formulating a model for intensity adaptation and habituation over several days. Such a model would be useful in designing effective and perhaps optimal adaptation protocols. It could also be used in conjunction with a motion sickness model.

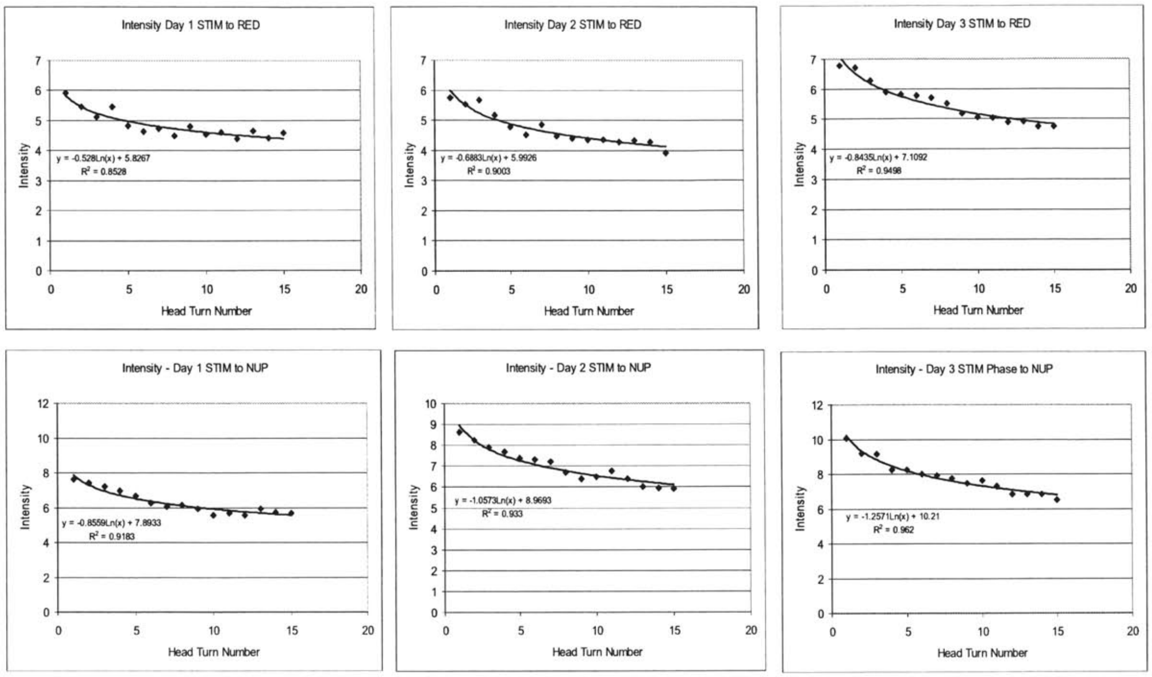


Figure 5-3 Exponential fits to STIM phase Intensity, separated by head turn direction. (Top) To-RED, Days 1,2,3. (Bottom) To-NUP, Days 1,2,3

These results present a significant departure from a previous study of habituation to head movements during rotation. A model for habituation to cross-coupled accelerations in the SRR was developed and tested by Benson et al [52]. The model describes the subjective intensity of head movements as a decaying exponential function reaching 0 asymptotically. An experiment was conducted in which subjects made repeated head movements until no sensation was detected. This was done at each of several rotation rates, with the rate increasing by progressively smaller steps. Although the experimental results validated the model to an extent, the exponential decay to zero intensity stands in contrast to the non-zero asymptotic behavior observed in this study. It may simply be that a stimulus threshold exists for each subject above which complete habituation is not possible without prior adaptation.

5.4.3 Adaptation measured by deviations from an expected response model

Recent work by Pouly has shown that tumbling intensity is directly proportional to centrifuge velocity for a particular head turn angle and a particular level of adaptation [34]. It should be possible then to predict the relative changes in intensity for head movements at different centrifuge velocities on a single day. However, if the centrifuge velocity is incremented over a period of days rather than within a single day, the actual intensity changes are not likely to follow the model predictions, due to adaptation. A deviation from the expected intensity at a given velocity may give one measure of the adaptation gained by a subject on previous days. The linear relationship describing intensity change (ΔI) as a function of the change in cross-coupled stimulus (ΔCCS) was itself found to change over days, presumably due to adaptation [34]. For application to the results of this experiment, the equation for the unadapted state is used (Equation 5-1). In particular, it is desired to predict how tumbling intensity would change with centrifuge velocity if there were no adaptation between the days of the experiment. If subjects did not gain adaptation over the 3 days, one would expect that average STIM phase intensities at 23, and 30 RPM would be approximately related to the average intensity at 14 RPM by Equation 5-1. Equation 5-1 was developed from a linear regression with R^2 = 0.9535.

$$\Delta I = 0.0534(\Delta CCS)$$

Equation 5-1 Linear relationship between change in intensity and change in CCS [34]

For head turns at a given angle, the change in CCS magnitude is 54°/sec when increasing centrifuge velocity from 14 to 23 RPM. Similarly, the CCS magnitude increases by 42°/sec for a centrifuge velocity increment from 23 to 30 RPM. Based on Equation 5-1,the expected intensity changes in the absence of adaptation are 3.5 units between 14 and 23 RPM, and 2.7 units between 23 and 30 RPM.

Figure 5-4 shows the average STIM phase intensities and the expected intensities for Day 2 and Day 3 if there had been no adaptation. The average STIM phase intensity on Day 2 (23 RPM) was 3.5 units lower (39%) than expected without adaptation, while Day 3 (30 RPM) was 5.4 units lower (45%) than expected without adaptation. The expected intensity on Day 1 is by definition the actual intensity.

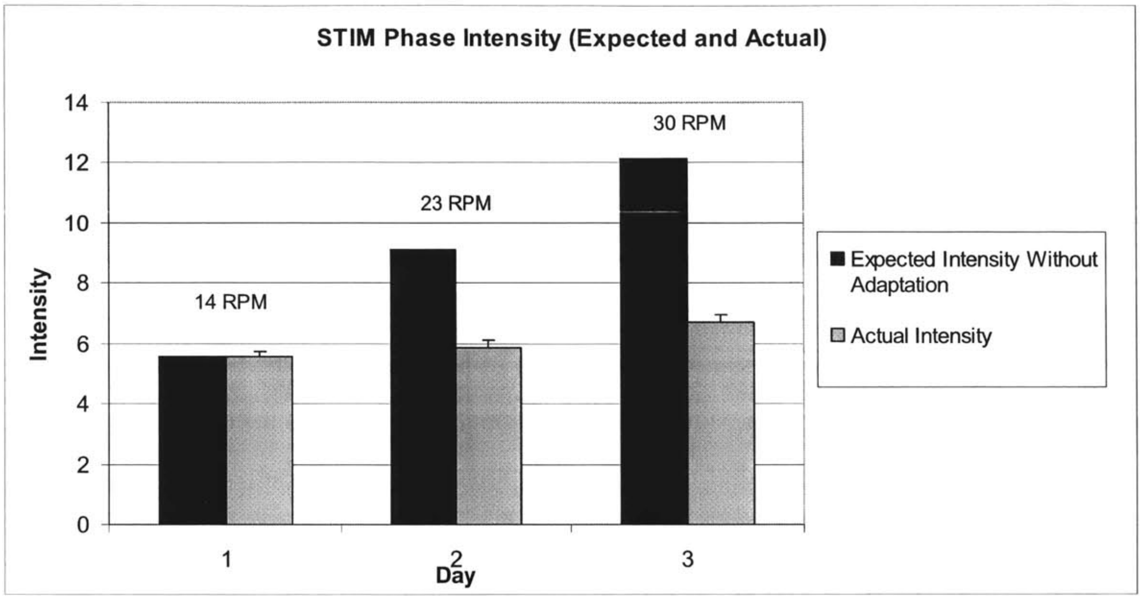


Figure 5-4 STIM Phase Intensity for actual results (with standard error bars) and results expected in the absence of adaptation

This method allows for a quantitative description of adaptation beyond the comparison of PRE phase intensities. In this case, one can estimate how intense the stimulus would have been without adaptation, and determine more precisely the benefits of an incremental approach. It is clear that the STIM phase intensities, particularly at 30 RPM, were greatly diminished in comparison to the expectation for an unadapted subject.

5.4.4 NUP vs RED asymmetry

The observed difference between head turns to-NUP and to-RED is consistent with past experiments involving yaw head movements on the MIT short-radius centrifuge [14, 18, 34]. The asymmetry has been explained in terms of a conflict between the erroneous semicircular canal signal and the nearly veridical otolith input. This explanation relies upon an assumption that the pitch sensation is dominant in comparison to roll. Pitch and roll are considered from the head coordinate frame. In the RED position, a continuous pitch sensation (i.e. in the direction of centrifuge rotation) is consistent with the unchanging otolith stimulation and likely to be less disturbing. For a continuous "head-over-heels" pitch sensation in the NUP position, there is a conflict because the otoliths do not receive the expected change in stimulus that would accompany a true rotation in this direction [14]. The presence of an equivalent asymmetry for head turns from LED to NUP and NUP to LED would support this theory. Based on recent experiments with head turns in the left quadrant, it appears that the asymmetry is significantly less in magnitude and not consistently in favor of a stronger to-NUP sensation. This suggests that the angular velocity of the head, and thus the direction of the cross-coupled acceleration, plays a role in the intensity of the sensation. It is possible that counterclockwise head turns tend to produce larger responses [72], but that the otolith input determined by head position acts to modulate the sensation. This would explain why head turns in the left quadrant are more similar to one another than those in the right quadrant.

To determine how the head-turn asymmetry changes within and across days, one can look at the ratio of NUP to RED for the 21 pairs of head turns on each day. Figure 5-5 shows the median ratio of NUP intensity to RED intensity for each pair of head turns over the 3 days. The median was chosen to reduce the effect of outliers and infinite ratios (RED intensity of 0) were excluded.

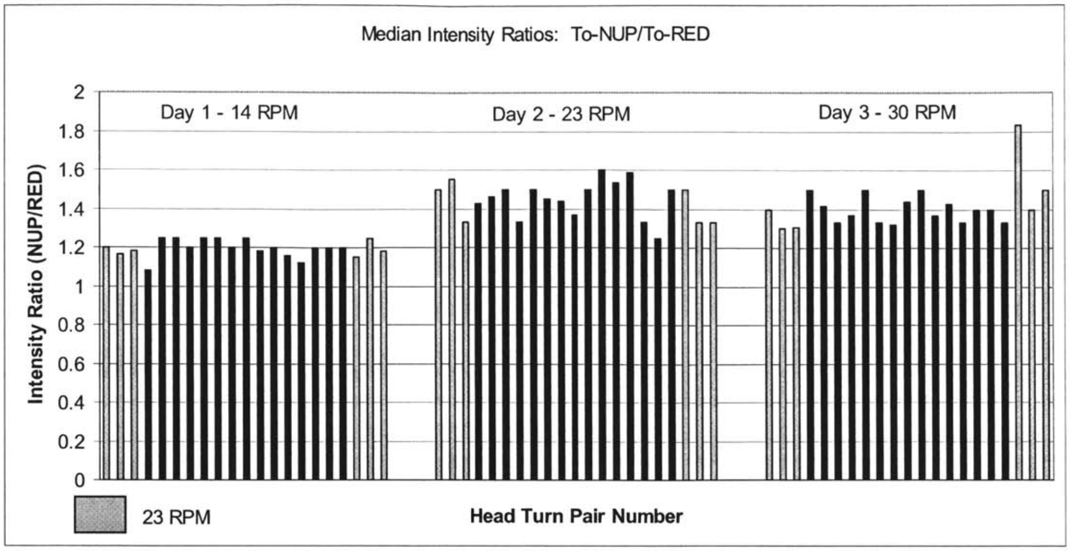


Figure 5-5 Median Intensity Ratios for To-NUP and To-RED Head Turn Pairs (21 pairs per day). A ratio of 1 indicates that the To-NUP and To-RED turns had equal intensity for that head turn pair.

Figure 5-5 suggests that the asymmetry is smallest on Day 1, but does not change a large amount from Day 2 to Day 3. The relatively constant ratio on Day 1 suggests that the lack of adaptation, rather than the 14 RPM centrifuge velocity, is the reason for the smaller asymmetry. One would expect the asymmetry to be larger in the PRE and POST phases at 23 RPM if the centrifuge velocity determined the asymmetry. There is, however, a brief transition effect noticeable on Day 3. The first pair of head turns at 23 RPM following the 30 RPM rotation had a median ratio of 1.8, the largest out of all head turn pairs. This was likely due to the first to-RED head movement at 23 RPM feeling especially weak in comparison with the preceding 30 RPM turn to-NUP. The effect did not persist past the first head turn pair.

It appears then that the asymmetry increases after some degree of adaptation has been acquired on Day 1, but does not increase with further adaptation.

5.5 Tumbling duration

The 18 % decrease in PRE phase tumbling duration signifies that adaptation did take place over the 3 Days. In comparison with tumbling intensity, however, the duration adapted less and was closer to the amount of adaptation seen in eye movements. The adaptation of tumbling duration reflects decreases in velocity storage, but also involves CNS processing. Distinguishing between these elements is not as clear as for the VOR time constants that stay within a fairly narrow range among the population. The variability of tumbling durations is quite large among individuals, with some people reporting only a few seconds and others more than half a minute. It's likely that reliance on the subjects to press the button precisely at the end of the sensation also introduces variability.

5.5.1 Adaptation measured by deviations from an expected response model

Similar to the intensity adaptation measurement, one can determine how the STIM phase duration differs from an expectation in the absence of adaptation. A linear relationship between the change in tumbling duration (ΔD) and the change in CCS (ΔCCS) was found by Pouly and is given in Equation 5-2 [34]. Equation 5-2 was developed for an unadapted subject and is based on a linear regression with $R^2 = 0.9694$. The increments in CCS are 54°/sec and 42°/sec for centrifuge velocity increments of 9 and 7 RPM, respectively.

$$\Delta D = 0.0589(\Delta CCS)$$

Equation 5-2 Linear relationship between change in tumbling duration and change in CCS [34]

Figure 5-6 shows the average STIM phase durations and the expected durations in the absence of adaptation. Day 2 duration was 2.3 seconds shorter than expected without adaptation (19%), while Day 3 duration was 3.7 seconds shorter than expected (25%). As with the intensity, the responses at 23 and 30 RPM are diminished in comparison to expectations for an unadapted subject. These results indicate that the adaptation seen in the PRE phase is also reflected in the STIM phase.

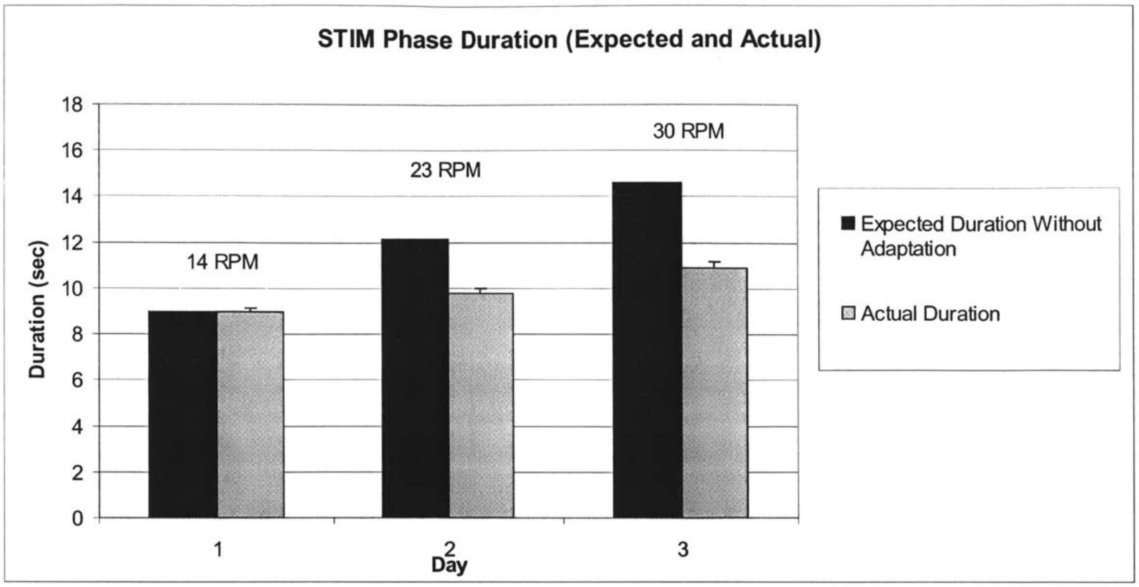


Figure 5-6 STIM Phase Duration for actual results (with standard error bars) and results expected in the absence of adaptation

5.5.2 Motion sick and non motion sick subjects

The increased tumbling duration for subjects classified as motion sick supports the theory that velocity storage plays a major role in motion sickness generation [37]. If the velocity storage mechanism prolongs the tumbling sensation, it is intuitively not surprising that this would lead to increased motion sickness. The relation of velocity storage to motion sickness has been related to the neural mismatch theory in a manner similar to the subjective vertical hypothesis of Bos and Bles [45]. The response of motion sick subjects on Day 1 is particularly interesting due to the fact that durations actually increase throughout the STIM phase. This result would suggest that CNS motion and orientation estimates were somehow moving away from the veridical situation and more towards the erroneous canal signal for some subjects. It is not clear whether an increasing duration profile is characteristic of motion sick subjects in general. A meta-analysis of past experiments might reveal whether this is a common trend.

It has been hypothesized that the dependence of motion sickness on velocity storage is also apparent in the decay of vertical nystagmus. In particular, motion sick subjects would tend to have longer VOR time constants. Although time constants for motion sick subjects were slightly longer on average than those of non-motion sick subjects in this experiment, the difference was not significant.

5.6 Body tilt

The decrease of PRE phase non-horizontal body tilt for to-NUP turns suggests that adaptation did occur over the 3 Days. The reason for this adaptation is difficult to pinpoint, as the source of the perceived body tilt is not fully understood. While the gravitoinertial force is actually tilted relative to earth-vertical, the otoliths do not undergo a particularly large stimulation when located at the centrifuge center of rotation. If somatic graviceptors are involved in the tilt sensation, then adaptation would presumably consist of a change in how the CNS estimate of orientation relies upon those organs. If adaptation to the tumbling sensation involves an increased reliance upon the nearly veridical steady-state otolith cues, then perhaps that change diminishes the graviceptor role and acts to realign the perceived orientation with the earth horizontal.

5.7 Recommendations for future research

To gain better confidence in the motion sickness model, and particularly in the adaptation parameter, more subjects are needed. More motion sickness data could potentially be obtained by designing experiments based on a motion sickness endpoint rather than a fixed number of head movements. This would offer insight into possible adjustments of the fast and slow path time constants in the Oman model, as well as provide more data on how individuals adapt. Latencies of one day or more could be included to study the decay of adaptation.

Incremental adaptation protocols involving subjects especially susceptible to motion sickness could confirm the hypothesis that virtually anyone can be adapted to make head movements at high rotation rates. The challenge would be to find the appropriate initial velocity and velocity increments. The motion sickness and adaptation model would likely be useful in this respect if the susceptibility of the subjects could be reasonably approximated in advance. Establishment of a "diagnostic" head turn session to characterize motion sickness susceptibility could be instructive in designing individualized protocols for highly susceptible subjects.

The apparent limit of 3.5 seconds for adaptation of the VOR time constant in the dark could be easily tested by adding additional days to the experimental protocol. An examination of PRE and POST phase time constants could illustrate whether any further adaptation and habituation is possible. If a true plateau is reached, the additional data would be beneficial in precisely defining the limit. It would also be interesting to analyze eye data for evidence of the two time constant model [63]. A higher sampling rate for the eye movements would likely be necessary.

Adding more head turns on each day would answer questions with regard to the apparent asymptotic behavior of tumbling intensity habituation. If the comfort level of subjects allowed, it would be desirable to add another 30 head turns to the STIM phase. If the intensity were not found to decay any further than the initial plateau, it would lend support to theories focusing on the importance of temporal latency for sensorimotor consolidation [73, 74]. If the asymptotic behavior persisted, it would also be interesting to see if the additional head turns lead to more adaptation across days. In particular, one could determine whether the amount of adaptation observed is directly related to the level of habituation achieved on the previous day. How such plateau behavior might relate to motion sickness adaptation would also be of interest. Such information would be beneficial in optimizing adaptation protocols to be as efficient as possible while taking into account adaptation differences in the various measures.

Theoretically, head turn velocity is not expected to significantly affect the vestibular response for a typical head movement. Nonetheless, a systematic study of head velocity may be useful and has not yet been conducted. It would first be of interest to characterize whether the vestibular response is truly equivalent within a "normal" range of head turn velocities. Additionally, it would be useful to know the upper and lower velocity limits beyond which the response may be significantly altered.

6 Conclusions

It has been clearly demonstrated that head movements at 30 RPM are feasible with only 3 days of incremental training. Further, general trends in motion sickness generation and adaptation can be modeled for use in designing experiments. Some implications from this work are that 30 RPM is not likely to be a limit for adaptation, and that head turns at higher rates are almost certainly possible. With additional days of training, it is conceivable that individuals might be able to make head movements at 45 RPM (1 g at heart level). The demonstrated capability for adaptation to high rotation rates presents a strong argument for short-radius centrifugation as a practical form of AG. Whether a short-radius is ultimately desirable or not, it cannot at this point be ruled out based on concerns over adapting to the rotating environment. While there are many unanswered questions about the adaptation process, it has been shown that adaptation is relatively rapid and can greatly diminish motion sickness and tumbling sensations.

The adaptation and habituation profiles found for tumbling intensity and duration present a foundation for a more quantitative description of these phenomena. With additional experimental work and a thorough analysis of past studies, it may be possible to construct a more comprehensive model from which to design adaptation protocols. An understanding of how each individual subjective measure adapts will eventually enable development of an optimized algorithm for maximally reducing motion sensations with a minimized amount of motion sickness.

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8 Appendix A - Consent Form

Consent to Participate in Non-Biomedical Research
Neurovestibular Aspects of Artifical Gravity:
Toward a Comprehensice Countermeasure.

You are asked to participate in a research study conducted by Laurence Young, Sc.D., from the Department of Aeronautics and Astronautics at the Massachusetts Institute of Technology (M.I.T.) The NASA Johnson Space Center is also participating In this study. The results of this study may be published in a student thesis or scientific journal. You were selected as a possible participant in this study because you volunteered and meet the minimum health and physical requirements You should read the information below, and ask questions about anything you do not understand, before deciding whether or not to participate.

PARTICIPATION AND WITHDRAWAL
Your participation in this study is completely voluntary and you are free to choose whether to be in it or not. If you choose to be in this study, you may subsequently withdraw from it at any time without penalty or consequences of any kind. The investigator may withdraw you from this research if circumstances arise which warrant doing so. Such circumstances include evidence that you do not meet the minimum health and physical requirements, or that during the study it becomes clear to the experimenter that are becoming drowsy, unalert, or uncooperative.

You should not participate in this study if you have any medical heart conditions, respiratory conditions, medical conditions which would be triggered if you develop motion sickness, are under the influence of alcohol, caffeine, anti-depressants, or sedatives, have suffered in the past from a serious head injury (concussion), or if there is any possibility that you may be pregnant. The experimenter will check to see if you meet these requirements.

PURPOSE OF THE STUDY

The purpose of this study is to understand the cognitive and physiological effects of short-radius centrifugation used to produce Artificial Gravity (AG). Short radius centrifugation is currently being investigated as a countermeasure to the deleterious effects of weightlessness experienced during long duration spaceflight.
PROCEDURES USED IN THIS STUDY

If you volunteer to participate in this study, we would ask you to do the following things: When you arrive at the lab, you will be briefed on the background of centrifugation, disqualifying medical conditions, the experiment protocol, and the various components of the centrifuge, including the emergency stop button, restraining belt, and data collection devices. Data collection devices include goggles that monitor your eye movement, heart rate sensors, and sensors that detect your head movement. After your briefing, the experimenter will record your answers to basic questions about your health, and take your height, weight, blood pressure, and heart rate.

During the experiment you will he on the centrifuge In either the supine position, the prone position, or on the side on the rotator bed You may be asked to place your head Into a cushioned pivoting helmet at the center of the centrifuge that limits your head movement to one or several rotational axes After lying down, the experimenter may collect some data while the centrifuge is stationary. The experimenter will ask you if you are ready before starting rotation Your rotation on the AGS will not exceed the following parameters:

-Acceleration no greater than 5 revolution per minute, per second
-G-level along you body axis will not exceed 2.0G at your feet (a "1G" is defined as the acceleration or force that you experience normally while standing on earth)
-Time of rotation not exceeding 1 hour

During rotation the experimenter may direct you to make voluntary head movements or to perform simple tasks such as adjusting a line of lights or reading portions of text. A possible protocol for an actual trial will consist of a short period of supine rest in the dark. followed by a period of head movements (ranging from 90 degrees to the left, to vertical, to 90 degrees to the right) In the dark, followed by a period of similar head movements In the light, and that this trial could be repeated many times. During these head movements, your head should move at approximately a speed of 0.25 meters per second.

During and after the experiment you will be asked to report your subjective experience (how you feel, how you perceive your head movements, etc.). During and after the experiment you will be asked to report your motion sickness rating. This data will be recorded anonymously. When the experiment is complete, the centrifuge will be stopped, and the experimenter may collect some additional data.
As a participant in experimental trials, you tentatively agree to return for additional trials (at most 10) requested by the experimenter. You may or may not be assigned to a study group that performs similar tasks. Other than the time required for rotation, the time commitment is 20 minutes for the first briefing, and 10-60 minutes for other procedures before and after rotation.

POTENTIAL RISKS AND DISCOMFORTS

During rotation you may develop a headache or feel pressure In your legs caused by a fluid shift due to centrifugation You may also experience nausea or motion sickness, especially as a result of the required head movements You will not be forced to make any head movements If you experience any discomfort, you are free to discontinue head movements at any time. The experimenter will frequently ask you about your motion sickness to ensure your comfort. You may also feel sleepy during the experiment, and the experimenter will monitor your alertness through communication and through a video camera.
ANTICIPATED BENEFITS TO SUBJECTS

You will receive no benefits from this research.
ANTICIPATED BENEFITS TO SOCIETY

The potential benefits to science and society are a better understanding of how short radius centrifugation can enable long duration spaceflight.

PAYMENT FOR PARTICIPATION

Eligible subjects will receive payment of $10/hr for their participation. Checks will be mailed within 4-6 weeks of participation. Subjects not eligible for compensation include international students who work more than 20 hours per week, or volunteers from the M.I.T. Man Vehicle Lab.

PRIVACY AND CONFIDENTIALITY

Any information that 1s obtained In connection with this study and that can be identified with you will remain confidentlal and will be disclosed only with your permission or as required by law.

Some of the data collected in this study may be published In scientific journals and student theses, or archived with the National Space Biomedical Research Institute. The data may consist of measurements of your eye movement, subjective ratings of illusions experienced during centrifugation, subjective descriptions of your experience during centrifugation, measurements related to your subjective orientation in space, measurements of your cognitive abilities before, during, and after centrifugation, subjective ratings of your motion sickness, and heart rate.

During the experiment, the experimenter will monitor you through a video camera capable of imaging in darkness. You will be monitored to ensure your state of well being and compliance with the experiment protocol. In some cases the video data will be recorded on VHS tapes. You have a right to review and edit the tape. Any recorded videotapes will be accessible only by members of the current Artificial Gravity research team. Videotapes will be erased in 5 years, at most.

Research data collected during the experiment is stored in coded files that contain no personal information. This coding of the data will prevent linking your personal data to research data when it is analyzed or archived. Research data is stored in Microsoft excel files and ASCII files, and there is no certain date for destruction. The data is stored in Man Vehicle Lab computers that remain accessible only by Artificial Gravity team members, except data archived with the National Space Biomedical Research Institute. The investigator will retain a record of your participation so that you may be contacted in the future should your data be used for purposes other than those described here.

EMERGENCY CARE AND COMPENSATION FOR INJURY

"In the unlikely event of physical injury resulting from participation in this research you may receive medical treatment from the M.I.T. Medical Department, including emergency treatment and follow-up care as needed. Your insurance carrier may be billed for the cost of such treatment. M.I.T. does not provide any other form of compensation for injury. Moreover, in either providing or making such medical care available it does not imply the injury is the fault of the investigator. Further information may be obtained by calling the MIT Insurance and Legal Affairs Office at 1-617-253 2822."

IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about the research, please feel free to contact:

Principle Investigator: Laurence Young (37-219) 77 Massachusetts Avenue Cambridge, MA 02139 (617) 253-7759	

RIGHTS OF RESEARCH SUBJECTS

You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you feel you have been treated unfairly, or you have questions regarding your lights as a research subject, you may contact the Chair-man of the Committee on the Use of Humans as Experimental Subjects, M.I.T., Room E23-230, 77 Massachusetts Ave, Cambridge. MA 02139. phone 1-617-253 4909.

SIGNATURE OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE

I have read (or someone has read to me) the information provided above. I have been given an opportunity to ask questions and all of my questions have been answered to my satisfaction. I have been given a copy of this form.

BY SIGNING THIS FORM, I WILLINGLY AGREE TO PARTICIPATE IN THE RESEARCH IT DESCRIBES.

____

Name of Subject

____

Name of Legal Representative (if applicable)

____________________________________ ______________

Signature of Subject or Legal Representative Date

SIGNATURE OF INVESTIGATOR

I have explained the research to the subject or his/her legal representative, and answered all of his/her questions. I believe that he/she understands the information described in this document and freely consents to participate.

____

Name of Investigator

____________________________________ __________________________

Signature of Investigator Date (must be the same as subject's)

SIGNATURE OF WITNESS (If required by COUHES)

My signature as witness certified that the subject or his/her legal representative signed this consent form in my presence as his/her voluntary act and deed.

____________________________ __________________________

Name of Witness Date

9 Appendix B – Attachment sent to subjects by email

-Artificial gravity resulting from centrifugation provides a potential countermeasure to the adverse effects of weightlessness experienced by astronauts.

- Head turns made in a rotating environment (e.g. on a centrifuge) elicit a vestibular response that sometimes leads to sensations of motion sickness, tumbling, and perceived body tilt.

- The Artificial Gravity Team in the Man-Vehicle Lab is interested in how people adapt to various types of head turns during centrifugation.

- The test protocol consists of making a series of head turns while lying supine and rotating on the centrifuge. The centrifuge is a 2-meter rotating bed that can accommodate subjects up to 220lb.

- To learn about the vestibular response and the process of adaptation, we record several measures throughout the centrifugation, including: a) motion sickness b) duration of tumbling sensation c) intensity of tumbling sensation d) perceived body tilt e) eye movements

- Motion sickness is recorded on a 0 – 20 scale, as verbally reported by the subject

- Duration of tumbling sensation is recorded by having the subject depress a button throughout the perceived sensation

- Intensity of tumbling sensation is reported relative to the first sensation perceived, as indicated by the subject (First sensation intensity = 10, all subsequent sensations relative to 10)

- Body tilt is reported based on the direction the feet are perceived to be pointing (Reference frame is to imagine one's body as a minute hand on a clock, feet pointing radially outward: Feet pointing at 45 minutes implies a sensation of being horizontal, feet at 30 minutes implies a sensation of standing up, etc.

- Eye movements are recorded using a monitoring system that involves the subject donning a pair of modified ski goggles

- Subjects should be well rested and in good health, with no history of vestibular, cardiovascular, respiratory, or hearing problems. Subjects should not participate if there is any possibility of being pregnant. Subjects should not consume alcohol or caffeine 24 hours prior to centrifugation, and should not be under the influence of anti-depressants or sedatives during the experiment.

10 Appendix C – Protocol Checklist

SET-UP

Go to the lab and check everything before the subject arrives	
Turn on computers (ISCAN & control), power supply, eye cameras, control box	☐
Turn on onboard computer and make sure network connection works	☐
Unplug everything and secure wires	☐
Check if there is enough memory on HD (ISCAN), need about 200 megs	☐
Adjust the slider (with/without helmet), and fix it if necessary – Find the blindfold	☐
Ensure there is nothing unsafe on the bed	☐
Perform a test run, test in particular servomotors to switch head-angle configurations	☐
Explain the experiment, making sure the subject is eligible	
Explain the experiment and the potential hazards to the subject	☐
Make sure the subject understands the risks and what is expected	☐
Ensure the consent form is signed and the MS questionnaire is	☐
Ask the subject to remove everything from his pockets	☐
Install the subject onto the bed (be sure the controller is off) with the iron horse in place	☐
Adjust the footplate (put pins in) and give the goggles to the subject	☐
Secure subject's feet, fasten the safety belt and give him the emergency button	☐
Explain emergency stop and run over the protocols again (practice HT)	☐
Put up experiment in progress sign, close the door and turn off centrifuge light	☐

PRE-PHASE

Run the calibration sequence (Center dot, L, R, C, U, D, C) once in	☐
Start recording, do the calibration again 3 times (stop recording at the end)	☐
Blindfold subject, turn off all lights, close curtains	☐
Start recording eye data, do the pre-phase (6 HT) and stop recording	☐

MAIN-PHASE ***(Start the centrifuge)***

Check that the centrifuge speed is set to 0 and that the mode is on	☐
Manually do a whole turn with the bed to check that there is nothing in the way	☐
Ask the subject if he is ready to spin	☐
Start-up the centrifuge and slowly spin up the bed to the desired	☐
Start recording eye data before each phase (Pre / Stim / Post) and	☐
Make sure the motion sickness of the subject does not go above 13	☐
Check that the subject is opening his eyes wide 20s after each head-	☐

POST-PHASE

Stop the centrifuge: set the speed to 0 and stop the controller (wait	☐
Turn off the controller	☐
Start recording eye data, do the post phase (6HT), stop recording	☐
Remove blindfold and do the calibration again 3 times while	☐
Lock the bed with the footstool and the C-clamp	☐
Save data (as *.raw and *.txt extensions for raw and ASCII files)	☐
Ask the subject his impressions especially on the illusory motion	☐
Give the subject the compensation form to be completed	☐
Remove the experiment sign and turn everything off (plug the	☐

11 Appendix D – Simulink Model

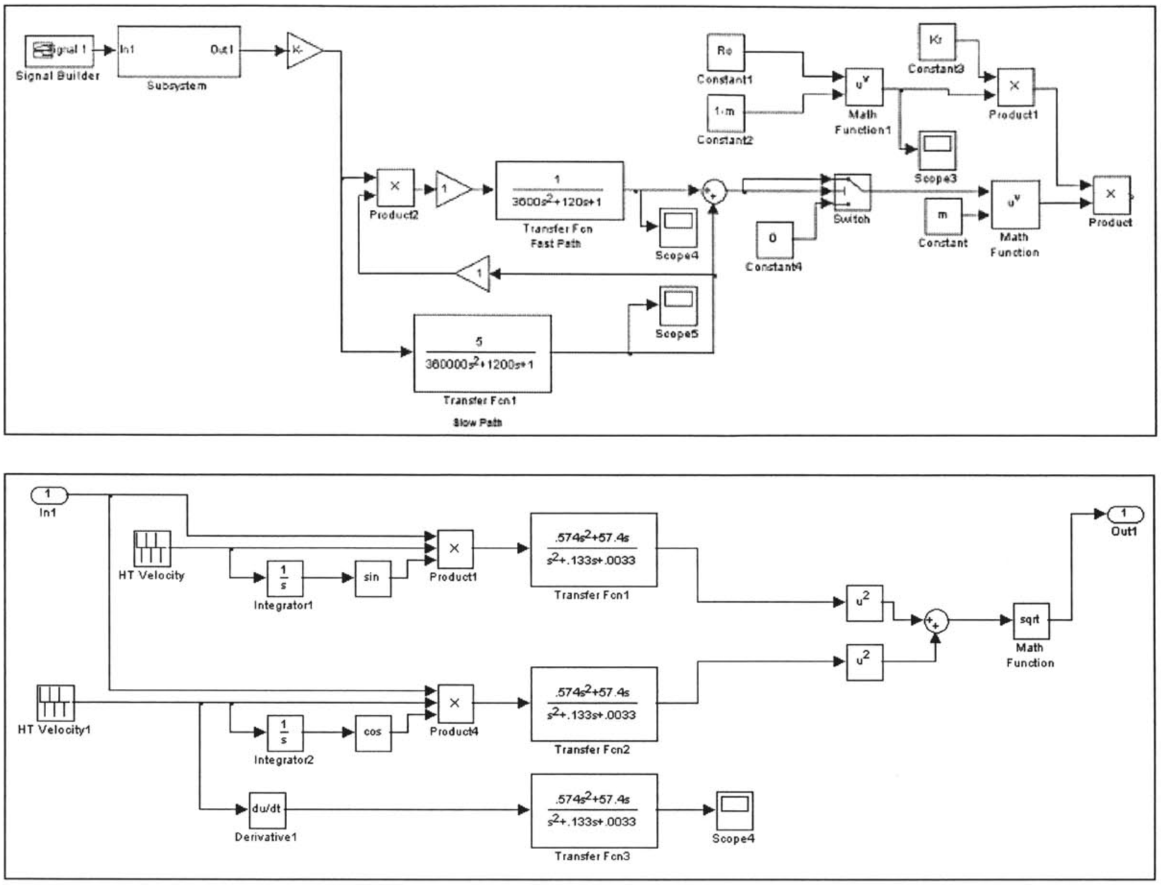

Figure 11-1 Simulink Model. (Top) Oman motion sickness model. Transfer functions represent fast and slow paths as in Figure 2-10 (Bottom) Sensory Conflict implementation for semi-circular canals. Transfer functions are for the semi-circular canals as in Figure 2-11.

12 Appendix E – Data

In the data spreadsheet below, each column can be identified as follows:

Subject = subject number

Sex = gender (M for male, F for Female)

MSSUS = motion sickness susceptibility (MS for motion sick, nMS for non motion sick)

RPM = Centrifuge angular velocity in rotations per minute

Day = Experimental Day (1, 2, or 3)

Phase = Name of experimental phase (calibration, pre, PRE, STIM, post), where pre and post refer to 6 head movements while the centrifuge is stationary

HT_Number = Count of head movements during rotation on each day (1 to 42)

HT = Direction of Head Turn (To-Red, To-NUP, or NUP during calibration)

MS = motion sickness score (0 – 20)

Tilt = perceived body tilt estimate (45 implies horizontal)

Tilt90 = perceived body tile in degrees (90 implies horizontal)

DUR = Tumbling Duration in seconds

INT = Tumbling Intensity

TAU = VOR time constant

Subject	Sex	MSSUS	RPM	Day	Phase	HT_Number	HTT	MS	Tilt	Tilt90	DUR	INT	TAU
4	M	nMS	0	1	calibration		NUP						
401	M	nMS	0	1	calibration		NUP						
401	M	nMS	0	1	calibration		NUP						
401	M	nMS	0	1	pre		to RED	0	47	102	0	0	
401	M	nMS	0	1	pre		to NUP	0	46.5	99	0	0	
401	M	nMS	0	1	pre		to RED	0	47.5	105	0	0	
401	M	nMS	0	1	pre		to NUP	0	45.5	93	0	0	
401	M	nMS	0	1	pre		to RED	0	47	102	0	0	
401	M	nMS	0	1	pre		to NUP	0	45	90	0	0	
401	M	nMS	23	1	PRE	1	to RED	0	45	90	7.78	10	6.4555
401	M	nMS	23	1	PRE	2	to NUP	0	40	60	12.8	16	2.6319
401	M	nMS	23	1	PRE	3	to RED	0	43	78	7.95	8	3.3917
401	M	nMS	23	1	PRE	4	to NUP	0	40	60	12.18	15	3.646
401	M	nMS	23	1	PRE	5	to RED	0	44	84	5.48	7	3.6033
401	M	nMS	23	1	PRE	6	to NUP	0	41	66	8.88	15	4.0233
401	M	nMS	14	1	STIM	7	to RED	0	46	96	0	0	6.0887
401	M	nMS	14	1	STIM	8	to NUP	0	43	78	3.05	5	6.7569
401	M	nMS	14	1	STIM	9	to RED	0	46	96	0	0	7.5678
401	M	nMS	14	1	STIM	10	to NUP	0	43	78	3	5	4.5243
401	M	nMS	14	1	STIM	11	to RED	0	46	96	0	0	4.894
401	M	nMS	14	1	STIM	12	to NUP	0	44	84	1.18	3	4.368
401	M	nMS	14	1	STIM	13	to RED	0	47	102	0	0	5.0054
401	M	nMS	14	1	STIM	14	to NUP	0	44	84	1.92	2	5.6026
401	M	nMS	14	1	STIM	15	to RED	0	45	90	0	0	4.0616
401	M	nMS	14	1	STIM	16	to NUP	0	44	84	1.48	2	3.5056
401	M	nMS	14	1	STIM	17	to RED	0	45.5	93	0	0	4.5811
401	M	nMS	14	1	STIM	18	to NUP	0	44	84	1.47	1	5.9815
401	M	nMS	14	1	STIM	19	to RED	0	46	96	0	0	4.2781
401	M	nMS	14	1	STIM	20	to NUP	0	44	84	0.85	1	3.5432
401	M	nMS	14	1	STIM	21	to RED	0	46	96	0	0	2.6127
401	M	nMS	14	1	STIM	22	to NUP	0	45	90	0.65	0.5	4.292
401	M	nMS	14	1	STIM	23	to RED	0	45.5	93	0	0	4.9815
401	M	nMS	14	1	STIM	24	to NUP	0	44	84	0	0	4.0417
401	M	nMS	14	1	STIM	25	to RED	0	45	90	0	0	2.3586
401	M	nMS	14	1	STIM	26	to NUP	0	44	84	0	0	2.3954
401	M	nMS	14	1	STIM	27	to RED	0	45	90	0	0	3.1854
401	M	nMS	14	1	STIM	28	to NUP	0	44	84	0	0.5	4.8162
401	M	nMS	14	1	STIM	29	to RED	0	45	90	0	0	3.7001
401	M	nMS	14	1	STIM	30	to NUP	0	44	84	0.5	0.5	4.3757
401	M	nMS	14	1	STIM	31	to RED	0	45	90	0	0	4.2908
401	M	nMS	14	1	STIM	32	to NUP	0	44	84	0	0	4.4378
401	M	nMS	14	1	STIM	33	to RED	0	45	90	0	0	2.5429
401	M	nMS	14	1	STIM	34	to NUP	0	43.5	81	0	0	3.1297
401	M	nMS	14	1	STIM	35	to RED	0	45	90	0	0	3.4296
401	M	nMS	14	1	STIM	36	to NUP	0	44	84	0	0	3.788
401	M	nMS	23	1	POST	37	to RED	0	43	78	2.42	5.5	7.8699
401	M	nMS	23	1	POST	38	to NUP	0	41	66	9.68	12	5.2978
401	M	nMS	23	1	POST	39	to RED	1	43	78	3.38	5	5.4571
401	M	nMS	23	1	POST	40	to NUP	2	41	66	12.97	10	4.8809
401	M	nMS	23	1	POST	41	to RED	1	43.5	81	5.45	6	4.8493
401	M	nMS	23	1	POST	42	to NUP	2	41	66	12.75	7	6.7665
401	M	nMS	0	1	post		to RED	0	46	96		0	
401	M	nMS	0	1	post		to NUP	0	46.5	99		0	
401	M	nMS	0	1	post		to RED	0	47	102		0	
401	M	nMS	0	1	post		to NUP	0	46	96		0	
401	M	nMS	0	1	post		to RED	0	46	96		0	
401	M	nMS	0	1	post		to NUP	0	46	96		0	
401	M	nMS	0	1	calibration		NUP						
401	M	nMS	0	1	calibration		NUP						
401	M	nMS	0	1	calibration		NUP						
401	M	nMS	0	2	calibration		NUP						
401	M	nMS	0	2	calibration		NUP						
401	M	nMS	0	2	calibration		NUP						
401	M	nMS	0	2	pre		to RED	0	46	96	0	0	
401	M	nMS	0	2	pre		to NUP	0	45	90	0	0	
401	M	nMS	0	2	pre		to RED	0	45	90	0	0	
401	M	nMS	0	2	pre		to NUP	0	45	90	0	0	
401	M	nMS	0	2	pre		to RED	0	45.5	93	0	0	
401	M	nMS	0	2	pre		to NUP	0	45	90	0	0	
401	M	nMS	23	2	PRE	1	to RED	0	42	72	3	6	4.4431
401	M	nMS	23	2	PRE	2	to NUP	0	42	72	10.47	13	5.693
401	M	nMS	23	2	PRE	3	to RED	0	41.5	69	3.78	5	5.1095
401	M	nMS	23	2	PRE	4	to NUP	0	42	72	10.33	12	4.5256
401	M	nMS	23	2	PRE	5	to RED	0	42.5	75	5.52	5	4.7675
401	M	nMS	23	2	PRE	6	to NUP	0	42	72	10.53	11	4.4358
401	M	nMS	23	2	STIM	7	to RED	0	42	72	4.32	4	6.0626
401	M	nMS	23	2	STIM	8	to NUP	0	42.5	75	7.68	11	4.129
401	M	nMS	23	2	STIM	9	to RED	0	43	78	3.92	3	5.4151
401	M	nMS	23	2	STIM	10	to NUP	0	42	72	8.87	10	4.081
401	M	nMS	23	2	STIM	11	to RED	0	44	84	2.65	1	4.5535
401	M	nMS	23	2	STIM	12	to NUP	0	43	78	7.45	9	3.7777
401	M	nMS	23	2	STIM	13	to RED	0	43.5	81	2.75	1	3.151
401	M	nMS	23	2	STIM	14	to NUP	0	44	84	5.83	7	4.0764
401	M	nMS	23	2	STIM	15	to RED	0	44	84	1.83	1	3.6223
401	M	nMS	23	2	STIM	16	to NUP	0	43.5	81	7.4	6	4.8531
401	M	nMS	23	2	STIM	17	to RED	0	43.5	81	1.17	0.5	3.8499
401	M	nMS	23	2	STIM	18	to NUP	0	43	78	8.38	6	4.2558
401	M	nMS	23	2	STIM	19	to RED	0	43.5	81	1.92	0.5	3.0333
401	M	nMS	23	2	STIM	20	to NUP	0	43.5	81	7.97	5.5	3.8233
401	M	nMS	23	2	STIM	21	to RED	0	44	84	0	0	4.1496

401	M	nMS	23	2	STIM	22	to NUP	0	43.5	81	8.33	5	3.7814
401	M	nMS	23	2	STIM	23	to RED	0	43.5	81	0	0	3.1961
401	M	nMS	23	2	STIM	24	to NUP	0	43	78	6.95	4.5	4.1339
401	M	nMS	23	2	STIM	25	to RED	0	44	84	0	0	5.1466
401	M	nMS	23	2	STIM	26	to NUP	0	43	78	8.8	5	4.4276
401	M	nMS	23	2	STIM	27	to RED	0	43.5	81	0.4	0	3.0449
401	M	nMS	23	2	STIM	28	to NUP	0	44	84	6.62	4	3.414
401	M	nMS	23	2	STIM	29	to RED	0	44	84	0.35	0.5	4.9255
401	M	nMS	23	2	STIM	30	to NUP	0	44	84	7.68	5	3.6393
401	M	nMS	23	2	STIM	31	to RED	0	43.5	81	0	0	4.1093
401	M	nMS	23	2	STIM	32	to NUP	1	44	84	6.47	4	6.2127
401	M	nMS	23	2	STIM	33	to RED	0	44.5	87	0	0	4.1752
401	M	nMS	23	2	STIM	34	to NUP	1	43	78	7.35	5	3.9703
401	M	nMS	23	2	STIM	35	to RED	0	44.5	87	0	0	3.7928
401	M	nMS	23	2	STIM	36	to NUP	1	43.5	81	7.65	3.5	3.2764
401	M	nMS	23	2	POST	37	to RED	0	44	84	0	0	4.374
401	M	nMS	23	2	POST	38	to NUP	0	43.5	81	5.2	3	3.3541
401	M	nMS	23	2	POST	39	to RED	0	44.5	87	0	0	4.7329
401	M	nMS	23	2	POST	40	to NUP	1	43.5	81	7.83	4	4.1514
401	M	nMS	23	2	POST	41	to RED	0	43.5	81	0	0	4.7865
401	M	nMS	23	2	POST	42	to NUP	2	43	78	6.92	3.5	3.9047
401	M	nMS	0	2	post		to RED	1	47	102		0	
401	M	nMS	0	2	post		to NUP	1	45.5	93		1	
401	M	nMS	0	2	post		to RED	0	46.5	99		0	
401	M	nMS	0	2	post		to NUP	0	46.5	99		0	
401	M	nMS	0	2	post		to RED	0	46	96		0	
401	M	nMS	0	2	post		to NUP	0	45.5	93		0	
401	M	nMS	0	2	calibration		NUP						
401	M	nMS	0	2	calibration		NUP						
401	M	nMS	0	2	calibration		NUP						
401	M	nMS	0	3	calibration		NUP						
401	M	nMS	0	3	calibration		NUP						
401	M	nMS	0	3	calibration		NUP						
401	M	nMS	0	3	pre		to RED	0	45.5	93	0	0	
401	M	nMS	0	3	pre		to NUP	0	45	90	0	0	
401	M	nMS	0	3	pre		to RED	0	45	90	0	0	
401	M	nMS	0	3	pre		to NUP	0	45	90	0	0	
401	M	nMS	0	3	pre		to RED	0	45	90	0	0	
401	M	nMS	0	3	pre		to NUP	0	45	90	0	0	
401	M	nMS	23	3	PRE	1	to RED	0	43	78	5	6	3.9065
401	M	nMS	23	3	PRE	2	to NUP	0	42	72	10.45	11	3.4931
401	M	nMS	23	3	PRE	3	to RED	0	43.5	81	1.48	3	5.4181
401	M	nMS	23	3	PRE	4	to NUP	0	42.5	75	7.63	10	3.2819
401	M	nMS	23	3	PRE	5	to RED	0	42	72	2.2	1.5	2.9759
401	M	nMS	23	3	PRE	6	to NUP	0	41.5	69	7.05	8	4.4612
401	M	nMS	30	3	STIM	7	to RED	0	41	66	5	7	5.5174
401	M	nMS	30	3	STIM	8	to NUP	0	39	54	11.03	14	6.0725
401	M	nMS	30	3	STIM	9	to RED	0	40	60	4.18	5	5.0866
401	M	nMS	30	3	STIM	10	to NUP	0	39	54	10.78	12	4.0674
401	M	nMS	30	3	STIM	11	to RED	0	40	60	1.82	1	5.4027
401	M	nMS	30	3	STIM	12	to NUP	0	39	54	8.65	11	3.644
401	M	nMS	30	3	STIM	13	to RED	0	40	60	0.65	0.5	3.9517
401	M	nMS	30	3	STIM	14	to NUP	1	40	60	9.87	8	4.4609
401	M	nMS	30	3	STIM	15	to RED	0	40	60	0	0	4.1207
401	M	nMS	30	3	STIM	16	to NUP	1	39	54	8.18	8	5.407
401	M	nMS	30	3	STIM	17	to RED	0	40	60	0	0	4.8178
401	M	nMS	30	3	STIM	18	to NUP	1	39.5	57	8.88	7	3.5066
401	M	nMS	30	3	STIM	19	to RED	0	41	66	1.02	1	5.9058
401	M	nMS	30	3	STIM	20	to NUP	0	40	60	4.1	5	4.0589
401	M	nMS	30	3	STIM	21	to RED	0	41.5	69	1.12	1	4.4985
401	M	nMS	30	3	STIM	22	to NUP	1	41	66	10.7	4	3.954
401	M	nMS	30	3	STIM	23	to RED	0	42	72	0	0	3.3976
401	M	nMS	30	3	STIM	24	to NUP	1	41	66	9.22	5	5.525
401	M	nMS	30	3	STIM	25	to RED	0	42.5	75	0	0	4.1408
401	M	nMS	30	3	STIM	26	to NUP	0	41.5	69	6.85	4	3.7207
401	M	nMS	30	3	STIM	27	to RED	0	43.5	81	0	0	3.6996
401	M	nMS	30	3	STIM	28	to NUP	1	42	72	6.93	2	3.7037
401	M	nMS	30	3	STIM	29	to RED	0	43	78	0	0	4.8966
401	M	nMS	30	3	STIM	30	to NUP	0	42	72	8.38	2	4.1334
401	M	nMS	30	3	STIM	31	to RED	0	43.5	81	0	0	4.9486
401	M	nMS	30	3	STIM	32	to NUP	1	41.5	69	6.53	1.5	3.3541
401	M	nMS	30	3	STIM	33	to RED	0	43	78	0	0	4.4937
401	M	nMS	30	3	STIM	34	to NUP	1	42	72	6.78	1	3.1959
401	M	nMS	30	3	STIM	35	to RED	0	44	84	0	0	4.6375
401	M	nMS	30	3	STIM	36	to NUP	1	42.5	75	8.07	1	3.8847
401	M	nMS	23	3	POST	37	to RED	0	49	114	0	0	4.6898
401	M	nMS	23	3	POST	38	to NUP	0	46	96	0	0	4.5343
401	M	nMS	23	3	POST	39	to RED	0	48	108	0	0	4.9706
401	M	nMS	23	3	POST	40	to NUP	0	45.5	93	0	0	4.5583
401	M	nMS	23	3	POST	41	to RED	0	47	102	0	0	5.3475
401	M	nMS	23	3	POST	42	to NUP	0	44.5	87	0.5	1	4.3767
401	M	nMS	0	3	post		to RED	0	46.5	99		0	
401	M	nMS	0	3	post		to NUP	0	50	120		0	
401	M	nMS	0	3	post		to RED	0	46.5	99		0	
401	M	nMS	0	3	post		to NUP	0	47	102		0	
401	M	nMS	0	3	post		to RED	0	46	96		0	
401	M	nMS	0	3	post		to NUP	0	47.5	105		0	
401	M	nMS	0	3	calibration		NUP						
401	M	nMS	0	3	calibration		NUP						
401	M	nMS	0	3	calibration		NUP						
402	F	MS	0	1	calibration		NUP						
402	F	MS	0	1	calibration		NUP						
402	F	MS	0	1	calibration		NUP						
402	F	MS	0	1	pre		to RED	0	45	90	0	0	
402	F	MS	0	1	pre		to NUP	0	45	90	0	0	
402	F	MS	0	1	pre		to RED	0	45	90	0	0	
402	F	MS	0	1	pre		to NUP	0	45	90	0	0	
402	F	MS	0	1	pre		to RED	0	45	90	0	0	

402	F	MS	0	1	pre		to NUP	0	45	90	0	0	
402	F	MS	23	1	PRE	1	to RED	0	45	90	3.72	10	4.2786
402	F	MS	23	1	PRE	2	to NUP	0	43	78	7.23	12	4.4867
402	F	MS	23	1	PRE	3	to RED	0	45	90	2.78	9	5.8044
402	F	MS	23	1	PRE	4	to NUP	1	43	78	5.18	11	4.9419
402	F	MS	23	1	PRE	5	to RED	0	45	90	3.87	7	5.4485
402	F	MS	23	1	PRE	6	to NUP	0	44	84	5.95	10	3.8758
402	F	MS	14	1	STIM	7	to RED	0	45	90	2.6	8	6.2674
402	F	MS	14	1	STIM	8	to NUP	0	43	78	3.68	10	4.0663
402	F	MS	14	1	STIM	9	to RED	1	45	90	2.92	7	7.7967
402	F	MS	14	1	STIM	10	to NUP	1	43	78	3.02	9	3.9754
402	F	MS	14	1	STIM	11	to RED	1	45	90	3.67	7	6.1547
402	F	MS	14	1	STIM	12	to NUP	2	43	78	4.45	9	5.6545
402	F	MS	14	1	STIM	13	to RED	1	45	90	4.35	7	5.3899
402	F	MS	14	1	STIM	14	to NUP	2	43	78	5.5	9	5.151
402	F	MS	14	1	STIM	15	to RED	1	45	90	3.48	6	6.4102
402	F	MS	14	1	STIM	16	to NUP	1	44	84	6.12	8	5.6782
402	F	MS	14	1	STIM	17	to RED	1	45	90	3.8	6	6.1845
402	F	MS	14	1	STIM	18	to NUP	2	43	78	6.65	8	4.6776
402	F	MS	14	1	STIM	19	to RED	2	45	90	4.17	6	6.4896
402	F	MS	14	1	STIM	20	to NUP	3	44	84	4.93	8	5.585
402	F	MS	14	1	STIM	21	to RED	2	45	90	4.83	5	7.8117
402	F	MS	14	1	STIM	22	to NUP	3	43	78	6.08	8	3.82
402	F	MS	14	1	STIM	23	to RED	2	45	90	3.33	5	5.5523
402	F	MS	14	1	STIM	24	to NUP	2	44	84	5.93	8	4.7361
402	F	MS	14	1	STIM	25	to RED	2	45	90	4.95	5	4.7362
402	F	MS	14	1	STIM	26	to NUP	2	44	84	6.12	7	4.5696
402	F	MS	14	1	STIM	27	to RED	2	45	90	4.83	5	4.3192
402	F	MS	14	1	STIM	28	to NUP	2	43	78	6.77	7	6.7621
402	F	MS	14	1	STIM	29	to RED	2	45	90	5.95	5	4.4087
402	F	MS	14	1	STIM	30	to NUP	3	43	78	7.37	7	5.3965
402	F	MS	14	1	STIM	31	to RED	2	45	90	5.93	5	5.6545
402	F	MS	14	1	STIM	32	to NUP	3	43	78	5.7	7	4.1945
402	F	MS	14	1	STIM	33	to RED	2	45	90	5.57	5	5.4981
402	F	MS	14	1	STIM	34	to NUP	3	43	78	7.12	7.5	4.5357
402	F	MS	14	1	STIM	35	to RED	2	45	90	4.05	5	5.0337
402	F	MS	14	1	STIM	36	to NUP	3	43	78	6.82	7	4.5863
402	F	MS	23	1	POST	37	to RED	2	45	90	7.48	8	8.6228
402	F	MS	23	1	POST	38	to NUP	3	43	78	6.85	11	5.3527
402	F	MS	23	1	POST	39	to RED	3	45	90	6.22	8	6.1381
402	F	MS	23	1	POST	40	to NUP	3	43	78	6.63	10	5.3193
402	F	MS	23	1	POST	41	to RED	3	45	90	7	8	4.644
402	F	MS	23	1	POST	42	to NUP	3	44	84	7.12	9	3.4867
402	F	MS	0	1	post		to RED	1	45	90		1	
402	F	MS	0	1	post		to NUP	2	44	84		3	
402	F	MS	0	1	post		to RED	1	45	90		1	
402	F	MS	0	1	post		to NUP	2	45	90		2	
402	F	MS	0	1	post		to RED	1	45	90		1	
402	F	MS	0	1	post		to NUP	1	45	90		2	
402	F	MS	0	1	calibration		NUP						
402	F	MS	0	1	calibration		NUP						
402	F	MS	0	1	calibration		NUP						
402	F	MS	0	2	calibration		NUP						
402	F	MS	0	2	calibration		NUP						
402	F	MS	0	2	calibration		NUP						
402	F	MS	0	2	pre		to RED	0	45	90	0	0	
402	F	MS	0	2	pre		to NUP	0	45	90	0	0	
402	F	MS	0	2	pre		to RED	0	45	90	0	0	
402	F	MS	0	2	pre		to NUP	0	45	90	0	0	
402	F	MS	0	2	pre		to RED	0	45	90	0	0	
402	F	MS	0	2	pre		to NUP	0	45	90	0	0	
402	F	MS	23	2	PRE	1	to RED	0	45	90	3.75	9	3.1275
402	F	MS	23	2	PRE	2	to NUP	1	43	78	6.38	12	4.4109
402	F	MS	23	2	PRE	3	to RED	1	45	90	4.52	9	3.7261
402	F	MS	23	2	PRE	4	to NUP	1	43	78	8.1	11	4.537
402	F	MS	23	2	PRE	5	to RED	1	45	90	4.73	8	5.4515
402	F	MS	23	2	PRE	6	to NUP	1	43	78	7.47	10	4.6905
402	F	MS	23	2	STIM	7	to RED	1	45	90	5.48	9	7.3357
402	F	MS	23	2	STIM	8	to NUP	2	45	90	6.52	10	4.1113
402	F	MS	23	2	STIM	9	to RED	2	45	90	4.8	8	7.5125
402	F	MS	23	2	STIM	10	to NUP	2	43	78	6.17	10	2.645
402	F	MS	23	2	STIM	11	to RED	2	45	90	5.12	7	2.6649
402	F	MS	23	2	STIM	12	to NUP	2	43	78	8.1	9	3.4985
402	F	MS	23	2	STIM	13	to RED	2	44	84	5.53	7	7.1979
402	F	MS	23	2	STIM	14	to NUP	2	43	78	7.35	9	2.3411
402	F	MS	23	2	STIM	15	to RED	2	45	90	3.98	6	6.2018
402	F	MS	23	2	STIM	16	to NUP	2	43	78	6.65	8	2.8711
402	F	MS	23	2	STIM	17	to RED	2	45	90	5.05	6	3.8195
402	F	MS	23	2	STIM	18	to NUP	3	43	78	5.07	8	3.6687
402	F	MS	23	2	STIM	19	to RED	3	44	84	5.82	7	4.3915
402	F	MS	23	2	STIM	20	to NUP	3	43	78	5.23	8	2.7819
402	F	MS	23	2	STIM	21	to RED	3	45	90	5	6	3.9415
402	F	MS	23	2	STIM	22	to NUP	3	43	78	5.23	7	3.2858
402	F	MS	23	2	STIM	23	to RED	3	45	90	4.1	5	4.1813
402	F	MS	23	2	STIM	24	to NUP	3	43	78	6.57	7	2.3327
402	F	MS	23	2	STIM	25	to RED	3	45	90	4.95	6	5.5908
402	F	MS	23	2	STIM	26	to NUP	4	43	78	6.77	7	3.6472
402	F	MS	23	2	STIM	27	to RED	4	44	84	5.3	5	3.3208
402	F	MS	23	2	STIM	28	to NUP	4	43	78	6.05	7	4.0738
402	F	MS	23	2	STIM	29	to RED	4	44	84	4.32	5	3.8604
402	F	MS	23	2	STIM	30	to NUP	4	43	78	6.88	7	3.013
402	F	MS	23	2	STIM	31	to RED	4	44	84	5.15	5	4.8786
402	F	MS	23	2	STIM	32	to NUP	4	43	78	4.88	6	2.9386
402	F	MS	23	2	STIM	33	to RED	4	44	84	4.48	5	1.9974
402	F	MS	23	2	STIM	34	to NUP	4	43	78	7.5	6	4.4338
402	F	MS	23	2	STIM	35	to RED	4	45	90	4.75	4	2.5471
402	F	MS	23	2	STIM	36	to NUP	4	43	78	6.93	6	2.0219
402	F	MS	23	2	POST	37	to RED	3	44	84	4.05	4	4.1428

402	F	MS	23	2	POST	38	to NUP	3	43	78	6.35	5	4.4795
402	F	MS	23	2	POST	39	to RED	3	44	84	4.55	4	2.91
402	F	MS	23	2	POST	40	to NUP	4	43	78	5.53	5	2.9382
402	F	MS	23	2	POST	41	to RED	4	44	84	4.45	4	3.9261
402	F	MS	23	2	POST	42	to NUP	4	43	78	5.95	5	2.1269
402	F	MS	0	2	post		to RED	1	45	90		1	
402	F	MS	0	2	post		to NUP	1	45	90		2	
402	F	MS	0	2	post		to RED	1	45	90		1	
402	F	MS	0	2	post		to NUP	1	45	90		2	
402	F	MS	0	2	post		to RED	1	45	90		1	
402	F	MS	0	2	post		to NUP	1	45	90		1	
402	F	MS	0	2	calibration		NUP						
402	F	MS	0	2	calibration		NUP						
402	F	MS	0	2	calibration		NUP						
402	F	MS	0	3	calibration		NUP						
402	F	MS	0	3	calibration		NUP						
402	F	MS	0	3	calibration		NUP						
402	F	MS	0	3	pre		to RED	0	45	90	0	0	
402	F	MS	0	3	pre		to NUP	0	45	90	0	0	
402	F	MS	0	3	pre		to RED	0	45	90	0	0	
402	F	MS	0	3	pre		to NUP	0	45	90	0	0	
402	F	MS	0	3	pre		to RED	0	45	90	0	0	
402	F	MS	0	3	pre		to NUP	0	45	90	0	0	
402	F	MS	23	3	PRE	1	to RED	0	45	90	3.88	9	4.8486
402	F	MS	23	3	PRE	2	to NUP	1	44	84	5.65	11	3.1332
402	F	MS	23	3	PRE	3	to RED	1	45	90	2.8	8	5.0539
402	F	MS	23	3	PRE	4	to NUP	1	44	84	7.33	9	4.4969
402	F	MS	23	3	PRE	5	to RED	1	45	90	3.93	7	3.1732
402	F	MS	23	3	PRE	6	to NUP	1	44	84	5.57	8	3.4215
402	F	MS	30	3	STIM	7	to RED	1	45	90	6.3	9	6.7033
402	F	MS	30	3	STIM	8	to NUP	1	43	78	7.9	13	4.4244
402	F	MS	30	3	STIM	9	to RED	1	45	90	5.85	9	2.8211
402	F	MS	30	3	STIM	10	to NUP	2	43	78	7.05	12	4.4567
402	F	MS	30	3	STIM	11	to RED	2	45	90	6.63	9	5.7906
402	F	MS	30	3	STIM	12	to NUP	2	45	90	9.92	12	4.9829
402	F	MS	30	3	STIM	13	to RED	2	45	90	5.78	9	2.2014
402	F	MS	30	3	STIM	14	to NUP	3	43	78	6.6	12	4.4225
402	F	MS	30	3	STIM	15	to RED	2	45	90	5.13	8	3.8338
402	F	MS	30	3	STIM	16	to NUP	3	43	78	7.9	12	5.702
402	F	MS	30	3	STIM	17	to RED	3	45	90	6.22	8	4.5153
402	F	MS	30	3	STIM	18	to NUP	3	43	78	6.23	12	1.9837
402	F	MS	30	3	STIM	19	to RED	3	45	90	9.22	7	4.5999
402	F	MS	30	3	STIM	20	to NUP	3	43	78	5.85	11	4.0722
402	F	MS	30	3	STIM	21	to RED	3	45	90	6.08	8	2.9157
402	F	MS	30	3	STIM	22	to NUP	3	43	78	8.33	11	3.1592
402	F	MS	30	3	STIM	23	to RED	3	45	90	7.93	8	6.0531
402	F	MS	30	3	STIM	24	to NUP	4	43	78	8.42	12	4.7638
402	F	MS	30	3	STIM	25	to RED	3	45	90	6.23	8	5.1613
402	F	MS	30	3	STIM	26	to NUP	4	43	78	6.13	12	3.9894
402	F	MS	30	3	STIM	27	to RED	3	45	90	5.97	8	4.0625
402	F	MS	30	3	STIM	28	to NUP	4	44	84	8.67	11	3.785
402	F	MS	30	3	STIM	29	to RED	3	45	90	4.65	7	4.3819
402	F	MS	30	3	STIM	30	to NUP	4	43	78	6.93	12	2.3318
402	F	MS	30	3	STIM	31	to RED	4	45	90	6.55	9	4.291
402	F	MS	30	3	STIM	32	to NUP	4	43	78	8.6	12	3.2538
402	F	MS	30	3	STIM	33	to RED	4	45	90	6.02	8	3.8992
402	F	MS	30	3	STIM	34	to NUP	4	43	78	6.35	11	4.4782
402	F	MS	30	3	STIM	35	to RED	4	45	90	5.97	8	5.1948
402	F	MS	30	3	STIM	36	to NUP	4	43	78	7.52	12	2.8415
402	F	MS	23	3	POST	37	to RED	3	45	90	5.98	6	5.6314
402	F	MS	23	3	POST	38	to NUP	3	44	84	5.73	8	2.4193
402	F	MS	23	3	POST	39	to RED	3	45	90	6.35	5	4.4719
402	F	MS	23	3	POST	40	to NUP	3	44	84	5.25	7	3.689
402	F	MS	23	3	POST	41	to RED	3	45	90	4.77	5	5.458
402	F	MS	23	3	POST	42	to NUP	3	43	78	4.9	7	3.1001
402	F	MS	0	3	post		to RED	1	45	90		1	
402	F	MS	0	3	post		to NUP	1	45	90		1	
402	F	MS	0	3	post		to RED	1	45	90		0	
402	F	MS	0	3	post		to NUP	1	45	90		0	
402	F	MS	0	3	post		to RED	1	45	90		0	
402	F	MS	0	3	post		to NUP	1	45	90		0	
402	F	MS	0	3	calibration		NUP						
402	F	MS	0	3	calibration		NUP						
402	F	MS	0	3	calibration		NUP						
403	M	nMS	0	1	calibration		NUP						
403	M	nMS	0	1	calibration		NUP						
403	M	nMS	0	1	calibration		NUP						
403	M	nMS	0	1	pre		to RED	0	45	90	0	0	
403	M	nMS	0	1	pre		to NUP	0	45	90	0	0	
403	M	nMS	0	1	pre		to RED	0	45	90	0	0	
403	M	nMS	0	1	pre		to NUP	0	45	90	0	0	
403	M	nMS	0	1	pre		to RED	0	45	90	0	0	
403	M	nMS	0	1	pre		to NUP	0	45	90	0	0	
403	M	nMS	23	1	PRE	1	to RED	1	46	96	5.4	10	5.1646
403	M	nMS	23	1	PRE	2	to NUP	0	45	90	10.35	15	3.346
403	M	nMS	23	1	PRE	3	to RED	0	45	90	9.37	9	5.6838
403	M	nMS	23	1	PRE	4	to NUP	0	44	84	11.27	10	4.4516
403	M	nMS	23	1	PRE	5	to RED	0	45	90	10.3	8	3.1341
403	M	nMS	23	1	PRE	6	to NUP	0	45	90	6.32	6	2.9702
403	M	nMS	14	1	STIM	7	to RED	0	45	90	4.72	3	5.1243
403	M	nMS	14	1	STIM	8	to NUP	0	46	96	5.48	3	4.5861
403	M	nMS	14	1	STIM	9	to RED	0	45	90	3.78	1	5.2812
403	M	nMS	14	1	STIM	10	to NUP	0	45	90	7.23	1	4.8736
403	M	nMS	14	1	STIM	11	to RED	0	45	90	9.15	1	4.2041
403	M	nMS	14	1	STIM	12	to NUP	0	45	90	7.53	1	4.0269
403	M	nMS	14	1	STIM	13	to RED	0	45	90	8.62	1	4.4365
403	M	nMS	14	1	STIM	14	to NUP	0	45	90	8.87	1	3.2571
403	M	nMS	14	1	STIM	15	to RED	0	45	90	0	0	4.1141

403	M	nMS	14	1	STIM	16	to NUP	0	45	90	11.72	1	3.0244
403	M	nMS	14	1	STIM	17	to RED	0	45	90	10.08	1	2.5747
403	M	nMS	14	1	STIM	18	to NUP	0	45	90	11.63	1	4.1455
403	M	nMS	14	1	STIM	19	to RED	0	45	90	9.63	1	3.5768
403	M	nMS	14	1	STIM	20	to NUP	0	45	90	10.63	1	4.0089
403	M	nMS	14	1	STIM	21	to RED	0	45	90	10.8	1	4.1215
403	M	nMS	14	1	STIM	22	to NUP	0	45	90	11.4	2	4.1733
403	M	nMS	14	1	STIM	23	to RED	0	45	90	0	0	3.7853
403	M	nMS	14	1	STIM	24	to NUP	0	45	90	11.35	1	4.601
403	M	nMS	14	1	STIM	25	to RED	0	45	90	14.15	1	2.4044
403	M	nMS	14	1	STIM	26	to NUP	0	45	90	10.72	1	5.6798
403	M	nMS	14	1	STIM	27	to RED	0	45	90	0	0	3.9051
403	M	nMS	14	1	STIM	28	to NUP	0	45	90	13.97	1	3.8287
403	M	nMS	14	1	STIM	29	to RED	0	45	90	13.02	1	3.1745
403	M	nMS	14	1	STIM	30	to NUP	0	45	90	9.35	1	2.9975
403	M	nMS	14	1	STIM	31	to RED	0	45	90	16.8	1	2.5421
403	M	nMS	14	1	STIM	32	to NUP	0	45	90	8.22	1	4.5645
403	M	nMS	14	1	STIM	33	to RED	0	45	90	10.02	1	4.3633
403	M	nMS	14	1	STIM	34	to NUP	0	45	90	11.67	1	2.4451
403	M	nMS	14	1	STIM	35	to RED	0	45	90	9.9	1	2.7935
403	M	nMS	14	1	STIM	36	to NUP	0	45	90	0	0	2.6718
403	M	nMS	23	1	POST	37	to RED	0	45	90	7.02	4	2.3618
403	M	nMS	23	1	POST	38	to NUP	0	45	90	12.93	4	4.0131
403	M	nMS	23	1	POST	39	to RED	0	44	84	13.32	4	4.6869
403	M	nMS	23	1	POST	40	to NUP	0	45	90	14.85	5	3.0066
403	M	nMS	23	1	POST	41	to RED	0	45	90	12.25	3	2.2745
403	M	nMS	23	1	POST	42	to NUP	0	45	90	10	3	2.9766
403	M	nMS	0	1	post		to RED	0	45	90		0	
403	M	nMS	0	1	post		to NUP	0	45	90		0	
403	M	nMS	0	1	post		to RED	0	45	90		0	
403	M	nMS	0	1	post		to NUP	0	45	90		0	
403	M	nMS	0	1	post		to RED	0	45	90		0	
403	M	nMS	0	1	post		to NUP	0	45	90		0	
403	M	nMS	0	1	calibration		NUP						
403	M	nMS	0	1	calibration		NUP						
403	M	nMS	0	1	calibration		NUP						
403	M	nMS	0	2	calibration		NUP						
403	M	nMS	0	2	calibration		NUP						
403	M	nMS	0	2	calibration		NUP						
403	M	nMS	0	2	pre		to RED	0	45	90	0	0	
403	M	nMS	0	2	pre		to NUP	0	45	90	0	0	
403	M	nMS	0	2	pre		to RED	0	45	90	0	0	
403	M	nMS	0	2	pre		to NUP	0	45	90	0	0	
403	M	nMS	0	2	pre		to RED	0	45	90	0	0	
403	M	nMS	0	2	pre		to NUP	0	45	90	0	0	
403	M	nMS	23	2	PRE	1	to RED	2	47	102	4.52	4	3.3223
403	M	nMS	23	2	PRE	2	to NUP	1	45	90	9.75	7	4.3639
403	M	nMS	23	2	PRE	3	to RED	0	45	90	9.83	3	4.0582
403	M	nMS	23	2	PRE	4	to NUP	0	45	90	11.88	8	4.4815
403	M	nMS	23	2	PRE	5	to RED	0	45	90	10.97	5	4.7068
403	M	nMS	23	2	PRE	6	to NUP	0	45	90	10.7	5	2.5827
403	M	nMS	23	2	STIM	7	to RED	0	44	84	16.22	4	4.9807
403	M	nMS	23	2	STIM	8	to NUP	0	45	90	13.6	4	4.718
403	M	nMS	23	2	STIM	9	to RED	0	45	90	14.32	4	4.261
403	M	nMS	23	2	STIM	10	to NUP	0	45	90	13.47	3	2.498
403	M	nMS	23	2	STIM	11	to RED	0	46	96	14.38	4	2.4785
403	M	nMS	23	2	STIM	12	to NUP	0	45	90	10.13	3	3.0101
403	M	nMS	23	2	STIM	13	to RED	0	45	90	17.67	3	2.4725
403	M	nMS	23	2	STIM	14	to NUP	0	45	90	10.75	3	3.8377
403	M	nMS	23	2	STIM	15	to RED	0	44	84	13.2	2	2.8125
403	M	nMS	23	2	STIM	16	to NUP	0	45	90	10.83	3	2.2767
403	M	nMS	23	2	STIM	17	to RED	0	45	90	14.28	3	2.8773
403	M	nMS	23	2	STIM	18	to NUP	0	45	90	18.6	3	3.8151
403	M	nMS	23	2	STIM	19	to RED	0	44	84	8.73	2	2.436
403	M	nMS	23	2	STIM	20	to NUP	0	45	90	14	3	2.5187
403	M	nMS	23	2	STIM	21	to RED	0	45	90	16.67	2	2.0874
403	M	nMS	23	2	STIM	22	to NUP	0	47	102	13.97	2	2.0645
403	M	nMS	23	2	STIM	23	to RED	0	45	90	13.65	3	1.9539
403	M	nMS	23	2	STIM	24	to NUP	0	45	90	15.08	4	2.2006
403	M	nMS	23	2	STIM	25	to RED	0	45	90	14.98	3	3.1544
403	M	nMS	23	2	STIM	26	to NUP	0	45	90	16.22	4	2.0985
403	M	nMS	23	2	STIM	27	to RED	1	45	90	7.17	2	2.9908
403	M	nMS	23	2	STIM	28	to NUP	0	45	90	17.22	3	2.051
403	M	nMS	23	2	STIM	29	to RED	0	45	90	13.87	2	4.1473
403	M	nMS	23	2	STIM	30	to NUP	0	45	90	12.17	4	4.1816
403	M	nMS	23	2	STIM	31	to RED	1	45	90	12.12	3	2.8304
403	M	nMS	23	2	STIM	32	to NUP	0	45	90	14.98	3	2.2593
403	M	nMS	23	2	STIM	33	to RED	0	45	90	15.55	3	2.9447
403	M	nMS	23	2	STIM	34	to NUP	1	44	84	8.78	3	3.1038
403	M	nMS	23	2	STIM	35	to RED	0	45	90	12.43	3	1.99
403	M	nMS	23	2	STIM	36	to NUP	0	45	90	19.18	4	3.5257
403	M	nMS	23	2	POST	37	to RED	0	45	90	12.07	3	2.8533
403	M	nMS	23	2	POST	38	to NUP	0	48	108	15.67	3	2.9608
403	M	nMS	23	2	POST	39	to RED	0	45	90	18.6	3	1.7787
403	M	nMS	23	2	POST	40	to NUP	0	45	90	14.7	3	4.4033
403	M	nMS	23	2	POST	41	to RED	0	45	90	10.8	2	2.7392
403	M	nMS	23	2	POST	42	to NUP	0	44	84	9.4	2	3.1142
403	M	nMS	0	2	post		to RED	0	49	114		0	
403	M	nMS	0	2	post		to NUP	0	46	96		0	
403	M	nMS	0	2	post		to RED	2	45	90		0	
403	M	nMS	0	2	post		to NUP	1	45	90		0	
403	M	nMS	0	2	post		to RED	0	45	90		0	
403	M	nMS	0	2	post		to NUP	0	45	90		0	
403	M	nMS	0	2	calibration		NUP						
403	M	nMS	0	2	calibration		NUP						
403	M	nMS	0	2	calibration		NUP						
403	M	nMS	0	3	calibration		NUP						
403	M	nMS	0	3	calibration		NUP						

403	M	nMS	0	3	calibration		NUP						
403	M	nMS	0	3	pre		to RED	0	45	90	0	0	
403	M	nMS	0	3	pre		to NUP	0	45	90	0	0	
403	M	nMS	0	3	pre		to RED	0	45	90	0	0	
403	M	nMS	0	3	pre		to NUP	0	45	90	0	0	
403	M	nMS	0	3	pre		to RED	0	45	90	0	0	
403	M	nMS	0	3	pre		to NUP	0	45	90	0	0	
403	M	nMS	23	3	PRE	1	to RED	1	46	96	4.37	5	5.9278
403	M	nMS	23	3	PRE	2	to NUP	2	45	90	17.23	7	2.6512
403	M	nMS	23	3	PRE	3	to RED	0	45	90	5.6	4	2.6363
403	M	nMS	23	3	PRE	4	to NUP	2	43	78	18.95	5	4.1008
403	M	nMS	23	3	PRE	5	to RED	1	45	90	12.02	3	3.297
403	M	nMS	23	3	PRE	6	to NUP	2	45	90	12.28	4	4.9902
403	M	nMS	30	3	STIM	7	to RED	1	47	102	5.53	4	2.5199
403	M	nMS	30	3	STIM	8	to NUP	0	42	72	19.25	6	2.7125
403	M	nMS	30	3	STIM	9	to RED	0	45	90	12.7	5	2.6084
403	M	nMS	30	3	STIM	10	to NUP	0	41	66	22.32	6	2.3365
403	M	nMS	30	3	STIM	11	to RED	1	45	90	9.28	5	4.0907
403	M	nMS	30	3	STIM	12	to NUP	0	42	72	17.52	7	4.787
403	M	nMS	30	3	STIM	13	to RED	0	47	102	11.93	6	2.3852
403	M	nMS	30	3	STIM	14	to NUP	0	47	102	18.02	6	2.9163
403	M	nMS	30	3	STIM	15	to RED	0	45	90	15.82	6	3.144
403	M	nMS	30	3	STIM	16	to NUP	1	45	90	19.55	5	4.0974
403	M	nMS	30	3	STIM	17	to RED	1	45	90	10.03	5	3.5699
403	M	nMS	30	3	STIM	18	to NUP	0	45	90	18	5	3.0099
403	M	nMS	30	3	STIM	19	to RED	0	45	90	16.32	5	1.9623
403	M	nMS	30	3	STIM	20	to NUP	3	45	90	26.55	6	2.184
403	M	nMS	30	3	STIM	21	to RED	1	43	78	17.68	4	3.8793
403	M	nMS	30	3	STIM	22	to NUP	0	43	78	17.52	6	2.297
403	M	nMS	30	3	STIM	23	to RED	2	45	90	28.95	4	1.7928
403	M	nMS	30	3	STIM	24	to NUP	3	44	84	15.95	5	2.3465
403	M	nMS	30	3	STIM	25	to RED	0	45	90	10.27	5	4.2916
403	M	nMS	30	3	STIM	26	to NUP	4	46	96	18.2	6	2.0904
403	M	nMS	30	3	STIM	27	to RED	2	43	78	10.18	5	3.3785
403	M	nMS	30	3	STIM	28	to NUP	2	47	102	18.62	6	3.4941
403	M	nMS	30	3	STIM	29	to RED	3	45	90	9.17	5	3.4097
403	M	nMS	30	3	STIM	30	to NUP	4	45	90	19.23	6	3.5471
403	M	nMS	30	3	STIM	31	to RED	2	45	90	12.35	6	2.3494
403	M	nMS	30	3	STIM	32	to NUP	3	46	96	14.85	6	2.1928
403	M	nMS	30	3	STIM	33	to RED	2	45	90	13.15	6	3.4351
403	M	nMS	30	3	STIM	34	to NUP	2	45	90	18.78	5	3.7209
403	M	nMS	30	3	STIM	35	to RED	3	45	90	14.15	5	2.872
403	M	nMS	30	3	STIM	36	to NUP	2	46	96	17.28	5	2.1585
403	M	nMS	23	3	POST	37	to RED	1	45	90	3.52	1	4.1222
403	M	nMS	23	3	POST	38	to NUP	1	46	96	8.62	1	4.3742
403	M	nMS	23	3	POST	39	to RED	2	45	90	8.98	1	2.5978
403	M	nMS	23	3	POST	40	to NUP	1	47	102	12.62	2	1.3976
403	M	nMS	23	3	POST	41	to RED	1	45	90	13.17	1	2.1512
403	M	nMS	23	3	POST	42	to NUP	1	45	90	8.98	1	3.7112
403	M	nMS	0	3	post		to RED	1	47	102		0	
403	M	nMS	0	3	post		to NUP	1	45	90		0	
403	M	nMS	0	3	post		to RED	0	45	90		0	
403	M	nMS	0	3	post		to NUP	1	45	90		0	
403	M	nMS	0	3	post		to RED	0	45	90		0	
403	M	nMS	0	3	post		to NUP	1	45	90		0	
403	M	nMS	0	3	calibration		NUP						
403	M	nMS	0	3	calibration		NUP						
403	M	nMS	0	3	calibration		NUP						
404	M	nMS	0	1	calibration		NUP						
404	M	nMS	0	1	calibration		NUP						
404	M	nMS	0	1	calibration		NUP						
404	M	nMS	0	1	pre		to RED	0	45	90	0	0	
404	M	nMS	0	1	pre		to NUP	0	45	90	0	0	
404	M	nMS	0	1	pre		to RED	0	45	90	0	0	
404	M	nMS	0	1	pre		to NUP	0	45	90	0	0	
404	M	nMS	0	1	pre		to RED	0	45	90	0	0	
404	M	nMS	0	1	pre		to NUP	0	45	90	0	0	
404	M	nMS	23	1	PRE	1	to RED	0	50	120	10.5	10	
404	M	nMS	23	1	PRE	2	to NUP	2	40	60	12.17	13	
404	M	nMS	23	1	PRE	3	to RED	0	50	120	12.6	10	
404	M	nMS	23	1	PRE	4	to NUP	5	40	60	13.33	15	
404	M	nMS	23	1	PRE	5	to RED	1	50	120	10.52	8	
404	M	nMS	23	1	PRE	6	to NUP	2	45	90	10.13	12	
404	M	nMS	14	1	STIM	7	to RED	1	50	120	8.97	6	
404	M	nMS	14	1	STIM	8	to NUP	0	45	90	9.72	11	
404	M	nMS	14	1	STIM	9	to RED	0	50	120	9.75	8	
404	M	nMS	14	1	STIM	10	to NUP	1	45	90	12.23	10	
404	M	nMS	14	1	STIM	11	to RED	1	50	120	8.12	7	
404	M	nMS	14	1	STIM	12	to NUP	1	50	120	8.55	12	
404	M	nMS	14	1	STIM	13	to RED	0	50	120	9.07	9	
404	M	nMS	14	1	STIM	14	to NUP	1	50	120	2.97	12	
404	M	nMS	14	1	STIM	15	to RED	0	50	120	9.38	7	
404	M	nMS	14	1	STIM	16	to NUP	0	50	120	6.83	10	
404	M	nMS	14	1	STIM	17	to RED	0	50	120	7.25	8	
404	M	nMS	14	1	STIM	18	to NUP	0	50	120	8.02	10	
404	M	nMS	14	1	STIM	19	to RED	1	50	120	8.96	10	
404	M	nMS	14	1	STIM	20	to NUP	0	50	120	9.35	9	
404	M	nMS	14	1	STIM	21	to RED	2	50	120	10.67	10	
404	M	nMS	14	1	STIM	22	to NUP	2	50	120	10.12	10	
404	M	nMS	14	1	STIM	23	to RED	0	50	120	11.02	9	
404	M	nMS	14	1	STIM	24	to NUP	0	50	120	7.77	7	
404	M	nMS	14	1	STIM	25	to RED	0	50	120	8.92	6	
404	M	nMS	14	1	STIM	26	to NUP	0	50	120	8.45	8	
404	M	nMS	14	1	STIM	27	to RED	0	50	120	9.55	6	
404	M	nMS	14	1	STIM	28	to NUP	0	50	120	9.13	7	
404	M	nMS	14	1	STIM	29	to RED	0	50	120	8.28	8	
404	M	nMS	14	1	STIM	30	to NUP	1	45	90	2.33	8	
404	M	nMS	14	1	STIM	31	to RED	0	50	120	9.17	7	

404	M	nMS	14	1	STIM	32	to NUP	2	50	120	13.02	9	
404	M	nMS	14	1	STIM	33	to RED	0	50	120	3.25	7	
404	M	nMS	14	1	STIM	34	to NUP	0	50	120	10.97	9	
404	M	nMS	14	1	STIM	35	to RED	0	50	120	16.75	9	
404	M	nMS	14	1	STIM	36	to NUP	0	50	120	2.28	8	
404	M	nMS	23	1	POST	37	to RED	1	50	120	10.28	11	
404	M	nMS	23	1	POST	38	to NUP	1	40	60	11.63	12	
404	M	nMS	23	1	POST	39	to RED	0	50	120	10.28	10	
404	M	nMS	23	1	POST	40	to NUP	1	50	120	10.27	13	
404	M	nMS	23	1	POST	41	to RED	1	45	90	10.07	9	
404	M	nMS	23	1	POST	42	to NUP	1	50	120	10.55	12	
404	M	nMS	0	1	post		to RED	1	55	150		0	
404	M	nMS	0	1	post		to NUP	2	50	120		0	
404	M	nMS	0	1	post		to RED	2	50	120		0	
404	M	nMS	0	1	post		to NUP	0	50	120		0	
404	M	nMS	0	1	post		to RED	0	55	150		0	
404	M	nMS	0	1	post		to NUP	0	50	120		0	
404	M	nMS	0	1	calibration		NUP						
404	M	nMS	0	1	calibration		NUP						
404	M	nMS	0	1	calibration		NUP						
404	M	nMS	0	2	calibration		NUP						
404	M	nMS	0	2	calibration		NUP						
404	M	nMS	0	2	calibration		NUP						
404	M	nMS	0	2	pre		to RED	0	45	90	0	0	
404	M	nMS	0	2	pre		to NUP	0	45	90	0	0	
404	M	nMS	0	2	pre		to RED	0	45	90	0	0	
404	M	nMS	0	2	pre		to NUP	0	45	90	0	0	
404	M	nMS	0	2	pre		to RED	0	45	90	0	0	
404	M	nMS	0	2	pre		to NUP	0	45	90	0	0	
404	M	nMS	23	2	PRE	1	to RED	0	45	90	6.45	7	
404	M	nMS	23	2	PRE	2	to NUP	0	45	90	6.18	11	
404	M	nMS	23	2	PRE	3	to RED	0	45	90	9.83	6	
404	M	nMS	23	2	PRE	4	to NUP	0	45	90	8.02	11	
404	M	nMS	23	2	PRE	5	to RED	0	45	90	11.98	8	
404	M	nMS	23	2	PRE	6	to NUP	0	45	90	11.23	10	
404	M	nMS	23	2	STIM	7	to RED	0	45	90	11.32	5	
404	M	nMS	23	2	STIM	8	to NUP	0	45	90	3.68	8	
404	M	nMS	23	2	STIM	9	to RED	0	45	90	8.62	9	
404	M	nMS	23	2	STIM	10	to NUP	0	45	90	8.38	8	
404	M	nMS	23	2	STIM	11	to RED	0	45	90	12.93	10	
404	M	nMS	23	2	STIM	12	to NUP	0	45	90	3.42	9	
404	M	nMS	23	2	STIM	13	to RED	0	45	90	4.27	7	
404	M	nMS	23	2	STIM	14	to NUP	0	45	90	9.03	7	
404	M	nMS	23	2	STIM	15	to RED	0	45	90	4.7	6	
404	M	nMS	23	2	STIM	16	to NUP	0	45	90	9.15	7	
404	M	nMS	23	2	STIM	17	to RED	0	45	90	11.03	4	
404	M	nMS	23	2	STIM	18	to NUP	0	45	90	7.77	6	
404	M	nMS	23	2	STIM	19	to RED	0	45	90	8.28	7	
404	M	nMS	23	2	STIM	20	to NUP	0	45	90	8.57	6	
404	M	nMS	23	2	STIM	21	to RED	0	45	90	6.35	5	
404	M	nMS	23	2	STIM	22	to NUP	0	45	90	11.47	7	
404	M	nMS	23	2	STIM	23	to RED	0	45	90	9.65	5	
404	M	nMS	23	2	STIM	24	to NUP	0	45	90	7.43	3	
404	M	nMS	23	2	STIM	25	to RED	0	45	90	13.7	7	
404	M	nMS	23	2	STIM	26	to NUP	0	45	90	9.82	6	
404	M	nMS	23	2	STIM	27	to RED	0	45	90	17.13	6	
404	M	nMS	23	2	STIM	28	to NUP	0	45	90	12.05	7	
404	M	nMS	23	2	STIM	29	to RED	0	45	90	9.05	7	
404	M	nMS	23	2	STIM	30	to NUP	0	45	90	8.68	7	
404	M	nMS	23	2	STIM	31	to RED	0	45	90	10.22	6	
404	M	nMS	23	2	STIM	32	to NUP	0	45	90	8.125	5	
404	M	nMS	23	2	STIM	33	to RED	0	45	90	8.6	6	
404	M	nMS	23	2	STIM	34	to NUP	0	45	90	7.57	6	
404	M	nMS	23	2	STIM	35	to RED	0	45	90	4.15	5	
404	M	nMS	23	2	STIM	36	to NUP	0	45	90	10	5	
404	M	nMS	23	2	POST	37	to RED	0	45	90	7.57	4	
404	M	nMS	23	2	POST	38	to NUP	0	45	90	9.9	4	
404	M	nMS	23	2	POST	39	to RED	0	45	90	8.98	3	
404	M	nMS	23	2	POST	40	to NUP	0	45	90	14.8	4	
404	M	nMS	23	2	POST	41	to RED	0	45	90	8.62	5	
404	M	nMS	23	2	POST	42	to NUP	0	45	90	10.57	5	
404	M	nMS	0	2	post		to RED	0	45	90		0	
404	M	nMS	0	2	post		to NUP	0	45	90		0	
404	M	nMS	0	2	post		to RED	0	45	90		0	
404	M	nMS	0	2	post		to NUP	0	45	90		0	
404	M	nMS	0	2	post		to RED	0	45	90		0	
404	M	nMS	0	2	post		to NUP	0	45	90		0	
404	M	nMS	0	2	calibration		NUP						
404	M	nMS	0	2	calibration		NUP						
404	M	nMS	0	2	calibration		NUP						
404	M	nMS	0	3	calibration		NUP						
404	M	nMS	0	3	calibration		NUP						
404	M	nMS	0	3	calibration		NUP						
404	M	nMS	0	3	pre		to RED	0	45	90	0	0	
404	M	nMS	0	3	pre		to NUP	0	45	90	0	0	
404	M	nMS	0	3	pre		to RED	0	45	90	0	0	
404	M	nMS	0	3	pre		to NUP	0	45	90	0	0	
404	M	nMS	0	3	pre		to RED	0	45	90	0	0	
404	M	nMS	0	3	pre		to NUP	0	45	90	0	0	
404	M	nMS	23	3	PRE	1	to RED	0	45	90	4.87	10	
404	M	nMS	23	3	PRE	2	to NUP	0	45	90	10.67	12	
404	M	nMS	23	3	PRE	3	to RED	0	45	90	12.5	10	
404	M	nMS	23	3	PRE	4	to NUP	0	45	90	7.25	12	
404	M	nMS	23	3	PRE	5	to RED	0	45	90	6.38	8	
404	M	nMS	23	3	PRE	6	to NUP	0	45	90	7.58	11	
404	M	nMS	30	3	STIM	7	to RED	0	50	120	10.1	12	
404	M	nMS	30	3	STIM	8	to NUP	0	45	90	12.63	14	
404	M	nMS	30	3	STIM	9	to RED	0	45	90	9.87	13	

404	M	nMS	30	3	STIM	10	to NUP	0	45	90	12.98	13	
404	M	nMS	30	3	STIM	11	to RED	0	45	90	19.93	13	
404	M	nMS	30	3	STIM	12	to NUP	0	45	90	10.83	13	
404	M	nMS	30	3	STIM	13	to RED	0	45	90	6.37	11	
404	M	nMS	30	3	STIM	14	to NUP	0	45	90	10.32	11	
404	M	nMS	30	3	STIM	15	to RED	0	45	90	13.93	12	
404	M	nMS	30	3	STIM	16	to NUP	0	45	90	10.67	10	
404	M	nMS	30	3	STIM	17	to RED	0	45	90	13.23	9	
404	M	nMS	30	3	STIM	18	to NUP	0	45	90	7.57	7	
404	M	nMS	30	3	STIM	19	to RED	0	45	90	9.38	8	
404	M	nMS	30	3	STIM	20	to NUP	0	45	90	5.55	7	
404	M	nMS	30	3	STIM	21	to RED	0	45	90	12.68	9	
404	M	nMS	30	3	STIM	22	to NUP	0	45	90	5.12	6	
404	M	nMS	30	3	STIM	23	to RED	0	45	90	7.62	8	
404	M	nMS	30	3	STIM	24	to NUP	0	45	90	8.08	7	
404	M	nMS	30	3	STIM	25	to RED	0	45	90	4.25	9	
404	M	nMS	30	3	STIM	26	to NUP	0	45	90	10.7	8	
404	M	nMS	30	3	STIM	27	to RED	0	45	90	7.95	6	
404	M	nMS	30	3	STIM	28	to NUP	0	45	90	7.97	6	
404	M	nMS	30	3	STIM	29	to RED	0	45	90	7.68	7	
404	M	nMS	30	3	STIM	30	to NUP	0	45	90	9.3	7	
404	M	nMS	30	3	STIM	31	to RED	0	45	90	8.1	6	
404	M	nMS	30	3	STIM	32	to NUP	0	45	90	11.57	5	
404	M	nMS	30	3	STIM	33	to RED	0	45	90	11.28	4	
404	M	nMS	30	3	STIM	34	to NUP	0	45	90	7.82	7	
404	M	nMS	30	3	STIM	35	to RED	0	45	90	4.13	7	
404	M	nMS	30	3	STIM	36	to NUP	0	45	90	7.73	6	
404	M	nMS	23	3	POST	37	to RED	0	45	90	9.93	1	
404	M	nMS	23	3	POST	38	to NUP	0	45	90	5.33	1	
404	M	nMS	23	3	POST	39	to RED	0	45	90	6.35	2	
404	M	nMS	23	3	POST	40	to NUP	0	45	90	3.95	2	
404	M	nMS	23	3	POST	41	to RED	0	45	90	9.87	1	
404	M	nMS	23	3	POST	42	to NUP	0	45	90	4.63	4	
404	M	nMS	0	3	post		to RED	0	50	120		0	
404	M	nMS	0	3	post		to NUP	0	55	150		0	
404	M	nMS	0	3	post		to RED	0	50	120		0	
404	M	nMS	0	3	post		to NUP	0	55	150		0	
404	M	nMS	0	3	post		to RED	0	50	120		0	
404	M	nMS	0	3	post		to NUP	0	55	150		0	
404	M	nMS	0	3	calibration		NUP						
404	M	nMS	0	3	calibration		NUP						
404	M	nMS	0	3	calibration		NUP						
405	M	nMS	0	1	calibration		NUP						
405	M	nMS	0	1	calibration		NUP						
405	M	nMS	0	1	calibration		NUP						
405	M	nMS	0	1	pre		to RED	0	45	90	0	0	
405	M	nMS	0	1	pre		to NUP	0	45	90	0	0	
405	M	nMS	0	1	pre		to RED	0	45	90	0	0	
405	M	nMS	0	1	pre		to NUP	0	45	90	0	0	
405	M	nMS	0	1	pre		to RED	0	45	90	0	0	
405	M	nMS	0	1	pre		to NUP	0	45	90	0	0	
405	M	nMS	23	1	PRE	1	to RED	0	46	96	3.15	10	
405	M	nMS	23	1	PRE	2	to NUP	0	44	84	4.28	10	
405	M	nMS	23	1	PRE	3	to RED	0	45	90	2.62	8	
405	M	nMS	23	1	PRE	4	to NUP	0	44	84	3.12	9	
405	M	nMS	23	1	PRE	5	to RED	0	46	96	2.7	8	
405	M	nMS	23	1	PRE	6	to NUP	1	45	90	2.37	8	
405	M	nMS	14	1	STIM	7	to RED	0	45	90	1.97	5	
405	M	nMS	14	1	STIM	8	to NUP	0	45	90	2.12	5	
405	M	nMS	14	1	STIM	9	to RED	0	45	90	1.57	4	
405	M	nMS	14	1	STIM	10	to NUP	0	45	90	2.53	4	
405	M	nMS	14	1	STIM	11	to RED	0	45	90	1.58	4	
405	M	nMS	14	1	STIM	12	to NUP	0	45	90	2.53	4	
405	M	nMS	14	1	STIM	13	to RED	0	45	90	5.62	4	
405	M	nMS	14	1	STIM	14	to NUP	0	45	90	7.05	4	
405	M	nMS	14	1	STIM	15	to RED	0	45	90	5.05	4	
405	M	nMS	14	1	STIM	16	to NUP	0	45	90	4.97	3	
405	M	nMS	14	1	STIM	17	to RED	0	45	90	3.18	3	
405	M	nMS	14	1	STIM	18	to NUP	1	45	90	4.07	3	
405	M	nMS	14	1	STIM	19	to RED	1	46	96	2.33	3	
405	M	nMS	14	1	STIM	20	to NUP	2	45	90	3.32	3	
405	M	nMS	14	1	STIM	21	to RED	1	45	90	2.88	2	
405	M	nMS	14	1	STIM	22	to NUP	1	44	84	3.92	3	
405	M	nMS	14	1	STIM	23	to RED	0	45	90	3.57	2	
405	M	nMS	14	1	STIM	24	to NUP	0	45	90	2.88	2	
405	M	nMS	14	1	STIM	25	to RED	0	45	90	2.52	2	
405	M	nMS	14	1	STIM	26	to NUP	0	45	90	3.32	2	
405	M	nMS	14	1	STIM	27	to RED	1	45	90	2.68	2	
405	M	nMS	14	1	STIM	28	to NUP	0	45	90	2.78	2	
405	M	nMS	14	1	STIM	29	to RED	1	45	90	1.72	2	
405	M	nMS	14	1	STIM	30	to NUP	1	46	96	2.72	2	
405	M	nMS	14	1	STIM	31	to RED	0	45	90	2.97	2	
405	M	nMS	14	1	STIM	32	to NUP	0	45	90	2.2	2	
405	M	nMS	14	1	STIM	33	to RED	0	45	90	2.77	1	
405	M	nMS	14	1	STIM	34	to NUP	1	45	90	2.62	2	
405	M	nMS	14	1	STIM	35	to RED	0	45	90	2.45	1	
405	M	nMS	14	1	STIM	36	to NUP	0	45	90	3.07	2	
405	M	nMS	23	1	POST	37	to RED	0	46	96	3.77	5	
405	M	nMS	23	1	POST	38	to NUP	1	44	84	1.87	6	
405	M	nMS	23	1	POST	39	to RED	0	45	90	2.63	5	
405	M	nMS	23	1	POST	40	to NUP	1	44	84	3.35	6	
405	M	nMS	23	1	POST	41	to RED	0	45	90	2.83	4	
405	M	nMS	23	1	POST	42	to NUP	1	44	84	4.07	6	
405	M	nMS	0	1	post		to RED	0	45	90		1	
405	M	nMS	0	1	post		to NUP	0	45	90		0	
405	M	nMS	0	1	post		to RED	0	45	90		0	
405	M	nMS	0	1	post		to NUP	0	45	90		0	
405	M	nMS	0	1	post		to RED	0	45	90		0	

405	M	nMS	0	1	post		to NUP	0	45	90		0	
405	M	nMS	0	1	calibration		NUP						
405	M	nMS	0	1	calibration		NUP						
405	M	nMS	0	1	calibration		NUP						
405	M	nMS	0	2	calibration		NUP						
405	M	nMS	0	2	calibration		NUP						
405	M	nMS	0	2	calibration		NUP						
405	M	nMS	0	2	pre		to RED	0	45	90	0	0	
405	M	nMS	0	2	pre		to NUP	0	45	90	0	0	
405	M	nMS	0	2	pre		to RED	0	45	90	0	0	
405	M	nMS	0	2	pre		to NUP	0	45	90	0	0	
405	M	nMS	0	2	pre		to RED	0	45	90	0	0	
405	M	nMS	0	2	pre		to NUP	0	45	90	0	0	
405	M	nMS	23	2	PRE	1	to RED	1	46	96	7.02	9	
405	M	nMS	23	2	PRE	2	to NUP	0	44	84	8.17	8	
405	M	nMS	23	2	PRE	3	to RED	0	45	90	6.6	7	
405	M	nMS	23	2	PRE	4	to NUP	0	44	84	7.48	8	
405	M	nMS	23	2	PRE	5	to RED	0	45	90	5.27	6	
405	M	nMS	23	2	PRE	6	to NUP	0	44	84	8.08	7	
405	M	nMS	23	2	STIM	7	to RED	1	45	90	5.85	6	
405	M	nMS	23	2	STIM	8	to NUP	0	45	90	9.07	6	
405	M	nMS	23	2	STIM	9	to RED	0	45	90	4.47	5	
405	M	nMS	23	2	STIM	10	to NUP	1	44	84	6.08	6	
405	M	nMS	23	2	STIM	11	to RED	0	45	90	6.23	5	
405	M	nMS	23	2	STIM	12	to NUP	0	45	90	7.95	6	
405	M	nMS	23	2	STIM	13	to RED	0	45	90	5.83	5	
405	M	nMS	23	2	STIM	14	to NUP	0	45	90	7.82	5	
405	M	nMS	23	2	STIM	15	to RED	0	45	90	2.47	3	
405	M	nMS	23	2	STIM	16	to NUP	0	45	90	1.97	4	
405	M	nMS	23	2	STIM	17	to RED	0	45	90	3.87	4	
405	M	nMS	23	2	STIM	18	to NUP	0	44	84	7.27	5	
405	M	nMS	23	2	STIM	19	to RED	0	45	90	4.25	3	
405	M	nMS	23	2	STIM	20	to NUP	0	45	90	4.53	3	
405	M	nMS	23	2	STIM	21	to RED	0	45	90	4.5	3	
405	M	nMS	23	2	STIM	22	to NUP	0	45	90	8.53	4	
405	M	nMS	23	2	STIM	23	to RED	0	45	90	5.42	4	
405	M	nMS	23	2	STIM	24	to NUP	0	45	90	6.62	3	
405	M	nMS	23	2	STIM	25	to RED	0	45	90	4.68	2	
405	M	nMS	23	2	STIM	26	to NUP	0	44	84	6.52	3	
405	M	nMS	23	2	STIM	27	to RED	0	44.5	87	4.87	3	
405	M	nMS	23	2	STIM	28	to NUP	0	45	90	8.5	4	
405	M	nMS	23	2	STIM	29	to RED	0	45	90	4.18	2	
405	M	nMS	23	2	STIM	30	to NUP	0	44	84	8.5	3	
405	M	nMS	23	2	STIM	31	to RED	0	45	90	5.83	3	
405	M	nMS	23	2	STIM	32	to NUP	0	44	84	6.2	3	
405	M	nMS	23	2	STIM	33	to RED	0	45	90	5.08	2	
405	M	nMS	23	2	STIM	34	to NUP	0	45	90	5.6	2	
405	M	nMS	23	2	STIM	35	to RED	0	45	90	5.83	3	
405	M	nMS	23	2	STIM	36	to NUP	0	45	90	4.68	2	
405	M	nMS	23	2	POST	37	to RED	0	45	90	6.25	2	
405	M	nMS	23	2	POST	38	to NUP	0	45	90	8.73	3	
405	M	nMS	23	2	POST	39	to RED	0	45	90	7.13	2	
405	M	nMS	23	2	POST	40	to NUP	0	44	84	8.4	2	
405	M	nMS	23	2	POST	41	to RED	0	45	90	2.35	2	
405	M	nMS	23	2	POST	42	to NUP	0	44	84	6.5	3	
405	M	nMS	0	2	post		to RED	0	45	90		0	
405	M	nMS	0	2	post		to NUP	0	45	90		0	
405	M	nMS	0	2	post		to RED	0	45	90		0	
405	M	nMS	0	2	post		to NUP	0	45	90		0	
405	M	nMS	0	2	post		to RED	0	45	90		0	
405	M	nMS	0	2	post		to NUP	0	45	90		0	
405	M	nMS	0	2	calibration		NUP						
405	M	nMS	0	2	calibration		NUP						
405	M	nMS	0	2	calibration		NUP						
405	M	nMS	0	3	calibration		NUP						
405	M	nMS	0	3	calibration		NUP						
405	M	nMS	0	3	calibration		NUP						
405	M	nMS	0	3	pre		to RED	0	45	90	0	0	
405	M	nMS	0	3	pre		to NUP	0	45	90	0	0	
405	M	nMS	0	3	pre		to RED	0	45	90	0	0	
405	M	nMS	0	3	pre		to NUP	0	45	90	0	0	
405	M	nMS	0	3	pre		to RED	0	45	90	0	0	
405	M	nMS	0	3	pre		to NUP	0	45	90	0	0	
405	M	nMS	23	3	PRE	1	to RED	0	45	90	5.68	6	
405	M	nMS	23	3	PRE	2	to NUP	0	45	90	3.07	7	
405	M	nMS	23	3	PRE	3	to RED	0	45	90	6.23	6	
405	M	nMS	23	3	PRE	4	to NUP	0	45	90	8.98	6	
405	M	nMS	23	3	PRE	5	to RED	0	46	96	5.5	4	
405	M	nMS	23	3	PRE	6	to NUP	0	45	90	5.28	5	
405	M	nMS	30	3	STIM	7	to RED	0	45	90	5.38	5	
405	M	nMS	30	3	STIM	8	to NUP	0	45	90	7.83	8	
405	M	nMS	30	3	STIM	9	to RED	0	46	96	5.37	6	
405	M	nMS	30	3	STIM	10	to NUP	0	45	90	9.13	5	
405	M	nMS	30	3	STIM	11	to RED	0	45	90	7.5	4	
405	M	nMS	30	3	STIM	12	to NUP	0	45	90	11.07	5	
405	M	nMS	30	3	STIM	13	to RED	0	45	90	4.23	4	
405	M	nMS	30	3	STIM	14	to NUP	0	45	90	8.02	5	
405	M	nMS	30	3	STIM	15	to RED	0	45	90	5.43	3	
405	M	nMS	30	3	STIM	16	to NUP	0	45	90	8.3	5	
405	M	nMS	30	3	STIM	17	to RED	0	45	90	6.1	4	
405	M	nMS	30	3	STIM	18	to NUP	0	45	90	2.67	5	
405	M	nMS	30	3	STIM	19	to RED	0	45	90	6.08	4	
405	M	nMS	30	3	STIM	20	to NUP	1	44	84	8.2	5	
405	M	nMS	30	3	STIM	21	to RED	0	45	90	6.33	4	
405	M	nMS	30	3	STIM	22	to NUP	0	45	90	9.63	4	
405	M	nMS	30	3	STIM	23	to RED	0	45	90	6.57	3	
405	M	nMS	30	3	STIM	24	to NUP	0	44	84	10.1	5	
405	M	nMS	30	3	STIM	25	to RED	0	45	90	8.9	3	

405	M	nMS	30	3	STIM	26	to NUP	0	45	90	10.52	4	
405	M	nMS	30	3	STIM	27	to RED	0	45	90	8.45	3	
405	M	nMS	30	3	STIM	28	to NUP	0	44	84	12.58	5	
405	M	nMS	30	3	STIM	29	to RED	0	45	90	9.83	4	
405	M	nMS	30	3	STIM	30	to NUP	0	45	90	10.07	4	
405	M	nMS	30	3	STIM	31	to RED	0	45	90	8.75	4	
405	M	nMS	30	3	STIM	32	to NUP	0	45	90	12.13	4	
405	M	nMS	30	3	STIM	33	to RED	0	45	90	9.08	3	
405	M	nMS	30	3	STIM	34	to NUP	0	45	90	9.5	4	
405	M	nMS	30	3	STIM	35	to RED	0	45	90	11.47	3	
405	M	nMS	30	3	STIM	36	to NUP	0	45	90	7.87	4	
405	M	nMS	23	3	POST	37	to RED	0	45	90	5.13	1	
405	M	nMS	23	3	POST	38	to NUP	0	45	90	5.77	3	
405	M	nMS	23	3	POST	39	to RED	0	45	90	3.88	2	
405	M	nMS	23	3	POST	40	to NUP	1	45	90	6.93	4	
405	M	nMS	23	3	POST	41	to RED	0	45	90	6.48	2	
405	M	nMS	23	3	POST	42	to NUP	0	45	90	4.32	4	
405	M	nMS	0	3	post		to RED	0	45	90		1	
405	M	nMS	0	3	post		to NUP	0	45	90		1	
405	M	nMS	0	3	post		to RED	0	45	90		0	
405	M	nMS	0	3	post		to NUP	0	45	90		0	
405	M	nMS	0	3	post		to RED	0	45	90		0	
405	M	nMS	0	3	post		to NUP	0	45	90		0	
405	M	nMS	0	3	calibration		NUP						
405	M	nMS	0	3	calibration		NUP						
405	M	nMS	0	3	calibration		NUP						
406	M	nMS	0	1	calibration		NUP						
406	M	nMS	0	1	calibration		NUP						
406	M	nMS	0	1	calibration		NUP						
406	M	nMS	0	1	pre		to RED	0	45	90	0	0	
406	M	nMS	0	1	pre		to NUP	0	45	90	0	0	
406	M	nMS	0	1	pre		to RED	0	45	90	0	0	
406	M	nMS	0	1	pre		to NUP	0	45	90	0	0	
406	M	nMS	0	1	pre		to RED	0	45	90	0	0	
406	M	nMS	0	1	pre		to NUP	0	45	90	0	0	
406	M	nMS	23	1	PRE	1	to RED	0	45	90	12.52	10	4.8845
406	M	nMS	23	1	PRE	2	to NUP	0	40	60	17.08	20	5.5155
406	M	nMS	23	1	PRE	3	to RED	0	45	90	14.75	10	4.6653
406	M	nMS	23	1	PRE	4	to NUP	0	40	60	16.2	18	4.3878
406	M	nMS	23	1	PRE	5	to RED	0	44	84	12.48	9	4.1559
406	M	nMS	23	1	PRE	6	to NUP	0	44	84	17.18	18	4.0142
406	M	nMS	14	1	STIM	7	to RED	0	45	90	8.28	8	3.859
406	M	nMS	14	1	STIM	8	to NUP	0	45	90	11.63	15	4.9864
406	M	nMS	14	1	STIM	9	to RED	0	45	90	9.5	7	3.9528
406	M	nMS	14	1	STIM	10	to NUP	0	45	90	11.47	15	4.2231
406	M	nMS	14	1	STIM	11	to RED	0	45	90	10.07	6	2.9648
406	M	nMS	14	1	STIM	12	to NUP	0	45	90	10.02	14	2.3423
406	M	nMS	14	1	STIM	13	to RED	0	45	90	9.78	5	3.2297
406	M	nMS	14	1	STIM	14	to NUP	0	45	90	13.75	14	
406	M	nMS	14	1	STIM	15	to RED	0	45	90	7.5	4	4.2824
406	M	nMS	14	1	STIM	16	to NUP	0	44	84	9.57	12	4.6697
406	M	nMS	14	1	STIM	17	to RED	0	45	90	11.07	4	2.4878
406	M	nMS	14	1	STIM	18	to NUP	0	46	96	9.82	12	3.7372
406	M	nMS	14	1	STIM	19	to RED	0	45	90	7.57	3	4.1624
406	M	nMS	14	1	STIM	20	to NUP	0	45	90	9.77	10	4.4201
406	M	nMS	14	1	STIM	21	to RED	0	45	90	8.43	2	3.5076
406	M	nMS	14	1	STIM	22	to NUP	0	46	96	11.18	10	3.6592
406	M	nMS	14	1	STIM	23	to RED	0	45	90	10.22	2	3.7776
406	M	nMS	14	1	STIM	24	to NUP	0	45	90	9.18	9	4.2512
406	M	nMS	14	1	STIM	25	to RED	0	45	90	7.6	2	3.0468
406	M	nMS	14	1	STIM	26	to NUP	0	44	84	10.87	8	2.9141
406	M	nMS	14	1	STIM	27	to RED	0	45	90	8.37	2	3.8268
406	M	nMS	14	1	STIM	28	to NUP	0	44	84	11.5	7	3.1478
406	M	nMS	14	1	STIM	29	to RED	0	45	90	5.03	1	2.7581
406	M	nMS	14	1	STIM	30	to NUP	0	45	90	8.62	6	2.6378
406	M	nMS	14	1	STIM	31	to RED	0	45	90	5.1	1	3.8845
406	M	nMS	14	1	STIM	32	to NUP	0	46	96	10.67	6	4.4353
406	M	nMS	14	1	STIM	33	to RED	0	45	90	6.2	1	4.9342
406	M	nMS	14	1	STIM	34	to NUP	0	45	90	11.9	5	2.5201
406	M	nMS	14	1	STIM	35	to RED	0	45	90	6.63	1	3.2608
406	M	nMS	14	1	STIM	36	to NUP	0	45	90	7.8	5	2.9538
406	M	nMS	23	1	POST	37	to RED	0	45	90	9.25	4	4.3771
406	M	nMS	23	1	POST	38	to NUP	0	46	96	13.6	11	3.6376
406	M	nMS	23	1	POST	39	to RED	0	45	90	10.05	5	2.755
406	M	nMS	23	1	POST	40	to NUP	0	45	90	14.35	12	4.5468
406	M	nMS	23	1	POST	41	to RED	0	44	84	8.55	5	2.6868
406	M	nMS	23	1	POST	42	to NUP	1	45	90	10.92	12	2.6183
406	M	nMS	0	1	post		to RED	0	45	90		0	
406	M	nMS	0	1	post		to NUP	0	46	96		0	
406	M	nMS	0	1	post		to RED	0	45	90		0	
406	M	nMS	0	1	post		to NUP	0	45	90		0	
406	M	nMS	0	1	post		to RED	0	45	90		0	
406	M	nMS	0	1	post		to NUP	0	45	90		0	
406	M	nMS	0	1	calibration		NUP						
406	M	nMS	0	1	calibration		NUP						
406	M	nMS	0	1	calibration		NUP						
406	M	nMS	0	2	calibration		NUP						
406	M	nMS	0	2	calibration		NUP						
406	M	nMS	0	2	calibration		NUP						
406	M	nMS	0	2	pre		to RED	0	45	90	0	0	
406	M	nMS	0	2	pre		to NUP	0	45	90	0	0	
406	M	nMS	0	2	pre		to RED	0	45	90	0	0	
406	M	nMS	0	2	pre		to NUP	0	45	90	0	0	
406	M	nMS	0	2	pre		to RED	0	45	90	0	0	
406	M	nMS	0	2	pre		to NUP	0	45	90	0	0	
406	M	nMS	23	2	PRE	1	to RED	0	45	90	10.43	11	4.7197
406	M	nMS	23	2	PRE	2	to NUP	0	46	96	14	16	5.2742
406	M	nMS	23	2	PRE	3	to RED	0	45	90	10.5	10	4.1862

406	M	nMS	23	2	PRE	4	to NUP	0	47	102	16.43	16	3.0568
406	M	nMS	23	2	PRE	5	to RED	0	44	84	12.07	8	4.259
406	M	nMS	23	2	PRE	6	to NUP	0	46	96	11.97	14	
406	M	nMS	23	2	STIM	7	to RED	0	45	90	7.48	7	2.271
406	M	nMS	23	2	STIM	8	to NUP	0	46	96	12.97	13	
406	M	nMS	23	2	STIM	9	to RED	0	45	90	12.63	7	
406	M	nMS	23	2	STIM	10	to NUP	0	46	96	13.23	13	
406	M	nMS	23	2	STIM	11	to RED	0	45	90	17.55	7	3.4136
406	M	nMS	23	2	STIM	12	to NUP	0	46	96	13	13	3.7552
406	M	nMS	23	2	STIM	13	to RED	0	45	90	11.08	6	3.3067
406	M	nMS	23	2	STIM	14	to NUP	0	45	90	13.5	13	
406	M	nMS	23	2	STIM	15	to RED	0	45	90	11	6	3.515
406	M	nMS	23	2	STIM	16	to NUP	0	46	96	11.52	12	2.3335
406	M	nMS	23	2	STIM	17	to RED	0	45	90	9.95	5	
406	M	nMS	23	2	STIM	18	to NUP	0	45	90	13.22	10	2.7422
406	M	nMS	23	2	STIM	19	to RED	0	45	90	8.93	5	1.9419
406	M	nMS	23	2	STIM	20	to NUP	0	45	90	14.53	10	
406	M	nMS	23	2	STIM	21	to RED	0	44	84	10.67	4	3.0718
406	M	nMS	23	2	STIM	22	to NUP	0	46	96	9.57	10	3.19
406	M	nMS	23	2	STIM	23	to RED	0	45	90	9.15	4	2.491
406	M	nMS	23	2	STIM	24	to NUP	0	46	96	9.27	8	4.1773
406	M	nMS	23	2	STIM	25	to RED	0	45	90	6.95	4	3.3986
406	M	nMS	23	2	STIM	26	to NUP	0	46	96	11.83	8	2.8257
406	M	nMS	23	2	STIM	27	to RED	0	45	90	8.2	3	2.6418
406	M	nMS	23	2	STIM	28	to NUP	0	45	90	12.27	8	
406	M	nMS	23	2	STIM	29	to RED	0	45	90	8.22	3	2.7697
406	M	nMS	23	2	STIM	30	to NUP	0	45	90	11.57	7	3.9847
406	M	nMS	23	2	STIM	31	to RED	0	45	90	8.53	3	3.2453
406	M	nMS	23	2	STIM	32	to NUP	0	45	90	9.73	7	
406	M	nMS	23	2	STIM	33	to RED	0	45	90	8.18	3	2.6883
406	M	nMS	23	2	STIM	34	to NUP	0	45	90	9.92	7	4.2901
406	M	nMS	23	2	STIM	35	to RED	0	45	90	8.28	2	2.8371
406	M	nMS	23	2	STIM	36	to NUP	0	45	90	9.15	6	2.9633
406	M	nMS	23	2	POST	37	to RED	0	45	90	7.62	2	2.6417
406	M	nMS	23	2	POST	38	to NUP	0	45	90	9.52	6	3.3832
406	M	nMS	23	2	POST	39	to RED	0	45	90	9.95	2	2.9171
406	M	nMS	23	2	POST	40	to NUP	0	45	90	9.82	5	2.8132
406	M	nMS	23	2	POST	41	to RED	0	45	90	8.2	2	
406	M	nMS	23	2	POST	42	to NUP	0	45	90	10.4	5	
406	M	nMS	0	2	post		to RED	0	45	90		0	
406	M	nMS	0	2	post		to NUP	0	45	90		0	
406	M	nMS	0	2	post		to RED	0	45	90		0	
406	M	nMS	0	2	post		to NUP	0	46	96		0	
406	M	nMS	0	2	post		to RED	0	45	90		0	
406	M	nMS	0	2	post		to NUP	0	45	90		0	
406	M	nMS	0	2	calibration		NUP						
406	M	nMS	0	2	calibration		NUP						
406	M	nMS	0	2	calibration		NUP						
406	M	nMS	0	3	calibration		NUP						
406	M	nMS	0	3	calibration		NUP						
406	M	nMS	0	3	calibration		NUP						
406	M	nMS	0	3	pre		to RED	0	45	90	0	0	
406	M	nMS	0	3	pre		to NUP	0	45	90	0	0	
406	M	nMS	0	3	pre		to RED	0	45	90	0	0	
406	M	nMS	0	3	pre		to NUP	0	45	90	0	0	
406	M	nMS	0	3	pre		to RED	0	45	90	0	0	
406	M	nMS	0	3	pre		to NUP	0	45	90	0	0	
406	M	nMS	23	3	PRE	1	to RED	0	45	90	10.78	9	3.7598
406	M	nMS	23	3	PRE	2	to NUP	0	44	84	13.6	15	3.9211
406	M	nMS	23	3	PRE	3	to RED	0	45	90	10.75	9	3.3859
406	M	nMS	23	3	PRE	4	to NUP	0	46	96	11.32	15	4.4687
406	M	nMS	23	3	PRE	5	to RED	0	45	90	13.33	9	3.2805
406	M	nMS	23	3	PRE	6	to NUP	0	45	90	11.98	15	2.621
406	M	nMS	30	3	STIM	7	to RED	0	45	90	13.6	11	4.2285
406	M	nMS	30	3	STIM	8	to NUP	0	44	84	16.03	18	5.0822
406	M	nMS	30	3	STIM	9	to RED	0	45	90	14.83	12	4.0486
406	M	nMS	30	3	STIM	10	to NUP	0	46	96	17.37	18	4.4286
406	M	nMS	30	3	STIM	11	to RED	0	44	84	14.52	11	
406	M	nMS	30	3	STIM	12	to NUP	0	47	102	16.62	18	4.8585
406	M	nMS	30	3	STIM	13	to RED	0	45	90	12.03	10	
406	M	nMS	30	3	STIM	14	to NUP	0	44	84	14.92	17	4.5067
406	M	nMS	30	3	STIM	15	to RED	0	45	90	12.15	10	3.501
406	M	nMS	30	3	STIM	16	to NUP	1	45	90	12.47	17	
406	M	nMS	30	3	STIM	17	to RED	1	45	90	11.88	10	
406	M	nMS	30	3	STIM	18	to NUP	1	44	84	13.78	16	
406	M	nMS	30	3	STIM	19	to RED	0	45	90	14.43	9	4.0389
406	M	nMS	30	3	STIM	20	to NUP	0	46	96	14.88	16	5.3954
406	M	nMS	30	3	STIM	21	to RED	0	46	96	12.55	9	3.4633
406	M	nMS	30	3	STIM	22	to NUP	0	45	90	13.58	15	
406	M	nMS	30	3	STIM	23	to RED	0	45	90	10.42	8	3.7271
406	M	nMS	30	3	STIM	24	to NUP	0	44	84	12.12	14	4.435
406	M	nMS	30	3	STIM	25	to RED	0	44	84	11.13	8	3.6909
406	M	nMS	30	3	STIM	26	to NUP	1	45	90	12.55	14	3.408
406	M	nMS	30	3	STIM	27	to RED	1	45	90	13.05	7	4.107
406	M	nMS	30	3	STIM	28	to NUP	1	45	90	11.83	13	
406	M	nMS	30	3	STIM	29	to RED	0	44	84	9.1	5	2.7528
406	M	nMS	30	3	STIM	30	to NUP	0	45	90	11.18	13	4.6146
406	M	nMS	30	3	STIM	31	to RED	0	45	90	11.27	5	3.0168
406	M	nMS	30	3	STIM	32	to NUP	0	45	90	9.05	12	
406	M	nMS	30	3	STIM	33	to RED	0	45	90	9.42	5	2.3066
406	M	nMS	30	3	STIM	34	to NUP	0	45	90	12.47	11	3.5916
406	M	nMS	30	3	STIM	35	to RED	0	45	90	7.88	4	3.2676
406	M	nMS	30	3	STIM	36	to NUP	0	45	90	10.62	10	4.129
406	M	nMS	23	3	POST	37	to RED	0	45	90	5.245	2	3.0522
406	M	nMS	23	3	POST	38	to NUP	0	45	90	8.37	5	3.7321
406	M	nMS	23	3	POST	39	to RED	0	45	90	5.72	1	3.2636
406	M	nMS	23	3	POST	40	to NUP	0	45	90	10.78	5	3.0295
406	M	nMS	23	3	POST	41	to RED	0	45	90	4.77	1	2.9201

406	M	nMS	23	3	POST	42	to NUP	0	45	90	8.88	5	3.2262
406	M	nMS	0	3	post		to RED	0	45	90		0	
406	M	nMS	0	3	post		to NUP	0	46	96		0	
406	M	nMS	0	3	post		to RED	0	45	90		0	
406	M	nMS	0	3	post		to NUP	0	45	90		0	
406	M	nMS	0	3	post		to RED	0	45	90		0	
406	M	nMS	0	3	post		to NUP	0	45	90		0	
406	M	nMS	0	3	calibration		NUP						
406	M	nMS	0	3	calibration		NUP						
406	M	nMS	0	3	calibration		NUP						
407	M	nMS	0	1	calibration		NUP						
407	M	nMS	0	1	calibration		NUP						
407	M	nMS	0	1	calibration		NUP						
407	M	nMS	0	1	pre		to RED	0	45	90	0	0	
407	M	nMS	0	1	pre		to NUP	0	45	90	0	0	
407	M	nMS	0	1	pre		to RED	0	45	90	0	0	
407	M	nMS	0	1	pre		to NUP	0	45	90	0	0	
407	M	nMS	0	1	pre		to RED	0	45	90	0	0	
407	M	nMS	0	1	pre		to NUP	0	45	90	0	0	
407	M	nMS	23	1	PRE	1	to RED	0	45	90	2.98	10	4.5461
407	M	nMS	23	1	PRE	2	to NUP	0	45	90	2.87	15	6.4136
407	M	nMS	23	1	PRE	3	to RED	0	45	90	2.8	10	4.5112
407	M	nMS	23	1	PRE	4	to NUP	0	45	90	2.97	15	7.3028
407	M	nMS	23	1	PRE	5	to RED	0	45	90	9.15	10	4.2951
407	M	nMS	23	1	PRE	6	to NUP	0	45	90	11.83	15	5.7048
407	M	nMS	14	1	STIM	7	to RED	0	45	90	5.72	7	2.6206
407	M	nMS	14	1	STIM	8	to NUP	0	45	90	2.5	10	3.4823
407	M	nMS	14	1	STIM	9	to RED	0	45	90	7.2	7	3.7753
407	M	nMS	14	1	STIM	10	to NUP	0	45	90	8.02	10	5.4261
407	M	nMS	14	1	STIM	11	to RED	0	45	90	6.35	6	2.7778
407	M	nMS	14	1	STIM	12	to NUP	0	45	90	8.45	11	4.2488
407	M	nMS	14	1	STIM	13	to RED	0	45	90	6.68	6	2.4973
407	M	nMS	14	1	STIM	14	to NUP	0	45	90	5.93	9	3.109
407	M	nMS	14	1	STIM	15	to RED	0	45	90	6.57	5	2.3051
407	M	nMS	14	1	STIM	16	to NUP	0	45	90	6.9	9	5.0055
407	M	nMS	14	1	STIM	17	to RED	0	45	90	7.95	5	3.9486
407	M	nMS	14	1	STIM	18	to NUP	0	45	90	7.72	8	4.2428
407	M	nMS	14	1	STIM	19	to RED	0	45	90	6.77	5	1.9564
407	M	nMS	14	1	STIM	20	to NUP	0	45	90	11.07	7	3.2362
407	M	nMS	14	1	STIM	21	to RED	0	45	90	8.1	5	2.7441
407	M	nMS	14	1	STIM	22	to NUP	0	45	90	8.92	6	5.4543
407	M	nMS	14	1	STIM	23	to RED	0	45	90	5.48	5	3.3521
407	M	nMS	14	1	STIM	24	to NUP	0	45	90	10.43	7	2.8368
407	M	nMS	14	1	STIM	25	to RED	0	45	90	4.77	4	2.8137
407	M	nMS	14	1	STIM	26	to NUP	0	45	90	7.13	6	2.8864
407	M	nMS	14	1	STIM	27	to RED	0	45	90	5.23	4	2.797
407	M	nMS	14	1	STIM	28	to NUP	0	45	90	7.37	6	3.6573
407	M	nMS	14	1	STIM	29	to RED	0	45	90	6.67	4	2.5502
407	M	nMS	14	1	STIM	30	to NUP	0	45	90	6.97	6	4.5756
407	M	nMS	14	1	STIM	31	to RED	0	45	90	5.6	3	2.0819
407	M	nMS	14	1	STIM	32	to NUP	0	45	90	7.47	5	4.5541
407	M	nMS	14	1	STIM	33	to RED	0	45	90	6.03	3	1.8626
407	M	nMS	14	1	STIM	34	to NUP	0	45	90	7.53	6	4.112
407	M	nMS	14	1	STIM	35	to RED	0	45	90	5.97	3	2.7727
407	M	nMS	14	1	STIM	36	to NUP	0	45	90	9	6	2.4318
407	M	nMS	23	1	POST	37	to RED	0	45	90	8.45	9	2.443
407	M	nMS	23	1	POST	38	to NUP	0	45	90	9.55	13	3.2618
407	M	nMS	23	1	POST	39	to RED	0	45	90	6.92	8	2.7737
407	M	nMS	23	1	POST	40	to NUP	0	45	90	11.37	13	3.6653
407	M	nMS	23	1	POST	41	to RED	0	45	90	8.28	8	2.0435
407	M	nMS	23	1	POST	42	to NUP	0	45	90	9.87	12	3.9956
407	M	nMS	0	1	post		to RED	0	45	90		0	
407	M	nMS	0	1	post		to NUP	0	45	90		0	
407	M	nMS	0	1	post		to RED	0	45	90		0	
407	M	nMS	0	1	post		to NUP	0	45	90		0	
407	M	nMS	0	1	post		to RED	0	45	90		0	
407	M	nMS	0	1	post		to NUP	0	45	90		0	
407	M	nMS	0	1	calibration		NUP						
407	M	nMS	0	1	calibration		NUP						
407	M	nMS	0	1	calibration		NUP						
407	M	nMS	0	2	calibration		NUP						
407	M	nMS	0	2	calibration		NUP						
407	M	nMS	0	2	calibration		NUP						
407	M	nMS	0	2	pre		to RED	0	45	90	0	0	
407	M	nMS	0	2	pre		to NUP	0	45	90	0	0	
407	M	nMS	0	2	pre		to RED	0	45	90	0	0	
407	M	nMS	0	2	pre		to NUP	0	45	90	0	0	
407	M	nMS	0	2	pre		to RED	0	45	90	0	0	
407	M	nMS	0	2	pre		to NUP	0	45	90	0	0	
407	M	nMS	23	2	PRE	1	to RED	0	45	90	2.12	9	4.6267
407	M	nMS	23	2	PRE	2	to NUP	0	45	90	3.1	14	6.1696
407	M	nMS	23	2	PRE	3	to RED	0	45	90	7.05	9	3.7344
407	M	nMS	23	2	PRE	4	to NUP	0	45	90	9.22	15	2.9306
407	M	nMS	23	2	PRE	5	to RED	0	45	90	6.52	8	3.1234
407	M	nMS	23	2	PRE	6	to NUP	0	45	90	8.88	14	2.6229
407	M	nMS	23	2	STIM	7	to RED	0	45	90	6.15	8	3.302
407	M	nMS	23	2	STIM	8	to NUP	0	45	90	8.03	13	4.0896
407	M	nMS	23	2	STIM	9	to RED	0	45	90	6.65	7	4.2396
407	M	nMS	23	2	STIM	10	to NUP	0	45	90	9.63	14	3.6568
407	M	nMS	23	2	STIM	11	to RED	0	45	90	5.93	10	2.4186
407	M	nMS	23	2	STIM	12	to NUP	0	45	90	7.85	13	3.9688
407	M	nMS	23	2	STIM	13	to RED	0	45	90	5.08	6	1.7645
407	M	nMS	23	2	STIM	14	to NUP	0	45	90	8.63	12	4.7772
407	M	nMS	23	2	STIM	15	to RED	0	45	90	5.38	6	2.5534
407	M	nMS	23	2	STIM	16	to NUP	0	45	90	8.78	11	3.5484
407	M	nMS	23	2	STIM	17	to RED	0	45	90	6.05	5	2.7707
407	M	nMS	23	2	STIM	18	to NUP	0	45	90	7.35	10	4.0704
407	M	nMS	23	2	STIM	19	to RED	0	45	90	5.78	5	2.3564

407	M	nMS	23	2	STIM	20	to NUP	0	45	90	10.77	10	3.1029
407	M	nMS	23	2	STIM	21	to RED	0	45	90	6.2	5	2.0732
407	M	nMS	23	2	STIM	22	to NUP	0	45	90	7.85	10	3.5528
407	M	nMS	23	2	STIM	23	to RED	0	45	90	5.92	4	2.2945
407	M	nMS	23	2	STIM	24	to NUP	0	45	90	8.83	10	2.9497
407	M	nMS	23	2	STIM	25	to RED	0	45	90	6.2	4	3.279
407	M	nMS	23	2	STIM	26	to NUP	0	45	90	9.25	9	2.1733
407	M	nMS	23	2	STIM	27	to RED	0	45	90	7.87	4	2.7567
407	M	nMS	23	2	STIM	28	to NUP	0	45	90	7.77	9	2.1515
407	M	nMS	23	2	STIM	29	to RED	0	45	90	7.2	3	3.1528
407	M	nMS	23	2	STIM	30	to NUP	0	45	90	9.1	8	2.6929
407	M	nMS	23	2	STIM	31	to RED	0	45	90	5.08	3	2.3761
407	M	nMS	23	2	STIM	32	to NUP	0	45	90	9.85	8	2.158
407	M	nMS	23	2	STIM	33	to RED	0	45	90	4.65	3	2.3302
407	M	nMS	23	2	STIM	34	to NUP	0	45	90	7.8	8	3.0221
407	M	nMS	23	2	STIM	35	to RED	0	45	90	4.93	2	2.062
407	M	nMS	23	2	STIM	36	to NUP	0	45	90	5.5	7	1.9106
407	M	nMS	23	2	POST	37	to RED	0	45	90	4.85	2	2.4429
407	M	nMS	23	2	POST	38	to NUP	0	45	90	7.52	7	2.7551
407	M	nMS	23	2	POST	39	to RED	0	45	90	4.83	2	3.5326
407	M	nMS	23	2	POST	40	to NUP	0	45	90	9.62	7	3.0966
407	M	nMS	23	2	POST	41	to RED	0	45	90	6.13	2	2.9499
407	M	nMS	23	2	POST	42	to NUP	0	45	90	8.75	7	3.5744
407	M	nMS	0	2	post		to RED	0	45	90		1	
407	M	nMS	0	2	post		to NUP	0	45	90		1	
407	M	nMS	0	2	post		to RED	0	45	90		0	
407	M	nMS	0	2	post		to NUP	0	45	90		0	
407	M	nMS	0	2	post		to RED	0	45	90		0	
407	M	nMS	0	2	post		to NUP	0	45	90		0	
407	M	nMS	0	2	calibration		NUP						
407	M	nMS	0	2	calibration		NUP						
407	M	nMS	0	2	calibration		NUP						
407	M	nMS	0	3	calibration		NUP						
407	M	nMS	0	3	calibration		NUP						
407	M	nMS	0	3	calibration		NUP						
407	M	nMS	0	3	pre		to RED	0	45	90	0	0	
407	M	nMS	0	3	pre		to NUP	0	45	90	0	0	
407	M	nMS	0	3	pre		to RED	0	45	90	0	0	
407	M	nMS	0	3	pre		to NUP	0	45	90	0	0	
407	M	nMS	0	3	pre		to RED	0	45	90	0	0	
407	M	nMS	0	3	pre		to NUP	0	45	90	0	0	
407	M	nMS	23	3	PRE	1	to RED	0	45	90	5.98	10	3.2488
407	M	nMS	23	3	PRE	2	to NUP	0	45	90	5.5	14	3.2939
407	M	nMS	23	3	PRE	3	to RED	0	45	90	5.63	11	2.3756
407	M	nMS	23	3	PRE	4	to NUP	0	45	90	8.42	14	4.5637
407	M	nMS	23	3	PRE	5	to RED	0	45	90	6.13	11	3.245
407	M	nMS	23	3	PRE	6	to NUP	0	45	90	5.42	13	3.4502
407	M	nMS	30	3	STIM	7	to RED	0	45	90	5.97	10	3.0934
407	M	nMS	30	3	STIM	8	to NUP	0	45	90	10.6	15	2.2891
407	M	nMS	30	3	STIM	9	to RED	0	45	90	6.52	10	2.3799
407	M	nMS	30	3	STIM	10	to NUP	0	45	90	11.05	15	2.3529
407	M	nMS	30	3	STIM	11	to RED	0	45	90	9.37	10	2.746
407	M	nMS	30	3	STIM	12	to NUP	0	45	90	10.97	15	2.2932
407	M	nMS	30	3	STIM	13	to RED	0	45	90	9.88	10	3.143
407	M	nMS	30	3	STIM	14	to NUP	0	45	90	10.97	14	2.7582
407	M	nMS	30	3	STIM	15	to RED	0	45	90	6.55	9	2.651
407	M	nMS	30	3	STIM	16	to NUP	0	45	90	9.52	14	2.6885
407	M	nMS	30	3	STIM	17	to RED	0	45	90	6.55	9	3.7745
407	M	nMS	30	3	STIM	18	to NUP	0	45	90	10.4	14	2.1202
407	M	nMS	30	3	STIM	19	to RED	0	45	90	4.9	8	2.7221
407	M	nMS	30	3	STIM	20	to NUP	0	45	90	10.23	14	2.4321
407	M	nMS	30	3	STIM	21	to RED	0	45	90	4.67	8	3.0056
407	M	nMS	30	3	STIM	22	to NUP	0	45	90	8.87	14	2.6887
407	M	nMS	30	3	STIM	23	to RED	0	45	90	6.65	7	2.3964
407	M	nMS	30	3	STIM	24	to NUP	0	45	90	7.75	13	2.0477
407	M	nMS	30	3	STIM	25	to RED	0	45	90	6.83	7	2.1862
407	M	nMS	30	3	STIM	26	to NUP	0	45	90	8.73	13	3.313
407	M	nMS	30	3	STIM	27	to RED	0	45	90	7.22	6	2.2922
407	M	nMS	30	3	STIM	28	to NUP	0	45	90	8.17	13	2.9103
407	M	nMS	30	3	STIM	29	to RED	0	45	90	4.38	6	1.387
407	M	nMS	30	3	STIM	30	to NUP	0	45	90	8.52	13	2.0255
407	M	nMS	30	3	STIM	31	to RED	0	45	90	3.37	6	2.4114
407	M	nMS	30	3	STIM	32	to NUP	0	45	90	7.68	12	1.7588
407	M	nMS	30	3	STIM	33	to RED	0	45	90	4.43	6	2.9771
407	M	nMS	30	3	STIM	34	to NUP	0	45	90	8.08	12	1.9423
407	M	nMS	30	3	STIM	35	to RED	0	45	90	8.7	6	2.9956
407	M	nMS	30	3	STIM	36	to NUP	0	45	90	6.88	11	1.589
407	M	nMS	23	3	POST	37	to RED	0	45	90	3.87	3	1.9449
407	M	nMS	23	3	POST	38	to NUP	0	45	90	5.25	5	2.8704
407	M	nMS	23	3	POST	39	to RED	0	45	90	2.85	2	2.8529
407	M	nMS	23	3	POST	40	to NUP	0	45	90	5.68	3	2.6584
407	M	nMS	23	3	POST	41	to RED	0	45	90	8.17	3	2.114
407	M	nMS	23	3	POST	42	to NUP	0	45	90	7.07	3	2.9733
407	M	nMS	0	3	post		to RED	0	45	90		0	
407	M	nMS	0	3	post		to NUP	0	45	90		0	
407	M	nMS	0	3	post		to RED	0	45	90		0	
407	M	nMS	0	3	post		to NUP	0	45	90		0	
407	M	nMS	0	3	post		to RED	0	45	90		0	
407	M	nMS	0	3	post		to NUP	0	45	90		0	
407	M	nMS	0	3	calibration		NUP						
407	M	nMS	0	3	calibration		NUP						
407	M	nMS	0	3	calibration		NUP						
408	M	MS	0	1	calibration		NUP						
408	M	MS	0	1	calibration		NUP						
408	M	MS	0	1	calibration		NUP						
408	M	MS	0	1	pre		to RED	0	45	90	0	0	
408	M	MS	0	1	pre		to NUP	0	45	90	0	0	
408	M	MS	0	1	pre		to RED	0	45	90	0	0	

408	M	MS	0	1	pre		to NUP	0	45	90	0	0	
408	M	MS	0	1	pre		to RED	0	45	90	0	0	
408	M	MS	0	1	pre		to NUP	0	45	90	0	0	
408	M	MS	23	1	PRE	1	to RED	0	45	90	5.62	10	5.7416
408	M	MS	23	1	PRE	2	to NUP	2	45	90	7.43	10	4.0384
408	M	MS	23	1	PRE	3	to RED	0	45	90	5.27	8	4.0278
408	M	MS	23	1	PRE	4	to NUP	7	45	90	7.75	8	3.9206
408	M	MS	23	1	PRE	5	to RED	7	45	90	8.48	7	3.8105
408	M	MS	23	1	PRE	6	to NUP	3	46	96	6.37	7	4.2146
408	M	MS	14	1	STIM	7	to RED	1	48	108	7.17	6	5.9084
408	M	MS	14	1	STIM	8	to NUP	2	45	90	11.1	7	4.8683
408	M	MS	14	1	STIM	9	to RED	2	48	108	3.93	6	6.0516
408	M	MS	14	1	STIM	10	to NUP	3	45	90	11.32	7	5.5037
408	M	MS	14	1	STIM	11	to RED	3	47	102	8.62	6	5.373
408	M	MS	14	1	STIM	12	to NUP	4	46	96	12.53	7	3.3749
408	M	MS	14	1	STIM	13	to RED	4	46	96	7.3	6	2.9644
408	M	MS	14	1	STIM	14	to NUP	4	45	90	16.2	7	3.0913
408	M	MS	14	1	STIM	15	to RED	5	45	90	12.9	7	4.5012
408	M	MS	14	1	STIM	16	to NUP	6	45	90	14.52	6	3.9885
408	M	MS	14	1	STIM	17	to RED	3	46	96	11.93	6	3.3538
408	M	MS	14	1	STIM	18	to NUP	5	45	90	14.43	6	4.0691
408	M	MS	14	1	STIM	19	to RED	2	46	96	7.77	5	4.0401
408	M	MS	14	1	STIM	20	to NUP	5	47	102	14.02	6	3.4281
408	M	MS	14	1	STIM	21	to RED	3	45	90	9.23	5	3.0752
408	M	MS	14	1	STIM	22	to NUP	4	45	90	20.5	7	3.5611
408	M	MS	14	1	STIM	23	to RED	5	46	96	13.8	6	2.3499
408	M	MS	14	1	STIM	24	to NUP	5	45	90	15.83	6	4.6844
408	M	MS	14	1	STIM	25	to RED	2	45	90	14.075	5	3.5933
408	M	MS	14	1	STIM	26	to NUP	5	45	90	16.67	7	2.9616
408	M	MS	14	1	STIM	27	to RED	5	45	90	14.35	6	2.3649
408	M	MS	14	1	STIM	28	to NUP	6	45	90	19.07	6	3.7762
408	M	MS	14	1	STIM	29	to RED	5	45	90	18.63	6	4.1041
408	M	MS	14	1	STIM	30	to NUP	5	45	90	14.52	5	2.2494
408	M	MS	14	1	STIM	31	to RED	3	45	90	19.38	5	2.8273
408	M	MS	14	1	STIM	32	to NUP	5	45	90	15.75	7	2.925
408	M	MS	14	1	STIM	33	to RED	3	45	90	9.58	5	2.3445
408	M	MS	14	1	STIM	34	to NUP	3	45	90	12.17	6	2.2681
408	M	MS	14	1	STIM	35	to RED	2	45	90	10.515	5	3.0199
408	M	MS	14	1	STIM	36	to NUP	4	45	90	16.05	6	2.2117
408	M	MS	23	1	POST	37	to RED	1	45	90	11.45	2	4.2133
408	M	MS	23	1	POST	38	to NUP	5	45	90	17.38	10	2.961
408	M	MS	23	1	POST	39	to RED	3	45	90	11.87	5	3.7518
408	M	MS	23	1	POST	40	to NUP	6	45	90	21.87	10	2.5162
408	M	MS	23	1	POST	41	to RED	3	45	90	19.45	5	2.5792
408	M	MS	23	1	POST	42	to NUP	6	45	90	21.9	12	3.6188
408	M	MS	0	1	post		to RED	0	47	102		0	
408	M	MS	0	1	post		to NUP	1	48	108		2	
408	M	MS	0	1	post		to RED	2	46	96		2	
408	M	MS	0	1	post		to NUP	3	46	96		2	
408	M	MS	0	1	post		to RED	0	46	96		0	
408	M	MS	0	1	post		to NUP	1	46	96		2	
408	M	MS	0	1	calibration		NUP						
408	M	MS	0	1	calibration		NUP						
408	M	MS	0	1	calibration		NUP						
408	M	MS	0	2	calibration		NUP						
408	M	MS	0	2	calibration		NUP						
408	M	MS	0	2	calibration		NUP						
408	M	MS	0	2	pre		to RED	0	45	90	0	0	
408	M	MS	0	2	pre		to NUP	0	45	90	0	0	
408	M	MS	0	2	pre		to RED	0	45	90	0	0	
408	M	MS	0	2	pre		to NUP	0	45	90	0	0	
408	M	MS	0	2	pre		to RED	0	45	90	0	0	
408	M	MS	0	2	pre		to NUP	0	45	90	0	0	
408	M	MS	23	2	PRE	1	to RED	1	45	90	5.55	3	3.817
408	M	MS	23	2	PRE	2	to NUP	3	44	84	9.95	6	3.6338
408	M	MS	23	2	PRE	3	to RED	2	45	90	9	3	3.5921
408	M	MS	23	2	PRE	4	to NUP	4	45	90	9.8	7	3.1604
408	M	MS	23	2	PRE	5	to RED	2	45	90	9.07	2	3.3447
408	M	MS	23	2	PRE	6	to NUP	4	44	84	12.15	7	3.2506
408	M	MS	23	2	STIM	7	to RED	1	46	96	9.17	3	3.3078
408	M	MS	23	2	STIM	8	to NUP	3	45	90	10.52	5	3.5608
408	M	MS	23	2	STIM	9	to RED	1	45	90	10.37	4	2.4492
408	M	MS	23	2	STIM	10	to NUP	3	45	90	12.6	5	2.5564
408	M	MS	23	2	STIM	11	to RED	2	45	90	9.72	3	2.8547
408	M	MS	23	2	STIM	12	to NUP	4	45	90	11.72	6	3.6118
408	M	MS	23	2	STIM	13	to RED	3	45	90	12.22	4	3.6146
408	M	MS	23	2	STIM	14	to NUP	4	45	90	13	6	3.0771
408	M	MS	23	2	STIM	15	to RED	2	46	96	12.18	2	4.646
408	M	MS	23	2	STIM	16	to NUP	3	45	90	13.82	5	4.4914
408	M	MS	23	2	STIM	17	to RED	2	45	90	7.4	3	2.1218
408	M	MS	23	2	STIM	18	to NUP	3	45	90	10.93	5	3.3089
408	M	MS	23	2	STIM	19	to RED	2	45	90	11.62	2	3.1621
408	M	MS	23	2	STIM	20	to NUP	4	45	90	12.55	6	3.0818
408	M	MS	23	2	STIM	21	to RED	2	45	90	11.8	3	3.718
408	M	MS	23	2	STIM	22	to NUP	5	45	90	13.98	6	3.3715
408	M	MS	23	2	STIM	23	to RED	2	45	90	7.52	2	2.9028
408	M	MS	23	2	STIM	24	to NUP	3	45	90	16.32	5	3.3493
408	M	MS	23	2	STIM	25	to RED	2	45	90	10.42	3	4.0279
408	M	MS	23	2	STIM	26	to NUP	4	45	90	13.9	6	2.0186
408	M	MS	23	2	STIM	27	to RED	2	45	90	15.25	3	2.0945
408	M	MS	23	2	STIM	28	to NUP	4	45	90	11.37	7	3.5424
408	M	MS	23	2	STIM	29	to RED	3	45	90	9.77	2	2.6681
408	M	MS	23	2	STIM	30	to NUP	4	45	90	11.37	6	3.6419
408	M	MS	23	2	STIM	31	to RED	3	45	90	10.17	3	3.8053
408	M	MS	23	2	STIM	32	to NUP	3	45	90	16.05	5	2.5114
408	M	MS	23	2	STIM	33	to RED	1	45	90	6.07	2	2.89
408	M	MS	23	2	STIM	34	to NUP	2	45	90	10.68	2	2.8784
408	M	MS	23	2	STIM	35	to RED	2	45	90	7.62	2	3.1824

408	M	MS	23	2	STIM	36	to NUP	2	45	90	11.78	3	2.5893
408	M	MS	23	2	POST	37	to RED	2	45	90	9.62	2	2.1008
408	M	MS	23	2	POST	38	to NUP	3	45	90	10.22	3	3.3228
408	M	MS	23	2	POST	39	to RED	1	45	90	0	0	3.7581
408	M	MS	23	2	POST	40	to NUP	2	45	90	11.98	2	2.1935
408	M	MS	23	2	POST	41	to RED	1	45	90	7.92	1	3.6134
408	M	MS	23	2	POST	42	to NUP	3	45	90	11.48	3	1.995
408	M	MS	0	2	post		to RED	0	46	96		0	
408	M	MS	0	2	post		to NUP	0	45	90		0	
408	M	MS	0	2	post		to RED	0	45	90		1	
408	M	MS	0	2	post		to NUP	1	45	90		0	
408	M	MS	0	2	post		to RED	0	45	90		0	
408	M	MS	0	2	post		to NUP	1	45	90		1	
408	M	MS	0	2	calibration		NUP						
408	M	MS	0	2	calibration		NUP						
408	M	MS	0	2	calibration		NUP						
408	M	MS	0	3	calibration		NUP						
408	M	MS	0	3	calibration		NUP						
408	M	MS	0	3	calibration		NUP						
408	M	MS	0	3	pre		to RED	0	45	90	0	0	
408	M	MS	0	3	pre		to NUP	0	45	90	0	0	
408	M	MS	0	3	pre		to RED	0	45	90	0	0	
408	M	MS	0	3	pre		to NUP	0	45	90	0	0	
408	M	MS	0	3	pre		to RED	0	45	90	0	0	
408	M	MS	0	3	pre		to NUP	0	45	90	0	0	
408	M	MS	23	3	PRE	1	to RED	0	47	102	0	0	3.0002
408	M	MS	23	3	PRE	2	to NUP	0	45	90	6.8	2	4.1121
408	M	MS	23	3	PRE	3	to RED	0	45	90	6.43	2	4.8163
408	M	MS	23	3	PRE	4	to NUP	1	45	90	7.67	2	2.8257
408	M	MS	23	3	PRE	5	to RED	0	45	90	7.12	1	4.2548
408	M	MS	23	3	PRE	6	to NUP	1	45	90	8.5	1	4.2732
408	M	MS	30	3	STIM	7	to RED	0	45	90	8.75	3	4.1233
408	M	MS	30	3	STIM	8	to NUP	2	44	84	7.42	6	4.8772
408	M	MS	30	3	STIM	9	to RED	1	45	90	9.73	4	3.0549
408	M	MS	30	3	STIM	10	to NUP	0	45	90	10.65	7	2.3254
408	M	MS	30	3	STIM	11	to RED	0	45	90	14.98	3	3.7947
408	M	MS	30	3	STIM	12	to NUP	0	45	90	12.18	6	3.2483
408	M	MS	30	3	STIM	13	to RED	0	45	90	5.78	2	4.3331
408	M	MS	30	3	STIM	14	to NUP	2	45	90	10.88	6	2.4469
408	M	MS	30	3	STIM	15	to RED	0	45	90	11.55	2	2.6986
408	M	MS	30	3	STIM	16	to NUP	2	45	90	15.27	4	2.128
408	M	MS	30	3	STIM	17	to RED	2	45	90	8.38	2	1.9577
408	M	MS	30	3	STIM	18	to NUP	3	45	90	15.45	5	3.5013
408	M	MS	30	3	STIM	19	to RED	2	45	90	10.85	3	3.0892
408	M	MS	30	3	STIM	20	to NUP	2	45	90	16.07	4	2.3654
408	M	MS	30	3	STIM	21	to RED	1	45	90	10.02	3	3.2322
408	M	MS	30	3	STIM	22	to NUP	4	45	90	15.28	6	2.8313
408	M	MS	30	3	STIM	23	to RED	2	45	90	13.7	2	3.3697
408	M	MS	30	3	STIM	24	to NUP	2	45	90	12.75	6	3.3833
408	M	MS	30	3	STIM	25	to RED	1	45	90	11.05	1	2.9444
408	M	MS	30	3	STIM	26	to NUP	4	45	90	13.48	6	3.3074
408	M	MS	30	3	STIM	27	to RED	2	45	90	15.2	2	2.059
408	M	MS	30	3	STIM	28	to NUP	4	45	90	14.92	5	3.2033
408	M	MS	30	3	STIM	29	to RED	4	45	90	12.12	2	2.8169
408	M	MS	30	3	STIM	30	to NUP	3	45	90	16.13	5	3.2267
408	M	MS	30	3	STIM	31	to RED	2	45	90	12.27	2	2.024
408	M	MS	30	3	STIM	32	to NUP	6	45	90	12.28	5	4.0602
408	M	MS	30	3	STIM	33	to RED	2	45	90	10.77	2	4.0397
408	M	MS	30	3	STIM	34	to NUP	7	45	90	15.83	5	2.2559
408	M	MS	30	3	STIM	35	to RED	4	45	90	10.77	3	2.2898
408	M	MS	30	3	STIM	36	to NUP	8	45	90	15.78	6	2.0365
408	M	MS	23	3	POST	37	to RED	3	45	90	7.67	1	2.7642
408	M	MS	23	3	POST	38	to NUP	3	45	90	11.68	2	2.6046
408	M	MS	23	3	POST	39	to RED	2	45	90	11.62	2	2.3361
408	M	MS	23	3	POST	40	to NUP	5	45	90	12.02	3	2.8519
408	M	MS	23	3	POST	41	to RED	3	45	90	6.02	3	2.9247
408	M	MS	23	3	POST	42	to NUP	2	45	90	8.98	3	2.4729
408	M	MS	0	3	post		to RED	0	45	90		0	
408	M	MS	0	3	post		to NUP	0	45	90		0	
408	M	MS	0	3	post		to RED	0	45	90		0	
408	M	MS	0	3	post		to NUP	0	45	90		0	
408	M	MS	0	3	post		to RED	0	45	90		0	
408	M	MS	0	3	post		to NUP	0	45	90		0	
408	M	MS	0	3	calibration		NUP						
408	M	MS	0	3	calibration		NUP						
408	M	MS	0	3	calibration		NUP						
409	F	nMS	0	1	calibration		NUP						
409	F	nMS	0	1	calibration		NUP						
409	F	nMS	0	1	calibration		NUP						
409	F	nMS	0	1	pre		to RED	0	45	90	0	0	
409	F	nMS	0	1	pre		to NUP	0	45	90	0	0	
409	F	nMS	0	1	pre		to RED	0	45	90	0	0	
409	F	nMS	0	1	pre		to NUP	0	45	90	0	0	
409	F	nMS	0	1	pre		to RED	0	45	90	0	0	
409	F	nMS	0	1	pre		to NUP	0	45	90	0	0	
409	F	nMS	23	1	PRE	1	to RED	0	45	90	2.58	10	3.8718
409	F	nMS	23	1	PRE	2	to NUP	0	45	90	2.1	12	4.6348
409	F	nMS	23	1	PRE	3	to RED	0	45	90	2.4	11	6.2171
409	F	nMS	23	1	PRE	4	to NUP	0	45	90	1.12	8	4.5717
409	F	nMS	23	1	PRE	5	to RED	0	45	90	1.78	10	6.7513
409	F	nMS	23	1	PRE	6	to NUP	0	45	90	1.13	9	3.4837
409	F	nMS	14	1	STIM	7	to RED	0	45	90	2.25	6	3.7631
409	F	nMS	14	1	STIM	8	to NUP	0	45	90	0.95	6	5.01
409	F	nMS	14	1	STIM	9	to RED	0	45	90	0.93	8	4.572
409	F	nMS	14	1	STIM	10	to NUP	0	45	90	1.9	7	4.8357
409	F	nMS	14	1	STIM	11	to RED	0	45	90	1.25	7	4.5125
409	F	nMS	14	1	STIM	12	to NUP	0	45	90	2.1	8	3.6354
409	F	nMS	14	1	STIM	13	to RED	0	45	90	1.5	7	4.4721

409	F	nMS	14	1	STIM	14	to NUP	0	45	90	1.5	9	3.3615
409	F	nMS	14	1	STIM	15	to RED	0	45	90	2.12	11	4.5699
409	F	nMS	14	1	STIM	16	to NUP	0	45	90	1.23	8	3.8054
409	F	nMS	14	1	STIM	17	to RED	0	45	90	0.72	5	4.1048
409	F	nMS	14	1	STIM	18	to NUP	0	45	90	0	0	4.2028
409	F	nMS	14	1	STIM	19	to RED	0	45	90	2.5	4	3.886
409	F	nMS	14	1	STIM	20	to NUP	1	45	90	0.8	7	4.4393
409	F	nMS	14	1	STIM	21	to RED	0	45	90	2.02	6	3.4695
409	F	nMS	14	1	STIM	22	to NUP	0	44	84	1.75	8	3.5051
409	F	nMS	14	1	STIM	23	to RED	0	45	90	1.38	7	3.7671
409	F	nMS	14	1	STIM	24	to NUP	0	45	90	1.65	5	4.0225
409	F	nMS	14	1	STIM	25	to RED	0	45	90	1.52		3.1314
409	F	nMS	14	1	STIM	26	to NUP	0	45	90	0.95	8	2.783
409	F	nMS	14	1	STIM	27	to RED	0	46	96	1.78	7	3.1957
409	F	nMS	14	1	STIM	28	to NUP	0	45	90	0.87	9	2.9808
409	F	nMS	14	1	STIM	29	to RED	0	45	90	1.32	8	2.4109
409	F	nMS	14	1	STIM	30	to NUP	0	45	90	3.6	9	2.4157
409	F	nMS	14	1	STIM	31	to RED	0	47	102	1.78	12	4.9931
409	F	nMS	14	1	STIM	32	to NUP	0	46	96	1.13	12	3.3437
409	F	nMS	14	1	STIM	33	to RED	0	46	96	1.57	11	3.1859
409	F	nMS	14	1	STIM	34	to NUP	1	47	102	1.52	13	3.5772
409	F	nMS	14	1	STIM	35	to RED	0	46	96	4.02	11	3.5429
409	F	nMS	14	1	STIM	36	to NUP	1	46	96	2.52	11	3.775
409	F	nMS	23	1	POST	37	to RED	0	46	96	2.85	15	3.1164
409	F	nMS	23	1	POST	38	to NUP	0	47	102	1.38	15	2.9526
409	F	nMS	23	1	POST	39	to RED	0	47	102	1.45	15	3.206
409	F	nMS	23	1	POST	40	to NUP	0	48	108	4.87	15	2.7531
409	F	nMS	23	1	POST	41	to RED	0	47	102	2.33	15	3.6913
409	F	nMS	23	1	POST	42	to NUP	2	48	108	3.1	14	3.3629
409	F	nMS	0	1	post		to RED	0	45	90		0	
409	F	nMS	0	1	post		to NUP	0	45	90		1	
409	F	nMS	0	1	post		to RED	0	45	90		1	
409	F	nMS	0	1	post		to NUP	0	44	84		1	
409	F	nMS	0	1	post		to RED	0	46	96		0	
409	F	nMS	0	1	post		to NUP	0	46	96		1	
409	F	nMS	0	1	calibration		NUP						
409	F	nMS	0	1	calibration		NUP						
409	F	nMS	0	1	calibration		NUP						
409	F	nMS	0	2	calibration		NUP						
409	F	nMS	0	2	calibration		NUP						
409	F	nMS	0	2	calibration		NUP						
409	F	nMS	0	2	pre		to RED	0	45	90	0	0	
409	F	nMS	0	2	pre		to NUP	0	45	90	0	0	
409	F	nMS	0	2	pre		to RED	0	45	90	0	0	
409	F	nMS	0	2	pre		to NUP	0	45	90	0	0	
409	F	nMS	0	2	pre		to RED	0	45	90	0	0	
409	F	nMS	0	2	pre		to NUP	0	45	90	0	0	
409	F	nMS	23	2	PRE	1	to RED	0	45	90		5	
409	F	nMS	23	2	PRE	2	to NUP	0	45	90		6	
409	F	nMS	23	2	PRE	3	to RED	0	45	90		4	
409	F	nMS	23	2	PRE	4	to NUP	0	45	90	0.88	6	2.6833
409	F	nMS	23	2	PRE	5	to RED	0	45	90	0.58	6	4.6436
409	F	nMS	23	2	PRE	6	to NUP	0	45	90	1.85	7	3.0202
409	F	nMS	23	2	STIM	7	to RED	0	45	90	0.72	6	6.9375
409	F	nMS	23	2	STIM	8	to NUP	0	45	90	1.67	7	3.8538
409	F	nMS	23	2	STIM	9	to RED	0	45	90	1.47	7	5.4722
409	F	nMS	23	2	STIM	10	to NUP	0	45	90	2.97	6	4.2372
409	F	nMS	23	2	STIM	11	to RED	0	45	90	1.88	7	6.2034
409	F	nMS	23	2	STIM	12	to NUP	0	45	90	3.03	6	3.3952
409	F	nMS	23	2	STIM	13	to RED	0	45	90	1.92	7	4.1831
409	F	nMS	23	2	STIM	14	to NUP	0	45	90	1.37	7	4.6088
409	F	nMS	23	2	STIM	15	to RED	0	45	90	1.72	9	3.416
409	F	nMS	23	2	STIM	16	to NUP	0	45	90	2.37	8	2.9258
409	F	nMS	23	2	STIM	17	to RED	0	45	90	3.58	8	4.919
409	F	nMS	23	2	STIM	18	to NUP	0	45	90	2.98	10	3.6235
409	F	nMS	23	2	STIM	19	to RED	0	45	90	2.43	10	4.2387
409	F	nMS	23	2	STIM	20	to NUP	0	45	90	2.93	10	2.673
409	F	nMS	23	2	STIM	21	to RED	0	45	90	1.95	10	3.6332
409	F	nMS	23	2	STIM	22	to NUP	0	45	90	3.13	11	4.1365
409	F	nMS	23	2	STIM	23	to RED	0	45	90	1.72	10	3.9457
409	F	nMS	23	2	STIM	24	to NUP	0	45	90	2.63	10	4.2131
409	F	nMS	23	2	STIM	25	to RED	0	46	96	1.45	11	4.7885
409	F	nMS	23	2	STIM	26	to NUP	0	46	96	4.78	11	4.8788
409	F	nMS	23	2	STIM	27	to RED	0	46	96	1.42	11	2.4786
409	F	nMS	23	2	STIM	28	to NUP	0	45	90	4.35	11	3.3342
409	F	nMS	23	2	STIM	29	to RED	0	45	90	1.37	10	3.8323
409	F	nMS	23	2	STIM	30	to NUP	0	45	90	1.37	11	3.2253
409	F	nMS	23	2	STIM	31	to RED	0	45	90	1.83	11	3.799
409	F	nMS	23	2	STIM	32	to NUP	0	45	90	3.37	9	4.1932
409	F	nMS	23	2	STIM	33	to RED	0	45	90	3.42	10	4.3412
409	F	nMS	23	2	STIM	34	to NUP	1	45	90	3.78	12	3.306
409	F	nMS	23	2	STIM	35	to RED	0	45	90	3.45	12	4.4977
409	F	nMS	23	2	STIM	36	to NUP	0	46	96	5.63	12	2.6686
409	F	nMS	23	2	POST	37	to RED	0	45	90	1.72	8	3.8131
409	F	nMS	23	2	POST	38	to NUP	0	46	96	2.03	10	2.3844
409	F	nMS	23	2	POST	39	to RED	0	45	90	1.93	10	2.4997
409	F	nMS	23	2	POST	40	to NUP	1	45	90	2.5	11	2.9528
409	F	nMS	23	2	POST	41	to RED	0	45	90	1.23	8	2.3863
409	F	nMS	23	2	POST	42	to NUP	0	45	90	3.83	9	2.7087
409	F	nMS	0	2	post		to RED	0	45	90		0	
409	F	nMS	0	2	post		to NUP	0	45	90		0	
409	F	nMS	0	2	post		to RED	0	45	90		0	
409	F	nMS	0	2	post		to NUP	0	45	90		0	
409	F	nMS	0	2	post		to RED	0	45	90		0	
409	F	nMS	0	2	post		to NUP	0	45	90		0	
409	F	nMS	0	2	calibration		NUP						
409	F	nMS	0	2	calibration		NUP						
409	F	nMS	0	2	calibration		NUP						

409	F	nMS	0	3	calibration		NUP					
409	F	nMS	0	3	calibration		NUP					
409	F	nMS	0	3	calibration		NUP					
409	F	nMS	0	3	pre		to RED	0	45	90	0	0	
409	F	nMS	0	3	pre		to NUP	0	45	90	0	0	
409	F	nMS	0	3	pre		to RED	0	45	90	0	0	
409	F	nMS	0	3	pre		to NUP	0	45	90	0	0	
409	F	nMS	0	3	pre		to RED	0	45	90	0	0	
409	F	nMS	0	3	pre		to NUP	0	45	90	0	0	
409	F	nMS	23	3	PRE	1	to RED	0	45	90	0	0	3.4453
409	F	nMS	23	3	PRE	2	to NUP	0	45	90	2.23	5	3.3927
409	F	nMS	23	3	PRE	3	to RED	0	45	90	1.98	4	4.499
409	F	nMS	23	3	PRE	4	to NUP	0	45	90	1.65	5	3.578
409	F	nMS	23	3	PRE	5	to RED	0	45	90	2.13	4	3.831
409	F	nMS	23	3	PRE	6	to NUP	0	45	90	2.07	5	2.4741
409	F	nMS	30	3	STIM	7	to RED	0	45	90	2.05	5	4.0859
409	F	nMS	30	3	STIM	8	to NUP	0	45	90	1.82	5	3.0262
409	F	nMS	30	3	STIM	9	to RED	0	45	90	2.72	4	3.4646
409	F	nMS	30	3	STIM	10	to NUP	0	45	90	3.02	7	3.048
409	F	nMS	30	3	STIM	11	to RED	0	46	96	2.33	6	3.6753
409	F	nMS	30	3	STIM	12	to NUP	0	46	96	3.37	8	4.4633
409	F	nMS	30	3	STIM	13	to RED	0	45	90	2.42	8	5.3379
409	F	nMS	30	3	STIM	14	to NUP	0	45	90	2.17	8	3.4854
409	F	nMS	30	3	STIM	15	to RED	0	45	90	2.38	10	3.9122
409	F	nMS	30	3	STIM	16	to NUP	0	45	90	2.25	10	3.2996
409	F	nMS	30	3	STIM	17	to RED	0	45	90	2.4	10	2.7035
409	F	nMS	30	3	STIM	18	to NUP	0	45	90	2.55	10	2.7188
409	F	nMS	30	3	STIM	19	to RED	0	45	90	2.63	11	3.7034
409	F	nMS	30	3	STIM	20	to NUP	0	46	96	2.97	11	3.0856
409	F	nMS	30	3	STIM	21	to RED	0	45	90	2.65	11	4.2293
409	F	nMS	30	3	STIM	22	to NUP	0	45	90	1.92	10	2.236
409	F	nMS	30	3	STIM	23	to RED	0	44	84	2.98	10	4.7901
409	F	nMS	30	3	STIM	24	to NUP	0	44	84	3	10	3.6181
409	F	nMS	30	3	STIM	25	to RED	0	45	90	3.8	10	2.7648
409	F	nMS	30	3	STIM	26	to NUP	0	44	84	2.1	11	3.171
409	F	nMS	30	3	STIM	27	to RED	0	44	84	2.2	10	2.2222
409	F	nMS	30	3	STIM	28	to NUP	0	44	84	1.45	11	3.6406
409	F	nMS	30	3	STIM	29	to RED	0	43	78	2.48	11	2.946
409	F	nMS	30	3	STIM	30	to NUP	0	45	90	2.65	11	3.201
409	F	nMS	30	3	STIM	31	to RED	0	45	90	2.67	10	2.0329
409	F	nMS	30	3	STIM	32	to NUP	0	45	90	2.55	10	3.9198
409	F	nMS	30	3	STIM	33	to RED	0	45	90	3.4	10	2.9776
409	F	nMS	30	3	STIM	34	to NUP	0	44	84	2.65	11	2.6886
409	F	nMS	30	3	STIM	35	to RED	0	45	90	2.48	10	2.4759
409	F	nMS	30	3	STIM	36	to NUP	0	45	90	4.08	10	2.3467
409	F	nMS	23	3	POST	37	to RED	0	45	90	2.43	5	3.9549
409	F	nMS	23	3	POST	38	to NUP	0	45	90	2.88	5	3.2436
409	F	nMS	23	3	POST	39	to RED	0	45	90	2.65	5	3.2082
409	F	nMS	23	3	POST	40	to NUP	0	45	90	2.37	5	3.0044
409	F	nMS	23	3	POST	41	to RED	0	45	90	2.95	5	3.239
409	F	nMS	23	3	POST	42	to NUP	0	45	90	3.13	4	2.1599
409	F	nMS	0	3	post		to RED	0	45	90		0	
409	F	nMS	0	3	post		to NUP	0	45	90		0	
409	F	nMS	0	3	post		to RED	0	45	90		0	
409	F	nMS	0	3	post		to NUP	0	45	90		0	
409	F	nMS	0	3	post		to RED	0	45	90		0	
409	F	nMS	0	3	post		to NUP	0	45	90		0	
409	F	nMS	0	3	calibration		NUP						
409	F	nMS	0	3	calibration		NUP						
409	F	nMS	0	3	calibration		NUP						
410	F	nMS	0	1	calibration		NUP						
410	F	nMS	0	1	calibration		NUP						
410	F	nMS	0	1	calibration		NUP						
410	F	nMS	0	1	pre		to RED	0	45	90	0	0	
410	F	nMS	0	1	pre		to NUP	0	45	90	0	0	
410	F	nMS	0	1	pre		to RED	0	45	90	0	0	
410	F	nMS	0	1	pre		to NUP	0	45	90	0	0	
410	F	nMS	0	1	pre		to RED	0	45	90	0	0	
410	F	nMS	0	1	pre		to NUP	0	45	90	0	0	
410	F	nMS	23	1	PRE	1	to RED	1	45	90	3.7	10	3.2301
410	F	nMS	23	1	PRE	2	to NUP	2	45	90	9.28	10	4.1096
410	F	nMS	23	1	PRE	3	to RED	2	45	90	6.07	9	5.239
410	F	nMS	23	1	PRE	4	to NUP	2	45	90	4.43	9	4.0874
410	F	nMS	23	1	PRE	5	to RED	2	47	102	5.75	8	4.1209
410	F	nMS	23	1	PRE	6	to NUP	2	46	96	4.5	7	3.7916
410	F	nMS	14	1	STIM	7	to RED	1	45	90	3.07	3	4.6162
410	F	nMS	14	1	STIM	8	to NUP	1	45	90	3.6	3	4.949
410	F	nMS	14	1	STIM	9	to RED	1	45	90	2.93	2	4.7548
410	F	nMS	14	1	STIM	10	to NUP	0	45	90	1.98	1	3.9707
410	F	nMS	14	1	STIM	11	to RED	0	45	90	2.18	1	2.5235
410	F	nMS	14	1	STIM	12	to NUP	0	45	90	2.67	1	4.733
410	F	nMS	14	1	STIM	13	to RED	0	45	90	2.47	1	4.7701
410	F	nMS	14	1	STIM	14	to NUP	0	45	90	2.5	1	5.2618
410	F	nMS	14	1	STIM	15	to RED	0	45	90	3.32	1	3.2756
410	F	nMS	14	1	STIM	16	to NUP	0	45	90	3.05	1	4.2766
410	F	nMS	14	1	STIM	17	to RED	0	45	90	3.2	0.5	3.4111
410	F	nMS	14	1	STIM	18	to NUP	0	45	90	2.73	0.5	5.4414
410	F	nMS	14	1	STIM	19	to RED	0	45	90	2.7	0.5	4.8042
410	F	nMS	14	1	STIM	20	to NUP	0	45	90	3.22	1	5.3437
410	F	nMS	14	1	STIM	21	to RED	0	45	90	3.8	1	3.9676
410	F	nMS	14	1	STIM	22	to NUP	0	45	90	4.13	1	4.0619
410	F	nMS	14	1	STIM	23	to RED	0	45	90	4.28	1	4.1175
410	F	nMS	14	1	STIM	24	to NUP	0	45	90	3.43	1	4.1703
410	F	nMS	14	1	STIM	25	to RED	0	45	90	2.02	1	4.1416
410	F	nMS	14	1	STIM	26	to NUP	0	45	90	3.65	1	2.4297
410	F	nMS	14	1	STIM	27	to RED	0	45	90	1.87	1	4.2158
410	F	nMS	14	1	STIM	28	to NUP	0	45	90	3.13	1	4.6636
410	F	nMS	14	1	STIM	29	to RED	0	45	90	2.63	1	4.3343

410	F	nMS	14	1	STIM	30	to NUP	0	45	90	2.7	1	3.602
410	F	nMS	14	1	STIM	31	to RED	0	45	90	3.37	0.5	3.3227
410	F	nMS	14	1	STIM	32	to NUP	0	45	90	3.25	1	2.4539
410	F	nMS	14	1	STIM	33	to RED	0	45	90	2.28	1	2.4678
410	F	nMS	14	1	STIM	34	to NUP	0	45	90	3.43	1	2.6117
410	F	nMS	14	1	STIM	35	to RED	0	45	90	2.32	1	3.9297
410	F	nMS	14	1	STIM	36	to NUP	0	45	90	3.32	1	2.7899
410	F	nMS	23	1	POST	37	to RED	0	45	90	3.68	1	3.5891
410	F	nMS	23	1	POST	38	to NUP	0	45	90	4.38	2	4.7756
410	F	nMS	23	1	POST	39	to RED	0	45	90	5.2	2	4.0157
410	F	nMS	23	1	POST	40	to NUP	0	47	102	4.85	2	5.0846
410	F	nMS	23	1	POST	41	to RED	0	47	102	4.97	2	2.6881
410	F	nMS	23	1	POST	42	to NUP	0	47	102	5.6	2	3.183
410	F	nMS	0	1	post		to RED	0	45	90		0	
410	F	nMS	0	1	post		to NUP	0	45	90		0	
410	F	nMS	0	1	post		to RED	0	45	90		0	
410	F	nMS	0	1	post		to NUP	0	45	90		0	
410	F	nMS	0	1	post		to RED	0	45	90		0	
410	F	nMS	0	1	post		to NUP	0	45	90		0	
410	F	nMS	0	1	calibration		NUP						
410	F	nMS	0	1	calibration		NUP						
410	F	nMS	0	1	calibration		NUP						
410	F	nMS	0	2	calibration		NUP						
410	F	nMS	0	2	calibration		NUP						
410	F	nMS	0	2	calibration		NUP						
410	F	nMS	0	2	pre		to RED	0	45	90	0	0	
410	F	nMS	0	2	pre		to NUP	0	45	90	0	0	
410	F	nMS	0	2	pre		to RED	0	45	90	0	0	
410	F	nMS	0	2	pre		to NUP	0	45	90	0	0	
410	F	nMS	0	2	pre		to RED	0	45	90	0	0	
410	F	nMS	0	2	pre		to NUP	0	45	90	0	0	
410	F	nMS	23	2	PRE	1	to RED	2	45	90	4.65	4	4.5116
410	F	nMS	23	2	PRE	2	to NUP	2	45	90	5.37	4	4.0381
410	F	nMS	23	2	PRE	3	to RED	1.5	45	90	4.93	3	4.5178
410	F	nMS	23	2	PRE	4	to NUP	1.5	45	90	6.22	4	4.5719
410	F	nMS	23	2	PRE	5	to RED	1	45	90	4.97	3	4.1607
410	F	nMS	23	2	PRE	6	to NUP	1	45	90	6.67	3	3.7143
410	F	nMS	23	2	STIM	7	to RED	0	45	90	4.38	2	4.531
410	F	nMS	23	2	STIM	8	to NUP	0	44	84	5.57	2	4.642
410	F	nMS	23	2	STIM	9	to RED	0	45	90	5.22	1	4.5865
410	F	nMS	23	2	STIM	10	to NUP	0	44	84	5.38	2	3.5856
410	F	nMS	23	2	STIM	11	to RED	0	46	96	3.65	2	4.0111
410	F	nMS	23	2	STIM	12	to NUP	0	44	84	5.52	3	3.7214
410	F	nMS	23	2	STIM	13	to RED	0	46	96	4.95	2	4.4397
410	F	nMS	23	2	STIM	14	to NUP	0	44	84	5.77	2	3.9403
410	F	nMS	23	2	STIM	15	to RED	0	46	96	5.13	2	3.7326
410	F	nMS	23	2	STIM	16	to NUP	0	46	96	5.25	3	3.5586
410	F	nMS	23	2	STIM	17	to RED	0	46	96	5.33	2.5	4.5409
410	F	nMS	23	2	STIM	18	to NUP	0	44	84	5.37	3	3.6842
410	F	nMS	23	2	STIM	19	to RED	0	46	96	4.43	3	4.2993
410	F	nMS	23	2	STIM	20	to NUP	0	44	84	4.97	3	4.9201
410	F	nMS	23	2	STIM	21	to RED	0	46	96	4.13	3	3.7101
410	F	nMS	23	2	STIM	22	to NUP	0	45	90	3.82	2	4.0081
410	F	nMS	23	2	STIM	23	to RED	0	46	96	5.82	2	4.0943
410	F	nMS	23	2	STIM	24	to NUP	0	45	90	4.83	3	3.5646
410	F	nMS	23	2	STIM	25	to RED	0	46	96	4.53	3	3.2171
410	F	nMS	23	2	STIM	26	to NUP	0	46	96	5.32	3.5	2.9653
410	F	nMS	23	2	STIM	27	to RED	0	46	96	3.83	3.5	4.4705
410	F	nMS	23	2	STIM	28	to NUP	0	44	84	4.82	3.5	3.6282
410	F	nMS	23	2	STIM	29	to RED	0	46	96	4.55	3.5	2.4086
410	F	nMS	23	2	STIM	30	to NUP	0	44	84	4.25	3	4.2321
410	F	nMS	23	2	STIM	31	to RED	0	46	96	3.68	3	2.9609
410	F	nMS	23	2	STIM	32	to NUP	0	44	84	4.22	3	3.742
410	F	nMS	23	2	STIM	33	to RED	0	46	96	2.2	1	3.5518
410	F	nMS	23	2	STIM	34	to NUP	0	44	84	3.7	1	3.592
410	F	nMS	23	2	STIM	35	to RED	0	46	96	4.33	1	3.8258
410	F	nMS	23	2	STIM	36	to NUP	0	44	84	4.67	1	3.9734
410	F	nMS	23	2	POST	37	to RED	0	46	96	3.97	1	3.892
410	F	nMS	23	2	POST	38	to NUP	0	44	84	6.12	2	4.8171
410	F	nMS	23	2	POST	39	to RED	0	45	90	3.42	1	2.6674
410	F	nMS	23	2	POST	40	to NUP	0	44	84	4.08	2	3.7662
410	F	nMS	23	2	POST	41	to RED	0	46	96	4.25	2	3.4338
410	F	nMS	23	2	POST	42	to NUP	0	44	84	3.8	1	3.2329
410	F	nMS	0	2	post		to RED	0	45	90		0	
410	F	nMS	0	2	post		to NUP	0	45	90		0	
410	F	nMS	0	2	post		to RED	0	45	90		0	
410	F	nMS	0	2	post		to NUP	0	45	90		0	
410	F	nMS	0	2	post		to RED	0	45	90		0	
410	F	nMS	0	2	post		to NUP	0	45	90		0	
410	F	nMS	0	2	calibration		NUP						
410	F	nMS	0	2	calibration		NUP						
410	F	nMS	0	2	calibration		NUP						
410	F	nMS	0	3	calibration		NUP						
410	F	nMS	0	3	calibration		NUP						
410	F	nMS	0	3	calibration		NUP						
410	F	nMS	0	3	pre		to RED	0	45	90	0	0	
410	F	nMS	0	3	pre		to NUP	0	45	90	0	0	
410	F	nMS	0	3	pre		to RED	0	45	90	0	0	
410	F	nMS	0	3	pre		to NUP	0	45	90	0	0	
410	F	nMS	0	3	pre		to RED	0	45	90	0	0	
410	F	nMS	0	3	pre		to NUP	0	45	90	0	0	
410	F	nMS	23	3	PRE	1	to RED	1	45	90	4.92	4	3.3176
410	F	nMS	23	3	PRE	2	to NUP	1	44	84	3.95	4	4.1673
410	F	nMS	23	3	PRE	3	to RED	1	46	96	4.37	3.5	3.8405
410	F	nMS	23	3	PRE	4	to NUP	1	44	84	4.83	3.5	4.5394
410	F	nMS	23	3	PRE	5	to RED	0.5	45	90	3.07	3	3.6023
410	F	nMS	23	3	PRE	6	to NUP	0.5	44	84	4.25	3	3.349
410	F	nMS	30	3	STIM	7	to RED	1	46	96	6.62	4	4.8058

410	F	nMS	30	3	STIM	8	to NUP	1	44	84	5.85	3.5	3.7487
410	F	nMS	30	3	STIM	9	to RED	1	46	96	5.93	4	3.7587
410	F	nMS	30	3	STIM	10	to NUP	0.5	44	84	6.4	4	3.6146
410	F	nMS	30	3	STIM	11	to RED	0	46	96	6.5	3.5	3.7717
410	F	nMS	30	3	STIM	12	to NUP	0	44	84	6.82	3	4.2537
410	F	nMS	30	3	STIM	13	to RED	0	46	96	5.85	3	3.3539
410	F	nMS	30	3	STIM	14	to NUP	0	44	84	6.82	2.5	3.7229
410	F	nMS	30	3	STIM	15	to RED	0	45	90	5.37	3	3.1234
410	F	nMS	30	3	STIM	16	to NUP	0	44	84	4.6	3	4.008
410	F	nMS	30	3	STIM	17	to RED	0	45	90	6.18	2.5	3.2295
410	F	nMS	30	3	STIM	18	to NUP	0	44	84	5.12	3	4.9639
410	F	nMS	30	3	STIM	19	to RED	0	45	90	4.47	3	3.4673
410	F	nMS	30	3	STIM	20	to NUP	0	44	84	4.8	2.5	3.2817
410	F	nMS	30	3	STIM	21	to RED	0	45	90	6.13	3	4.2275
410	F	nMS	30	3	STIM	22	to NUP	0	44	84	7.15	3.5	4.698
410	F	nMS	30	3	STIM	23	to RED	0	45	90	8.23	3	4.2794
410	F	nMS	30	3	STIM	24	to NUP	0	44	84	7.78	3	4.0963
410	F	nMS	30	3	STIM	25	to RED	0	46	96	6.35	3	3.3705
410	F	nMS	30	3	STIM	26	to NUP	0	44	84	7.5	3	3.9017
410	F	nMS	30	3	STIM	27	to RED	0	46	96	6.22	4	4.2697
410	F	nMS	30	3	STIM	28	to NUP	0	44	84	7.88	4	4.3531
410	F	nMS	30	3	STIM	29	to RED	0	45	90	6.42	3.5	4.3546
410	F	nMS	30	3	STIM	30	to NUP	0	45	90	5.65	3	3.8489
410	F	nMS	30	3	STIM	31	to RED	0	45	90	5.27	3	4.0488
410	F	nMS	30	3	STIM	32	to NUP	0	44	84	6.83	3	4.947
410	F	nMS	30	3	STIM	33	to RED	0	45	90	4.27	2	4.5174
410	F	nMS	30	3	STIM	34	to NUP	0	44	84	5.37	2	4.4494
410	F	nMS	30	3	STIM	35	to RED	0	45	90	6.05	2	3.8873
410	F	nMS	30	3	STIM	36	to NUP	0	44	84	7.05	2	3.954
410	F	nMS	23	3	POST	37	to RED	0	45	90	4.52	1	3.7992
410	F	nMS	23	3	POST	38	to NUP	0	45	90	6.73	2	4.5992
410	F	nMS	23	3	POST	39	to RED	0	45	90	3.58	1	3.8607
410	F	nMS	23	3	POST	40	to NUP	0	45	90	6.82	2	3.2513
410	F	nMS	23	3	POST	41	to RED	0	45	90	6.52	2	3.5498
410	F	nMS	23	3	POST	42	to NUP	0	45	90	4.9	1.5	3.5898
410	F	nMS	0	3	post		to RED	0	45	90		0	
410	F	nMS	0	3	post		to NUP	0	45	90		0	
410	F	nMS	0	3	post		to RED	0	45	90		0	
410	F	nMS	0	3	post		to NUP	0	45	90		0	
410	F	nMS	0	3	post		to RED	0	45	90		0	
410	F	nMS	0	3	post		to NUP	0	45	90		0	
410	F	nMS	0	3	calibration		NUP						
410	F	nMS	0	3	calibration		NUP						
410	F	nMS	0	3	calibration		NUP						
411	M	MS	0	1	calibration		NUP						
411	M	MS	0	1	calibration		NUP						
411	M	MS	0	1	calibration		NUP						
411	M	MS	0	1	pre		to RED	0	45	90	0	0	
411	M	MS	0	1	pre		to NUP	0	45	90	0	0	
411	M	MS	0	1	pre		to RED	0	45	90	0	0	
411	M	MS	0	1	pre		to NUP	0	45	90	0	0	
411	M	MS	0	1	pre		to RED	0	45	90	0	0	
411	M	MS	0	1	pre		to NUP	0	45	90	0	0	
411	M	MS	23	1	PRE	1	to RED	0	45	90	17.13	10	3.8616
411	M	MS	23	1	PRE	2	to NUP	0	43	78	26.75	12	4.5709
411	M	MS	23	1	PRE	3	to RED	0	42	72	18.7	12	4.1148
411	M	MS	23	1	PRE	4	to NUP	4	40	60	22.33	14	2.5802
411	M	MS	23	1	PRE	5	to RED	3	42	72	16.45	10	3.3928
411	M	MS	23	1	PRE	6	to NUP	8	40	60	26.93	15	2.9911
411	M	MS	14	1	STIM	7	to RED	2	44	84	10.83	6	3.4147
411	M	MS	14	1	STIM	8	to NUP	3	42	72	15.08	8	5.433
411	M	MS	14	1	STIM	9	to RED	2	44	84	16.63	5	5.2255
411	M	MS	14	1	STIM	10	to NUP	7	41	66	17.3	10	3.8573
411	M	MS	14	1	STIM	11	to RED	2	42	72	14.98	9	3.4909
411	M	MS	14	1	STIM	12	to NUP	8	41	66	21.18	12	5.1315
411	M	MS	14	1	STIM	13	to RED	5	42	72	14.6	8	3.8045
411	M	MS	14	1	STIM	14	to NUP	7	40	60	19.12	10	4.1802
411	M	MS	14	1	STIM	15	to RED	5	45	90	10.72	8	4.0216
411	M	MS	14	1	STIM	16	to NUP	7	40	60	19.1	10	4.454
411	M	MS	14	1	STIM	17	to RED	4	44	84	16.02	7	3.1497
411	M	MS	14	1	STIM	18	to NUP	9	41	66	21.57	10	3.1701
411	M	MS	14	1	STIM	19	to RED	5	44	84	17.05	7	1.7701
411	M	MS	14	1	STIM	20	to NUP	8	40	60	20.9	10	2.995
411	M	MS	14	1	STIM	21	to RED	3	42	72	15.5	5	2.7587
411	M	MS	14	1	STIM	22	to NUP	8	41	66	19.97	10	2.1857
411	M	MS	14	1	STIM	23	to RED	7	42	72	19.85	8	3.3409
411	M	MS	14	1	STIM	24	to NUP	8	41	66	25.07	10	3.9411
411	M	MS	14	1	STIM	25	to RED	5	46	96	12.7	8	3.849
411	M	MS	14	1	STIM	26	to NUP	8	39	54	17.28	10	3.5487
411	M	MS	14	1	STIM	27	to RED	5	47	102	21.63	8	3.0012
411	M	MS	14	1	STIM	28	to NUP	7	40	60	18.62	8	2.8925
411	M	MS	14	1	STIM	29	to RED	4	47	102	19.35	8	3.4023
411	M	MS	14	1	STIM	30	to NUP	7	40	60	20.9	9	2.7743
411	M	MS	14	1	STIM	31	to RED	5	46	96	19.55	7	3.822
411	M	MS	14	1	STIM	32	to NUP	7	40	60	19.43	10	4.0124
411	M	MS	14	1	STIM	33	to RED	4	46	96	16.85	6	4.0439
411	M	MS	14	1	STIM	34	to NUP	5	41	66	20.47	8	3.474
411	M	MS	14	1	STIM	35	to RED	4	45	90	20.88	5	3.3746
411	M	MS	14	1	STIM	36	to NUP	8	42	72	20.02	8	1.8333
411	M	MS	23	1	POST	37	to RED	5	42	72	22.12	8	2.1735
411	M	MS	23	1	POST	38	to NUP	8	39	54	20.05	14	3.2439
411	M	MS	23	1	POST	39	to RED	8	42	72	18.4	7	2.4606
411	M	MS	23	1	POST	40	to NUP	9	38	48	25.93	14	4.2044
411	M	MS	23	1	POST	41	to RED	7	38	48	21.08	12	2.3068
411	M	MS	23	1	POST	42	to NUP	9	38	48	26.13	14	3.3122
411	M	MS	0	1	post		to RED	3	45	90		0	
411	M	MS	0	1	post		to NUP	3	45	90		1	
411	M	MS	0	1	post		to RED	3	45	90		1	

411	M	MS	0	1	post		to NUP	3	46	96		1	
411	M	MS	0	1	post		to RED	3	47	102		1	
411	M	MS	0	1	post		to NUP	2	46	96		1	
411	M	MS	0	1	calibration		NUP						
411	M	MS	0	1	calibration		NUP						
411	M	MS	0	1	calibration		NUP						
411	M	MS	0	2	calibration		NUP						
411	M	MS	0	2	calibration		NUP						
411	M	MS	0	2	calibration		NUP						
411	M	MS	0	2	pre		to RED	1	45	90	0	0	
411	M	MS	0	2	pre		to NUP	1	45	90	0	0	
411	M	MS	0	2	pre		to RED	1	45	90	0	0	
411	M	MS	0	2	pre		to NUP	1	45	90	0	0	
411	M	MS	0	2	pre		to RED	1	45	90	0	0	
411	M	MS	0	2	pre		to NUP	1	45	90	0	0	
411	M	MS	23	2	PRE	1	to RED	1	45	90	16.83	8	4.3828
411	M	MS	23	2	PRE	2	to NUP	1	42	72	19.3	10	6.4188
411	M	MS	23	2	PRE	3	to RED	2	42	72	18.23	9	4.7659
411	M	MS	23	2	PRE	4	to NUP	2	40	60	23.25	11	3.4483
411	M	MS	23	2	PRE	5	to RED	2	40	60	17.97	9	4.0783
411	M	MS	23	2	PRE	6	to NUP	3	40	60	20.95	12	4.3029
411	M	MS	23	2	STIM	7	to RED	2	46	96	15.07	7	4.1017
411	M	MS	23	2	STIM	8	to NUP	3	40	60	18.57	10	4.8616
411	M	MS	23	2	STIM	9	to RED	2	45	90	16.17	7	3.8284
411	M	MS	23	2	STIM	10	to NUP	4	42	72	17.87	10	4.6578
411	M	MS	23	2	STIM	11	to RED	2	47	102	17.75	7	4.1668
411	M	MS	23	2	STIM	12	to NUP	4	40	60	21.6	11	3.5369
411	M	MS	23	2	STIM	13	to RED	3	46	96	16.58	7	4.2406
411	M	MS	23	2	STIM	14	to NUP	4	40	60	21.7	11	4.5736
411	M	MS	23	2	STIM	15	to RED	4	44	84	18.47	9	2.0802
411	M	MS	23	2	STIM	16	to NUP	4	39	54	21.1	10	4.9678
411	M	MS	23	2	STIM	17	to RED	3	42	72	20.45	8	3.5631
411	M	MS	23	2	STIM	18	to NUP	5	39	54	22.6	10	4.8241
411	M	MS	23	2	STIM	19	to RED	3	42	72	18.6	7	3.6363
411	M	MS	23	2	STIM	20	to NUP	4	40	60	18.98	10	3.3005
411	M	MS	23	2	STIM	21	to RED	4	46	96	19.43	6	3.8857
411	M	MS	23	2	STIM	22	to NUP	5	39	54	25.97	11	2.6625
411	M	MS	23	2	STIM	23	to RED	5	42	72	16.8	6	4.5099
411	M	MS	23	2	STIM	24	to NUP	5	40	60	20.58	10	3.5694
411	M	MS	23	2	STIM	25	to RED	5	42	72	18.97	7	3.9443
411	M	MS	23	2	STIM	26	to NUP	5	38	48	20.83	11	3.9506
411	M	MS	23	2	STIM	27	to RED	4	43	78	18.95	8	2.8982
411	M	MS	23	2	STIM	28	to NUP	5	40	60	20.78	12	3.1744
411	M	MS	23	2	STIM	29	to RED	5	43	78	20.02	8	3.5011
411	M	MS	23	2	STIM	30	to NUP	6	38	48	18.6	11	4.7074
411	M	MS	23	2	STIM	31	to RED	5	45	90	14.57	7	3.2834
411	M	MS	23	2	STIM	32	to NUP	6	40	60	20.48	13	1.7799
411	M	MS	23	2	STIM	33	to RED	5	46	96	20.38	8	4.6129
411	M	MS	23	2	STIM	34	to NUP	6	40	60	22.27	10	3.0591
411	M	MS	23	2	STIM	35	to RED	5	42	72	19.13	6	3.5397
411	M	MS	23	2	STIM	36	to NUP	6	40	60	19.67	13	3.103
411	M	MS	23	2	POST	37	to RED	5	45	90	16.85	6	2.8569
411	M	MS	23	2	POST	38	to NUP	6	38	48	24.47	9	2.802
411	M	MS	23	2	POST	39	to RED	5	43	78	7.6	8	3.2083
411	M	MS	23	2	POST	40	to NUP	6	40	60	24.42	10	2.7895
411	M	MS	23	2	POST	41	to RED	6	42	72	18.82	9	2.5437
411	M	MS	23	2	POST	42	to NUP	6	40	60	22.88	11	2.866
411	M	MS	0	2	post		to RED	4	45	90		2	
411	M	MS	0	2	post		to NUP	4	45	90		0	
411	M	MS	0	2	post		to RED	4	46	96		0	
411	M	MS	0	2	post		to NUP	4	47	102		0	
411	M	MS	0	2	post		to RED	4	47	102		0	
411	M	MS	0	2	post		to NUP	3	47	102		0	
411	M	MS	0	2	calibration		NUP						
411	M	MS	0	2	calibration		NUP						
411	M	MS	0	2	calibration		NUP						
411	M	MS	0	3	calibration		NUP						
411	M	MS	0	3	calibration		NUP						
411	M	MS	0	3	calibration		NUP						
411	M	MS	0	3	pre		to RED	1	45	90	0	0	
411	M	MS	0	3	pre		to NUP	1	45	90	0	0	
411	M	MS	0	3	pre		to RED	1	45	90	0	0	
411	M	MS	0	3	pre		to NUP	1	45	90	0	0	
411	M	MS	0	3	pre		to RED	1	45	90	0	0	
411	M	MS	0	3	pre		to NUP	1	45	90	0	0	
411	M	MS	23	3	PRE	1	to RED	1	45	90	12.72	5	4.7348
411	M	MS	23	3	PRE	2	to NUP	1	42	72	18.23	8	5.5743
411	M	MS	23	3	PRE	3	to RED	1	47	102	15.67	6	4.4667
411	M	MS	23	3	PRE	4	to NUP	2	41	66	16.53	9	3.8877
411	M	MS	23	3	PRE	5	to RED	1	46	96	16.32	7	4.4897
411	M	MS	23	3	PRE	6	to NUP	2	41	66	19.83	9	5.7292
411	M	MS	30	3	STIM	7	to RED	2	45	90	16.18	11	4.6297
411	M	MS	30	3	STIM	8	to NUP	2	40	60	16.68	11	3.4017
411	M	MS	30	3	STIM	9	to RED	2	43	78	18.17	8	3.7065
411	M	MS	30	3	STIM	10	to NUP	2	38	48	20.72	12	4.1159
411	M	MS	30	3	STIM	11	to RED	2	45	90	20.07	11	3.4434
411	M	MS	30	3	STIM	12	to NUP	2	37	42	19.57	13	3.0674
411	M	MS	30	3	STIM	13	to RED	2	47	102	18.97	6	2.6008
411	M	MS	30	3	STIM	14	to NUP	2	37	42	20.98	13	2.4296
411	M	MS	30	3	STIM	15	to RED	1	47	102	20.87	8	3.8703
411	M	MS	30	3	STIM	16	to NUP	2	37	42	23.58	11	3.6574
411	M	MS	30	3	STIM	17	to RED	2	46	96	16.8	7	3.5791
411	M	MS	30	3	STIM	18	to NUP	2	37	42	19.35	10	2.5468
411	M	MS	30	3	STIM	19	to RED	2	46	96	19.8	7	3.1619
411	M	MS	30	3	STIM	20	to NUP	2	37	42	20.48	11	4.8195
411	M	MS	30	3	STIM	21	to RED	2	47	102	22.17	7	2.7469
411	M	MS	30	3	STIM	22	to NUP	2	40	60	25.28	10	2.8702
411	M	MS	30	3	STIM	23	to RED	2	45	90	19.38	6	2.1546

411	M	MS	30	3	STIM	24	to NUP	2	36	36	22.03	10	3.4805
411	M	MS	30	3	STIM	25	to RED	2	47	102	20.02	6	3.3401
411	M	MS	30	3	STIM	26	to NUP	2	37	42	20.43	10	4.6351
411	M	MS	30	3	STIM	27	to RED	2	43	78	18.52	7	3.6678
411	M	MS	30	3	STIM	28	to NUP	2	38	48	24.47	10	4.2001
411	M	MS	30	3	STIM	29	to RED	3	45	90	11.03	6	3.5378
411	M	MS	30	3	STIM	30	to NUP	3	37	42	23.67	10	4.4859
411	M	MS	30	3	STIM	31	to RED	2	45	90	17.22	7	4.2846
411	M	MS	30	3	STIM	32	to NUP	3	45	90	19.27	13	5.2553
411	M	MS	30	3	STIM	33	to RED	3	46	96	15.53	7	3.9966
411	M	MS	30	3	STIM	34	to NUP	3	37	42	17.2	10	4.8409
411	M	MS	30	3	STIM	35	to RED	3	45	90	19.18	7	2.9193
411	M	MS	30	3	STIM	36	to NUP	3	38	48	19.43	10	4.629
411	M	MS	23	3	POST	37	to RED	2	46	96	9.05	5	3.6751
411	M	MS	23	3	POST	38	to NUP	3	40	60	14.9	8	6.4236
411	M	MS	23	3	POST	39	to RED	2	47	102	11.82	5	4.1345
411	M	MS	23	3	POST	40	to NUP	3	40	60	16.82	8	5.5584
411	M	MS	23	3	POST	41	to RED	3	45	90	18.48	6	3.658
411	M	MS	23	3	POST	42	to NUP	4	40	60	20.28	10	3.34
411	M	MS	0	3	post		to RED	3	45	90		0	
411	M	MS	0	3	post		to NUP	3	45	90		0	
411	M	MS	0	3	post		to RED	3	45	90		0	
411	M	MS	0	3	post		to NUP	3	45	90		0	
411	M	MS	0	3	post		to RED	3	45	90		0	
411	M	MS	0	3	post		to NUP	3	46	96		0	
411	M	MS	0	3	calibration		NUP						
411	M	MS	0	3	calibration		NUP						
411	M	MS	0	3	calibration		NUP						
412	F	nMS	0	1	calibration		NUP						
412	F	nMS	0	1	calibration		NUP						
412	F	nMS	0	1	calibration		NUP						
412	F	nMS	0	1	pre		to RED	0	45	90	0	0	
412	F	nMS	0	1	pre		to NUP	0	45	90	0	0	
412	F	nMS	0	1	pre		to RED	0	45	90	0	0	
412	F	nMS	0	1	pre		to NUP	0	45	90	0	0	
412	F	nMS	0	1	pre		to RED	0	45	90	0	0	
412	F	nMS	0	1	pre		to NUP	0	45	90	0	0	
412	F	nMS	23	1	PRE	1	to RED	0	44	84	8.92	10	5.0139
412	F	nMS	23	1	PRE	2	to NUP	0	44	84	10.82	10	4.3318
412	F	nMS	23	1	PRE	3	to RED	0	44	84	11.9	10	5.1166
412	F	nMS	23	1	PRE	4	to NUP	0	44	84	13.62	11	4.692
412	F	nMS	23	1	PRE	5	to RED	0	45	90	8.65	9	4.4714
412	F	nMS	23	1	PRE	6	to NUP	0	42	72	11.58	11	5.9667
412	F	nMS	14	1	STIM	7	to RED	0	45	90	7.35	8	4.8102
412	F	nMS	14	1	STIM	8	to NUP	0	45	90	7.7	6	4.8556
412	F	nMS	14	1	STIM	9	to RED	0	46	96	13.15	7	5.7496
412	F	nMS	14	1	STIM	10	to NUP	0	45	90	8.68	8	4.2767
412	F	nMS	14	1	STIM	11	to RED	0	46	96	4.95	5	3.1511
412	F	nMS	14	1	STIM	12	to NUP	0	46	96	7.32	7	2.8984
412	F	nMS	14	1	STIM	13	to RED	0	46	96	2.35	6	4.2576
412	F	nMS	14	1	STIM	14	to NUP	0	44	84	9.3	6	2.5317
412	F	nMS	14	1	STIM	15	to RED	0	45	90	5.1	5	3.4496
412	F	nMS	14	1	STIM	16	to NUP	0	45	90	12.25	5	4.8874
412	F	nMS	14	1	STIM	17	to RED	0	45	90	3.7	5	4.1729
412	F	nMS	14	1	STIM	18	to NUP	0	45	90	7.83	6	3.6521
412	F	nMS	14	1	STIM	19	to RED	0	45	90	5.23	6	4.0925
412	F	nMS	14	1	STIM	20	to NUP	0	45	90	5.03	6	2.4361
412	F	nMS	14	1	STIM	21	to RED	0	45	90	2.78	5	2.9626
412	F	nMS	14	1	STIM	22	to NUP	0	45	90	6.1	7	4.4982
412	F	nMS	14	1	STIM	23	to RED	0	45	90	5.47	5	3.162
412	F	nMS	14	1	STIM	24	to NUP	0	45	90	7.53	6	3.0544
412	F	nMS	14	1	STIM	25	to RED	0	45	90	3.07	5	3.788
412	F	nMS	14	1	STIM	26	to NUP	0	44	84	11.42	6	4.0618
412	F	nMS	14	1	STIM	27	to RED	0	45	90	6.78	5	2.8968
412	F	nMS	14	1	STIM	28	to NUP	0	44	84	5.58	6	3.9222
412	F	nMS	14	1	STIM	29	to RED	0	45	90	5.78	5	4.0027
412	F	nMS	14	1	STIM	30	to NUP	0	45	90	10.2	5	2.3362
412	F	nMS	14	1	STIM	31	to RED	0	45	90	5.28	5	3.2771
412	F	nMS	14	1	STIM	32	to NUP	0	45	90	10.85	6	3.904
412	F	nMS	14	1	STIM	33	to RED	0	46	96	7.63	5	5.0382
412	F	nMS	14	1	STIM	34	to NUP	0	45	90	12.75	6	4.9116
412	F	nMS	14	1	STIM	35	to RED	0	45	90	3.62	5	2.78
412	F	nMS	14	1	STIM	36	to NUP	0	45	90	6	6	3.5305
412	F	nMS	23	1	POST	37	to RED	0	43	78	11.48	10	3.6861
412	F	nMS	23	1	POST	38	to NUP	0	43	78	13.53	10	4.6463
412	F	nMS	23	1	POST	39	to RED	0	43	78	12.08	10	4.5684
412	F	nMS	23	1	POST	40	to NUP	0	40	60	16.9	11	2.9918
412	F	nMS	23	1	POST	41	to RED	0	42	72	10.05	10	3.7423
412	F	nMS	23	1	POST	42	to NUP	0	40	60	11.88	12	3.63
412	F	nMS	0	1	post		to RED	0	45	90		0	
412	F	nMS	0	1	post		to NUP	0	46	96		0	
412	F	nMS	0	1	post		to RED	0	46	96		0	
412	F	nMS	0	1	post		to NUP	0	45	90		0	
412	F	nMS	0	1	post		to RED	0	45	90		0	
412	F	nMS	0	1	post		to NUP	0	45	90		0	
412	F	nMS	0	1	calibration		NUP						
412	F	nMS	0	1	calibration		NUP						
412	F	nMS	0	1	calibration		NUP						
412	F	nMS	0	2	calibration		NUP						
412	F	nMS	0	2	calibration		NUP						
412	F	nMS	0	2	calibration		NUP						
412	F	nMS	0	2	pre		to RED	0	45	90	0	0	
412	F	nMS	0	2	pre		to NUP	0	45	90	0	0	
412	F	nMS	0	2	pre		to RED	0	45	90	0	0	
412	F	nMS	0	2	pre		to NUP	0	45	90	0	0	
412	F	nMS	0	2	pre		to RED	0	45	90	0	0	
412	F	nMS	0	2	pre		to NUP	0	45	90	0	0	
412	F	nMS	23	2	PRE	1	to RED	0	45	90	6.83	5	4.9552

412	F	nMS	23	2	PRE	2	to NUP	0	43	78	9.37	9	4.1541
412	F	nMS	23	2	PRE	3	to RED	0	44	84	6.07	5	4.0734
412	F	nMS	23	2	PRE	4	to NUP	0	42	72	10.12	9	3.2934
412	F	nMS	23	2	PRE	5	to RED	0	44	84	5.68	5	3.8438
412	F	nMS	23	2	PRE	6	to NUP	0	43	78	9.87	8	3.3579
412	F	nMS	23	2	STIM	7	to RED	0	44	84	9.8	6	4.2965
412	F	nMS	23	2	STIM	8	to NUP	0	43	78	11.43	8	4.0379
412	F	nMS	23	2	STIM	9	to RED	0	44	84	7.83	5	5.5655
412	F	nMS	23	2	STIM	10	to NUP	0	43	78	7.88	8	4.1642
412	F	nMS	23	2	STIM	11	to RED	0	44	84	7.43	11	3.5728
412	F	nMS	23	2	STIM	12	to NUP	0	43	78	11.32	9	5.2414
412	F	nMS	23	2	STIM	13	to RED	0	44	84	8.02	5	3.4333
412	F	nMS	23	2	STIM	14	to NUP	0	43	78	10.5	7	4.2634
412	F	nMS	23	2	STIM	15	to RED	0	44	84	9.38	5	4.5668
412	F	nMS	23	2	STIM	16	to NUP	0	44	84	8	8	2.8496
412	F	nMS	23	2	STIM	17	to RED	0	44	84	7.62	5	4.4552
412	F	nMS	23	2	STIM	18	to NUP	0	44	84	11.95	7	3.6212
412	F	nMS	23	2	STIM	19	to RED	0	44	84	11.17	5	4.4033
412	F	nMS	23	2	STIM	20	to NUP	0	43	78	14.77	7	3.6305
412	F	nMS	23	2	STIM	21	to RED	0	44	84	7.52	5	3.8
412	F	nMS	23	2	STIM	22	to NUP	0	43	78	12.75	7	4.3266
412	F	nMS	23	2	STIM	23	to RED	0	43	78	5.85	5	3.7294
412	F	nMS	23	2	STIM	24	to NUP	0	42	72	15.53	7	3.6802
412	F	nMS	23	2	STIM	25	to RED	0	43	78	13.37	5	3.5719
412	F	nMS	23	2	STIM	26	to NUP	0	42	72	10.75	8	3.7357
412	F	nMS	23	2	STIM	27	to RED	0	43	78	9.87	5	2.6311
412	F	nMS	23	2	STIM	28	to NUP	0	41	66	12.82	8	3.4665
412	F	nMS	23	2	STIM	29	to RED	0	43	78	6.33	5	4.5346
412	F	nMS	23	2	STIM	30	to NUP	0	40	60	13.22	8	3.2093
412	F	nMS	23	2	STIM	31	to RED	0	43	78	5.63	4	2.9458
412	F	nMS	23	2	STIM	32	to NUP	2	49	114	16.77	8	4.7811
412	F	nMS	23	2	STIM	33	to RED	0	42	72	3.65	5	3.0391
412	F	nMS	23	2	STIM	34	to NUP	1	45	90	15.85	8	4.3464
412	F	nMS	23	2	STIM	35	to RED	0	41	66	7.5	4	3.87
412	F	nMS	23	2	STIM	36	to NUP	0	48	108	13.52	8	4.6623
412	F	nMS	23	2	POST	37	to RED	0	43	78	5.7	4	2.7123
412	F	nMS	23	2	POST	38	to NUP	2	37	42	11.18	8	3.0538
412	F	nMS	23	2	POST	39	to RED	0	40	60	7.5	5	3.5263
412	F	nMS	23	2	POST	40	to NUP	2	40	60	17.95	8	5.0966
412	F	nMS	23	2	POST	41	to RED	1	42	72	5.9	5	3.8722
412	F	nMS	23	2	POST	42	to NUP	1	40	60	13.38	8	3.4945
412	F	nMS	0	2	post		to RED	0	46	96		0	
412	F	nMS	0	2	post		to NUP	1	46	96		0	
412	F	nMS	0	2	post		to RED	0	45	90		0	
412	F	nMS	0	2	post		to NUP	0	45	90		0	
412	F	nMS	0	2	post		to RED	0	45	90		0	
412	F	nMS	0	2	post		to NUP	0	45	90		0	
412	F	nMS	0	2	calibration		NUP						
412	F	nMS	0	2	calibration		NUP						
412	F	nMS	0	2	calibration		NUP						
412	F	nMS	0	3	calibration		NUP						
412	F	nMS	0	3	calibration		NUP						
412	F	nMS	0	3	calibration		NUP						
412	F	nMS	0	3	pre		to RED	0	45	90	0	0	
412	F	nMS	0	3	pre		to NUP	0	45	90	0	0	
412	F	nMS	0	3	pre		to RED	0	45	90	0	0	
412	F	nMS	0	3	pre		to NUP	0	45	90	0	0	
412	F	nMS	0	3	pre		to RED	0	45	90	0	0	
412	F	nMS	0	3	pre		to NUP	0	45	90	0	0	
412	F	nMS	23	3	PRE	1	to RED	0	44	84	5.35	3	4.307
412	F	nMS	23	3	PRE	2	to NUP	0	44	84	9.82	8	5.3657
412	F	nMS	23	3	PRE	3	to RED	0	44	84	6.62	4	3.9404
412	F	nMS	23	3	PRE	4	to NUP	0	44	84	8.1	7	4.8874
412	F	nMS	23	3	PRE	5	to RED	0	44	84	6.8	4	4.1754
412	F	nMS	23	3	PRE	6	to NUP	0	44	84	10.88	8	4.4381
412	F	nMS	30	3	STIM	7	to RED	0	42	72	6.72	6	3.8716
412	F	nMS	30	3	STIM	8	to NUP	0	41	66	11.87	10	3.5297
412	F	nMS	30	3	STIM	9	to RED	0	42	72	6.63	11	3.1334
412	F	nMS	30	3	STIM	10	to NUP	0	40	60	13.9	9	4.6108
412	F	nMS	30	3	STIM	11	to RED	0	42	72	7.43	5	3.066
412	F	nMS	30	3	STIM	12	to NUP	0	41	66	11.18	8	4.0523
412	F	nMS	30	3	STIM	13	to RED	0	42	72	11.17	4	2.9382
412	F	nMS	30	3	STIM	14	to NUP	0	42	72	10.53	7	2.9941
412	F	nMS	30	3	STIM	15	to RED	0	43	78	9.18	4	3.6204
412	F	nMS	30	3	STIM	16	to NUP	0	41	66	13.13	7	3.3667
412	F	nMS	30	3	STIM	17	to RED	0	44	84	11.45	3	3.4971
412	F	nMS	30	3	STIM	18	to NUP	0	42	72	11.55	7	2.4688
412	F	nMS	30	3	STIM	19	to RED	0	43	78	6.38	4	3.7523
412	F	nMS	30	3	STIM	20	to NUP	1	43	78	12.7	8	4.2292
412	F	nMS	30	3	STIM	21	to RED	0	43	78	9.15	4	2.3045
412	F	nMS	30	3	STIM	22	to NUP	0	42	72	15.07	7	2.0125
412	F	nMS	30	3	STIM	23	to RED	0	43	78	12.18	4	4.5443
412	F	nMS	30	3	STIM	24	to NUP	1	44	84	13.37	7	2.9801
412	F	nMS	30	3	STIM	25	to RED	0	44	84	7.32	4	2.5406
412	F	nMS	30	3	STIM	26	to NUP	0	43	78	13.72	7	2.7219
412	F	nMS	30	3	STIM	27	to RED	0	44	84	11.85	4	3.3069
412	F	nMS	30	3	STIM	28	to NUP	0	43	78	15.58	7	1.9504
412	F	nMS	30	3	STIM	29	to RED	0	44	84	12.4	5	3.065
412	F	nMS	30	3	STIM	30	to NUP	1	44	84	11.57	7	3.0005
412	F	nMS	30	3	STIM	31	to RED	0	44	84	6.28	5	4.0533
412	F	nMS	30	3	STIM	32	to NUP	2	43	78	12.55	7	3.0036
412	F	nMS	30	3	STIM	33	to RED	2	44	84	8.78	5	3.2717
412	F	nMS	30	3	STIM	34	to NUP	2	43	78	13.38	7	3.6284
412	F	nMS	30	3	STIM	35	to RED	1	44	84	10.93	5	2.4637
412	F	nMS	30	3	STIM	36	to NUP	5	44	84	13.88	8	3.2102
412	F	nMS	23	3	POST	37	to RED	1	45	90	3.83	2	2.4828
412	F	nMS	23	3	POST	38	to NUP	2	45	90	8.67	5	3.7306
412	F	nMS	23	3	POST	39	to RED	1	45	90	5.07	2	3.1576

412	F	nMS	23	3	POST	40	to NUP	1	45	90	8.15	4	2.7992
412	F	nMS	23	3	POST	41	to RED	0	45	90	3.65	2	3.1806
412	F	nMS	23	3	POST	42	to NUP	1	44	84	10.03	7	2.5513
412	F	nMS	0	3	post		to RED	0	45	90		0	
412	F	nMS	0	3	post		to NUP	0	45	90		0	
412	F	nMS	0	3	post		to RED	0	45	90		0	
412	F	nMS	0	3	post		to NUP	0	45	90		0	
412	F	nMS	0	3	post		to RED	0	45	90		0	
412	F	nMS	0	3	post		to NUP	0	45	90		0	
412	F	nMS	0	3	calibration		NUP						
412	F	nMS	0	3	calibration		NUP						
412	F	nMS	0	3	calibration		NUP						
413	M	MS	0	1	calibration		NUP						
413	M	MS	0	1	calibration		NUP						
413	M	MS	0	1	calibration		NUP						
413	M	MS	0	1	pre		to RED	0	45	90	0	0	
413	M	MS	0	1	pre		to NUP	0	45	90	0	0	
413	M	MS	0	1	pre		to RED	0	45	90	0	0	
413	M	MS	0	1	pre		to NUP	0	45	90	0	0	
413	M	MS	0	1	pre		to RED	0	45	90	0	0	
413	M	MS	0	1	pre		to NUP	0	45	90	0	0	
413	M	MS	23	1	PRE	1	to RED	0	45	90	15.37	10	6.6034
413	M	MS	23	1	PRE	2	to NUP	2	45	90	21.97	12	2.9387
413	M	MS	23	1	PRE	3	to RED	0	45	90	23.15	10	7.1211
413	M	MS	23	1	PRE	4	to NUP	0	50	120	22.045	13	3.7586
413	M	MS	23	1	PRE	5	to RED	0	45	90	17.88	12	5.7841
413	M	MS	23	1	PRE	6	to NUP	0	45	90	22.12	13	4.3072
413	M	MS	14	1	STIM	7	to RED	0	45	90	16.48	10	5.7434
413	M	MS	14	1	STIM	8	to NUP	0	45	90	17.27	10	4.3136
413	M	MS	14	1	STIM	9	to RED	0	45	90	18.47	8	5.9831
413	M	MS	14	1	STIM	10	to NUP	0	45	90	16.72	10	4.1103
413	M	MS	14	1	STIM	11	to RED	0	45	90	21.13	9	5.1928
413	M	MS	14	1	STIM	12	to NUP	2	45	90	18.42	11	5.1237
413	M	MS	14	1	STIM	13	to RED	0	45	90	18.68	9	5.2879
413	M	MS	14	1	STIM	14	to NUP	0	45	90	15.42	10	4.6742
413	M	MS	14	1	STIM	15	to RED	0	45	90	15.23	8	6.5806
413	M	MS	14	1	STIM	16	to NUP	0	45	90	16.78	10	4.3586
413	M	MS	14	1	STIM	17	to RED	0	45	90	19.08	9	4.2291
413	M	MS	14	1	STIM	18	to NUP	0	45	90	19.08	10	6.3727
413	M	MS	14	1	STIM	19	to RED	0	45	90	17.13	10	4.3511
413	M	MS	14	1	STIM	20	to NUP	0	45	90	16.6	10	4.4429
413	M	MS	14	1	STIM	21	to RED	2	45	90	18.08	8	5.1345
413	M	MS	14	1	STIM	22	to NUP	2	45	90	16.8	9	5.0183
413	M	MS	14	1	STIM	23	to RED	2	45	90	16.43	8	4.2137
413	M	MS	14	1	STIM	24	to NUP	2	45	90	17.47	9	3.5933
413	M	MS	14	1	STIM	25	to RED	1	45	90	15.28	7	5.2637
413	M	MS	14	1	STIM	26	to NUP	1	45	90	16.97	9	4.3032
413	M	MS	14	1	STIM	27	to RED	1	45	90	18.4	7	4.2454
413	M	MS	14	1	STIM	28	to NUP	0	45	90	20.85	9	3.9005
413	M	MS	14	1	STIM	29	to RED	0	45	90	12.68	7	5.4886
413	M	MS	14	1	STIM	30	to NUP	0	45	90	14.15	9	3.7508
413	M	MS	14	1	STIM	31	to RED	0	47	102	15.9	9	4.2431
413	M	MS	14	1	STIM	32	to NUP	0	45	90	15.88	9	3.8971
413	M	MS	14	1	STIM	33	to RED	0	45	90	19.38	8	5.2776
413	M	MS	14	1	STIM	34	to NUP	3	45	90	20.03	9	3.791
413	M	MS	14	1	STIM	35	to RED	3	45	90	19.08	9	4.2518
413	M	MS	14	1	STIM	36	to NUP	3	45	90	15.88	9	4.6468
413	M	MS	23	1	POST	37	to RED	0	45	90	20.22	11	5.0564
413	M	MS	23	1	POST	38	to NUP	0	45	90	25.13	12	3.867
413	M	MS	23	1	POST	39	to RED	0	50	120	22.72	11	5.3115
413	M	MS	23	1	POST	40	to NUP	0	45	90	23.5	13	3.7038
413	M	MS	23	1	POST	41	to RED	0	45	90	28.3	12	4.8242
413	M	MS	23	1	POST	42	to NUP	0	45	90	21.77	13	3.9333
413	M	MS	0	1	post		to RED	0	45	90		3	
413	M	MS	0	1	post		to NUP	0	45	90		1	
413	M	MS	0	1	post		to RED	0	45	90		0	
413	M	MS	0	1	post		to NUP	0	45	90		0	
413	M	MS	0	1	post		to RED	0	45	90		0	
413	M	MS	0	1	post		to NUP	0	45	90		0	
413	M	MS	0	1	calibration		NUP						
413	M	MS	0	1	calibration		NUP						
413	M	MS	0	1	calibration		NUP						
413	M	MS	0	2	calibration		NUP						
413	M	MS	0	2	calibration		NUP						
413	M	MS	0	2	calibration		NUP						
413	M	MS	0	2	pre		to RED	0	45	90	0	0	
413	M	MS	0	2	pre		to NUP	0	45	90	0	0	
413	M	MS	0	2	pre		to RED	0	45	90	0	0	
413	M	MS	0	2	pre		to NUP	0	45	90	0	0	
413	M	MS	0	2	pre		to RED	0	45	90	0	0	
413	M	MS	0	2	pre		to NUP	0	45	90	0	0	
413	M	MS	23	2	PRE	1	to RED	2	45	90	20.72	8	5.5751
413	M	MS	23	2	PRE	2	to NUP	2	45	90	21.72	12	4.3529
413	M	MS	23	2	PRE	3	to RED	2	45	90	23.25	9	5.0836
413	M	MS	23	2	PRE	4	to NUP	2	45	90	21.77	12	4.1803
413	M	MS	23	2	PRE	5	to RED	2	45	90	18.8	8	4.9193
413	M	MS	23	2	PRE	6	to NUP	2	45	90	23.38	13	4.044
413	M	MS	23	2	STIM	7	to RED	0	45	90	16.65	8	6.2738
413	M	MS	23	2	STIM	8	to NUP	0	45	90	19.33	13	3.3113
413	M	MS	23	2	STIM	9	to RED	0	45	90	14.58	8	5.8723
413	M	MS	23	2	STIM	10	to NUP	0	45	90	18.28	13	3.1851
413	M	MS	23	2	STIM	11	to RED	0	50	120	24.45	8	5.1159
413	M	MS	23	2	STIM	12	to NUP	0	45	90	18.33	12	3.1886
413	M	MS	23	2	STIM	13	to RED	0	45	90	16.62	8	4.3999
413	M	MS	23	2	STIM	14	to NUP	0	45	90	14.35	11	3.4224
413	M	MS	23	2	STIM	15	to RED	0	45	90	16.52	8	4.7408
413	M	MS	23	2	STIM	16	to NUP	0	45	90	15.33	12	3.8833
413	M	MS	23	2	STIM	17	to RED	0	45	90	17.2	8	4.1737

413	M	MS	23	2	STIM	18	to NUP	0	45	90	18.9	12	4.6367
413	M	MS	23	2	STIM	19	to RED	0	45	90	16.83	9	3.475
413	M	MS	23	2	STIM	20	to NUP	0	45	90	21.87	13	3.1527
413	M	MS	23	2	STIM	21	to RED	2	45	90	22.67	8	4.7187
413	M	MS	23	2	STIM	22	to NUP	2	45	90	18.25	12	3.7893
413	M	MS	23	2	STIM	23	to RED	0	45	90	16.03	8	4.4276
413	M	MS	23	2	STIM	24	to NUP	0	45	90	18.5	12	2.6497
413	M	MS	23	2	STIM	25	to RED	0	45	90	17.33	7	4.6207
413	M	MS	23	2	STIM	26	to NUP	0	45	90	20.17	12	3.6553
413	M	MS	23	2	STIM	27	to RED	3	45	90	17.45	7	4.1908
413	M	MS	23	2	STIM	28	to NUP	3	45	90	20.9	11	3.5864
413	M	MS	23	2	STIM	29	to RED	5	45	90	20.4	7	4.6604
413	M	MS	23	2	STIM	30	to NUP	5	45	90	17.75	11	3.7049
413	M	MS	23	2	STIM	31	to RED	6	45	90	18.52	7	4.2159
413	M	MS	23	2	STIM	32	to NUP	6	45	90	17.33	11	4.3904
413	M	MS	23	2	STIM	33	to RED	6	45	90	9.38	7	4.3979
413	M	MS	23	2	STIM	34	to NUP	7	45	90	15.02	12	3.6822
413	M	MS	23	2	STIM	35	to RED	7	45	90	11.12	7	3.998
413	M	MS	23	2	STIM	36	to NUP	7	45	90	16.45	12	4.0724
413	M	MS	23	2	POST	37	to RED	7	45	90	14.57	8	3.6236
413	M	MS	23	2	POST	38	to NUP	7	45	90	19.85	12	3.4857
413	M	MS	23	2	POST	39	to RED	7	45	90	12.88	7	5.8564
413	M	MS	23	2	POST	40	to NUP	8	45	90	16.3	11	3.9748
413	M	MS	23	2	POST	41	to RED	7	45	90	15.75	8	4.1667
413	M	MS	23	2	POST	42	to NUP	7	45	90	18.45	11	2.9706
413	M	MS	0	2	post		to RED	5	45	90		0	
413	M	MS	0	2	post		to NUP	5	45	90		0	
413	M	MS	0	2	post		to RED	4	45	90		0	
413	M	MS	0	2	post		to NUP	4	45	90		0	
413	M	MS	0	2	post		to RED	3	45	90		0	
413	M	MS	0	2	post		to NUP	3	45	90		0	
413	M	MS	0	2	calibration		NUP						
413	M	MS	0	2	calibration		NUP						
413	M	MS	0	2	calibration		NUP						
413	M	MS	0	3	calibration		NUP						
413	M	MS	0	3	calibration		NUP						
413	M	MS	0	3	calibration		NUP						
413	M	MS	0	3	pre		to RED	0	45	90	0	0	
413	M	MS	0	3	pre		to NUP	0	45	90	0	0	
413	M	MS	0	3	pre		to RED	0	45	90	0	0	
413	M	MS	0	3	pre		to NUP	0	45	90	0	0	
413	M	MS	0	3	pre		to RED	0	45	90	0	0	
413	M	MS	0	3	pre		to NUP	0	45	90	0	0	
413	M	MS	23	3	PRE	1	to RED	0	45	90	16.83	8	4.3866
413	M	MS	23	3	PRE	2	to NUP	0	45	90	24.47	12	4.2694
413	M	MS	23	3	PRE	3	to RED	0	47	102	18.52	7	4.6658
413	M	MS	23	3	PRE	4	to NUP	0	45	90	20.67	12	4.971
413	M	MS	23	3	PRE	5	to RED	0	45	90	20.77	8	4.9889
413	M	MS	23	3	PRE	6	to NUP	0	45	90	20.75	11	4.054
413	M	MS	30	3	STIM	7	to RED	0	45	90	23.97	9	3.9547
413	M	MS	30	3	STIM	8	to NUP	2	45	90	23.33	14	4.959
413	M	MS	30	3	STIM	9	to RED	2	45	90	25.88	9	6.2878
413	M	MS	30	3	STIM	10	to NUP	2	45	90	26.38	14	3.5747
413	M	MS	30	3	STIM	11	to RED	2	45	90	22.87	10	4.7704
413	M	MS	30	3	STIM	12	to NUP	2	45	90	22.13	15	3.7344
413	M	MS	30	3	STIM	13	to RED	3	45	90	17.47	10	3.7729
413	M	MS	30	3	STIM	14	to NUP	3	40	60	16.8	14	4.1607
413	M	MS	30	3	STIM	15	to RED	5	45	90	12.9	9	4.6776
413	M	MS	30	3	STIM	16	to NUP	5	45	90	19.83	14	3.6414
413	M	MS	30	3	STIM	17	to RED	5	45	90	17.42	10	5.1785
413	M	MS	30	3	STIM	18	to NUP	4	45	90	15.38	13	4.0654
413	M	MS	30	3	STIM	19	to RED	5	45	90	17.88	10	4.0657
413	M	MS	30	3	STIM	20	to NUP	5	45	90	19.48	13	3.6316
413	M	MS	30	3	STIM	21	to RED	4	45	90	16.02	9	4.7136
413	M	MS	30	3	STIM	22	to NUP	4	45	90	17.17	13	4.7012
413	M	MS	30	3	STIM	23	to RED	4	45	90	16.3	8	4.4429
413	M	MS	30	3	STIM	24	to NUP	5	45	90	16.58	12	3.7931
413	M	MS	30	3	STIM	25	to RED	5	45	90	18.25	7	4.5447
413	M	MS	30	3	STIM	26	to NUP	5	45	90	14.85	12	3.7951
413	M	MS	30	3	STIM	27	to RED	6	45	90	15.88	8	4.3719
413	M	MS	30	3	STIM	28	to NUP	5	45	90	17.67	13	3.4684
413	M	MS	30	3	STIM	29	to RED	6	45	90	18.68	8	3.061
413	M	MS	30	3	STIM	30	to NUP	5	45	90	13.68	12	4.1291
413	M	MS	30	3	STIM	31	to RED	6	45	90	19.62	8	4.6421
413	M	MS	30	3	STIM	32	to NUP	6	45	90	24.35	12	4.3212
413	M	MS	30	3	STIM	33	to RED	6	45	90	16.67	7	4.5413
413	M	MS	30	3	STIM	34	to NUP	6	45	90	21.4	12	3.4681
413	M	MS	30	3	STIM	35	to RED	7	45	90	21.07	7	4.3604
413	M	MS	30	3	STIM	36	to NUP	8	45	90	18.98	11	3.7368
413	M	MS	23	3	POST	37	to RED	4	45	90	7.65	5	4.1636
413	M	MS	23	3	POST	38	to NUP	3	45	90	14.03	8	3.9168
413	M	MS	23	3	POST	39	to RED	4	45	90	9.48	5	4.2502
413	M	MS	23	3	POST	40	to NUP	4	45	90	14.67	8	4.1343
413	M	MS	23	3	POST	41	to RED	4	45	90	15.42	6	4.6125
413	M	MS	23	3	POST	42	to NUP	5	45	90	17.8	8	3.5485
413	M	MS	0	3	post		to RED	4	50	120		0	
413	M	MS	0	3	post		to NUP	3	45	90		0	
413	M	MS	0	3	post		to RED	3	50	120		0	
413	M	MS	0	3	post		to NUP	3	45	90		0	
413	M	MS	0	3	post		to RED	2	45	90		0	
413	M	MS	0	3	post		to NUP	2	45	90		0	
413	M	MS	0	3	calibration		NUP						
413	M	MS	0	3	calibration		NUP						
413	M	MS	0	3	calibration		NUP						
414	M	MS	0	1	calibration		NUP						
414	M	MS	0	1	calibration		NUP						
414	M	MS	0	1	calibration		NUP						
414	M	MS	0	1	pre		to RED	0	45	90	0	0	

414	M	MS	0	1	pre		to NUP	0	45	90	0	0	
414	M	MS	0	1	pre		to RED	0	45	90	0	0	
414	M	MS	0	1	pre		to NUP	0	45	90	0	0	
414	M	MS	0	1	pre		to RED	0	45	90	0	0	
414	M	MS	0	1	pre		to NUP	0	45	90	0	0	
414	M	MS	23	1	PRE	1	to RED	0	45	90	19.3	10	4.3361
414	M	MS	23	1	PRE	2	to NUP	0	50	120	19.08	10	2.1663
414	M	MS	23	1	PRE	3	to RED	0	40	60	12.88	10	4.4133
414	M	MS	23	1	PRE	4	to NUP	0	45	90	17.82	10	2.8881
414	M	MS	23	1	PRE	5	to RED	0	45	90	13.67	10	3.6397
414	M	MS	23	1	PRE	6	to NUP	0	40	60	17.33	10	2.2937
414	M	MS	14	1	STIM	7	to RED	0	50	120	10.75	8	3.6931
414	M	MS	14	1	STIM	8	to NUP	0	40	60	13.75	10	2.9819
414	M	MS	14	1	STIM	9	to RED	0	50	120	11.72	8	3.3397
414	M	MS	14	1	STIM	10	to NUP	0	40	60	14.67	10	2.8078
414	M	MS	14	1	STIM	11	to RED	0	50	120	11.93	8	3.4123
414	M	MS	14	1	STIM	12	to NUP	0	40	60	15.32	9	3.2165
414	M	MS	14	1	STIM	13	to RED	0	50	120	11.02	8	2.0137
414	M	MS	14	1	STIM	14	to NUP	0	40	60	14.57	9	3.7058
414	M	MS	14	1	STIM	15	to RED	0	50	120	10.73	8	2.538
414	M	MS	14	1	STIM	16	to NUP	0	40	60	13.07	9	3.0091
414	M	MS	14	1	STIM	17	to RED	0	50	120	12.62	9	2.4224
414	M	MS	14	1	STIM	18	to NUP	0	45	90	14.72	9	3.0302
414	M	MS	14	1	STIM	19	to RED	0	50	120	12.93	9	2.6669
414	M	MS	14	1	STIM	20	to NUP	0	40	60	13.85	9	2.7179
414	M	MS	14	1	STIM	21	to RED	0	50	120	11.55	8	4.6665
414	M	MS	14	1	STIM	22	to NUP	0	40	60	9.83	9	2.7288
414	M	MS	14	1	STIM	23	to RED	0	50	120	10.4	8	3.1657
414	M	MS	14	1	STIM	24	to NUP	0	40	60	13.98	9	3.9774
414	M	MS	14	1	STIM	25	to RED	0	50	120	13.88	8	3.1345
414	M	MS	14	1	STIM	26	to NUP	0	40	60	15.18	8	2.3475
414	M	MS	14	1	STIM	27	to RED	0	50	120	11.85	8	3.4994
414	M	MS	14	1	STIM	28	to NUP	0	45	90	14.83	8	2.2642
414	M	MS	14	1	STIM	29	to RED	0	47	102	12.38	8	3.1361
414	M	MS	14	1	STIM	30	to NUP	0	43	78	15.13	8	2.8541
414	M	MS	14	1	STIM	31	to RED	0	47	102	12.28	8	4.4809
414	M	MS	14	1	STIM	32	to NUP	0	43	78	14.33	9	2.7082
414	M	MS	14	1	STIM	33	to RED	0	47	102	11.58	9	3.4315
414	M	MS	14	1	STIM	34	to NUP	0	40	60	14.43	9	2.3487
414	M	MS	14	1	STIM	35	to RED	0	48	108	13.42	8	2.0829
414	M	MS	14	1	STIM	36	to NUP	0	45	90	13.5	9	2.3704
414	M	MS	23	1	POST	37	to RED	0	47	102	11.85	11	2.799
414	M	MS	23	1	POST	38	to NUP	0	39	54	16.08	12	2.9128
414	M	MS	23	1	POST	39	to RED	0	48	108	13.33	11	2.0019
414	M	MS	23	1	POST	40	to NUP	0	37	42	16.65	12	2.5159
414	M	MS	23	1	POST	41	to RED	1	48	108	12.23	12	2.3499
414	M	MS	23	1	POST	42	to NUP	2	38	48	18.93	13	2.6778
414	M	MS	0	1	post		to RED	2	46	96		0	
414	M	MS	0	1	post		to NUP	1	48	108		0	
414	M	MS	0	1	post		to RED	0	46	96		0	
414	M	MS	0	1	post		to NUP	0	45	90		0	
414	M	MS	0	1	post		to RED	0	46	96		0	
414	M	MS	0	1	post		to NUP	0	45	90		0	
414	M	MS	0	1	calibration		NUP						
414	M	MS	0	1	calibration		NUP						
414	M	MS	0	1	calibration		NUP						
414	M	MS	0	2	calibration		NUP						
414	M	MS	0	2	calibration		NUP						
414	M	MS	0	2	calibration		NUP						
414	M	MS	0	2	pre		to RED	0	45	90	0	0	
414	M	MS	0	2	pre		to NUP	0	45	90	0	0	
414	M	MS	0	2	pre		to RED	0	45	90	0	0	
414	M	MS	0	2	pre		to NUP	0	45	90	0	0	
414	M	MS	0	2	pre		to RED	0	45	90	0	0	
414	M	MS	0	2	pre		to NUP	0	45	90	0	0	
414	M	MS	23	2	PRE	1	to RED	0	46	96	12.28	9	3.8517
414	M	MS	23	2	PRE	2	to NUP	0	43	78	16.9	11	2.0947
414	M	MS	23	2	PRE	3	to RED	0	48	108	13.63	9	3.6855
414	M	MS	23	2	PRE	4	to NUP	0	40	60	16.47	11	2.8425
414	M	MS	23	2	PRE	5	to RED	0	48	108	14.45	9	3.6378
414	M	MS	23	2	PRE	6	to NUP	0	42	72	17.33	12	2.9015
414	M	MS	23	2	STIM	7	to RED	0	49	114	13.73	9	2.4295
414	M	MS	23	2	STIM	8	to NUP	0	40	60	17.58	12	3.6123
414	M	MS	23	2	STIM	9	to RED	0	48	108	15.03	9	3.5104
414	M	MS	23	2	STIM	10	to NUP	1	40	60	17.1	12	3.9337
414	M	MS	23	2	STIM	11	to RED	1	50	120	14.08	10	4.1066
414	M	MS	23	2	STIM	12	to NUP	1	40	60	19.02	12	4.2522
414	M	MS	23	2	STIM	13	to RED	1	51	126	13.55	10	2.529
414	M	MS	23	2	STIM	14	to NUP	2	39	54	16.88	12	3.7996
414	M	MS	23	2	STIM	15	to RED	1	50	120	13.5	10	2.5699
414	M	MS	23	2	STIM	16	to NUP	1	40	60	16.47	12	2.179
414	M	MS	23	2	STIM	17	to RED	2	50	120	16.9	10	3.5394
414	M	MS	23	2	STIM	18	to NUP	2	40	60	19.67	12	3.4871
414	M	MS	23	2	STIM	19	to RED	2	50	120	14.12	11	3.6283
414	M	MS	23	2	STIM	20	to NUP	3	40	60	18.43	13	2.198
414	M	MS	23	2	STIM	21	to RED	2	51	126	14.85	10	3.4409
414	M	MS	23	2	STIM	22	to NUP	3	40	60	18.08	13	3.0238
414	M	MS	23	2	STIM	23	to RED	2	51	126	13.65	11	2.4911
414	M	MS	23	2	STIM	24	to NUP	3	39	54	15.37	13	2.9685
414	M	MS	23	2	STIM	25	to RED	2	50	120	14.7	11	3.1552
414	M	MS	23	2	STIM	26	to NUP	3	40	60	14.58	13	2.2675
414	M	MS	23	2	STIM	27	to RED	3	49	114	12.52	11	3.4497
414	M	MS	23	2	STIM	28	to NUP	4	40	60	17.67	13	2.9357
414	M	MS	23	2	STIM	29	to RED	3	48	108	13.23	11	2.3671
414	M	MS	23	2	STIM	30	to NUP	5	42	72	16.83	13	2.7499
414	M	MS	23	2	STIM	31	to RED	4	47	102	13.55	10	3.6234
414	M	MS	23	2	STIM	32	to NUP	5	40	60	16.12	13	2.2606
414	M	MS	23	2	STIM	33	to RED	4	46	96	13.88	10	3.1841

414	M	MS	23	2	STIM	34	to NUP	6	40	60	15.32	13	1.9847
414	M	MS	23	2	STIM	35	to RED	5	45	90	13.63	10	2.3562
414	M	MS	23	2	STIM	36	to NUP	6	40	60	14.62	13	3.0086
414	M	MS	23	2	POST	37	to RED	6	45	90	12.5	10	3.7145
414	M	MS	23	2	POST	38	to NUP	7	40	60	15.9	13	3.3476
414	M	MS	23	2	POST	39	to RED	6	47	102	10.92	10	2.8102
414	M	MS	23	2	POST	40	to NUP	7	42	72	12.55	13	4.5284
414	M	MS	23	2	POST	41	to RED	6	43	78	13.73	10	2.4701
414	M	MS	23	2	POST	42	to NUP	6	43	78	11.1	10	2.5569
414	M	MS	0	2	post		to RED	2	48	108		0	
414	M	MS	0	2	post		to NUP	2	47	102		0	
414	M	MS	0	2	post		to RED	2	46	96		0	
414	M	MS	0	2	post		to NUP	2	46	96		0	
414	M	MS	0	2	post		to RED	2	45	90		0	
414	M	MS	0	2	post		to NUP	2	45	90		0	
414	M	MS	0	2	calibration		NUP						
414	M	MS	0	2	calibration		NUP						
414	M	MS	0	2	calibration		NUP						
414	M	MS	0	3	calibration		NUP						
414	M	MS	0	3	calibration		NUP						
414	M	MS	0	3	calibration		NUP						
414	M	MS	0	3	pre		to RED	0	45	90	0	0	
414	M	MS	0	3	pre		to NUP	0	45	90	0	0	
414	M	MS	0	3	pre		to RED	0	45	90	0	0	
414	M	MS	0	3	pre		to NUP	0	45	90	0	0	
414	M	MS	0	3	pre		to RED	0	45	90	0	0	
414	M	MS	0	3	pre		to NUP	0	45	90	0	0	
414	M	MS	23	3	PRE	1	to RED	0	45	90	9.88	8	2.6745
414	M	MS	23	3	PRE	2	to NUP	0	43	78	14.45	9	4.0924
414	M	MS	23	3	PRE	3	to RED	0	47	102	12.43	9	2.2596
414	M	MS	23	3	PRE	4	to NUP	0	42	72	12.75	10	3.2207
414	M	MS	23	3	PRE	5	to RED	0	48	108	11.72	9	2.692
414	M	MS	23	3	PRE	6	to NUP	0	42	72	14.9	10	3.6532
414	M	MS	30	3	STIM	7	to RED	0	45	90	13.78	9	4.3091
414	M	MS	30	3	STIM	8	to NUP	0	43	78	18.3	13	4.1272
414	M	MS	30	3	STIM	9	to RED	0	46	96	14.73	10	4.161
414	M	MS	30	3	STIM	10	to NUP	0	41	66	16.7	13	3.0176
414	M	MS	30	3	STIM	11	to RED	0	46	96	13.95	10	3.7884
414	M	MS	30	3	STIM	12	to NUP	1	41	66	15.87	13	4.9318
414	M	MS	30	3	STIM	13	to RED	0	47	102	13.98	10	3.2081
414	M	MS	30	3	STIM	14	to NUP	1	40	60	19.13	14	2.7555
414	M	MS	30	3	STIM	15	to RED	0	46	96	13.72	10	3.0312
414	M	MS	30	3	STIM	16	to NUP	1	40	60	18.28	14	3.3216
414	M	MS	30	3	STIM	17	to RED	1	47	102	13.22	11	4.562
414	M	MS	30	3	STIM	18	to NUP	1	40	60	21.4	14	4.3922
414	M	MS	30	3	STIM	19	to RED	1	45	90	11.78	11	4.0452
414	M	MS	30	3	STIM	20	to NUP	1	41	66	13.43	12	4.2598
414	M	MS	30	3	STIM	21	to RED	1	45	90	13.93	9	4.5284
414	M	MS	30	3	STIM	22	to NUP	1	41	66	16.23	12	3.8778
414	M	MS	30	3	STIM	23	to RED	1	45	90	12.07	9	3.1363
414	M	MS	30	3	STIM	24	to NUP	1	42	72	16.33	12	2.6738
414	M	MS	30	3	STIM	25	to RED	1	45	90	13.58	9	2.4776
414	M	MS	30	3	STIM	26	to NUP	2	43	78	14.72	12	2.215
414	M	MS	30	3	STIM	27	to RED	1	45	90	12.18	9	4.5611
414	M	MS	30	3	STIM	28	to NUP	2	43	78	12.85	12	2.1542
414	M	MS	30	3	STIM	29	to RED	1	44	84	13.98	9	2.6504
414	M	MS	30	3	STIM	30	to NUP	1	42	72	12.97	10	3.179
414	M	MS	30	3	STIM	31	to RED	1	46	96	11.38	8	3.5231
414	M	MS	30	3	STIM	32	to NUP	1	43	78	14.73	11	3.2396
414	M	MS	30	3	STIM	33	to RED	1	45	90	13.32	9	3.6683
414	M	MS	30	3	STIM	34	to NUP	1	43	78	15.37	11	2.75
414	M	MS	30	3	STIM	35	to RED	1	46	96	14.28	9	2.746
414	M	MS	30	3	STIM	36	to NUP	1	43	78	17.12	11	2.0154
414	M	MS	23	3	POST	37	to RED	1	46	96	13.22	7	1.9775
414	M	MS	23	3	POST	38	to NUP	1	43	78	14.87	10	2.8403
414	M	MS	23	3	POST	39	to RED	0	46	96	9.13	8	1.9808
414	M	MS	23	3	POST	40	to NUP	0	44	84	13.12	8	2.7404
414	M	MS	23	3	POST	41	to RED	0	45	90	8.9	6	2.0165
414	M	MS	23	3	POST	42	to NUP	1	43	78	12.58	9	2.0611
414	M	MS	0	3	post		to RED	0	46	96		0	
414	M	MS	0	3	post		to NUP	0	47	102		0	
414	M	MS	0	3	post		to RED	0	47	102		0	
414	M	MS	0	3	post		to NUP	0	46	96		0	
414	M	MS	0	3	post		to RED	0	46	96		0	
414	M	MS	0	3	post		to NUP	0	46	96		0	
414	M	MS	0	3	calibration		NUP						
414	M	MS	0	3	calibration		NUP						
414	M	MS	0	3	calibration		NUP						
415	M	MS	0	1	calibration		NUP						
415	M	MS	0	1	calibration		NUP						
415	M	MS	0	1	calibration		NUP						
415	M	MS	0	1	pre		to RED	0	45	90	0	0	
415	M	MS	0	1	pre		to NUP	0	45	90	0	0	
415	M	MS	0	1	pre		to RED	0	45	90	0	0	
415	M	MS	0	1	pre		to NUP	0	45	90	0	0	
415	M	MS	0	1	pre		to RED	0	45	90	0	0	
415	M	MS	0	1	pre		to NUP	0	45	90	0	0	
415	M	MS	23	1	PRE	1	to RED	0	45	90	5.85	10	7.3451
415	M	MS	23	1	PRE	2	to NUP	0	45	90	10.48	12	7.1838
415	M	MS	23	1	PRE	3	to RED	2	46	96	10.47	8	8.4664
415	M	MS	23	1	PRE	4	to NUP	5	45	90	11.6	10	5.4778
415	M	MS	23	1	PRE	5	to RED	4	46	96	13.65	6	7.5194
415	M	MS	23	1	PRE	6	to NUP	5	46	96	9.4	12	5.3798
415	M	MS	14	1	STIM	7	to RED	4	46	96	3.57	5	5.2569
415	M	MS	14	1	STIM	8	to NUP	4	46	96	7.78	5	5.0863
415	M	MS	14	1	STIM	9	to RED	4	47	102	5.7	4	5.6576
415	M	MS	14	1	STIM	10	to NUP	3	46	96	6.8	5	7.0854
415	M	MS	14	1	STIM	11	to RED	3	46	96	3.25	3	5.8669

415	M	MS	14	1	STIM	12	to NUP	3	46	96	6.25	4	4.911
415	M	MS	14	1	STIM	13	to RED	3	46	96	5.43	3	5.1467
415	M	MS	14	1	STIM	14	to NUP	3	46	96	5.37	5	5.6153
415	M	MS	14	1	STIM	15	to RED	2	47	102	3.62	2	5.6599
415	M	MS	14	1	STIM	16	to NUP	4	46	96	6.28	5	5.0952
415	M	MS	14	1	STIM	17	to RED	4	46	96	4.52	2	5.1877
415	M	MS	14	1	STIM	18	to NUP	5	46	96	6.12	5	4.8488
415	M	MS	14	1	STIM	19	to RED	3	46	96	3.7	2	6.9459
415	M	MS	14	1	STIM	20	to NUP	5	46	96	6.73	6	6.2307
415	M	MS	14	1	STIM	21	to RED	4	47	102	5.02	3	5.108
415	M	MS	14	1	STIM	22	to NUP	5	47	102	6.3	6	4.9704
415	M	MS	14	1	STIM	23	to RED	4	47	102	3.75	3	5.4927
415	M	MS	14	1	STIM	24	to NUP	5	46	96	5.92	5	2.2486
415	M	MS	14	1	STIM	25	to RED	4	46	96	4.2	2	5.7185
415	M	MS	14	1	STIM	26	to NUP	4	46	96	5.23	3	3.9546
415	M	MS	14	1	STIM	27	to RED	3	47	102	3.85	2	4.9458
415	M	MS	14	1	STIM	28	to NUP	4	46	96	6.32	4	5.2555
415	M	MS	14	1	STIM	29	to RED	4	47	102	5.3	2	6.4555
415	M	MS	14	1	STIM	30	to NUP	6	46	96	2.52	5	5.6404
415	M	MS	14	1	STIM	31	to RED	5	46	96	4.65	3	4.2949
415	M	MS	14	1	STIM	32	to NUP	5	46	96	6.35	6	5.0361
415	M	MS	14	1	STIM	33	to RED	4	46	96	4	2	6.1889
415	M	MS	14	1	STIM	34	to NUP	5	46	96	6.5	4	5.222
415	M	MS	14	1	STIM	35	to RED	5	47	102	3.33	2	6.1697
415	M	MS	14	1	STIM	36	to NUP	6	47	102	6.45	5	4.9613
415	M	MS	23	1	POST	37	to RED	4	47	102	3.42	4	7.6812
415	M	MS	23	1	POST	38	to NUP	6	47	102	8.07	6	6.7527
415	M	MS	23	1	POST	39	to RED	5	47	102	3.73	4	6.3107
415	M	MS	23	1	POST	40	to NUP	6	47	102	7.48	7	3.5588
415	M	MS	23	1	POST	41	to RED	5	46	96	4.98	3	5.2252
415	M	MS	23	1	POST	42	to NUP	6	47	102	6.67	7	5.518
415	M	MS	0	1	post		to RED	2	45	90		1	
415	M	MS	0	1	post		to NUP	1	45	90		0	
415	M	MS	0	1	post		to RED	1	45	90		0	
415	M	MS	0	1	post		to NUP	1	45	90		0	
415	M	MS	0	1	post		to RED	1	45	90		0	
415	M	MS	0	1	post		to NUP	1	45	90		0	
415	M	MS	0	1	calibration		NUP						
415	M	MS	0	1	calibration		NUP						
415	M	MS	0	1	calibration		NUP						
415	M	MS	0	2	calibration		NUP						
415	M	MS	0	2	calibration		NUP						
415	M	MS	0	2	calibration		NUP						
415	M	MS	0	2	pre		to RED	0	45	90	0	0	
415	M	MS	0	2	pre		to NUP	0	45	90	0	0	
415	M	MS	0	2	pre		to RED	0	45	90	0	0	
415	M	MS	0	2	pre		to NUP	0	45	90	0	0	
415	M	MS	0	2	pre		to RED	0	45	90	0	0	
415	M	MS	0	2	pre		to NUP	0	45	90	0	0	
415	M	MS	23	2	PRE	1	to RED	0	46	96	5.32	5	7.2464
415	M	MS	23	2	PRE	2	to NUP	1	45	90	7.92	10	6.3657
415	M	MS	23	2	PRE	3	to RED	1	45	90	5.98	6	6.491
415	M	MS	23	2	PRE	4	to NUP	1	46	96	9.93	12	5.7552
415	M	MS	23	2	PRE	5	to RED	2	47	102	9.43	6	6.2405
415	M	MS	23	2	PRE	6	to NUP	2	46	96	9.32	10	5.0371
415	M	MS	23	2	STIM	7	to RED	1	47	102	3.75	5	5.9744
415	M	MS	23	2	STIM	8	to NUP	2	46	96	9.15	8	5.3039
415	M	MS	23	2	STIM	9	to RED	1	46	96	4.5	4	5.077
415	M	MS	23	2	STIM	10	to NUP	2	46	96	7.55	9	5.1046
415	M	MS	23	2	STIM	11	to RED	1	46	96	5.03	3	6.2492
415	M	MS	23	2	STIM	12	to NUP	3	46	96	8.75	10	6.5696
415	M	MS	23	2	STIM	13	to RED	2	47	102	7.93	5	2.4581
415	M	MS	23	2	STIM	14	to NUP	3	46	96	8.23	9	3.5244
415	M	MS	23	2	STIM	15	to RED	2	46	96	6.22	4	2.0612
415	M	MS	23	2	STIM	16	to NUP	2	46	96	7.47	7	5.0486
415	M	MS	23	2	STIM	17	to RED	2	46	96	4.65	3	4.662
415	M	MS	23	2	STIM	18	to NUP	3	46	96	6.47	7	3.9204
415	M	MS	23	2	STIM	19	to RED	2	47	102	4.72	3	6.3108
415	M	MS	23	2	STIM	20	to NUP	2	47	102	9.28	6	3.8734
415	M	MS	23	2	STIM	21	to RED	3	46	96	5.37	4	5.5375
415	M	MS	23	2	STIM	22	to NUP	3	46	96	9.95	7	5.7738
415	M	MS	23	2	STIM	23	to RED	3	47	102	6.17	4	5.2623
415	M	MS	23	2	STIM	24	to NUP	3	46	96	5.48	6	4.8175
415	M	MS	23	2	STIM	25	to RED	2	46	96	5.35	2	4.3669
415	M	MS	23	2	STIM	26	to NUP	2	47	102	6.22	4	5.3777
415	M	MS	23	2	STIM	27	to RED	2	46	96	7.75	4	5.3028
415	M	MS	23	2	STIM	28	to NUP	3	46	96	9	5	3.8788
415	M	MS	23	2	STIM	29	to RED	3	46	96	4.88	3	5.3542
415	M	MS	23	2	STIM	30	to NUP	3	46	96	7.98	6	5.5191
415	M	MS	23	2	STIM	31	to RED	3	46	96	6.42	2	3.6467
415	M	MS	23	2	STIM	32	to NUP	2	46	96	6.15	3	3.4492
415	M	MS	23	2	STIM	33	to RED	2	46	96	5.07	2	4.625
415	M	MS	23	2	STIM	34	to NUP	3	46	96	4.87	4	5.635
415	M	MS	23	2	STIM	35	to RED	2	46	96	6.27	2	5.1905
415	M	MS	23	2	STIM	36	to NUP	3	47	102	5.88	4	3.0912
415	M	MS	23	2	POST	37	to RED	2	46	96	5.37	2	5.645
415	M	MS	23	2	POST	38	to NUP	2	47	102	7.12	3	4.2955
415	M	MS	23	2	POST	39	to RED	3	46	96	7.78	2	5.8035
415	M	MS	23	2	POST	40	to NUP	3	46	96	9.73	5	3.2844
415	M	MS	23	2	POST	41	to RED	3	46	96	6.17	3	4.5639
415	M	MS	23	2	POST	42	to NUP	3	46	96	7.48	4	4.8073
415	M	MS	0	2	post		to RED	1	45	90		0	
415	M	MS	0	2	post		to NUP	1	45	90		0	
415	M	MS	0	2	post		to RED	1	45	90		0	
415	M	MS	0	2	post		to NUP	1	45	90		0	
415	M	MS	0	2	post		to RED	1	45	90		0	
415	M	MS	0	2	post		to NUP	0	45	90		0	
415	M	MS	0	2	calibration		NUP						

415	M	MS	0	2	calibration		NUP						
415	M	MS	0	2	calibration		NUP						
415	M	MS	0	3	calibration		NUP						
415	M	MS	0	3	calibration		NUP						
415	M	MS	0	3	calibration		NUP						
415	M	MS	0	3	pre		to RED	0	45	90	0	0	
415	M	MS	0	3	pre		to NUP	0	45	90	0	0	
415	M	MS	0	3	pre		to RED	0	45	90	0	0	
415	M	MS	0	3	pre		to NUP	0	45	90	0	0	
415	M	MS	0	3	pre		to RED	0	45	90	0	0	
415	M	MS	0	3	pre		to NUP	0	45	90	0	0	
415	M	MS	23	3	PRE	1	to RED	1	47	102	4.88	4	4.9968
415	M	MS	23	3	PRE	2	to NUP	2	46	96	11.73	10	4.6996
415	M	MS	23	3	PRE	3	to RED	1	46	96	7.58	3	6.4869
415	M	MS	23	3	PRE	4	to NUP	2	46	96	7.82	7	5.0274
415	M	MS	23	3	PRE	5	to RED	1	46	96	5.63	3	4.8108
415	M	MS	23	3	PRE	6	to NUP	2	47	102	8.7	6	5.2802
415	M	MS	30	3	STIM	7	to RED	2	48	108	7.07	6	5.5829
415	M	MS	30	3	STIM	8	to NUP	2	47	102	10.78	11	5.6688
415	M	MS	30	3	STIM	9	to RED	2	47	102	6.8	4	5.2316
415	M	MS	30	3	STIM	10	to NUP	2	47	102	7.02	8	4.7387
415	M	MS	30	3	STIM	11	to RED	2	47	102	9.82	4	6.7584
415	M	MS	30	3	STIM	12	to NUP	4	47	102	12.78	10	3.9612
415	M	MS	30	3	STIM	13	to RED	3	47	102	8.32	3	4.9079
415	M	MS	30	3	STIM	14	to NUP	3	46	96	9.77	5	4.0571
415	M	MS	30	3	STIM	15	to RED	2	47	102	9.73	4	6.4536
415	M	MS	30	3	STIM	16	to NUP	3	47	102	12.95	8	3.4843
415	M	MS	30	3	STIM	17	to RED	3	46	96	9.53	5	6.728
415	M	MS	30	3	STIM	18	to NUP	4	47	102	12.63	8	6.1637
415	M	MS	30	3	STIM	19	to RED	3	46	96	10.33	4	6.3833
415	M	MS	30	3	STIM	20	to NUP	4	46	96	11.13	8	5.9775
415	M	MS	30	3	STIM	21	to RED	5	47	102	7.27	5	6.8323
415	M	MS	30	3	STIM	22	to NUP	4	47	102	13.17	9	5.2503
415	M	MS	30	3	STIM	23	to RED	4	47	102	5.3	3	5.0969
415	M	MS	30	3	STIM	24	to NUP	5	47	102	13.13	8	3.8097
415	M	MS	30	3	STIM	25	to RED	4	47	102	8.98	3	6.6444
415	M	MS	30	3	STIM	26	to NUP	5	47	102	10.78	9	4.2685
415	M	MS	30	3	STIM	27	to RED	5	46	96	9.1	3	5.1327
415	M	MS	30	3	STIM	28	to NUP	6	47	102	14.37	9	2.7004
415	M	MS	30	3	STIM	29	to RED	5	47	102	6.85	3	6.5074
415	M	MS	30	3	STIM	30	to NUP	6	47	102	12.52	7	6.0586
415	M	MS	30	3	STIM	31	to RED	5	47	102	7.23	2	7.7944
415	M	MS	30	3	STIM	32	to NUP	5	47	102	10.92	7	3.2986
415	M	MS	30	3	STIM	33	to RED	6	47	102	10.55	4	6.1095
415	M	MS	30	3	STIM	34	to NUP	6	47	102	13.55	9	4.1135
415	M	MS	30	3	STIM	35	to RED	6	48	108	8.52	2	5.3342
415	M	MS	30	3	STIM	36	to NUP	6	47	102	10.95	7	6.0185
415	M	MS	23	3	POST	37	to RED	4	46	96	5.18	2	6.4875
415	M	MS	23	3	POST	38	to NUP	6	47	102	6.05	4	6.0207
415	M	MS	23	3	POST	39	to RED	5	46	96	6.22	3	6.841
415	M	MS	23	3	POST	40	to NUP	4	47	102	6.82	4	4.8845
415	M	MS	23	3	POST	41	to RED	4	46	96	5.62	2	5.0408
415	M	MS	23	3	POST	42	to NUP	4	46	96	7.27	3	4.1943
415	M	MS	0	3	post		to RED	2	45	90		0	
415	M	MS	0	3	post		to NUP	1	45	90		0	
415	M	MS	0	3	post		to RED	1	45	90		0	
415	M	MS	0	3	post		to NUP	1	45	90		0	
415	M	MS	0	3	post		to RED	1	45	90		0	
415	M	MS	0	3	post		to NUP	0	45	90		0	
415	M	MS	0	3	calibration		NUP						
415	M	MS	0	3	calibration		NUP						
415	M	MS	0	3	calibration		NUP						
416	M	nMs	0	1	calibration		NUP						
416	M	nMs	0	1	calibration		NUP						
416	M	nMs	0	1	calibration		NUP						
416	M	nMs	0	1	pre		to RED	0	45	90	0	0	
416	M	nMs	0	1	pre		to NUP	0	45	90	0	0	
416	M	nMs	0	1	pre		to RED	0	45	90	0	0	
416	M	nMs	0	1	pre		to NUP	0	45	90	0	0	
416	M	nMs	0	1	pre		to RED	0	45	90	0	0	
416	M	nMs	0	1	pre		to NUP	0	45	90	0	0	
416	M	nMs	23	1	PRE	1	to RED	0	45	90	2.73	10	
416	M	nMs	23	1	PRE	2	to NUP	0	45	90	22.13	12	
416	M	nMs	23	1	PRE	3	to RED	0	45	90	21.18	11	
416	M	nMs	23	1	PRE	4	to NUP	0	45	90	19.97	12	
416	M	nMs	23	1	PRE	5	to RED	0	46	96	23.48	11	
416	M	nMs	23	1	PRE	6	to NUP	0	45	90	23.63	13	
416	M	nMs	14	1	STIM	7	to RED	0	45	90	20.68	11	
416	M	nMs	14	1	STIM	8	to NUP	0	45	90	25.07	11	
416	M	nMs	14	1	STIM	9	to RED	0	45	90	19.8	10	
416	M	nMs	14	1	STIM	10	to NUP	0	45	90	21.28	11	
416	M	nMs	14	1	STIM	11	to RED	0	45	90	21.98	10	
416	M	nMs	14	1	STIM	12	to NUP	0	45	90	22.28	12	
416	M	nMs	14	1	STIM	13	to RED	0	45	90	17.4	10	
416	M	nMs	14	1	STIM	14	to NUP	0	45	90	27.73	12	
416	M	nMs	14	1	STIM	15	to RED	0	45	90	25.08	10	
416	M	nMs	14	1	STIM	16	to NUP	0	45	90	25.93	12	
416	M	nMs	14	1	STIM	17	to RED	0	45	90	25.32	10	
416	M	nMs	14	1	STIM	18	to NUP	0	45	90	28.4	11	
416	M	nMs	14	1	STIM	19	to RED	0	45	90	26.87	11	
416	M	nMs	14	1	STIM	20	to NUP	0	45	90	26.57	11	
416	M	nMs	14	1	STIM	21	to RED	0	45	90	20.82	11	
416	M	nMs	14	1	STIM	22	to NUP	0	45	90	28.75	11	
416	M	nMs	14	1	STIM	23	to RED	0	45	90	20.57	11	
416	M	nMs	14	1	STIM	24	to NUP	0	45	90	27.97	11	
416	M	nMs	14	1	STIM	25	to RED	0	45	90	30.13	10	
416	M	nMs	14	1	STIM	26	to NUP	0	45	90	22.13	11	
416	M	nMs	14	1	STIM	27	to RED	0	45	90	31.63	10	

416	M	nMs	14	1	STIM	28	to NUP	0	45	90	23.27	11	
416	M	nMs	14	1	STIM	29	to RED	0	45	90	29.45	9	
416	M	nMs	14	1	STIM	30	to NUP	0	45	90	21.22	10	
416	M	nMs	14	1	STIM	31	to RED	0	45	90	32.27	9	
416	M	nMs	14	1	STIM	32	to NUP	0	45	90	27.42	10	
416	M	nMs	14	1	STIM	33	to RED	0	45	90	25.9	9	
416	M	nMs	14	1	STIM	34	to NUP	0	45	90	23.62	10	
416	M	nMs	14	1	STIM	35	to RED	0	45	90	26.58	9	
416	M	nMs	14	1	STIM	36	to NUP	0	45	90	26.97	10	
416	M	nMs	23	1	POST	37	to RED	0	45	90	30.18	10	
416	M	nMs	23	1	POST	38	to NUP	0	45	90	24.3	11	
416	M	nMs	23	1	POST	39	to RED	0	45	90	27.2	10	
416	M	nMs	23	1	POST	40	to NUP	0	45	90	26.45	12	
416	M	nMs	23	1	POST	41	to RED	0	45	90	21.2	10	
416	M	nMs	23	1	POST	42	to NUP	0	45	90	25.47	12	
416	M	nMs	0	1	post		to RED	0	45	90		0	
416	M	nMs	0	1	post		to NUP	0	45	90		0	
416	M	nMs	0	1	post		to RED	0	45	90		0	
416	M	nMs	0	1	post		to NUP	0	45	90		0	
416	M	nMs	0	1	post		to RED	0	45	90		0	
416	M	nMs	0	1	post		to NUP	0	45	90		0	
416	M	nMs	0	1	calibration		NUP						
416	M	nMs	0	1	calibration		NUP						
416	M	nMs	0	1	calibration		NUP						
416	M	nMs	0	2	calibration		NUP						
416	M	nMs	0	2	calibration		NUP						
416	M	nMs	0	2	calibration		NUP						
416	M	nMs	0	2	pre		to RED	0	45	90	0	0	
416	M	nMs	0	2	pre		to NUP	0	45	90	0	0	
416	M	nMs	0	2	pre		to RED	0	45	90	0	0	
416	M	nMs	0	2	pre		to NUP	0	45	90	0	0	
416	M	nMs	0	2	pre		to RED	0	45	90	0	0	
416	M	nMs	0	2	pre		to NUP	0	45	90	0	0	
416	M	nMs	23	2	PRE	1	to RED	0	45	90	25.53	9	
416	M	nMs	23	2	PRE	2	to NUP	0	45	90	37.4	11	
416	M	nMs	23	2	PRE	3	to RED	0	45	90	29.13	10	
416	M	nMs	23	2	PRE	4	to NUP	0	45	90	25.93	11	
416	M	nMs	23	2	PRE	5	to RED	0	45	90	19.68	10	
416	M	nMs	23	2	PRE	6	to NUP	0	45	90	21.38	11	
416	M	nMs	23	2	STIM	7	to RED	0	45	90	29.45	9	
416	M	nMs	23	2	STIM	8	to NUP	0	45	90	26.92	11	
416	M	nMs	23	2	STIM	9	to RED	0	45	90	21.92	10	
416	M	nMs	23	2	STIM	10	to NUP	0	45	90	24.67	11	
416	M	nMs	23	2	STIM	11	to RED	0	45	90	27.82	9	
416	M	nMs	23	2	STIM	12	to NUP	0	45	90	41.05	10	
416	M	nMs	23	2	STIM	13	to RED	0	45	90	23.83	10	
416	M	nMs	23	2	STIM	14	to NUP	0	45	90	27.53	10	
416	M	nMs	23	2	STIM	15	to RED	0	45	90	17.27	9	
416	M	nMs	23	2	STIM	16	to NUP	0	45	90	23.93	10	
416	M	nMs	23	2	STIM	17	to RED	0	45	90	19.98	9	
416	M	nMs	23	2	STIM	18	to NUP	0	45	90	22.45	10	
416	M	nMs	23	2	STIM	19	to RED	0	45	90	27.08	9	
416	M	nMs	23	2	STIM	20	to NUP	0	45	90	24.33	11	
416	M	nMs	23	2	STIM	21	to RED	0	45	90	26.52	9	
416	M	nMs	23	2	STIM	22	to NUP	0	45	90	28.83	9	
416	M	nMs	23	2	STIM	23	to RED	0	45	90	24.2	10	
416	M	nMs	23	2	STIM	24	to NUP	0	45	90	25.48	10	
416	M	nMs	23	2	STIM	25	to RED	0	45	90	23.08	8	
416	M	nMs	23	2	STIM	26	to NUP	0	45	90	25.13	9	
416	M	nMs	23	2	STIM	27	to RED	0	45	90	18.75	9	
416	M	nMs	23	2	STIM	28	to NUP	0	45	90	20.18	10	
416	M	nMs	23	2	STIM	29	to RED	0	45	90	20.13	9	
416	M	nMs	23	2	STIM	30	to NUP	0	45	90	20.85	10	
416	M	nMs	23	2	STIM	31	to RED	0	45	90	21.17	10	
416	M	nMs	23	2	STIM	32	to NUP	0	45	90	25.77	10	
416	M	nMs	23	2	STIM	33	to RED	0	45	90	22.93	9	
416	M	nMs	23	2	STIM	34	to NUP	0	45	90	25.65	10	
416	M	nMs	23	2	STIM	35	to RED	0	45	90	27.77	9	
416	M	nMs	23	2	STIM	36	to NUP	0	45	90	16.55	9	
416	M	nMs	23	2	POST	37	to RED	0	45	90	23.43	9	
416	M	nMs	23	2	POST	38	to NUP	0	45	90	20.53	10	
416	M	nMs	23	2	POST	39	to RED	0	45	90	22.3	9	
416	M	nMs	23	2	POST	40	to NUP	0	45	90	22.82	10	
416	M	nMs	23	2	POST	41	to RED	0	45	90	18.5	8	
416	M	nMs	23	2	POST	42	to NUP	0	45	90	25.1	9	
416	M	nMs	0	2	post		to RED	0	45	90		0	
416	M	nMs	0	2	post		to NUP	0	45	90		0	
416	M	nMs	0	2	post		to RED	0	45	90		0	
416	M	nMs	0	2	post		to NUP	0	45	90		0	
416	M	nMs	0	2	post		to RED	0	45	90		0	
416	M	nMs	0	2	post		to NUP	0	45	90		0	
416	M	nMs	0	2	calibration		NUP						
416	M	nMs	0	2	calibration		NUP						
416	M	nMs	0	2	calibration		NUP						
416	M	nMs	0	3	calibration		NUP						
416	M	nMs	0	3	calibration		NUP						
416	M	nMs	0	3	calibration		NUP						
416	M	nMs	0	3	pre		to RED	0	45	90	0	0	
416	M	nMs	0	3	pre		to NUP	0	45	90	0	0	
416	M	nMs	0	3	pre		to RED	0	45	90	0	0	
416	M	nMs	0	3	pre		to NUP	0	45	90	0	0	
416	M	nMs	0	3	pre		to RED	0	45	90	0	0	
416	M	nMs	0	3	pre		to NUP	0	45	90	0	0	
416	M	nMs	23	3	PRE	1	to RED	0	45	90	29.25	8	
416	M	nMs	23	3	PRE	2	to NUP	0	45	90	31	11	
416	M	nMs	23	3	PRE	3	to RED	0	45	90	29.95	10	
416	M	nMs	23	3	PRE	4	to NUP	0	45	90	28.27	12	
416	M	nMs	23	3	PRE	5	to RED	0	45	90	36.25	10	

416	M	nMs	23	3	PRE	6	to NUP	0	45	90	26.67	10	
416	M	nMs	30	3	STIM	7	to RED	0	45	90	31.8	10	
416	M	nMs	30	3	STIM	8	to NUP	0	45	90	30.25	13	
416	M	nMs	30	3	STIM	9	to RED	0	45	90	27.85	10	
416	M	nMs	30	3	STIM	10	to NUP	0	45	90	29.55	13	
416	M	nMs	30	3	STIM	11	to RED	0	45	90	34.42	10	
416	M	nMs	30	3	STIM	12	to NUP	0	45	90	38.27	12	
416	M	nMs	30	3	STIM	13	to RED	0	45	90	25.57	11	
416	M	nMs	30	3	STIM	14	to NUP	0	45	90	30.62	12	
416	M	nMs	30	3	STIM	15	to RED	0	45	90	42.58	11	
416	M	nMs	30	3	STIM	16	to NUP	0	45	90	31.25	12	
416	M	nMs	30	3	STIM	17	to RED	0	45	90	29.77	10	
416	M	nMs	30	3	STIM	18	to NUP	0	45	90	28.53	11	
416	M	nMs	30	3	STIM	19	to RED	0	45	90	29.6	10	
416	M	nMs	30	3	STIM	20	to NUP	0	45	90	35.25	12	
416	M	nMs	30	3	STIM	21	to RED	0	45	90	28.48	10	
416	M	nMs	30	3	STIM	22	to NUP	0	45	90	50.4	12	
416	M	nMs	30	3	STIM	23	to RED	0	45	90	25.95	10	
416	M	nMs	30	3	STIM	24	to NUP	0	45	90	49.93	11	
416	M	nMs	30	3	STIM	25	to RED	0	45	90	25.42	11	
416	M	nMs	30	3	STIM	26	to NUP	0	45	90	37.6	12	
416	M	nMs	30	3	STIM	27	to RED	0	45	90	31.08	10	
416	M	nMs	30	3	STIM	28	to NUP	0	45	90	46.95	11	
416	M	nMs	30	3	STIM	29	to RED	0	45	90	31.6	11	
416	M	nMs	30	3	STIM	30	to NUP	0	45	90	54.4	11	
416	M	nMs	30	3	STIM	31	to RED	0	45	90	47.53	11	
416	M	nMs	30	3	STIM	32	to NUP	0	45	90	31.9	11	
416	M	nMs	30	3	STIM	33	to RED	0	45	90	24.42	11	
416	M	nMs	30	3	STIM	34	to NUP	0	45	90	47.85	10	
416	M	nMs	30	3	STIM	35	to RED	0	45	90	33.13	10	
416	M	nMs	30	3	STIM	36	to NUP	0	45	90	34	11	
416	M	nMs	23	3	POST	37	to RED	0	45	90	19.72	9	
416	M	nMs	23	3	POST	38	to NUP	0	45	90	29.53	10	
416	M	nMs	23	3	POST	39	to RED	0	45	90	23.47	10	
416	M	nMs	23	3	POST	40	to NUP	0	45	90	35.43	9	
416	M	nMs	23	3	POST	41	to RED	0	45	90	28.33	9	
416	M	nMs	23	3	POST	42	to NUP	0	45	90	41.33	11	
416	M	nMs	0	3	post		to RED	0	45	90		0	
416	M	nMs	0	3	post		to NUP	0	45	90		0	
416	M	nMs	0	3	post		to RED	0	45	90		0	
416	M	nMs	0	3	post		to NUP	0	45	90		0	
416	M	nMs	0	3	post		to RED	0	45	90		0	
416	M	nMs	0	3	post		to NUP	0	45	90		0	
416	M	nMs	0	3	calibration		NUP						
416	M	nMs	0	3	calibration		NUP						
416	M	nMs	0	3	calibration		NUP						
417	M	nMs	0	1	calibration		NUP						
417	M	nMs	0	1	calibration		NUP						
417	M	nMs	0	1	calibration		NUP						
417	M	nMs	0	1	pre		to RED	0	45	90	0	0	
417	M	nMs	0	1	pre		to NUP	0	45	90	0	0	
417	M	nMs	0	1	pre		to RED	0	45	90	0	0	
417	M	nMs	0	1	pre		to NUP	0	45	90	0	0	
417	M	nMs	0	1	pre		to RED	0	45	90	0	0	
417	M	nMs	0	1	pre		to NUP	0	45	90	0	0	
417	M	nMs	23	1	PRE	1	to RED	0	45	90	12.02	10	3.5384
417	M	nMs	23	1	PRE	2	to NUP	0	45	90	21.67	20	5.8333
417	M	nMs	23	1	PRE	3	to RED	0	45	90	14.8	10	7.6715
417	M	nMs	23	1	PRE	4	to NUP	0	45	90	19.77	20	5.0149
417	M	nMs	23	1	PRE	5	to RED	0	45	90	15.52	8	4.9863
417	M	nMs	23	1	PRE	6	to NUP	0	43	78	16.75	18	4.7262
417	M	nMs	14	1	STIM	7	to RED	0	45	90	5.08	4	5.4574
417	M	nMs	14	1	STIM	8	to NUP	0	43	78	13.87	12	5.8638
417	M	nMs	14	1	STIM	9	to RED	0	45	90	10.2	3	6.1052
417	M	nMs	14	1	STIM	10	to NUP	0	45	90	12.88	8	5.4115
417	M	nMs	14	1	STIM	11	to RED	0	45	90	9.4	3	4.3233
417	M	nMs	14	1	STIM	12	to NUP	0	45	90	14.35	7	5.5541
417	M	nMs	14	1	STIM	13	to RED	0	45	90	7.32	3	4.8633
417	M	nMs	14	1	STIM	14	to NUP	0	46	96	11	6	5.3804
417	M	nMs	14	1	STIM	15	to RED	0	45	90	6.73	1	5.1079
417	M	nMs	14	1	STIM	16	to NUP	0	45	90	11.53	6	5.3979
417	M	nMs	14	1	STIM	17	to RED	0	45	90	5.97	1	4.7239
417	M	nMs	14	1	STIM	18	to NUP	0	45	90	11.67	6	3.8894
417	M	nMs	14	1	STIM	19	to RED	0	45	90	6.63	1	5.9304
417	M	nMs	14	1	STIM	20	to NUP	0	45	90	13.7	6	3.5621
417	M	nMs	14	1	STIM	21	to RED	0	45	90	5.15	0.5	5.1155
417	M	nMs	14	1	STIM	22	to NUP	0	45	90	11.75	5	5.8709
417	M	nMs	14	1	STIM	23	to RED	0	45	90	5.43	0.5	4.6693
417	M	nMs	14	1	STIM	24	to NUP	0	45	90	10.88	5	4.2352
417	M	nMs	14	1	STIM	25	to RED	0	45	90	5.33	0.5	4.3765
417	M	nMs	14	1	STIM	26	to NUP	0	45	90	10.58	4	3.7656
417	M	nMs	14	1	STIM	27	to RED	0	45	90	5.48	0.5	4.8912
417	M	nMs	14	1	STIM	28	to NUP	0	45	90	9.85	4	3.6466
417	M	nMs	14	1	STIM	29	to RED	0	45	90	6.23	0.4	4.3657
417	M	nMs	14	1	STIM	30	to NUP	0	45	90	10.58	4	4.0512
417	M	nMs	14	1	STIM	31	to RED	0	45	90	4.67	0.2	4.6958
417	M	nMs	14	1	STIM	32	to NUP	0	45	90	11.37	4	3.7427
417	M	nMs	14	1	STIM	33	to RED	0	45	90	5.03	0.2	4.769
417	M	nMs	14	1	STIM	34	to NUP	0	45	90	11.92	4	5.2081
417	M	nMs	14	1	STIM	35	to RED	0	45	90	6.98	0.2	4.3294
417	M	nMs	14	1	STIM	36	to NUP	0	45	90	10.57	3	4.6392
417	M	nMs	23	1	POST	37	to RED	0	45	90	10.75	4	4.7437
417	M	nMs	23	1	POST	38	to NUP	0	45	90	13.3	12	4.6441
417	M	nMs	23	1	POST	39	to RED	0	45	90	9.57	3	5.1356
417	M	nMs	23	1	POST	40	to NUP	0	45	90	15.78	12	3.146
417	M	nMs	23	1	POST	41	to RED	0	45	90	13.08	3	4.2919
417	M	nMs	23	1	POST	42	to NUP	0	45	90	12.43	10	2.3283
417	M	nMs	0	1	post		to RED	0	45	90		0	

417	M	nMs	0	1	post		to NUP	0	45	90		0	
417	M	nMs	0	1	post		to RED	0	45	90		0	
417	M	nMs	0	1	post		to NUP	0	45	90		0	
417	M	nMs	0	1	post		to RED	0	45	90		0	
417	M	nMs	0	1	post		to NUP	0	45	90		0	
417	M	nMs	0	1	calibration		NUP						
417	M	nMs	0	1	calibration		NUP						
417	M	nMs	0	1	calibration		NUP						
417	M	nMs	0	2	calibration		NUP						
417	M	nMs	0	2	calibration		NUP						
417	M	nMs	0	2	calibration		NUP						
417	M	nMs	0	2	pre		to RED	0	45	90	0	0	
417	M	nMs	0	2	pre		to NUP	0	45	90	0	0	
417	M	nMs	0	2	pre		to RED	0	45	90	0	0	
417	M	nMs	0	2	pre		to NUP	0	45	90	0	0	
417	M	nMs	0	2	pre		to RED	0	45	90	0	0	
417	M	nMs	0	2	pre		to NUP	0	45	90	0	0	
417	M	nMs	23	2	PRE	1	to RED	0	45	90	3.98	4	3.7961
417	M	nMs	23	2	PRE	2	to NUP	0	45	90	8.33	10	3.9373
417	M	nMs	23	2	PRE	3	to RED	0	45	90	9.05	3	3.8389
417	M	nMs	23	2	PRE	4	to NUP	0	45	90	16.08	10	4.046
417	M	nMs	23	2	PRE	5	to RED	0	45	90	9	3	5.7097
417	M	nMs	23	2	PRE	6	to NUP	0	45	90	14.48	9	4.7755
417	M	nMs	23	2	STIM	7	to RED	0	45	90	11.78	3	4.0392
417	M	nMs	23	2	STIM	8	to NUP	0	43	78	15.23	9	5.1647
417	M	nMs	23	2	STIM	9	to RED	0	45	90	11.42	3	3.9339
417	M	nMs	23	2	STIM	10	to NUP	0	43	78	13.77	8	3.2895
417	M	nMs	23	2	STIM	11	to RED	0	45	90	9.95	2	4.1494
417	M	nMs	23	2	STIM	12	to NUP	0	44	84	13.57	7	6.5223
417	M	nMs	23	2	STIM	13	to RED	0	45	90	8.38	2	3.9507
417	M	nMs	23	2	STIM	14	to NUP	0	43	78	12.1	7	4.353
417	M	nMs	23	2	STIM	15	to RED	0	45	90	9.15	2	4.7555
417	M	nMs	23	2	STIM	16	to NUP	0	45	90	13.08	7	3.9587
417	M	nMs	23	2	STIM	17	to RED	0	45	90	10.23	1.5	4.133
417	M	nMs	23	2	STIM	18	to NUP	0	43	78	11.85	6	5.0221
417	M	nMs	23	2	STIM	19	to RED	0	45	90	8.88	2	4.8307
417	M	nMs	23	2	STIM	20	to NUP	0	43	78	11.17	6	5.5446
417	M	nMs	23	2	STIM	21	to RED	0	45	90	8.75	1.5	4.5018
417	M	nMs	23	2	STIM	22	to NUP	0	44	84	11.23	5	3.7384
417	M	nMs	23	2	STIM	23	to RED	0	45	90	9.97	2	3.9426
417	M	nMs	23	2	STIM	24	to NUP	0	43	78	11.62	5	5.698
417	M	nMs	23	2	STIM	25	to RED	0	45	90	10.2	1.5	3.7223
417	M	nMs	23	2	STIM	26	to NUP	0	45	90	10.95	4	6.4864
417	M	nMs	23	2	STIM	27	to RED	0	45	90	9.07	1.5	4.5896
417	M	nMs	23	2	STIM	28	to NUP	0	43	78	10.52	4	4.8418
417	M	nMs	23	2	STIM	29	to RED	0	45	90	10.95	1.5	4.4187
417	M	nMs	23	2	STIM	30	to NUP	0	45	90	13.13	3	4.7431
417	M	nMs	23	2	STIM	31	to RED	0	45	90	12.18	1.5	4.1465
417	M	nMs	23	2	STIM	32	to NUP	0	44	84	11.98	3.5	4.4945
417	M	nMs	23	2	STIM	33	to RED	0	45	90	10.98	1.5	4.5238
417	M	nMs	23	2	STIM	34	to NUP	0	43	78	13.07	3	4.3356
417	M	nMs	23	2	STIM	35	to RED	0	45	90	10.75	1.5	5.4781
417	M	nMs	23	2	STIM	36	to NUP	0	45	90	13.17	3	4.8318
417	M	nMs	23	2	POST	37	to RED	0	45	90	9.88	1	3.6377
417	M	nMs	23	2	POST	38	to NUP	0	43	78	12.07	2.5	4.6284
417	M	nMs	23	2	POST	39	to RED	0	45	90	9.75	1	4.5378
417	M	nMs	23	2	POST	40	to NUP	0	45	90	10.42	2	5.5295
417	M	nMs	23	2	POST	41	to RED	0	45	90	10.8	1	4.543
417	M	nMs	23	2	POST	42	to NUP	0	43	78	12.28	1.5	4.5978
417	M	nMs	0	2	post		to RED	0	45	90		0	
417	M	nMs	0	2	post		to NUP	0	45	90		0	
417	M	nMs	0	2	post		to RED	0	45	90		0	
417	M	nMs	0	2	post		to NUP	0	45	90		0	
417	M	nMs	0	2	post		to RED	0	45	90		0	
417	M	nMs	0	2	post		to NUP	0	45	90		0	
417	M	nMs	0	2	calibration		NUP						
417	M	nMs	0	2	calibration		NUP						
417	M	nMs	0	2	calibration		NUP						
417	M	nMs	0	3	calibration		NUP						
417	M	nMs	0	3	calibration		NUP						
417	M	nMs	0	3	calibration		NUP						
417	M	nMs	0	3	pre		to RED	0	45	90	0	0	
417	M	nMs	0	3	pre		to NUP	0	45	90	0	0	
417	M	nMs	0	3	pre		to RED	0	45	90	0	0	
417	M	nMs	0	3	pre		to NUP	0	45	90	0	0	
417	M	nMs	0	3	pre		to RED	0	45	90	0	0	
417	M	nMs	0	3	pre		to NUP	0	45	90	0	0	
417	M	nMs	23	3	PRE	1	to RED	0	45	90	5.67	2	4.7252
417	M	nMs	23	3	PRE	2	to NUP	0	45	90	11.2	6	4.1158
417	M	nMs	23	3	PRE	3	to RED	0	45	90	8.33	1	5.2714
417	M	nMs	23	3	PRE	4	to NUP	0	45	90	10.93	5	3.6648
417	M	nMs	23	3	PRE	5	to RED	0	45	90	10.48	1.5	4.7923
417	M	nMs	23	3	PRE	6	to NUP	0	44	84	12.43	6	3.2504
417	M	nMs	30	3	STIM	7	to RED	0	45	90	9.83	4	4.799
417	M	nMs	30	3	STIM	8	to NUP	0	43	78	13.8	10	3.8684
417	M	nMs	30	3	STIM	9	to RED	0	45	90	10.25	3	4.2488
417	M	nMs	30	3	STIM	10	to NUP	0	43	78	14	10	3.2462
417	M	nMs	30	3	STIM	11	to RED	0	45	90	10.05	3	5.2843
417	M	nMs	30	3	STIM	12	to NUP	0	45	90	12.85	8	3.4903
417	M	nMs	30	3	STIM	13	to RED	0	45	90	10	3	5.1272
417	M	nMs	30	3	STIM	14	to NUP	0	45	90	11.67	7	3.5969
417	M	nMs	30	3	STIM	15	to RED	0	45	90	10.52	2	4.6436
417	M	nMs	30	3	STIM	16	to NUP	0	45	90	11.9	6	5.1053
417	M	nMs	30	3	STIM	17	to RED	0	45	90	11	2	4.6067
417	M	nMs	30	3	STIM	18	to NUP	0	45	90	12.72	5	3.6804
417	M	nMs	30	3	STIM	19	to RED	0	45	90	10.58	2	4.1331
417	M	nMs	30	3	STIM	20	to NUP	0	45	90	11.47	5	3.8238
417	M	nMs	30	3	STIM	21	to RED	0	45	90	9.55	1.5	3.0126

417	M	nMs	30	3	STIM	22	to NUP	0	45	90	10.63	4	3.8033
417	M	nMs	30	3	STIM	23	to RED	0	45	90	10.23	1.5	4.7834
417	M	nMs	30	3	STIM	24	to NUP	0	45	90	9.92	3	3.5427
417	M	nMs	30	3	STIM	25	to RED	0	45	90	11.63	1.5	4.3046
417	M	nMs	30	3	STIM	26	to NUP	0	45	90	12.63	3	2.698
417	M	nMs	30	3	STIM	27	to RED	0	45	90	10.42	1	3.8729
417	M	nMs	30	3	STIM	28	to NUP	1	45	90	10.37	3	5.14
417	M	nMs	30	3	STIM	29	to RED	0	45	90	8.6	1	3.0849
417	M	nMs	30	3	STIM	30	to NUP	0	45	90	11.57	2.5	3.1075
417	M	nMs	30	3	STIM	31	to RED	0	45	90	10.42	1	4.5326
417	M	nMs	30	3	STIM	32	to NUP	0	45	90	11.62	2	3.8206
417	M	nMs	30	3	STIM	33	to RED	0	45	90	11.5	1	4.543
417	M	nMs	30	3	STIM	34	to NUP	0	45	90	10.68	2	3.4007
417	M	nMs	30	3	STIM	35	to RED	0	45	90	9.73	1	4.2033
417	M	nMs	30	3	STIM	36	to NUP	0	45	90	11.28	2	4.8779
417	M	nMs	23	3	POST	37	to RED	0	45	90	4.95	0.5	4.9486
417	M	nMs	23	3	POST	38	to NUP	0	45	90	7.85	1	4.7935
417	M	nMs	23	3	POST	39	to RED	0	45	90	6.65	0.5	4.9054
417	M	nMs	23	3	POST	40	to NUP	0	45	90	8.77	0.5	3.4335
417	M	nMs	23	3	POST	41	to RED	0	45	90	7.2	0.2	4.694
417	M	nMs	23	3	POST	42	to NUP	0	45	90	7.28	0.5	5.481
417	M	nMs	0	3	post		to RED	0	45	90		0	
417	M	nMs	0	3	post		to NUP	0	45	90		0	
417	M	nMs	0	3	post		to RED	0	45	90		0	
417	M	nMs	0	3	post		to NUP	0	45	90		0	
417	M	nMs	0	3	post		to RED	0	45	90		0	
417	M	nMs	0	3	post		to NUP	0	45	90		0	
417	M	nMs	0	3	calibration		NUP						
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417	M	nMs	0	3	calibration		NUP						
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418	M	nMs	0	1	calibration		NUP						
418	M	nMs	0	1	calibration		NUP						
418	M	nMs	0	1	pre		to RED	0	45	90	0	0	
418	M	nMs	0	1	pre		to NUP	0	45	90	0	0	
418	M	nMs	0	1	pre		to RED	0	45	90	0	0	
418	M	nMs	0	1	pre		to NUP	0	45	90	0	0	
418	M	nMs	0	1	pre		to RED	0	45	90	0	0	
418	M	nMs	0	1	pre		to NUP	0	45	90	0	0	
418	M	nMs	23	1	PRE	1	to RED	0	45	90	17.32	10	5.7976
418	M	nMs	23	1	PRE	2	to NUP	0	45	90	19.25	12	4.5363
418	M	nMs	23	1	PRE	3	to RED	0	50	120	22.63	10	5.7291
418	M	nMs	23	1	PRE	4	to NUP	0	45	90	21.38	13	3.6728
418	M	nMs	23	1	PRE	5	to RED	0	45	90	23.73	12	4.8743
418	M	nMs	23	1	PRE	6	to NUP	0	40	60	31.77	14	3.0227
418	M	nMs	14	1	STIM	7	to RED	0	45	90	12.87	8	2.9129
418	M	nMs	14	1	STIM	8	to NUP	0	45	90	15.77	7	3.6604
418	M	nMs	14	1	STIM	9	to RED	0	45	90	16.87	5	2.7752
418	M	nMs	14	1	STIM	10	to NUP	0	45	90	13.63	7	4.4137
418	M	nMs	14	1	STIM	11	to RED	0	45	90	8.15	4	3.792
418	M	nMs	14	1	STIM	12	to NUP	0	45	90	12.17	6	2.5336
418	M	nMs	14	1	STIM	13	to RED	0	45	90	12.42	5	4.7833
418	M	nMs	14	1	STIM	14	to NUP	1	45	90	15.58	6	3.2352
418	M	nMs	14	1	STIM	15	to RED	1	45	90	23.08	4	4.1472
418	M	nMs	14	1	STIM	16	to NUP	0	45	90	12.95	6	4.5925
418	M	nMs	14	1	STIM	17	to RED	0	45	90	13.2	5	4.3389
418	M	nMs	14	1	STIM	18	to NUP	0	45	90	16.12	7	3.6547
418	M	nMs	14	1	STIM	19	to RED	0	45	90	12.77	4	4.3835
418	M	nMs	14	1	STIM	20	to NUP	0	45	90	14.33	6	4.263
418	M	nMs	14	1	STIM	21	to RED	0	45	90	11.12	6	2.055
418	M	nMs	14	1	STIM	22	to NUP	0	45	90	15.73	7	3.4304
418	M	nMs	14	1	STIM	23	to RED	0	45	90	10.27	6	4.8866
418	M	nMs	14	1	STIM	24	to NUP	0	45	90	13.72	7	3.1421
418	M	nMs	14	1	STIM	25	to RED	0	45	90	13.5	5	4.9578
418	M	nMs	14	1	STIM	26	to NUP	0	45	90	15.17	6	4.0004
418	M	nMs	14	1	STIM	27	to RED	0	45	90	11.78	6	3.2987
418	M	nMs	14	1	STIM	28	to NUP	0	45	90	14.08	6	3.3176
418	M	nMs	14	1	STIM	29	to RED	0	45	90	11.75	6	4.3871
418	M	nMs	14	1	STIM	30	to NUP	0	45	90	14.92	7	2.72
418	M	nMs	14	1	STIM	31	to RED	0	45	90	12.43	6	3.1514
418	M	nMs	14	1	STIM	32	to NUP	0	45	90	13.55	6	2.9782
418	M	nMs	14	1	STIM	33	to RED	0	45	90	10.45	7	3.2789
418	M	nMs	14	1	STIM	34	to NUP	1	45	90	22.92	7	3.3035
418	M	nMs	14	1	STIM	35	to RED	1	45	90	12.47	5	3.4317
418	M	nMs	14	1	STIM	36	to NUP	1	45	90	16.62	7	2.0059
418	M	nMs	23	1	POST	37	to RED	2	40	60	15.78	11	3.1105
418	M	nMs	23	1	POST	38	to NUP	2	50	120	17.18	10	2.9377
418	M	nMs	23	1	POST	39	to RED	2	45	90	15.92	9	3.8118
418	M	nMs	23	1	POST	40	to NUP	3	42	72	14.3	9	4.9372
418	M	nMs	23	1	POST	41	to RED	3	45	90	16.53	8	5.3054
418	M	nMs	23	1	POST	42	to NUP	2	48	108	17.87	8	2.9399
418	M	nMs	0	1	post		to RED	2	45	90		1	
418	M	nMs	0	1	post		to NUP	1	45	90		0	
418	M	nMs	0	1	post		to RED	1	45	90		0	
418	M	nMs	0	1	post		to NUP	0	45	90		0	
418	M	nMs	0	1	post		to RED	0	45	90		0	
418	M	nMs	0	1	post		to NUP	0	45	90		0	
418	M	nMs	0	1	calibration		NUP						
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418	M	nMs	0	1	calibration		NUP						
418	M	nMs	0	2	calibration		NUP						
418	M	nMs	0	2	calibration		NUP						
418	M	nMs	0	2	calibration		NUP						
418	M	nMs	0	2	pre		to RED	0	45	90	0	0	
418	M	nMs	0	2	pre		to NUP	0	45	90	0	0	
418	M	nMs	0	2	pre		to RED	0	45	90	0	0	
418	M	nMs	0	2	pre		to NUP	0	45	90	0	0	
418	M	nMs	0	2	pre		to RED	0	45	90	0	0	

418	M	nMs	0	2	pre		to NUP	0	45	90	0	0	
418	M	nMs	23	2	PRE	1	to RED	0	45	90	14.02	8	2.7039
418	M	nMs	23	2	PRE	2	to NUP	0	45	90	16.22	11	3.3706
418	M	nMs	23	2	PRE	3	to RED	0	45	90	14.92	9	3.8178
418	M	nMs	23	2	PRE	4	to NUP	0	45	90	14.18	10	3.0675
418	M	nMs	23	2	PRE	5	to RED	0	45	90	13.38	7	3.1764
418	M	nMs	23	2	PRE	6	to NUP	0	45	90	15.97	9	3.4652
418	M	nMs	23	2	STIM	7	to RED	0	45	90	14.42	6	4.4066
418	M	nMs	23	2	STIM	8	to NUP	0	45	90	12.55	8	2.7949
418	M	nMs	23	2	STIM	9	to RED	0	45	90	13.58	6	2.8712
418	M	nMs	23	2	STIM	10	to NUP	0	45	90	15.78	7	2.2316
418	M	nMs	23	2	STIM	11	to RED	0	45	90	12.12	5	4.1765
418	M	nMs	23	2	STIM	12	to NUP	0	45	90	12.42	7	3.7384
418	M	nMs	23	2	STIM	13	to RED	0	45	90	14.25	6	4.3598
418	M	nMs	23	2	STIM	14	to NUP	0	45	90	12.57	7	3.2831
418	M	nMs	23	2	STIM	15	to RED	0	45	90	10.02	5	3.5416
418	M	nMs	23	2	STIM	16	to NUP	0	45	90	11.62	7	2.2064
418	M	nMs	23	2	STIM	17	to RED	0	45	90	12.1	4	4.4456
418	M	nMs	23	2	STIM	18	to NUP	0	45	90	12.68	6	2.5589
418	M	nMs	23	2	STIM	19	to RED	0	45	90	11.07	5	3.7944
418	M	nMs	23	2	STIM	20	to NUP	0	45	90	14.98	5	1.8625
418	M	nMs	23	2	STIM	21	to RED	0	45	90	11.48	3	3.5072
418	M	nMs	23	2	STIM	22	to NUP	0	45	90	10.65	5	2.4052
418	M	nMs	23	2	STIM	23	to RED	0	45	90	10.48	4	3.8292
418	M	nMs	23	2	STIM	24	to NUP	0	45	90	11.42	5	3.969
418	M	nMs	23	2	STIM	25	to RED	0	45	90	9.03	3	3.7455
418	M	nMs	23	2	STIM	26	to NUP	0	45	90	11.55	5	2.3149
418	M	nMs	23	2	STIM	27	to RED	0	45	90	9.12	3	4.0981
418	M	nMs	23	2	STIM	28	to NUP	1	45	90	11.37	5	3.1061
418	M	nMs	23	2	STIM	29	to RED	1	45	90	7.95	4	2.0738
418	M	nMs	23	2	STIM	30	to NUP	1	45	90	9.72	4	3.4055
418	M	nMs	23	2	STIM	31	to RED	1	45	90	7.7	3	2.9503
418	M	nMs	23	2	STIM	32	to NUP	1	45	90	11.25	4	1.9625
418	M	nMs	23	2	STIM	33	to RED	1	45	90	13.37	3	4.8661
418	M	nMs	23	2	STIM	34	to NUP	1	45	90	8.5	4	2.1054
418	M	nMs	23	2	STIM	35	to RED	1	45	90	11.07	3	3.4986
418	M	nMs	23	2	STIM	36	to NUP	1	45	90	7.98	4	2.2049
418	M	nMs	23	2	POST	37	to RED	1	45	90	7.75	3	4.5262
418	M	nMs	23	2	POST	38	to NUP	1	45	90	6.22	4	4.4424
418	M	nMs	23	2	POST	39	to RED	1	45	90	8.63	3	3.5326
418	M	nMs	23	2	POST	40	to NUP	1	45	90	11.58	4	3.0307
418	M	nMs	23	2	POST	41	to RED	0	45	90	8.33	3	2.4637
418	M	nMs	23	2	POST	42	to NUP	0	45	90	9.38	4	1.9148
418	M	nMs	0	2	post		to RED	0	45	90		0	
418	M	nMs	0	2	post		to NUP	0	45	90		0	
418	M	nMs	0	2	post		to RED	0	45	90		0	
418	M	nMs	0	2	post		to NUP	0	45	90		0	
418	M	nMs	0	2	post		to RED	0	45	90		0	
418	M	nMs	0	2	post		to NUP	0	45	90		0	
418	M	nMs	0	2	calibration		NUP						
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418	M	nMs	0	3	calibration		NUP						
418	M	nMs	0	3	calibration		NUP						
418	M	nMs	0	3	calibration		NUP						
418	M	nMs	0	3	pre		to RED	0	45	90	0	0	
418	M	nMs	0	3	pre		to NUP	0	45	90	0	0	
418	M	nMs	0	3	pre		to RED	0	45	90	0	0	
418	M	nMs	0	3	pre		to NUP	0	45	90	0	0	
418	M	nMs	0	3	pre		to RED	0	45	90	0	0	
418	M	nMs	0	3	pre		to NUP	0	45	90	0	0	
418	M	nMs	23	3	PRE	1	to RED	0	45	90	9.13	7	3.1493
418	M	nMs	23	3	PRE	2	to NUP	0	45	90	8.9	9	3.3323
418	M	nMs	23	3	PRE	3	to RED	0	45	90	9.43	6	3.4177
418	M	nMs	23	3	PRE	4	to NUP	0	45	90	11.47	9	2.3173
418	M	nMs	23	3	PRE	5	to RED	0	45	90	8.72	7	2.5567
418	M	nMs	23	3	PRE	6	to NUP	0	45	90	6.42	8	3.1754
418	M	nMs	30	3	STIM	7	to RED	0	45	90	10.2	9	4.9734
418	M	nMs	30	3	STIM	8	to NUP	0	45	90	12.33	9	2.6864
418	M	nMs	30	3	STIM	9	to RED	0	45	90	8.98	8	2.7391
418	M	nMs	30	3	STIM	10	to NUP	0	45	90	11.98	7	3.2463
418	M	nMs	30	3	STIM	11	to RED	0	45	90	11.68	7	4.2428
418	M	nMs	30	3	STIM	12	to NUP	0	45	90	11.42	8	3.4095
418	M	nMs	30	3	STIM	13	to RED	0	45	90	9.48	7	3.6643
418	M	nMs	30	3	STIM	14	to NUP	0	45	90	8.58	6	2.5191
418	M	nMs	30	3	STIM	15	to RED	0	45	90	10.35	6	3.0237
418	M	nMs	30	3	STIM	16	to NUP	0	45	90	12.03	7	1.954
418	M	nMs	30	3	STIM	17	to RED	0	45	90	11.92	7	4.8963
418	M	nMs	30	3	STIM	18	to NUP	0	45	90	10.4	6	3.5751
418	M	nMs	30	3	STIM	19	to RED	0	45	90	8.48	7	4.3932
418	M	nMs	30	3	STIM	20	to NUP	0	45	90	11.92	7	2.0189
418	M	nMs	30	3	STIM	21	to RED	0	45	90	9.15	6	3.3512
418	M	nMs	30	3	STIM	22	to NUP	0	45	90	11.82	7	2.2166
418	M	nMs	30	3	STIM	23	to RED	0	45	90	7.38	6	4.2232
418	M	nMs	30	3	STIM	24	to NUP	0	45	90	8.93	6	2.7078
418	M	nMs	30	3	STIM	25	to RED	0	45	90	8	5	4.0909
418	M	nMs	30	3	STIM	26	to NUP	0	45	90	12	7	4.4746
418	M	nMs	30	3	STIM	27	to RED	0	45	90	8.83	6	4.5306
418	M	nMs	30	3	STIM	28	to NUP	0	45	90	9.28	6	2.6338
418	M	nMs	30	3	STIM	29	to RED	0	45	90	6.8	5	3.1221
418	M	nMs	30	3	STIM	30	to NUP	0	45	90	5	5	3.5076
418	M	nMs	30	3	STIM	31	to RED	0	45	90	6.08	5	2.8125
418	M	nMs	30	3	STIM	32	to NUP	0	45	90	6.95	6	2.2285
418	M	nMs	30	3	STIM	33	to RED	0	45	90	6.68	5	4.7935
418	M	nMs	30	3	STIM	34	to NUP	0	45	90	8.95	6	3.0402
418	M	nMs	30	3	STIM	35	to RED	0	45	90	5.78	4	4.5923
418	M	nMs	30	3	STIM	36	to NUP	0	45	90	9.37	5	3.4346
418	M	nMs	23	3	POST	37	to RED	0	45	90	2.72	2	3.615

418	M	nMs	23	3	POST	38	to NUP	0	45	90	5.02	4	3.3391
418	M	nMs	23	3	POST	39	to RED	0	45	90	4.18	3	3.7023
418	M	nMs	23	3	POST	40	to NUP	0	45	90	6.92	3	3.6321
418	M	nMs	23	3	POST	41	to RED	0	45	90	6.35	3	4.1758
418	M	nMs	23	3	POST	42	to NUP	0	45	90	6.7	3	3.0884
418	M	nMs	0	3	post		to RED	0	45	90		0	
418	M	nMs	0	3	post		to NUP	0	45	90		0	
418	M	nMs	0	3	post		to RED	0	45	90		0	
418	M	nMs	0	3	post		to NUP	0	45	90		0	
418	M	nMs	0	3	post		to RED	0	45	90		0	
418	M	nMs	0	3	post		to NUP	0	45	90		0	
418	M	nMs	0	3	calibration		NUP						
418	M	nMs	0	3	calibration		NUP						
418	M	nMs	0	3	calibration		NUP						
419	F	nMs	0	1	calibration		NUP						
419	F	nMs	0	1	calibration		NUP						
419	F	nMs	0	1	calibration		NUP						
419	F	nMs	0	1	pre		to RED	0	45	90	0	0	
419	F	nMs	0	1	pre		to NUP	0	45	90	0	0	
419	F	nMs	0	1	pre		to RED	0	45	90	0	0	
419	F	nMs	0	1	pre		to NUP	0	45	90	0	0	
419	F	nMs	0	1	pre		to RED	0	45	90	0	0	
419	F	nMs	0	1	pre		to NUP	0	45	90	0	0	
419	F	nMs	23	1	PRE	1	to RED	0	47	102	11.63	10	7.3172
419	F	nMs	23	1	PRE	2	to NUP	0	46	96	14.1	14	5.0506
419	F	nMs	23	1	PRE	3	to RED	0	45	90	9.55	12	8.2269
419	F	nMs	23	1	PRE	4	to NUP	0	44	84	13.27	14	4.4319
419	F	nMs	23	1	PRE	5	to RED	0	46	96	8.22	11	7.9894
419	F	nMs	23	1	PRE	6	to NUP	0	45	90	15.25	13	5.8278
419	F	nMs	14	1	STIM	7	to RED	0	47	102	3.52	8	8.1761
419	F	nMs	14	1	STIM	8	to NUP	0	45	90	8.65	11	5.6497
419	F	nMs	14	1	STIM	9	to RED	0	44	84	8.53	7	8.3703
419	F	nMs	14	1	STIM	10	to NUP	0	43	78	9.4	12	5.2857
419	F	nMs	14	1	STIM	11	to RED	0	47	102	8.32	7	7.1566
419	F	nMs	14	1	STIM	12	to NUP	0	44	84	8.78	12	5.664
419	F	nMs	14	1	STIM	13	to RED	0	47	102	3.93	6	7.0189
419	F	nMs	14	1	STIM	14	to NUP	0	44	84	7.02	9	5.7293
419	F	nMs	14	1	STIM	15	to RED	0	47	102	2.82	5	6.8005
419	F	nMs	14	1	STIM	16	to NUP	0	44	84	7.08	7	6.2155
419	F	nMs	14	1	STIM	17	to RED	0	46	96	4.72	4	7.0123
419	F	nMs	14	1	STIM	18	to NUP	0	44	84	9.25	7	5.4916
419	F	nMs	14	1	STIM	19	to RED	0	46	96	3.45	3	7.0025
419	F	nMs	14	1	STIM	20	to NUP	0	44	84	6.35	5	5.6938
419	F	nMs	14	1	STIM	21	to RED	0	47	102	3.98	2	6.5263
419	F	nMs	14	1	STIM	22	to NUP	0	45	90	11.52	5	5.0512
419	F	nMs	14	1	STIM	23	to RED	0	46	96	4.78	3	5.7178
419	F	nMs	14	1	STIM	24	to NUP	0	45	90	5.85	5	4.9084
419	F	nMs	14	1	STIM	25	to RED	0	46	96	4.17	3	6.213
419	F	nMs	14	1	STIM	26	to NUP	0	45	90	6.63	4	4.7056
419	F	nMs	14	1	STIM	27	to RED	0	46	96	5.28	3	5.9
419	F	nMs	14	1	STIM	28	to NUP	0	45	90	6.75	4	4.6382
419	F	nMs	14	1	STIM	29	to RED	0	46	96	2.68	2	6.3018
419	F	nMs	14	1	STIM	30	to NUP	0	44	84	4.45	4	5.8723
419	F	nMs	14	1	STIM	31	to RED	0	45	90	4.73	2	6.3126
419	F	nMs	14	1	STIM	32	to NUP	0	45	90	6.07	4	6.3914
419	F	nMs	14	1	STIM	33	to RED	0	46	96	3.57	2	4.4693
419	F	nMs	14	1	STIM	34	to NUP	0	44	84	5.5	4	3.0525
419	F	nMs	14	1	STIM	35	to RED	0	44	84	4.72	2	6.6404
419	F	nMs	14	1	STIM	36	to NUP	0	44	84	5.52	4	3.2946
419	F	nMs	23	1	POST	37	to RED	0	47	102	5.35	4	6.7087
419	F	nMs	23	1	POST	38	to NUP	0	44	84	10.95	6	4.5599
419	F	nMs	23	1	POST	39	to RED	0	45	90	7.9	4	7.098
419	F	nMs	23	1	POST	40	to NUP	0	43	78	6.45	6	4.2325
419	F	nMs	23	1	POST	41	to RED	0	46	96	4.8	3	5.6542
419	F	nMs	23	1	POST	42	to NUP	0	44	84	6.52	6	4.3227
419	F	nMs	0	1	post		to RED	0	45	90		0	
419	F	nMs	0	1	post		to NUP	0	45	90		0	
419	F	nMs	0	1	post		to RED	0	45	90		0	
419	F	nMs	0	1	post		to NUP	0	45	90		0	
419	F	nMs	0	1	post		to RED	0	45	90		0	
419	F	nMs	0	1	post		to NUP	0	45	90		0	
419	F	nMs	0	1	calibration		NUP						
419	F	nMs	0	1	calibration		NUP						
419	F	nMs	0	1	calibration		NUP						
419	F	nMs	0	2	calibration		NUP						
419	F	nMs	0	2	calibration		NUP						
419	F	nMs	0	2	calibration		NUP						
419	F	nMs	0	2	pre		to RED	0	45	90	0	0	
419	F	nMs	0	2	pre		to NUP	0	45	90	0	0	
419	F	nMs	0	2	pre		to RED	0	45	90	0	0	
419	F	nMs	0	2	pre		to NUP	0	45	90	0	0	
419	F	nMs	0	2	pre		to RED	0	45	90	0	0	
419	F	nMs	0	2	pre		to NUP	0	45	90	0	0	
419	F	nMs	23	2	PRE	1	to RED	0	47	102	5.28	6	5.4797
419	F	nMs	23	2	PRE	2	to NUP	0	44	84	11.43	9	5.2442
419	F	nMs	23	2	PRE	3	to RED	0	46	96	8.52	5	7.6897
419	F	nMs	23	2	PRE	4	to NUP	0	43	78	10.48	8	4.3785
419	F	nMs	23	2	PRE	5	to RED	0	47	102	7.28	5	6.5743
419	F	nMs	23	2	PRE	6	to NUP	0	43	78	9.42	7	4.8185
419	F	nMs	23	2	STIM	7	to RED	0	47	102	9.62	5	5.1716
419	F	nMs	23	2	STIM	8	to NUP	0	43	78	11.25	8	4.0331
419	F	nMs	23	2	STIM	9	to RED	0	46	96	8.38	4	6.7779
419	F	nMs	23	2	STIM	10	to NUP	0	44	84	8.25	6	4.8554
419	F	nMs	23	2	STIM	11	to RED	0	46	96	5.37	3	5.9482
419	F	nMs	23	2	STIM	12	to NUP	0	44	84	6.8	5	5.0273
419	F	nMs	23	2	STIM	13	to RED	0	46	96	5.53	4	5.7899
419	F	nMs	23	2	STIM	14	to NUP	0	44	84	7.57	5	3.7632
419	F	nMs	23	2	STIM	15	to RED	0	45	90	5.37	3	6.9511

419	F	nMs	23	2	STIM	16	to NUP	0	44	84	5.57	4	5.3685
419	F	nMs	23	2	STIM	17	to RED	0	46	96	5.87	3	4.7679
419	F	nMs	23	2	STIM	18	to NUP	0	45	90	7.27	4	4.5084
419	F	nMs	23	2	STIM	19	to RED	0	45	90	4.37	2	5.0931
419	F	nMs	23	2	STIM	20	to NUP	0	45	90	6.87	4	5.6347
419	F	nMs	23	2	STIM	21	to RED	0	45.5	93	4.05	2	5.2398
419	F	nMs	23	2	STIM	22	to NUP	0	45	90	7.55	3	3.9008
419	F	nMs	23	2	STIM	23	to RED	0	45.5	93	5.6	1.5	5.5227
419	F	nMs	23	2	STIM	24	to NUP	0	45	90	6.18	2.5	2.925
419	F	nMs	23	2	STIM	25	to RED	0	45	90	3.87	1	5.7917
419	F	nMs	23	2	STIM	26	to NUP	0	45	90	5.38	2	3.7848
419	F	nMs	23	2	STIM	27	to RED	0	45	90	3.05	0.5	4.6938
419	F	nMs	23	2	STIM	28	to NUP	0	45	90	4.05	2	3.9545
419	F	nMs	23	2	STIM	29	to RED	0	45	90	3.1	0.5	5.2778
419	F	nMs	23	2	STIM	30	to NUP	0	45	90	4.27	2	4.4212
419	F	nMs	23	2	STIM	31	to RED	0	45	90	3.37	0.5	4.068
419	F	nMs	23	2	STIM	32	to NUP	0	45	90	4.45	2	3.6953
419	F	nMs	23	2	STIM	33	to RED	0	45	90	3.7	1	4.5621
419	F	nMs	23	2	STIM	34	to NUP	0	45	90	5.45	2	3.215
419	F	nMs	23	2	STIM	35	to RED	0	45	90	3.58	0.5	3.9955
419	F	nMs	23	2	STIM	36	to NUP	0	45	90	4.62	1.5	2.2653
419	F	nMs	23	2	POST	37	to RED	0	45	90	2.32	0.5	3.3305
419	F	nMs	23	2	POST	38	to NUP	0	45	90	7.95	2	2.8936
419	F	nMs	23	2	POST	39	to RED	0	45	90	2.77	0.5	3.7065
419	F	nMs	23	2	POST	40	to NUP	0	45	90	5.1	2	3.7825
419	F	nMs	23	2	POST	41	to RED	0	45	90	4.47	1	4.0415
419	F	nMs	23	2	POST	42	to NUP	1	45	90	6.87	2	2.4151
419	F	nMs	0	2	post		to RED	0	45	90		0	
419	F	nMs	0	2	post		to NUP	0	45	90		0	
419	F	nMs	0	2	post		to RED	0	45	90		0	
419	F	nMs	0	2	post		to NUP	0	45	90		0	
419	F	nMs	0	2	post		to RED	0	45	90		0	
419	F	nMs	0	2	post		to NUP	0	45	90		0	
419	F	nMs	0	2	calibration		NUP						
419	F	nMs	0	2	calibration		NUP						
419	F	nMs	0	2	calibration		NUP						
419	F	nMs	0	3	calibration		NUP						
419	F	nMs	0	3	calibration		NUP						
419	F	nMs	0	3	calibration		NUP						
419	F	nMs	0	3	pre		to RED	0	45	90	0	0	
419	F	nMs	0	3	pre		to NUP	0	45	90	0	0	
419	F	nMs	0	3	pre		to RED	0	45	90	0	0	
419	F	nMs	0	3	pre		to NUP	0	45	90	0	0	
419	F	nMs	0	3	pre		to RED	0	45	90	0	0	
419	F	nMs	0	3	pre		to NUP	0	45	90	0	0	
419	F	nMs	23	3	PRE	1	to RED	0	46	96	5.22	5	5.7471
419	F	nMs	23	3	PRE	2	to NUP	0	44	84	9.13	7	3.2791
419	F	nMs	23	3	PRE	3	to RED	0	45	90	7.4	4	2.3537
419	F	nMs	23	3	PRE	4	to NUP	0	45	90	9.73	6	4.798
419	F	nMs	23	3	PRE	5	to RED	0	45	90	5.77	3	5.9445
419	F	nMs	23	3	PRE	6	to NUP	0	45	90	6.68	4	2.8778
419	F	nMs	30	3	STIM	7	to RED	0	45	90	3.55	3	5.8799
419	F	nMs	30	3	STIM	8	to NUP	0	45	90	10.32	6	3.7349
419	F	nMs	30	3	STIM	9	to RED	0	45	90	4.98	2	4.9393
419	F	nMs	30	3	STIM	10	to NUP	0	44	84	9.58	5	2.605
419	F	nMs	30	3	STIM	11	to RED	0	45	90	7.67	3	5.5984
419	F	nMs	30	3	STIM	12	to NUP	0	45	90	7.72	4	2.7208
419	F	nMs	30	3	STIM	13	to RED	0	45	90	6.07	3	2.3834
419	F	nMs	30	3	STIM	14	to NUP	0	45	90	5.53	3	3.4141
419	F	nMs	30	3	STIM	15	to RED	0	45	90	6.35	3	3.9639
419	F	nMs	30	3	STIM	16	to NUP	0	45	90	5.85	3	4.4033
419	F	nMs	30	3	STIM	17	to RED	0	45	90	4.6	3	4.4748
419	F	nMs	30	3	STIM	18	to NUP	0	44	84	4.67	4	4.1338
419	F	nMs	30	3	STIM	19	to RED	0	45	90	4.8	3	2.2974
419	F	nMs	30	3	STIM	20	to NUP	1	45	90	6.6	3	2.5197
419	F	nMs	30	3	STIM	21	to RED	0	45	90	4.65	3	4.2823
419	F	nMs	30	3	STIM	22	to NUP	0	44	84	5.25	3	2.7791
419	F	nMs	30	3	STIM	23	to RED	0	45	90	4.4	3	2.1168
419	F	nMs	30	3	STIM	24	to NUP	0	45	90	5.97	3	3.4026
419	F	nMs	30	3	STIM	25	to RED	0	45	90	6.72	3	2.1371
419	F	nMs	30	3	STIM	26	to NUP	0	45	90	5.68	3	2.6308
419	F	nMs	30	3	STIM	27	to RED	0	45	90	2.9	2	1.9959
419	F	nMs	30	3	STIM	28	to NUP	0	45	90	5.12	3	3.5199
419	F	nMs	30	3	STIM	29	to RED	0	45	90	3.77	2	3.2628
419	F	nMs	30	3	STIM	30	to NUP	1	45	90	3.9	3	4.0815
419	F	nMs	30	3	STIM	31	to RED	0	45	90	4.92	3	3.5897
419	F	nMs	30	3	STIM	32	to NUP	1	45	90	5.45	3	2.9378
419	F	nMs	30	3	STIM	33	to RED	1	45	90	4.42	2	3.9529
419	F	nMs	30	3	STIM	34	to NUP	1	45	90	4.97	3.5	3.2493
419	F	nMs	30	3	STIM	35	to RED	1	45	90	4.65	3	4.2189
419	F	nMs	30	3	STIM	36	to NUP	1	45	90	6.52	2.5	3.0055
419	F	nMs	23	3	POST	37	to RED	0	45	90	2.8	0.5	2.5411
419	F	nMs	23	3	POST	38	to NUP	0	45	90	3.05	1	3.4321
419	F	nMs	23	3	POST	39	to RED	0	45	90	6.13	0.5	2.89
419	F	nMs	23	3	POST	40	to NUP	1	45	90	3.92	1	3.6051
419	F	nMs	23	3	POST	41	to RED	0	45	90	5.15	0.5	3.9947
419	F	nMs	23	3	POST	42	to NUP	0	45	90	3.5	1	2.6641
419	F	nMs	0	3	post		to RED	0	45	90		0	
419	F	nMs	0	3	post		to NUP	0	45	90		0	
419	F	nMs	0	3	post		to RED	0	45	90		0	
419	F	nMs	0	3	post		to NUP	0	45	90		0	
419	F	nMs	0	3	post		to RED	0	45	90		0	
419	F	nMs	0	3	post		to NUP	0	45	90		0	
419	F	nMs	0	3	calibration		NUP						
419	F	nMs	0	3	calibration		NUP						
419	F	nMs	0	3	calibration		NUP						
420	F	MS	0	1	calibration		NUP						
420	F	MS	0	1	calibration		NUP						

420	F	MS	0	1	calibration		NUP						
420	F	MS	0	1	pre		to RED	0	45	90	0	0	
420	F	MS	0	1	pre		to NUP	0	45	90	0	0	
420	F	MS	0	1	pre		to RED	0	45	90	0	0	
420	F	MS	0	1	pre		to NUP	0	45	90	0	0	
420	F	MS	0	1	pre		to RED	0	45	90	0	0	
420	F	MS	0	1	pre		to NUP	0	45	90	0	0	
420	F	MS	23	1	PRE	1	to RED	0	45	90	9.13	10	5.2438
420	F	MS	23	1	PRE	2	to NUP	0	43	78	11.6	10	6.3687
420	F	MS	23	1	PRE	3	to RED	0	43	78	11.02	12	5.5525
420	F	MS	23	1	PRE	4	to NUP	0	43	78	13.17	13	6.521
420	F	MS	23	1	PRE	5	to RED	0	42	72	8.23	11	5.6933
420	F	MS	23	1	PRE	6	to NUP	0	42	72	12.12	12	4.7946
420	F	MS	14	1	STIM	7	to RED	2	45	90	4.82	5	5.3175
420	F	MS	14	1	STIM	8	to NUP	3	45	90	7.23	6	4.5617
420	F	MS	14	1	STIM	9	to RED	3	45	90	5	5	4.9598
420	F	MS	14	1	STIM	10	to NUP	3	45	90	6.82	6	4.2533
420	F	MS	14	1	STIM	11	to RED	2	45	90	4.2	4	4.5973
420	F	MS	14	1	STIM	12	to NUP	3	45	90	6.98	5	5.6656
420	F	MS	14	1	STIM	13	to RED	3	45	90	6.43	5	5.1641
420	F	MS	14	1	STIM	14	to NUP	3	45	90	6.97	6	3.6685
420	F	MS	14	1	STIM	15	to RED	2	45	90	4.67	4	3.6415
420	F	MS	14	1	STIM	16	to NUP	1	45	90	7.52	5	5.1656
420	F	MS	14	1	STIM	17	to RED	0	45	90	4.95	4	5.3034
420	F	MS	14	1	STIM	18	to NUP	0	45	90	6.07	5	5.8595
420	F	MS	14	1	STIM	19	to RED	1	45	90	5.25	4	4.6683
420	F	MS	14	1	STIM	20	to NUP	0	45	90	6.08	5	5.4709
420	F	MS	14	1	STIM	21	to RED	0	45	90	6.7	4	3.1705
420	F	MS	14	1	STIM	22	to NUP	0	45	90	7.92	5	4.7084
420	F	MS	14	1	STIM	23	to RED	2	45	90	6.33	4	3.274
420	F	MS	14	1	STIM	24	to NUP	3	45	90	7.12	5	4.0926
420	F	MS	14	1	STIM	25	to RED	4	45	90	5.7	5	4.1971
420	F	MS	14	1	STIM	26	to NUP	4	45	90	6.28	4	6.1614
420	F	MS	14	1	STIM	27	to RED	4	45	90	5.9	5	3.2999
420	F	MS	14	1	STIM	28	to NUP	4	45	90	6.57	5	3.2161
420	F	MS	14	1	STIM	29	to RED	5	45	90	4.97	3	4.007
420	F	MS	14	1	STIM	30	to NUP	5	45	90	5.97	4	3.6259
420	F	MS	14	1	STIM	31	to RED	5	45	90	5.78	5	3.0497
420	F	MS	14	1	STIM	32	to NUP	6	45	90	4.83	4	4.4035
420	F	MS	14	1	STIM	33	to RED	6	45	90	4.63	4	4.3369
420	F	MS	14	1	STIM	34	to NUP	6	45	90	5.87	4	4.868
420	F	MS	14	1	STIM	35	to RED	7	45	90	4.33	3	3.3438
420	F	MS	14	1	STIM	36	to NUP	7	45	90	6.02	3	2.4425
420	F	MS	23	1	POST	37	to RED	7	43	78	6.15	8	4.4598
420	F	MS	23	1	POST	38	to NUP	7	43	78	7.3	8	4.3109
420	F	MS	23	1	POST	39	to RED	7	42	72	6.23	7	3.4738
420	F	MS	23	1	POST	40	to NUP	7	42	72	7.68	8	4.6655
420	F	MS	23	1	POST	41	to RED	6	42	72	6.98	7	3.7827
420	F	MS	23	1	POST	42	to NUP	6	42	72	8.13	8	3.3625
420	F	MS	0	1	post		to RED	8	45	90		2	
420	F	MS	0	1	post		to NUP	8	45	90		2	
420	F	MS	0	1	post		to RED	8	45	90		1	
420	F	MS	0	1	post		to NUP	8	45	90		1	
420	F	MS	0	1	post		to RED	8	45	90		0	
420	F	MS	0	1	post		to NUP	8	45	90		0	
420	F	MS	0	1	calibration		NUP						
420	F	MS	0	1	calibration		NUP						
420	F	MS	0	1	calibration		NUP						
420	F	MS	0	2	calibration		NUP						
420	F	MS	0	2	calibration		NUP						
420	F	MS	0	2	calibration		NUP						
420	F	MS	0	2	pre		to RED	0	45	90	0	0	
420	F	MS	0	2	pre		to NUP	0	45	90	0	0	
420	F	MS	0	2	pre		to RED	0	45	90	0	0	
420	F	MS	0	2	pre		to NUP	0	45	90	0	0	
420	F	MS	0	2	pre		to RED	0	45	90	0	0	
420	F	MS	0	2	pre		to NUP	0	45	90	0	0	
420	F	MS	23	2	PRE	1	to RED	0	45	90	5.9	6	4.3664
420	F	MS	23	2	PRE	2	to NUP	0	44	84	8.72	8	4.7558
420	F	MS	23	2	PRE	3	to RED	0	44	84	5.9	6	3.4338
420	F	MS	23	2	PRE	4	to NUP	0	43	78	9.3	8	4.4356
420	F	MS	23	2	PRE	5	to RED	0	43	78	5.87	5	5.3521
420	F	MS	23	2	PRE	6	to NUP	0	43	78	8.82	9	3.9314
420	F	MS	23	2	STIM	7	to RED	0	43	78	6.32	7	4.2593
420	F	MS	23	2	STIM	8	to NUP	0	43	78	8.75	9	4.3304
420	F	MS	23	2	STIM	9	to RED	0	43	78	7.38	7	2.6832
420	F	MS	23	2	STIM	10	to NUP	0	43	78	9.58	9	3.2561
420	F	MS	23	2	STIM	11	to RED	0	43	78	4.07	5	4.3468
420	F	MS	23	2	STIM	12	to NUP	0	43	78	8.43	8	4.2723
420	F	MS	23	2	STIM	13	to RED	0	43	78	8	6	3.1764
420	F	MS	23	2	STIM	14	to NUP	0	43	78	7.65	7	3.9437
420	F	MS	23	2	STIM	15	to RED	0	43	78	8.4	6	4.2197
420	F	MS	23	2	STIM	16	to NUP	0	43	78	8.53	7	3.0403
420	F	MS	23	2	STIM	17	to RED	0	43	78	5.05	5	3.1432
420	F	MS	23	2	STIM	18	to NUP	0	43	78	6.88	7	3.2391
420	F	MS	23	2	STIM	19	to RED	0	43	78	4.37	4	4.1002
420	F	MS	23	2	STIM	20	to NUP	0	43	78	9.1	8	3.7006
420	F	MS	23	2	STIM	21	to RED	0	43	78	6.52	6	4.5839
420	F	MS	23	2	STIM	22	to NUP	0	43	78	7.75	7	3.4777
420	F	MS	23	2	STIM	23	to RED	0	43	78	4.72	4	4.7082
420	F	MS	23	2	STIM	24	to NUP	1	43	78	6.85	6	5.2562
420	F	MS	23	2	STIM	25	to RED	0	43	78	4.52	4	5.66
420	F	MS	23	2	STIM	26	to NUP	0	43	78	6.07	5	2.7333
420	F	MS	23	2	STIM	27	to RED	1	43	78	3.75	3	4.6473
420	F	MS	23	2	STIM	28	to NUP	1	43	78	8	5	2.3394
420	F	MS	23	2	STIM	29	to RED	2	43	78	5.62	4	3.8326
420	F	MS	23	2	STIM	30	to NUP	2	43	78	7.13	4	3.1791
420	F	MS	23	2	STIM	31	to RED	2	43	78	4.87	3	4.1947

420	F	MS	23	2	STIM	32	to NUP	3	43	78	5.55	4	2.9111
420	F	MS	23	2	STIM	33	to RED	3	43	78	5.8	4	3.3211
420	F	MS	23	2	STIM	34	to NUP	3	43	78	7.13	4	3.4846
420	F	MS	23	2	STIM	35	to RED	4	43	78	7.6	4	3.801
420	F	MS	23	2	STIM	36	to NUP	4	43	78	5.33	4	3.9273
420	F	MS	23	2	POST	37	to RED	4	43	78	4.3	3	3.4765
420	F	MS	23	2	POST	38	to NUP	4	43	78	4.33	4	4.1488
420	F	MS	23	2	POST	39	to RED	5	43	78	4.3	3	3.5244
420	F	MS	23	2	POST	40	to NUP	5	43	78	5.23	3	5.2627
420	F	MS	23	2	POST	41	to RED	5	43	78	4.3	4	3.1894
420	F	MS	23	2	POST	42	to NUP	5	43	78	4.37	3	5.1999
420	F	MS	0	2	post		to RED	8	47	102		1	
420	F	MS	0	2	post		to NUP	8	47	102		1	
420	F	MS	0	2	post		to RED	8	46	96		0	
420	F	MS	0	2	post		to NUP	8	45	90		0	
420	F	MS	0	2	post		to RED	8	45	90		0	
420	F	MS	0	2	post		to NUP	8	45	90		0	
420	F	MS	0	2	calibration		NUP						
420	F	MS	0	2	calibration		NUP						
420	F	MS	0	2	calibration		NUP						
420	F	MS	0	3	calibration		NUP						
420	F	MS	0	3	calibration		NUP						
420	F	MS	0	3	calibration		NUP						
420	F	MS	0	3	pre		to RED	0	45	90	0	0	
420	F	MS	0	3	pre		to NUP	0	45	90	0	0	
420	F	MS	0	3	pre		to RED	0	45	90	0	0	
420	F	MS	0	3	pre		to NUP	0	45	90	0	0	
420	F	MS	0	3	pre		to RED	0	45	90	0	0	
420	F	MS	0	3	pre		to NUP	0	45	90	0	0	
420	F	MS	23	3	PRE	1	to RED	0	44	84	3.8	3	4.5668
420	F	MS	23	3	PRE	2	to NUP	0	43	78	5.02	4	4.6964
420	F	MS	23	3	PRE	3	to RED	0	43	78	3.47	3	4.0052
420	F	MS	23	3	PRE	4	to NUP	0	43	78	6.38	4	3.113
420	F	MS	23	3	PRE	5	to RED	0	43	78	5.18	3	4.353
420	F	MS	23	3	PRE	6	to NUP	0	43	78	6.38	4	2.6081
420	F	MS	30	3	STIM	7	to RED	0	43	78	5.75	4	3.3985
420	F	MS	30	3	STIM	8	to NUP	0	42	72	6	5	3.3428
420	F	MS	30	3	STIM	9	to RED	0	42	72	4.98	3	2.2037
420	F	MS	30	3	STIM	10	to NUP	0	42	72	6.82	4	4.6871
420	F	MS	30	3	STIM	11	to RED	0	42	72	4.55	3	2.9483
420	F	MS	30	3	STIM	12	to NUP	0	42	72	6.78	3	4.4241
420	F	MS	30	3	STIM	13	to RED	0	42	72	3.8	2	2.635
420	F	MS	30	3	STIM	14	to NUP	0	42	72	5.47	3	2.7051
420	F	MS	30	3	STIM	15	to RED	0	42	72	4.27	2	4.0253
420	F	MS	30	3	STIM	16	to NUP	0	42	72	4.22	3	4.8481
420	F	MS	30	3	STIM	17	to RED	0	42	72	5.47	3	3.1723
420	F	MS	30	3	STIM	18	to NUP	0	42	72	5.93	3	4.2163
420	F	MS	30	3	STIM	19	to RED	0	42	72	4.85	2	3.4886
420	F	MS	30	3	STIM	20	to NUP	0	42	72	5.52	4	4.6728
420	F	MS	30	3	STIM	21	to RED	0	42	72	4.15	2	3.6285
420	F	MS	30	3	STIM	22	to NUP	0	42	72	5.15	3	4.38
420	F	MS	30	3	STIM	23	to RED	0	42	72	3.28	3	4.074
420	F	MS	30	3	STIM	24	to NUP	0	42	72	6.07	4	3.6363
420	F	MS	30	3	STIM	25	to RED	0	42	72	4.93	3	3.7073
420	F	MS	30	3	STIM	26	to NUP	0	42	72	6.72	4	3.4147
420	F	MS	30	3	STIM	27	to RED	0	42	72	4	3	2.3401
420	F	MS	30	3	STIM	28	to NUP	0	42	72	6.92	4	4.8929
420	F	MS	30	3	STIM	29	to RED	0	42	72	3.97	3	3.8303
420	F	MS	30	3	STIM	30	to NUP	0	42	72	6.07	4	3.5257
420	F	MS	30	3	STIM	31	to RED	0	42	72	2.72	2	4.0498
420	F	MS	30	3	STIM	32	to NUP	0	42	72	5.28	3	4.7743
420	F	MS	30	3	STIM	33	to RED	0	42	72	4.7	3	2.3791
420	F	MS	30	3	STIM	34	to NUP	0	42	72	7.93	4	4.2014
420	F	MS	30	3	STIM	35	to RED	0	42	72	5.35	3	3.5127
420	F	MS	30	3	STIM	36	to NUP	0	42	72	5.65	3	3.1514
420	F	MS	23	3	POST	37	to RED	0	44	84	1.82	1	4.0374
420	F	MS	23	3	POST	38	to NUP	0	44	84	3.52	3	3.4333
420	F	MS	23	3	POST	39	to RED	0	44	84	0	0	4.2313
420	F	MS	23	3	POST	40	to NUP	0	44	84	4	1	4.3379
420	F	MS	23	3	POST	41	to RED	0	45	90	0	0	4.8481
420	F	MS	23	3	POST	42	to NUP	0	44	84	3.48	1	3.9739
420	F	MS	0	3	post		to RED	0	47	102		0	
420	F	MS	0	3	post		to NUP	0	47	102		0	
420	F	MS	0	3	post		to RED	0	46	96		0	
420	F	MS	0	3	post		to NUP	0	47	102		0	
420	F	MS	0	3	post		to RED	0	47	102		0	
420	F	MS	0	3	post		to NUP	0	47	102		0	
420	F	MS	0	3	calibration		NUP						
420	F	MS	0	3	calibration		NUP						
420	F	MS	0	3	calibration		NUP						
421	M	MS	0	1	calibration		NUP						
421	M	MS	0	1	calibration		NUP						
421	M	MS	0	1	calibration		NUP						
421	M	MS	0	1	pre		to RED	0	45	90		0	
421	M	MS	0	1	pre		to NUP	0	45	90		0	
421	M	MS	0	1	pre		to RED	0	45	90		0	
421	M	MS	0	1	pre		to NUP	0	45	90		0	
421	M	MS	0	1	pre		to RED	0	45	90		0	
421	M	MS	0	1	pre		to NUP	0	45	90		0	
421	M	MS	23	1	PRE	1	to RED	0	45	90	21.17	10	5.8828
421	M	MS	23	1	PRE	2	to NUP	2	44	84	21.47	10	7.4984
421	M	MS	23	1	PRE	3	to RED	1	45	90	21.2	10	4.3385
421	M	MS	23	1	PRE	4	to NUP	2	45	90	17.23	10	5.8687
421	M	MS	23	1	PRE	5	to RED	1	45	90	12.23	12	4.6164
421	M	MS	23	1	PRE	6	to NUP	3	44	84	13.82	12	4.6744
421	M	MS	14	1	STIM	7	to RED	2	45	90	13.52	11	5.0508
421	M	MS	14	1	STIM	8	to NUP	1	45	90	19.15	11	5.856
421	M	MS	14	1	STIM	9	to RED	1	45	90	10.93	12	5.0958

421	M	MS	14	1	STIM	10	to NUP	1	45	90	16.13	11	6.4577
421	M	MS	14	1	STIM	11	to RED	1	45	90	13.13	10	5.2987
421	M	MS	14	1	STIM	12	to NUP	1	45	90	15.57	11	3.315
421	M	MS	14	1	STIM	13	to RED	2	45	90	14.85	12	4.6297
421	M	MS	14	1	STIM	14	to NUP	2	45	90	22.73	10	4.7664
421	M	MS	14	1	STIM	15	to RED	2	45	90	17.83	10	3.7488
421	M	MS	14	1	STIM	16	to NUP	2	45	90	18.57	13	4.05
421	M	MS	14	1	STIM	17	to RED	2	45	90	14.48	12	4.9762
421	M	MS	14	1	STIM	18	to NUP	3	45	90	23.85	15	5.0516
421	M	MS	14	1	STIM	19	to RED	3	45	90	15.48	12	2.7615
421	M	MS	14	1	STIM	20	to NUP	4	45	90	16.47	13	5.161
421	M	MS	14	1	STIM	21	to RED	4	45	90	14.37	14	3.7834
421	M	MS	14	1	STIM	22	to NUP	5	48	108	25.98	14	5.9311
421	M	MS	14	1	STIM	23	to RED	4	46	96	20	13	4.3358
421	M	MS	14	1	STIM	24	to NUP	6	43	78	20.43	16	3.364
421	M	MS	14	1	STIM	25	to RED	6	43	78	15.43	18	4.6017
421	M	MS	14	1	STIM	26	to NUP	5	44	84	20.6	15	5.239
421	M	MS	14	1	STIM	27	to RED	5	45	90	13.3	13	3.7046
421	M	MS	14	1	STIM	28	to NUP	4	45	90	20.83	15	5.2287
421	M	MS	14	1	STIM	29	to RED	5	45	90	15.27	14	4.4599
421	M	MS	14	1	STIM	30	to NUP	7	45	90	28.83	15	5.7741
421	M	MS	14	1	STIM	31	to RED	6	45	90	19.87	15	2.5402
421	M	MS	14	1	STIM	32	to NUP	7	43	78	21.18	16	4.5731
421	M	MS	14	1	STIM	33	to RED	5	45	90	19.97	14	5.3638
421	M	MS	14	1	STIM	34	to NUP	6	45	90	20.9	14	3.7161
421	M	MS	14	1	STIM	35	to RED	6	43	78	20.22	14	2.6777
421	M	MS	14	1	STIM	36	to NUP	6	43	78	33.85	14	4.8481
421	M	MS	23	1	POST	37	to RED	7	43	78	17.47	16	3.8975
421	M	MS	23	1	POST	38	to NUP	7	45	90	25.58	15	4.251
421	M	MS	23	1	POST	39	to RED	5	43	78	17.43	16	4.5328
421	M	MS	23	1	POST	40	to NUP	7	42	72	24.28	16	4.0735
421	M	MS	23	1	POST	41	to RED	7	44	84	19	16	2.9117
421	M	MS	23	1	POST	42	to NUP	7	45	90	21.87	15	4.3663
421	M	MS	0	1	post		to RED	3	45	90		0	
421	M	MS	0	1	post		to NUP	1	45	90		0	
421	M	MS	0	1	post		to RED	0	45	90		0	
421	M	MS	0	1	post		to NUP	0	45	90		0	
421	M	MS	0	1	post		to RED	0	45	90		0	
421	M	MS	0	1	post		to NUP	0	45	90		0	
421	M	MS	0	1	calibration		NUP						
421	M	MS	0	1	calibration		NUP						
421	M	MS	0	1	calibration		NUP						
421	M	MS	0	2	calibration		NUP						
421	M	MS	0	2	calibration		NUP						
421	M	MS	0	2	calibration		NUP						
421	M	MS	0	2	pre		to RED	0	45	90		0	
421	M	MS	0	2	pre		to NUP	0	45	90		0	
421	M	MS	0	2	pre		to RED	0	45	90		0	
421	M	MS	0	2	pre		to NUP	0	45	90		0	
421	M	MS	0	2	pre		to RED	0	45	90		0	
421	M	MS	0	2	pre		to NUP	0	45	90		0	
421	M	MS	23	2	PRE	1	to RED	1	46	96	13.42	8	4.4936
421	M	MS	23	2	PRE	2	to NUP	3	49	114	18.52	11	4.6802
421	M	MS	23	2	PRE	3	to RED	3	48	108	14.42	13	3.561
421	M	MS	23	2	PRE	4	to NUP	4	49	114	18.53	13	3.9377
421	M	MS	23	2	PRE	5	to RED	3	48	108	12.72	12	4.5209
421	M	MS	23	2	PRE	6	to NUP	2	49	114	15.82	13	2.5795
421	M	MS	23	2	STIM	7	to RED	2	46	96	12.98	11	4.4
421	M	MS	23	2	STIM	8	to NUP	2	47	102	14.98	12	3.1958
421	M	MS	23	2	STIM	9	to RED	2	46	96	14.22	10	2.6122
421	M	MS	23	2	STIM	10	to NUP	2	46	96	15.9	11	3.9071
421	M	MS	23	2	STIM	11	to RED	2	46	96	14.45	11	3.8413
421	M	MS	23	2	STIM	12	to NUP	2	45	90	15.23	10	2.2714
421	M	MS	23	2	STIM	13	to RED	1	45	90	14.8	9	4.2627
421	M	MS	23	2	STIM	14	to NUP	1	44	84	18.72	9	3.1279
421	M	MS	23	2	STIM	15	to RED	1	45	90	15.83	8	3.5153
421	M	MS	23	2	STIM	16	to NUP	1	46	96	12.82	9	3.9335
421	M	MS	23	2	STIM	17	to RED	1	45	90	17.13	8	4.4122
421	M	MS	23	2	STIM	18	to NUP	1	44	84	16.7	9	3.9679
421	M	MS	23	2	STIM	19	to RED	1	44	84	15.53	8	3.1033
421	M	MS	23	2	STIM	20	to NUP	1	45	90	17.45	9	3.1205
421	M	MS	23	2	STIM	21	to RED	1	44	84	16.43	8	3.5518
421	M	MS	23	2	STIM	22	to NUP	1	45	90	14.77	9	3.4018
421	M	MS	23	2	STIM	23	to RED	1	46	96	14.32	8	4.9041
421	M	MS	23	2	STIM	24	to NUP	1	46	96	14.92	8	3.72
421	M	MS	23	2	STIM	25	to RED	1	46	96	12.92	8	2.8554
421	M	MS	23	2	STIM	26	to NUP	1	45	90	16.85	8	4.5625
421	M	MS	23	2	STIM	27	to RED	1	46	96	12.97	8	4.1479
421	M	MS	23	2	STIM	28	to NUP	2	44	84	16.1	9	3.4738
421	M	MS	23	2	STIM	29	to RED	1	45	90	13.3	8	3.9591
421	M	MS	23	2	STIM	30	to NUP	3	41	66	19.48	9	3.5316
421	M	MS	23	2	STIM	31	to RED	2	47	102	16.48	10	3.6884
421	M	MS	23	2	STIM	32	to NUP	2	46	96	23.5	9	3.3599
421	M	MS	23	2	STIM	33	to RED	2	46	96	16.5	8	3.2099
421	M	MS	23	2	STIM	34	to NUP	2	46	96	18.78	9	2.647
421	M	MS	23	2	STIM	35	to RED	2	46	96	16.67	9	2.9844
421	M	MS	23	2	STIM	36	to NUP	1	44	84	18.65	8	3.3811
421	M	MS	23	2	POST	37	to RED	1	45	90	16.62	7	3.6315
421	M	MS	23	2	POST	38	to NUP	1	45	90	18.88	8	3.1301
421	M	MS	23	2	POST	39	to RED	1	44	84	14.15	7	3.325
421	M	MS	23	2	POST	40	to NUP	1	46	96	19.87	7	2.9317
421	M	MS	23	2	POST	41	to RED	1	46	96	14.8	7	2.6369
421	M	MS	23	2	POST	42	to NUP	1	44	84	18.72	7	3.8822
421	M	MS	0	2	post		to RED	0	45	90		0	
421	M	MS	0	2	post		to NUP	0	45	90		0	
421	M	MS	0	2	post		to RED	0	45	90		0	
421	M	MS	0	2	post		to NUP	0	45	90		0	
421	M	MS	0	2	post		to RED	0	45	90		0	

421	M	MS	0	2	post		to NUP	0	45	90		0	
421	M	MS	0	2	calibration		NUP						
421	M	MS	0	2	calibration		NUP						
421	M	MS	0	2	calibration		NUP						
421	M	MS	0	3	calibration		NUP						
421	M	MS	0	3	calibration		NUP						
421	M	MS	0	3	calibration		NUP						
421	M	MS	0	3	pre		to RED	0	45	90		0	
421	M	MS	0	3	pre		to NUP	0	45	90		0	
421	M	MS	0	3	pre		to RED	0	45	90		0	
421	M	MS	0	3	pre		to NUP	0	45	90		0	
421	M	MS	0	3	pre		to RED	0	45	90		0	
421	M	MS	0	3	pre		to NUP	0	45	90		0	
421	M	MS	23	3	PRE	1	to RED	2	47	102	10.58	11	2.3568
421	M	MS	23	3	PRE	2	to NUP	2	47	102	15.88	11	4.5379
421	M	MS	23	3	PRE	3	to RED	2	46	96	14.7	10	4.5053
421	M	MS	23	3	PRE	4	to NUP	3	47	102	17	11	3.1534
421	M	MS	23	3	PRE	5	to RED	2	46	96	12.85	10	2.9722
421	M	MS	23	3	PRE	6	to NUP	3	45	90	20.4	10	3.3189
421	M	MS	30	3	STIM	7	to RED	3	47	102	11.82	12	4.7778
421	M	MS	30	3	STIM	8	to NUP	3	48	108	15.13	12	3.3445
421	M	MS	30	3	STIM	9	to RED	2	46	96	16.27	11	6.0639
421	M	MS	30	3	STIM	10	to NUP	2	46	96	16.17	10	3.8825
421	M	MS	30	3	STIM	11	to RED	2	46	96	12.78	10	4.0477
421	M	MS	30	3	STIM	12	to NUP	3	43	78	21.43	11	3.702
421	M	MS	30	3	STIM	13	to RED	2	46	96	14.48	9	4.0718
421	M	MS	30	3	STIM	14	to NUP	3	47	102	17.93	10	4.8745
421	M	MS	30	3	STIM	15	to RED	2	46	96	12.27	10	4.6597
421	M	MS	30	3	STIM	16	to NUP	3	47	102	22.77	11	4.0555
421	M	MS	30	3	STIM	17	to RED	2	46	96	13.82	10	3.8935
421	M	MS	30	3	STIM	18	to NUP	2	47	102	20.32	10	3.2084
421	M	MS	30	3	STIM	19	to RED	2	46	96	14.52	9	3.6345
421	M	MS	30	3	STIM	20	to NUP	3	47	102	19.33	10	3.2212
421	M	MS	30	3	STIM	21	to RED	2	46	96	14.12	9	2.4406
421	M	MS	30	3	STIM	22	to NUP	3	44	84	19.12	11	3.5529
421	M	MS	30	3	STIM	23	to RED	1	46	96	16.57	9	4.2766
421	M	MS	30	3	STIM	24	to NUP	2	47	102	22.03	11	3.3585
421	M	MS	30	3	STIM	25	to RED	1	46	96	15.78	9	3.0505
421	M	MS	30	3	STIM	26	to NUP	3	48	108	21.08	11	4.1329
421	M	MS	30	3	STIM	27	to RED	2	46	96	15.83	9	3.342
421	M	MS	30	3	STIM	28	to NUP	3	47	102	19.25	11	4.0695
421	M	MS	30	3	STIM	29	to RED	1	45	90	15.2	8	3.7087
421	M	MS	30	3	STIM	30	to NUP	2	47	102	18.93	10	3.9045
421	M	MS	30	3	STIM	31	to RED	2	48	108	16.5	10	3.9742
421	M	MS	30	3	STIM	32	to NUP	3	48	108	19.72	10	5.0191
421	M	MS	30	3	STIM	33	to RED	2	46	96	16.08	9	4.3865
421	M	MS	30	3	STIM	34	to NUP	3	47	102	19.18	11	3.9476
421	M	MS	30	3	STIM	35	to RED	2	47	102	18.48	10	5.4
421	M	MS	30	3	STIM	36	to NUP	3	47	102	15.18	11	2.8833
421	M	MS	23	3	POST	37	to RED	1	45	90	11.05	8	2.6591
421	M	MS	23	3	POST	38	to NUP	3	47	102	20.73	11	2.3251
421	M	MS	23	3	POST	39	to RED	1	45	90	11.82	8	3.7687
421	M	MS	23	3	POST	40	to NUP	3	45	90	15.48	10	4.1884
421	M	MS	23	3	POST	41	to RED	1	46	96	16.17	8	4.2839
421	M	MS	23	3	POST	42	to NUP	2	46	96	16.53	10	3.3073
421	M	MS	0	3	post		to RED	0	45	90		0	
421	M	MS	0	3	post		to NUP	0	45	90		0	
421	M	MS	0	3	post		to RED	0	45	90		0	
421	M	MS	0	3	post		to NUP	0	45	90		0	
421	M	MS	0	3	post		to RED	0	45	90		0	
421	M	MS	0	3	post		to NUP	0	45	90		0	
421	M	MS	0	3	calibration		NUP						
421	M	MS	0	3	calibration		NUP						
421	M	MS	0	3	calibration		NUP						
422	F	nMs	0	1	calibration		NUP						
422	F	nMs	0	1	calibration		NUP						
422	F	nMs	0	1	calibration		NUP						
422	F	nMs	0	1	pre		to RED	0	45	90		0	
422	F	nMs	0	1	pre		to NUP	0	45	90		0	
422	F	nMs	0	1	pre		to RED	0	45	90		0	
422	F	nMs	0	1	pre		to NUP	0	45	90		0	
422	F	nMs	0	1	pre		to RED	0	45	90		0	
422	F	nMs	0	1	pre		to NUP	0	45	90		0	
422	F	nMs	23	1	PRE	1	to RED	1	45	90	13.22	10	4.5279
422	F	nMs	23	1	PRE	2	to NUP	2	45	90	13.93	11	4.5853
422	F	nMs	23	1	PRE	3	to RED	2	43	78	11.32	10	4.2058
422	F	nMs	23	1	PRE	4	to NUP	2	44	84	8.92	9	3.3321
422	F	nMs	23	1	PRE	5	to RED	1	45	90	11.7	9	5.251
422	F	nMs	23	1	PRE	6	to NUP	2	45	90	12.22	9	4.326
422	F	nMs	14	1	STIM	7	to RED	0	45	90	5.23	5	4.3971
422	F	nMs	14	1	STIM	8	to NUP	0	45	90	9.42	5	5.2551
422	F	nMs	14	1	STIM	9	to RED	1	45	90	8.65	6	5.1011
422	F	nMs	14	1	STIM	10	to NUP	1	45	90	10.72	5	5.1027
422	F	nMs	14	1	STIM	11	to RED	0	45	90	8.97	4	4.0607
422	F	nMs	14	1	STIM	12	to NUP	0	45	90	8.65	4	2.8321
422	F	nMs	14	1	STIM	13	to RED	0	46	96	9.67	5	4.9083
422	F	nMs	14	1	STIM	14	to NUP	0	45	90	5.83	4	3.7768
422	F	nMs	14	1	STIM	15	to RED	1	45	90	6.77	5	4.8187
422	F	nMs	14	1	STIM	16	to NUP	1	45	90	8.17	5	3.9966
422	F	nMs	14	1	STIM	17	to RED	0	45	90	6.25	3	4.1792
422	F	nMs	14	1	STIM	18	to NUP	0	45	90	5.98	3	3.9089
422	F	nMs	14	1	STIM	19	to RED	0	45	90	6.1	3	3.5775
422	F	nMs	14	1	STIM	20	to NUP	0	45	90	6.13	2	4.4244
422	F	nMs	14	1	STIM	21	to RED	0	45	90	5.98	2	3.5789
422	F	nMs	14	1	STIM	22	to NUP	0	45	90	6.25	2	4.9254
422	F	nMs	14	1	STIM	23	to RED	0	45	90	5.35	2	3.6404
422	F	nMs	14	1	STIM	24	to NUP	1	45	90	6.53	3	2.9645
422	F	nMs	14	1	STIM	25	to RED	0	45	90	6.73	4	3.4642

422	F	nMs	14	1	STIM	26	to NUP	2	45	90	7.63	4	3.4976
422	F	nMs	14	1	STIM	27	to RED	2	45	90	8.52	4	4.3499
422	F	nMs	14	1	STIM	28	to NUP	3	45	90	6.63	3	4.6636
422	F	nMs	14	1	STIM	29	to RED	2	45	90	6.18	3	4.481
422	F	nMs	14	1	STIM	30	to NUP	1	47	102	8.43	4	3.6308
422	F	nMs	14	1	STIM	31	to RED	1	45	90	7.42	3	3.7353
422	F	nMs	14	1	STIM	32	to NUP	2	45	90	6.02	3	3.6664
422	F	nMs	14	1	STIM	33	to RED	1	45	90	6.2	3	3.1206
422	F	nMs	14	1	STIM	34	to NUP	4	45	90	7.45	4	3.602
422	F	nMs	14	1	STIM	35	to RED	2	45	90	7.2	4	3.397
422	F	nMs	14	1	STIM	36	to NUP	3	45	90	8.87	4	4.2263
422	F	nMs	23	1	POST	37	to RED	1	43	78	8.65	8	3.9243
422	F	nMs	23	1	POST	38	to NUP	5	42	72	11.37	12	3.3298
422	F	nMs	23	1	POST	39	to RED	3	43	78	10.77	10	3.1609
422	F	nMs	23	1	POST	40	to NUP	4	45	90	10.3	12	3.5087
422	F	nMs	23	1	POST	41	to RED	4	45	90	13.47	11	3.0909
422	F	nMs	23	1	POST	42	to NUP	3	43	78	11.3	10	3.2835
422	F	nMs	0	1	post		to RED	0	45	90		2	
422	F	nMs	0	1	post		to NUP	0	47	102		0	
422	F	nMs	0	1	post		to RED	0	46	96		0	
422	F	nMs	0	1	post		to NUP	0	46	96		0	
422	F	nMs	0	1	post		to RED	0	45	90		0	
422	F	nMs	0	1	post		to NUP	0	45	90		0	
422	F	nMs	0	1	calibration		NUP						
422	F	nMs	0	1	calibration		NUP						
422	F	nMs	0	1	calibration		NUP						
422	F	nMs	0	2	calibration		NUP						
422	F	nMs	0	2	calibration		NUP						
422	F	nMs	0	2	calibration		NUP						
422	F	nMs	0	2	pre		to RED	0	45	90		0	
422	F	nMs	0	2	pre		to NUP	0	45	90		0	
422	F	nMs	0	2	pre		to RED	0	45	90		0	
422	F	nMs	0	2	pre		to NUP	0	45	90		0	
422	F	nMs	0	2	pre		to RED	0	45	90		0	
422	F	nMs	0	2	pre		to NUP	0	45	90		0	
422	F	nMs	23	2	PRE	1	to RED	0	45	90	6.95	3	3.0545
422	F	nMs	23	2	PRE	2	to NUP	1	44	84	7.75	5	5.3206
422	F	nMs	23	2	PRE	3	to RED	0	45	90	6.45	4	3.125
422	F	nMs	23	2	PRE	4	to NUP	0	45	90	10.43	5	5.6262
422	F	nMs	23	2	PRE	5	to RED	0	45	90	7.27	3	3.0834
422	F	nMs	23	2	PRE	6	to NUP	1	45	90	9.05	4	4.1192
422	F	nMs	23	2	STIM	7	to RED	0	44	84	8	3	2.9941
422	F	nMs	23	2	STIM	8	to NUP	1	46	96	8.58	5	4.8201
422	F	nMs	23	2	STIM	9	to RED	0	45	90	5.98	3	4.1017
422	F	nMs	23	2	STIM	10	to NUP	2	43	78	8.92	5	4.237
422	F	nMs	23	2	STIM	11	to RED	0	45	90	7.62	2	2.7049
422	F	nMs	23	2	STIM	12	to NUP	0	45	90	7.35	3	3.5774
422	F	nMs	23	2	STIM	13	to RED	0	44	84	6.67	2	2.4796
422	F	nMs	23	2	STIM	14	to NUP	2	47	102	8.42	5	3.9871
422	F	nMs	23	2	STIM	15	to RED	0	45	90	7.43	2	2.7846
422	F	nMs	23	2	STIM	16	to NUP	0	43	78	7.73	3	3.3599
422	F	nMs	23	2	STIM	17	to RED	0	45	90	6.45	1	2.9261
422	F	nMs	23	2	STIM	18	to NUP	1	46	96	8.02	4	3.5437
422	F	nMs	23	2	STIM	19	to RED	0	45	90	4.67	3	2.7612
422	F	nMs	23	2	STIM	20	to NUP	1	44	84	8.85	4	3.5933
422	F	nMs	23	2	STIM	21	to RED	0	46	96	6.28	3	3.4236
422	F	nMs	23	2	STIM	22	to NUP	0	43	78	6.03	3	4.0793
422	F	nMs	23	2	STIM	23	to RED	0	45	90	5.15	1	2.6709
422	F	nMs	23	2	STIM	24	to NUP	1	45	90	7.87	5	4.1799
422	F	nMs	23	2	STIM	25	to RED	0	45	90	6.47	2	3.4134
422	F	nMs	23	2	STIM	26	to NUP	1	43	78	7.97	4	3.6772
422	F	nMs	23	2	STIM	27	to RED	0	45	90	5.42	2	2.4159
422	F	nMs	23	2	STIM	28	to NUP	2	44	84	6.93	5	3.0954
422	F	nMs	23	2	STIM	29	to RED	1	45	90	5.9	2	2.8469
422	F	nMs	23	2	STIM	30	to NUP	2	45	90	7.18	4	3.0007
422	F	nMs	23	2	STIM	31	to RED	1	45	90	5.98	3	3.4934
422	F	nMs	23	2	STIM	32	to NUP	1	45	90	7.57	3	3.003
422	F	nMs	23	2	STIM	33	to RED	1	45	90	5.33	3	2.2384
422	F	nMs	23	2	STIM	34	to NUP	1	44	84	7.08	4	3.3469
422	F	nMs	23	2	STIM	35	to RED	1	45	90	5.45	2	2.6396
422	F	nMs	23	2	STIM	36	to NUP	1	45	90	6.68	3	2.5559
422	F	nMs	23	2	POST	37	to RED	0	45	90	5.12	2	2.81
422	F	nMs	23	2	POST	38	to NUP	1	45	90	6.65	4	3.1628
422	F	nMs	23	2	POST	39	to RED	1	44	84	5.93	3	2.1643
422	F	nMs	23	2	POST	40	to NUP	1	45	90	6.33	2	3.8918
422	F	nMs	23	2	POST	41	to RED	0	45	90	4.3	1	3.0432
422	F	nMs	23	2	POST	42	to NUP	1	45	90	6.33	2	2.9557
422	F	nMs	0	2	post		to RED	0	45	90		1	
422	F	nMs	0	2	post		to NUP	0	45	90		0	
422	F	nMs	0	2	post		to RED	0	45	90		0	
422	F	nMs	0	2	post		to NUP	0	45	90		0	
422	F	nMs	0	2	post		to RED	0	45	90		0	
422	F	nMs	0	2	post		to NUP	0	45	90		0	
422	F	nMs	0	2	calibration		NUP						
422	F	nMs	0	2	calibration		NUP						
422	F	nMs	0	2	calibration		NUP						
422	F	nMs	0	3	calibration		NUP						
422	F	nMs	0	3	calibration		NUP						
422	F	nMs	0	3	calibration		NUP						
422	F	nMs	0	3	pre		to RED	0	45	90		0	
422	F	nMs	0	3	pre		to NUP	0	45	90		0	
422	F	nMs	0	3	pre		to RED	0	45	90		0	
422	F	nMs	0	3	pre		to NUP	0	45	90		0	
422	F	nMs	0	3	pre		to RED	0	45	90		0	
422	F	nMs	0	3	pre		to NUP	0	45	90		0	
422	F	nMs	23	3	PRE	1	to RED	0	45	90	6.52	3	3.0605
422	F	nMs	23	3	PRE	2	to NUP	0	46	96	8.83	4	4.5169
422	F	nMs	23	3	PRE	3	to RED	0	45	90	7.13	3	2.7244

422	F	nMs	23	3	PRE	4	to NUP	0	45	90	7.72	4	4.3559
422	F	nMs	23	3	PRE	5	to RED	0	45	90	7.93	4	3.4725
422	F	nMs	23	3	PRE	6	to NUP	0	45	90	8.77	3	3.0654
422	F	nMs	30	3	STIM	7	to RED	0	47	102	8.15	8	2.6653
422	F	nMs	30	3	STIM	8	to NUP	0	43	78	10.28	10	3.5805
422	F	nMs	30	3	STIM	9	to RED	0	45	90	12.4	8	3.1092
422	F	nMs	30	3	STIM	10	to NUP	0	43	78	10.58	7	4.5831
422	F	nMs	30	3	STIM	11	to RED	0	45	90	12.65	7	2.4943
422	F	nMs	30	3	STIM	12	to NUP	1	45	90	10.57	9	3.1326
422	F	nMs	30	3	STIM	13	to RED	0	45	90	6.6	6	1.8727
422	F	nMs	30	3	STIM	14	to NUP	1	45	90	9.45	7	3.3321
422	F	nMs	30	3	STIM	15	to RED	0	45	90	8.07	6	2.6482
422	F	nMs	30	3	STIM	16	to NUP	1	43	78	10.15	8	2.8947
422	F	nMs	30	3	STIM	17	to RED	0	46	96	7.4	6	3.2442
422	F	nMs	30	3	STIM	18	to NUP	1	43	78	9.3	8	2.6489
422	F	nMs	30	3	STIM	19	to RED	0	45	90	9.18	6	2.9381
422	F	nMs	30	3	STIM	20	to NUP	0	45	90	9.7	7	2.5853
422	F	nMs	30	3	STIM	21	to RED	0	47	102	8.23	5	2.0036
422	F	nMs	30	3	STIM	22	to NUP	1	45	90	9.4	7	1.9621
422	F	nMs	30	3	STIM	23	to RED	0	47	102	9.48	6	2.0812
422	F	nMs	30	3	STIM	24	to NUP	0	46	96	9.87	6	3.7672
422	F	nMs	30	3	STIM	25	to RED	0	43	78	9.63	4	1.9589
422	F	nMs	30	3	STIM	26	to NUP	0	46	96	7.9	5	3.1126
422	F	nMs	30	3	STIM	27	to RED	0	45	90	9.12	5	2.0259
422	F	nMs	30	3	STIM	28	to NUP	0	45	90	7.22	3	3.1628
422	F	nMs	30	3	STIM	29	to RED	0	45	90	6.18	3	2.4586
422	F	nMs	30	3	STIM	30	to NUP	0	45	90	5.4	2	2.9858
422	F	nMs	30	3	STIM	31	to RED	0	45	90	5.43	2	2.4998
422	F	nMs	30	3	STIM	32	to NUP	0	45	90	6.83	3	2.2382
422	F	nMs	30	3	STIM	33	to RED	0	45	90	6.27	3	3.6284
422	F	nMs	30	3	STIM	34	to NUP	0	45	90	6.15	3	2.2948
422	F	nMs	30	3	STIM	35	to RED	0	45	90	5.4	2	2.8459
422	F	nMs	30	3	STIM	36	to NUP	0	45	90	5.2	1	2.5532
422	F	nMs	23	3	POST	37	to RED	0	45	90	5.3	4	3.0352
422	F	nMs	23	3	POST	38	to NUP	0	45	90	8.17	2	4.0472
422	F	nMs	23	3	POST	39	to RED	0	45	90	5.5	2	3.1458
422	F	nMs	23	3	POST	40	to NUP	0	45	90	5.58	1	2.6204
422	F	nMs	23	3	POST	41	to RED	0	45	90	5.22	1	2.033
422	F	nMs	23	3	POST	42	to NUP	0	45	90	6.45	2	2.663
422	F	nMs	0	3	post		to RED	0	45	90		0	
422	F	nMs	0	3	post		to NUP	0	45	90		0	
422	F	nMs	0	3	post		to RED	0	45	90		0	
422	F	nMs	0	3	post		to NUP	0	45	90		0	
422	F	nMs	0	3	post		to RED	0	45	90		0	
422	F	nMs	0	3	post		to NUP	0	45	90		0	
422	F	nMs	0	3	calibration		NUP						
422	F	nMs	0	3	calibration		NUP						
422	F	nMs	0	3	calibration		NUP						
423	F	nMs	0	1	calibration		NUP						
423	F	nMs	0	1	calibration		NUP						
423	F	nMs	0	1	calibration		NUP						
423	F	nMs	0	1	pre		to RED	0	45	90		0	
423	F	nMs	0	1	pre		to NUP	0	45	90		0	
423	F	nMs	0	1	pre		to RED	0	45	90		0	
423	F	nMs	0	1	pre		to NUP	0	45	90		0	
423	F	nMs	0	1	pre		to RED	0	45	90		0	
423	F	nMs	0	1	pre		to NUP	0	45	90		0	
423	F	nMs	23	1	PRE	1	to RED	0	45	90	1.93	10	5.5212
423	F	nMs	23	1	PRE	2	to NUP	0	44	84	12.53	15	6.2314
423	F	nMs	23	1	PRE	3	to RED	0	45	90	1.63	1	6.379
423	F	nMs	23	1	PRE	4	to NUP	0	45	90	7.43	5	6.8253
423	F	nMs	23	1	PRE	5	to RED	0	45	90	12.2	5	8.7819
423	F	nMs	23	1	PRE	6	to NUP	0	45	90	10.88	10	5.451
423	F	nMs	14	1	STIM	7	to RED	0	45	90	2.57	1	7.4785
423	F	nMs	14	1	STIM	8	to NUP	0	45	90	6.75	5	6.5665
423	F	nMs	14	1	STIM	9	to RED	0	45	90	2.15	1	7.2906
423	F	nMs	14	1	STIM	10	to NUP	0	45	90	5.6	5	6.1895
423	F	nMs	14	1	STIM	11	to RED	0	45	90	2.97	1	8.1836
423	F	nMs	14	1	STIM	12	to NUP	0	45	90	6.75	1	5.2455
423	F	nMs	14	1	STIM	13	to RED	0	45	90	5.08	5	5.9863
423	F	nMs	14	1	STIM	14	to NUP	0	45	90	6.57	5	5.1583
423	F	nMs	14	1	STIM	15	to RED	0	45	90	3.67	1	7.7994
423	F	nMs	14	1	STIM	16	to NUP	0	45	90	6.08	5	7.0277
423	F	nMs	14	1	STIM	17	to RED	0	45	90	3.22	1	5.6197
423	F	nMs	14	1	STIM	18	to NUP	0	45	90	5.38	5	4.7792
423	F	nMs	14	1	STIM	19	to RED	0	45	90	3.4	1	5.0986
423	F	nMs	14	1	STIM	20	to NUP	0	45	90	5.48	1	6.0797
423	F	nMs	14	1	STIM	21	to RED	0	45	90	2.55	1	5.6722
423	F	nMs	14	1	STIM	22	to NUP	0	45	90	4.03	1	6.3401
423	F	nMs	14	1	STIM	23	to RED	0	45	90	4.73	5	7.4462
423	F	nMs	14	1	STIM	24	to NUP	0	45	90	5.22	5	6.6451
423	F	nMs	14	1	STIM	25	to RED	0	45	90	2.85	1	6.2183
423	F	nMs	14	1	STIM	26	to NUP	0	45	90	4.47	1	6.2397
423	F	nMs	14	1	STIM	27	to RED	0	45	90	5.62	5	5.8392
423	F	nMs	14	1	STIM	28	to NUP	0	45	90	5.27	5	7.5038
423	F	nMs	14	1	STIM	29	to RED	0	45	90	2.8	1	6.7226
423	F	nMs	14	1	STIM	30	to NUP	0	45	90	3.92	1	7.1829
423	F	nMs	14	1	STIM	31	to RED	0	45	90	2.6	1	5.379
423	F	nMs	14	1	STIM	32	to NUP	0	45	90	4.88	5	6.9594
423	F	nMs	14	1	STIM	33	to RED	0	45	90	2.65	1	6.0055
423	F	nMs	14	1	STIM	34	to NUP	0	45	90	5.2	3	5.1547
423	F	nMs	14	1	STIM	35	to RED	0	45	90	4.72	5	5.5356
423	F	nMs	14	1	STIM	36	to NUP	0	45	90	4.62	5	4.5684
423	F	nMs	23	1	POST	37	to RED	5	45	90	4.82	10	3.0326
423	F	nMs	23	1	POST	38	to NUP	0	45	90	8.02	10	6.3151
423	F	nMs	23	1	POST	39	to RED	0	45	90	7.1	7	5.0058
423	F	nMs	23	1	POST	40	to NUP	0	45	90	8.72	10	6.8334
423	F	nMs	23	1	POST	41	to RED	0	45	90	7.55	7	4.213

423	F	nMs	23	1	POST	42	to NUP	0	45	90	7.73	10	7.0315
423	F	nMs	0	1	post		to RED	0	45	90		1	
423	F	nMs	0	1	post		to NUP	0	45	90		1	
423	F	nMs	0	1	post		to RED	0	45	90		0	
423	F	nMs	0	1	post		to NUP	0	45	90		0	
423	F	nMs	0	1	post		to RED	0	45	90		0	
423	F	nMs	0	1	post		to NUP	0	45	90		0	
423	F	nMs	0	1	calibration		NUP						
423	F	nMs	0	1	calibration		NUP						
423	F	nMs	0	1	calibration		NUP						
423	F	nMs	0	2	calibration		NUP						
423	F	nMs	0	2	calibration		NUP						
423	F	nMs	0	2	calibration		NUP						
423	F	nMs	0	2	pre		to RED	0	45	90		0	
423	F	nMs	0	2	pre		to NUP	0	45	90		0	
423	F	nMs	0	2	pre		to RED	0	45	90		0	
423	F	nMs	0	2	pre		to NUP	0	45	90		0	
423	F	nMs	0	2	pre		to RED	0	45	90		0	
423	F	nMs	0	2	pre		to NUP	0	45	90		0	
423	F	nMs	23	2	PRE	1	to RED	0	45	90	4.82	5	4.6784
423	F	nMs	23	2	PRE	2	to NUP	0	45	90	6.4	10	6.0662
423	F	nMs	23	2	PRE	3	to RED	0	45	90	2.6	1	5.261
423	F	nMs	23	2	PRE	4	to NUP	0	45	90	6.17	10	4.7409
423	F	nMs	23	2	PRE	5	to RED	0	45	90	1.95	0	7.0466
423	F	nMs	23	2	PRE	6	to NUP	0	45	90	5.33	7	4.6759
423	F	nMs	23	2	STIM	7	to RED	0	45	90	3.87	5	6.1807
423	F	nMs	23	2	STIM	8	to NUP	0	45	90	6.8	12	4.4161
423	F	nMs	23	2	STIM	9	to RED	0	45	90	2.3	1	5.7492
423	F	nMs	23	2	STIM	10	to NUP	0	45	90	7.63	10	3.997
423	F	nMs	23	2	STIM	11	to RED	0	45	90	3.92	3	5.9337
423	F	nMs	23	2	STIM	12	to NUP	0	45	90	7.33	7	3.8399
423	F	nMs	23	2	STIM	13	to RED	0	45	90	2.12	1	4.9769
423	F	nMs	23	2	STIM	14	to NUP	0	45	90	7.95	10	4.7312
423	F	nMs	23	2	STIM	15	to RED	0	45	90	3.22	1	5.3359
423	F	nMs	23	2	STIM	16	to NUP	0	45	90	7.87	10	4.0828
423	F	nMs	23	2	STIM	17	to RED	0	45	90	2.55	1	4.7246
423	F	nMs	23	2	STIM	18	to NUP	0	45	90	9.12	12	4.919
423	F	nMs	23	2	STIM	19	to RED	0	45	90	4.53	3	4.1932
423	F	nMs	23	2	STIM	20	to NUP	0	45	90	8.25	10	5.0301
423	F	nMs	23	2	STIM	21	to RED	0	45	90	0	0	5.6734
423	F	nMs	23	2	STIM	22	to NUP	0	45	90	5.3	5	4.3203
423	F	nMs	23	2	STIM	23	to RED	0	45	90	2.45	1	4.1806
423	F	nMs	23	2	STIM	24	to NUP	0	45	90	6.23	5	4.8627
423	F	nMs	23	2	STIM	25	to RED	0	45	90	2.17	1	5.2154
423	F	nMs	23	2	STIM	26	to NUP	0	45	90	5.3	5	6.0868
423	F	nMs	23	2	STIM	27	to RED	0	45	90	0	0	4.0869
423	F	nMs	23	2	STIM	28	to NUP	2	45	90	5.4	5	5.9212
423	F	nMs	23	2	STIM	29	to RED	0	45	90	3.03	1	4.7501
423	F	nMs	23	2	STIM	30	to NUP	0	45	90	5.43	5	5.0126
423	F	nMs	23	2	STIM	31	to RED	0	45	90	2.12	1	4.9934
423	F	nMs	23	2	STIM	32	to NUP	0	45	90	7.27	5	5.2075
423	F	nMs	23	2	STIM	33	to RED	0	45	90	4.77	5	4.5068
423	F	nMs	23	2	STIM	34	to NUP	0	45	90	5.73	5	4.7195
423	F	nMs	23	2	STIM	35	to RED	0	45	90	3.63	1	4.1508
423	F	nMs	23	2	STIM	36	to NUP	0	45	90	7.17	7	4.4783
423	F	nMs	23	2	POST	37	to RED	0	45	90	2.45	1	3.8788
423	F	nMs	23	2	POST	38	to NUP	0	45	90	7.52	7	3.6671
423	F	nMs	23	2	POST	39	to RED	0	45	90	2.52	1	4.4553
423	F	nMs	23	2	POST	40	to NUP	0	45	90	6.2	5	3.7479
423	F	nMs	23	2	POST	41	to RED	0	45	90	3.18	1	5.4502
423	F	nMs	23	2	POST	42	to NUP	0	45	90	4.98	3	3.7917
423	F	nMs	0	2	post		to RED	0	45	90		0	
423	F	nMs	0	2	post		to NUP	0	45	90		1	
423	F	nMs	0	2	post		to RED	0	45	90		0	
423	F	nMs	0	2	post		to NUP	0	45	90		0	
423	F	nMs	0	2	post		to RED	0	45	90		0	
423	F	nMs	0	2	post		to NUP	0	45	90		0	
423	F	nMs	0	2	calibration		NUP						
423	F	nMs	0	2	calibration		NUP						
423	F	nMs	0	2	calibration		NUP						
423	F	nMs	0	3	calibration		NUP						
423	F	nMs	0	3	calibration		NUP						
423	F	nMs	0	3	calibration		NUP						
423	F	nMs	0	3	pre		to RED	0	45	90		0	
423	F	nMs	0	3	pre		to NUP	0	45	90		0	
423	F	nMs	0	3	pre		to RED	0	45	90		0	
423	F	nMs	0	3	pre		to NUP	0	45	90		0	
423	F	nMs	0	3	pre		to RED	0	45	90		0	
423	F	nMs	0	3	pre		to NUP	0	45	90		0	
423	F	nMs	23	3	PRE	1	to RED	0	45	90	3.67	5	5.6831
423	F	nMs	23	3	PRE	2	to NUP	0	45	90	7.87	10	4.9011
423	F	nMs	23	3	PRE	3	to RED	0	45	90	2.48	1	6.0425
423	F	nMs	23	3	PRE	4	to NUP	0	47	102	2.08	1	6.1074
423	F	nMs	23	3	PRE	5	to RED	0	45	90	3.63	1	6.4444
423	F	nMs	23	3	PRE	6	to NUP	0	45	90	9.43	5	4.304
423	F	nMs	30	3	STIM	7	to RED	0	45	90	2.65	1	5.1594
423	F	nMs	30	3	STIM	8	to NUP	0	45	90	11.75	12	7.0652
423	F	nMs	30	3	STIM	9	to RED	0	45	90	2.78	1	6.3961
423	F	nMs	30	3	STIM	10	to NUP	0	45	90	8.1	7	5.9549
423	F	nMs	30	3	STIM	11	to RED	0	45	90	2.35	1	6.746
423	F	nMs	30	3	STIM	12	to NUP	0	45	90	5.78	5	5.0637
423	F	nMs	30	3	STIM	13	to RED	0	45	90	6.33	3	5.9675
423	F	nMs	30	3	STIM	14	to NUP	0	45	90	7.05	3	5.9385
423	F	nMs	30	3	STIM	15	to RED	0	45	90	3.58	1	5.2391
423	F	nMs	30	3	STIM	16	to NUP	0	45	90	5.68	3	4.9276
423	F	nMs	30	3	STIM	17	to RED	0	45	90	3.1	1	5.5484
423	F	nMs	30	3	STIM	18	to NUP	0	45	90	10.15	5	5.1292
423	F	nMs	30	3	STIM	19	to RED	0	45	90	3.18	1	5.1666

423	F	nMs	30	3	STIM	20	to NUP	0	45	90	8.95	5	6.1017
423	F	nMs	30	3	STIM	21	to RED	0	45	90	3.78	1	4.7843
423	F	nMs	30	3	STIM	22	to NUP	0	45	90	9.48	5	4.7486
423	F	nMs	30	3	STIM	23	to RED	0	45	90	3.1	1	5.0266
423	F	nMs	30	3	STIM	24	to NUP	0	45	90	6.33	3	5.6398
423	F	nMs	30	3	STIM	25	to RED	0	45	90	0	0	5.5464
423	F	nMs	30	3	STIM	26	to NUP	0	45	90	5.52	3	5.0477
423	F	nMs	30	3	STIM	27	to RED	0	45	90	2.63	1	5.2609
423	F	nMs	30	3	STIM	28	to NUP	0	45	90	10.27	3	5.7091
423	F	nMs	30	3	STIM	29	to RED	0	45	90	3.25	1	4.1111
423	F	nMs	30	3	STIM	30	to NUP	0	45	90	6.27	3	4.7385
423	F	nMs	30	3	STIM	31	to RED	0	45	90	2.57	1	5.1475
423	F	nMs	30	3	STIM	32	to NUP	0	45	90	5.38	3	5.0694
423	F	nMs	30	3	STIM	33	to RED	0	45	90	3.63	1	4.3498
423	F	nMs	30	3	STIM	34	to NUP	0	45	90	6.4	3	4.9181
423	F	nMs	30	3	STIM	35	to RED	0	45	90	2.68	1	4.295
423	F	nMs	30	3	STIM	36	to NUP	0	45	90	7.98	3	5.7582
423	F	nMs	23	3	POST	37	to RED	0	45	90	0	0	3.4467
423	F	nMs	23	3	POST	38	to NUP	0	45	90	4.82	3	5.6326
423	F	nMs	23	3	POST	39	to RED	0	45	90	0	0	3.9927
423	F	nMs	23	3	POST	40	to NUP	0	45	90	3.8	1	3.9856
423	F	nMs	23	3	POST	41	to RED	0	45	90	0	0	4.8829
423	F	nMs	23	3	POST	42	to NUP	0	45	90	3.85	1	4.7999
423	F	nMs	0	3	post		to RED	0	45	90		0	
423	F	nMs	0	3	post		to NUP	0	45	90		1	
423	F	nMs	0	3	post		to RED	0	45	90		0	
423	F	nMs	0	3	post		to NUP	0	45	90		0	
423	F	nMs	0	3	post		to RED	0	45	90		0	
423	F	nMs	0	3	post		to NUP	0	45	90		0	
423	F	nMs	0	3	calibration		NUP						
423	F	nMs	0	3	calibration		NUP						
423	F	nMs	0	3	calibration		NUP						
424	F	MS	0	1	calibration		NUP						
424	F	MS	0	1	calibration		NUP						
424	F	MS	0	1	calibration		NUP						
424	F	MS	0	1	pre		to RED	0	45	90		0	
424	F	MS	0	1	pre		to NUP	0	45	90		0	
424	F	MS	0	1	pre		to RED	0	45	90		0	
424	F	MS	0	1	pre		to NUP	0	45	90		0	
424	F	MS	0	1	pre		to RED	0	45	90		0	
424	F	MS	0	1	pre		to NUP	0	45	90		0	
424	F	MS	23	1	PRE	1	to RED	0	45	90	4.32	10	5.8647
424	F	MS	23	1	PRE	2	to NUP	0	45	90	5.32	8	4.2459
424	F	MS	23	1	PRE	3	to RED	0	45	90	3.68	4	4.8821
424	F	MS	23	1	PRE	4	to NUP	0	45	90	3.62	6	5.8657
424	F	MS	23	1	PRE	5	to RED	0	46	96	6.27	3	4.8642
424	F	MS	23	1	PRE	6	to NUP	0	45	90	5.13	4	4.1781
424	F	MS	14	1	STIM	7	to RED	0	45	90	0	0	4.3896
424	F	MS	14	1	STIM	8	to NUP	0	44	84	6.65	1	5.5496
424	F	MS	14	1	STIM	9	to RED	0	45	90	0	0	5.293
424	F	MS	14	1	STIM	10	to NUP	0	45	90	5.25	1	4.4957
424	F	MS	14	1	STIM	11	to RED	0	45	90	2.9	1	5.4399
424	F	MS	14	1	STIM	12	to NUP	0	45	90	4.12	2	4.2581
424	F	MS	14	1	STIM	13	to RED	0	45	90	0	0	5.7509
424	F	MS	14	1	STIM	14	to NUP	0	46	96	4.38	1	4.4458
424	F	MS	14	1	STIM	15	to RED	0	45	90	0	0	4.5902
424	F	MS	14	1	STIM	16	to NUP	0	45	90	4.68	2	4.7064
424	F	MS	14	1	STIM	17	to RED	0	47	102	2.3	1	4.6761
424	F	MS	14	1	STIM	18	to NUP	1	44	84	5.42	2	4.6363
424	F	MS	14	1	STIM	19	to RED	1	46	96	4.43	3	4.557
424	F	MS	14	1	STIM	20	to NUP	1	44	84	4.22	2	5.0428
424	F	MS	14	1	STIM	21	to RED	0	45	90	3.05	1	6.0532
424	F	MS	14	1	STIM	22	to NUP	1	44	84	5.67	1	4.6613
424	F	MS	14	1	STIM	23	to RED	1	47	102	3.47	2	5.613
424	F	MS	14	1	STIM	24	to NUP	1	45	90	2.53	1	4.1147
424	F	MS	14	1	STIM	25	to RED	2	46	96	4.35	2	4.2168
424	F	MS	14	1	STIM	26	to NUP	2	45	90	4.47	1	3.5719
424	F	MS	14	1	STIM	27	to RED	2	45	90	4.15	1	3.622
424	F	MS	14	1	STIM	28	to NUP	2	45	90	5.17	2	3.9586
424	F	MS	14	1	STIM	29	to RED	1	45	90	2.07	1	5.5833
424	F	MS	14	1	STIM	30	to NUP	1	45	90	4.73	3	5.2195
424	F	MS	14	1	STIM	31	to RED	1	46	96	2.5	2	4.7369
424	F	MS	14	1	STIM	32	to NUP	0	45	90	4.32	1	4.4638
424	F	MS	14	1	STIM	33	to RED	0	46	96	2.83	1	3.5593
424	F	MS	14	1	STIM	34	to NUP	1	44	84	5.22	1	4.5093
424	F	MS	14	1	STIM	35	to RED	0	46	96	2.9	2	5.7953
424	F	MS	14	1	STIM	36	to NUP	0	43	78	5.87	4	3.517
424	F	MS	23	1	POST	37	to RED	1	47	102	3.98	4	6.043
424	F	MS	23	1	POST	38	to NUP	1	43	78	6.25	4	5.0901
424	F	MS	23	1	POST	39	to RED	1	47	102	4.02	3	4.4526
424	F	MS	23	1	POST	40	to NUP	2	42	72	6.08	5	4.2567
424	F	MS	23	1	POST	41	to RED	1	46	96	3.93	2	5.2772
424	F	MS	23	1	POST	42	to NUP	3	41	66	7.07	5	4.4046
424	F	MS	0	1	post		to RED	0	46	96		1	
424	F	MS	0	1	post		to NUP	0	44	84		1	
424	F	MS	0	1	post		to RED	0	45	90		0	
424	F	MS	0	1	post		to NUP	0	45	90		1	
424	F	MS	0	1	post		to RED	0	45	90		0	
424	F	MS	0	1	post		to NUP	1	44	84		1	
424	F	MS	0	1	calibration		NUP						
424	F	MS	0	1	calibration		NUP						
424	F	MS	0	1	calibration		NUP						
424	F	MS	0	2	calibration		NUP						
424	F	MS	0	2	calibration		NUP						
424	F	MS	0	2	calibration		NUP						
424	F	MS	0	2	pre		to RED	0	45	90		0	
424	F	MS	0	2	pre		to NUP	0	45	90		0	
424	F	MS	0	2	pre		to RED	0	45	90		0	

424	F	MS	0	2	pre		to NUP	0	45	90		0	
424	F	MS	0	2	pre		to RED	0	45	90		0	
424	F	MS	0	2	pre		to NUP	0	45	90		0	
424	F	MS	23	2	PRE	1	to RED	0	45	90	0	0	3.9054
424	F	MS	23	2	PRE	2	to NUP	0	45	90	5.47	4	4.0784
424	F	MS	23	2	PRE	3	to RED	0	46	96	3.18	1	5.3414
424	F	MS	23	2	PRE	4	to NUP	1	44	84	4.47	2	3.3968
424	F	MS	23	2	PRE	5	to RED	0	45	90	1.88	1	5.1443
424	F	MS	23	2	PRE	6	to NUP	3	45	90	5.3	4	4.5793
424	F	MS	23	2	STIM	7	to RED	0	45	90	0	0	5.1084
424	F	MS	23	2	STIM	8	to NUP	4	44	84	5.75	3	4.2324
424	F	MS	23	2	STIM	9	to RED	1	46	96	3.13	1	5.0704
424	F	MS	23	2	STIM	10	to NUP	2	43	78	5.48	2	5.668
424	F	MS	23	2	STIM	11	to RED	2	46	96	2.52	1	5.0847
424	F	MS	23	2	STIM	12	to NUP	3	44	84	5.42	2	3.9691
424	F	MS	23	2	STIM	13	to RED	2	45	90	2.15	1	5.4958
424	F	MS	23	2	STIM	14	to NUP	3	45	90	4.52	4	4.6574
424	F	MS	23	2	STIM	15	to RED	1	45	90	0	0	4.0161
424	F	MS	23	2	STIM	16	to NUP	4	45	90	4.83	4	4.4521
424	F	MS	23	2	STIM	17	to RED	3	45	90	2.92	1	3.7512
424	F	MS	23	2	STIM	18	to NUP	4	44	84	4.58	4	3.1483
424	F	MS	23	2	STIM	19	to RED	1	45	90	2.48	1	4.005
424	F	MS	23	2	STIM	20	to NUP	2	45	90	4.65	3	4.4531
424	F	MS	23	2	STIM	21	to RED	1	45	90	2.65	1	3.4508
424	F	MS	23	2	STIM	22	to NUP	2	44	84	3.38	1	3.5161
424	F	MS	23	2	STIM	23	to RED	1	45	90	2.7	1	4.0309
424	F	MS	23	2	STIM	24	to NUP	1	44	84	3.75	1	4.127
424	F	MS	23	2	STIM	25	to RED	1	46	96	2.23	1	2.9876
424	F	MS	23	2	STIM	26	to NUP	2	45	90	2.73	3	3.7174
424	F	MS	23	2	STIM	27	to RED	2	47	102	2.97	2	3.579
424	F	MS	23	2	STIM	28	to NUP	4	45	90	5.32	5	2.8968
424	F	MS	23	2	STIM	29	to RED	2	45	90	2.72	1	4.4384
424	F	MS	23	2	STIM	30	to NUP	3	45	90	4.83	2	3.5096
424	F	MS	23	2	STIM	31	to RED	2	45	90	2.25	2	3.3089
424	F	MS	23	2	STIM	32	to NUP	3	45	90	4.23	3	3.9842
424	F	MS	23	2	STIM	33	to RED	2	45	90	2.75	1	3.8509
424	F	MS	23	2	STIM	34	to NUP	4	45	90	4.35	3	3.5237
424	F	MS	23	2	STIM	35	to RED	2	47	102	3.17	1	3.7685
424	F	MS	23	2	STIM	36	to NUP	5	45	90	2.32	3	3.3524
424	F	MS	23	2	POST	37	to RED	4	46	96	2.75	1	4.0612
424	F	MS	23	2	POST	38	to NUP	4	45	90	5.68	2	4.4292
424	F	MS	23	2	POST	39	to RED	4	46	96	2.65	1	4.0611
424	F	MS	23	2	POST	40	to NUP	5	45	90	6.05	3	4.9108
424	F	MS	23	2	POST	41	to RED	3	45	90	2.75	1	3.8547
424	F	MS	23	2	POST	42	to NUP	5	46	96	4.73	4	2.8882
424	F	MS	0	2	post		to RED	3	45	90		0	
424	F	MS	0	2	post		to NUP	2	45	90		0	
424	F	MS	0	2	post		to RED	2	45	90		0	
424	F	MS	0	2	post		to NUP	2	45	90		0	
424	F	MS	0	2	post		to RED	2	45	90		0	
424	F	MS	0	2	post		to NUP	2	45	90		1	
424	F	MS	0	2	calibration		NUP						
424	F	MS	0	2	calibration		NUP						
424	F	MS	0	2	calibration		NUP						
424	F	MS	0	3	calibration		NUP						
424	F	MS	0	3	calibration		NUP						
424	F	MS	0	3	calibration		NUP						
424	F	MS	0	3	pre		to RED	0	45	90		0	
424	F	MS	0	3	pre		to NUP	0	45	90		0	
424	F	MS	0	3	pre		to RED	0	45	90		0	
424	F	MS	0	3	pre		to NUP	0	45	90		0	
424	F	MS	0	3	pre		to RED	0	45	90		0	
424	F	MS	0	3	pre		to NUP	0	45	90		0	
424	F	MS	23	3	PRE	1	to RED	0	45	90	3.2	1	4.9367
424	F	MS	23	3	PRE	2	to NUP	0	44	84	3.8	2	5.4153
424	F	MS	23	3	PRE	3	to RED	0	45	90	2.67	1	5.5051
424	F	MS	23	3	PRE	4	to NUP	0	43	78	4.65	2	4.438
424	F	MS	23	3	PRE	5	to RED	0	46	96	2.72	1	4.7367
424	F	MS	23	3	PRE	6	to NUP	0	44	84	4.73	2	3.6512
424	F	MS	30	3	STIM	7	to RED	0	46	96	2.37	1	
424	F	MS	30	3	STIM	8	to NUP	0	44	84	3	3	
424	F	MS	30	3	STIM	9	to RED	0	45	90	4.95	1	3.7886
424	F	MS	30	3	STIM	10	to NUP	1	44	84	2.78	3	3.0248
424	F	MS	30	3	STIM	11	to RED	1	46	96	5.68	1	4.1186
424	F	MS	30	3	STIM	12	to NUP	1	44	84	2.53	3	2.2065
424	F	MS	30	3	STIM	13	to RED	1	46	96	5.75	1	3.0146
424	F	MS	30	3	STIM	14	to NUP	1	45	90	2.28	4	3.0905
424	F	MS	30	3	STIM	15	to RED	0	45	90	5.35	1	3.2991
424	F	MS	30	3	STIM	16	to NUP	2	45	90	2.55	3	3.6327
424	F	MS	30	3	STIM	17	to RED	2	45	90	5.37	1	3.9574
424	F	MS	30	3	STIM	18	to NUP	2	45	90	2.6	4	3.0756
424	F	MS	30	3	STIM	19	to RED	3	45	90	6.47	2	3.3973
424	F	MS	30	3	STIM	20	to NUP	3	44	84	3.82	4	2.4736
424	F	MS	30	3	STIM	21	to RED	3	46	96	4.12	1	4.6898
424	F	MS	30	3	STIM	22	to NUP	4	45	90	2.75	4	3.8441
424	F	MS	30	3	STIM	23	to RED	3	46	96	5.15	2	4.001
424	F	MS	30	3	STIM	24	to NUP	3	45	90	2.7	3	3.8516
424	F	MS	30	3	STIM	25	to RED	3	45	90	4.15	2	4.0676
424	F	MS	30	3	STIM	26	to NUP	3	45	90	4.45	4	2.8224
424	F	MS	30	3	STIM	27	to RED	3	47	102	5.75	2	3.689
424	F	MS	30	3	STIM	28	to NUP	4	45	90	2.88	4	2.6925
424	F	MS	30	3	STIM	29	to RED	2	45	90	5.92	2	4.0319
424	F	MS	30	3	STIM	30	to NUP	2	45	90	2.58	2	4.2131
424	F	MS	30	3	STIM	31	to RED	2	45	90	3.58	2	3.1678
424	F	MS	30	3	STIM	32	to NUP	3	45	90	2.92	3	2.6786
424	F	MS	30	3	STIM	33	to RED	2	45	90	4.97	1	3.8151
424	F	MS	30	3	STIM	34	to NUP	3	45	90	3.85	4	3.7605
424	F	MS	30	3	STIM	35	to RED	3	45	90	3.77	2	3.2167

424	F	MS	30	3	STIM	36	to NUP	4	45	90	4.05	4	
424	F	MS	23	3	POST	37	to RED	4	46	96	4.35	1	2.615
424	F	MS	23	3	POST	38	to NUP	3	45	90	4.18	3	2.5328
424	F	MS	23	3	POST	39	to RED	3	45	90	4.82	2	3.3977
424	F	MS	23	3	POST	40	to NUP	4	43	78	5.45	2	2.0529
424	F	MS	23	3	POST	41	to RED	4	46	96	3.9	2	3.5572
424	F	MS	23	3	POST	42	to NUP	4	45	90	4.67	3	2.9955
424	F	MS	0	3	post		to RED	2	46	96		0	
424	F	MS	0	3	post		to NUP	2	46	96		1	
424	F	MS	0	3	post		to RED	2	46	96		0	
424	F	MS	0	3	post		to NUP	0	45	90		0	
424	F	MS	0	3	post		to RED	0	45	90		0	
424	F	MS	0	3	post		to NUP	0	45	90		0	
424	F	MS	0	3	calibration		NUP						
424	F	MS	0	3	calibration		NUP						
424	F	MS	0	3	calibration		NUP						

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