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SP.235 / ESG.SP235 Chemistry of Sports
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NEWTON RUNNING SHOE STUDY SPRING 2009

Purpose

To evaluate from a design, bio-mechanical and athletic perspective the design and performance of the revolutionary new Newton running shoe.

Description of the Protocol

Frequency: 3 days per week for a total of 12 weeks.

Distance: 4 Measured Intervals of either 1 mile (runners who train at least 3 days per week) or 0.50 mile (recreational or weekend runners/beginners) each.

Place: Indoor Track (this will minimize variability by keeping environmental conditions such as wind, temperature, humidity, lighting, precipitation, etc., constant).

Methodology: Participants will run a measured distance at a predetermined steady heart rate and record the elapsed time. Participants will begin each running test by a warm up period followed by the running test and a cool down and repeat. The distance will be equal to 4 intervals of 1 mile (or 0.5 mile) each followed by a cool down period sufficient in duration to return to the participant's starting heart rate.

The study consists of four phases: Phase I: running the intervals in foam core running shoes. Phase II: running the intervals in foam core shoes after attending a running clinic on Mid-sole running. Phase III: running the intervals alternating between foam core shoes and Newton Running shoes. Phase IV; running the intervals in Newtons shoes.

The participants will be run to achieve a specific target heart rate, (dependant on the age and physical fitness of the individual) and then measuring how long it takes to run the given interval.

Calculation of Aerobic Threshold Pace: The calculation of the participant's aerobic threshold pace is important. For those students who have not had their aerobic threshold calculated already, it may be calculated as 15 beats per minute below 220 minus the age of the participant. This is the heart rate at which the running test will be conducted. It is important that each running interval throughout the 12 week test period be done at this pace.

The Running Test

STEP ONE - The Warm Up: Participants will begin each running test set by a warm up period of at least 10 minutes. Participants should walk, jog, run, stretch, deep breathe and relax making note of their heart rate at the conclusion of the warm up period.

STEP TWO - The Running Test: Following the warm-up period, each participant will run a total of 4 intervals of 1 mile each with a cool down period in between. Start by first making note of your resting heart rate. Then begin your first 1 mile run. Begin to build your pace until the desired heart rate is achieved. Hold this pace for one mile. During the run, try to relax, glancing at your heart rate monitor occasionally to make sure you are on the desired pace. Remember, it's not about running the distance fast, it's about holding a steady state heart rate for the distance and recording your time accurately. After running the first 1 mile interval stop and record your time.

STEP THREE - The Cool Down: The completion of each 1 mile interval is followed by a cool down period during which the participant slows their pace to an easy jog or walk until their heart rate returns to the starting heart rate recorded at the conclusion of the warm-up session. When the desired starting heart rate is achieved then start mile two.

STEP FOUR – Repeat: Repeat the process for miles two, three and four. Make sure you maintain the desired aerobic pace and record your time after each interval. When you're done, then hit the showers!

Data Collection

Each participant will record the date, time, place, beginning heart rate, aerobic threshold heart rate at which the running test was conducted, the distance covered and the timed results of each test for each interval on a website. Students will be encouraged to compare individual and group results.