

# Sports Performance Testing of High School Distance Runners

## Monitoring Whole Body Strength and Cognitive Flexibility

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### Abstract

In order to monitor changes in performance for overall body strength and cognitive flexibility in distance runners before and after wearing Q-Link® products, MedSource LLC, an independent functional evaluation company, designed an objective protocol for testing competitive, high school age distance runners. Combining the use of peer reviewed and published research, MedSource structured a protocol that included an initial test battery followed by a five-day delay prior to second trial testing and included both genders and a 50% placebo base. Results displayed a positive direct correlation between those who wore a Q-Link® and those that scored greater on both total body strength and cognitive flexibility.

### Q-Link® Products

The test protocols for this study were selected based on their relative importance to athletics generally, and specifically to distance running. Q-Link® products incorporate Sympathetic Resonance Technology™ or SRT™ which its developers claim clarifies the fundamental information pathways between physical matter.

### Distance Runners

Cross country, road racing and long distance track events (800 meters to 5000 meters) test an athlete's speed, strength and muscular endurance but with a significant focus on the need for reduction of mental and physical stress in connection with the deployment of energy over a relatively long duration of intense activity (from 2 to 30 minutes or more). In addition, training and competing in long distance running demand a high level of mental concentration. In other words, ***“Speed, endurance, strength and cognitive flexibility are all key criteria in determining an athlete's measure of success throughout the season.”*** Attention, motor response and reaction time are all key components of any athlete's overall performance.

### Procedure & Subject Base

Testing was provided for all subjects on pre-use day one and post-use day 5 at the same time of day and in the same protocol order. The same evaluators administered the testing in the same sequence for all participants. 10 female and 10 male subjects were tested with the age range of 14 to 18. Of each selection group half were provided a placebo Q-Link device and the other half were provided a fully functioning Q-Link device to wear after completion of the first test series. All subjects were members of a competitive high school cross country program in mid-season.

### Conclusions

The test results showed an overall positive change in performance of those wearing the Q-Link®. A resultant average improvement in total body strength of 6.05% was noted for the males and 5.72% for the females tested. These results were in direct comparison to those wearing placebo (non-functioning Q-Link® device) who scored at an average improvement of 1.04% for the males and 0.35% for the females tested. This increase for Q-Link® wearers over the placebo group was 5.01% for males and 5.38% for the females, which was a significant and noted result. Thus, the changes noted during the testing document that the athletes who wore the Q-Link® were able to demonstrate increased overall body strength and cognitive flexibility after the five day usage period. In fact, 100% of the athletes tested using the Q-Link® displayed positive outcomes. This initial research should be noted as a solid basis for future testing of other athletic and sport activities.

**RAY GAGNE, EET, CFE, NADEP** has as worked extensively in the area of sports medicine technology design and development.

Starting with the Olympics in the 1980's he had developed an extensive line of modalities used to expedite recovery after injury and was instrumental in the development of diagnostics for electromyography, nerve conduction velocity and muscular strength. After the Olympics experience, he developed a wide range of strength, range of motion, occupational and cognitive technologies used to objectively measure the whole person. Ray has worked with and educated professionals in the workers compensation, disability and athletic performance industry throughout six countries over the past fifteen years.