Conclusions: This study highlighted large differences between shoulder muscles strength. Hence, specific training protocols to compensate for these imbalances, because they must not be greater than 15–20% (Witvrouw et al. 2003; Wang et al. 2006).

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5 TFE
Benefits of 8 weeks of High Intensity Training in healthy women: the Trion project

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Aim High-intensity training (HIT) has recently been shown to be a suitable alternative time-saving strategy to improve athletic performance, cardiovascular fitness and muscle metabolism[1]. Nevertheless, women have rarely participated in studies investigating the efficacy of HIT[2]. Therefore, the aim of this study was to evaluate in moderately active women the effectiveness of an HIT intervention performed on a new device called *Trion*.

Methods Before and after 8 weeks of HIT (3 time/week, 7reps × 30 s all-out interspersed with 2 min of active rest), in 35 healthy women volunteers (22.5 ± 3.7 yy; BMI: 21.2 ± 2.6), we measured maximal oxygen uptake ($V'O_{2max}$), ventilatory threshold (VT), anaerobic performance, muscle structure, body composition, hematochemical ($CHOL_{tot}$) and blood pressure profile at rest. The HIT workout was performed running on non-motorized curve treadmill and cycling on an competition bike mounted on an electromagnetic roller.

Results Absolute and relative $V'O_{2max}$ significantly increased by 10% ($p < 0.05$); maximal power and power@VT increased by 7.2 and 6.3% ($p < 0.05$), respectively; peak anaerobic performance significantly increased by 10% ($p < 0.05$). Large significant differences ($p < 0.05$) were identified for vastus lateralis thickness and pennation angle, +4.9 and +10.1%, respectively. Fat mass and $CHOL_{tot}$ decreased by 3.9 and 5.7% ($p < 0.05$), respectively.

Conclusions Our results confirm the feasibility and effectiveness of HIT to improve exercise performance and health related parameters: HIT performed on *Trion* device was absolutely safe and well tolerated by the subjects. As confirmed in previous studies, our findings shows that exercise intensity, rather than duration, is the key factor in determining functional benefits.

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6 TFE
Relationship between change of directions and anthropometric factors in collegiate soccer players

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Aim: Very little research has attempted to correlate anthropometric variables and change of direction speed performance. In particular Sheppard and Young (2006), supposed that an athletes anthropometry could potentially be related to performance during change of direction Therefore, the aim of this study was to assess possible relationship between anthropometric parameters and performance during change of direction tests.

Methods: Twenty-two collegiate soccer players (22 ± 5 years old) were enrolled in the study. Anthropometric parameters (stature, body mass, BMI, sitting high and lower limb, femur, tibia, fibula and foot length) and performance during change of direction tests (5–0–5, 10 × 5 shuttle run, modified T-test, slalom test, Illinois agility test, 20 Yards Shuttle Run, 3-cone drill, Box Test) were assessed.

Results: Pearson's correlation coefficient test was applied to found relationship between stature (1.78 ± 0.05 m), body mass (73 ± 9 kg), BMI (23 ± 2 kg/m^2), sitting high (91 ± 3 cm), and lower limb (94 ± 3 cm), femur (45 ± 2 cm), tibia (40 ± 2 cm), fibula (40 ± 1 cm) and foot (26 ± 1 cm) length, and 5–0–5 (2.56 ± 0.15 s), 10x5 shuttle run (16.91 ± 0.86 s), modified T-test (6.57 ± 072 s), slalom test (6.42 ± 1.02 s), Illinois agility test (16.13 ± 1.18 s), 20 Yards Shuttle Run (5.10 ± 0.36 s), 3-cone drill (8.66 ± 0.78 s), Box Test (17.18 ± 1.97 s). No significant relationship was found between anthropometric parameters and performance during change of direction tests.

Conclusion: In conclusion, results suggest that agility performance does not appear to be linked with anthropometric parameters. Essentially, speed and agility are distinct physical qualities and anthropometry does not appear to enhance change of direction speed. For this reason, further investigations are needed to assess what are the physical performance measures that are related to change of direction ability.

Reference

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