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Physiological and Training Characteristics in Male Marathon Runners: The Role of Sport Experience

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Main Goal of the Study

- It was hypothesized that groups of male recreational marathon runners of different sports experience would exhibit similar training and physiological characteristics, considering recent findings.

Methods

- male marathon runners with different sports experience
- group with 3 or less finishes in marathon races vs. group with 4 or more finishes
- n=69, age 43.5±8.0 y vs. n=66, 45.2±9.4 y
- comparison of anthropometry and physiological characteristics

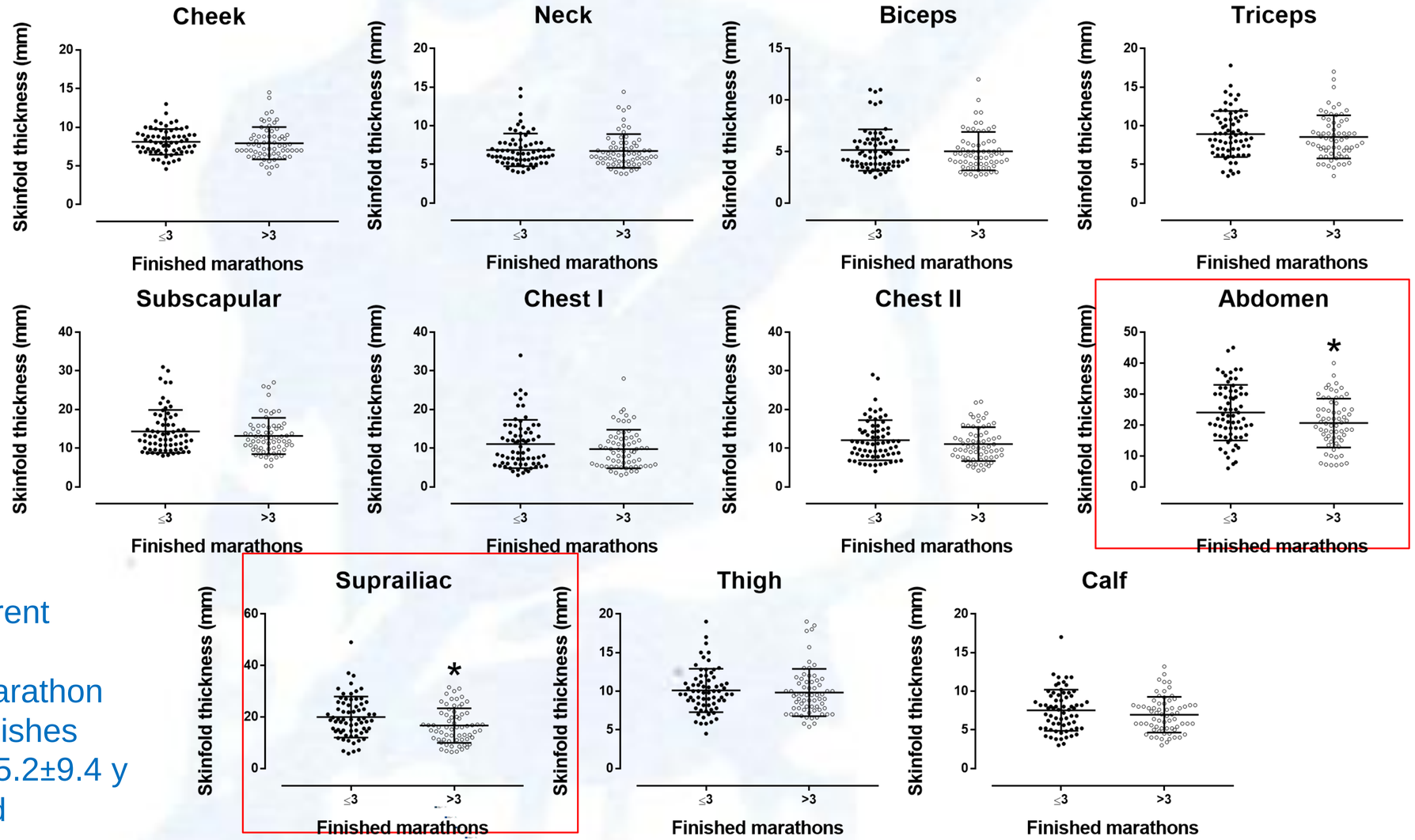

Figure 1. Skinfold thickness of eleven anatomical sites by number of marathon finishes. Error bars represented standard deviations. *p<0.05

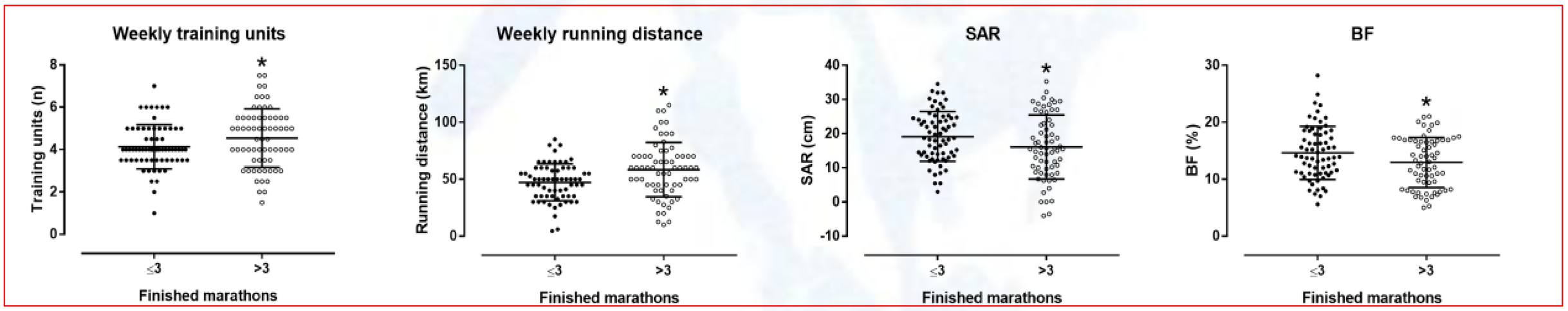

Figure 2. Weekly training units and running distance, sit-and-reach test (SAR) and body fat (BF) percentage by number of marathon finishes. Error bars represented standard deviations. *p<0.05.

Results

More experienced runners had faster personal best marathon time (3:44±0:36 vs. 4:20±0:44 h:min, p<0.001, respectively), lower flexibility (15.9±9.3 vs. 19.3±15.9 cm, p=0.022), abdominal (20.6±7.9 vs. 23.8±9.0 mm, p=0.030) and suprailiac skinfold thickness (16.7±6.7 vs. 19.9±7.9 mm, p=0.013), body fat assessed by bioimpedance analysis 13.0±4.4 vs. 14.6±4.7%, p=0.047), more weekly training days (4.6±1.4 vs. 4.1±1.0 days, p=0.038) and longer weekly running distance (58.8±24.0 47.2±16.1 km, p=0.001) than their less experienced counterparts (Figures 1,2). The number of finishes in marathon races correlated with squat and (r=-0.41, p=0.021) countermovement jump (r=-0.38, p=0.032), and with weekly training days (r=0.19, p=0.030) and running distance (r=0.25, p=0.004).

Main Findings

- The findings indicated that long-term marathon training might induce adaptations in endurance performance, body composition and flexibility.
- An interpretation of the lower score of flexibility in the more experienced group might be its relationship with running economy[1].
- The negative relationship of the number of finishes with the indices of muscle strength (jump tests) suggested a negative adaptation of muscle strength to endurance training [2].

References

1. Brown, J. C. et al. (2011). Int J Sports Physiol Perform, 6(4), 485-496.
2. Del Coso, J. et al. (2019). Genes (Basel), 10(6), 413.

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