The somatotype and dermatoglyphic profiles of adult, junior and juvenile male Brazilian top-level volleyball players

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Summary

Aims

The somatotype is believed to influence volleyball performance. Additionally, the impression of the digitals is also believed to assess the physical potential of athletes. The aim of the present study was to investigate the somatotype and dermatoglyphic profiles of players of three Brazilian national volleyball teams: adults, juvenile and infant-juvenile.

Materials and methods

A total of 38 male players included in the three national teams were observed. The subjects were submitted to an evaluation to identify the dermatoglyphic profile by means of fingerprints, following the protocol of Cummins and Midlo (1942). The digital impressions (DI) designs were used to determine the different patterns and the predominant types of digital form. The subjects were also submitted to an evaluation of the somatotype by the anthropometric method of Carter and Heath (1990).

Results

The main findings of the present study were that the infant-juvenile and the juvenile national Brazilian teams are classified on Class III of the Dermatoglyphic and Somato-Funtional Index Classification; while the adult team is classified on Class IV of the same referential. The somatotype of the volleyball players in the present study was similar to those described in the literature for other elite national volleyball teams. We have found a lower endomorphism in the juvenile team and a lower ectomorphism in the adult team.

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SCIENCE INCREASING PERFORMANCE: DERMATOGLYPHICS, SOMATOTYPE AND BASIC PHYSICAL QUALITIES PROFILE OF BRAZILIAN MILITARY ATHLETES

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Genetics represents a modern science that can collaborate in the process of a sports talent discovery (Fernandes Filho, 2003). Fingerprints, as a component of hereditary characteristics, had been used in some countries as a tool to select players since the childhood (Liang & Li, 1996). The somatotype is used to classify the individuals, according to their physical type in categories (endomorphy, mesomorphy and ectomorphy). In each sports modality, the athletes present distinct physical characteristics in accordance to the needs demanded for a higher level of peformance (Mansur et al., 2002). The main objective of this research is identifying the dermatoglyphics, somatotyping and basic physical qualities profile of Brazilian Military Pentathlon, Modern Pentathlon, Fencing (foil) and Volleyball military athletes, male, top level of performance. They had composed a sample of thirty seven subjects, divided in four groups, being six Military pentathletes (Mil P), seven Modern pentathletes (Mod P), twelve fencers (F) and twelve Volleyball players (V). All athletes had been evaluated and characterized on age, body mass, stature; dermatoglyphic profile, by protocol of Cummins and Midlo (1942) - **total ridge count (TRC), D10 index and kind of fingerprints (arch-A, loop-L and whorl-W);** somatotype, by the anthropometric method of Heath-Carter (1967); and basic physical qualities of speed - 50 meters launched running (Mil P, F); agility - Shuttle Run (Mil P, F); maximum aerobic power ($\dot{V}$O2max) - Léger-Boucher (Mil P, Mod P) and ergoespirometry (F); and anaerobic resistance - 40 seconds running (Mil P, F). The dermatoglyphic profile results, which include the most informative and integral indexes, presented D10 index of 9.20 ± 2.17 (Mil P), 14.1 ± 3.63 (Mod P), 12.6 ± 4.66 (F) and 13.5 ± 2.88 (V); TRC 82,3 ± 42.34 (Mil P), 128.6 ± 30.42 (Mod P); 119,9 ± 46,98 (F) and 132.08 ± 38.27 (V); L= 7.60 ± 1.52, W = 0.67 ± 0.52 and A= 1.33 ± 1.75, with higher incidence of L and lower of W (Mil P), L = 5.0 ± 2.45, 4.60 ± 2.88 and 0 ± 1.13, with balance between L±W and lower of A (Mod P); L = 5.8 ± 3.05, W = 3.4 ± 3.4 and A = 0.8 ± 1.99, showing higher presence of L and lower of A (F); L = 5.83 ± 2.21, W = 3.83 ± 2.24 and A = 0.33 ± 0.78, disclosing a higher amount of L and lower of A (V). Based on dermatogliphyc classification (Abramova et al., 1995) it seems that the sample of Mil P classifies has, probably, maximized somatic-functionary level of force and minimized of coordination; the group Mod P seems to have higher performance of coordination and speed resistance, lower of force and the speed; the group F has higher level of coordination and lower of relative force; and group V, better in coordination and lower in relative force. The somatotyping results are 1.5-5.5-2.2 (Mil P); 2.3-4.5-3.4 (Mod P); 2.5-4.0-3.3 (F), all meso-ectomorphic; and 2.6-4.2-2.6 (V), balanced mesomorphic. Therefore, this study came to present the profile of the Brazilian military athletes, in order to allow the comparison of this population, at another opportunity, with its own results, among other sports, with national and international teams, and serving as concrete data of high level sports formation and renewal of Brazilian military teams.

http://www.cism-milsport.org/eng/007_SYMPOSIUM/2009/Lectures/011_science_increasing.asp

The diagnosis and prediction of human height on the basis of the dermatoglyphics of fingers and palms

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The paper gives the results of an experimental study of the dermatoglyphics of fingers and palms in the representatives of the Europeoid race (males and females) with different heights. On the basis of the revealed patterns of variability in the papillary relief, the authors have developed the diagnostic and prognostic models to define height, which are based on the Bayesian approach and multiple regression analysis. A height group can be correctly defined in 75-95% of cases; the height estimation accuracy is ±4-5 cm. In terms of their high efficiency and technical simplicity, the developed models can find application in forensic medical practice to identify a personality and in sports medicine to detect early a child's natural abilities to this kind of sports.

http://www.medlit.ru/medeng/rmj/rmj10e0126.htm

Digit ratio (2D:4D) predicts sporting success among female fencers independent from physical, experience, And personality factors

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Keywords:

Research particularly focusing on male athletes and popular sports (running and soccer) suggests associations of lower (masculinized) second-to-fourth digit ratio (2D:4D), a putative marker of prenatal androgen action, with better sports performance. Studies focusing on women, non-mainstream sports, or controlling for covariates relevant for sporting success are still sparse. This study examined associations between 2D:4D and performance of both male and female athletes active in fencing (a non-mainstream sport dominated by male participants), while controlling for covariates. National fencing rankings and 2D:4D of 58 male and 41 female Austrian tournament fencers (mean age 24 years) were correlated. Among female, but not male, fencers, lower 2D:4D was related to better national fencing rankings. 2D:4D still accounted for incremental variance (12%) in fencing success, when the effects of salient performance factors (age, body mass index, years of fencing, training intensity, and the personality variables achievement, control, harm avoidance, and social potency) were controlled for (totaling 35% attributable variance). Athletes active in the most aggressive form (the sabre) had lower 2D:4D than those active in the other forms (épée and foil fencing). Sporting success in adult life might be partly prenatally programmed via long-lasting extragenital effects of testosterone.

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