

DIE ANTROPOMETRIESE SPRONGITEM-PRESTASIEDETERMINANTE VAN JONG DOGTERGIMNASTE

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ABSTRACT

The purposes of this study were firstly to determine the anthropometric variables that differ significantly ($p \leq 0.05$) between successful and less successful young, South-African (SA), female gymnasts in the vault item and secondly, to determine the anthropometric variables that contribute to the performance of young SA female gymnasts in the vault item. Twelve young, female gymnasts (13.39 ± 2.14 years) from a gymnastics club in the North-West Province of South Africa participated in this study. Only gymnasts who participated at level 6-9 and junior as well as at the senior Olympic level were selected to participate in this study. Sixty-one anthropometric variables were measured on the dominant side of the body according to the methods of Norton et al. (1996). Independent t-tests and effect sizes revealed that the gymnasts who obtained the highest points (top 5) during the execution of the vault item during the South African Gymnastics Championships had statistical and practical significantly larger relaxed and flexed upper arm, wrist and ankle circumferences as well as higher mesomorphy values than the less successful gymnasts. The cluster analysis-reduced variables were used to perform a forward, stepwise multiple regression analysis, which showed that flexed upper arm circumference (53.93%), midstillion dactillion length (12.38%), foot length (11.50%), fat percentage (8.93%), trochanterion-tibial lateral length (5.77%), chest circumference (3.69%), ectomorphy (1.96%), bideltoied breadth (1.54%), triceps skinfold (0.23%) and iliospinal box height (0.07%) contributed 100% to the variance in gymnasts' vault performances. Therefore the conclusion that can be drawn is that larger upper arm and upper body circumferences; hand, foot, upper leg and total leg lengths; triceps skinfold and fat percentage as well as a higher ectomorphy value are important anthropometric vaulting performance determinants for young, South African, female gymnasts and should be included in the sport-scientific testing protocols of gymnasts.

Key words: Gymnastics; Vault; Anthropometry; Performance; Female; Girls.

INLEIDING

Artistiese gimnastiek is 'n sport waaraan meer as 30 miljoen individue in meer as 80 lande deelneem (Bale & Goodway, 2004). Dit is 'n sportsoort wat uit 'n groot hoeveelheid items bestaan wat elk unieke eise aan die gimnas stel. Die items waaraan dogters deelneem, kan verdeel word in vloer-, sprong-, brug- en balkreekse (Bale & Goodway, 1990). Suksesvolle gimnaste toon 'n kenmerkende antropometriese profiel (Carter & Brallier, 1988), wat die belang van antropometriese samestelling as 'n prestasiedeterminant beklemtoon (Thorland et