A Multidimensional and Multivariate Approach to Perceptual Factors Related to the Serve-Receiving Performance in Volleyball

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Abstract

The purpose of this study was to investigate the relationship of perceptual factors to the serve-receiving performance in volleyball games by using a multidimensional and multivariate approach. Male college volleyball players (n = 21) were examined on two types of perceptual factors: hardware traits (static visual acuity, kinetic visual acuity, dynamic visual acuity, contrast sensitivity, ocular motor skills, depth perception, visual reaction time and eye/hand coordination) and software traits (attentional skills and anticipation skills). The serve-receiving performance of each player was measured by mutual evaluation, motor performance tests and synthetic evaluation. The statistical analysis of data revealed that, while there was no relationship between hardware traits and serve-receiving performance, there was a significant relationship between software traits and performance. Especially, the broad attention measured by TAIS-V was highly correlated with performance. These results suggest that serve-receiving performance can be effectively improved by perceptual training that focuses not on hardware traits, but on software traits.

Key words: volleyball, serve-reception, perception, hardware traits, software traits