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Sport-specific tasks and game performance in relation to relative age and biological maturity in talent selection among adolescent female handball players

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INTRODUCTION:

It has been proposed that technical and tactical sport-specific tasks are not affected by maturity status and therefore can be considered for talent selection purposes. In this study, we examined in-game performance and sport- and position-specific tasks in relation to relative age and biological maturity during a talent selection process in handball. We tested the hypothesis that relative age and/or maturation have limited impact on talent selection.

METHODS:

The participants (N=225) were adolescent female handball field players participating in the national handball selection (backcourts N=99, wings N=55, pivots N=21, center backcourts N=50). The selection included handball-specific generic skills, position-specific technical drills and the players performance in game situations. We grouped the players into eight categories in quarter-year intervals (from Q1-Q8). Biological maturity was estimated with an ultrasound-based device (Sunlight BoneAge). Differences between bone age (BA) and chronological age (CA) were used to estimate maturity status (delayed/average/advanced). Inter-group differences were examined by one-way analysis of variance.

RESULTS:

Relative age groups differed in bone age in favour of relative older, but not in body size. Regarding selection criteria, differences between relative age groups were found only for in-game performance (Q1: 6.0±2.0 vs. Q8: 3.4±3.4 points; p<.002) and total score (Q1: 21.7±6.7 vs. Q8: 13.9±7.0 points; p<.003), but not for the technical tasks. When divided based on their maturity status, delayed maturing players had significantly lower performance in the slalom dribbling-shooting task than average maturing players (29.1±1.6 sec vs 27.7±1.7 sec respectively, p<.014) and also in the defensive footwork task than advanced maturing players (16.3±1.3 sec vs 15.5±0.8 sec respectively, p<.001).

CONCLUSION:

The results confirm the disadvantage of the delayed maturing players in selection, primarily in those generic tasks where the relative contribution of physical abilities (force, speed, agility) is important for success. Maturation did not affect position-specific tasks and game performance. It seems that relative age has no effects on most tasks, despite that relative older players were older also in biological age. This may be explained by the similar variability in maturity status observed in all relative age groups likely resulting in homogenizing their performance. The significant differences in in-game performance scores between the relative age groups can be explained by the assumption that relatively older players have more training and competition possibilities developing in this way their game intelligence. In summary, it is not the relative age itself that affects the selection, but mostly advanced biological maturation of presumably above one-year differences between the players.

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