

ORIGINAL RESEARCH

AGE DIFFERENCES IN MEASURES OF FUNCTIONAL MOVEMENT AND PERFORMANCE IN HIGHLY TRAINED YOUTH BASKETBALL PLAYERS

Oliver Gonzalo-Skok, PhD¹Jorge Serna, PhD¹Matthew R. Rhea, PhD²Pedro J. Marín, PhD, PT³

ABSTRACT

Background: There is a lack of information about the influence of age on functional movement tests (FMT) and performance tests as well as in their relationships in young basketball players.

Purpose: The purpose of the present study was to determine the variations in FMT and jump and/or sprint performance scores between age groups (U-14 vs. U-16) in Highly-trained young basketball players. The second purpose was to investigate the relationship between FMT for lower body and jump and/or sprint performance in highly-trained young (U-14 and U-16) male basketball players.

Study Design: Descriptive study.

Methods: Thirty elite young (U-14 to U-16) male basketball players performed several FMT (weight-bearing dorsiflexion test [WB-DF] and a modified Star Excursion Balance test [SEBT]) and performance including unilateral and bilateral countermovement jumps, unilateral horizontal jumping, linear sprinting and performance tests.

Results: All anthropometric and performance tests showed a statistically significant advantage ($p < 0.05$) in the U-16 group, excluding the unilateral jump with left leg ($p = 0.127$). Five out of the eight FMT performed showed a statistically significant advantage ($p < 0.05$) in the U-16 group. The U-14 group did not differ statistically from the U-16 group in WB-DF with left leg and the SEBT anterior right leg and posteromedial left leg reaches. Effect size calculations did show small to moderate effects in favor of U-16. Only two significant correlations ($p < 0.05$) between functional movement and performance measures were identified in the U-16 group for either limb (10-m sprint and SEBT-PL_L, SEBT-Composite_L), while a total of 13 significant correlations ($p < 0.05$) in the U-14 group were found.

Conclusions: The results of this study demonstrated differences in FMT and jump and/or sprint performance test between age groups (U-16 vs U-14). The findings of this study support the idea that the age of the player should be considered when interpreting FMT scores, which could have implications when implementing the FMT for injury risk prediction.

Level of evidence: 2b

Key Words: Functional testing, sports performance, sprinting speed, vertical jump

¹ Faculty of Health Sciences, University of San Jorge (USJ), Zaragoza, Spain.

² A.T. Still University, Mesa, AZ, USA

³ CYMO Research Institute, Valladolid, Spain.

Conflict of interest

The last author declared potential conflicts of interest. He has patented the LegMotion system and OctoBalance system.

CORRESPONDING AUTHOR

Pedro J. Marín, PhD.

CYMO Research Institute, Valladolid, Spain.

E-mail: pjmarin@cymori.com