

Abstract

Title The use of methods FMS on athletes of category U16 - U19

Objectives: This thesis aims to point on the possibilities of a new method based on physio-therapeutic principles of physical preparation and training primarily of young athletes, named Functional movement screening (FMS), invented by Gray Cook. Most in particular the thesis is focused on what FMS method is and what possibilities are given to identify fundamental movement patterns of junior and teenager athletes. Short examination of the methods FMS was based on two tests invented by Gray Cook and evaluated on a group of ten athletes of category U16 – U19.

Methods: The thesis comes out from two crucial works published by Gray Cook. Subsequently I resumed results found out in foreign articles and studies about methods FMS, its principles, relationship with athletic performance and prevention of injuries, as well as relevant norming data. My attention was devoted to studies focused on implementing FMS testing of young athletes. Therefore I decided to select two particular tests and conduct short testing on athletes of category U16 – U19. When scoring the quality of their movements, I've applied the criteria of the methodology itself first. Later there were extended by my own verbal evaluation of particular segments of tested movements. In the results of the thesis I've resumed why it should be useful to implement FMS methodology and test the quality of fundamental movements on young age group athletes already.

Results: In this thesis I demonstrated the importance of testing and scoring fundamental movement patterns and functional movements in athleticism on younger age-group athletes already. Theoretical conclusions were based on two crucial works published by the author of the method, Gray Cook, then on scientific articles and studies found out in foreign databases (23 publications altogether) since no relevant scientific publication in Czech about FMS was available. Key words used for searching in foreign sources were: „Functional movement screening“, „FMS and athletic performance“, „FMS and young population“, FMS in athletics“, „FMS and norming data“, „FMS and scoring system“, „FMS and injury“ and „reliability of FMS“. Later I executed a short testing on a group of randomly selected athletes of category U16 –U19, based on two particular tests of FMS methodology: “deep squat” and “hurdle step”. Junior athletes were

selected as described in the article of Polish authors, Paruzel-Dyja and Iskra (2012), then Paruzel-Dyja and Mehlich (2014), that already published studies on FMS testing to score young athletes. Another reason why to focus on these categories was my own belief that a method that evaluates fundamental movement can bring changes and new opportunities to improve trainings so that athletes will be better prepared when moving into the adult category. Each test demonstrated significant differences between individuals, independently on their gender. Only seven of overall 30 examined young athletes achieved the highest score. Most of them achieved score two and only one had visibly worse movements, twice characterised with score one. The most important faults revealed when doing “deep squat” were external or internal rotation of the knee, transfer weight to the outer or inner edges of the feet or loss of stability due to assaults across the toe and the heel, further excessive bend the torso with a protruding head carriage and poorly with stretched arms at the elbows. The biggest deficiencies revealed in “hurdle step” were indirect movement during the stroke of the lower limb in the hip, knee and ankle joints. Other identified faults were compensation diversions torso and head to one side or the other, forward head posture and problems with the correct position of the feet. When staying on one leg, some instability appeared that I detected when an individual completed step behind the hurdle on the outer or inner edge of the the foot.

Key words athletics, physiotherapy in athletics, FMS, movement patterns, Gray Cook, FMS evaluation, FMS and athletic performance