

The movement quality, before it's too late

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Dear Editor:

We have read the original article entitled “*Movement quality evaluation through the functional movement screen in 12- and 13-year-old secondary-school adolescents*” by Vernetta-Santana, M., de Orbe-Moreno, M., Peláez-Barrios, E.M., & López-Bedoya, J. published in *Journal of Human Sport and Exercise*, 15(4), 918-931 (<https://doi.org/10.14198/jhse.2020.154.18>).

We want to congratulate the Authors for this successful original study and make some contributions on the issue. In the original article, the Authors rightly point out a heterogeneity results and analysis methodologies when investigating the relationship between movement quality and gender in secondary school students' physical fitness. The analysis of motor skills of school students is being studied all over the world and highlights very different methods of investigation (Colella, Monacis, & d'Arando, 2020). The FMS protocol is currently a widely used assessment to prevent injury risk and to understand movement quality (Moran, Schneiders, Mason, et al., 2017). If this assessment represents a key to relevant performance in elite sport, in the context of physical education and youth sport, this analysis becomes indispensable.

In elite sport one is fascinated by athletes demonstrating highly skilled and well-coordinated behaviour. To reach such high performance and flexibility levels often takes years of learning and training.

And sometimes the athletes seem to be able to improve their skills even further throughout their sport career. The FMS assessment protocol, in fact, aims to verify the quality of some individual fundamental movements. Currently, the literature is aimed at understanding the real FMS protocol effectiveness, both in the predicting the injury risk of injury, and in the understanding the relationship with motor abilities (Moran, Schneiders, Mason, et al., 2017). The study by Vernetta-Santana and colleagues highlight how high scores in the FMS test are associated with better performance in female group than male group.

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There are many factors that influence the values of this evaluation: the study by Vernetta-Santana and colleagues allows us to identify an aspect (the quality and control of some fundamental movements) on which there is a very current debate in the literature. In particular, the study underlines what percentage of the sample observed does not reach the cut off of 14 points and how this modest value can expose young practitioners to injury risk. If in school physical education the motor tasks can be modulated and appropriately selected in relation to the young people abilities and their motor skills, in the youth sport this attention is not often used. Although some data identified by the study by Vernetta-Santana and colleagues are not in line with those of the literature, there is one factor that attracts attention: the scores obtained by boys and girls in the In-line lunge test. Only a small percentage of boys reached the maximum score and none of the girls reached the maximum rating: this aspect is very relevant because the In-line lunge test proposes a simplified situation but similar to the change of direction.

The reflection must aim to broaden this debate which often stops at the analysis of the performance aspects of the FMS protocol to extend to youth sports training: already because the quality and control of movement is a requirement for all levels of sports qualification to reduce the risk of injury and not just to increase performance (Lee, Kim, & Kim, 2019). In youth training we must try to find a road to expertise capable of identifying the movement quality as a key point in the athlete's construction path. The sequence of motor learning must not be established by the young age but by the type of athlete we want to train: the boy who has different and quality motor experiences can become an adaptive athlete (Savelsbergh, & Wormhoudt, 2019). Adaptation to changing situations or new constraints in the environment in which the young moves, promotes the movement self-organization in flexible and functional shapes for solving the motor task, according to the Newell model (Newell, 1986).

The main idea of this model is that a produced coordinative movement pattern is the result of the interaction between the task, the environment in which this task has to be performed, and the movement possibilities of the organism (e.g., performer, athlete, or child) (Newell, 1986). These three categories of constraints together shape the limits of functional coordination patterns. If you want to train an athlete who moves well and is able to transfer this movement control in different performances, you have to start from the early stages of the motor training process. Movement quality and performance quality progress in parallel since the earliest shapes of motor learning. This motor learning process is based on the self-organization of movement that makes use of a learning context that presents different constraints and continuous adaptations: the flexible and transferable movement allows, especially in team sports, to perform functional movements to the context at high executive speed. In conclusion, the functional relationships between the quality of movement and increased performance are relevant to the athlete. This relationship cannot be expected to become important when the young practitioner becomes an elite athlete; on the contrary, this process must be guaranteed from the earliest stages of the training path through a review of motor learning and sports training methodologies. A new model of sports training at a young age becomes indispensable if we want to support this functional relationship, before it's too late.

Keywords: Physical education; Exercise; Physical fitness; Motor skills; Schools; Gender.

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