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Physical fitness and motor competence tests as predictors of talent in soccer? The correlation of juvenile test results and later success viewed stepwise over 12 years – a longitudinal study

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INTRODUCTION:
There are already several studies on talent identification in youth soccer. However, only a minority of these studies have a longitudinal design or observe the complete performance trajectory of young athletes all the way to adulthood. The few studies that investigated associations between youth performance and later success in senior competitive sports showed that the validity of talent predictions steadily decreased with increasing time periods. However, the data available to date is very limited. Therefore, the aim of this study was to analyze the correlations of early test performance (physical fitness and motor competence tests) of young soccer players with their later successes stepwise over 12 years until adulthood.
METHODS:
Over the past 12 years, about 100 male soccer players aged 8 years (U9) were tested annually (N = 1,266) in various physical fitness and motor competence tests. The test tasks included a 20m sprint, push-ups, sit-ups, standing long jump, standing bend forward, balancing backward, 6min endurance run, change of direction agility, hand grip, sideward jumping, soccer dribbling, agility run, and ball throw. For each participant, a 20-point performance scale was used to determine and assess the playing and competition success achieved in the following years in the respective age groups (up to U21). Using correlation analysis, it was examined whether juvenile test scores were significantly related to playing performance achieved later on.
RESULTS:
The findings show significant correlations with later achieved performance for almost all juvenile test tasks. Nevertheless, in early adolescence (U11–U15), mostly no or only weak correlations ($|r|<0.17$) of playing success with the test results can be demonstrated. However, it is noticeable that all correlation values become higher with an increasing prediction period. Thus, the highest correlation values are reached between U9 test performance and U21 playing success. However, the effects are predominantly moderate ($|r|<0.35$). The soccer-specific test items showed the largest correlations.
CONCLUSION:
Contrary to the results of other studies, the findings show that the correlations become stronger over a longer period. This is surprising since it can be assumed that performance parameters such as strength or endurance do not remain stable over such a long period of time (12 years) or can first become apparent later, e.g. during puberty. However, the reason that the correlations increase over time could be due to the fact that the league structure in soccer is not yet fully developed at a young age. Only at the adult level exists a distinctive league system that facilitates the differentiation between better and weaker soccer players, which facilitates the assessment of performance success. As expected, the two high-fidelity tests soccer dribbling and agility run performed best. Both tests have been practiced by the German Football Association (DFB) for many years.

Topic: **Training and Testing**

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