

A fitness index model for Italian adolescents living in Southern Italy. The ASSO project

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Strong relations between physical fitness and health in adolescents have been established in the last decades. The main objectives of the present investigation were to assess major physical fitness components in a sample of Italian school adolescents, comparing them with international data, and providing a fitness index model derived from percentile cut-off values of five considered physical fitness components. A total of 644 school pupils (15.9±1.1yrs; M=399; F=245) were tested using the ASSO-Fitness Test Battery (FTB), a tool developed within the Adolescents and Surveillance System for the Obesity prevention project, which included the handgrip, standing broad-jump, sit-up to exhaustion, 4×10m shuttle run and 20m shuttle run tests. Stratified percentile values and related smoothed curves were obtained. The method of principal components analysis (PCA) was applied to the considered five fitness components to derive a continuous fitness level score (the Fit-Score). A Likert-type scale on the Fit-Score values was applied to obtain an intuitive classification of the individual level of fitness: very poor ($X < P_{20}$), poor ($P_{20} \leq X < P_{40}$), medium ($P_{40} \leq X < P_{60}$), good ($P_{60} \leq X < P_{80}$) and very good ($X \geq P_{80}$). Boys had higher fitness levels compared to girls; they also showed an incremental trend amongst fitness levels with age in all physical components. These results could be overlapped with those related to European adolescents. Data revealed high correlations ($r > 0.5$) between the Fit-Score and all the fitness components. The median Fit-Score was equal to 33 for females and 53 for males (in a scale of 0-100). The ASSO-FTB allowed the assessment of health-related fitness components in a convenient sample of Italian adolescents and provided a fitness index model incorporating all these components for an intuitive classification of fitness levels. If this model will be confirmed, the monitoring of these variables will allow early detection of health related issues in a mass population and hence will give the opportunity to plan appropriate interventions.

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References

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Keywords

Physical fitness; fitness index; adolescents, Fitness Test Battery.