Journal of Physical Activity & Health, 2006, 3(Suppl. 2), S1-S4
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Strengthening the Scientific Basis of the *FITNESSGRAM*® Program

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The mechanized nature of contemporary society has made it difficult for youth to obtain the recommended amount of physical activity. Results from the Youth Risk Behavior Survey (YRBS) revealed that nearly half of adolescents ages 12 to 21 are not vigorously active[1] and that over 25% of youth watch more than 4 hours of television per day.[2] Results from the national Youth Media Campaign Longitudinal Survey indicated that 62% of young children ages 9 to 13 do not participate in any organized physical activity outside of school.[3] These patterns have gained considerable public health attention because low levels of physical activity and high amounts of physical inactivity have *both* been shown to predict the likelihood of becoming overweight in youth.[4,5] Longitudinal studies have also demonstrated that physical activity,[6] obesity,[7] and cardiovascular disease risk factors[8,9] established during childhood track through the lifespan. These findings clearly indicate the importance of physical activity for youth,[10] yet it has remained difficult to reverse or even slow some of these trends.

The school environment is frequently targeted for intervention in youth since it provides a way to reach large segments of the youth population.[11–14] Schools provide opportunities for children to be active during the day and education/training on the physical, cognitive, and behavioral skills needed to be active later in life. A CDC Task Force on Community Preventive Services[15] has "*strongly recommended*" the use of modified curricula and policies to increase physical activity in schools as a promising behavioral strategy to promote physical activity in children. The Institute of Medicine has also strongly emphasized the importance of school-based physical education as a strategy to combat youth obesity.[16]

Despite the acknowledged importance of physical activity, and the logical application of school-based programming, physical education remains a marginalized program in most schools. The lack of clear documentation of program effectiveness and the continued pressures for improved academic performance have made it difficult for decision makers to provide the needed support and infrastructure for quality physical education. The continued support of the PEP grant program, the release of progressive physical education requirements in many districts/states, and the new national requirement for school wellness policies are positive signs that the institution of physical education may receive the support and attention needed to allow it to carry out its important mission.

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The *FITNESSGRAM*® program developed by the Cooper Institute has been providing physical education teachers with fitness-related resources and software for the past 25 years.[17] From humble beginnings as a progressive physical education curriculum in a single school district, *FITNESSGRAM* has evolved to be one of the most widely used programs in the United States. It is the recommended assessment and promotion program for the American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD) and the required assessment for the state of California and many other states and districts. While it is known primarily as a fitness assessment battery, the emphasis in the program has recently shifted toward the assessment and promotion of physical activity. For example, the current version of the *FITNESSGRAM* software (version 8.0) includes an enhanced version of the computerized activity assessment tool known as *ACTIVITYGRAM*® and a new behaviorally-based logging tool known as the Activity Log to help youth monitor their activity levels over time. These new tools provide teachers with resources to teach children the behavioral skills needed to remain physically active.

While many aspects of the *FITNESSGRAM* program have evolved over time, there has been a consistent focus on health and also on enhancing communication with parents through individualized student reports.† Coordinated links between the school, home, and community have been frequently recommended to promote physical activity in youth,[11] and the use of these *FITNESSGRAM* reports provides teachers with a systematic and effective means to communicate with parents.

The *FITNESSGRAM* program has been widely supported and adopted, in large part because it is based on a strong scientific foundation. The assessments in the *FITNESSGRAM* program have been developed and refined over time based on detailed reliability and validity studies. Systematic research also was critical to establish age- and gender-specific criterion referenced standards (CRS) for each of the *FITNESSGRAM* assessments. Summaries of this research and descriptions of the underlying philosophy behind the program are documented in the *FITNESSGRAM Reference Guide*,[18] a free online resource available from the *FITNESSGRAM* web page (www.fitnessgram.net). While there is already an impressive body of literature published on the *FITNESSGRAM* program and the various assessments,[18] there is an ongoing need for additional research. Research is needed to help us better understand sources of error in the different assessments and to develop new assessments that may more effectively assess physical activity or dimensions of health related physical fitness.

Research is also needed to help us examine measurement agreement between different assessments. This research is important for the overall scientific literature, but the greater impact is on the practical implications for professionals in the field. Children, parents, teachers, administrators, and public health officials are all key stakeholders who need to have confidence in the accuracy of the assessments and the utility of the programming. Documentation of agreement between tests is a particularly important issue as districts and states begin aggregating data from across multiple teachers and multiple schools.

The goal of this supplement was to compile a diverse range of studies related to *FITNESSGRAM*. Some of the articles provide comparisons that address new issues related to the *FITNESSGRAM* battery, while others use new measurement and analytic techniques to address previously unanswered questions. A highlight in the supplement is a detailed history of the *FITNESSGRAM* program. This paper (authored by Sharon Plowman and other members of the *FITNESSGRAM*