Body Composition Reporting

Position Statement from the FitnessGram® Scientific Advisory Board

FitnessGram is a comprehensive educational, reporting and promotional tool used to assess physical fitness and physical activity levels for children. The specific battery of fitness items includes an assessment of body composition because it is an important dimension of healths related fitness. The Cooper Institute and the FitnessGram Scientific Advisory Board strongly believe it is important to educate youth (and parents) about body composition to help them understand the importance of body composition for health and how to maintain a healthy weight. If the information is not covered in physical education there is a risk that children will not learn this important knowledge. The Institute of Medicine also strongly advocates for the inclusion of body composition in health related fitness batteries. This position statement describes some issues with assessment of body composition and guidelines for how it can be appropriately included as part of comprehensive fitness education.

Body composition describes the percentages of fat, bone, water, and muscle in the human body; the latter three (bone, water, and muscle) are collectively referred to as fat-free body mass. Body composition can be influenced by many factors, including age, gender, genetics, the environment and lifestyle habits related to physical activity and nutrition. Though some body fat is needed for good health, too much can lead to health problems such as high blood pressure, high cholesterol, type 2 diabetes, and heart disease. Youth who are overweight are at a higher risk for becoming overweight adults, so early identification (while youth are still growing) is important. Very low levels of body fat are also not healthy so it is important to also check for excessive leanness. The criterion referenced standards in FitnessGram provide information whether body composition values fall into the desired "*Healthy Fitness Zone*" (HFZ) or in the Needs Improvement Zone (NIZ) – indicative of potential risks.

Estimates of body fat can be obtained with a variety of assessments, but the most practical options for school applications are skinfold tests and various bioelectric impedance analyzers. Because these assessments are somewhat invasive and complicated to perform properly, body composition is often evaluated using a simple anthropometric measure called body mass index (BMI). BMI is easily calculated (weight in kilograms divided by height in meters squared) and is highly correlated with body fatness and with metabolic risk factors. A limitation is that BMI does not take muscle mass into account so some children with high levels of muscle mass (or athletic builds) may receive a score indicating that they are "overweight" or in the NIZ when, in fact, their body composition is healthy. Alternatively, it is possible for students to have high levels of fat and still achieve the HFZ, although this error is less likely. [1]

The BMI assessment provides useful information for most children; however, as with any screening test, there is potential for misclassification. In young children, the difference of a few inches or pounds can cause some seemingly normal weight children to be misclassified as overweight (i.e. false positive). Therefore, it is important for teachers and school administrators to be able to interpret the scores and to answer questions about BMI from both children and parents. A follow-up assessment (or referral to a physician) is appropriate if questions arise. If properly administered and used, body composition assessments provide valuable information about a child's current weight status and opportunities for education about energy balance and weight control. The measures also have value for school/district tracking so body composition assessments are recommended in FitnessGram.

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[1] An educational vignette is available to explain issues with assessments of Body Composition: http://www.youtube.com/watch?v=61k7MmtoFFc

Additional information on the research and development of the FitnessGram standards can be accessed at http://www.cooperinstitute.org/reference-guide.