Commentary by Wilbur

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In the past decade, a great deal of attention has been given to the determinants of physical activity in adults. With the growing incidence of obesity among youth and its associated health risks, particularly early onset of Type 2 diabetes, it is imperative to focus more attention on those factors that influence adolescents' adoption and maintenance of physical activity. Ongoing longitudinal epidemiological studies are beginning to suggest that exercise habits established in childhood do not always persist into adulthood (Malina, 2001). Enhanced physical activity during early life, however, may affect lifelong attitudes toward health promotion (Bar-Or, 1994), such as physical activity. These authors are appropriately building on the important body of research on self-efficacy and physical activity in adults being conducted by McAuley & Blissmer (2000) at the University of Illinois at Champaign-Urbana. It is important to see if these findings can be replicated in youth. This research team is proceeding with the important first steps toward the development of tailored interventions for adolescents.

A strength of the study is the design, which cuts across two ethnic groups, both genders, and multiple developmental stages. Careful attention was given to the differences in findings based on these variables. The literature review, however, would have been strengthened if the authors had provided background information on what is currently known about factors related to physical activity in youth and how they vary by ethnicity, gender, and developmental stage. For example, participants in the study sample ranged from 9 to 17 years, ages that differ greatly in terms of developmental characteristics and life experiences. Children as young as third, fourth, and fifth graders may easily become bored with one continuous activity. The lower feeling states found in this study at 16 and 20 minutes among the early puberty youth compared to the older youth may reflect their boredom with walking 20 minutes on a treadmill in a laboratory setting. This also raises the question of the validity of the feeling-state measure for use with younger children. Does it truly reflect a measure of physiological state or simply the child's being tired or bored with the activity?

The use of a PowerPoint presentation to standardize the delivery of the feeling-state measure during the treadmill walking was creative and

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demonstrated the acceptability of this methodology to a diverse sample of youth. Computer-based methods for data collection are increasingly being adapted for a variety of environments. The investigators note that they modified the Physical Activity Enjoyment Scale for use with participants as young as 10 years old. This is an important contribution. It would be helpful to know the number of items included as well as some examples of the items.

Although space limitations restrict what can be included, several things would have added to a better understanding of the sample and interpretation of the findings. Given the variety of self-report measures of physical activity available, it would be helpful to know what questions were used to identify youth who were beyond the physical activity levels recommended in *Healthy People 2010* (U. S. Department of Health and Human Services, 2000) and therefore not eligible for the study. It is not clear if both exercise and lifestyle physical activity were taken into account. Baseline body mass index and aerobic fitness levels would have provided further information as indirect measures of physical activity as well as indications of the participants' overall risk for health problems. Also, although the authors acknowledge that they did not obtain the participants' socioeconomic status (SES) and cited the difficulties in separating the effects of SES and race, we need to begin to pay attention to the impact of race and SES on physical activity. Differences may exist between African American youth from different socioeconomic levels. All too often, SES and race are confounded, and SES-based differences within the African American population are never teased out. To provide context, when self-reported SES is not available, the towns from which the adolescents were recruited could be described with existing census data. Although not always precise, community-level data can often be obtained for areas in which the recruitment sites are located.

A total of 168 youth successfully reached a peak VO_2 and provided complete data for analysis. It is not stated whether they all successfully walked for 20 minutes on the treadmill. If a variation occurred in the time spent on the treadmill, it would be interesting to know how it related to or influenced feeling states, self-efficacy, and enjoyment.

Overall, findings from this study suggest that there are gender, ethnicity, and developmental differences in self-efficacy, feeling states during physical activity, and enjoyment of physical activity. Thus, interventions must first target or take into account these three unalterable characteristics to develop group-level interventions (Krueter & Skinner, 2000). Only then can we move toward tailoring our interventions to meet an individual adolescent's needs.

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