

Youth Compendium of Physical Activities for Public Health Practitioners

The Youth Compendium of Physical Activities provides a list of 196 common activities in which youth participate and the estimated energy cost associated with each activity. The Youth Compendium provides energy cost values for:

- Sedentary activities, such as lying down or watching TV
- Standing, household chores, and active video games
- Playing and participating in games and sports activities
- Walking and running

Who should use the Youth Compendium

The Youth Compendium is intended for widespread use by researchers, state and local health departments, educators, and fitness professionals and in the commercial sector for development of metrics related to exercise equipment and behavioral interventions.

NCCOR: WORKING TOGETHER TO REVERSE CHILDHOOD OBESITY

NCCOR is a partnership of the four leading funders of childhood obesity research: the Centers for Disease Control and Prevention (CDC), the National Institutes of Health (NIH), the Robert Wood Johnson Foundation (RWJF), and the U.S. Department of Agriculture (USDA). These four leaders joined forces in 2008 to continually assess the needs in childhood obesity research, develop joint projects to address gaps and make strategic advancements, and work together to generate fresh and synergetic ideas to reduce childhood obesity. For more information about NCCOR, visit www.nccor.org.

The following case studies describe two ways public health practitioners can use the Youth Compendium:

- Assist with monitoring and tracking of nutrition and physical activity
- Assist with developing physical activity options for an after-school program

CASE STUDY: COUNTY-WIDE MONITORING AND TRACKING OF NUTRITION AND PHYSICAL ACTIVITY

Background

A local public health department has seen county rates of overweight and obesity in adolescents age 10-15 years rise over the past several years while the prevalence of meeting nutrition and physical activity guidelines has remained constant. Because of this, the department staff was tasked with monitoring and tracking nutrition and physical activity in the county. To better understand adolescent leisure time physical activity level, the staff epidemiologist examined differences between normal weight and overweight/obese adolescents in their METy-minutes during leisure time activities (i.e. afterschool time and weekends).

Considerations

The department staff created a survey to be administered to a random sample of adolescents in the county. To assess activities performed in their leisure time, the department staff used the physical activity questions from the 2012

National Health and Nutrition Examination Survey (NHANES) National Youth Fitness Survey. In addition to reporting participation in approximately 30 specific activities (e.g., bike riding or playing soccer), the adolescents were also asked to provide the amount of time spent engaged in these activities. The information from the questionnaire was then used to calculate METy-minutes.

What is a METy-minute?

The Metabolic Equivalent of Task for Youth (METy) represents the energy cost of a physical activity compared to the rate of energy expended at rest. One METy, for example, is the rate of energy expenditure while at rest, while a 5-METy activity expends 5 times the energy at rest. Therefore, if students participate in a 5-METy activity for 30 minutes, they participate in $5 \times 30 = 150$ METy-minutes of physical activity.

How to use the Youth Compendium

The epidemiologist opens the Youth Compendium of Physical Activities and clicks the green “Search the Compendium” box. From the top navigation, the epidemiologist selects “METy (Metabolic Equivalent of Task for Youth) Values (Smoothed).” The smoothed values are recommended for use by practitioners in the field. The epidemiologist is looking for METy values associated with the specific activities (e.g., soccer) listed in the survey. For soccer, the epidemiologist types “soccer” in the search box.

Two entries (Soccer – Around Cones, Soccer – Games) are displayed. For a conservative estimate, the epidemiologist abstracts the METy values of 5.6 (10-12 years) and 5.7 (13-15 years) for Soccer – Around Cones. They continue abstraction of values for the two age groups for the remaining specific activities. Subsequently the METy values are merged into the survey dataset and a program is written to calculate the METy-minutes using the age group specific METy values.

The epidemiologist now has the data to examine the differences in leisure time METy-minutes between normal weight and overweight/obese adolescents for the county.

Age	Activity	Minutes of activity per week	METy (Age 10-12)	METy (Age 13-15)	METy-minutes (METy x Mins)	Weight Status
14	Soccer – Around Cones	120	5.6	5.7	684	Normal
11	Riding a Bike – Medium Speed	90	5.3	5.8	477	Normal
13	Riding a Bike – Self Paced	45	5.3	5.8	261	Overweight
10	Soccer – Around Cones	75	5.6	5.7	420	Normal
12	Dance – Aerobic Dance	75	4.1	4.5	307.5	Overweight

CASE STUDY: ESTABLISHING A PHYSICAL ACTIVITY RECOMMENDATIONS FOR AN AFTER-SCHOOL PROGRAM

Background

A local public health department’s division of nutrition and physical activity works to make healthy eating and active living the easy choice for their residents. They support their partners in these efforts throughout their region. They have been asked to work with their Department of Parks and Recreation and the YMCA to establish an after-school program for elementary school students.

Considerations

The division is interested in an array of activities that are similar in levels of energy expenditure. The activities should only involve equipment and settings that are available at the YMCA.

How to use the Youth Compendium

The department staff visits the Youth Compendium website. They click the green “Search the Compendium” box and selects “METy (Metabolic Equivalent of Task for Youth) Values

(Smoothed)” from the top navigation. The smoothed values are recommended for use by practitioners in the field. The division staff is looking for activities that will allow the after-school students to participate in moderate to vigorous physical activity (MVPA). The staff review the activities in the tables. They can sort the table by METy level by clicking the arrows next to the age categories. Based on the METy values, the following activities would allow students ages 6–9 to reach target MVPA levels:

Activity	METy
Moderate	
Hopscotch	6.3 METy
Ultimate frisbee	5.6 METy
Vigorous	
Obstacle Course	7.2 METy
Soccer game	7.7 METy