

## Instructions for ATLS Questionnaire Computations and Analyses

- 1- When entering the physical activity data, be sure to replace any missing physical activity data with zero, in order to get a proper figure (not missing value) for the total minutes of physical activity per week as well as for the total METs-min per week.
- 2- Multiply the frequency of each physical activity by the duration (time in minutes) of the physical activity to get the total physical activity time in minutes per week.
- 3- Then multiply each activity time per week by the equivalent METs values corresponding to that activity (see next) to get activity energy expenditure for each activity in METs-min per week.
- 4- METs value for each activity is as follow: slow walking: 2.5 METs; moderate walking: 3.3 METs; brisk walking: 4.8 METs for adolescent 14-19 years (and 4.5 METs for young adults 20-30 years); jogging & running: 8 METs; cycling: 7 METs; swimming: 6 METs; moderate-intensity sports: 4 METs; vigorous-intensity sports: 8 METs; self-defense: 7 METs; weight training (resistance training or calisthenics): 6 METs; household activity: 3 METs; dancing: 5.5 METs.
- 5- If you included an activity that is not listed above, try to get the equivalent MET value from the compendium of physical activity (Ainsworth B, et al. Med Sci Sports Exerc 2011; 43: 1575-1581).
- 6- For stair steps, METs-min/week is computed as = (numbers of stair flight/3) X 8 METs.
- 7- To guard against over-reporting, you can cap (limit) the total activity in minutes per week for each participant at 1680 minutes per week (equivalent of 4 hours of activity per day or 28 hours per week). Also, total screen time should be capped (as maximum) to 16 hours per day.
- 8- Compute the total activity energy expenditure in METs-min/week by totaling all activities METs-min/week.
- 9- You can also calculate sum of all vigorous-intensity physical activity in METs-min/week by summing those METs-min/week for all activity of 6+ METs; and the sum of moderate-intensity physical activity in METs-min/week by summing all activity with METs values between 3 & 5.9 METs.
- 10- For screen time: make sure the total screen time is not exceeding 16 hours per day. This will guard against over-reporting of screen time (assuming 8 hours of sleep).
- 11- Compute sedentary behaviors, based on screen time as those above 2 (or 3) hours of total screen time per day versus those having less than 2 (or 3) hours of screen time per day.
- 12- For dietary habits, you can calculate the frequency (or the mean) of those participants having 1-2, 3-4, and 5+ days of dietary intake per week. You can also calculate those having daily intake of dietary habits versus those having less than daily dietary intake of each item.
- 13- Compute the activity/inactivity levels for adolescents (14-19 years) as follow:

- Based on activity minutes per week: Inactive versus active: less than or 420 or more min/week (as of 60 min. of daily physical activity).
- Based on METs-min/week: **Inactive**: less than 1680 METs-min/week (= 60 min. of daily moderate-intensity activity; average 4 METs); **minimally** (or moderately) **active**: 1680-2519 METs-min/week (= 60 min. of daily vigorous-intensity physical activity at 6 METs); **highly active**: 2520 + METs-min/week.

14- As for adults, you can compute the activity/inactivity levels as follow:

- Based on activity minutes per week: Inactive versus active: a cut-off of 150 min/week (as of 30 min. of physical activity 5 times per week).
- Based on METs-min/week: Inactive: less than 600 METs-min/week (150 min/week of moderate intensity activity; 4 METs); minimally active: 600-1499 METs-min/week; highly active: 1500 + METs-min/week (see International Physical Activity Study using IPAQ).
- For more details, please see the following references:
  - Al-Hazzaa HM, Musaiger AO; ATLS Research Group. Arab Teens Lifestyle Study (ATLS): Objectives, design, methodology and implications. *Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy* 2011; 4: 417-426. (An open access journal).
  - Al-Hazzaa HM, Al-Sobayel HI, Musaiger AO. Convergent validity of the Arab Teens Lifestyle Study (ATLS) physical activity questionnaire. *Int J Environ Res Public Health* 2011; 8: 3810-3820. (An open access journal).
  - Al-Hazzaa HM, Abahussain N, Al-Sobayel H, Qahwaji D, Musaiger AO. Physical Activity, Sedentary Behaviors and Dietary Habits among Saudi Adolescents Relative to Age, Gender and Region. *Int J Behavioral Nutrition & Physical Activity* 2011; 8: 140. (An open access journal).