

## Appendix E-2.49: Existing Reports Data Table

### Part D. Chapter 7: Physical Activity

The DGAC agreed to use existing systematic reviews and reports to address the physical activity topic area. The Committee used the *Physical Activity Guidelines for Americans, 2008* (PAG) and two related reports—the *Physical Activity Guidelines Advisory Committee Report, 2008* (PAGAC) and the *Physical Activity Guidelines for Americans Midcourse Report*—as primary sources of evidence<sup>1-3</sup> and discussed at its public meetings questions that could be developed to frame the reports’ key findings.

#	Subtopic Area	Question	Existing Report (page #)	Key Findings from Report
1	Physical Activity and Health Outcomes in Children and Adolescents	What is the relationship between physical activity, body weight, and health outcomes in children and adolescents?	2008 PAGAC Report (pp. E22-E23)	In children and youth major benefits supported by strong evidence include enhanced cardiorespiratory and muscular fitness, cardiovascular and metabolic health biomarkers, bone health, body mass and composition. Less strong evidence supports selected measures of mental health.
2	Physical Activity and Health Outcomes in Adults	What is the relationship between physical activity and body weight?	2008 PAGAC Report (pp. E22-E23)	In adults and older adults strong evidence demonstrates that, compared to less active counterparts, more active men and women have lower rates of all-cause mortality, coronary heart disease, high blood pressure, stroke, type 2 diabetes, metabolic syndrome, colon cancer, breast cancer, and depression. Strong evidence also supports the conclusion that, compared to less active people, physically active adults and older adults exhibit a higher level of cardiorespiratory and muscular fitness, have a healthier body mass and composition, and a biomarker profile that is more favorable for the preventing cardiovascular disease and type 2 diabetes and enhancing bone health. Modest evidence indicates that physically active adults and older adults have better quality sleep and health-related quality of life.
3		What is the relationship between physical	2008 PAGAC Report	There is a clear inverse relation between PA and cardiorespiratory health (CHD, CVD, stroke, hypertension, and atherogenic dyslipidemia). The data imply relations with

		activity and cardiorespiratory health?	(pp. E5-E6)	physical activity volume, with less information about intensity and none for frequency and duration per session for CVD clinical events. Physical activity improves cardiorespiratory fitness. Fitness has direct dose-response relations between intensity, frequency, duration, and volume. There is limited evidence for an accumulation effect (Strong). These associations exist for both men and women and individuals of all ages. There is no evidence for sex-specific, age-specific, or race/ethnic specific effects when volume is the exposure rather than relative intensity (Sex = Strong, Age = Strong, Race/Ethnicity = Reasonable).
4		What is the relationship between physical activity and metabolic health and risk of type 2 diabetes?	2008 PAGAC Report (pp. E6-E7)	There is a clear inverse relationship between PA and metabolic health, including the prevention of type 2 diabetes and metabolic syndrome. There is a 30% to 40% lower risk for type 2 diabetes and metabolic syndrome in at least moderately active people compared to sedentary individuals (Strong). This association exists for both men and women, as well as for older and younger persons. There is reasonable evidence to show the association exists for different race/ethnic groups (Sex = Strong, Age = Strong, Race/Ethnicity = Reasonable).
5		What is the relationship between physical activity and musculoskeletal health?	2008 PAGAC Report (pp. E10-E13)	Increases in exercise training enhance skeletal muscle mass, strength, power, and intrinsic neuromuscular activation. The magnitude of the effect of resistance types of PA on muscle mass and function is highly variable and dose-dependent (Strong). Benefits are similar in men and women and pervasive across the life span (Strong), although the magnitude of the benefits may be attenuated in old age (Moderate). Information on race and ethnic specificity is lacking.
6		What is the relationship between physical activity and incidence of breast and colon cancer?	2008 PAGAC Report (pp. E15-E16)	There is a clear inverse association between PA and prevention of breast and colon cancer. There is about a 30% lower risk for colon cancer and about a 20% lower risk for breast cancer (Strong). This association exists for both men and women for colon cancer, as well as for adults of different ages. There is reasonable evidence to show an association exists for different race/ethnic groups (Sex = Strong, Age = Strong, Race/Ethnicity = Reasonable).

<p>7</p>		<p>What is the relationship between physical activity and mental health?</p>	<p>2008 PAGAC Report (pp. E16-E17)</p>	<p>There is clear evidence that PA reduces risk of depression and cognitive decline in adults and older adults. There is some evidence that PA improves sleep. There is limited evidence that PA reduces distress/well-being and anxiety. (Depression and cognitive health = Strong; Sleep = Moderate; Distress/wellbeing and Anxiety = Limited). There is about a 20% to 30% lower risk for depression, distress/well-being, and dementia (Strong). Risk reduction has been observed for men and women of all ages, but few studies have directly compared results according to sex or age. Racial/ethnic minority groups have been underrepresented in most studies, but limited results from prospective cohort studies suggest that risk reduction among blacks and Hispanic/Latinos is similar to that among whites (Limited).</p>
<p>8</p>	<p>Physical Activity and Health Outcomes in People with Disabilities</p>	<p>What is the relationship between physical activity and health outcomes in people with disabilities?</p>	<p>2008 PAGAC Report (p. E33)</p>	<p>For many physical and cognitive disabilities, scientific evidence for various health and fitness outcomes is still limited due to the lack of research. The goal of the scientific review in persons with disabilities was not to consider exercise as a therapy for disability but to evaluate the evidence that physical activity provides the general health and fitness benefits frequently reported in populations without these disabilities (e.g., improvements in physical fitness, biomarkers for chronic disease, physical independence, health-related quality of life). Moderate to strong evidence indicates that increases in aerobic exercise improve cardiorespiratory fitness in individuals with lower limb loss, multiple sclerosis, stroke, spinal cord injury, and mental illness. Limited data show similar results for people with cerebral palsy, muscular dystrophy, and Alzheimer’s disease. Moderate to strong evidence also exists for improvements in walking speed and walking distance in patients with stroke, multiple sclerosis, and intellectual disabilities. Quite strong evidence indicates that resistance exercise training improves muscular strength in persons with such conditions as stroke, multiple sclerosis, cerebral palsy, spinal cord injury, and intellectual disability. Although evidence of benefit is suggestive for such outcomes as flexibility, atherogenic lipids, bone mineral density, and quality of life, the data are still very limited.</p>

<p>9</p>	<p>Physical Activity and Health Outcomes During Pregnancy and the Postpartum Period</p>	<p>Does being physically active during pregnancy and the postpartum period provide health benefits?</p>	<p>2008 PAGAC Report (p. E34)</p>	<p>Substantial data from observational studies indicates that moderate-intensity physical activity by generally healthy women during pregnancy increases cardiorespiratory fitness without increasing the risk of low birth weight, preterm delivery, or early pregnancy loss. For moderate-intensity activity during pregnancy, the scientific evidence is strong that the risks are very low, but the science is less strong in documenting improved health outcomes for the mother or child. The few studies that have been conducted on the risks and benefits of vigorous activity by women who are pregnant provide very limited data that this level of activity is associated with small reductions in birth weight compared to birth weights of infants born to less active women. Moderate-intensity physical activity during the postpartum period does not appear to adversely affect milk volume or composition or infant growth, and moderately strong evidence suggests that it results in enhanced cardiorespiratory fitness and mood of the mother. Physical activity alone does not produce weight loss except when combined with dietary changes. Dose-response studies of physical activity and health outcomes for moderate- or vigorous-intensity physical activity during pregnancy or the postpartum period have not been conducted. Most studies evaluating possible benefits have promoted moderate-intensity activity for 120 to 150 minutes per week.</p>
<p>10</p>	<p>Physical Activity and Adverse Events</p>	<p>What is the relationship between the amount and type of physical activity and the risk of adverse events?</p>	<p>2008 PAGAC Report (pp. E27-E28)</p>	<p>Much of the research that addresses this question has evaluated the risk of musculoskeletal injuries or sudden cardiac death during vigorous physical activity (e.g., jogging, running, competitive sports, military training) with few well conducted studies evaluating the risk during moderate-intensity activity intended primarily to improve health. Activities with fewer and less forceful contact with other people or objects have appreciably lower injury rates than do collision or contact sports. Walking for exercise, gardening or yard work, bicycling or exercise cycling, dancing, swimming, and golf, which are already popular in the United States, are activities with the lowest injury rates. Risk of musculoskeletal injury during activity increases with the total volume of activity (e.g., MET-hours per week). Intensity, frequency, and duration of activity all contribute to the risk of musculoskeletal injuries but their relative contributions are unknown. For sudden cardiac adverse events, intensity appears to be more important than frequency or duration. The limited data that do exist for medical risks during moderate-intensity activity indicate that the risks are very low for activities like walking and that the health benefits from such activity outweigh the risk.</p>

11	Physical Activity Dose	What dose of physical activity is most likely to provide health benefits in children and adolescents?	2008 PAG (pp. 16-17)  [2008 PAGAC Report; pp. E23-E24, E32]	Children and adolescents should do 60 minutes (1 hour) or more of physical activity daily. Most of the 60 or more minutes a day should be either moderate- or vigorous-intensity aerobic physical activity, and should include vigorous-intensity physical activity at least 3 days a week. As part of their 60 or more minutes of daily physical activity, children and adolescents should include muscle-strengthening physical activity on at least 3 days of the week, as well as bone-strengthening physical activity on at least 3 days of the week.
12		What dose of physical activity is most likely to provide health benefits in adults?	2008 PAG (pp. 22-23)  [2008 PAGAC Report; pp. E23-E24, E29]	For substantial health benefits, adults should do at least 150 minutes (2 hours and 30 minutes) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous intensity aerobic activity. For additional and more extensive health benefits, adults should increase their aerobic physical activity to 300 minutes (5 hours) a week of moderate intensity, or 150 minutes a week of vigorous intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity activity. Additional health benefits are gained by engaging in physical activity beyond this amount. Adults should also do muscle-strengthening activities that are moderate or high intensity and involve all major muscle groups on 2 or more days a week, as these activities provide additional health benefits.
13		Are there any special considerations for dose of physical activity for older adults?	2008 PAG (pp. 30-31)  [2008 PAGAC Report; pp. E23-E24, E32]	Recommendations for adults also apply to older adults. When older adults cannot do 150 minutes of moderate-intensity aerobic activity a week because of chronic conditions, they should be as physically active as their abilities and conditions allow.
14	Physical Activity Interventions in Children and Adolescents	What is the relationship between physical activity participation and interventions in school-based settings?	PAG Midcourse Report (pp. 9-14)	Evidence is sufficient that enhanced PE can increase overall physical activity among youth and can increase physical activity time during PE class. Evidence is sufficient that multi-component school based interventions can increase physical activity during school hours among youth. Evidence is emerging that school-based physical activity breaks can increase physical activity among youth.

15		What is the relationship between physical activity participation and interventions to change the built environment?	PAG Midcourse Report (pp. 16-17)	Evidence is suggestive that modifying aspects of the built environment can increase physical activity among youth.
16		What is the relationship between physical activity participation and interventions based in home settings?	PAG Midcourse Report(p. 19)	Evidence is insufficient that intervention strategies in the family and home increase physical activity among youth.
17		What is the relationship between physical activity participation and interventions based in early care and education centers?	PAG Midcourse Report (p. 15)	Evidence is suggestive that interventions to modify the social and/or physical environment in early care and education centers can increase physical activity among young children during the school day.
18		What is the relationship between physical activity participation and interventions based in primary health care settings?	PAG Midcourse Report (p. 20)	Evidence is insufficient that strategies implemented in primary health care settings increase physical activity among youth.

**References:**

1. Physical Activity Guidelines Advisory Committee. Physical Activity Guidelines Advisory Committee Report, 2008. Washington, DC: U.S. Department of Health and Human Services; 2008.
2. U.S. Department of Health and Human Services. 2008 Physical Activity Guidelines for Americans. Washington, DC: U.S. Department of Health and Human Services; 2008.
3. U.S. Department of Health and Human Services. Physical Activity Guidelines for Americans Midcourse Report: Strategies to Increase Physical Activity Among Youth. Washington, DC: U.S. Department of Health and Human Services; 2012.