

performed comfortably, with a rest period in between) and on avoiding breath-holding and straining against a closed glottis.

SUDDEN CARDIAC DEATH RISK Patients may express concerns regarding the risk of sudden cardiac death during exercise. Whereas the risk of sudden death during exercise does increase directly with the amount of time spent exercising, this association is substantially mitigated by training effects. Thus, patients embarking on an exercise program should be encouraged to increase the duration of aerobic exercise gradually as tolerated, aiming for episodes of at least 30 min 5 times a week as an ideal. Once a comfortable duration is reached, incorporating interval training periods of more intensive activity interspersed during the exercise can provide greater fitness gains.

EXTREME ENDURANCE ACTIVITIES As with other forms of exercise, extreme endurance activities such as triathlons and marathons should be undertaken only with appropriate and graded training. Such activities tend to take a greater toll on the musculoskeletal system over time than less extreme activities, and they are also associated with measurable damage to the myocardium and greater risks for other organ damage. Athletes participating in endurance activities routinely have elevations in cardiac troponin (a specific circulating marker of myocardial cell damage and death) at the end of the race, although elevations are lower in those who are well trained. Patients and clinicians should consider the patient's overall health, specific limitations, potential for injury, and ability to train in decision-making regarding participation in endurance events.

AGE-SPECIFIC RECOMMENDATIONS The U.S. Department of Health and Human Services' *Physical Activity Guidelines for Americans*, second edition (2018) ([Table 2-2](#)), recommend that preschool-aged children (aged 3–5 years) should be physically active throughout the day in a variety of activity types to enhance growth and development. Children and adolescents aged 6–17 years should participate in ≥ 60 min of physical activity daily, most of which should be moderate- or vigorous-intensity aerobic activity, including