



The Beneficial Effects of Increasing Physical Activity: It Is About Overload, Progression, and Specificity

Overload is the physical stress placed on the body when physical activity is greater in amount or intensity than usual. The body's structures and functions respond and adapt to these stresses. For example, aerobic physical activity places a stress on the cardiorespiratory system and muscles, requiring the lungs to move more air and the heart to pump more blood and deliver it to the working muscles. This increase in demand increases the efficiency and capacity of the lungs, heart, circulatory system, and exercising muscles. In the same way, muscle-strengthening and bone-strengthening activities overload muscles and bones, making them stronger.

Progression is closely tied to overload. Once a person reaches a certain fitness level, he or she is able to progress to higher levels of physical activity by continued overload and adaptation. Small, progressive changes in overload help the body adapt to the additional stresses while minimizing the risk of injury.

Specificity means that the benefits of physical activity are specific to the body systems that are doing the work. For example, the physiologic benefits of walking are largely specific to the lower body and the cardiovascular system. Push-ups primarily benefit the muscles of the chest, shoulders, and upper arms.

The following sections provide more detail on what is known from research studies about the specific health benefits of physical activity.

All-Cause Mortality

Strong scientific evidence shows that physical activity delays death from all causes. This includes the leading causes of death, such as heart disease and some cancers, as well as other causes of death. This effect is remarkable in two ways:

- First, only a few lifestyle choices have as large an effect on mortality as physical activity. It has been estimated that people who are physically active for approximately 150 minutes a week have a 33 percent lower risk of all-cause mortality than those who are not physically active.
- Second, it is not necessary to do large amounts of activity or vigorous-intensity activity to reduce the risk of all-cause mortality. Benefits start to accumulate with any amount of moderate- or vigorous-intensity physical activity.

Research clearly demonstrates the importance of avoiding inactivity. Even low amounts of moderate-to-vigorous intensity physical activity reduce the risk of all-cause mortality. As [Figure 2-1](#) shows, a large benefit occurs when a person moves from being inactive to being insufficiently active. The relative risk of all-cause mortality continues to decline as people become even more physically active. Even at very high levels of physical activity (3 to 5 times the key guidelines), there is no evidence of increased risk.