

пен аурулар туралы идеяларды кеңейту де, денсаулықтың әртүрлі компоненттеріне әсер ететін факторлардың барлық спектрін шебер пайдалану, сауықтыру, қалпына келтіру, табиғат тәрізді әдістер мен технологияларды игеру, салауатты өмір салтына деген көзқарасты қалыптастыру қажет.

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HEALTH-IMPROVING AND ADAPTIVE PHYSICAL CULTURE

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Annotation. This article defines the pivotal role of physical fitness in preventing chronic diseases and decreasing premature death risk and explaining the graded linear relationship between physical activity volume and health status. Moreover, it advocates public health initiatives targeting all age groups, acknowledging the impact of physical activity from childhood through aging. The article stresses adherence to recommended activity guidelines and potential additional benefits for those surpassing them. It also touches on the correlation between fitness and specific health conditions, offering a comprehensive perspective on physical activity's multifaceted benefits for health promotion.

Keywords: Health-related physical fitness, Morbidity and mortality, Chronic diseases, Premature death, dose-response relationship, Physical activity volume.

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Аңдатпа. Бұл мақалада созылмалы аурулардың алдын алуға және мезгілсіз өлім қаупін азайтудағы дене шынықтырудың негізгі рөлі анықталады және физикалық белсенділік көлемі мен денсаулық жағдайы арасындағы градуирленген сызықтық байланыс түсіндіріледі. Сонымен қатар, ол бала кезінен бастап физикалық белсенділіктің қартаю процесіне әсерін мойындай отырып, барлық жас топтарына бағытталған қоғамдық денсаулық сақтау бастамаларын қолдайды. Мақалада ұсынылатын қызмет нұсқауларына берілгендік және олардан асып түсетіндер үшін ықтимал қосымша артықшылықтар көрсетілген. Ол сондай-ақ дене шынықтыру мен денсаулықтың нақты жағдайлары арасындағы байланысты қарастырады, денсаулықты нығайту үшін физикалық белсенділіктің көп қырлы артықшылықтарын жан-жақты қарастырады.

Түйінді сөздер: денсаулыққа байланысты дене шынықтыру, сырқаттанушылық және өлім, созылмалы аурулар, мезгілсіз өлім, доза-әсерге тәуелділік, физикалық белсенділік көлемі.

Introduction: bring evidence into how physical fitness prevents chronic diseases.

Physical fitness is a physiological state of well-being, that enables individuals to meet daily life demands and provide a foundation for sports performance. Health-related physical fitness has elements relevant to health - cardiovascular fitness, musculoskeletal fitness, body composition, and metabolism. In thorough epidemiological studies, physical activity and physical fitness are often used interchangeably, with fitness being considered a more precise measure of physical activity. Whilst both are linked to morbidity and mortality, fitness tends to be a stronger indicator of health outcomes. Highly fit individuals typically exhibit a mortality reduction of at least 50% compared to their less fit counterparts. Although accurately assessing physical activity often relies on standards like direct observation or sophisticated laboratory techniques, practical measures involve heart rate monitors and motion sensors. Large-scale population studies often use self-reported physical activity data, which consistently reveals a health risk gradient across activity levels. From a public health perspective,

promoting increased physical activity is advocated over focusing solely on becoming physically fit, as sedentary individuals are likely to achieve fitness benefits by adopting a more active lifestyle.

Physical health can be defined as the proper functioning of the body. As one of the pillars of total well-being, it is a description of how the body grows, and feels. By maintaining a formidable, and healthy lifestyle, risks of developing fatal conditions such as heart disease, cancers, and strokes, decreases. Frequent efforts increase physical strength, endurance, bone mineral density, neuromusculoskeletal fitness, which lead to a functional and independent existence. Observations and studies have extensively been made to prove the function of physical activity to prevent a wide range of illnesses and early deaths. Evidence states that illnesses such as cardiovascular diseases have a correlation with an individual's lifestyle, especially exercise. Regular exercise lower incidences of cardiometabolic illness, breast and colon cancer, and osteoporosis. Beyond enhancing the well-being of individuals dealing with non-psychiatric conditions like peripheral artery occlusive disease and fibromyalgia, consistent physical activity may alleviate the discomfort associated with these specific illnesses. Moreover, substance use disorders such as cutting down smoking, drinking, and drugs, can also be attributed to by physical activity. Worldwide standards state that there should be "150 minutes" of modest physical exercise in populations, and as such, when these recommendations are followed, diseases can be reduced by up to 20% - 30%.

After ground-breaking seminal research conducted by Morris and colleagues in the 1950s, as well as the studies by Paffenbarger and colleagues in the 1970s, have all examined the risk of mortality from various causes, including overall mortality and specific diseases such as cardiovascular disease, in relation to physical inactivity. Increased levels of fitness were linked to a noteworthy diminution in the risk of deaths, ranging from 20% to 35%, for both men and women. For example, an 8-year study involved healthy middle-aged individuals and those in the lowest quintiles of physical fitness, and assessed via an exercise treadmill, had a much higher risk of death from any cause, in comparison to those in the top fitness quintile. Newer research has uncovered more significant declines in the risk of death from any cause and cardiovascular disease. For example, individuals who are physically fit or active experienced a reduction in risk exceeding 50%. Additionally, an uptick in energy expenditure through physical activity by 1000 kcal (4200 kJ) per week or an improvement in physical fitness by 1 MET (metabolic equivalent) was linked to a mortality advantage of around 20%. Middle aged women who would engage in less than 1 hour of exercise per week experienced a 52% increase in mortality via any cause, a doubling of cardiovascular related mortality, and a 29% increase of risk of cancer and its mortality. Enhancing physical fitness is also linked to a decrease in the risk of premature death, whilst a decline increases it. The impact seems to follow a graded pattern, where even slight improvements in physical fitness correlate with a significant risk reduction. In a particular study, participants with the highest baseline physical fitness levels who either maintained or improved their fitness over an extended period displayed the lowest risk of premature death. Even modest improvements in physical fitness among previously sedentary individuals have shown substantial enhancements in health. For example, in another study, individuals transitioning from unfit to fit within a 5-year span experienced a 44% reduction in the relative risk of death compared to those who remained unfit. In conclusion, observational studies offer compelling evidence that consistent physical activity and elevated fitness levels are linked to a decreased risk of early mortality, encompassing both overall causes and cardiovascular diseases, especially in asymptomatic individuals, regardless of gender. Moreover, there seems to be a dose-response relationship, indicating that individuals with the highest levels of physical activity and fitness exhibit the lowest risk of premature death.

It is evident that engaging in physical activity plays a crucial role in preventing chronic diseases and premature death. However, uncertainties persist regarding the ideal "volume" of exercise, encompassing frequency, duration, and intensity, and the minimum level required for health benefits, particularly regarding the impact of intensity (e.g., moderate versus vigorous) on health outcomes. Studies indicate an inverse and linear relationship between the intensity of physical activity and mortality. Early research by Paffenbarger and colleagues demonstrated that regular physical activity (over 2000 kcal, or 8400 kJ a week) was associated with an average increase in life expectancy of 1 to 2 years by the age of 80, and these benefits were linear even at lower energy expenditure levels. Consequent studies revealed that an average energy expenditure of around 1000 kcal (4200 kJ) per week correlates with a 20%–30% reduction in all-cause mortality. Currently, many health and fitness organizations recommend a minimum exercise volume expending 1000 kcal (4200 kJ) per week, recognizing the additional advantages of higher energy expenditures. Recent investigations propose that even lower levels of weekly energy expenditure may offer health benefits, particularly for individuals who are extremely deconditioned or frail and elderly. Further research is necessary to ascertain whether expending as little as 500 kcal (2100 kJ) per week provides health benefits, potentially making physical activity more feasible for previously sedentary individuals. Regarding cancer prevention, literature reviews indicate that moderate physical activity (> 4.5 METs) for approximately 30–60 minutes per day provides greater protection against

colon and breast cancer compared to low-intensity activities. The most significant reduction in breast cancer incidence was observed among women engaging in 7 or more hours of moderate-to-vigorous activity per week. Among individuals with established cancer, engaging in physical activity equivalent to walking 1 or more hours per week is associated with improved survival compared to no exercise. The greatest benefit is seen among cancer survivors who engage in exercise equivalent to 3–5 hours per week at an average pace.

There is compelling evidence that consistent engagement in physical activity plays a crucial role in both primary and secondary prevention of numerous chronic diseases, and contributing to a decreased risk of premature mortality. A graded linear relationship is observed between the volume of physical activity and health status, indicating that individuals who are most physically active experience the lowest risk. Notably, the most significant enhancements in health status are evident when individuals with lower fitness levels adopt a physically active lifestyle. It is advisable for health promotion programs to target individuals of all age groups, recognizing that the risk of chronic disease begins in childhood and escalates with age.

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