Use It or Lose It: The Physiology of Aging

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While aging is as certain as death and taxes in a person’s life, the physiological impacts of aging are quite variable and can be strongly influenced by lifestyle. A growing body of evidence indicates that a great number human physiological processes are subject to “use-it-or-lose-it” balance. Because of this variability, chronological age is not always an accurate predictor of biological age, particularly in the latter half of life. The body mass index (BMI) of a typical individual trends upward throughout life, primarily due to the progressive increase of fat mass. Evidence indicates that the magnitude of this change can be moderated through physical activity and diet. Similarly, muscle mass across the human population tends to decline with age, although physical conditioning can reduce and even reverse this. Pulmonary function in the average person declines with age, most notably in sedentary individuals. The age-related decline in cardiovascular function can be reduced and often reversed with increased physical activity. The drop in bone mineral density is reduced and often reversed in response to load-bearing exercise. The age-related decline in aerobic capacity (VO2max, lactate threshold) can be mitigated through physical training. Even declines in cognitive function, mood, and immune function have been shown to be reduced by regular physical activity. This seminar will present summaries of studies demonstrating that lifestyle choices can mitigate the physiological impacts of aging and maintain the quality of life as our years accumulate.