



Physical Deterioration of Older Adults due to Aging

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DESCRIPTION

Aging is a prominent cause of human morbidity and mortality, but efforts to slow or reverse its effects are hampered by an incomplete understanding of its multi-faceted origins. Systems biology, the use of quantitative and computational approaches to understand complex biological systems, offers a toolkit well suited to elucidating the root cause of aging [1]. We define the known components of the aging network and outline innovative techniques that open new avenues of investigation to the aging research community. We recommend integration of the systems biology and aging fields, identifying areas of complementarity based on prevailing and impending technological capabilities. Mobility is vital to active aging and is intimately linked to health status and quality of life. Aging, the time-dependent deterioration of function and physiology, is a major origin of human death and disability. Overcoming aging is a timeworn but intangible goal, dating back to the earliest of human writings. Our incomplete understanding of the aging process and its underlying complexities has circumscribed even modern efforts to broad-spectrum interventions with limited potential to slow the aging process [2]. However, an on-going renaissance in the field of aging research advances the possibility of intelligently designed targeted therapies that will slow or reverse the effects of aging. Although aging is commonly observed at the organismal level the outward appearance of aging results from the complex interplay of changes in multiple organ systems and their components [3-5]. Indeed, the ratio and characteristics of aging vary between tissue and organ systems, driven from both within cells and the extracellular environment. To fully understand the source of organismal aging, one must first clench the contributions of its many ingredients. An approach in which each contributor is understood individually and subsequently blended into the whole simplifies this conceptual framework.

CONCLUSION

Mobility is a key element for individual independence and quality of life. Aging and chronic conditions result in wide-ranging victims in physical and sensory capabilities. The impact

of these losses is relatively meek for level of walking. They become limiting during more challenging tasks such as walking on inclined ground, climbing stairs, or walking over longer periods, and especially when coupled with a debilitating disease. As the physical and functional parameters are strictly related, we believe that lost functional capabilities can be indirectly improved by training of the physical capabilities. However, assistive devices can increase the lost functional capabilities directly by compensating for losses with propulsion, weight support, and balance support. Improving quality of life is an aim of modern society. Quality of life studies evaluate the physical condition, as poor physical condition can limit daily mobility and the ability to move and work. One of the main causes of margins in daily mobility might be the physical losses that occur with increasing age, which results in reduced muscle force or muscle power. These losses ease the functional capacity, including both ability and intensity, for movement tasks such as level walking or climbing stairs.

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