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HEALTHY LONGEVITY Health and Wellness at All Ages

The actions and choices for a healthy life do not begin at age 65. Likewise, actions for a healthy longevity occur across all age groups. Most people would agree that their personal vision of a healthy longevity is not narrowly defined as the number of years of life or the absence of a disease diagnosis, but includes a range of social, emotional and physical factors that make up a healthy and thriving life. To realize this view requires a shift away from the concept of pure survival to a model where quality of life is a key indicator. Therefore, the goal of a healthy longevity must take into account **health and wellness at all ages** and make a shift away from the disease-treatment-recovery healthcare model to one that encourages prevention with incentives for wellness and healthy behaviors throughout a person's lifespan.

The model of health and wellness at all ages recognizes that a lifetime of behaviors, habits and health choices are interrelated and have an effect on physical and emotional health, illness, or the development of chronic conditions later in life. Evidence from decades of studies show strong correlations between a number of modifiable lifestyle choices and mental and physical conditions.¹ In addition, updated frameworks for thinking about successful aging utilize an approach that gives equal weight to three lifetime health domains: reducing the risk of disease, maintaining mental and physical function, and continued social relationships and engagement with life.² Multiple components that contribute to this holistic view of health and wellness can be enhanced and promoted with digital and connected health tools and technologies to help individuals achieve a healthy longevity.

There is now a movement to recognize the importance of primary prevention for maintaining activities of daily living

and preventing dementia with a number of links to health and wellness at all ages. Some loss of mental acuity is a normal part of the aging process. However dementia, mental decline and memory loss that interferes with daily living, is not an inevitable consequence of aging. Primary prevention of cognitive decline as a public health focus demonstrates that dementia is linked to a number of lifestyle-related factors including high blood pressure, diabetes, unhealthy weight gain and poor sleep patterns.³ Likewise, functional decline, or the inability to perform activities of daily living, can be prevented through regular physical activity.⁴ Primary prevention of both functional and cognitive decline in older adults can be achieved through a focus on healthy living activities throughout the lifespan.

Prevention at all ages can be promoted with connected health tools and technologies. Behavior change and self-care to maintain healthy lifestyle choices can be motivated with the help of fully- or partially-automated apps and web-based programs. These tools utilize proven behavior change models and are supported by research showing positive effects on intended outcomes. These include a range of education platforms aimed at encouraging healthy behaviors and lifestyle changes that can reduce the risk of cognitive decline, functional decline, and disease: smoking cessation, weight loss, medication and appointment reminders, sleep and pain management, cognitive training, hypertension and diabetes control.⁵ Behavior change programs combined with wearable activity trackers and smart scales can tailor personalized messages and reminders to promote an active lifestyle and help maintain healthy longevity. Health and activity apps can connect with friends to compare health scores and help motivate activity and fitness goals through friendly competition. Promoting and modifying

healthy lifestyle behaviors have benefits even after age 65: modification of behaviors such as smoking, activity and diet in older adults can have an impact on health, longevity and quality of life indicators.⁶

Despite best efforts to promote a healthy lifestyle there will always be heterogeneity and a range of individual experiences that contribute whether one achieves healthy longevity. It is important to recognize that the development of a chronic condition does not equate to failure; healthy aging is not the absence of disease or disability but the incorporation of physical health, social engagement, and mental health into a lifestyle that meets the individual's needs at all stages of life.

Many advances in the connected health technology toolbox can help in the management of chronic conditions, disease monitoring and early identification of situations that require immediate attention. Remote patient monitoring utilizes connected technology devices to collect and transmit health indicators such as blood pressure, glucose levels, cardiac defibrillator readings, oxygen levels or respiratory rate. Data from these devices can be monitored by a team of healthcare providers to identify and respond to abnormal trends, or the patient may use the data for self-management of chronic conditions. Sensors in the home can detect cognitive and emotional changes, monitor mobility and detect falls for independently living seniors. These and other connected health technologies can help older adults realize a healthy longevity by assisting in chronic condition management and identifying early indicators of disease progression.

In another application of personal connected health, the future of precision medicine brings together data on a lifetime of activities and exposures, genetics and individual variability to understand disease risks and individualized health priorities. Developments in the field of precision medicine will depend on complex algorithms, data management and health indicators collected through personal connected health devices to construct personalized therapeutics and lifestyle recommendations to help individuals make informed decisions on behaviors that will help them achieve a healthy and thriving longer life.⁷ As the field of precision medicine advances it will bring new tools for understanding and promoting health and wellness at all ages.

Promoting healthy behaviors with a focus on wellness and prevention during all life stages will have an important impact on healthy longevity in the years ahead. Proven benefits of behavior change programs delivered through digital tools need to be tailored and adapted to reach a wider population of older adults. The great potential of remote patient monitoring technologies is currently only reaching a fraction of the population of older adults who could benefit from these services, largely due to payment and reimbursement restrictions but also because of a lack of clear evidence on the benefits of these applications for managing chronic conditions.⁸ These connected health tools, combined with technologies that support healthy community living, aid in extending independence, and support the family and friends who are primary caregivers of older adults have the potential to promote a healthy longevity for all individuals throughout the life course.

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