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The DUC Healthy Aging Website: Providing Online Occupation-Based Information

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The DUC Healthy Aging Website: Providing Online Occupation-Based Information

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A Culminating Project Submitted in Partial Fulfillment of the Requirements for the

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School of Health and Natural Sciences

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This project, written under the direction of the candidates' faculty advisor and approved by the chair of the Master's program, has been presented to and accepted by the Faculty of the Occupational Therapy department in partial fulfillment of the requirements for the degree of Master of Science in Occupational Therapy. The content, project, and research methodologies presented in this work represent the work of the candidates alone.

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Abstract

Access to current, evidence-based health information is an important step to the promotion of health and wellness for all age groups, including OAs. Since the virtual world is easily accessible and is being used more frequently by OAs, an effective way to convey relevant up-to-date health information is through a website devoted to the dissemination of health promotion information tailored for OAs, including tips for integrating healthy habits into their lifestyle. Dominican University of California's (DUC) Healthy Aging website, developed in May 2014, contains relevant and evidence-based research, including activities and local community based programs that promote healthy aging on the DUC campus.

The objective of this project was to further enhance the DUC Healthy Aging website by adding material that is focused on engagement in physical and emotional wellness with a focus on living a safe, productive, and enjoyable lifestyle. Specifically, new topics such as "Living Safely Inside and Outside of Home," "Local Events," "Emotional Wellness," "At Your Fingertips," "Apps You Can Use," and "Position, Movement, & Ergonomics" have been added to enhance the DUC Healthy Aging website.

Introduction

Adults over the age of 65 are the fastest growing age group in the United States (Centers for Disease Control and Prevention [CDC], 2015). This age group consists of individuals from the “Baby Boomer” generation born between 1946 and 1964 (Horowitz, Nochajski, & Schweitzer, 2013; Office of Disease Prevention & Health Promotion, 2014). Sixty percent of older adults (OAs) age 65 or older will experience more than one chronic condition in the next fifteen years (Office of Disease Prevention & Health Promotion, 2014). Common age related health changes that OAs experience include functional disability, cardiovascular disease, osteoarthritis, dementia, diabetes mellitus, and congestive heart failure (Gitlin, Winter, Dennis, Corcora, Schinfeld, & Hauck, 2006). The chronic health problems impact OAs’ living situations, occupational performance, and overall quality of life (Horowitz et al., 2013).

The purpose of this project was to expand the DUC Healthy Aging website by adding material focused on considerations for a safe and active lifestyle including safe driving, home modifications and utilization of technology. Additionally, the results from a needs assessment indicated a need for information that encourages practices that support emotional wellness. The evidence-based information was provided in a manner that encourages the adoption of new health habits that will ultimately lead to a healthy lifestyle. An additional area of focus was to ensure the new information was incorporated into the website in a manner that fostered usability to ensure that the website can be viewed by anyone, including OAs and health profession majors.

Literature Review

Age Related Changes

Aging is defined as all the changes that occur over an individual's lifespan (NIH, 2015). Some individuals begin to experience age related changes that are perceived as deterioration or decline during middle age. Age related changes occur as individuals continue to age and may or may not be harmful, and can be described as physical aging (Area Agency on Aging, 2013). Normal physical aging may consist of factors that impact the sensory acuity of individuals including loss of peripheral vision and hearing, decreased clarity in vision, decreased ability to detect background noises, decreased sensitivity of taste, and decreased sensitivity to touch and smell (Area Agency on Aging, 2013). These age related changes result in an increased risk for accidents on the road and risk for falls. Additionally, physiologic changes occur as arteries stiffen, the heart muscles thicken, the kidneys and rib cage shrink, the lungs begin to lose elasticity, metabolism and nail growth slows down, and muscle mass decreases. There is an increased frequency of urination, increased body fat, loss of nerve cells, and hormonal changes such as menopause (Area Agency on Aging, 2013). These age-related changes may affect how an individual engages in his or her environment.

Aging may also affect home situations, occupational functioning, long-term care and quality of life (Horowitz et al., 2013). OAs who live alone at home may experience challenges that threaten their independence. These individuals may benefit from access to information about how to enhance their occupational functioning and life satisfaction. OAs experiencing age related changes may also benefit from seeking information about how to resolve problem areas and where to find resources (Horowitz et al., 2013).

Healthy Aging

Healthy aging is defined as “optimizing opportunities for good health, so that older people can take an active part in society and enjoy an independent and high quality of life” (EuroHealthNet, 2016). Healthy aging includes a variety of approaches including diet, exercise, environmental adjustments, and social support (Thompson et al., 2001). Optimal use of each approach can help achieve healthy aging and can improve an individual's overall quality of life (Thompson et al., 2001). The path to healthy aging is linked to engaging in daily meaningful occupations (AOTA, 2015). Occupational therapy focuses on enabling individuals to participate in daily occupations that are important to them in order to promote overall quality of life. Occupational therapy views all aspects of an individual and areas of function to promote client-centered care when performing daily occupations. Occupational therapists establish healthy habits and routines to promote healthy aging across the lifespan (AOTA, 2015).

Based on the definition of healthy aging (EuroHealth, Net, 2016), project developers reviewed the previous Healthy Aging website and identified important topics that were not covered. Project developers felt that it was important to incorporate topics onto the current website including safety in the home, safe driving, emotional wellness, seeking health information through technology, ergonomics, local events, and exercise. These important topics will allow web users to participate in meaningful occupations to enhance their quality of life and engage in healthy aging.

Exercise. Individuals who participate in physical activities can maintain and improve their body strength (Poinier & Herman, 2012). OAs who incorporate exercise into their daily routines such as Tai Chi, a Chinese medicine low intensity form of martial art, can promote balance, coordination, relaxation, strength, and pain management (Thompson et al., 2001).

Individuals who incorporate exercise into their daily routines perform better than their inactive peers in many aspects of life (Benedict et al., 2013). OAs who live an active lifestyle experience slower cognitive decline and have a lower chance of being diagnosed with Alzheimer's Disease in late adulthood (Benedict et al., 2013). Furthermore, Amardottir (2015) found that adults who participated in regular physical exercise experienced little to no brain atrophy when compared to their sedentary peers. OAs living a sedentary lifestyle face a higher risk of poor health, frailty, disability, and functional dependence (Bernstein & Munoz, 2012). Physical exercise is a vital component of a healthy lifestyle for OAs. Moreover, the combination of exercise and a healthy diet reduce the risk of experiencing cardiovascular disease, osteoporosis, arthritis, diabetes, cancer, obesity, cognitive decline, and depression and can increase longevity in OAs (Hwang, 2010; Bernstein & Munoz, 2012).

Promoting Healthy Aging

Home Modifications. An OA in the United States suffers from a fall every twenty minutes and many are injured during a fall (Center for Disease Control and Prevention, 2015). Since falling is so prevalent for OAs, adapting environments for optimal safety is a significant concern for occupational therapists in this population (Gitlin et al., 2006). Educating OAs on home modifications can decrease their risk for falls and increase their participation in daily life activities (Szanton et al., 2011).

An individual's home carries many memories and should be the first occupational environment addressed for safety changes (Siebert & Vance, 2013). “Aging in place” is the desire to remain in one’s home while aging as opposed to living in a nursing home (Horowitz et al., 2013). The desire to age in place is influenced by the comfort and meaning that their own home provides (Horowitz et al., 2013). Occupational therapists’ goals for home modifications

are to promote independence, reduce functional difficulties, increase safety, and improve self-efficacy in self-care tasks (Gitlin et al., 2006). One tool that occupational therapist use is *The Home Safety Checklist* created by Rebuilding Together in partnership with the Administration on Aging. This tool may be used for community dwelling OAs to evaluate and determine the safety of their home (Rebuilding Together, 2012).

OAs are at an increased risk of falls, or other injuries, due to changes in balance and strength associated with aging. Home modification research is focused on how to adapt an individual's home environment to minimize fall risks. Home modifications accommodate individuals with physical disabilities to enhance their safety and independence by removing physical barriers and/or readjusting within their own home (Szanton, Petersson, Kottorp, Bergström, & Lilja, 2011).

A study was performed on the effects of a specific home modification program on fall rates, quality of life, and difficulty with activities of daily living (ADLs) and instrumental activities of daily living (IADLs) (Szanton et al., 2011). The home modification program involved interventions and consultations from occupational therapists, registered nurses and the handyman who repaired the homes. The occupational therapists conducted interviews to identify challenges in performance areas within each participant. After the interview, the occupational therapists observed the patient and evaluated their home for safety, efficiency, challenges, environmental barriers and support. The occupational therapist provided the participants with strategies to improve safety including energy conservation, environment simplification, balance exercises, and use of assistive devices. The handyman installed all the recommended home modifications, including grab bars, raised toilet seats, and rails. For each home modification installed, the occupational therapist provided individual training regarding the use of assistive

devices. The registered nurses provided education and strategies including pain management and medication management. Results indicated that 93% of the participants reported the intervention helped reduce functional limitations in everyday life. Additionally, the study indicates that a multidisciplinary team targeting fall rates, quality of life, and ADLs and IADLs is helpful to ensure proper home modifications to help promote healthy behaviors (Szanton et al., 2011).

An additional study was conducted comparing OAs who received home modifications and those who did not in order to determine the effectiveness of the home modification program on daily functioning (Petersson, Kottorp, Bergström & Lilja, 2009). The group that received home modifications reported feeling safer and had a significant decline in difficulty with everyday tasks including bathing/showering for up to six months after the installation of home modifications. The study indicates that home modifications improve the lives of OAs and allows them to participate safely in everyday tasks (Petersson et al., 2009).

Safe driving. Driving is a primary means for transportation for OAs within the community (Golisz, 2014). In order to promote occupational independence in OAs, occupational therapists work to increase safety by teaching driving techniques or strategies that help to improve vision, hearing, and motor coordination. OAs fear that losing their license will prevent opportunities such as visiting friends, going to the movies, or participating in shopping outings. Educating OAs about safe driving techniques will help to maintain their occupational independence and social opportunity as long as possible (Golisz, 2014). *CarFit* is an educational program that offers services to OAs to determine if their car is suitable for them and also provides recommendations about proper car fitting (CarFit, 2015). *CarFit* can help OAs develop safe driving strategies including proper positioning of one's body, adjusting the driver's car seat

and mirrors can be helpful for OAs who desire to become a safe driver on the road (CarFit, 2015).

Emotional Wellness

Emotional challenges in OAs include social isolation, self-neglect, and depression (National Academy for Psychosocial Health (NAPHA), 2015). These psychosocial concerns are prevalent in over 20% of OAs and may influence the development and course of illnesses, function, and mortality (NAPHA, 2015; World Health Organization, 2016). Achieving psychosocial health is an important topic identified in the literature because it is essential for OAs as it influences their attitudes and abilities to maintain their health, well being, and quality-of-life (NAPHA, 2015).

Attitudes About Aging. Healthy aging is closely related to the interrelationship of the mind, body and spirit because attaining healthy emotional and mental states are very important to successful aging (Poinier & Herman, 2012). Levy & Myers (2004) suggest that OAs' attitudes about aging may directly affect successful adherence to healthy behaviors. For example, OAs who have a more positive outlook on life are more likely to engage in healthy behaviors compared to others their age (Richeson & Shelton, 2006). However, some OAs have pessimistic attitudes toward aging and therefore disengage themselves from participating in healthy behaviors altogether.

Impact of attitudes on health. Negative attitudes about aging, such as "OAs are helpless" or "OAs will never be able to escape aches and pains of aging," are associated with low income, living alone, the presence of chronic medical conditions, and depressive feelings (Moser, Spagnoli & Santos-Eggimann, 2010). These negative attitudes toward aging also threaten adherence to health-promoting behaviors, causing pessimistic OAs to disengage from

participating in healthy behaviors altogether (Cox, Anstey & Luszcz, 2012; Levy & Myers, 2004).

Some OAs may believe that aches and pain are inevitable, and therefore disengage themselves from healthy behaviors altogether because they do not believe that there is a benefit to participating in healthy behaviors (Cox, Anstey & Luszcz, 2012). OAs with negative perceptions about aging are less likely to engage in physical activities, seek medical care for health related problems or practice general self-care (Yeom, 2014). Conversely, OAs who cope well with age related changes are more likely to have an optimistic view of health and tend to live much longer than other OAs their age (Levy, Slade, Kasl, 2002). According to Levy, Slade, & Kasl (2002) optimistic OAs actually live seven and half years longer than those with negative perceptions of aging. It appears that their personality and attitude positively influence their physical and mental health. Creating and enhancing positive perceptions among OAs could promote healthy aging and lead to more engagement in meaningful occupations (Yeom, 2014).

Promoting emotional wellness

The path to emotional wellness involves being attentive to one's feelings and behaviors, and being able to accept one's emotions (National Wellness Institute [NWI,] 1976). Healthy thinking habits, including positive thinking, coping well, engaging in activities of interest, social participation, and self-management can positively impact emotional wellness and lead to the incorporation of healthy activities into everyday life (Hanni & Reed, 2013; Lightsey, Johnson, & Freeman, 2012; NWI, 1976). What follows is a review of each of these important habits.

Positive thinking. To modify negative thoughts and to cope with difficult circumstances, including treatments and illness, OAs should incorporate positive thinking into their daily lives. Positive thinking is the ability to deliberately and consciously manage one's own thoughts,

emotions, and expectations of oneself by solely focusing on the possibility of positive outcomes, rather than the bad outcomes (McGrath, Jordens, McGrath, Montgomery, & Kerridge, 2006). In addition to coping better with the experience of illness and process of treatment, positive thinking may also increase the likelihood of a positive outcome and improve the quality of life in those who feel hopeless (McGrath et al., 2006). Evidence also suggests that positive thinking may help individuals to have a sense of control in difficult situations and reduce the risk of depression (McGrath et al., 2006). Verbalizing one's thoughts and writing them onto a piece of paper can help an individual consider their negative thoughts, dispute them, and potentially replace them with positive ones (Lightsey, Johnson, & Freeman, 2012). Repeating positive statements may decrease depression and increase self-esteem (Lightsey et al., 2012).

Coping mechanisms. OAs may begin to feel negative emotions as they experience illness, declining health, loss of relatives, and loneliness (Yancura & Aldwin, 2008). Age-related issues may have detrimental effects on one's quality of life and can cause negative attitudes. (Hunter & Gillen, 2009).

The coping styles include problem-focused coping, emotion-focused coping, social support, and religious coping (Hunter & Gillen, 2009). The first style, *problem-focused coping*, emphasizes the formation and implementation of a plan to solve and manage the problem that is occurring (Hunter & Gillen, 2009). The second coping mechanism, *emotion-focused coping*, is an emotional reaction to issues, such as avoidance and withdrawal (Hunger & Gillen, 2009). OAs are more likely to use this coping strategy when they are faced with uncontrollable stressors, such as bereavement and serious health concerns (Hunter & Gillen, 2009). The third coping mechanism, *social supports*, involves seeking help from others for advice and assistance, while *religious coping* is seeking help and strength from a higher power through prayer (Hunter

& Gillen, 2009). Of these coping mechanisms, OAs find that participating in organized religious activity and seeking social support are most effective in mitigating the effects of stress (Hunter & Gillen, 2009).

The stress of the age-related changes could also impact the body and mind in negative ways. In addition to the coping styles discussed, there are a variety of other stress reduction techniques that can be used to cope with challenging circumstances. *Daily meditation* can be used for managing both physical and emotional issues (Poinier & Herman, 2012). Focusing attention to the mind through meditation can help calm both the mind and body to promote emotional wellness (Poinier & Herman, 2012). *Progressive muscle relaxation* and breathing exercises can reduce muscle tension, anxiety and stress, which promotes relaxation allowing OAs to get more sleep so that they can feel well and energized (Poinier & Herman, 2012).

Staying active. Activities that keep OAs interested and engaged promote emotional wellness. Engagement in recreational opportunities can decrease isolation, reduce stagnation, and eliminate social withdrawal (Hanni & Reed, 2013). Community engagement may also maintain and promote an individual's functional ability, preventing loss of independence in OAs (Hanni & Reed, 2013). Although engaging in solitary leisure activity stimulates the mind, participating in social activities increases life satisfaction by reducing negative affect and producing positive emotions in OAs (Simone & Haas, 2013). In one study, OAs who engaged in community art classes and projects stayed connected with their peers by sharing their personal artwork with one another (Moody & Phinney, 2012). Promoting emotional wellness through occupational engagement is a meaningful approach to increase overall health in the older adult population.

In another study, OAs who volunteered as tutors in the public school system were able to make new connections within the community, and increase their social participation skills

(Lightsey, Johnson, & Freeman, 2012). Volunteering may also serve as a pathway to other socially productive opportunities because OAs are increasingly motivated to venture into their community and enjoy having more structure in their everyday life (Morrow-Howell, Lee, McCrary, & McBride, 2014). Furthermore, participating in social activities, productive activities, art classes, volunteer work, and an overall active lifestyle promotes well-being such as activities that are associated with improved mood and satisfaction with life (NIH, 2015; Simone, & Haas, 2013).

Socializing with others. Social participation in meaningful activities is important to healthy aging and overall health (Thompson, et al., 2001). Social participation has many positive effects on OAs including an increase in cognitive function and overall life satisfaction (Thompson, et al., 2001). Seeman, Lusignolo, Albert, & Berkman (2001) found that OAs with sufficient emotional support exhibited better outcomes in cognitive function when compared to single OAs with insufficient emotional support. The study concluded that individuals with spouses received stronger emotional support and exhibited positive outcomes, which demonstrates that emotional support from a loved one is crucial.

Although social participation is an important aspect of healthy aging, some OAs do not maintain a social life, causing them to become isolated from their peers. Goll, Charlesworth, Scior, and Stott (2015) conducted a study on lonely seniors in which the participants were interviewed to determine the barriers to social participation from personal experiences. The participants identified illness and disability, loss of contact with friends and relatives, lack of community support, and lack of opportunities as reasons behind their decreased social participation. These participants admitted to avoiding social engagement for fear of being rejected or embarrassed (Goll, Charlesworth, Scior & Stott, 2015). This information is beneficial

as it suggests that social fears in lonely OAs should be addressed when striving to increase social participation and may help the individuals gain confidence to engage with peers and the greater community.

Staying in touch with friends and family and maintaining a socially supportive network can improve an OA's emotional health and alter negative views. Social activities such as staying connected with family and friends increase emotional health and promote positive attitudes for a positive lifestyle (Poinier & Herman, 2012).

Self- management of healthcare by the elderly. While the development of autonomy is an important aspect of emotional wellness, recognizing when to get help and managing one's health are critical components required for healthy aging. Alea and Cunningham (2003) describe help-seeking behavior as seeking information from another person or source. Accessing other resources, whether it is discovering knowledge directly from a person or discovering information via a computer, can facilitate functioning and promote successful aging (Alea & Cunningham, 2003). However, some OAs avoid seeking assistance due to the fear of feeling dependent on another person (Alea & Cunningham, 2003).

Self-management of medical records allows OAs to develop the skills needed to decrease the emotional impact of age related changes (Mitchell & Begoray, 2010). A personal health record (PHR), a collection of health related information that includes your name, birth date, blood type, and emergency contact information, date of last physical, dates and results of tests and screenings, major illnesses and surgeries, a list of your medicines and supplements, the dosages, and any history of illnesses in the family, enables OAs to independently manage their own health records and medical information so that they can understand their health needs (Mitchell & Begoray, 2010). Patients diagnosed with chronic illnesses who self-managed their

personal medical records felt more empowered to manage their own health care and actively participate in their healthcare journey (Mitchell & Begoray, 2010; Baudendistel, et al., 2015). Managing one's own health can improve an individual's behaviors and their overall ability to engage in health promotion behaviors (Mitchell & Begoray, 2010). Personal health records can be created via a web-enabled device, such as Microsoft's Healthvault, or using paper records filed into a box or binder (MayoClinic, 2014).

Technology and Older Adults

OAs are the fastest growing population of Internet users and are using the internet for everything from health care management to the pursuit of leisure activities (Wagner, Hassanein & Head, 2010). Beginning at 45 years of age, adults begin to experience natural cognitive and physical changes that affect computer use. Physical changes associated with aging include difficulties with vision, hearing, and psychomotor abilities. Cognitive changes, such as a decline in attention span, memory, and changes in spatial abilities may affect computer use among OAs. Large fonts and layouts that require minimal mouse movement are examples of modifications that can improve computer use among OAs (Wagner et al., 2010).

The use of technology in OAs is growing in today's society, however, the amount of knowledge OAs have about the use of devices, such as computers, tablets, iPads, and cell phones, may be vary (Wagner et al., 2010). Wagner, Hassanein & Head (2010) conducted a study using the Social Cognitive Theory to examine different factors involved with computer use in OAs, including the person, environment, and human behavior. Researchers found that there is a relationship among these three concepts that drives a person's behavior. The study suggested that training, website design, and self-efficacy will most likely encourage effective and ongoing use of computers by OAs. In more recent years, access to health care information is a growing

area of interest for Internet users (Wagner et al., 2010). This information is beneficial, as it suggests that improving OAs' skills through training, environmental barriers through design, and human behavior by efforts to improve self-efficacy may fortify a more positive relationship between OAs and technology.

Harrod (2010) conducted a qualitative study on OAs in the United States to find out why this population was using the Internet for health information and how it may relate to ideas about aging. Definitions of age and health determined the OAs' need to seek health information (Harrod, 2010). "Aging successfully means that you are healthy, and if you are healthy, then you are aging successfully" (Harrod, 2010). Society's definition of aging and health puts a heavy emphasis on independence. In the study, participants were observed and interviewed to gain insight on how Internet use would promote health and independence. Results suggested that OAs were seeking information about staying active, social activities within the community, and were choosing to maximize independence by shopping and paying bills online. OAs' ideas about aging played a role on their perceptions of health and how they researched health information (Harrod, 2010).

Aging in place & technology. Ninety percent of OAs live independently in their home and are able to access health information through the Internet (Mitzner, Boron, Fausset, Adams, Charness, Czaja, Dijkstra, Fisk, Rogers, & Share, 2010). With the advancement of technology over recent years, aging in place is becoming more popular. The relationship between aging in place and technology is due to the fact that OAs are seeking internet health information to enhance their opportunity to age comfortably at home and monitor their health. OAs recognize that technology has the potential to promote independent living. The use of technology can promote personal health and wellness by allowing users to access resources as needed from the

comfort of their home. In one study, OAs were interviewed about the use of technology and their perceived ideas about the benefits of technology in the context of their home, work, and health care. Experience, personal traits, attitudes about technology and characteristics of technology (e.g. perceived complexity and level of innovation also affected their perceived ideas) (Mitzner et al., 2010). This information is important because understanding OAs attitudes about technology can be useful when introducing electronic information to clients within the older adult population.

One hundred and thirteen OAs participated in a study that focused on discussing their use and attitudes toward technology (Mitzner et al., 2010). Participants reported using a variety of technology items in the home to gather health information online. Results demonstrated that positive attitudes outweighed negative attitudes towards technology use. Technology has the potential to maximize independence in OAs and improve quality of life by potentially providing assistance with activities of daily living and access to health information (Mitzner et al., 2010).

Constraints in computer usage for older adults. Computers and technology help OAs increase communication with family and friends, expand opportunities for learning, extend social supports, enrich health related information, and explore resources for entertainment (Lee, Chen, & Hewitt, 2011). Lee et al., (2011) conducted a study that explored the constraints of computer use in OAs. Two hundred forty-three senior computer users participated in the study. The research indicated that participants experienced an increased rate of anxiety and stress and limited self-confidence about the use of new technology (Lee et al., 2011). OAs faced multiple barriers when dealing with computer-based technologies. Four factors were identified, including intrapersonal, interpersonal, structural, and functional. The interpersonal constraints dealt with OAs feeling as if they had no one to communicate with via email, no one to ask questions to, nor

did they feel as if had anyone to educate them about the use of technology. Intrapersonal limitations involved OAs feeling as if they are too old to learn, that computers are too complex, and that they have no familiarity with technology. Functional constraints include decline in logic reasoning, memory function, and spatial orientation. Lastly, structural barriers include the high costs of technological devices and that there is nowhere to use such technology. The results of this study clarify important topics to address when helping OAs with using technology and promoting quality of life (Lee et al., 2011).

Ergonomics & technology. As people age, their joints become less resilient, increasing the risk of injury (Esmaeilzadeh, Ozcan, & Capan, 2012). Repetitive motions executed during computer and cell phone use intensify possible strains and damage to the body. The goals of ergonomics are to prevent upper extremity and musculoskeletal disorders related to muscles, joints, and tendons (Esmaeilzadeh et al., 2012).

The increased use of technology across the world coincides with the increasing risk of computer related injuries (Esmaeilzadeh et al., 2012). A wide range of symptoms usually occurs in the neck, shoulders, elbows, forearms, wrists, and hands. The etiology of web related musculoskeletal and upper extremity symptoms/disorders are largely due to personal, physical (ergonomic), and psychological factors. Ergonomic interventions would involve eliminating and/or reducing these factors. Ergonomic experts may address body postures, proper use of equipment such as monitors, keyboards, cell phones, chairs, and the location of such devices during their use. (Esmaeilzadeh et al., 2012).

A randomized control study investigated 94 adult subjects with work-related upper extremity musculoskeletal symptoms who used computers three hours a day. These individuals participated in a six-month intervention program (Esmaeilzadeh et al., 2012). Body posture and

workstations were assessed using the Ergonomic Questionnaire. The questionnaire evaluated symptoms before and after work related computer use and the number of hours spent on a computer. The participants underwent training to improve their knowledge of ergonomics and self-assessment/arrangement, so that they had the required knowledge to properly arrange their work environment. The three-step intervention processes included comprehensive ergonomic training, ergonomic training brochure, and workstation evaluation. Of the 94 participants, 69 were included in the statistical analysis (35 intervention group and 34 control group). The results indicated that the ergonomic intervention improved body postures and workstation layouts during computer usage and significantly reduced symptoms of these technologically related injuries. Furthermore, ergonomic resources benefit computer users whether the device is being used for work or retrieving health information (Esmailzadeh et al., 2012).

Statement of Purpose

The OA population is the fastest growing population of Internet users (Harrod, 2010). With the Internet being a primary source for gathering information, OAs are beginning to use the Internet to seek health information related to optimizing independence, productivity, and social engagement (Harrod, 2010). While there is a vast amount of information and advice available on the topic of healthy aging, the validity of the information can be questionable and the information may be too difficult to understand (Ayati & Azarani, 2014). Dominican University of California's Healthy Aging website provides relevant research and credible resources that promotes healthy aging on one organized website.

This project focuses on expanding the DUC website by introducing new information and resources regarding health promotion strategies to keep OAs emotionally and physically well. The website specifically includes resources regarding suggestions for promoting emotional

wellness, home modifications, driving safely, or older adult friendly apps. In addition, the website includes current local events, ergonomics, and strategies for improving technology usage. The website can also help OAs adapt and modify aspects of their lives. OAs will be able to maintain their health and independence by using recommendations for resources that can assist them inside and outside of their home.

The research found in the literature review suggests that health, emotional wellness, fall prevention, home safety, safe driving, ergonomics, physical exercise and social participation are vital components to promote healthy aging in OAs. Thus, these resources are provided in a manner that encourages small steps towards lifestyle changes and have been incorporated into a web-based format via the DUC Healthy Aging website.

Theoretical Framework

The theoretical framework used to guide the proposed project is the Ecology of Human Performance (EHP).

Ecology of Human Performance Model

The ecology of human performance (EHP) model identifies the relationship between task, context, performance, and the person. The model suggests that if the relationship among the task, context, and the person is strong, the individual will have optimal performance. This theory was formed from the theoretical basis that the relationship between the person and the environment affects how one will behave and perform during tasks, activities, and interactions (Cole & Tufano, 2008). A meaningful environment and context creates a willingness to engage in an activity, resulting in higher quality performance. This model is highly individualized because each person is unique and holds different interests; therefore, the context and activities need to be adapted to fit the needs of the individual person (Dunn, Brown & McGuigan, 1994). For example, if a person is observed in a context that does not support his/her strengths, his/her

functional level could be perceived as lower than what it actually is. The EHP model states that it is important to identify the difference between a supportive context and one that acts as a barrier to the individual in order to understand their optimal performance level. See Table 1 for specific information on the intervention approaches and how they are conveyed throughout the website.

Table 1. Ecology of Human Performance

Create	Under create it is assumed that one can complete a task of their desire, despite any sort of disability, if the context is altered to fit the person (Brown, 1998). The website adheres to this idea because while there is a vast amount of information and advice available on the topic of healthy aging, the validity of the information can be questionable and the information may be too difficult to understand (Ayati & Azarani, 2014). This project focuses on presenting information clearly and concisely on the DUC website. It is a website that can be accessed by all individuals including people under the age of 65. The website provides information for exercise and nutrition, which are daily life practices for everyone, suggesting that the content of the website is relevant to all users. Other sections of the website that fall under the create intervention method include ergonomics and coping mechanisms (found within emotional wellness).
Establish/Restore	Interventions under “establish” are designed to improve a person’s specific abilities by teaching new skills (Brown, 1998). In the website, more extensive information is provided to assist OAs in establishing new routines and skills to improve overall lifestyle through the emotional wellness, living safely inside and outside the home, and at your fingertips pages.
Alter	This section aims to maintain current functional abilities, essentially preventing decline in functional status by altering the environment (Dunn, Brown & McGuigan, 1994). The DUC Healthy Aging website is intended for healthy OAs, the goal being to maintain the level of function they currently have by supporting safe participation in an active, engaged lifestyle. For example, the Local Events page is included to encourage OAs to remain involved and safe in their community.
Adapt	Interventions under “adapt” change specific features of a task to accommodate the individual’s needs (Brown, 1998). The DUC Healthy Aging website provides information on how to adapt current lifestyles, and the environment they are conducted in, to promote well-being. The ergonomics section on the website offers suggestions to adapt the working environment to avoid injuries and exhaustion while participating in occupations. Additionally, home modification suggestions and resources are included to provide OAs with ideas on how to adapt their home to fit their occupational needs.
Prevent	When using the prevention intervention strategy, one can predict possible barriers to a task and make changes to prevent failure (Brown, 1998). One can use strategies from the other intervention approaches in order to change components of completing a task and preclude barriers (Brown, 1998). The emotional wellness section and the Local Events sections are included on the website to prevent OAs from feeling isolated or lonely which are common feelings of the aging population (NAPHA, 2015). Although changes associated with growing older are inevitable, the website provides information and techniques to prevent secondary problems that may arise from these changes.

Methodology

Design

The information on the DUC Healthy Aging website provides information to promote healthy aging to the greater community. The following headings were added to the homepage of the website: “Living Safely Inside and Outside of Home,” “Local Events,” “Emotional Wellness,” “At Your Fingertips”, “Apps You Can Use” and “ Position, Movement, & Ergonomics.” We have requested and received permission for all the links that are now provided on the DUC Healthy Aging website.

Local Events. The local events heading allows the user to access and discover new information about current community events occurring in Marin County on the county calendar. The events shown in the link are not specific to OAs but includes art exhibitions, art galleries, pop up shows, various museum events, theatre events, fairs, classes, and much more. (See Appendix A.1)

Living Safely Inside and Outside of Home. A link has been provided called “Living Safely Inside and Outside of Home” that leads the user to one of two links: “Safe At Home” or “Safe Driving”. The “Safe At Home” link leads to information about fall prevention. The user is provided with a link to a home safety checklist to assess their home, and consider potential home modifications to promote safety and independence within the home. The user is also provided with a “Do’s” and “Don’ts” list to visualize what is best to promote safety and identify potential hazards within their home. The “Safe Driving” link leads to information about the importance of safe driving. Resources such as *CarFit* can help OAs with vehicle fit suggestions and helps develop strategies to become a safe driver on the road (CarFit, 2015). The *CarFit* section also included, safe driving tips from AOTA’s website, including proper adjustments for the driver's

seat, optimal sitting postures, and ideal mirror positions for safe driving in the community (CarFit, 2015). (See Appendix A.2)

At Your Fingertips. The “At Your Fingertips” link provides the online user with information about technology services offered for OAs in Marin County, suggestions for improving vision and hearing functions on PC and Mac computers, and other helpful tips for using technology. This section includes opportunities in the community to expand technology skills. Among the opportunities listed are free classes at the Apple Store to learn more about how to use Apple products and how to make documents, spreadsheets, and presentations (Apple, 2015). Marin County Public Libraries also offers free PC computer training classes and eBook help, by appointment only. Appointments can be made online for any desired location in the county or by calling the Marin County Public Library main office telephone number. The computer tutoring classes offer one-to-one training on the use of Internet, email, and Microsoft Office products such as Word, PowerPoint, and Excel. Also, eBook tutoring classes offer information about how to download eBooks from the library’s database to the user’s personal device (Marin County Free Libraries, 2015). For additional information about computer training classes, the Golden Gate Computer Society, a non-profit organization, offers free technology workshops for members and only five dollars for non-members. The Golden Gate Computer Society workshops include exploring Google services, YouTube, email, and much more (Golden Gate Computer Society, 2015). (See Appendix A.3)

Position, Movement, & Ergonomics. We have also included a section on human movement, positioning and ergonomics in relation to technology use. Ergonomics is defined as designing one's environment so that they can interact most efficiently and safely to minimize the risk of injury. OAs are using technology to access the website; therefore, the DUC Healthy

Aging website provides a user-friendly way to access information about optimal human movement, positioning, and ergonomics in relation to technology. The information provided is an additional resource for OAs to consider when looking for tips for comfortable and safe use of technological devices, including cell phones and computers. (See Appendix A.4)

Apps You Can Use. Although there are many apps available to make life easier, included on the website is a list of apps that are beneficial to the older adult population. The “Apps You Can Use” link provides users with a variety of different apps that can make life easier, more fun, and healthier. Descriptions of the apps and links to the Apple store or Google store have been added for smartphones and tablets to promote independence and lifestyle improvements while keeping their minds active and engaged. (See Appendix A.5)

Emotional Wellness. This heading leads the user to information and resources on how to achieve and promote emotional wellness. The importance of emotional wellness is emphasized under the tab that states “Emotional Wellness.” Providing an “Emotional Wellness” section will assist OAs with coping with physical and psychological concerns that can enhance their mental health and overall quality of life (Yeom, 2014). The emotional wellness section includes suggestions for developing healthy thinking habits which include positive thinking, coping well, engaging in activities of interest, social participation, and self-management of health care. Occupation-based habits, including how to practice positive thinking and meditation have been introduced to the website. In addition, the four main coping styles, problem-focused, emotion-focused, social support, and religious coping have been outlined and examples of each have been provided so that users can better understand the coping styles. Stress reduction techniques, daily meditation, and mindfulness activities have also been incorporated into the emotional wellness section. Lastly, the self-management of healthcare section was also included on the DUC

Healthy Aging website under the emotional wellness section. This section provides its users with information on how to create and manage one's own personal health record. (See Appendix A.6)

Needs Assessment

Extensive research was conducted during the literature review to identify the most current and valuable information for healthy aging in OAs. A needs assessment was conducted using the following resources: a) literature b) a review of the current DUC Healthy Aging website, and c) a review of six other healthy aging websites. Results of these efforts indicated that because of the increase in health care needs among OAs, they often seek health information through the Internet. Based on our understanding of healthy aging and a review of the literature, we decided to focus on the topics of technology, mobility inside and outside of the home, emotional wellness and ergonomics.

Community Agency

The DUC Healthy Aging website is focused on two community agencies. The first “agency” is Dominican University of California (DUC). DUC is located in San Rafael, California and was established in 1890. DUC offers more than 60 programs of study for the 2,200 students on campus; the student to faculty ratio is 10:1.

The second agency is the occupational therapy department at DUC. The occupational therapy department was created in 1996 and is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE). DUC gives students the opportunity to complete their bachelor to master's degree in five years. Students receive their Bachelor of Science degree in Health Science in four years and then are granted their Master of Science degree in Occupational Therapy after completing an additional year. In addition, the occupational therapy

department also offers a Master of Science in occupational therapy degree to students who have obtained a bachelor's degree from other college and universities.

DUC not only provides programs for students, but also programs for OAs in the local community. As part of the occupational therapy curriculum, community-based programs are emphasized especially for OAs. For example, the Healthy Seniors Program is directed towards OAs in the local community. The occupational therapy department implements the Healthy Seniors Program in order to promote healthy aging.

Project Implementation Plan

The initial idea for the project was to update the DUC Healthy Aging website to address emotional wellness and incorporate new topics such as safe driving, fall prevention, technology use, friendly apps, and ergonomics. The events section was deemed vital to promote execution of the components to health and wellness by providing access to information about local events. The plan was to include additional current evidence based information, and simplify use for OAs so that the website would be easily navigable. The projected start date was August 2015 and was completed December 2016. The website was completely renovated with additional information for DUC students and faculty, as well as OAs in Marin County who could navigate the website because of its increased accessibility. See the corresponding appendices to review the information on the website for each section: Appendix A.1 Local Events and Physical Exercise, Appendix A.2 Living Safely Inside and Outside of Home, Appendix A.3 At Your Fingertips, Appendix A.4 Position, Movement, and Ergonomics, Appendix A.5 Apps You Can Use, and Appendix A.6 Emotional Wellness.

Readability levels were taken into consideration when developing the website for the users of the healthy aging website. A seventh grade reading level was used to guide the content

and presentation of the material incorporated into the website. The complexity of the writing was tested using an online software program that analyzed the text readability to ensure that the information was written at a seventh grade level of comprehension.

The DUC Healthy Aging website was reviewed by a panel of educators including Dr. Ramsey and Diane Griffeath, the Program Administrator for the Occupational Therapy Department, who holds a Master of Arts degree in psychology from the Occupational Therapy Department at Dominican University of California, and a Master of Arts degree in gerontology from San Francisco State University. Both educators specialized in geriatrics and healthy aging. The panel of educators provided technical expertise and input regarding website design for the execution of the DUC Healthy Aging website.

New additions to the DUC Healthy Aging Website require approval from several departments within Dominican University. Since the approval process is outside of the scope of this project, which is focused on designing the website content for use among OA's, the final content has been submitted as a proposal to the occupational therapy faculty, who will then work with the required parties to prepare the material to "go live".

Project Evaluation Plan

The target population for the DUC Healthy Aging website was OAs and health profession majors. The project supplemented the current website with evidenced-based information and strategies to encourage the development of new healthy habits. Material was incorporated into the website with attention to usability and readability to ensure that it can be viewed by anyone, including OAs in the community and health profession majors.

The project was evaluated by experts in the field of healthy aging who reviewed and provided feedback about the website. Susan Morris, assistant professor at Dominican University

of California, was our thesis advisor and primary reader. Dr. Ramsey, who assisted the previous healthy aging capstone group when designing the original DUC Healthy Aging website in 2014, was a key evaluator and second reader. Claire Murphy, the instructional resource coordinator from the occupational therapy department at Dominican University of California, also evaluated the website and provided technical expertise for the execution of the healthy aging website. In addition, two sample populations, including six OAs age 65 and older and six DUC health profession major students provided feedback by completing an evaluation.

The evaluation included four questions that followed a Likert Scale format and included two questions that required the evaluators to provide a brief statement. Two different evaluations were administered, one for the OAs sample and one for the DUC students (See appendix B.1 and B.2). The evaluators were asked to circle the most appropriate number of each statement that corresponded most closely to their desired response scaling from 5 being “strongly agree” and 1 being “strongly disagree.” See Figure 1 to view the mean scores from the DUC students and see Figure 2 to view the mean scores from the OAs responses to the evaluation questions.

Figure 1. Healthy Aging Website Evaluation Mean Scores for Students

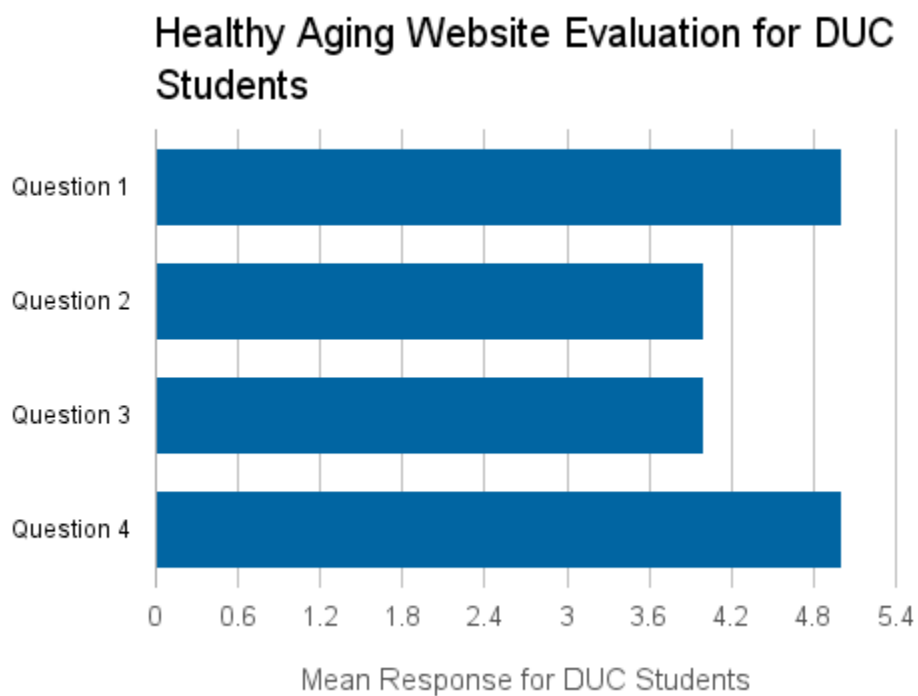
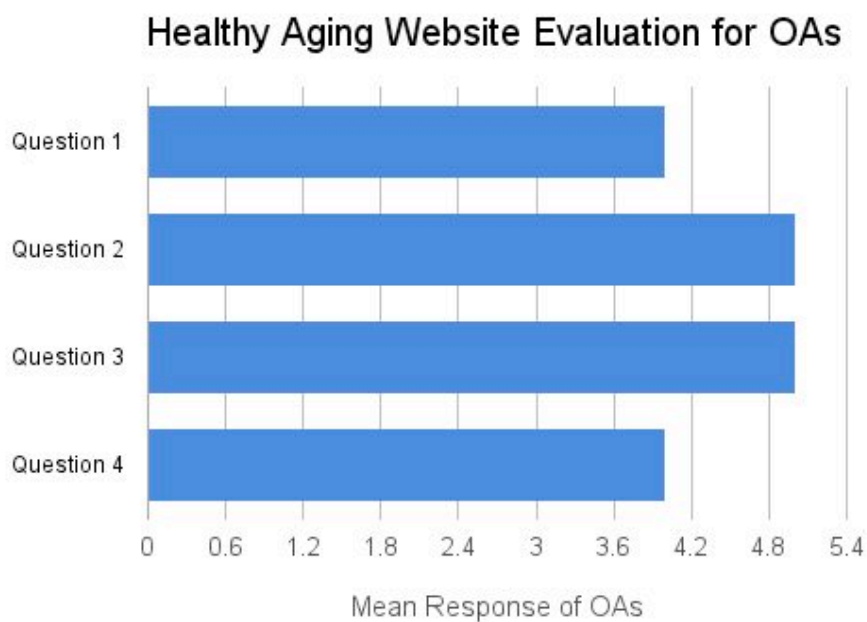


Figure 2. Healthy Aging Website Evaluation Mean Scores for OAs



The student population was also given short statements to answer (See Appendix B.2). Student responses indicated that they agreed with each statement, and believe that the information was *“very relevant! I like how there is a wide variety of relevant helpful topics. A lot of this information can also be applied to young adults which is awesome!” “I think everything is applicable to our daily lives, especially seniors.”*

Additionally, evaluations were gathered from a sample population of OAs in Marin County. The OAs were also given short statements to answer (See Appendix B.1). OAs agreed with each statement and stated, *“the information is helpful as I age more. Computer use is especially functional at the moment.”* Other evaluators reported, *“positive thinking and socializing are very important for healthy aging, I try to do these things everyday. I could definitely use this in my daily life. I need to apply proper sitting postures while reading.”* In addition, one of the healthy aging experts at Dominican University of California agreed with each statement and found the information *“very relevant. I especially like the CarFit and the fitness app information.”*

Ethical and Legal Considerations

Occupational therapy students at DUC abide by the ethical standards of American Occupational Therapy Association (AOTA). The content provided on the DUC Healthy Aging website provided credible evidence and resources that fosters health and wellness for OAs. Since the OA population utilizes the Internet to seek health information, the objective of the DUC Healthy Aging website was to communicate evidence based health and wellness information that can help create an active, engaged, and self-satisfying lifestyle for OAs (Harrod, 2010). Occupational therapists are committed to promoting safe and meaningful participation in life

activities throughout the lifespan and for this reason they are well suited to design the educational material that will be included in the website.

The healthy aging project adhered to the AOTA principles of beneficence and veracity. Beneficence refers to services that are intended to be of benefit to other persons (AOTA, 2015). The DUC Healthy Aging website promoted the beneficence principle by providing Internet users with evidence based information and resources that will help promote healthy aging. The veracity principle states that information provided needs to be comprehensive and accurate (AOTA, 2015). Moreover, the website content was written for broad communication across education levels by using layman's terms and examples that can be incorporated into OAs lives. Additionally, the DUC Healthy Aging abided by the principle of veracity by providing Internet users with truthful, current, objective, and comprehensive information related to the promotion of healthy aging. Additionally, the DUC Healthy Aging website provided accurate citations and references for all information included in the project.

Discussion

The DUC Healthy Aging website was expanded by the addition of relevant topics and strategies based on current evidence based research on healthy aging. It was also organized in order to ease accessibility and use for web users. Sections including "Living Safely Inside and Outside of Home," "Local Events," "Emotional Wellness," "At Your Fingertips," "Apps you Can Use," and "Position, Movement, & Ergonomics" were added to the website. These links lead to pages with educational content regarding home modifications, community mobility, events occurring in Marin County, components of health and wellness in OAs, technology use, and ergonomics.

The topics were identified for inclusion based on extensive research and discussion about healthy aging with an occupational therapy lens, and investigating other current websites on healthy aging. Since occupational therapy is client-centered, and assesses both the psychosocial and physical ailments of a person, the project developers decided it would be important to include an emotional wellness component to the DUC Healthy Aging website. Since the method of the information portrayal was in a website format, educational information regarding technology use was another vital section added to the new website. Next, because mobility allows access to occupations both in the home and in the community, home modifications and safe driving were deemed important components for the new website. The DUC Healthy Aging website provides OAs with an accessible online resource for information regarding healthy aging and referrals to local community programs regarding healthy aging in the community.

Since Marin County is one of the more desired places to retire, with one in four being over the age of 60 years and a projected one in three being a senior by 2030, it is important for community agencies, such as DUC to support their aging neighbors (Marin County Civil Grand Jury, 2014). The ability to provide healthcare to this community in the next few years will become increasingly difficult due to the escalation of demand as the baby boomer population ages (Horowitz, Nochajski, & Schweitzer, 2013; Office of Disease Prevention & Health Promotion, 2014). Therefore, strategies to reach OAs via community outreach media, such as a website, is beneficial to the community as a whole. The DUC Healthy Aging website encourages health and well-being for this population allowing OAs to learn about beneficial prevention techniques and activities at their convenience. This website is promoting a supportive community for the OAs of Marin County.

After implementing the website and receiving feedback from web users we identified that more visual aids were preferred to be on the DUC Healthy Aging website. Project developers were limited with what could be incorporated onto the website.

Implications for occupational therapy

The American Occupational Therapy Association (AOTA) has recognized productive aging as a key area of occupational therapy (OT) practice due to the rapidly aging population and the associated quality-of-life issues (AOTA, 2015). Occupational therapists are experts in education, techniques, and strategies to help OAs live independent, safe, and productive lifestyles (Golisz, 2014). It is for this reason that occupational therapists are well positioned to design communications that foster productive aging.

Although some OAs may not have access to an occupational therapist, OAs can have access to health information that promotes healthy aging via the DUC Healthy Aging website. The DUC Healthy Aging website provides OAs, students, professors, and practitioners in the healthcare field with evidence-based resources that focus on factors that foster healthy aging. Web users have access to evidence based resources, information, and step-by-step strategies about health promotion and preventative measures to live a healthy active lifestyle. The DUC Healthy Aging website can be used to reach a larger audience worldwide and will continue to provide users with health promotional resources at DUC and in Marin County to engage in a healthier lifestyle.

Limitations of the project

The main limitation was the skill of the project developers and lack of experience updating and creating a website. This caused the project developers to seek technical assistance from both the marketing and occupational therapy departments. The marketing department was very helpful in educating the project developers on the requirements of creating a new page on

the Dominican University of California's website. The team learned that regulations related to the DUC website resulted in restricted use of stock photos due to copyright concerns, and therefore, project developers were limited in the number of stock photos that could be used in the DUC Healthy Aging website. This was considered a significant limitation, in that use of photos and visual aids help improve the comprehensibility and ease-of-use of web pages.

An additional limitation may concern how the information and resources included on the website may not generalize to other OAs outside of the Marin County, California community. For example, the calendar included in the "Local Events" section solely includes events occurring locally, therefore, different demographics may not find this section of use.

Future recommendations

In order to continue supporting OAs and further this project, a study should be done to evaluate the success of the website. It would be beneficial to determine whether users are finding the website information to be relevant, displayed appropriately, and user friendly. Qualitative feedback from the users would aid in refining the website to fit the needs of the OAs. Additionally, the website information could be expanded to include a section on caregiver support and tips. Caregiver support and education is important to ensuring appropriate care to the aging population. If the website is maintained, it will continue to benefit OAs during their aging endeavors. The next steps for the project would be to market the website in the Marin County community through local media and to advertise the website around Dominican University of California's campus via student's email and flyers throughout campus.

Summary

The DUC Healthy Aging website addresses physical health, emotional wellness, fall prevention, home safety, safe driving, and ergonomics. This project was developed and designed

to provide health promotion information in a website that is tailored for OAs, caregivers, nurses, family members, and other occupational therapists throughout the world. Future projects to advance the website would be beneficial in order to keep the information current. Although we have included the most current evidence based information available at this time, healthcare is constantly changing. Therefore, future projects should update the information in order to maintain relevancy to today's society and the aging population is necessary for the success of the DUC Healthy Aging website.

Conclusion

The DUC Healthy Aging website was expanded to introduce new information and resources. In addition, the website format was updated to make it easier for users to navigate through the website. The DUC Healthy Aging website assists OAs with living a safe and productive lifestyle by providing the users with current and reliable evidence-based research from an occupational therapy perspective. The material was designed with the hope that web users will find the information easy to comprehend and will be encouraged to incorporate these occupation-based resources into their lives to live a healthy lifestyle as they continue to age. The evaluators rated in the website content positively and indicated that they found the apps, emotional wellness sections, and safety considerations in the home particularly helpful. The DUC Healthy Aging website is very beneficial to both OAs, and health profession majors because it is highly accessible and provides resources and information regarding health promotion and prevention behaviors to live a productive lifestyle.

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APPENDIX A.1

HEALTHY AGING WEBSITE CONTENT OUTLINE

Local Events

- A. Here are some local opportunities to get out and about.
- B. Click on the link to see [Events In Marin](#) county today and in the near future:

Physical Exercise

- A. Physical exercise is a great way to stay healthy by increasing blood circulation, raising metabolism, reducing stress, improving the quality of sleep and maintaining or increasing the strength of muscles and bones.
- B. Why is exercise important?
 - 1. People who make exercise part of their daily life function better than their inactive peers (Benedict, et al., 2013).
 - 2. Exercise actually promotes brain health! Individuals who regularly exercise have a lower risk of developing Alzheimer's disease (Benedict, et al., 2013).
 - 3. An inactive lifestyle is associated with (Bernstein & Munoz, 2012):
 - a. Poor health
 - b. Weakness or frailty
 - c. Disability
 - d. Needing help with daily activities
- C. If you are currently inactive, it is okay to start small!
 - 1. These simple activities count as exercise
 - a. Walk in the grocery store rather than riding a scooter.
 - b. Clean the house for 20 minutes without stopping.
 - c. Take a small walk around the neighborhood and say “hello” to your favorite neighbors.
 - d. Walk to the local coffee shop rather than driving.
 - e. Park your car further from entrances of stores and walk a little further.
- D. Some excellent forms of exercise for older adults are Tai Chi, Yoga, aerobic exercise, and strength training.

Appendix A.2

Living Safely Inside and Outside of Home

A. Safe Driving

1. Driving is an important form of transportation for many older adults.
2. An average of 586 older adults are injured every day in accidents (CDC, 2016).
3. Since driving is an important factor in everyday life, American Automobile Association (AAA), AARP and the American Occupational Therapy Association (AOTA) have collaborated to create an educational program called *CarFit* for older adults to use to help drive safely on the road.

B. What is *CarFit*?

1. *CarFit* is an educational program that offers services to older adults to determine if their car is safe for the driver and others on the road.

C. Recognize the need to join *CarFit* today!

1. By 2030, about 58.9 million older adults aged 65+ years old will be driving on the road (CarFit, 2015).
2. Mobility is an important factor for healthy aging. Our cars can be very uncomfortable and not safe to drive. *CarFit* can help with vehicle suggestions and can develop strategies to become a safe driver on the road.
3. Driving is becoming harder and harder due to:
 - a. Traffic
 - b. Traveling distance
 - c. New technology

D. Objectives of the *CarFit* Program:

1. Identify current fit of one's own vehicle to ensure safe driving
2. Identify actions required to ensure to improve vehicle safety
3. Promotes socialization about safe driving and community mobility
4. Promotes safe driving among oneself & others
 - a. Improve safety within car
 - i. Provides tips to adjust car for proper fit
 1. By properly adjusting mirrors
 2. By properly adjusting foot positioning
 3. By properly sitting at a good distance from the steering wheel

E. Why is *CarFit* important?

1. Because it helps older adults drive more safely!
2. Older adults are:
 - a. More likely to wear seatbelts
 - b. Less likely to drink and drive
 - c. Less likely to speed
3. However older adults are more likely to get injured or killed through an accident due to their higher risk of injury.

F. *CarFit* Events

1. Voluntary
2. Confidential
3. CarFit Specialist will not make changes to your car, but will make recommendations on how to make it more safe

4. Takes about 30 minutes
- G. Want to attend to a *CarFit* event around you?
1. Click on the link below to register for a *CarFit* event around California! The link provides date/time, location, contact person, and a reservation phone number.
<http://www.car-fit.org/carfit/RegisterCarFit><http://www.car-fit.org/carfit/RegisterCarFit>
 2. Tips for safe driving
- H. How to adjust your mirrors properly
1. Position your driver seat in a comfortable position
 2. Look at all the mirrors and assure that you see the road
 3. Move your rear view mirror so that you see the road in front of you and behind you without turning your whole body around
 4. Find the buttons to adjust your side view mirrors
 5. Adjust your driver side view mirror first so that you see the road and a little bit of your car
 6. Adjust the passenger side view mirror
- I. Tips on how to stay safe on the road: (CDC, 2016).
1. Increase flexibility and strength by exercising
 2. Review your medications side effects with your doctor
 3. Check your eyes once a year by your doctor
 4. Drive during the day and during good weather
 5. Plan your route before driving
 6. Leave a large distance between you and the driver in front of you
 7. Drive with a partner
 8. Use public transportation
- J. While driving, avoid:
1. Using your cell phone
 2. Listening to music
 3. Eating
- K. For additional safe driving tips, visit The American Occupational Therapy Association (AOTA) website:
- <http://www.aota.org/-/media/Corporate/Files/Practice/Aging/Driving/Safe-Driving-Tips-Seniors.pdf><http://www.aota.org/-/media/Corporate/Files/Practice/Aging/Driving/Safe-Driving-Tips-Seniors.pdf>
- <http://www.aota.org/-/media/Corporate/Files/AboutOT/consumers/Adults/Driving-Tip-Sheet.pdf><http://www.aota.org/-/media/Corporate/Files/AboutOT/consumers/Adults/Driving-Tip-Sheet.pdf>
- <http://driving-tests.org/beginner-drivers/mirrors-how-to-adjust/><http://driving-tests.org/beginner-drivers/mirrors-how-to-adjust/>
- <http://www.car-fit.org/downloads/AAA-CarFit-brochure-FINALApril2014.pdf>
- L. Safe at Home
1. Lifestyle & Home Modifications For Your Home
 2. Fall Prevention
 - a. An older adult in the United States falls every twenty minutes and a significant portion of the falls result in injury (Center for Disease Control and Prevention, 2015).

- b. One way to prevent falls in older adults is to create a safe home environment.
- 3. Home modification goals:
 - a. To increase safety
 - b. To promote independence
 - c. To reduce functional difficulties
 - d. To improve confidence and comfort while conducting daily life activities
- 4. Is Your Living Environment Safe?
 - a. Quick Safety Checklist:
 - i. Increase lighting
 - ii. Decrease clutter
 - iii. Wear proper footwear - comfortable, lightweight, closed toe/heel, good grip
 - iv. Clear floors of throw rugs, extension cords, & other wires
 - v. Use handrails as needed (especially in bathroom)
- 5. The Home Safety Checklist created by Rebuilding Together is a tool for assessing the safety of your home.
 - a. This home safety checklist can help you decide how to change your home to keep yourself or a loved one safe.
<http://www.state.nj.us/humanservices/doas/documents/checklist.pdf><http://www.state.nj.us/humanservices/doas/documents/checklist.pdf>

TIPS FOR SAFE DRIVING

	<p>1) Adjust your drivers seat so that your chest is 10 inches or more from the steering wheel</p>
	<p>2) Adjust your sitting posture by moving the steering wheel. Adjust your seat, or sit on a cushion so that your eyes are 3 inches above your steering wheel</p>
	<p>3) Always adjust your side and rear view mirrors to minimize your blind spot</p>
	<p>4) If left turns are a concern, take a different route with more right turns to eliminate left turns</p>
	<p>5) If traffic hour is a problem, drive at a different time</p>
	<p>6) If you have trouble looking over your shoulder, then do neck range of motion exercises</p>

DO'S and DON'TS in the Home

DON'T

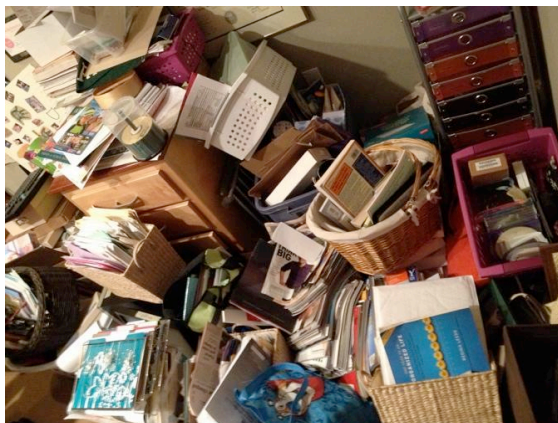


*We all know and love our fancy throw rugs, however, they are a huge fall risk!

DO



*Include non slip grip in bathtub (pictured on *right*) versus smooth slippery surface.



*Cluttered room (*left*) versus clean room (*right*). Use bins to organize materials!



*Picture on the *left* is an uneven walkway, which can be hazardous versus the clean paved walkway on the *right*.



*The picture on the *left*, does not have grab bars or bench for added safety. Pictured on the *right* is an image of a bathroom with grab bars installed near the toilet and in the shower, as well as a seated bench.

Appendix A.3 **At Your Fingertips**

A. Computer and Internet Use

1. Computer use is now an important part of daily life. Due to the natural aging process, some older adults begin to experience changes that may affect them.
2. Are you experiencing physical changes such as decreased vision, hearing, and reaction times?
3. These changes can make using computers and cell phones hard. The following tips may help.
4. Helpful tips
 - a. To make items on the screen appear bigger
 - i. Windows Programs
 1. Open Magnifier by clicking the Start button
 2. Click All Programs
 3. Click Accessories
 4. Click Ease of Access
 5. Click Magnifier to adjust screen
 6. On the Views menu, click the mode that you want to use
 7. Next, move the pointer to the part of the screen that you want to magnify
 - ii. Apple Mac Programs
 1. Click view button in the taskbar
 2. Scroll down to zoom function
 3. Select size of desired zoom
 - b. To make computer sounds louder
 - i. Press volume button on keypad or try connecting an additional speaker with a USB port
 - ii. For more information on how to adjust the volume on your computer click on the link below
 1. http://worldwide.bose.com/productsupport/en_us/web/article_168_adjusting_the_volume_for_your_system_and_computer/page.htmlhttp://worldwide.bose.com/productsupport/en_us/web/article_168_adjusting_the_volume_for_your_system_and_computer/page.html
 - iii. Try connecting an additional speaker with a USB port or via Bluetooth

B. Web Based Learning

1. Need help using your iPhone, computer, or navigating through Google?
 - a. Marin County offers training classes in the use of:
 - i. PC and Apple computers
 - ii. Google services
 - iii. eBook (electronic book)
2. Below is a list of services
 - a. Apple product workshops
 - i. Apple offers free workshops about Apple products (e.g. Iphone, Ipod, Ipad)

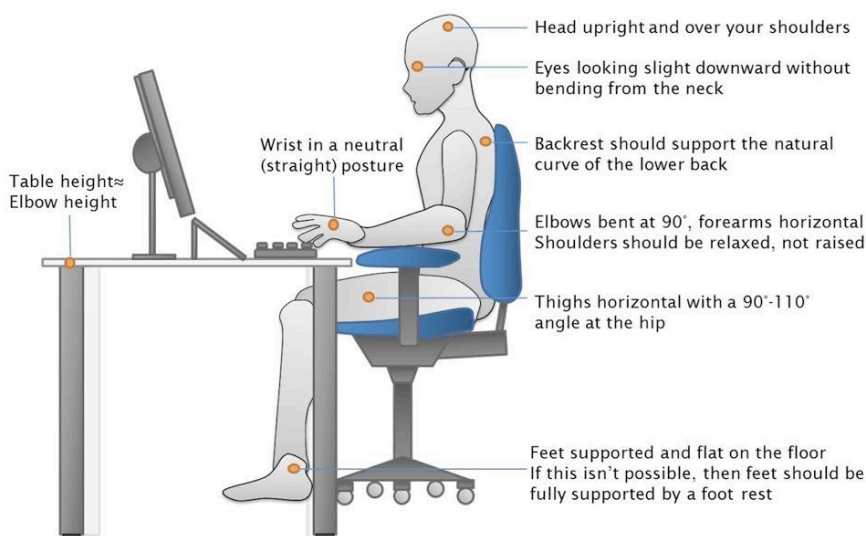
- ii. For more information click on link <http://www.apple.com/retail/learn/> and select workshops to find a class for you
- b. PC Computer / eBook Training
 - i. Marin county libraries offer free PC computer and eBook workshops
 - ii. Click on link to make an appointment now <http://www.marinlibrary.org/events-and-programs>
 - iii. Basic Computer /Google services
 - 1. Visit the Golden Gate Computer Society <http://www.ggcs.org> for more information

Appendix A.4

Position, Movement, and Ergonomics

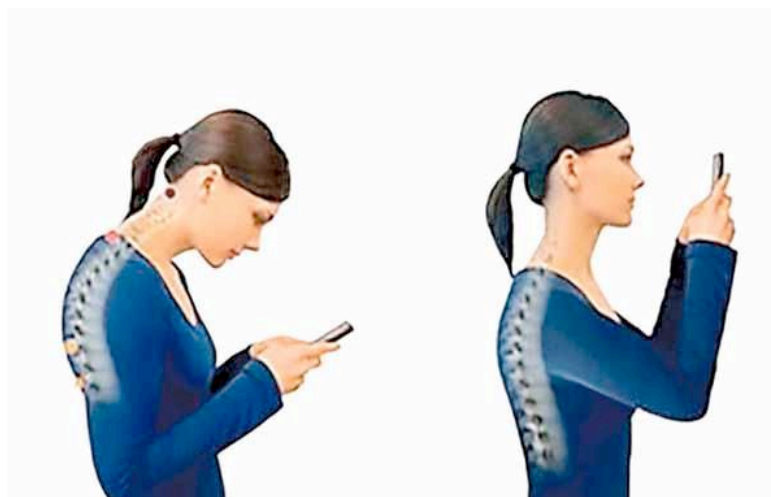
A. Ergonomics and Technology

1. Why it is Important?
 - a. Spending too much time typing, scrolling, and writing during computer and cell phone use can cause body pain and injury.
 - b. Ergonomics provides, easy to use tips for using these devices in a safe and protective way for your body.
 - c. Proper ergonomics while using a computer -
2. Additional Ergonomic Tips
 - a. Adjustable chairs help get you to the desired height for computer use
 - b. If your screen is too high or low
 - i. Adjust seating first
 - ii. Add books underneath the monitor to adjust the height of the screen
 - iii. Having trouble supporting feet flat on the floor? Try adding a small step stool, or large book, to rest feet on.
3. As we age, our joints become less flexible, and the risk of injury becomes greater. Repetitive motions while using the computer and cellphone increase the risk of possible strains and injury to our body (Esmaeilzadeh, Ozcan, & Capan, 2012).
4. Additional Tips for Using Technology
 - a. Take frequent rest breaks!
 - b. Use larger print/font
 - c. Use voice commands
 - d. Exercise. Stronger muscles/joints are less likely to become injured.
 - e. Take a small walk break
 - f. Check posture - make sure you are not slouching, while using devices.

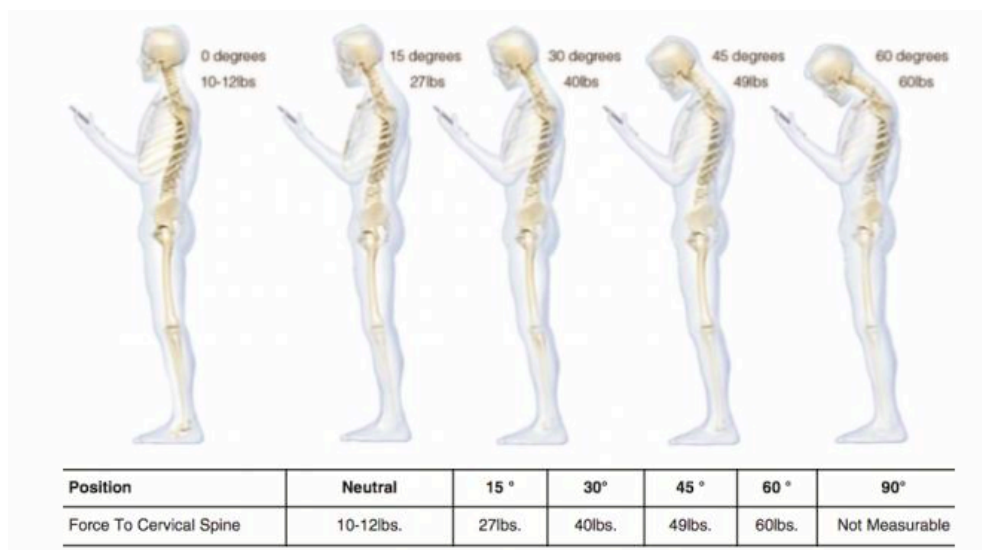


(UC Davis Safety Services, 2015) <http://safetyservices.ucdavis.edu/article/laptop-ergonomics>

Position, Movement, and Ergonomics



*The image on the *left* is how **NOT** to use the cell phone. The image on the *right* is the correct way to hold the cell phone, which is a neutral spine.



*The table above shows how much force is added to the neck, as we bend forward to look at our phones.

Appendix A.5

Apps You Can Use

Here are some Apps that can help you with daily life skills and activities to keep you independent and moving on your own!

A. AARP – Free

1. American Association of Retired Persons (AARP) allows you to view discounts, volunteer opportunities, and articles from the AARP magazine and website.
 - a. Click on this link to download AARP on Apple store:
<https://itunes.apple.com/us/app/aarp-for-ipad/id517602646?mt=8>
<https://itunes.apple.com/us/app/aarp-for-ipad/id517602646?mt=8>
 - b. Click on this link to download AARP on Google apps:
<https://play.google.com/store/apps/details?id=com.aarp.app&hl=en>
<https://play.google.com/store/apps/details?id=com.aarp.app&hl=en>

B. First Aid by American Red Cross - FREE

1. This app allows you to get prompt health advice for emergencies and/or non-emergencies when health professionals are not available.
 - a. Click on this link to download the First Aid app on Apple store:
<https://itunes.apple.com/us/app/first-aid-by-american-red/id529160691?mt=8>
<https://itunes.apple.com/us/app/first-aid-by-american-red/id529160691?mt=8>
 - b. Click on this link to download the First Aid app on Google apps:
<https://play.google.com/store/apps/details?id=com.cube.arc.fa&hl=en>
<https://play.google.com/store/apps/details?id=com.cube.arc.fa&hl=en>

C. Instant Heart Rate - \$2.99

1. This app allows you to check your heart rate anytime, anywhere. All you have to do is place your finger on the camera and the app will scan your heart rate!
 - a. Click on this link to download Instant Heart Rate on Apple store:
<https://itunes.apple.com/us/app/instant-heart-rate-heart-rate/id395042892?mt=8>
<https://itunes.apple.com/us/app/instant-heart-rate-heart-rate/id395042892?mt=8>
 - b. Click on this link to download Instant Heart Rate on Google apps:
<https://play.google.com/store/apps/details?id=si.modula.android.instanthearttrate&hl=en>
<https://play.google.com/store/apps/details?id=si.modula.android.instanthearttrate&hl=en>

D. Lumosity - Free

1. Lumosity is an app that challenges your memory, attention and more. Lumosity combines 25+ brain games that can be used during your daily program and challenges your brain.
 - a. Click on this link to download Lumosity app on Apple store:
<https://itunes.apple.com/us/app/lumosity-mobile/id577232024?mt=8>
<https://itunes.apple.com/us/app/lumosity-mobile/id577232024?mt=8>
 - b. Click on this link to download Lumosity app on Google apps:

<https://play.google.com/store/apps/details?id=com.lumoslabs.lumosity&hl=enhttps://play.google.com/store/apps/details?id=com.lumoslabs.lumosity&hl=en>

E. ManageMyFatigue- \$4.99

1. This app will allow you to plan your day for activities based on how you feel and set a length of time for each. It will help you identify easy and hard activities and adjust the amount of time you work based on your energy level. You can set breaks too! The app also allows you to track your sleep quality and identify pattern in energy and sleep.
 - a. Click on this link to download ManageMyFatigue on Apple store:
<https://itunes.apple.com/us/app/manage-my-fatigue/id961632920?ls=1&mt=8https://itunes.apple.com/us/app/manage-my-fatigue/id961632920?ls=1&mt=8%22>
 - b. Click on this link to download ManageMyFatigue on Google apps:
<https://play.google.com/store/apps/details?id=com.managemyfatigue.managemyfatigue&hl=enhttps://play.google.com/store/apps/details?id=com.managemyfatigue.managemyfatigue&hl=en>

F. My Chain Widget - FREE

1. This app allows you to set goals for the day and displays them on the home screen of your device (smartphone, iPad, etc.). As you complete a goal, you can check it off the list. The activities turn green when you mark them “completed.” You can challenge yourself to see how many days in a row you can complete all of your goals!
 - a. Click on this link to download My Chain Widget on Google play:
<https://play.google.com/store/apps/details?id=se.lixi.mychain&hl=enhttps://play.google.com/store/apps/details?id=se.lixi.mychain&hl=en>
 - b. This app is not available on the Apple store.

G. MyFitnessPal – Free

1. This app allows you to track what you eat and your activity level, to help increase awareness and encourage healthy habits. It has a built in step tracker, monitoring the number of steps you are taking. Also, MyFitnessPal remembers your previous inputs and will automatically suggest entries for you. It also provides a discussion forum for all users to share tips and provide support to peer users.
 - a. Click on this link to download MyFitnessPal on Apple store:
<https://itunes.apple.com/us/app/calorie-counter-diet-tracker/id341232718?mt=8&ign-mpt=uo=4https://itunes.apple.com/us/app/calorie-counter-diet-tracker/id341232718?mt=8&ign-mpt=uo%3D4>
 - b. Click this link to download MyFitnessPal on Google apps:
<https://play.google.com/store/apps/details?id=com.myfitnesspal.android&hl=enhttps://play.google.com/store/apps/details?id=com.myfitnesspal.android&hl=en>

H. Waze - Free

1. This app can be utilized to help to identify the quickest way to get to your desired location by avoiding traffic and hazards. All you have to do is type in your desired location and it will tell you all of the information about what you will encounter during your route including traffic, hazards, police, car wrecks, etc.

- a. Click on this link to download waze app on Apple store:
<https://itunes.apple.com/us/app/waze-gps-navigation-maps-social/id323229106?mt=8https://itunes.apple.com/us/app/waze-gps-navigation-maps-social/id323229106?mt=8>
- b. Click on this link to download waze app on Google apps:
<https://play.google.com/store/apps/details?id=com.waze&hl=enhttps://play.google.com/store/apps/details?id=com.waze&hl=en>

Appendix A.6

Emotional Wellness

A. Why is Emotional Wellness Important?

1. Do you monitor or pay attention your psychological health as much as you pay attention to your physical health? Older adults who tend to their emotional needs are more likely to have a better quality of life (Levy, Slade, Kasl, 2002).

B. Promoting Emotional Wellness

1. It is important to attend to our feelings and behaviors, and accept our emotions to achieve total-body health. Accepting yourself for who you are and making the changes needed to achieve a greater sense of well-being can lead to the path of promoting emotional wellness (NWI, 1976).

C. Healthy Aging Tips for Living an Optimal life:

1. Do you know how to boost your self-esteem and confidence, or how to ease emotional pain when dealing with stress and age related changes?
2. Practicing these healthy habits can help you cope well with challenging times and maintain a positive outlook on life.

D. Positive Thinking

1. You should try positive thinking to change any negative thoughts and think about the brighter side of life!
2. What is Positive Thinking?
 - a. Positive thinking is the ability to manage your thoughts, emotions, and expectations by focusing on positive outcomes, rather than negative outcomes (McGrath, Jordens, McGrath, Montgomery, & Kerridge, 2006).
3. Practice Positive Thinking
 - a. Be aware of your own thoughts:
 - b. Verbalizing your thoughts and writing them onto a piece of paper can help you understand your negative thoughts and replace them with positive ones.
4. Repeat Positive Statements
 - a. Think of your best attributes, traits that you really like about yourself, or goals that you would like to accomplish and write them down.
 - b. After, spend about five minutes daily repeating these statements listed on your paper.
5. Practice Positive Coping:
 - a. Positive coping strategies can assist you with stress and anxiety as you experience challenges in life (Yancura & Aldwin, 2008).

E. Four Main Coping Styles

1. Problem – Focused Coping
 - a. This coping style focuses on changing the cause of the stress
 - b. Identify the cause of stress and create a plan to solve and manage the problem that is occurring
 - c. To do so, one can seek information and develop strategies to avoid the source of the stress

2. Emotion-Focused Coping
 - a. You can use this coping strategy when you are faced with uncontrollable stressors, such as bereavement and serious health concerns (Hunter & Gillen, 2009).
 - b. This can include self-reflection and taking control over one's emotions by changing the emotional reaction to the stressor
3. Social Support
 - a. This involves seeking help from others for advice and assistance (Hunter & Gillen, 2009).
 - b. This can include talking to friends, family, and medical professionals in times of need or crisis
4. Religious Coping
 - a. You can practice religious coping by seeking help and strength from a higher power through prayer or going to religious gatherings (Hunter & Gillen, 2009).
 - b. Religious coping can include prayer, congregational support, pastoral care, and religious faith.

F. Stress Reduction Techniques

1. The stress of the age-related changes could also impact the body and mind in negative ways. Below are stress management techniques that can assist individuals with challenging circumstances.

G. Daily Meditation

1. Daily meditation can be used for managing both physical and emotional issues. Focusing attention on the mind through meditation can help calm both the mind and body to promote emotional wellness. Progressive muscle relaxation and breathing exercises can reduce muscle tension, anxiety and stress, which promote relaxation. These results in turn may help older adults to get more sleep so that they can feel well and energized (Poinier & Herman, 2012).
2. Mindful Breathing
 - a. To participate in mindfulness breathing all you have to do is be still and focus on your breath for just one minute.
 - b. Begin by breathing in and out slowly
 - c. One cycle should last for approximately 6 seconds
 - d. Breathe in through your nose and out through your mouth, letting your breath flow effortless in and out of your body
 - e. Let go of your thoughts for a minute. Simply let yourself be still for one minute.
3. Mindful Observation
 - a. This exercise connects us with the natural environment, and our surroundings that are easily missed when we are not paying attention.
 - b. Choose a natural environment, either outside or in your home
 - c. Focus on observing the natural environment surrounding you for a minute or two
 - d. Relax and only focus on the object or scenery that you are looking at.
 - e. Visually explore every aspect of its formation

- f. Allow yourself to connect with its energy and its role and purpose in the natural world

4. Mindful Listening

- a. This exercise allows us to open your ears to sound.
 - i. Select a piece of music you have never heard before. Either a favorite song or something you have never heard before.
 - ii. Close your eyes and put on your headphones.
 - iii. Just listen and become fully entwined with the music and rhythm without judgment of the genre, art, lyrics, or instrumentation.

H. Staying Active

1. Getting out of the house and being active is beneficial!
2. It produces...
 - a. Positive emotions
 - b. Happiness
 - c. Confidence
3. Facts about Staying Active:
 - a. Doing activities you enjoy can keep you connected with your community and will help you stay busy (Hanni & Reed, 2013).
 - b. Being a part of the community can help you stay independent in your daily life (Hanni & Reed, 2013).
 - c. Being in community with others helps people stay positive because they are connected with peers (Moody & Phinney, 2012).
 - d. Volunteering with youth is a good way to stay connected in the community while practicing social skills (Lightsey, Johnson, & Freeman, 2012).
 - e. Volunteering can help you find other activities in the community that you enjoy (Morrow-Howell, Lee, McCrary, & McBride, 2014).
 - f. Staying active improves health and mood!
 - g. *To get more information look at the Local Events section for volunteer and other opportunities in Marin County.*

I. Socializing with Others

1. Staying in touch with friends and family has health benefits! Prevent isolation, promote positive attitudes and improve emotional health just by being with friends!
2. These can lead to social isolation:
 - a. Loss of contact with friends and relatives
 - b. Lack of community support
 - c. Lack of opportunities
 - d. Fear of being rejected or embarrassed
3. Addressing these issues is the first step to becoming a social being again. It is okay to start small and easy! Here are some ideas on how to get started:
 - a. Go to church and stay for coffee afterward.
 - b. Have a neighborhood family over for pizza and card games.
 - c. Invite a friend to coffee.
 - d. Ask a neighbor to go on a short walk around the block.
 - e. Get a group of guys or gals to go to Sunday brunch at the local café.

- f. Also... See News and Events section for more fun local groups!
- 4. If you have fears or discomforts about social engagement, click this link and read *about* steps to take to reduce fears: [Self Help Strategies for Social Fears](https://www.anxietybc.com/sites/default/files/adult_hmsocial.pdf)https://www.anxietybc.com/sites/default/files/adult_hmsocial.pdf

J. Self-Management of Health Care

- 1. The management of your health care and health records is an important component of emotional wellness. Below are tools to help you to be an active partner in your health care.
- 2. Personal Health Record
 - a. A personal health record is a collection of health related information that allows you to independently manage your own health records and medical information.
 - b. Personal health records can be created via a web-enabled device, such as Microsoft's Healthvault, or using paper records filed into a box or binder.
→ insert link for Microsoft health vault
<https://www.healthvault.com/us/en>
 - c. More information regarding personal health records and their importance can be found at
<http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Vol152010/No3-Sept-2010/Articles-Previously-Topic/Electronic-Personal-Health-Records-and-Chronic-Illness.aspx>

APPENDIX A.7

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APPENDIX B.1

Healthy Aging Website Evaluation for Seniors

Please circle the most appropriate number of each statement that corresponds most closely to your desired response.

Question 1. This information is important for seniors.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1	2	3	4	5

Question 2. This information is helpful for other seniors.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1	2	3	4	5

Question 3. This material is easy to read and understand.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1	2	3	4	5

Question 4. I want to access information like this in the future.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1	2	3	4	5

Please answer the following questions in a short statement.

Question 5. Do you think this information may be relevant to use in your daily life? If so, how may you apply this information to your daily life?

Question 6. Do you have any suggestions for improvements?

APPENDIX B.2

Healthy Aging Website Evaluation for DUC Students

Please circle the most appropriate number of each statement that corresponds most closely to your desired response.

Question 1. This information is important for seniors.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1	2	3	4	5

Question 2. I will possibly present this information to future clients.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1	2	3	4	5

Question 3. I want to access information like this in the future.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1	2	3	4	5

Question 4. This information is easy to read and understand.

Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1	2	3	4	5

Please answer the following questions in a short statement.

Question 5. Do you think this information may be relevant to use in your daily life? If so, how may you apply this information to your daily life?

Question 6. Do you have any suggestions for improvements?