GERINOTES

SECTION ON GERIATRICS, AMERICAN PHYSICAL THERAPY ASSOCIATION

Health Promotion & Wellness in the Older Adult

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Editor's Note

GUEST EDITOR'S MESSAGE

Jennifer M. Bottomley, PT, MS, PhD

The world is on the brink of a longevity revolution. A prediction in the United States is that by 2030, the number of older Americans will have more than doubled to 70 million, or one in every five Americans will be over the age of 65. One hundred years ago, only 3 million people in this country were aged 65 or older. Today (2007), more than 36 million Americans are in this age group, and that number is expected to grow during the next 25 years to over 70 million as baby boomers age. In addition, the older adults of the future will be even more racially and ethnically diverse.

The growing number and proportion of older adults places increasing demands on the public health system and on medical and social services. Making health promotion and initiatives to keep older people functionally independent and well, should be a priority of geriatric physical therapists. We could very well be the leaders in attempts to reduce health care costs to Medicare by breaking ground towards screening and intervening to prevent illness and injury.

Chronic diseases exact a particularly heavy health and economic burden on older adults due to associated long-term illness, diminished quality of life, and greatly increased health care costs. Although the risk of disease and disability clearly increases with advancing age, poor health is not an inevitable consequence of aging.

Much of the illness, disability, and death associated with chronic disease is avoidable through known prevention measures. Key measures include practicing a healthy lifestyle such as, regular physical activity, healthy eating, avoiding tobacco use, stress reduction, and financial preparedness, just to name a few areas to be considered towards health maintenance. In addition, the use of early detection practices such as screening for fall risk and overall function and fitness, screening for environmental safety, assessing nutritional status as well as access to good nutrition and functional abilities of preparing food and eating, screening for breast, cervical, and colorectal cancers, diabetes, heart disease and these diseases complications, and screening for depression and psychosocial issues that might reduce an older abilities to pursue a healthy lifestyle.

Critical knowledge gaps exist for responding to the health needs of older adults. For chronic diseases and conditions such as Alzheimer's disease, arthritis, depression, psychiatric disorders, osteoporosis, Parkinson's disease, and urinary incontinence, much remains to be learned about their distribution in the population, associated risk factors, and effective measures to prevent or delay their onset.

This issue of *GeriNotes* covers many health promotion and wellness considerations that directly impact the practice of physical therapy. Though this special issue is not exclusively exhaustive, it provides a great start for our members to start focusing on maintaining and improving health, as well as rehabilitating and recovering the highest possible level of health and fitness in an attempt to regain overall wellness.

I sincerely extend my heartfelt thanks to each of my colleagues who have taken time from their busy clinical, research, teaching, and administrative responsibilities to contribute to this special issue of *GeriNotes*. The quality of their work speaks for itself.

FOR THE SECOND CONSECUTIVE YEAR, GERINOTES WON THE APTA OUTSTANDING SECTION NEWSLETTER AWARD.

Thanks to Carol Schunk, GeriNotes Editor; Sharon Klinski, Managing Editor; and the entire Editorial Board—Patrice Antony, Jennifer Bottomley, Kathy Brewer, Helen Cornely, Meri Goehring, Neva Greenwald, Jill Heitzman, Sandy Levi, Anne Myer, and Bill Staples.

PRESIDENT'S PERSPECTIVE:
How Do We Want to Reflect Healthy Aging?

John O. Barr, PT, PhD

In 2002, the National Council on Aging (NCOA) reported on the 2000 update of its 1974 study concerned with the myths and realities of aging.[1] As in 1974, the greatest percentage of respondents 65 years of age and older reported health to be a very or somewhat serious problem (over money, loneliness, and crime). In 2000, 85% or more of these older individuals reported that health and family/friends contribute to having a meaningful, vital life. Although over 65% of individuals aged 65 and older self-rated their health as being good to excellent, **over 60%** admitted to being only somewhat or not knowledgeable about things they could do to prepare for a healthy old age. Emphasizing the importance of health to older Americans, this study reveals a key deficit that Americans face in achieving healthy aging… their lack of knowledge regarding what to do about it. This revelation should motivate all involved in health care, including physical therapists, physical therapist assistants, and our students, to take action to meet this important societal need through client/patient education, consultation, and direct interventions.

As we consider potential actions and interventions for members of American society to achieve healthy aging, it would seem prudent to take stock of our own "internal society" ….the physical therapy profession. After all, what goals might we expect to be reasonable for our older clients/patients? Contemporaneous with the NCOA survey, Brown & colleagues were studying older physical therapists.[2] Of their 902 respondents, 60-103 years old, over 70% reported their health to be good to very good…not too different from the general population surveyed by the NCOA. More detailed questions for PTs revealed that 90% were independent in ambulation through their early 80s and only 35% (through 84 years of age) reported experiencing significant pain. Interestingly, only 20% to 30% of PTs reported that they exercised regularly (unpublished data), in contrast to 45% to 60% of community elderly, as reported in other contemporary surveys. In an unpublished analysis, Brown et al attributed this to PTs more rigorous definition of "exercise"…as opposed to that of the general public. Overall, older PTs were seen to be aging better than the general population until the latter part of the ninth decade. While this is indeed good news for older PTs, how might the more general population of PTs be fairing?

During CSM 2006, Phil Page, PT, MS surveyed a general sample of 325 physical therapist attendees concerning their physical activity and Body Mass Index (BMI).[3] While most were found to participate in either strengthening or flexibility activities at least once a week, the average cardiorespiratory activity level was classified as "under-active regular" and the average BMI was rated at the high-end of normal (just below the classification for overweight). Based upon these findings, Page expressed concern that contemporary physical therapists may not be reaching recommended adult levels of cardiovascular activity.

Although preliminary in nature, this later study was an impetus for a Section on Geriatric's motion in the 2007 APTA House of Delegates (RC 32-07) – *Physical Therapists & Physical Therapist Assistants as Physical Activity/Exercise Role Models*. As originally worded, this motion stated:

- Whereas, physical therapists and physical therapist assistants are a microcosm of the national population;
- Whereas, increasing numbers of physical therapists and physical therapist assistants are over the age of 50 years; and,
- Whereas, physical therapists must be exercise experts across the lifespan and physical therapist assistants promote physical activity/exercise;
- Resolved, that physical therapists & physical therapist assistants should serve as role models for their patients/clients and the public by meeting national guidelines of participation in at least moderate physical activity/exercise 30 minutes per day, 5 or more days per week.

It is extremely disheartening that, even with our willingness to modify the above-stated resolution, colleague delegates in private made light of and criticized this motion, but did not have courage to openly voice their range of opinions on the floor of the House. Instead, a first-time delegate provided a one sentence statement of opposition just prior to a vote that defeated this motion. Subsequently, our motion was reconsidered and we were able to withdraw it. While the Section was reasonably successful with three of its other House motions (see Kathy Brewer's *Delegate Report*), to me, the action taken by the House relative to RC 32-07 reflects a lack of both personal and professional resolve by the broader physical therapy community to promote healthy aging. As a Section, we clearly need to do more to educate our own professional colleagues about how to advocate and provide best practice physical therapy for optimal aging. To this end, consider sharing this issue of *GeriNotes* with a non-Section member physical therapist, physical therapist assistant, or student.

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PREVENTION PRACTICE: IMPLICATIONS FOR OLDER ADULTS

Ann Marie Decker, PT, MSA, GCS; Catherine Thompson, PT, PhD, MS

PREVENTION PRACTICE

Prevention practice for older adults encompasses health care designed to promote health, fitness, and wellness through education and appropriate guidance designed to preclude or delay the progression of pathology. According to the *Guide to Physical Therapist Practice,* health care professionals are involved in 3 types of preventive practice: primary prevention, secondary prevention, and tertiary prevention.

- **Primary prevention** is preventing a target condition in a susceptible or potentially susceptible population through specific measures, such as general health promotion efforts.
- **Secondary prevention** is decreasing the duration of illness, severity of disease, and number of sequelae through early diagnosis and prompt intervention.
- **Tertiary prevention** involves limiting the degree of disability and promoting rehabilitation and restoration of function in patients with chronic or reversible disease.[1]

Preventive care includes screening for potential health problems and providing education or activities to promote health, fitness, and wellness. Preventive care not only focuses on the promotion of general health in susceptible or potentially susceptible populations, but also aims to minimize the impairments and functional limitations arising from pathological conditions, likely to affect an individual's quality of life.[2] The ultimate goal of physical therapy management is to identify and assist in managing health factors that impact the older adult's quality of life.

HEALTHY PEOPLE 2010

Healthy People 2010 is a national initiative developed through broad consultation with experts across the United States and is designed to measure the benefits of health programs offered to Americans.[3] Resources offered through the Healthy People 2010 website (www.healthypeople.gov) have been used by individuals; communities; professional organizations; and local, regional, and federal governments to target 2 overarching goals for our Nation[3]:

- Goal 1: To help individuals of all ages increase life expectancy and improve their quality of life.
- Goal 2: To eliminate health disparities among different segments of the population.

This website provides up-to-date information about specific populations at the greatest risk for particular types of pathology.

One key to achieving wellness is developing an awareness of how to achieve a balance among the various dimensions affecting health and well-being. Populations that are susceptible to illness or injury are in particular need of this awareness, accomplished through appropriate education and guidance. Risk factors[2] that may predispose an individual to diminished well-being and health problems include:

1. **Physical risk factors** (eg, poor nutrition, physical inactivity, a poor physical environment, and substance abuse)
2. **Psychological, spiritual, and social risk factors** (eg, low self-esteem and lacking values and a purpose in one's life)
3. **Environmental risk factors** (eg, persons, things, or environmental conditions that negatively influence other dimensions of a person's life)

By identifying and addressing these risk factors, the health professional can reduce the incidence of injury and illness.

RISK REDUCTION

Identification of populations at risk for developing physical and mental health problems help curtail the number of people whose quality of life is diminished by preventable pathology. Knowing the populations at risk for a particular disease allows health care providers to target health promotion education and screening programs to populations at the greatest risk for illness. Older adults are at increased greatest risk for[2]:

- Osteoarthritis
- Osteoporosis
- Cardiovascular disease
- Chronic obstructive pulmonary disease
- Skin cancer
- Injury secondary to falls
- Depression
- Social isolation

A review of body systems for possible injury or disease as well as screening for risk factors leading to falls, proper nutrition, physical activity, skin cancer, habits associated with the development of heart disease and lung disease, signs of elder abuse or substance abuse, and mental health are essential for prevention practice.

Examples of prevention activities designed to reduce risk factors include exercise classes for well elders to enhance balance and flexibility, as well as cardiovascular conditioning activities for individuals who are at risk for obesity. Preventive care includes instruction to minimize or eliminate injurious forces during daily work or leisure activities. For example, with nearly 75% of the population experiencing back pain at one point in their lives, proper exercise and body mechanics are essential.[4,5] Finally, individuals with chronic or progressive pathology can benefit from programs that reduce the intensity, duration, and frequency of complications arising from their conditions while improving their overall functional level. Customized exercises for individuals with musculoskeletal, neurological, cardiopulmonary, and integumentary pathologies may forestall secondary complications arising from their pathologies as well as improve their overall health.

Healthy People 2010 objectives relevant to older adults[3] include:

1. *Prevent illness and disability related to arthritis and other rheumatic conditions, osteoporosis, and chronic back conditions.* [3] Over 50% of adults over 65 years are diagnosed with arthritis. Women have a progressively increasing risk of osteoporosis with increasing age: 19.0% at risk age 65 to 74 years, 32.5% at risk age 65 to 74 years, and 50.5% at risk 85 years and older.[6,7]
2. *Reduce the disease and economic burden of type 2 diabetes and improve the quality of life for all persons who have or are at risk for diabetes.* [3] Those over 65 years have the highest prevalence of type 2 diabetes. A recent study indicated that chronic depression or depression that worsens over time may cause diabetes in older adults. Over 2 million older adults with diabetes suffer clinical depression, the second highest incidence compared with other age groups.[8] These findings support the need for screening older adults for depression.
3. *Reduce the number of new cancer cases as well as the illness, disability, and death caused by cancer.* [3] Cancer is the leading cause of death in women aged 55 to 74 and the second leading cause of death in men aged 55 and older and in women aged 75 and older.[9] Older adults have the highest incidence of lung, breast, colorectal, and prostate cancer of all age groups. [9]
4. *Reduce new cases of chronic kidney disease (CKD) and its complications, disability, death, and economic costs.*[3] Older individuals with CKD are more likely to be frail (a clinical syndrome of decreased functional reserve due to decline in multiple physiological systems), suggesting that they are at greater risk of developing functional limitation and disability.[10] Diabetes (type 2) significantly contributes to the development of CKD and end-stage renal disease (ESRD) and accounts for about 45% of the new cases of ESRD.[10]
5. *Improve cardiovascular health and quality of life through the prevention, detection, and treatment of risk factors; early identification and treatment of heart attacks and strokes; and prevention of recurrent cardiovascular events.*[3] According to a study of over 5200 men and women aged 65 and older,[11] stroke incidence increased significantly with increasing age and was similar in women and men. Factors associated with increased stroke risk included age, increased time needed to walk 15 feet, frequent falls, aspirin use, diabetes, impaired glucose tolerance, higher systolic blood pressure, elevated creatinine level, abnormalities of the heart (enlarged left ventricle, atrial fibrillation, abnormal left ventricular wall motion) and vessels (carotid stenosis).

These objectives with related statistics illustrate the dire need for all health care providers to incorporate prevention into their practice. Having a strong background in the basic, social, and clinical sciences and with experience providing screenings, examinations, and evidence-based health care for healthy, at-risk, and ill populations, physical therapists are needed to provide high quality prevention practice for older adults.

THE PHYSICAL THERAPIST'S ROLE IN PREVENTION PRACTICE

Physical therapists are beginning to play a major role as prevention practitioners in health care. Recent efforts by the American Physical Therapy Association (APTA) are making our role as prevention practitioner more visible to the public. The 2007 House of Delegates (HOD) of the APTA passed position statements supporting the role physical therapists play in health and wellness, particularly with the older adult. RC 28-07 from the HOD recommends all adults be seen by a physical therapist annually.[12] This recommendation seems particularly appropriate for the older adult who may be experiencing changes in overall function or a chronic disease resulting in decreased ability to participate in activities previously enjoyed. The annual visit could be set up as a screening addressing social, physical, and mental health function, allowing the clinician to examine areas in greater depth when warranted. In addition, RC 30-07 recommends that physical therapists be included in the 'Welcome to Medicare' Exam.[12] This position statement by the HOD emphasizes the benefits clients enrolling in Medicare, Part B, would receive from an initial screen and examination by a physical therapist.

In addition to screening for potential illness, physical therapists can contribute significantly to successful aging by promoting physical activity. Much literature supports the link between physical fitness and healthy aging.

Older adults currently being examined are those individuals who are at least 100 years of age, referred to as *centenarians.* According to the New England Centenarian Study, individuals who live to be 100 years of age frequently manage to delay or completely escape some of the typical changes associated with aging; these centenarians experience decreased incidence of disease, hospitalization, and functional decline.[13] A common lifelong habit of the centenarians studied was regular exercise and a healthy diet for maintaining a healthy weight. Eight percent had no incidence of life-threatening cancer and 89% were living independently at age 92.

A study examined the health and wellness of approximately 900 licensed physical therapists living into their 90s. While the survey results of these physical therapists indicated they experienced some declines in physical function and ambulation, the decline experienced was less than non-PT peers in a similar age group.[14] The active nature of the profession of physical therapy as well as the clinician's knowledge related to the importance of lifelong physical activity may have contributed to the elder physical therapists slowed decline in functional abilities.

Finally, the Harvard Alumni Health Study followed a large group of men aged 45 to 84 beginning in 1977 to 1988 or until they reached the age of 90. The study found that the more active people were, the lower the risks of death from all causes between 1977 and 1988.[15]

PHYSICAL ACTIVITY FOR PREVENTIVE CARE OF OLDER ADULTS

Fitness and physical activity have been shown to positively influence cognitive functioning, working memory, risk, and symptoms of depression, anxi-

ety, positive self-concept, high self-esteem, mental well-being, and positive perceptions of health.[16] The increased cerebral blood flow and glucose metabolism that occurs with cardiovascular exercise may optimize neural efficiency thus resulting in overall improvement is cognitive function. Physical activity and exercise enhance successful aging by decreasing the incidence of common problems associated with inactivity. Active elders maintain a higher quality of life and overall health than inactive older adults.

Substantial health benefits occur with a moderate amount of activity (eg, at least 30 minutes of brisk walking) on 5 or more days of the week. Brief episodes of physical activity, such as 10 minutes at a time, can be beneficial if repeated. Experts recommend that older adults participate at least 2 days a week in strength training activities that improve and maintain muscular strength and endurance.[17] In addition, older adults should participate in cardiovascular exercise as well 4 to 5 times per week. A wide variety of exercise is available and may be beneficial to the older adult including aquatic exercise, low-impact cardiovascular exercise, high or low-level resistance training, tai chi, and yoga.[18]

A critical issue is the importance of collecting data related to the activity level of older adults. A recent study found that only half of all adults were asked about their exercise habits by their health care provider; older patients were asked less often than younger patients, and individuals who had been asked reported being more active than those who were never asked.[18] Physical therapists need to take responsibility for collecting and recording information from older clients about their activity level. Once data are collected, physical therapists should make recommendations about current and future physical activity and exercise to optimize the health, wellness, and function of their clients. Finally, in order to promote long-term health and wellness after discharge from therapy services, physical therapists need knowledge of community resources of benefit to the older adult interested in participating in an on-going exercise program and maintaining or improving their personal health, wellness, and fitness.

Prevention practice for the older adult incorporates a more holistic practice of physical therapy. Through thorough screenings for risk factors contributing to illness and injury as well as health education for healthy lifestyle behaviors and reduction of risk factors, physical therapists can substantially contribute to reaching the national goals and objectives of Healthy People 2010 for older adults.

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CULTURAL IDENTITY AND HEALTH PERSPECTIVES AND PROMOTION IN THE ELDERLY

Jane Okubo, PT, BS; Jennifer M. Bottomley, PT, MS, PhD

INTRODUCTION: CULTURAL DIVERSITY IN THE UNITED STATES

For more than 200 years, the United States has been the most culturally diverse country in the world. At the beginning of the twenty-first century, this diversity grew with the influx of more and more cultures from around the globe. Racial and ethnic minorities have been the fastest-growing segments of the US population, making up almost 25% of the population as a whole in 2000. Some estimates indicate the nonwhite older adults accounted for more than one-third of all adults over the age of 65 in the United States.

Epidemiology enables public health professionals to systematically assess the health status of various populations. However, when morbidity and mortality data is used without an appreciation for the social context, unintended consequences can result. For example, it is not uncommon to use surveillance data to describe populations as 'intravenous drug users,' 'homeless,' 'high risk,' and 'hard to reach.' While such categorization enables public health professionals to focus scarce resources where the need is greatest, it also stigmatizes the very people in greatest need of assistance. Ethnic and racial minority populations have historically suffered from the way in which health data is presented to the policy makers and the general public.

The Cultural Diversity Committee of the Section on Geriatrics has presented several programs at conferences on cultural diversity. We have also developed educational materials and tools to assist clinicians in implementing strategies that incorporate cultural and ethnic health beliefs when interacting with our patient population. However, the focus of this committee has primarily been on evaluation and intervention. We would like to challenge the Section on Geriatric members to look at the elder's view on aging, health, and the health care system. A crucial new focal point needs to be on wellness and the prevention of illness. How do different cultures view the concepts inherent in health promotion and wellness?

Interviews were conducted with older adults representing a variety of different ethnic and cultural backgrounds who were experienced in health care practices in their respective countries. What was determined was that the concept of good health and wellness is not new. Many cultures have been practicing health promotion and wellness perspectives throughout their lives and continue to do so. The purpose of this article is to share these perspectives with our *GeriNotes* readers. A brief summary of aspects of cultural health beliefs and health care provisions provided in the US is followed by the older adults perspective of what health and wellness means to them. These interviews provide invaluable clinical frames of reference for establishing appropriate health promotion and wellness initiatives for our culturally diverse elder population.

DISPARITIES IN HEALTH STATUS

The disparity in health status between black and white Americans was not new when it was documented in the *Report of the Secretary's Task Force on Black and Minority Health* (US Department of Health and Human Services, 1985). This task force identified the 6 leading causes of preventable excess death for minority populations as cancer, cardiovascular disease, diabetes, infant mortality, chemical dependency, and homicide/unintentional injury. The report developed the descriptive term *excess death*, which was defined as the difference between number of deaths in minority populations and what would be expected in the majority population. By this standard, blacks experienced 42% excess mortality compared to whites. In 1985 these findings led to the creation of the Office of Minority Health within the US Department of Health and Human Services.

In 1998, President Bill Clinton announced a new initiative that set a national goal of eliminating longstanding racial and ethnic disparities in health status by the year 2010. The President announced that the federal government would, for the first time, set high national health goals for all Americans, ending a practice of separate, lower goals for the racial and ethnic minorities. To help reach these ambitious targets, a plan was put in place to mobilize the resources and expertise of the federal government, the private sector, and local communities to eliminate disparities that had long been treated as intractable.

Since culture influences how communities view and take action on disease conditions, public health professionals will increasingly need to understand the cultural context in which disease prevention and health promotion strategies are delivered. The fear and mistrust that shape the behavior and attitudes of many people of different cultural and ethnic backgrounds must be addressed if disparities in health care delivery are to be eliminated.

CULTURE AND HEALTH PERSPECTIVES

Culture can affect how chronic and disabling conditions are defined and treated. For example, white Americans typically emphasize physical survival and functional capacity, and they therefore tend to battle against chronic conditions and disabilities that they see as being inflicted on them. In contrast, many Asian cultures emphasize living in harmony with nature; a chronic condition is seen as part of the normal cycle of life.

A person's culturally based health beliefs and practices determine what problems are recognized as needing health care, particularly traditional Western medical care. It may also be a primary indicator as to whether someone will follow through with prescribed treatment, change lifestyle behaviors, or reduce exposure to environmental factors

associated with an illness. One of many examples: Because of historic inequalities and racism in the health care system, many African Americans delay seeking health care.

Beliefs about health and illness also influence community responses to health communication messages designed to promote health and prevent disease. Language and cultural differences often hinder communication between public health professionals and members of minority populations.

Literacy becomes a big obstacle in communication. Many cultures have immigrated and do not speak, read, or write English. How do we even expect to get the message across about the benefits of exercise, good nutrition, stress reduction, and the like--if all the verbal and written material we provide to our patients is in English? Culturally diverse elderly and those with limited formal education are often the most vulnerable populations. For instance, many older adults can barely read a street map or street signs, calculate postage for mail, or enter background information on a Social Security or Medicare application form.

To understand cultural identity in the context of health and health promotion, it is important to focus on the worldviews of the communities and people in need of health services. The meaning of words used to describe disease and adaptive behaviors needed to maintain good health must be examined in the light of a diverse cultural environment. People live their lives as simultaneous members and participants in a multiplicity of social contexts. An individual's cultural identity can be shaped not only by race and ethnicity, but also by age, gender, family configuration, religion, socioeconomic status, education, occupation, sexual orientation, political ideology stage of acculturation, and place of upbringing (rural, urban, or suburban).

PERSPECTIVES OF HEALTH AND WELLNESS: INTERVIEWS WITH OLDER ADULTS FROM OTHER CULTURES*

The following interviews provide a few vignettes of older, culturally diverse elder's viewpoints on health, healthy lifestyle, and the concept of wellness.

Chinese Female Perspective

Mamie is an elderly woman from the southern part of China. She is an immigrant from China and currently lives in California. Interestingly, she has been trained in several Chinese medical practices. Mamie is a trained nutritionist, and was trained in China as well as California in Tai Chi Cheun and QiGong. She is CMT certified and practices Chinese Medicine in the California area. Here is her perspective on health and wellness:

> "In China, a person who can walk, has a good mind, is able to communicate well, is alert, and does daily chores is considered to be in good health. Someone who is unhealthy is one who can't sleep, has aches and pains, is sickly, and cannot care for oneself. This is unhealthy."

> "People around the age of 60 would be considered elderly; however, it really depends on their attitude and their physical ability. Healthy elderly individuals are expected to do what younger people do. It is really the individual's view as to how old they are. It is also society - what the elderly are expected to do and not do. Yin and Yang are opposite forms of energy, which must be maintained in harmony through proper diet, exercise, rest, and emotional stability. Yin and Yang mutually control and support each other. Chi is life force or energy that travels throughout the body in meridians or channels. "

> "Physical activity is very important. There should be no couch potatoes. Qi Gong and Tai Chi are excellent forms of exercises. Rest is also important."

> "Probably exercise is number one in importance, along with nutrition. Rice is very important because it nourishes the intestines, helps with the digestion and absorption of food. Vegetables are important. Protein and minerals are also important. Beef is important for iron. In Southern China deep fried, hot and spicy food are considered not healthy. In Northern China, food it is okay to have deep fried, hot and spicy food."

> "Besides herbs, some common foods and some special foods can be cooked and consumed to increase the immune system. A Chinese nutritionist could be consulted on the proper foods and cooking methods used to influence and balance Yin or Yang according to the season. These foods enhance the energy flow, builds blood cells, bone marrow. The nutritionist will also give precautions like when and for whom these foods should be avoided. Just like pharmaceuticals, medication may be beneficial in one situation and would be detrimental in another. Food, herb, or medication that might be good to thin the blood to prevent blood clots, would be detrimental with someone with GI bleed, or poor balance."

> "In China there are herbalists, who might be considered professional consultants. They learn folk medicine from their elders. They do not go to classes nor get degrees. They practice what they've learned throughout their childhood. When they do, they live longer and better lives."

Egyptian Muslim Male

Imam Mohammed was a pediatrician in Egypt before he became an Imam. He is reluctant to mention that he was a physician, as he relies more on his faith than on his degree. He states:

> "The medical profession has lost some of the human touch, relying too much on the pharmaceutical companies, insurance companies, and spending less time on looking, listening, touching, caring. In my culture health and wellness depend on balance."

> "According to the Quran, human existence is a combination of the spirit and the flesh. There is a partnership with God. For wellness, longevity–one must satisfy the spirit. This applies to everyone, no

*The authors have chosen to select only a few of the interviews completed due to space considerations.

matter the gender, no matter their age. However, there is more concern for the female due to reproductive health concerns, and care for the infant, such as breast feeding. Physicians can not be deemed as the only experts on making health decisions. There is emphasis on relying on what is natural."

"Exercise and physical activity and natural, unprocessed food, is created by God. Processing food is 'oblivious' to the Quran. We are what we eat, drink, and smell."

"Illness comes as a disruption in the balance created by God. "M" in Muslim stands for "surrendering to the will of God."

"In general relationships with the elderly, the family has total respect for the elderly. It will be a disgrace if you do not take the elderly into your home, even at the expense of other members of your family. The elderly are served first, get preferred seating, and are waited upon respectfully. The individual is rewarded for treating the elderly with respect, when they, in turn, receive the same respectful treatment from their children when they reach old age."

Tanzanian🌐 African Female

Christine is a Tanzanian Lutheran who has immigrated to California. She has no special credentials, but provides an enlightening perspective on health, health care, and the concept of wellness:

"Someone who is healthy is one who can walk, can do chores, take and care of the family. That is what is expected."

"The Village Health Service offers preventive health services in the homes. Each village health post provides two village health workers who are by their village governments. These workers receive a short training course before they start providing services."

"The healthy male in the family is able to go out and look for food, and can construct, build. Being disabled does not mean you are unhealthy. Individuals who can still walk, work, and carry on with their regular activities with their disabilities are considered healthy."

"Someone who is unhealthy is one who has a serious disease, such as HIV. People do not go to the hospital until they are in quite a serious stage. There are no differences in standards regarding what is healthy between male and female, nor between the young and the old. Everyone is expected to participate in the work that has to be done. The women actually have more work than men, as they need to prepare the meals for the men, while the men relax from their hard work."

"Someone around the age of 60 would be considered elderly. Due to the hard work and stress, many 60 year olds have the appearance of 80 to 90 year olds. The elderly are treated with respect, because they possess wisdom."

"Rest is considered to be very important. However, rest is hard to get as there is too much work to be done."

"Healthful foods would be fish, meat, vegetables, rice, cornmeal. Unhealthful foods would be sugar. Previously goat, chicken were considered 'taboo' for women, as they were 'un-women-like,' and the female showed disrespect by eating these foods. However, this idea has changed."

"Our elders were our healers. My grandmother was consulted by couples who had been unable to conceive; some for many years. She used herbs, and was successful. We didn't really have any professional consultants."

CONCLUSION

The implication in health promotion efforts is that health has value based on the extent that it either supports or enables function and independence, social benefits (such as elders caring for grandchildren while adult children work), overall quality of life, the capacity to function within society, or even save money as a result of healthy behaviors. A commitment to engaging the people of a community in identifying and assessing their own perceived problems and aspirations is essential. Cultural diversity needs to be a primary part of any health promotion and wellness efforts. We as geriatric physical therapists need to be committed to recognizing cultural identity and health beliefs. Not only does such a commitment assure that a critical view of reality will not be left out of the health-promotion programs we may put in place, it signals a tangible sign of respect toward the members of a community. Listen to the voices of elders. They'll let us know what is important and what health and wellness mean to them. By listening, our outcomes will exceed our expectations.

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🌐"Tanzania is located on the southeast coast of the African continent. It has been a safe haven of peace for many immigrants from Rwanda, Burundi, Somalia, and the Democratic Republic of Congo. There are about 500,000 to 1,000,000 immigrants living in Tanzania. This places a great burden on their resources. The country is endowed with great natural resources, including forests, wild life, rivers, lakes, and wetlands. One third of the country is semi arid, with a long dry season."

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HEALTH PROMOTION AND WELLNESS SPECIAL INTEREST GROUP

Priscilla Raasch-Mason, MS², PT

The Health Promotion and Wellness Special Interest Group (HPW SIG) provides a forum for members interested in providing physical therapy services to promote health and wellness among older adults to discuss wellness initiatives to promote care and intervention through education, clinical practice, and research.

Objectives of the HPW SIG include:

- fostering physical therapy management of health and wellness among older adults based upon a scientific foundation;
- providing standards for entry-level physical therapy education programs regarding the management of health and wellness among older adults;
- encouraging and fostering research;
- providing a forum to discuss the management of older adult health and wellness among physical therapists and physical therapist assistants;
- enhancing communication between clinicians, academicians, and researchers in the physical therapy community interested in health promotion and wellness among older adults; and
- providing an avenue for interaction with other health care professionals who provide health promotion and wellness intervention to older adults.

The HPW SIG is 215 members strong after CSM 2007 in Boston. The SIG presented a program on the *Rage Against Age*: a review of systems aging, functional outcomes measures, creating health information systems and notebooks for clients, creating health fairs, and exercise programs from First Step and Theraband.

Elections were held during CSM and the HPW SIG officers include:
Chair: Priscilla Raasch-Mason
Vice Chair: Jennifer Fabre
Secretary: Allison Evans
Nominating Chair: Linda Eargle
Nominating Committee: Lori Schrodt and David Morris

Among HPW SIG activities this year was the creation of a scripted Powerpoint presentation, *Physical Activity: A Key to Wellness and Successful Aging,* that can be shared with all SOG members and used for community education. The presentation can be downloaded from www.geriatricspt.org.

We are currently assisting with program planning for CSM 2008 in Nashville. It will be very dynamic programming looking at changing health behaviors, nutrition, and exercise all with nationally recognized speakers.

If you are interested in more information about the HPW SIG and joining, you can visit www.geriatricspt.org or contact Jess Sabo, Section Executive, Section on Geriatrics, American Physical Therapy Association at 800/999-2782 x3238, fax: 703/706-8575 or email (jessicasabo@apta.org).

HEALTHY IN AMERICA: PUBLIC POLICY ISSUES
Equal Access to Quality Health Care for All

Jean Keith, BA; Jennifer M. Bottomley, PT, MS, PhD

America is the richest country in the world yet, has the poorest health care for most of its citizens, as measured by many indicators: life expectancy, infant mortality, and immunization rates. [1] It's not because we don't spend enough—we spend $7,129 per person (more than twice any other country), but we have poorer outcomes. We leave 47 million people with no coverage at all, and millions more with inadequate coverage. [2,3] The US spends an enormous amount of money on health care when compared with other countries. Currently 16% of the Gross Domestic Product, more than is spent on food, is spent on health care in America. What would health care that made better use of this money look like? Would a focus on screening and prevention (as facilitated by the recent passage of the *Tax Relief & Health Care Act of 2006)*[4] impact the health of aging baby-boomers? Would it cost even more money? And where would the money come from?

There are many choices to be made along the road to *equal access*, as well as *quality health care* for all. This article will address each of the decision points to see what the options are and who the proponents and opponents of each choice are. The first choice is whether to have a for-profit or non-profit care delivery system. Underlying the current US health care system is a philosophy of care that is in opposition to much of the rest of the world. Health care is seen as either a human right (the social insurance model) or as a profit-driven commodity (pro-market) for those able to pay. The choice of one or the other will have a profound effect on the universality, equality, affordability, and access to health care in any country. While other countries have chosen the social insurance model, valuing its support of their sense of community, the US is alone in its placement of profit at the heart of health care.[5]

The second choice is whether or not to cover everyone. Plans to make certain all people have coverage offer *universal* coverage, but not all are *equitable*. Some plans offer different levels of coverage, with the publicly-funded typically offering lesser coverage, and the privately-funded offering more generous benefits. The third choice involves how to pay for a plan. Financing methods range from *single-payer* (usually the government, but sometimes an intermediary) to a combination of public and private.[6]

We offer the *Proposal of the Physician's Working Group for Single-Payer National Health Insurance (NHI)* as the model of care that *should* be in place in the United States to assure that all Americans can access and afford quality health care for themselves and their families.[1] It would expand and improve the Medicare program to cover everyone for all necessary medical care, and no private insurers would be able to offer any insurance that would duplicate the basic package of services. Individuals would have complete freedom of choice in providers, and while those providers would be fairly compensated, there would be no large profits to be made. The high overhead and profits of the private, investor-owned insurance industry would be eliminated, for it provides no direct care or service to anyone. Prescription medications and medical supplies would be available at no cost, purchased at a negotiated price, using the power of a single purchaser to secure the lowest cost. There would be no deductibles and no co-pays for this basic level of care. Further, coverage for disabled Americans of all ages would be provided for long-term care. The only requirements for eligibility would be the inability to perform activities of daily living. That care would be provided either by long-term care facilities and/or home care agencies. Family or friends serving as caregivers would receive training, respite services, and, in some cases, financial support.[1]

Looking at the fundamental issue of health care as a right versus a commodity, the battle lines are clearly drawn. The free-market forces with a stake in the business, as well as those who are ideologically libertarian are certainly the advocates for the position that no one has a right to health care. This position is summarized as, "Fundamentally, creating a 'legal right' to health care is incompatible with the idea of individual rights. People cannot legitimately claim a right to something if that right infringes on the rights of another. The underlying goal of creating a legal right to health care is to provide medical care to the greatest number possible. The fact that this approach would reduce the amount of medical care available to most or all Americans suggests that we should look for other ways to achieve this goal."[7] Essentially, it is argued that because everyone would have access to the same care, it somehow would limit what would be available to any *one* person, as if 'health care' was a finite commodity. That is not a logical argument, no matter how you define 'health care.' It assumes that individual and group interests can never be balanced, and that certainly is not true. One only has to look to such legislation as our anti-trust laws to see that such balance can be achieved. Those who are stakeholders in the market-driven system (all private insurers, for-profit providers) are obviously in opposition to a change to a nonprofit system as they have a strong economic self-interest in maintaining the status quo.[3,8,9]

Universal coverage is a concept growing in popularity, although there remains a wide range of views of how equitable and comprehensive a new health care system would be.[10] Some, like the Proposal of the Physician's

Working Group for Single-Payer National Health Insurance, mean the broadest application of 'universal.' That is, all people would have the same basic care and the same access. Others promote a public/private mix, that would have the government pay for the poor and otherwise uninsurable (in other words, the sick), while everyone else would be covered by private health insurance. This allows private insurers a big (and profitable) piece of the health care pie. Most of these concerns are really part of the broader debate on financing methods, but they do play a part in the discussion on equality.

The public/private combination plans run the risk of being, or becoming, a two-tiered, class-based system, where the publicly-financed one is second-class. Programs that, like the current Medicare program, have all participants on an equal footing are truly equitable and therefore more desirable from a social system viewpoint.

An issue to address here is the fact that the United States' health care system is employer based. The government already ***does*** provide access for the majority of Americans, and with only 3% overhead cost, through the Medicare, Medicaid, and VA programs, as well as the tax subsidies to employers to encourage them to offer group policies. Right now, the health care pie is sliced up this way: government pays 64%, employers pay 19%, and individuals pay 17% out-of-pocket. Because of the cost to businesses of health care, many either do not offer health insurance to any of their employees, or keep a sizable portion of their workforce ineligible, usually by limiting them to part-time hours with no health care benefits. The majority of the uninsured are employed but they cannot afford the premiums, either because they are low-wage workers or because they have no group policies available to them.[11] Further, having individuals depend on employer subsidy for health care has serious disadvantages for both the employer and the employee. The business owner carries the cost of that insurance as an expense of doing business, and, while the tax code offers benefits to the owner, those tax breaks may not offset the expense enough to keep the business globally competitive. For the employee, the loss of job mobility that results can place severe restrictions on career development. Often, employees are unable to leave a job with benefits to seek employment where no benefits are available, or to try to start a new business and become self-employed. This phenomenon is so common it even has a name: 'job lock.'

The fury of the debate on universal health care, though, focuses most directly on the method of paying for it. If, as is generally acknowledged, universal health care is a worthy goal, there is no consensus on how it should be funded. The balanced and impartial *National Coalition on Health Care* (an alliance of companies, unions, health care providers, patient and consumer groups, insurers, religious organizations, and pension and health funds) studied 4 funding mechanisms that their earlier study had deemed viable, and then projected costs, or cost savings up to 10 years into the future for each. The funding mechanisms were:

- An employer mandate (requiring employers to pay a certain percentage of health care costs for employees)
- Expanding public insurance programs like Medicaid
- Creating a new program for the uninsured based on the federal employee health benefit program
- A single-payer system like Medicare

Under all these scenarios, the government would save hundreds of billions of dollars over 10 years. In particular, the first 3 scenarios saved at least $300 billion, whereas the single payer system saved $1.1 trillion through administrative simplification.[12]

There are other financing systems that have advocates also. Vouchers are a popular mechanism to provide for payments to be disbursed from a funding source to individuals. Voucher plans appear always to involve insurance companies and that is usually seen as a point in their favor, either because it is supportive of the free enterprise system or because government is held to be so inefficient.[13] Expanding the Federal Employees Health Benefits Program is another proposal with its own advocates. The federal program, currently open only to federal employees and their families, offers subscribers a choice of 350 health plans.[14]

All of these plans, as well as others not listed here (such as a stop-loss plan, also called a premium rebate pool) allow a role for private insurers, which, again changes the provisions that allow for completely equal access for all individuals. Whether the thrust is to privatize Medicare or to offer a combination public/private universal heath care, when private insurance companies are the intermediary for funding, profit is at the center of their offerings. Private insurance, by definition, looks to sort individuals by risk (how much money they will cost the company) and to make money on every category of risk.[8] "This creates the paradox of a health care system based on avoiding the sick."[1]

The only plan that eliminates profit-making is the one proposed by the Physicians' Working Group for Single-Payer National Health Insurance, the NHI plan. Because the NHI proposal eliminates profits as well as the huge administrative costs that come with the insurance principle at the heart of the system, where the goal is to avoid unprofitable patients (currently, a great deal of paperwork is generated in an effort to shift the costs of the most medically expensive patients to another payer), it alone would realize the savings of 1.1 trillion over 10 years.[11] Although this plan is not the same as the Physicians' Working Group, this change to a single government payer would allow us to cover everyone in America and save money doing it. The administrative simplification that would result again allows the health care dollar to stretch farther.

Currently, "bureaucracy consumes 30% of our health care budget. Our biggest HMOs keep 20%, even 25% of premiums for their overhead and profit. Canada's NHI has 1% overhead, and even US Medicare takes less than 4%.The average US hospital spends one quarter of its budget on billing and administration, nearly twice the average in Canada. Reducing our bureaucratic spending to Canadian levels would save at least $140 billion annually, enough to fully cover the uninsured and upgrade coverage among those now uninsured."[11]

Another subject of much debate is how to realize the proposals in enacting

legislation. This inevitably involves some attempts to reconcile all the various positions on health care reform. Most approaches call for 'incremental' change, finding the system basically sound, but in need of some change. Some propose to more adequately fund the current system and advocate for increased taxes to extend coverage.[15] Another calls for a greatly expanded role for insurance companies, expanding even into the area of those currently covered by government insurance, paying their premiums to private companies with government money.[16] Each of these, and others, presumes that small steps can ultimately accomplish big goals.

Others advocate scrapping the current system and instituting a new one in its place. The NHI plan clearly is in the latter category, as it retains and expands the Medicare system, and retains providers (practitioners and hospitals), converting some, as needed, to non-profit status.

In addressing the topic, most authors have considered both approaches. One eschews the significant change that a single government payer would be, stating it is impractical, as "it would never pass the US Congress and be signed into law by the president." [16] Another finds the advocates of incremental changes to lack vision, feeling that the proposal of NHI is a moral crusade, and that for "generations the moral stance of the public health community has helped spark social movements, often against dauntingly powerful foes: the crusade against tobacco and fights for clean water, a sustainable environment, workplace safety, and reproductive rights. Our professions' voices gain extraordinary resonance when we speak courageously in the public interest. A time to raise our cry is again at hand."[11] Still another counsels reconciliation among those who come to the table as stakeholders in the debate, saying that only those motivated entirely by economic self-interest are not candidates for discussion, since they will be protective of their interests.[17] Yet another states, "Incrementalism best serves advocates of privatizing health care, reflecting values often diametrically opposed to public interest."[3] We'll have to agree with the advocates of the NHI that the fundamental restructuring of the health care system would be most effective and efficient. Inching forward into reform accomplishes, from this perspective, too little with too much difficulty.

Finally, the special benefits for elders of NHI need to be addressed, as many may feel that, as those already over 65 already have Medicare, there's no advantage to them in supporting any change. In fact, there are definitely benefits to seniors in advocating to expand Medicare to everyone, precisely because they value it so much. Universal coverage for everyone puts everyone in the same place. "Throughout the world, universal programs, like Social Security and Medicare, are consistently the most popular social welfare policies. Basically, when all citizens contribute to, and benefit from a social policy it engenders enormous amounts of public support and loyalty to those policies."[18] "But perhaps most crucial, expanding coverage to the uninsured through Medicare would powerfully link the health security of the aged and non-aged. No longer would young workers without insurance shell out payroll taxes to support elderly citizens with good coverage."[19] There has been much talked and written about the growing generational conflict, as those over 65 become an increasing percentage of the population, supported by a smaller percentage of adults in the workplace.[20] Linking the two makes clear how necessarily intertwined the future of Medicare and the future of America's health care really are.

Retirees with fixed incomes are among those least able to absorb increases in premiums or other costs, yet most likely to be among those considered "unacceptable risks," if health care were to be changed in response to rising costs without effecting reforms that address the special needs of seniors. Attempts have been, and will continue to be made to "reform" Medicare in response to the increasing costs of the program. Partial privatization of Medicare has already begun in the Medicare HMOs and more attempts to open the Medicare market to private insurers will surely be made.[18] The best protection against unwise changes in Medicare would be to make it a part of the same program all Americans contribute to and participate in.

The Physicians' Working Group NHI proposal also calls for long-term care to be implemented with the program. Since it would cover all disabled Americans at no cost for the full range of medically necessary services, it would relieve elders of the tremendous burden of concern over being provided with an appropriate level of care if they experience a loss of function. Currently, many people lose their assets along with their independence when they are forced into a nursing home on Medicaid.

In conclusion, the criticisms of the Physicians' Working Group for Single-Payer National Health Insurance don't seem to be as compelling as the benefits. Especially the benefits derived from it by older people. It is accessible, affordable, high quality health care—and would actually cost the United States a smaller percentage of Gross Domestic Product (GDP) than it spends right now. Equal, accessible, and high quality health care for all would be a recommendation for promoting health and wellness of all Americans. Equal and accessible quality health care for all would certainly be an important first step towards realizing the goals of *Healthy People 2010* and creating a *Healthy America*.

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GERICOMICS

by Jennifer M. Buchwald & Jennifer M. Bottomley

NUTRITION AND HEALTHY PROMOTION IN THE OLDER ADULT

Constance McCloy, PT, EdD

The relationship between nutritional status and health in individuals aged 65 years and older is both complex and circular. All aspects of the lives of older adults can affect their eating behavior and nutritional status. And, because dietary intake and nutritional status strongly impact health, they influence all aspects of seniors' lives.

Numerous factors affect the dietary intake and nutritional status of older adults. Many are psychosocial in origin, some are related to biological aging effects on organs and digestive function, and a few are related to physical activity levels and dietary habits. The heterogeneity of elders is reflected by their variations in income, ethnicity and culture, marital status, living arrangements, functional abilities, emotional health, physical activity level, medical diagnoses, and pharmacological interventions; all of these factors affect nutritional well-being.[1,2] Finally, the aging process itself is so singular among older adults that researchers find themselves challenged to identify and standardize the nutrition requirements of this population.

National and regional studies in the US demonstrate that frank malnutrition is rare in community-dwelling elders, although dietary intake of several nutrients (eg, vitamins B6, B12, folic acid, A, & E; minerals selenium, calcium, iron) is often lower than suggested.[3-7] Subgroups of older adults in the US that appear especially vulnerable to developing nutritional deficiencies or malnutrition include the following: those with low income and education, mobility impairments, poor oral health, those taking multiple medications, and older adults from minority cultures.[6] Furthermore, aging individuals with chronic diseases (ie, diabetes, cardiovascular disease) and/or acute health conditions (ie, hip fracture, stroke) face challenges to their physiological reserves that often cause nutritional deficiency syndromes to develop.

Rates of malnutrition are higher for older adults residing in acute care hospitals and long-term care facilities than for those living in communities.[1,7] Several studies have shown that the majority of individuals living in long-term care settings were already malnourished upon admission.[1,8] In addition, the metabolic demands associated with illness and surgery recovery are very high, while appetite in ill elders is often poor. This combination threatens nutritional status in already compromised individuals. Finally, mobility problems and cognitive deficits also impact eating behaviors in institutionalized older populations.[9]

The number of Americans experiencing chronic health conditions has continued to rise over the past decade, irrespective of age, gender, or race. Currently, 80% of older individuals have at least one chronic health condition, and 50% have at least two.[10] In addition, the top three causes of mortality in the US are heart disease, cancer, and stroke.[11] Although genetics and level of physical activity play contributory roles in these health conditions, all can also be positively impacted by dietary intake and nutritional status. For example, studies have shown that consumption of a diet rich in certain fruits and vegetables can reduce the risk for developing different types of cancer. Investigations also demonstrate that diets low in saturated fats (but including monosaturated fats) and high in fruits and vegetables were associated with reduced circulating low density lipoproteins and decreased incidence of cardiovascular disease.[12,13]

The prevalence of obesity in individuals 65 years and older is on the rise; however, treatment of this disorder is controversial for individuals in this age group. Health care experts recommend that obese and overweight elders be evaluated and treated on an individual basis.[14]

The national health objectives contained in the *Health People 2010* document address the key risk factors associated with morbidity and mortality in the US, with the goal of reducing its impact on population subgroups, including older adults. These objectives focus on health promotion through the improvement of specific lifestyle behaviors such as nutrition. Importantly, *Healthy People 2010* also states that the national objectives can be met most successfully through a multidisciplinary effort, which would include physical therapy.

Several of the *Healthy People 2010* objectives that address health issues of older Americans are relevant to nutrition. For example, goal 2 reads: "prevent illness and disability related to arthritis and other rheumatic conditions, osteoporosis, and chronic back conditions." Two objectives related to this goal include reducing the number of cases of osteoporosis and decreasing the number of hospitalizations for vertebral fracture.[15] These objectives are best met through the implementation of both nutrition and exercise interventions. Physical therapists could influence the outcomes of these national objectives by educating older adults about bone healthy behaviors related to both diet and physical activity.

Physical therapy goals often focus on the facilitation of healing within integumentary and neuromusculoskeletal systems, and on client rehabilitation toward optimal function. Integration of nutrition screening, education and/or dietary referral within traditional therapy could improve the rate and extent of healing and recovery that can occur.

Investigations have also shown that nutritional health strongly impacts individual response to exercise in older

adults. Consumption of foods that contain the calories, vitamins, and minerals adequate to meet the demands of physical activity can support improvements in strength, endurance and functional mobility. While exercise can have a positive effect on most chronic and some acute health conditions, the use of this modality in isolation of its physiological counterpart (nutrition) brings only partial results at best. Indeed, in some cases caloric expenditure associated with physical activity (ie, rehabilitation) may actually impede recovery and increase risk of infection in older adults who are malnourished or are recovering from health events that have high metabolic costs.[8]

Physical therapists are not traditionally educated to be experts in nutrition. However, basic knowledge of this discipline means that practicing clinicians can recognize common nutrition-related problems when they do arise, and then suggest simple interventions when appropriate, or refer compromised individuals to nutrition experts. With this in mind, the purpose of this article is to increase the knowledge of physical therapists regarding nutrition and its relationship to health and aging in older adults. An additional purpose is to discuss various roles that physical therapists can comfortably serve with regard to the nutritional health of their patients.

BIOLOGICAL FACTORS THAT AFFECT DIETARY INTAKE AND NUTRITIONAL STATUS IN OLDER ADULTS

Several biological factors, which may or may not be associated with aging, are often superimposed over psychosocial influences of eating behavior and nutritional status. Changes in gustatory sensory systems, modification of dentition and poor oral health, alterations in brain function and cognition, as well as structural/functional changes in the gastrointestinal system are examples of biological factors that can influence nutritional health. Although the repercussions of these changes tend to be negative, early identification and intervention can prevent the occurrence of nutrient deficiencies and serious health conditions.

Anthropometric changes observed in aging adults (ie, loss of lean body mass and increase in fat mass) affect body metabolism, energy reserves, and protein stores. These alterations and their implications for dietary prescription will be addressed elsewhere in this paper.

Changes in Taste and Smell with Aging

Taste, smell, and oral somatosensation (pain, temperature, touch) contribute to nutritional well-being and enjoyment of food. The quality of this sensory experience strongly influences food and beverage selection in all populations. Gustatory experiences represent complex interactions among peripheral sensory organs as well as feedback systems within the central nervous system which use cranial nerves V, VII, IX, and X.[16]

Evidence is compelling that losses in the chemical senses of taste and smell occur with aging, although the range of loss varies greatly. Particular disease states (ie, Alzheimer's disease, Parkinson's disease), numerous medications, and exposure to environmental toxins and infectious agents are thought to be responsible for much of these losses.[17,18]

Several studies have demonstrated that olfaction declines with aging.[19,20] For example, data from a study of 1900 individuals from ages 5 to 99 years indicated that peak olfactory function occurred during the third and forth decades, that women had better olfactory performance than men, and that up to 50% of elders 65+ years had major impairments of olfactory function.[20]

Taste thresholds appear to increase with aging, and may be due to peripheral damage (eg, to papillae on tongue) or central malfunction (eg, to cranial nerves).[21] Research is mixed with regard to whether the number of taste buds changes with aging.[18]

Dentition and Oral Health

Oral health problems, such as missing teeth, poorly fitting dentures, cavities, periodontal disease, and infection are common among older adults, especially frail elderly and those of low socioeconomic status.[14,22,23] National data indicate that 15% to 40% of individuals 65 and older are edentulous (without teeth), although this number is decreasing.[24,25] Dentition status (the presence and arrangement of natural teeth and dentures) affects chewing ability and efficiency, and strongly influences the types of foods consumed by the elderly.[26] For example, edentulous individuals tend to eat fewer fruits, vegetables, and salads than those with natural teeth.[27] Although dental prostheses can restore some eating abilities, they can be problematic and cause wearers to avoid many foods. Regular dental assessment and timely treatment of unhealthy conditions can have a positive effect on nutritional status in older persons.

Cognition as It Influences Dietary Intake and Nutritional Status

Cognitive status also influences eating practices of older individuals, although the impact may vary greatly. Elders who are confused or experience memory loss tend to skip meals or they forget to take supplements or medications. The relationship between cognition and nutritional status is often a cyclical one. Individuals with cognitive impairments tend to eat poorly. In turn, insufficient food consumption creates clinical and subclinical nutrient deficiencies, which further compromise mental function, and so on. Studies have demonstrated that reduced cognitive function was associated with poor intake of folic acid, vitamins B6 and B12, cyanocobalamine and pyridoxine.[28-30] A recent study of 168 community-dwelling elders in Madrid, Spain found that individuals with 'adequate' Mini-Mental State Examination (MMSE) scores ($\geq$ 28) consumed more total food, fish, alcoholic drinks (considered moderate), and had greater intake of thiamine, folic acid, and vitamin C than subjects with low MMSE scores. In addition, adequate MMSE subjects consumed less saturated fats and cholesterol than their counterparts. Authors of this study pointed out that 'brain healthy' food consumption patterns were demonstrated by those with the higher MMSE scores.[30]

Gastrointestinal Changes Associated with Aging

Research demonstrates there are no substantial changes in gastrointestinal (GI) function due to aging in the absence of disease. The reason for this is the tremendous reserve capacity of this system, especially in the mid-gut, pancreas, and liver. There is less functional

reserve in both the proximal and distal portions of the gut (ie, esophagus, stomach, and colon), the sites where most GI maladies occur in older individuals.

Intestinal motility slows with age, and is especially observable in the 8th decade and above. In addition, efficiency of digestion, absorption, and utilization of various vitamins and minerals is reduced in the very old.

Gastrointestinal Conditions Common in Older Adults

Some alterations in gastrointestinal (GI) structures occur with age, and the number of problems associated with digestion, absorption, and utilization of nutrients tend to accumulate over time. It is nearly impossible to tease out whether these changes are due to aging per se, lifestyle habits, or genetic tendencies.

Current studies concerning the oral cavity health of elders have demonstrated that decreased saliva production and flow, although common in this population, is usually due to pathologic conditions and the side effects of many medications.[31] A more serious form of this condition is called 'Dry Mouth,' or Xerostomia; long duration of this disorder raises risk for infection, ulceration, and tooth decay. Importantly, Xerostomia affects the types and amount of foods chosen by older adults, making it a risk factor for nutritional deficiencies and malnutrition. Individuals with this syndrome should be referred to their physician.[32]

Gastroesophogeal reflux disease (GERD) is not related to the aging process itself, but is a chronic condition encountered in 65% of all older adults.[33] A multifactorial disorder, GERD is associated with reflux of acidic stomach contents into the esophagus, which can cause 'heartburn' pain and tissue damage. Gastroesophogeal reflux disease etiologies include hyper secretion of stomach acid, cardiac sphincter incompetence, certain medications, sliding hiatal hernia, and scarring caused by past acidic injury. Although many elders may be asymptomatic, many report symptoms of heartburn approximately 30 to 60 minutes after meals, or when they are sitting in a reclined position. Again, individuals with this disorder should be referred to their physician for care. Medical interventions include prescription of esophageal-protecting medications, avoidance of symptom-provoking foods, and maintenance of upright position after meals.[33,34]

Two health conditions that affect the stomach in some aging individuals are stomach ulcers and atrophic gastritis. Contrary to what is observed in younger adults, stomach ulceration in elders is not usually due to infection with *helicobacter pylori*, but is often associated with long-term ingestion of anti-inflammatory medications, which inhibit the protective influences of the mucosa. Medical treatment focuses on withdrawal of the offending medications and healing of the lesion.[35,36] Atrophic gastritis is a condition that causes chronic inflammation of the stomach mucosa, with resultant decrease in secretion of gastric acid and pepsin (a digestive enzyme for proteins). Approximately 20% of older adults in the US have this disorder, which may be related to infection by *helicobacter pylori*.[37] Diminishing quantities of gastric acid impairs digestion and absorption of protein and several micronutrients, including iron, calcium, folic acid, vitamin K, and Vitamin B12. If allowed to continue, pernicious anemia associated with vitamin B12 deficiency will develop.[38] Treatment consists of prescription of antibiotics, cessation of smoking and alcohol use, avoidance of irritating foods and medications, and the use of antacids.[37,39]

Production and timing of digestive enzymes from the pancreas is altered with aging.[33] Inadequate and/or delayed production causes symptoms such as uncomfortable bloating, gas, diarrhea, and eventual weight loss. These symptoms are caused by the exposure of undigested food to gas-causing bacteria in the large and small intestines.[37] Common reasons for the shortage of digestive enzymes are pancreatic disorders, metabolic events that alter pH, illness associated with high fever, and dietary consumption inadequate to support protein (enzyme) synthesis. If left untreated, older adults with this disorder tend to avoid the foods that cause their uncomfortable, at times intense, symptoms. As a result, elders miss out on nutrients contained in that particular food type. For example, curtailing consumption of foods containing fats will reduce intake of the fat-soluble vitamins E and A. Treatment of digestive enzyme shortage includes resolution of the primary health problem and attention to dietary intake that supports protein synthesis. In addition, the prescription of oral digestive enzymes can bring dramatic relief of most symptoms.

A common digestive enzyme condition that tends to increase with age is lactase deficiency or lactose intolerance. Individuals with this condition experience difficulty digesting dairy products. Again, symptoms associated with this condition can be easily alleviated with use of oral lactase supplements. Lactose intolerance is also observed in elders experiencing GI disorders such as Crohn's disease, ulcerative colitis, and bacterial or parasitic infections of the small intestine.[37,40,41]

Chronic diarrhea, a serious intestinal problem, causes continuous sloughing of delicate epithelial cells from the mucosal layer. If left unchecked, loss of a critical mass or area of these cells prevents absorption of nutrients and fluids. If this condition continues further, vascular structures within the submucosal layer become exposed and leak blood into the intestines (intestinal bleeding). Left untreated, diarrhea can lead to dehydration, electrolyte imbalance, confusion, weight loss, nutritional deficiencies, and protein-energy malnutrition. Timely intervention is imperative so that compromises to body systems and associated medical emergencies can be avoided. When appropriately addressed, the termination of symptoms can be positive and dramatic.[42]

Bacterial overgrowth in the small intestine can be problematic in some older adults. Diminished HCL secretion associated with atrophic gastritis fosters bacterial growth (usually streptococci and lactobacilli) in the stomach that is then transmitted to the small intestine. These bacteria compete for available B vitamins, especially B12. Left untreated, the bacteria also cause malabsorption of fats, protein, carbohydrates, and electrolytes. Treatment for bacterial overgrowth of the intestines focuses on prescribed antibiotics and refeeding.[33]

Functional bowel disorders in the older population include constipation, fecal impaction, and fecal incontinence.[43] Research demonstrates that constipation affects approximately 26% of older men and 34% of older women.[43] However, this

condition is more often associated with negative lifestyle behaviors (ie, low fiber diet, physical inactivity, reduced fluid intake) than with aging.[44,45] Constipation can also be associated with various metabolic and/or endocrine disorders, such as diabetes mellitus, hypothyroidism, hyperparathyroidism, hypokalemia, and hypercalcemia. Neurological conditions such as Parkinson's disease, multiple sclerosis, spinal cord injury, and cerebrovascular disease can also cause constipation in elders. Finally, numerous medications trigger constipation; examples include opiate analgesics, anticholinergic agents, anti-Parkinson drugs, diuretics, iron supplements, antihypertensives, and many psychotherapeutic drugs.[45] Treatment of constipation targets the cause of the disorder. Common recommendations include increased consumption of dietary fiber (25-35 mg per day, including psyllium-based products), adequate intake of noncaffeinated fluids (up to 2 liters per day), and increased physical activity as tolerated.[45,46]

Fecal impaction and fecal incontinence can occur in elders who have problems with chronic constipation and excessive laxative use, various neurological disorders, or colorectal ailments.[43] Individuals reporting this condition should be referred to their physician immediately.

Disorders of the large intestine such as diverticulosis and diverticulitis tend to rise with increased age. In diverticulosis, the smooth muscle layer of the colon becomes stretched and weakened, allowing the mucosal layer to herniate through the muscle and form pouches or diverticulae.[33,47,48] This condition can be related to poor fiber intake and constipation. If the diverticulae become filled with feces, they can become inflamed (diverticulitis) and strangulated, a serious repercussion. Treatment for diverticulosis and diverticulitis centers on the development of proper bowel habits, adequate consumption of fluids and fiber, and physical activity to enhance intestinal motility. Diverticulitis requires immediate medical attention because of the threat of infection and possible leakage of intestinal contents.[47]

In conclusion, while not all elders experience GI problems, many of these conditions are fairly common in this population. It is important that physical therapists be knowledgeable about the common GI disorders that affect older adults so that referrals can be made to the appropriate health care providers, and so that ultimate patient functional outcomes can be optimal.

EFFECT OF BODY COMPOSITION CHANGES ON ENERGY UTILIZATION, PROTEIN STORES, AND ENERGY RESERVES

Anthropometric changes observed with aging include gradual loss of lean body mass, and gain of fat mass. Alterations in muscle and bone mass, organ weight, and fat tissues are influenced by a number of factors, including androgenic hormone levels, genetics, dietary intake, and physical activity. Research demonstrates that the extent of this shift is strongly influenced by appropriate exercise.

One of the repercussions of muscle mass loss is a reduction in basal metabolic rate (BMR), which decreases 1% to 2% per decade, with some acceleration in the 4th and 5th decades.[49] Reduced overall energy consumption associated with loss of lean tissue correlates with this lowering of BMR. As a result, older adults are challenged to consume foods that are 'nutritionally dense,' that can provide more nutrients per calorie. Food selection becomes important, and failure to adjust by reducing calories often results in weight gain.

Overweight and Obesity in Older Adults

According to the National Health and Nutrition Examination Survey (NHANES) approximately 33% of individuals between the ages of 20 and 74 are obese.[50] However, treatment of obesity and overweight in older individuals remains controversial. On the one hand, studies indicate that loss of 10 to 15 pounds enhances insulin sensitivity and reduces blood glucose levels in obese and overweight persons.[51] In addition, weight loss in overweight individuals who have osteoarthritis can reduce arthritis symptoms and progression.[52] However, research demonstrates that excess weight in older adults does not predict mortality, as it does in adults and younger people.[14] In addition, excess weight in elders can serve as an energy reserve during times of recovery from illness or surgery. Further confusing this issue is the fact that several studies have found a significant relationship between obesity and functional limitations in women, but not in men.[53] As a result of these mixed findings, obesity and overweight are generally not treated as aggressively in older individuals as they are in younger persons. Most health care professionals recommend an individualized approach for elders who are overweight.[14]

MACRONUTRIENT REQUIREMENTS OF AGING INDIVIDUALS

Carbohydrates

Carbohydrates, fats, and proteins are categorized as macronutrients; all provide energy (calories) to fuel cellular processes and metabolism. Multifunctional, the macronutrients also impact fluid balance, blood glucose, acid-base balance, and the synthesis of cellular and organ structures.

Carbohydrates are broken down in their simplest form into glucose, which can be used immediately by cells or stored in the liver and/or muscle. The brain, red blood cells and the kidneys are 'glucose specific,' in that they can only use glucose to fuel metabolism; they are unable to use energy from fats. If adequate glucose isn't available through diet, amino acids, often from body proteins, are converted to produce glucose (gluconeogenesis). Approximately 45% to 65% of total calories consumed should come from carbohydrates such as whole grains, fruits and vegetables; these are standard recommendations made for adults of all ages.[54]

Carbohydrate consumption and metabolism are relevant to aging because of the changes in glucose tolerance that can occur over time. Researchers speculate that while insulin secretion is not defective in healthy older adults, the variations in patterns of insulin secretion (ie, delays and changes in timing) could account for the wide range of glucose tolerance observed in older individuals. Insulin resistance occurs when there is a decrease in the rate of glucose removal by a specific concentration of insulin.[55] Approximately 25% of individuals 65 years and older are insulin resistant, and there is some evidence that impaired glucose tolerance and insulin resistance increase with age. What is unclear is whether

these conditions are due to age, sedentary behavior, overweight, or a combination of these three.

Nutrition experts no longer divide carbohydrates into 'simple' or 'complex;' instead, they focus on the ability of various carbohydrates to affect blood glucose. Glycemic Index (GI) refers to a system of ranking foods from 1-100 according to the extent to which they raise blood glucose. High GI foods (GI ≥ 70) tend to raise blood glucose very quickly. Examples include breads and pastries made of processed white flour, raisins, bananas, carrots, and watermelon. Low glycemic foods (GI ≤ 55) tend to release glucose into the circulation more slowly over several hours. Legumes, high fiber/low sugar cereals, grapefruit, apples, and tomatoes are examples of low glycemic foods. Glycemic load (GL) refers to both the type and amount of carbohydrate consumed, and is determined through the following calculation: GL = GI/100 x net carbohydrates in grams. The categorization scale used to describe GL includes Low (GL ≤ 10), Medium (GL 11-19), and High (GL ≥ 20).[55] Generally, older adults are advised to restrict their carbohydrate intake to low glycemic foods and meals with low glycemic load.

Fats

Fats serve several essential functions, many of which are important in aging individuals. Fat within adipose tissue is the most efficient storage form of energy, serving as a reserve during illness and recovery from surgery or during rehabilitation, while sparing body protein. Lipids enhance flavor, slow digestion, and provide a sense of satiety. Adipose tissue provides insulation, padding and protection, and aids in temperature control. Body fat stores fat soluble vitamins (A, D, E, K) for future use. Importantly, lipids are essential to the construction of cell membranes, especially within the central nervous system.

The body is capable of synthesizing most fatty acids, with the exception of linoleic (omega-6) and linolenic (omega-3) acids, which must be consumed in the diet. Both are essential for the proper function of all body systems. For example, both of these fatty acids can be converted into eicosanoids, which have powerful, hormone-like effects. Omega-6 and omega-3 eicosanoids have opposing functions. Omega 6 eicosanoids can cause inflammation and constriction of blood vessels, while omega-3 eicosanoids cause dilation of blood vessels and inhibit clotting. A balance of both is needed. Diet can strongly influence the type and function of eicosanoids made in the body. For example, diets high in omega-3 fatty acids (ie, salmon, sardines, flax) have been associated with reduced risk of heart disease and cancer.[56-58]

Dietary recommendations for fats are fairly standard across all adult age groups. The Acceptable Macronutrient Distribution Range for fats is 20% to 35% of total calories. Saturated fats should be limited to 10% or less, with the remainder comprised of monosaturated (preferred) and polyunsaturated fats.[54]

Proteins

Proteins are compounds composed of 20 different amino acids arranged in a myriad of combinations. Nine amino acids are considered 'essential,' and must be supplied in the diet. Similar to bone, proteins and amino acids are continually being dismantled and reconstructed into new compounds in a process called protein turnover. For example, enzymes, hormones, and antibodies are proteinaceous structures that are synthesized and dismantled as needed. However, protein synthesis and turnover slow down with aging. One repercussion is that immune response to antigens is less efficient and can be delayed.

Proteins are also involved in maintaining fluid balance within cells, blood vessels, and interstitial spaces, and they are intricately involved in maintaining acid-base balance. In addition, proteins serve as transporters. For example, there are specific protein carriers for each water-soluble vitamin. Inadequate protein intake threatens the absorption and transport of these nutrients.

Proteins and amino acids are used extensively in the synthesis of new cells and tissues which are undergoing repair or replacement. Lack of dietary protein, especially in older adults recovering from injury, infection, or surgery, can compromise function in all body systems.[59] Reduced consumption of protein foods can also impair or slow rehabilitation gains such as muscle strength and endurance.

Adequate protein nutrition is critical in the prevention of orthopedic pathologies. Researchers have observed that the most common nutritional deficiency in patients with hip fractures is protein-calorie malnutrition.[60] Other investigators have found that lack of dietary protein was associated with increased incidence of nontraumatic fractures in women.[60-62] Protein deficiency has been correlated with incomplete healing, infection, delayed rehabilitation, and increased mortality in patients recovering from orthopedic surgery.[63,64] Protein supplementation in deficient patients can optimize healing of fractures, especially in callus formation.[60]

The Acceptable Macronutrient Distribution Range for protein is 10% to 35% of total calories. The Recommended Dietary Allowance for protein for adults and older adults is 0.8 gm/kg body weight/day.[54] However, studies of both healthy and unhealthy older adults do not consistently support these recommendations. There is strong evidence that protein requirements increase with age, possibly because of reduced efficiency of protein turnover.[65] Furthermore, additional protein is needed to maintain nitrogen balance as individuals age.[14] Some nutrition experts recommend a range of 0.8- 1.0 gm/kg body weight in healthy elders, and consumption of a higher level – 1.0 to 1.25 gm/kg body weight - for older adults with serious health problems such as infection, surgery, femoral fracture, and pressure ulcers.[65]

Adequate Intake Levels for Vitamins and Minerals

Since the Dietary Reference Intake (DRI) levels for most vitamins are the same for all adults, the following section will address those nutrients that have different values for older adults or that appear to be problematic for this population.

Calcium, Vitamin D, and Magnesium

Both calcium and vitamin D are vital for bone health and for the prevention of fractures. Recent data from NHANES III indicated that 29% of women 65 and older had osteoporosis.[14,66] Calcium intake, absorption, and utilization decrease with age. Medications such as Lasix, Diazinde, and prednisone can cause hypocalcemia.[14]

Fortunately, calcium absorption can be enhanced through physical exercise.[67] The adequate intake level for calcium for men and women 50+ years is 1200 mg/day. This is lower than that recommended in the National Institutes of Health consensus statement, which is 1500 mg/day for men 65+ years and women 50+ years who are not receiving hormone replacement therapy.[14]

Synthesis of vitamin D, which is essential for calcium absorption, also lessens with advancing age. Limited vitamin D production in the skin is especially common in elders who are housebound or living in institutionalized settings where there is insufficient exposure to sunlight. The new adequate intake level for vitamin D is 10 µg/d for adults 51 to 70 years and 15 µg/d for individuals 71 years and above. Unlike calcium, vitamin D availability in foods is limited. Experts recommend consumption of foods fortified with calcium and vitamin D combined (eg, fortified milk), or ingestion of supplements containing these nutrients.[14]

Magnesium

Another mineral essential to bone health, magnesium is plentiful in many foods. However, studies indicate that magnesium intake in the majority of older men and women is subpar.[14,68] Magnesium deficiency is especially problematic in elders with poor food intake and those who have gastrointestinal conditions that affect nutrient absorption. Conversely, magnesium toxicity can occur in individuals who consume large quantities of magnesium-containing antacids and/or laxatives.[14,68]

Iron

The recommended daily allowance for men and women 51+ years is 8 mg/day, which reflects a decrease from the 1989 recommendations. Studies have shown that iron stores progressively increase with age, and iron deficiency anemia is not common in healthy older adults. When it occurs, this condition is usually caused by GI bleeding associated with tumors, peptic ulcers, or medications. Iron digestion and absorption is dependent upon an acid environment in the stomach; therefore, reduced stomach acidity (ie, associated with atrophic gastritis) can impair iron absorption. Vitamin C enhances the absorption of iron, especially that from nonmeat sources (non heme iron).[69]

Chromium

There is some concern that chromium deficiencies may be common in individuals who consume diets high in fiber, simple sugars, and refined carbohydrates, and take medications that inhibit chromium absorption.[70] Since chromium is essential to insulin function and glucose metabolism, lack of this trace mineral may be problematic in individuals with impaired glucose tolerance.[71] Food sources for chromium include whole grain cereals, mushrooms, brewer's yeast, prunes, raisins, nuts, asparagus, and wine.

Vitamin C

Dietary vitamin C is easily obtained in the diet, and readily absorbed and used. Therefore, deficiencies of this nutrient are mainly due to inadequate food consumption. Studies of vitamin C intake by elders show varying results. However, several indicate that up to 60% of older adults have intake levels less than half the recommended amount.[72-75] The RDA for vitamin C is 75 mg/day for women 50 years and older, and 90 mg/day for older men.[76] Foods rich in vitamin C include sweet red peppers, orange juice (fresh), broccoli, strawberries, and Brussel sprouts.[77]

Because of its antioxidant properties, vitamin C has been implicated in prevention of several chronic and degenerative diseases, including atherosclerosis, some types of cancer, cataracts, and cognitive function.[30] Researchers caution that it may be the combination of antioxidants (eg, carotenoids, vitamin E, vitamin C) that are responsible for prevention of these disorders.[75,78-80] Adequacy of all of these nutrients may best be met through diet that combines fruits, vegetables, nuts/seeds, and oils.

Vitamin B6

Vitamin B6 has several functions. It acts as a co-factor involved in the metabolism of proteins and amino acids. Vitamin B6 (along with vitamin B12 and folate) is also involved in the regulation of homocysteine levels in the blood; elevated homocysteine levels increase risk for cardiovascular disease. Vitamin B6 also plays a role in immune function, and it is involved in the synthesis of the neurotransmitters dopamine and serotonin. This nutrient is needed for the production of heme, a component of hemoglobin. Deficiency of B6 reduces production of heme, lowering concentration of hemoglobin in red blood cells. This condition is called microcytic hypochromic anemia, and it reduces oxygen delivery and availability in tissues. Fortunately, vitamin B6 is readily digested and absorbed, and deficiency of this nutrient is rare in healthy elders; it is readily available in several foods, including chicken, tuna, bee liver, rice, and potatoes.[81]

The RDA for men older than 50 years is 1.7 mg/day, and it is 1.5 mg/day for older women.[82] Intake of this vitamin varies greatly, and intake levels less than the RDA have been reported in populations of elders from a variety of socioeconomic backgrounds and geographic areas.[83-85]

Vitamin B12

Vitamin B12 is a co-enzyme involved in the production of succinyl CoA, a reaction that allows the body to use amino acids and fatty acids to produce ATP. Vitamin B12 is especially active in neural tissue; lack of B12 can cause changes in the myelin sheath and neurological damage. Vitamin B12 is also involved in the conversion of homocysteine to the amino acid methionine. This same reaction facilitates the conversion of inactive folic acid to its active form. Deficiency of vitamin B12 causes homocysteine to build up in the blood, and it prevents the conversion of folic acid to its active form. As a result, symptoms of folic acid deficiency can appear.[86] Vitamin B12 deficiency is also associated with cognitive decline, cardiovascular disease, and venous thrombosis.[87-89]

The RDA for vitamin B12 for both older men and women is 2.4 µg/day.[82] Food sources for this vitamin are unique in that B12 is not present in plants, but is present in shellfish, beef liver, salmon, and fortified cereals.[90] Studies indicate that intake of vitamin B12 by older Americans varies greatly; 0% to 50% of study subjects have reported dietary intakes less than the RDA.[73] Deficiency of vitamin B12 can occur due to inadequate dietary consumption or because of poor

absorption. Intrinsic factor, produced in the gastric mucosa, is required for absorption of vitamin B12; production of intrinsic factor decreases with age. Malabsorption of vitamin B12 can also be caused by gastric atrophy, decreased stomach acid production, and bacterial overgrowth.[88] Deficiency of circulating vitamin B12 can cause pernicious anemia, which is also associated with folic acid deficiency. Other symptoms of lack of B12 deficiency are fatigue, sleep difficulties, numbness, and memory loss.[88]

Recognition and treatment of vitamin B12 deficiency is important; some nutrition experts recommend that older persons undergo periodic screening for this deficiency. Intervention can include oral B12 supplements for individuals who still produce intrinsic factor, and injections of B12 for individual who no longer produce this substance.

Folate

Folate is involved in the metabolism and interconversion of amino acids, including the conversion of homocysteine to methionine (in synchrony with vitamin B12 and vitamin B6). Folate is also involved in reactions that produce purines and pyrimidines, which contribute to the make up of DNA and RNA. Thus, folate is required for growth, maintenance, and repair of all body tissues.[91]

The RDA for folate is 400 µg/day for men and women 50 years and older.[82] Not surprisingly, the intake of folate in older adults varies widely, though generally the daily intake of this nutrient is less than the recommended standards. Intake has improved since the fortification of cereals. Sources of folate include turkey, various legumes, spinach, and asparagus.[91]

Folate deficiency can be caused by inadequate intake, poor absorption, or medication interactions. Folate absorption requires an acidic gastric environment. Therefore, conditions such as atrophic gastritis can inhibit digestion and absorption of this nutrient. Folate deficiency is often correlated with raised homocysteine blood levels, which researchers report is associated with dementia, heart disease, and Alzheimer's disease.[92,93] Mild folate deficiency symptoms include impaired cognition, memory loss, fatigue, weakness, and headaches. More severe deficiency of folate causes macrocytic anemia, a condition that produces large, nucleated, immature red blood cells. Although low folate status is often observed in individuals with dementia, studies have not consistently demonstrated improved cognitive status with folate (and vitamin B12) supplementation in this population. Homocysteine levels are reduced with this treatment, but not dementia symptoms.[94,95] Deficiency of this nutrient should be recognized and treated as quickly as possible.

NUTRITIONAL ASSESSMENT

Assessments Completed by Registered Dieticians, Nurses, and Physicians

"Nutritional assessment is an attempt to evaluate the nutritional status of individuals or populations through measurements of food and nutrient intake and evaluation of nutrition-related indicators."[96(p3)] Traditionally, registered dieticians, nurses, and physicians are the personnel who perform detailed nutritional assessments within health care settings. Components of the assessment include dietary history, anthropometric data, laboratory test values, and the clinical examinations.

Anthropometric data include height and weight, from which body mass index (BMI) can be calculated. These parameters are easily measured in most healthy elders, although accurate measurements can be challenging to obtain from nonambulatory or bed-ridden elders or individuals unable to stand fully erect. Accuracy of height measurements in individuals with severe kyphosis or scoliosis might also be questionable.

Dieticians and other health professionals also evaluate body composition in order to calculate proportional fat and fat-free mass. Accuracy of these measurements in older populations varies, and depends upon the groups studied and methods used.[97] Few elders can tolerate under water weighing (the gold standard), and skin-fold measurements are confounded by aging changes in skin (ie, stretching and redistribution of subdermal adipose tissue). Variations in hydration also challenge the accuracy of bioelectrical impedance readings. Air plethsmography, a new method for measuring body composition that assesses body volume using a devise that requires the subject to sit within a small chamber, does hold potential for use with older adults.[98] However, this device has not been used in studies of older adults at this time.

Registered dieticians also obtain and analyze dietary histories. There are several intake tools for this purpose: food frequency questionnaires; 24-hour (and greater) dietary recalls and diaries; and dietary history interviews. Computer software is used to analyze dietary intake data and to compare these values to a norm.

Laboratory tests measure levels of various nutrients; its precursors; or reduction byproducts within blood, urine, or hair. The most common lab tests used to assess nutritional status in older adults are serum protein levels, especially albumin. Lab tests for serum levels of various minerals and vitamins can also be helpful; however, results from some tests are not always precise, and also norms for some nutrients have not been fully established for aging populations.

The medical history and physical examination are considered clinical methods of nutritional assessment. The purpose of this systematic evaluation is to detect signs and symptoms associated with specific nutrition disorders. These types of evaluations are best performed by medical personnel.

Assessments Completed by Other Health Personnel and Older Adults Themselves

Most of the above methods of nutritional assessment are used on a limited basis, and, while helpful, are time consuming and costly. In order to more efficiently identify older individuals at individual risk, the US Nutrition Screening Initiative (NSI) was established and published 2 screening tools.[99] The first was the "DETERMINE Your Nutritional Health" checklist that can be self-administered by older individuals or by any layperson (including physical therapists). The mnemonic DETERMINE was used to convey the major risk factors and indicators for poor nutritional status in older individuals. These include: Disease; Eating poorly, Tooth loss/mouth pain; Economic hardship; Reduced social contact; Multiple medicines; Involuntary weight loss/gain; Needs assistance in self care;

and Elder years above 80.[99] This document can be downloaded from the following website: www.aafp.org/PreBuilt/NSI_DETERMINE.pdf. Research has demonstrated that the DETERMINE check list is best used as an 'awareness raising' and educational tool; its validity and sensitivity when used as a screening tool to identify elders at risk for malnutrition is poor.[99,100]

The NSI created an additional nutritional assessment tool, called a Level I Screen, which was meant to be used by health professionals or social services personnel. The Level I screen is also a tool that could be readily used by physical therapists. This screen addresses 4 nutrition-related issues: body mass index (BMI), eating habits, living environment, and functional status. Research has demonstrated it is a more reliable and sensitive instrument than the DETERMINE checklist.[101] Although the Level I screen does not have a scoring system, the information it garners provides the health care provider a view of the constellation of signs, symptoms, and habits that indicate an older adult's state of nutritional wellness or risk factors for malnutrition. The Level I screen can be accessed at: http://www.eatright.org/ada/files/Level_I.pdf.

Another nutritional assessment tool worth noting is the Mini Nutritional Assessment (MNA), which was originally designed to assess the nutritional status of frail elderly.[102] This instrument was created as a single efficient instrument that could identify older adults at risk for malnutrition without the need for a specialized assessment team.[103] The MNA takes approximately 15 minutes to complete, results can be scored, and it can be administrated by most health care personnel, including physical therapists. The MNA has been used in a variety of settings, including a large regional university hospital, where the MNA successfully identified malnourished patients and also a large cohort at risk of developing malnutrition.[104] A more recent study used the MNA to evaluate nutritional status and clinical outcomes in older adults in a rehabilitation setting. Results demonstrated that more than 50% of the sample was malnourished or at risk of malnutrition, and that this risk was associated with poor clinical outcomes.[105] An additional study used the MNA with a home-bound population of elders, finding that approximately 40% of subjects were malnourished or at risk for malnutrition.[106] The MNA can be downloaded or scored on-line at http://www.mna-elderly.com/index.htm.

ROLES OF PHYSICAL THERAPISTS IN THE NUTRITIONAL HEALTH OF OLDER ADULTS

Physical therapists can assume several roles regarding the nutritional health of older clients; however, therapists will need to select those roles with which they are most comfortable, and for which they have adequate knowledge. For example, physical therapists can:

- Become familiar with the new food pyramid for individuals 70 years and older (Figure 1). This model emphasizes the importance of nutrient-dense foods and also prioritizes hydration as a basic foundation of health in this population.
- Become astute observers of nutritional status in their patients, asking questions about diet and noting aberrations in weight, energy levels, healing, and rehabilitation progress.
- Prioritize nutritional health of undernourished patients in hospitals and other institutional settings by: allowing individuals ample time to finish their meals before being transported to therapy, offering water or food supplements to patients in the therapy setting when appropriate and approved by their physician, and encouraging patients' family members to bring in the favorite foods of patients.
- Query home care clients about their access to necessary foods. Observe each patient's ability to prepare and consume meals or snacks, noting physical, emotional, or environmental limitations.
- Become skilled in the use of nutrition screening tools. These screens are easy to use, and they can signal client symptoms and behaviors associated with nutritional disorders. The results of these screens can serve as a basis for referral to other health care practitioners such as registered dieticians.
- Become cognizant of the energy and micronutrient needs of older individuals recovering from illness, injury, or surgery, and provide basic education about meeting these nutritional requirements.
- Become familiar with some of the signs and symptoms of common nutrition disorders, so that you can recognize these problems and make the proper referrals.
- Learn more about nutrient needs of older individuals engaged in health promotion activities such as anaerobic and aerobic exercise, and sport activities.
- Make significant contributions to the professional body of knowledge by collaborating with other researchers and nutrition professionals to examine the interplay between nutrition and exercise in rehabilitation outcomes.
- Publish case studies of clients who received dietary interventions, examining the apparent effects on wound healing, muscle strength, and/or functional mobility.
- Learn about nutrition by networking with nutrition professionals, attending continuing education events provided by registered dieticians, and reading nutrition-related publications.
- Collaborate with nutrition professionals to provide education programs for groups of community-dwelling older adults.
- Refer older adults to appropriate web sites or publications that address nutrition and health.
- Educate peers regarding the importance of good nutrition in the health of older adults.
- Enhance your awareness about your own nutritional health, making it a priority to address those areas that need improvement.

The above list of possible roles provides many options for physical therapists to participate in the nutritional care of their older clients. With a little more education and a small amount of courage, physical therapists can more comfortably address the nutritional issues of older adults. The payoff in patient outcomes, including quality of life, could be significant.

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Dr. Andrew Weil's web site
http://www.drweil.com/drw/ecs/index.html

National Institute on Aging Age Page: Nutrition
www.niapublications.org/engagepages/nutrition.asp

Nutrition and Aging (Colorado State University)
http://www.ext.colostate.edu/pubs/foodnut/09322.html

Tufts University Food Guide Pyramid for Older Adults
http://nutrition.tufts.edu/pdf/pyramid.pdf

Tufts University Guidelines to the Food Pyramid for Older Adults
http://nutrition.tufts.edu/pdf/guidelines.pdf

A Senior's Guide to Good Nutrition- The Vegetarian Resource Group
http://www.vrg.org/nutrition/seniors.htm

For Professionals
www.mypyramid.gov

Total diet approach to communicating food and nutrition Information
www.eatright.org

Mayo Clinic: Type in Nutrition Topic
www.mayoclinic.com

Cross agency portals local government: search by topic
www.seniors.gov

www.eatright.org/cps/rde/xchg/ada/hs.xsl/advocacy_adar0902_ENU_HTML.htm
Liberalized diets for older adults in long-term care

www.eatright.org/cps/rde/xchg/ada/hs.xsl/advocacy_3787_ENU_HTML.htm
Ethical and legal issues in nutrition, hydration, and feeding

American Dietetics Association
http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/index.html

Fruits and Veggies Matter: Calculate your fruits and veggie needs
http://www.fruitsandveggiesmatter.gov/

Healthy Aging at CDC
http://www.cdc.gov/aging/info.htm

Home page, Healthy People 2010
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WATER WISDOM: THE IMPORTANCE OF HYDRATION & HEALTH

Jennifer M. Bottomley, PT, MS, PhD

Grandma used to say, "Sit up straight, get plenty of sleep, and drink eight glasses of water a day." On all three counts, looks like my Grandmother, who lived a relatively active life right up until her death at the beginning of her 98th year, was right.

Water has been called the elixir of life. When we think about the benefits of water—words like lubrication, flexibility, and elasticity come readily to mind. In an ancient Japanese legend, the hero Takenouchi no Sukune drank daily from the waters of a sacred well, and lived to be more than 300 years old. Though we may not expect to live nearly 4 centuries, many health care professionals believe that regularly consuming good quality water will have a significant impact on health.

Having evolved from the sea and developed from an embryo, the species and the individual lose water--the medium and solvent where these developmental processes occur--continually as they age. From an embryo, which is about 90% water, to a senescent individual in the tenth decade, there is a decline in body water to 60% or below. This loss in body water has profound effects on pathophysiology, making older persons susceptible to both under- and over-hydration because they have a smaller external volume of distribution of water.[1] Physiologically, we are kept alive by the balance of water and other elements in our bodies.

About 60% to 70% of an adult human body is made up of water. Water is distributed in the blood, spaces in between cells, and in the cells themselves. It makes up some 83% of blood, 75% of muscle, 22% of bone, and 10% of fat cells.

Brown[2] describes water as 'an essential nutrient' and writes: "Water is a required part of our diet; it performs specific functions in the body, and deficiency and toxicity signs develop when too little or too much is consumed."

According to Mentes[3] older adults are extremely susceptible to complications arising from dehydration. Age-related changes make older people more vulnerable to shifts in water balance that can result in over-hydration, but more frequently, dehydration. With sufficient fluid consumptions this study demonstrated that seniors tend to have fewer falls, less constipation and laxative use, improved rehabilitation outcomes, and a reduction in bladder cancer. Drinking 5 or more 8-oz glasses of water a day is also associated with lower rates of fatal coronary heart disease in middle-age and older adults, the study states.

How is water important? Water is made up of 2 hydrogen atoms and an oxygen atom, giving it the chemical formula H_2O. It is a polar molecule, with its negative charge distributed more towards the oxygen side and the positive charge to the hydrogen side. This means it will form solutions with other polar molecules, like alcohol, but not with nonpolar molecules, like oil. The polarity of water enables it to dissolve most nutrients and minerals in our body, providing a medium for chemical reactions to occur. Looking at the Kreb Cycle, from whence we get our energy, water is produced as an end product in the metabolism of carbohydrates, proteins, and fats for energy. As metabolism occurs continuously, we keep on producing water even if we stop drinking it for a while.

Moreover, water, which has a great capacity to absorb heat, helps to keep our body cool. Perspiration prevents the body from overheating by transferring heat to the atmosphere through evaporation. Although water is needed in the regulation of the normal functions of our body, not all of it is retained. It is also used to transport waste products, like urea, and excess sodium out of the body in the form of urine and sweat. Wardlaw's[4] text suggests that about one liter of water is lost through the lungs (400ml), feces (150ml), and skin (500ml) each day. About 1.4 liters is lost as urine daily. Each day, adults need roughly 1ml of water per kilocalorie expended. Which means a person needing 2,000 kilocalories a day would need about 2 liters of water daily.

WATER WISDOM:
DID YOU KNOW?

- Our body regulates the amount of water in the body through hormonal control
  - Antidiuretic hormone is released to force kidneys to conserve water
- On long flights, take more fluids, as you can lose about six cups of water (1.5 liters) during a three hour flight
  - Air in aircraft induces excessive water loss through breath and skin due to pressure
- High fiber diets increase the need for water
  - Fiber absorbs water and may lead to constipation
- The elderly and children with fever, vomiting, diarrhea, and increased sweating need more fluids
- Adequate intake of water from fluids and food reduces risk of breast, colon, and bladder cancer and kidney stone formation
- Excess water ingested is normally excreted
- The debate continues as to whether bottled water versus tap water is better for health

To reap the benefits of water, how much water does one need? A standard answer seems to be 8 full glasses of water a day - that's 64 ounces or 2 liters of water every day. Of course, this number is a generalization and will vary according to

a person's size and environmental conditions. For example, a large man will need more water than a petite woman. Athletes and manual laborers will need more water than someone who sits all day in an air-conditioned office. The key to appropriate water intake, however, lies in common sense and moderation. If the weather's hot and dry, if you are very active and sweating a lot, or if you are continually thirsty for some other reason, you will probably need more water than the average person. On the other hand, if you are well hydrated, and the weather is cool and wet, you will probably need less. Too little water leads to dehydration; too much can be life threatening as well.

The key is not to overdo it. It's not hard to keep properly hydrated and add the benefits of hydration to your daily routines. What happens if we don't have enough water? It is important to learn to interpret the subtle messages your body is giving you in order to learn to manage appropriate water consumption in your older patients. For example: a slight headache is often the first sign of dehydration; urine is often concentrated and dark in color (some drugs and vitamin supplements can also give the urine a dark color), and urination less frequently. Dehydration leads to lower energy levels, dizziness, and drowsiness. These are signs that you need to drink more water.

Brown's studies[2] indicate that if we lose up to 2% of our body weight in fluids, we feel thirsty and tired. If we lose up to 4% of our body weight in fluids, we feel sluggish, flushed, nauseous, and emotionally unstable. Lose up to 10% to 12% of our body weight in fluids and weakness results. When water loss reaches 20% of body weight, coma and death will follow. Dehydrated people feel sick and dizzy, with a raised pulse rate and body temperature, and may find it hard to move as their muscles cramp and become less elastic. Usually, drinking fluids to re-hydrate the body will produce quick recovery, except in severe cases. We can go for weeks without food, but will survive less than a week without water.

While it is essential to hydrate, there is always the chance of over doing it. High intake of water can lead to a condition known as hyponatremia – low blood sodium level – and excessive water accumulation in the brain and lungs. The consequences can be devastating. Symptoms of over-hydration include behavioral changes. Confusion and drowsiness is one of the first signs. Over-hydration may lead to blurred vision and muscle cramps, in addition to headache, nausea, and vomiting. In the extreme, coma and death may ensue as a result of severe electrolyte imbalances. Over-hydration is quite unusual in healthy people, but it can occur if more water than the body is able to excrete is consumed.

Will any water source confer long life and good health? It's no secret that much of the fresh water on earth is contaminated with chemicals, disease causing organisms, and other pollutants. Tap water is usually treated with chemicals to remove many of the impurities, and results in more chemicals being added to the fresh water that comes out of our taps. None of these things contribute in a positive way to the benefits of water or health improvement. Again, common sense tells us that the water we drink should be as pure and clean as possible —a belief that has spawned a proliferation of bottled waters in the beverage market.

Bottled water, however, is not necessarily any better than tap water. It still contains chemicals and it is not necessarily sterile. It is simply water in a bottle. It has been suggested that more chemicals gradually leach out of the plastic the bottle is made from, adding more impurities to the brew. People who believe bottled water is cleaner and purer than tap water are not getting what they think they are, and they are not getting any special benefits of water. Similarly, drinking distilled water is likely to do more harm than good because this water is de-mineralized and will deplete the body of minerals that are needed for proper functioning. Conversely, some mineral water can be quite high in sodium which is associated with an increased likelihood of high blood pressure and dehydration. Consuming too many minerals may also add unnecessary stress to the kidneys.

There are many sources for water. Most beverages consist of more than 85% of water, while foods that we eat, such as fruits and vegetables, contain as much as 75% to 90% water. Meat usually contains between 50% and 70% of water, as long as it is not over-cooked. Though beverages are often high in water, choosing healthier fluids is always advisable. I've compiled a list of nutritional value for various beverages in the Table on page 32.

Between all that we eat and drink, how much more water should we drink? How much more water we need is dictated by thirst. Thirst, which all of us will experience at least once a day, is the first sign of dehydration, a signal that we are not drinking enough to replenish what is lost. If we ignore our thirst, the body will secrete antidiuretic hormone (ADH) to reduce urine output and thus conserve water. The hormone aldosterone will also be released to signal to the kidneys to retain sodium and therefore retain more water. But, there is a limit to how much water our body can conserve. If water is not replenished, the effects of dehydration set in.

The best source of clean water is a water filtration system from the tap—one that will remove impurities, chemicals, and microbial contaminants but not affect the normal mineral content and pH levels of the water. This is the closest practical equivalent of the legendary pure mountain spring, rising from an underground source that has never seen chemicals or pathogens. This is the water that will provide the maximum benefits of water and good health - the longevity elixir of Takenouchi no Sukune.

Medicine has become very complex and costly. Today the approach of providing care often involves expensive technology and the research and production of more and more pharmaceutical products to *cure what ails us,* though most drugs only mask symptoms without eliminating the problem. It would appear that Grandma might have been giving the best and least expensive medical advise (and she never billed for it!). Perhaps if we went back to the basics: good nutrition, moderate exercise and activity, striving for emotional balance, reducing stress, getting enough rest, and making sure that we don't become dehydrated, we'd actually find the 'fountain' of life.

The Power of Positive Drinking: Healthy Beverage Guidelines

Beverage	Daily Amount	Reason
Water *0 calories*	At least 32 ounces for women At least 48 ounces for men	Helps prevent everything from moodiness to memory and attention problems. Lowers risk of bladder, colon, and breast cancers.
Coffee and Tea *0 calories* (without cream or sugar)	Up to 30 ounces of coffee Up to 64 ounces of tea	Coffee is a mild antidepressant. Found to have an affect on cognition in Alzheimer's, may lower risk of type 2 diabetes, colon cancer, and cavities. Tea may protect against heart disease and some cancers.
Low-fat or non-fat Milk, soy beverages *100 calories/8 ounces*	Up to 16 ounces	Milk may lower diabetes and heart disease risk, improves bone health. Soy may lower some cancer risks.
Diet soft drinks *0 calories*	Up to 32 ounces (~ 3 cans)	Can satisfy a sweet tooth. Absolutely no nutritional value and zero health benefits.
Regular sodas *100 calories per 8 ounces*	Up to 8 ounces	No nutritional benefits, excessive calories, linked to obesity and diabetes.
Fruit and Veggie drinks *50-150 calories per 8 ounces*	Up to 8 ounces	Juices tend to be high in calories and more nutrition derived from eating whole fruits & veggies.
Sports drinks *90-180 calories*	Up to 8 ounces	High in water and electrolytes.
Alcoholic drinks *150 calories per beer* *100 calories per wine* *180-300 calories mixed*	Up to 1 alcoholic drink for women Up to 2 alcoholic drinks for men	Darker, richer beers very nutrient rich; wine rich in flavinoids and other antioxidants; mixed drinks very high sugar & many nutrition-less, empty calories.

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LEGISLATIVE & REIMBURSEMENT UPDATE IN HEALTH PROMOTION & WELLNESS

Ellen R. Strunk, PT, GCS

Physical therapists & physical therapist assistants working with older adults don't have to be told that the demographics of the United States are changing dramatically. Advances in health care and the availability of health care information is affecting all age groups. These factors will bring additional changes for the nation and its health care providers.

In 2003, the Health Resource and Services Administration (HRSA) of the US Department of Health & Human Services (HHS) commissioned a report to determine what role the nation's changing demographics might have on the future health workforce.[1] They summarized their findings into 3 trends:

1. ***The size of the elderly population will continue to grow as a percentage of total population. The need for health care workers will increase considerably.*** However, the aging of the health care workforce and the fact that the number of younger people attracted to the health care professions is declining raises concerns. The burden on federal and private health care programs will be immense.
2. ***The nation's population is becoming more racially and ethnically diverse.*** As minorities grow to be a larger percentage of the population and a larger percentage of the workforce, demand for health care services by minorities will also increase.
3. ***There will continue to be geographic variation in population growth rates.*** Although an increasing proportion of the population resides in urban areas, a large proportion will continue to reside in rural areas —areas that are currently designated as physician shortage areas.

These trends are certain to affect the current and future state of physical therapy. This issue of *GeriNotes* is focusing on Health Promotion & Wellness and the role that physical therapists and physical therapist assistants can have in promoting these concepts to older adults of all ages. The *Guide to Physical Therapist Practice*[2] defines wellness as "concepts that embrace positive health behaviors that promote a state of physical and mental balance and fitness."

What legislation is pending that might promote physical therapy in the area of Health Promotion & Wellness?

Unfortunately there is no currently crafted federal legislation which would name physical therapists as providers of choice or set up payment structures for preventive services. The Medicare Modernization Act (MMA) of 2003 did open the door to some preventive services and in the eyes of many people signaled a 'change' for Medicare. For the first time, Medicare was acknowledging the ***value*** in paying for some services in order to detect problems and potentially manage them in a more cost effective way, ie, in order to prevent the need for more costly care down the road. The MMA specifically allowed for coverage of:

- An ***initial physical examination*** for all new enrollees (after 1/1/05) in the Part B Medicare program as long as the beneficiary receives it within 6 months of enrollment.
- Early detection of ***cardiovascular disease*** through blood tests as long as the frequency of tests is not more often than every 2 years.
- ***Diabetes screening*** tests for beneficiaries deemed to be at risk; specifically those with hypertension, dyslipidemia, obesity, or previous risk identification or at least 2 of the following: overweight, family history, history of gestational diabetes, age 65 or older.
- Screening ***mammography*** and diagnostic mammography.

It is the new initial physical examination or the "Welcome to Medicare" physical exam (as it is commonly called) that has caught the attention of many APTA members and specifically the Section on Geriatrics. In the most recent House of Delegates, RC 30-07[3] was proposed which called for: "APTA to pursue the inclusion of a screening conducted by a physical therapist as a component of the "Welcome to Medicare" physical exam covered by Medicare for all newly enrolled beneficiaries."

Congress authorized this initial examination for a several reasons: to provide a baseline health assessment, to establish the patient's medical history, to reinforce the importance of routine screening examinations, and to improve health promotion and disease detection. One of the services the Centers for Medicare & Medicaid Services (CMS) identified to be a part of this initial examination is a review of the beneficiary's functional ability and level of safety. They specifically recommended using an appropriate screening instrument to identify hearing impairments, status of activities of daily living, functional ability, fall risk assessment, and home safety. CMS stated that the initial exam should include education, counseling and referral based on the evaluation and screening results.

The APTA responded to CMS's regulations in its comments on the 2005 proposed Medicare Physician Fee Schedule asking them to consider specifying practitioners to do specific screenings and pointing out that beneficiaries who are found to be at increased risk for falls would benefit from an early course of physical therapy.[4] Unfortunately CMS did not agree and responded by saying that "appropriate referral of a patient….is left to the discretion of the physician or other quali-

fied NPP who is treating the patient for the medical problem that is identified."

On the state level, there are several state chapters working to make changes to their practice acts that would provide for direct access for health promotion and wellness services. Most recently Kansas was successful in getting new legislation that updates the definition of physical therapy to include "health, wellness, and prevention." The new law specifically removes referral requirements for PTs that "provide instruction on workplace injury prevention to employees, information on health and wellness to the public, and PT services to special education students who need those services to fulfill their individualized education plan."[5]

What does the future look like for Medicare and other private insurers to pay physical therapists that provide Health Promotion & Wellness services?

The future is full of opportunity! According to APTA's Reimbursement Department, there are currently no private payers who are paying for physical therapists to provide services related to health promotion and wellness. Although some employee-sponsored health plans may try to promote wellness to their employees by offering stipends for gym memberships, smoking cessation, and/or weight loss programs, there is no direct tie to physical therapists being the 'provider of choice' for these programs.

"We can be increasingly optimistic, but realistically optimistic," says Rhea Cohn, Associate Director of Reimbursement for APTA. She reports there are certain payers who are realizing that it might make sense to offer more preventive services and that physical therapists would be ideal providers for these services, but currently there are no good models for this of program. One reason there are very few models may be that private insurance companies have resisted offering additional services over and above what they have traditionally offered. Since insurance companies have a fiduciary responsibility to their shareholders, they look for incentives to offer additional services. With most private payers insuring young to middle-aged adults, there is a significant likelihood that the beneficiary will switch health insurance plans several times in the short term, and ultimately they will end up on Medicare. "From a business point of view, if we just look at from the business model, their only responsibility is to manage current dollars. They don't make decisions based on the fact they will have these people in 20 years," says Rhea Cohn. In other words, private insurance companies will not see any cost-savings in the long run for additional dollars of service they provide to their beneficiaries in the short run. Even when they do offer additional services, employers may not want to absorb the extra cost either.

Medicare on the other hand does appear to be changing. The Medicare program has a greater chance of seeing cost savings by offering preventive services because the beneficiaries have a greater likelihood of staying with the program for many years. Even though Medicare does not pay for an annual visit to PT in order to identify potential problems, the new Physician Quality Reporting Initiative (PQRI) may be a step in the right direction. Most of the 74 measures[6] are related to screening, education, and/or annual tests for those with chronic diseases. It signals recognition by Medicare that they need to start finding ways to identifying problems before they cause major health issues.

Physical therapists may want to take the time to visit the "Welcome to Medicare" webpage at http://www.cms.hhs.gov/MyHealthMyMedicare/02_HealthierUS.asp. Here you can learn more about CMS' campaign to "inform the 43 million people with Medicare about the preventive benefits available to them." The campaign is called: "A Healthier US Starts Here." They encourage all health care providers to be a part of the "effort to improve the quality of life for America's seniors and people with disabilities."

During the spring and summer of 2007, the US Department of Health & Human Services and CMS will work with local officials to raise awareness of the importance of preventing chronic disease and provide information on how beneficiaries can take action towards improving their health. There are publications, training materials, and other toolkit items located at the website.

As the population continues to age and society looks for ways to improve quality of life and decrease economic burdens, there will be opportunities for physical therapists to develop practices to address health promotion and wellness. There are several successful niche practices across the country that address things like women's health, osteoporosis, exercise, obesity, and fitness coaches. The following suggestions come from physical therapists that have already been successful in setting up health & wellness practices.[7]

Survey the landscape. What is going on in your community? What services are needed?

Assess your interests, expertise, and comfort level. Are there other PTs in your community you could partner with? Do you like to teach? Do you like to consult? Find organizations that are looking for your expertise.

Conduct a reality check. Are there barriers to providing these services? Can you afford the expense? Do you have the space?

Start slow. Sometimes getting people in the door or getting your name out in the community is another way to boost your primary practice of physical therapy.

Market, market, market. Education is the key. Don't be shy about telling others what you can do. Participate in community health fairs and workshops. Be visible.

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APTA 2007 HOUSE OF DELEGATES REPORT

Kathy Brewer, PT, GCS, MEd
Section on Geriatrics Delegate

The Section on Geriatrics took significant steps in moving our profession toward Vision 2020 by the RC's proposed and passed in the 2007 House of Delegates, May 21-23 in Washington, DC. This work was proposed by the "Task Force on Promoting Physical Therapists as Exercise Experts for the Aging Population," presented by the Section Delegate, Kathy Brewer, and carried forth by Section members to their component delegations. Over the last 3 months, there has been considerable dialogue and debate, negotiation, and collaboration of ideas and language to best accomplish the intent of the motion while reflecting the needs of practice at large. It is a privilege to participate and shape the direction of our profession through the governance process of APTA.

RC28-07 "Annual Visit with a Physical Therapist" directs the APTA to recommend that all individuals visit a physical therapist at least annually to promote optimal health, wellness, and fitness as well as to slow the progression of impairments, functional limitations, and disabilities. **PASSED**

RC30-07 "Welcome to Medicare Physical Exam: Consultation with Physical Therapists" directs the APTA to pursue initiatives with CMS that stress the importance of consulting with physical therapists when conducting screening related to the beneficiary's functional abilities (eg, fall risk, ability to perform activities of daily living, home safety) as part of the "Welcome to Medicare" physical exam. All beneficiaries enrolled in Medicare Part B since 1/1/05 are eligible for a one time comprehensive visit to their primary care physician within the first 6 months of coverage. The visit is intended to review health status, identify risk factors associated with disease, provide education regarding Medicare services needed in order to prevent, detect, and manage disease, provide counsel on risk factors and possible lifestyle changes impacting health and make referral for necessary care such as a physical therapy consultation. The intent of this motion is to address a valuable opportunity for PT to be involved in identification of risks and early intervention which can help save Medicare dollars by potential prevention of disabling conditions or events and serving Medicare beneficiaries in safety, prevention, chronic disease management, and health promotions. **PASSED**

RC31-07 "Marketing Campaign to Promote Physical Therapists as Exercise Experts" was not passed by the House but was instead, referred to the board to include in the public relations strategic planning process. This campaign is intended to pursue the education of nurse practitioners and physician's assistants to promote physical therapists as experts in movement impairments and exercise prescription. These and other appropriate providers are often in a position to screen and identify clients who could benefit from physical therapy consultation and services. Building relationships with non-physician providers has tremendous potential in a collegial and reciprocal manner, to again provide identification of risks and early intervention for patient with potentially disabling conditions. **REFERRED TO BOARD**

RC32-07 "Physical Therapists and Physical Therapist Assistants as Physical Activity/Exercise and Healthy Lifestyle Role Models" had little debate in pre-house discussion groups or on the floor of the House, however, was defeated. The intent of the motion was to have our profession step forward to promote exercise and healthy lifestyles by making ourselves accountable for the same message we give our patients and clients. The Exercise Task Force and the Section Board will be discussing where and how to share this message again in the future. **DEFEATED**

Anne Coffman, Section Vice President, summarized our accomplishments in this way: "I do think that our other motions were quite visionary and could have a huge impact as the Association and profession embrace the idea of an annual visit, interaction with Medicare beneficiaries upon entrance to the Medicare system, and networking with health care providers outside of MDs for referrals and consultations. Hopefully many, many years from now, these ideas will be so embedded into our culture that the next generation will almost take them for granted."

FUTURE DIRECTIONS & COLLABORATIVE OPPORTUNITIES TO IMPROVE OLDER AMERICANS' HEALTH AND QUALITY OF LIFE

Jennifer M. Bottomley, PT, MS, PhD

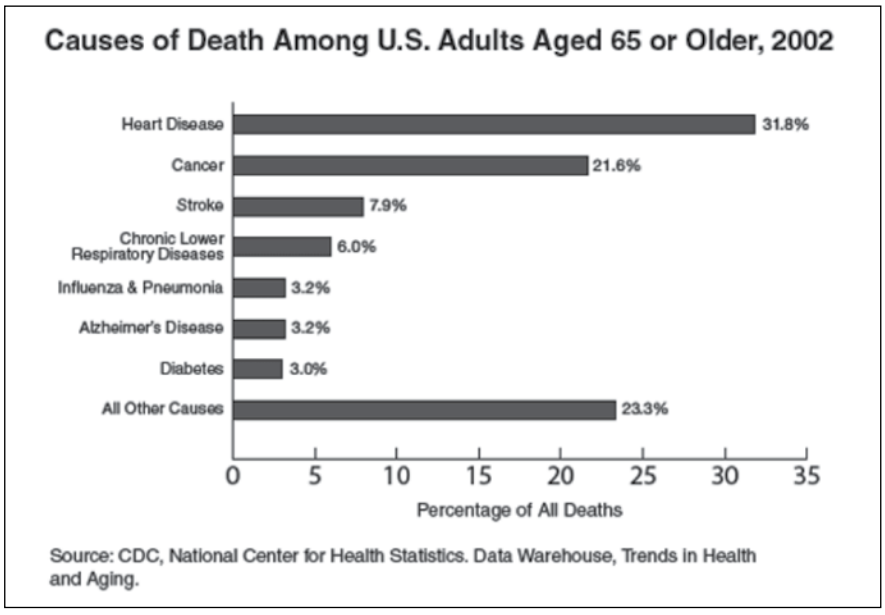
The aging of America is triggering a higher demand for health care and social services. Currently, about 80% of older adults have at least one chronic condition, and 50% have at least two. These conditions can cause years of disability, pain, and loss of function. Three million older adults indicate that they cannot perform basic activities of daily living such as bathing, shopping, dressing, and eating. Their quality of life suffers as a result, and demands on family and caregivers can be challenging.

Because the population will be older and greater in number in the coming years, overall US health care costs are projected to increase 25% by 2030. Preventing health problems is one of the few known ways to stem rising health care costs. By preserving function and preventing injury, we also can help older adults remain independent for as long as possible, which can improve their quality of life and delay the need for costly long-term care.

OPPORTUNITIES TO IMPROVE OLDER AMERICANS' HEALTH AND QUALITY OF LIFE

Poor health and loss of independence are not inevitable consequences of aging. The following strategies have proven effective in improving the health of older adults:

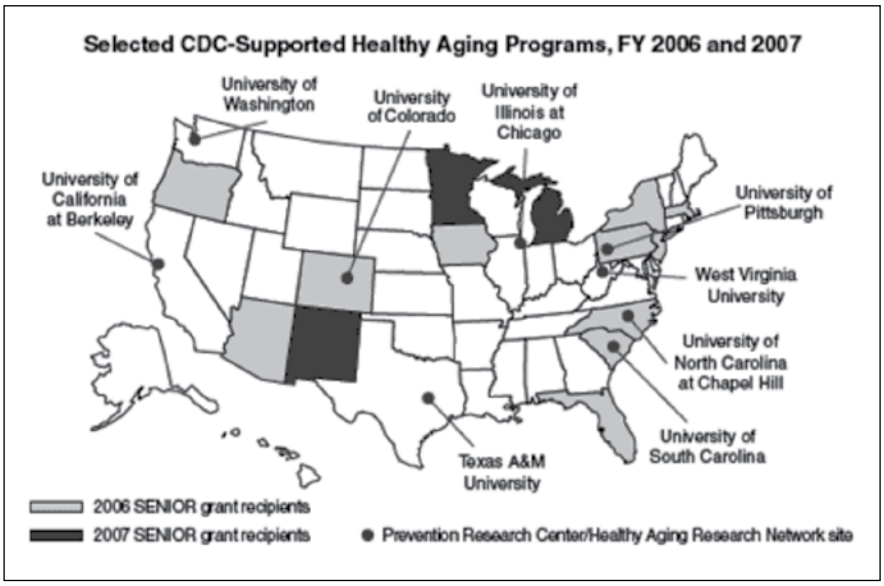
- **Healthy lifestyles**. Research has shown that healthy lifestyle behaviors, such as being physically active, eating a healthy diet, and not smoking, are more influential than genetic factors in helping older people avoid the deterioration traditionally associated with aging.
- **Early detection of diseases**. Screening to detect chronic diseases early in their course, when they are most treatable, can save lives; however, many older adults have not had all of the recommended screenings covered by Medicare immunizations. About 36,000 people aged 65 or older die each year of influenza and invasive pnemoccocal disease. Immunizations can reduce a person's risk for hospitalization and death from these diseases.
- **Injury prevention**. Falls are the most common cause of injuries to older adults. More than one-third of adults aged 65 or older fall each year, and of those who fall, 20% to 30% suffer moderate to severe injuries that decrease mobility and independence.
- **Self-management techniques**. Programs to teach older adults self-management techniques can reduce both the pain and costs of chronic disease. For example, people with arthritis can learn practical skills such as how to manage their pain, how to deal with fatigue and stress, and how to develop a personal exercise program.



CDC'S ROLES IN PROMOTING HEALTHY AGING

CDC is committed to ensuring that all people, especially those at greater risk for health disparities, will achieve their optimal lifespan with the best possible quality of health in every stage of life. With new health protection goals that support healthy people in healthy places across all life stages, CDC is setting the agenda to enable people to enjoy a healthy life by delaying death and the onset of illness and disability by accelerating improvements in public health.

Within CDC's National Center for Chronic Disease Prevention and Health Promotion, the Healthy Aging Program serves as the focal point for older adult health. The Healthy Aging Program is engaged in many activities designed to provide a comprehensive approach to health promotion and disease prevention for older adults. It also has developed



5 ways to implement this approach, often in collaboration with other CDC programs, such as injury prevention and adult immunization.

- *Providing high-quality health information*. CDC provides reliable, science-based, high-quality information on the health of seniors for policy makers, public health and aging professionals, the media, and consumers through publications, conferences, training sessions, and Web sites/listservs.
- The Healthy Aging Web site (http://www.cdc.gov/aging) also provides valuable information and is regularly updated. Working with the American Society on Aging, the Healthy Aging Program engages journalists across the country on issues such as arthritis, immunizations, and fall prevention. Immunizations can reduce a person's risk for hospitalization and death from these diseases.
- *Facilitating the prevention efforts of health care providers and others who serve older adults*. Medicare pays for many critical preventive services, yet fewer than 1 in 10 adults aged 65 years or older receive all recommended screenings and immunizations. CDC's Healthy Aging Program supports a model program called SPARC (Sickness Prevention Achieved through Regional Collaboration), which has shown significant success in broadening the use of preventive services. SPARC works to promote public access to services, help medical practices provide preventive services, and strengthen local accountability for service delivery. SPARC currently operates in counties in Connecticut, Massachusetts, and New York, where it serves as a local bridge between public health, aging services, and the health care system. It also is working with the Atlanta Regional Commission to pilot test new programs in 3 metro Atlanta counties.
- *Integrating public health prevention expertise with the reach of the aging services network*. As described in the Older Americans Act, CDC has an advisory role to the aging services network, which reaches older adults in nearly every US community. To take full advantage of opportunities to improve the health of older adults, the Healthy Aging Program strives to integrate public health's expertise in research, health tracking, and programs with the experience and reach of the aging services network. For instance, through the National Association of Chronic Disease Directors (NACDD), CDC funds State-based Examples of Network Innovation, Opportunity, and Replication (SENIOR) grants that promote collaborations between state health departments and state units on aging.
- *Identifying and putting into practice what works in prevention*. Research shows that if seniors maintain just 3 healthy habits—moderate physical activity, good nutrition, and no smoking—they can delay disability by as much as 10 years. The benefits of such research, however, will never be realized unless this knowledge is applied to programs in communities. The Healthy Aging Program supports the Healthy Aging Research Network, a subset of CDC's Prevention Research Centers, to implement a prevention research agenda for older adult health. Current work includes reviewing evidence-based interventions for depression; developing a tool that communities can use to assess environmental barriers, resources, and opportunities for physical activity; and sponsoring a conference on effective community-based physical activity programs for older adults.
- *Monitoring changes in the health of older Americans*. CDC is the lead national agency responsible for collecting data and monitoring changes over time in the health of older Americans. This information helps strengthen efforts to prevent disease, disability, and injury, and it identifies health-related disparities among different groups of older adults. In 2004, CDC released *The State of Aging and Health in America 2004*, which was developed with the Merck Institute of Aging & Health and The Gerontological Society of America. This report provides national and state data on 15 key indicators related to older adult health and rates the nation and the states on how well they are meeting national targets. In addition, the report includes examples of successful strategies for improving the health and quality of life of older adults. This report is being updated and developed into an interactive online edition that will be released in 2007.

FUTURE DIRECTIONS

State and local health departments, the aging services network, and groups that serve older adults look to CDC for scientific and programmatic expertise in strategies that reduce long-term care needs and preserve health and quality of life for older adults. In response, CDC and its partners will

- Provide data on the health status and health behaviors of caregivers

and develop measures to assess the care provided by caregivers.

- Identify and synthesize existing evidence-based information on interventions and policies that may help promote and protect older adult health, and create an inventory of recommendations. These efforts will identify areas where more research is needed.
- Develop the ability of health professionals to use data for action, implement evidence-based interventions, and communicate the importance of healthy lifestyles and advance care planning to older adults.

New Frontiers for Public Health in Aging

Healthy Brain Initiative

The role of public health in enhancing the physical health of older adults is well-known. Its role in helping older adults maintain cognitive health—a vital part of quality of life—is just beginning to be defined. In 2005, Congress gave CDC's Healthy Aging Program funding to address brain health, with a focus on lifestyle issues. CDC formed a new partnership with the Alzheimer's Association to collaborate on the Healthy Brain Initiative. This landmark initiative includes key partners who are working to identify, define, and assess ways to better address cognitive health as a public health issue. CDC also is funding development of the *Healthy Brain Initiative: A National Public Health Roadmap to Maintaining Cognitive Health*. In addition, CDC is funding the Alzheimer's Association's community demonstration activities and the PRC Healthy Aging Research Network to conduct formative research to assess perceptions about cognitive health and associated risk factors.

End-of-Life Issues

With recent innovations in medical technology and treatment, quality of life at the end of life has become a major societal concern and a priority issue for the public health community. End-of-life issues are important because of the substantial burden and impact on dying persons, their family members, and society, and because of the potential to prevent suffering. CDC and NACDD recently convened a diverse group of stakeholders to identify public health priorities for end-of-life issues. The next steps are to identify end-of-life surveillance measures, educate public health professionals about end-of-life issues, and educate the public about ways to improve the dying experience (e.g., advance care planning, palliative and hospice care).

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About the only thing that comes to us without effort, is old age.

- Gloria Pitzer

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