The Problem:

The aging process is an unavoidable part of life. When we are young, aging is associated with growth, maturation, and discovery. Many human abilities peak before age 30, while other abilities continue to grow throughout life. The great majority of those over age 65 today are healthy, happy and fully independent. In spite of this, some individuals begin to experience changes that are perceived as signs of deterioration or decline. We must try to forget the stereotypes and look at older individuals as unique individuals, each with a particular set of resources and challenges.

Know the Terms:

1. Alzheimer’s Disease (AD): Chronic condition resulting in diminished mental function caused by changes in nerve fibers of the brain.
3. Dementia: Loss of brain function that occurs with certain diseases affecting memory, thinking, speech, judgment, and behavior.
4. Gerontology: The study of the elderly and the process of aging.
5. Grief: The mental, physical, social, and emotional response to loss.
6. Hospice: Concept of end-of-life care designed to offer terminally ill patients and family member’s peace, comfort, and dignity.
7. Intestate: Dying without having a will.
10. Osteoporosis: A degenerative bone disorder characterized by thinning of bone tissue and loss of bone density over time.
11. Social Death: Situation in which a person is not treated like an active member of society.
12. Thanatology: The study of death and dying.

Aging: Basic Training

1. Aging Basics Defined:
   - Aging: Traditionally defined as a series of life changes that occur in all organisms as they grow older.
   - Gerontology: The field of study involving the aging processes.
   - Baby Boomers: According to the U.S. Census Bureau, a baby boomer is a person who was born during the demographic Post-World War II baby boom, between the years 1946 and 1964.
   - Seventy-six million American children were born between 1945 and 1964.
   - Telomere: A telomere is a region of repetitive DNA at the end of a chromosome (much like the plastic tips on shoelaces), which protects the end of the chromosome from deterioration.
   - Latest research suggests that telomeres are biological markers for aging.
2. Theories of Aging:
   o There are numerous theories of *why we age*, and substantial scientific disagreement regarding the basic nature of aging, as well as each theoretical explanation for why we age. Several more notable theories include:
     - **Wear-and-Tear Theory** which compares the human body to a machine that simply wears out as the result of constant use; inherent in this theory is the idea that the more you abuse the body, the faster it will wear out.
     - **Cellular Theory or Programmed Theory** is the notion that every organism is programmed to live for a certain number of years; i.e. cells are genetically programmed to only reproduce a limited number of times.
     - **Autoimmune Theory** attributes aging to the decline of the body's immune system, and the tendency for the body to reject its own tissues with increasing age.
     - **Genetic Mutation Theory** states the number of body cells exhibiting unusual or different characteristics increases with age; genetic mutations will produce functional failure eventually resulting in death.

3. When We Age:
   o Scientists theorize that aging results from a combination of many factors including genes, lifestyle, and disease.
   o Studies have indicated that people age at different rates and in different ways; normal aging brings about the following changes:
     - **Eyesight:**
       - Loss of peripheral vision and decreased ability to judge depth.
       - Decreased clarity of colors (for example, pastels and blues).
     - **Hearing:**
       - Loss of hearing acuity, especially sounds at the higher end of the spectrum.
       - Decreasing ability to distinguish sounds when there is background noise.
     - **Taste:**
       - Decreased taste buds and saliva.
     - **Touch and Smell:**
       - Decreased sensitivity to touch and ability to smell.
     - **Arteries and Heart:**
       - Become less elastic with age, as atherosclerosis develops with time.
       - Heart muscle thickens with age.
       - Stroke volume (blood pumped per heart beat) reduces.
       - Body's ability to extract oxygen from the blood diminish with age.
       - Maximum heart rate decreases.
     - **Bladder:**
       - Increased frequency in urination.
       - Urinary incontinence (loss of bladder control).
     - **Body Fat:**
       - Increases until middle age, stabilizes until later in life, then decreases.
       - Distribution of fat shifts - moving from just beneath the skin to surround deeper organs.
     - **Bones:**
       - Bones lose minerals faster than they are replaced.
       - Process begins in mid-30's.
     - **Brain:**
       - Loses some of the structures that connect nerve cells, and the function of the cells themselves is diminished.
       - *Senior moments* tend to increase.
     - **Kidneys:**
       - Shrink and become less efficient.
     - **Lungs:**
       - In early 20's lung tissue begins to lose elasticity, and rib cage muscles shrink progressively.
       - Maximum breathing (vital capacity) diminishes with each decade of life.
Metabolism:
- Medicines and alcohol are not processed as quickly.

Muscle:
- Muscle mass declines, especially with lack of exercise.
- Reflexes are slowed

Skin:
- Nails grow more slowly.
- Skin is more dry and wrinkled.
- Injuries heal more slowly.

Sexual Health:
- Women go through menopause, vaginal lubrication decreases and sexual tissues atrophy.
- Male sperm production decreases and the prostate enlarges.
- Hormone levels decrease.

4. Aging and Society:
   - Baby boomers are the generation born between World War II and the early 1960's. They form the largest American generation, in excess of 79 million people or approximately 30% of the U.S. population. In our lifetime we will be confronted with many issues related to our own aging, but also the aging of the American population as well.

   Retirement Costs:
   - The demands on our Social Security system are staggering. Do we raise retirement age? Should there be an increase in Social Security employment taxes? What options are there to prevent Social Security system bankruptcy?

   Health Care, Cost and Availability:
   - Health-related expenses are the only major cost that increases steadily and significantly with age.
   - Health costs represent about 9 percent of most people's budget between ages 50 and 64.
   - This number doubles to 18 percent after age 85.

   Baby Boomers and the Economy:
   - Adults 50 and older own 65% of the aggregate net worth of all U.S. households (U.S. Consumer Expenditure Survey).
   - Most retirees are on a fixed income reducing their ability to spend; how will this impact the national economy?
     - According to a recent Employee Benefit Research Institute (EBRI) analysis of Health and Retirement Study data, annual expenses decline steadily with age, falling by 19 percent between ages 65 and 75, and plunging 52 percent by age 95.

   Aging and Politics:
   - Senior citizens will go to the polls in much larger numbers than younger voters.
   - Issues related to the elderly are becoming major campaign ticket items.
   - Programs for the elderly will possibly make up a larger share of future federal, state and local budgets.

   Consumer Quacks Target the Elderly:
   - With an older population health-related fraud, quackery, and dangerous, unproven treatments are on the rise. Investment scams, mail-order contests, insurance fraud, Internet scams and telephone sales targeting elderly are on the rise.

   Parents Caring For Parents:
   - According to a U.S. House of Representatives study, American women will spend an average of 17 years raising children and 18 years helping aged parents.
   - Many are forced to switch from full-time to part-time jobs to accommodate aging-parent care.
   - In addition, because of postponing childbearing years, many couples are caring for children and aging-parents at the same time.
5. **Healthy Aging:**
   - Telomeres are the protective caps on the ends of the chromosomes that keep them from fraying when cells divide.
   - Scientists know that telomeres shorten as people age, and that eventually telomeres become so short that the cells cannot reproduce, causing cell death.
   - Based on numerous studies linking telomere length to psychological states and lifestyle, it is likely that the following factors may help maintain or even lengthen our telomeres:
     - Increasing vigorous exercise to 4 to 5 times a week, such as getting on a bike, going for a brisk walk or jog, joining a gym, or practicing yoga, activities that increase your heart rate or make you sweat.
     - Improving overall nutrition. Several studies published in the American Journal of Clinical Nutrition indicate the following:
       - Reduce or eliminate consumption of processed meats (hot dogs, processed sandwich meats) are associated with shorter telomere length
       - Nutrients associated with telomere increase:
         - Fish-derived Omega-3 fatty acids
         - Vitamin D
         - Vitamin B-12
         - Vitamin E
         - Fiber
   - Manage Stress:
     - Recent studies show that stress (either real or perceived) has a strong influence on telomere length and cellular aging.
     - Learning both coping and relaxation skills can impact telomere length (and cell aging) in a positive way.
   - Reduce Fat (results of several studies):
     - Obese adults have shorter telomeres than their normal-weight counterparts.
     - Obese girls and boys have significantly shorter leukocyte telomeres than their non-obese counterparts.

6. **Health Issues as We Age:**
   - There are several classes of health issues that confront today's seniors. Some of them are chronic conditions that, while at least theoretically capable of showing up at a younger age, are typically seen with the highest frequency in older patients. These diseases include:
     - **Osteoarthritis:**
       - As people grow older, cumulative wear and tear on the cartilage and supportive tissue of the joints begins to produce the inflammation, pain, and stiffness characteristic of this condition.
     - **Osteoporosis:**
       - Years of depletion of calcium from the bones gradually makes them more brittle, until some seniors are at risk of disabling bone breakage from even simple falls. Calcium depletion is especially a problem for post-menopausal women, who are no longer protected from this loss by naturally-occurring estrogen.
     - **Cardiovascular disease:**
       - Years of strain on the heart, exacerbated by gradual accumulation of cholesterol plaques in blood vessels, can set seniors up for a variety of heart and circulatory problems.
     - **Dementia:**
       - Dementia is a term representing a group of symptoms caused by disorders that affect the brain, not a specific disease; symptoms often include:
         - Inability to complete normal activities, such as getting dressed, eating, solve problems or control their emotions.
         - Memory loss is a common symptom of dementia.
         - People with dementia have serious problems with two or more brain functions, such as memory and language.
         - Many different diseases can cause dementia, including Alzheimer's disease and stroke.
- In addition, various drug interactions in elderly people are first diagnosed as dementia before the underlying cause has been found.

- **Alzheimer’s:**
  - Named for the German neurologists who first described it in a 51-year old patient in 1906, is a widespread but little-known brain disorder.
  - Alzheimer’s is a progressive (gets worse over time), degenerative disease that attacks the brain, resulting in impaired memory, thinking, personality, and behavior.
  - As nerve cells are damaged and die, communication between these cells ceases.

- **Diabetes:**
  - Years of eating patterns that have put a strain on the body's ability to regulate blood sugar with insulin can lead to adult-onset diabetes in one's later years, along with all the additional risks diabetes brings along to the heart, circulatory system, eyesight, and more.

**Talk’n Stats:**

**A Profile of Older Americans: 2011**

- The older population (65+) numbered 40.4 million in 2010, an increase of 5.4 million or 15.3% since 2000.
- The number of Americans aged 45-64 – who will reach 65 over the next two decades – increased by 31% during this decade.
- Over one in every eight, or 13.1%, of the population is an older American.
- Persons reaching age 65 have an average life expectancy of an additional 18.8 years (20.0 years for females and 17.3 years for males).
- Older women outnumber older men at 23.0 million older women to 17.5 million older men.
- In 2010, 20.0% of persons 65+ were minorities--8.4% were African-Americans.** Persons of Hispanic origin (who may be of any race) represented 6.9% of the older population. About 3.5% were Asian or Pacific Islander,** and less than 1% were American Indian or Native Alaskan.** In addition, 0.8% of persons 65+ identified themselves as being of two or more races.
- Older men were much more likely to be married than older women–72% of men vs. 42% of women (Figure 2). 40% older women in 2010 were widows.
- About 29% (11.3 million) of noninstitutionalized older persons live alone (8.1 million women, 3.2 million men).
- Almost half of older women (47%) age 75+ live alone.
- About 485,000 grandparents aged 65 or more had the primary responsibility for their grandchildren who lived with them.
- The population 65 and over has increased from 35 million in 2000 to 40 million in 2010 (a 15% increase) and is projected to increase to 55 million in 2020 (a 36% increase for that decade).
- The 85+ population is projected to increase from 5.5 million in 2010 and then to 6.6 million in 2020 (19%) for that decade.
- Minority populations have increased from 5.7 million in 2000 (16.3% of the elderly population) to 8.1 million in 2010 (20% of the elderly) and are projected to increase to 13.1 million in 2020 (24% of the elderly).
- The median income of older persons in 2010 was $25,704 for males and $15,072 for females. Median money income (after adjusting for inflation) of all households headed by older people fell 1.5% (not statistically significant) from 2009 to 2010. Households containing families headed by persons 65+ reported a median income in 2010 of $45,763.
- The major sources of income as reported by older persons in 2009 were Social Security (reported by 87% of older persons), income from assets (reported by 53%), private pensions (reported by 28%), government employee pensions (reported by 14%), and earnings (reported by 26%).
- Social Security constituted 90% or more of the income received by 35% of beneficiaries in 2009 (22% of married couples and 43% of non-married beneficiaries).
- Almost 3.5 million elderly persons (9.0%) were below the poverty level in 2010. This poverty rate is not statistically different from the poverty rate in 2009 (8.9%). During 2011, the U.S. Census Bureau also released a new Supplemental Poverty Measure (SPM) which takes into account regional variations in the livings costs, non-cash benefits received, and non-discretionary expenditures but does not replace the
official poverty measure. The SPM shows a poverty level for older persons of 15.9%, an increase of over 75% over the official rate of 9.0% mainly due to medical out-of-pocket expenses.

- About 11% (3.7 million) of older Medicare enrollees received personal care from a paid or unpaid source in 1999.

Source: Administration on Aging; U.S. Department of Health and Human Services

Know Your Numbers:

Knowing and controlling your Numbers now can have a tremendous influence on how we age. Consider the following from the National Institutes of Health:

1. Control Your Blood Pressure: Why?
   o You can have high BLOOD PRESSURE (BP), also called HYPERTENSION, and still feel fine. That's because high blood pressure does not cause symptoms that you can see or feel. But high blood pressure, sometimes called "the silent killer," is a major health problem. If not treated, it can lead to stroke, heart disease, eye problems, and kidney failure.
   o Normal BP—Your systolic (top, or first, number) pressure is less than 120 and your diastolic pressure (bottom, or second, number) is less than 80—for example, 119/79.
   o Prehypertension—Your top number is between 120 and 139 or the bottom number is between 80 and 89. You may be at risk for developing high blood pressure.
   o High BP—Your blood pressure measures 140/90 or higher at two or more checkups.

2. Control Your Cholesterol: Why?
   o Cholesterol is a waxy substance present in cell walls or membranes everywhere in the body, including the heart. Your body needs cholesterol, but excess cholesterol deposited in your blood can raise your risk of Heart Disease and Stroke.
   o Cholesterol levels should be measured at least once every five years in everyone over the age of 20. The screening test that is usually performed is a blood test called a lipid profile. Experts recommend that men aged 35 and older and women aged 45 and older be more frequently screened for lipid disorders. Screening results are in the form of two numbers, LDL levels, and HDL levels.
   o LDL Cholesterol Numbers:
      ▪ Optimal: Less than 100
      ▪ Near optimal: 100 - 129
      ▪ Borderline high: 130 - 159
      ▪ Very high: 160 - 189 High 190 and above
   o HDL Cholesterol Numbers:
      ▪ High, Optimal (associated with lower risk): 60 and above
      ▪ Low (considered a risk factor for heart disease): Less than 40 in men and less than 50 in women

3. Control Your Weight: Why?
   o Research shows that extra weight puts you at higher risk for a multitude of health risks as you age: Type 2 Diabetes (high blood sugar), high blood pressure, heart disease, stroke, some types of cancer, Sleep Apnea (when breathing stops for short periods during sleep), Osteoarthritis (wearing away of the joints), and many other problems.
      ▪ Losing as little as 5 to 15 percent of your body weight can do much to improve your health.
      ▪ A safe rate of weight loss is 1/2 to 2 pounds per week.

4. Exercise: Why?
   o As we age, most of us lose from 20 to 40 percent of muscle mass, strength decreases, as does metabolism. Strength exercises then become a very important factor in the quality of life. as we age.
   o Physical activity burns calories. When you burn more calories than you eat each day, you will take off pounds.
      ▪ Talk to your doctor about how much exercise is right for you. A good goal for many people is to work up to exercising 4 to 6 times a week for 30 to 60 minutes at a time.
5. **Stop Smoking: Why?**
   - Tobacco use remains the single most preventable cause of death in the United States. Cigarette smoking accounts for nearly one-third of all cancer deaths in this country each year. Smoking is the most common risk factor for the development of lung cancer, which is the leading cause of cancer death. It is also associated with many other types of cancer. Smoking also increases the risk of other health problems, such as chronic lung disease and heart disease. Smoking during pregnancy can have adverse effects on the unborn child, such as premature delivery and low birth weight.

6. **Don't Drink Too Much: Why?**
   - The consequences of alcohol misuse are serious, and in some cases, life threatening. Heavy drinking can increase the risk for certain cancers, especially those of the liver, esophagus, throat, and larynx (voice box). Heavy drinking can also cause liver Cirrhosis, immune system problems, brain damage, and harm to the fetus during pregnancy. In addition, drinking increases the risk of death from automobile crashes as well as recreational and on-the-job injuries.
     - Moderate alcohol use — up to two drinks per day for men and one drink per day for women and older people — is not harmful for most adults.
     - A standard drink is one 12-ounce bottle or can of either beer or wine cooler, one 5-ounce glass of wine, or 1.5 ounces of 80-proof distilled spirits.

7. **Follow Preventive Measures Proven to Help: Why?**
   - Taking responsibility for your own health as you age means being an active participant with your physician and other health care professionals.
   - 5 preventive steps to follow:
     - Find and stay with a "medical home." With the growing use of retail-based and emergency walk-in clinics, many families are in danger of seeing a succession of health care professionals who have no history of them or their family members. Find a "medical home" physician or medical practice and stay with it over time.
     - Get vaccinated. Pay attention to childhood immunization schedules, as well as established and emerging vaccines for adults. Ignoring them can be hazardous to your health as you age.
     - Save your skin. With age come sunlight-related effects, from wrinkles and dermatitis to basal cell carcinomas and melanoma cancers. Aggressively protect your skin from over-exposure. See your physician regularly for changes in your skin.
     - Take your medicine. Taking the correct amount of your prescribed medicine at the proper time is called medical compliance. Remember to take your medicine; it can only be effective when taken as prescribed.
     - Educate yourself. Being proactive about your health as you age means continually learning about how you can stay healthy. One of the best ways to do this is to regularly visit www.medlineplus.gov and www.nihseniorhealth.gov for the most trusted and latest health care information available.

**Thoughts for Living**

Looking for ways to get healthy and peel years off your body? In their book "You: Staying Young", Dr. Mehmet Oz and Dr. Michael Roizen offer the Ultimate Anti-Aging Checklist. This checklist, along with additional items, is used by many Health-Educators as a tool for Healthy Aging. In addition, recent genetic studies show that the steps below can have a positive impact on cell aging.

- **Food:**
  - **Reduce Your Calories**
    - You can reduce the amount of daily calories by 20 to 25 percent simply by consuming foods that are nutritious, low in calories and unprocessed.
  - **Antioxidants** (5 servings a day)
    - In brightly colored foods like blueberries, sweet potatoes, broccoli, tomatoes and acai.
  - **Green and White Tea** (4 cups a day)
  - **Red Wine or Concord Grape Juice** (1 glass a day)
  - **Fiber:** 25 grams a day in fruits, vegetables, beans, brown rice, whole wheat pasta, "100 percent" whole grain bread and chia.
  - **Omega 3 Fatty Acids** In roasted or ground flax seeds, walnuts, hemp, salmon and spirulina algae.
- **Olive Oil** (1 to 2 tablespoons a day) Do not heat this delicate oil to smoking point or it will be damaged and lose its health-related benefits.

- **Exercise:** Get Your Heart Rate Up (3 times a week).
  - Find your target exercising heart rate: 220 - [your age] × .75
  - Do Strength Training (30 minutes a week).

- **Meditation:**
  - Yoga, Prayer or Meditation (5 minutes a day).
  - Releases nitric oxide, which relaxes blood vessels.

- **Sleep:**
  - Sleep (7 to 8 hours a night)

- **Vitamins:**
  - Vitamin D (1,000 units a day)
  - Calcium (600 mg twice a day) with Magnesium (200 mg twice a day)
  - DHA Omega-3 (600 mg a day)
  - Baby Aspirin (2 a day, for a total of 162 milligrams)
  - Multivitamin (Take half in the morning, half in the evening)
    - Pre-menopausal women need a multivitamin with iron and 5,000 units of vitamin A.
    - Men and postmenopausal women need just 2,500 units of vitamin A.
  - Important Note: Certain nutritional supplements can interact with various medications. Make sure that you talk with your Doctor prior to starting any nutritional supplement.

- **Avoid Life's Hazards Now:**
  - Hazards such as Tobacco, Alcohol, Drugs, Stress, Obesity, etc., can develop into chronic disease later in life! Chronic disease is a miserable way to spend retirement.
  - Protect your Skin and Eyes from Sunlight. The wrinkles, age marks, and leathery skins often associated with old age tend to come prematurely with sun-lovers.

*As a reminder, always consult with your doctor for medical advice and treatment before starting any program.*