

# SOME PRACTICAL OBSERVATIONS REGARDING THE ELDERLY PRESENTED BY A BIOMECHANIST

J. M. Cooper  
Indiana University, Bloomington, IN USA

The right to grow old is a privilege. Acturally, ~~one~~ can grow old gracefully and skillfully. For example, Japanese ~~are~~ leading the world in longevity and they have a zest for living and are honored for it.

The elderly are the fastest growing segment in the United States. Now there ~~are~~ 25,000 centenarians. It is predicted there will be 2 million in 2080, and 81 million over 65 years of age sometime in the early next century; one-fourth of the population. Several medical experts say that ~~we~~ all could live to be 125 to 150 years old.

What are these older people like?

1. Not many ~~are~~ obese.
2. Drink very little alcoholic beverage, if any.
3. Have a genetic propensity toward a long life, at least ~~one~~ relative lived to be 90 or more.
4. Generally, they ~~are~~ physically active.
5. Tend not to ~~be~~ self-centered.
6. Generally ~~are~~ optomistic.
7. Have faith in something beyond themselves.
8. Want to ~~be~~ doing something. They enjoy life.
9. Have an appetite for learning.
10. Could do without television and conveniences--might be satisfied if they didn't have them.\*

Of the five senses, sight is affected first, hearing next, then smell, taste and touch, in that order. For heavy smokers, taste and smell are lost faster than by non-smokers. Hearing is the most untreated.

Caitilin Kelly, M. D., who practices internal medicine in Bloomington, IN., says, "The human body is an intricate marvel of self-maintenance." Yet, many people have a careless disregard for their wonderful body and how it functions. It has been reported that the average life of a professional football player is 52 years of age. Many factors enter into this happening including disregard for his health.

There are **certain** statements that might be made here regarding the elderly:

1. Balance is often lost during movement. Practicing balancing movements include **making** mechanical **adjustments** which help to alleviate this condition to a degree.
2. Muscular strength can **be maintained** by utilizing strength exercises including **the** use of light weights.
3. Some aerobic exercises need to be done, if not contra-indicated, if **the**, heart muscles are **to be** kept in readiness. *Thirty* minute. a day is prescribed by Dr. **Marty** of Indiana University Medical School.
4. Apparently reflexes such as **the** patellar reflex are not lost as rapidly **as** once thought.
5. Daily **elevation** of the legs helps reduce the pooling of the blood in the lower extremities.
6. **Ususally**, the young may **be** slightly over-weight, **the**, middle age hopefully **normal**, and the elderly slightly underweight. Yet, accumulation of fat per muscle unit is greater in the elderly.
7. The muscle groups most important to the **elderly are** the front thigh and back thigh, the glutei and the spine.
8. Daily flexing of the joints is necessary for normal action.
9. Physical fitness can't be banked in youth to be used later in life.
10. **The** brain, like the muscles, must be constantly exercised.

Some indications of aging are: (1) brittle fingernails. (2) comers of mouth dry and scaly, (3) wrinkles around eyes and on face. (4) dewlap, sagging skin around jaw, (5) difficulty in **looking** to rear to locate another car while driving, (6) difficulty in getting up from a seated position in a chair, (7) difficulty getting out of the rear seat of a car. (8) **difficulty** getting up from a prone **or** supine position from the floor. (9) loss of hearing, (10) arthritis in hands, back and lower limbs, (11) loss of balance and psycho-motor abilities, stumble a lot, (12) hands unsteady. (13) loss of tension of **the** skin, bruise frequently, easily and sometimes severely. (14) tendency to want to just sit. (15) unable to jump, especially backwards. (16) **slower reaction** time, (17) drool (saliva flow), slack jaw muscle, (18) have trouble adapting to change, (19) veins stand out, and (20) skin wrinkles.

Following are a few comments for the active elderly person:

**Back injuries from** lifting: Back injuries **are** often due to the **use of** improper lifting techniques. The use of a "4" and not a "7" lifting position is advocated.

**Proper lifting involves:** (a) sizing up the load, feel and move it, (b) feet spread apart with **knees** bent, (c) do not twist **the** lower back from side to side while holding weight.

(d) use the legs to lift weight from floor. It is important to keep the muscles of the back and abdomen **strong** through acceptable exercise. Sitting too long **at** a time or sitting improperly can be devastating to the lower back of a person overweight **a** out of shape.

**Preventing falls** causing injury to head, arms, face, **back**: (a) keep feet spread, (b) shift weights slowly, (c) maintain a near **balanced** position, (d) **prevent** bruises to feet and toes by avoiding objects in the way, (e) if starting to fall, don't fight it. Just sit down. (f) protect the head and face **at** all cost. (g) **keep** a balanced **position** whenever possible.

**My daily personal exercises, prescription** with demonstration:

1. Facial exercises - 40 reps
2. Lie on back - supine **knee bent**, raise hips, 20 reps, 3 bouts
3. From same supine position-knee bend, rising toward upright position - 20 reps.  
3 bouts.
4. Elevate legs - pump them - **20 reps, 3 bouts**, draws blood away from **extremities**.
5. Prone position - elevate **trunk** strengthens lower back, 20 reps, 3 bouts.
6. Same position over a chair. elevate trunk, strengthens upper back.
7. Modified pushups - 20 reps, 3 bouts.
8. Upright position, raise and lower heels. 20 reps, 1 bout
9. Do several stretching exercises, including twisting to reach down and to look to **rear**.
10. **Rapidly** walk in place or over a given area.
11. **Walk** 2 or 3 miles every day.
12. **Walk** upstairs, don't use elevators. Always walk when playing golf.
13. **Try** to strengthen leg muscles, even use light weights.
14. **Don't** jog or run but try to move rapidly when **walking** or mowing the lawn.

In summary, the great increase in numbers of the elderly is staggering, politically, **financially**, medically, mechanically, **etc.** Studies of this segment of the population must continue to be conducted to determine what is best for them. This should include all disciplines, all professions. **We know** a little but not very much about these older people. We need many centers for the aging for advisement to this group recommending how they can still be productive.

## **REFERENCES**

- Flatten, K., Wilhite, B., & Keyes-Watson, E., (1988). *Exercise Activities for the Elderly*, Springer Publishing Company, New York.
- Johnson, V. (1989). *The Effect of Age on the Sit-to-Stand Pattern in Women*. doctoral Dissertation. School of HPER, Indiana University.
- Osness, W. (1981). *The Dynamics of Aging*. Biological Aspects of Aging (Chapter 3). **Westview** Press, Boulder, CO.
- Smith, E. (1980). *Exercise and Aging: The Scientific Bases: Bone Mass and Strength Decline with Age*. **Enslow** Publishers. Hillside, NJ.