



Senior Series

A partnership between Ohio State University Extension
and Ohio Aging Network professionals



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Maintaining the Human Machine

As a person ages, the body does not function as it once did, and many changes take place. This fact sheet examines the changes that occur in respiration, digestion, and elimination.

Respiration

Respiration rates decrease with age. In addition, lung capacity lessens because of stiffening of the muscles and the rib cage, which control breathing. At 30 years of age, a man can usually breathe in six quarts of air. By age 70, a man can only breathe in one-half that amount. More effort is needed to move air in and out of the lungs, and more air is left in the lungs after exhaling.

The amount of oxygen-to-blood transfer also decreases with age. Less air and less conversion of the oxygen to the bloodstream translates into a decrease in the amount of work that can be performed. More far-reaching consequences can also occur. If an older person experiences a significant decrease in the amount of oxygen reaching the brain, symptoms of disorientation, confusion, memory loss, insomnia, and irritability can occur.

The most debilitating disease affecting an older person's respiration is emphysema. Emphysema, caused by smoking or inhalation of industrial pollutants, occurs when the air pockets in the

lungs break down. Persons with advanced emphysema often require continuous oxygen therapy.

Digestion

Few changes in the digestion process can be linked directly to aging. Rather, changes tend to be linked to poor nutrition habits. Nutrients still tend to be well absorbed and well digested.

Older persons usually consume fewer calories, which may have a negative connection to the amount of nutrients necessary for good health. Basal metabolism (the rate at which the resting body converts food into energy) slows down as one ages. Some evidence suggests that the stomach produces less hydrochloric acid with which to digest food. Poor-fitting dentures and a decrease in mouth saliva may make chewing more difficult for the older adult, which in turn may lead to poor digestion.

Adequate nutrition may become an acute problem for older adults who have incomes close to the poverty line. Poor nutrition can result when a person cannot afford proper food. The older adult who has

insufficient nutrients may become vulnerable to a variety of diseases and may experience a reduction in vigor. Stress, depression, and emotional upsets may affect an older adult's eating habits. The stomach may become more sensitive to these emotional states.

Elimination

Contrary to what fiber and prune ads may lead you to believe, older adults experience few bowel changes. Older adults may have less frequent bowel movements because of lower activity levels and less food consumption. Not everyone requires daily bowel movements for good health. If, however, an older adult (or anyone, for that matter) does experience constipation, simple dietary changes can help relieve the problem. These changes include drinking adequate water (an often overlooked dietary requirement for good health), eating foods high in fiber, and exercising moderately, if possible.

Kidney and Bladder Capacities

Aging does affect the kidneys and bladder capacity. The kidneys

of a 75-year-old person will filter about one-half the amount of blood as those of a 30-year-old person. Since the kidneys cannot filter as quickly, older adults need to be alert to potential drug overdoses or reactions because the amount of medicine in the bloodstream will tend to concentrate more quickly than in a younger person. The bladder capacity in an older adult is also about one-half that of a younger person—from about two cups in a 30-year-old to one cup in a 70-year-old. This reduction in bladder capacity results in more frequent urination. A decrease in muscle tone may also result in incomplete emptying of the bladder.

Older men may have difficulty in initiating a urine stream, in maintaining a urine stream, or in fully emptying the bladder because of an enlargement of the prostate. This enlargement, known as prostate hypertrophy, is generally caused by non-cancerous tumors in the prostate. Sometimes, a surgical procedure is necessary to relieve urinary blockage. Prostate surgery usually does not affect a man's

ability to engage in sexual activities. As a good health practice, men over the age of 40 should have their prostate glands checked annually.

Using Kegal Exercises to Relieve Incontinence

Many older persons may experience incontinence. This may especially be true of older women who have had many children. Kegal exercises can help relieve incontinence by strengthening the pelvic floor muscles, which retain and initiate the urine stream. These exercises are simple to do in the privacy of an older adult's bathroom. The exercises are easiest to do while sitting on the toilet, although a man may feel more comfortable standing. Either sitting or standing will work.

Kegal exercises consist of a series of repetitions in releasing then stopping a urine stream. The muscles around the urethra are first released to begin the urine stream for a count of three seconds. The muscles are then tightened to stop the urine stream for three seconds. Relax for three seconds, and repeat according to the following schedule.

- Day 1: 10 contractions, 4 times a day
- Day 2: 20 contractions, 4 times a day
- Day 3: 30 contractions, 4 times a day
- Day 4: 40 contractions, 4 times a day
- Day 5: 70 contractions, 4 times a day
- Continue with the Day 5 schedule on a daily basis.

References

- Halpert, B.P., Ph.D. Health Tips on Aging, May & December 1985. Center on Aging Studies, University of Missouri at Kansas City (Missouri).
- Vickery, Donald, M.D., & Fries, James, M.D., 1981. Take Care of Yourself: A Consumer's Guide to Medical Care. Addison-Wesley Publishing Co., Reading, MA.

As a person ages, the body does not function as it once did, and many changes take place.

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