

**PHYSICAL CONSIDERATIONS WITH THE EXERCISING THE  
GERIATRIC CANINE PATIENT  
Using Concepts from Human Medicine  
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There are several things that change (and/or go awry) as we age. Some of these things must be taken into consideration as we are attempting to exercise, condition or rehabilitate the geriatric canine patient.

**CHANGES AS WE AGE**

Appearance can alter as a human ages; the hairs gray, there is an increase in wart on the trunk, face and scalp and a breaking of small blood vessels. All of these things can be seen in the dog as well.

Our senses experience changes as well. Hearing loss, which is more common in men, is due to a reduced elasticity in the inner ear or loss of neuron fiber in the auditory tracks. Vision impairments result in a reduced ability to focus on objects and poorer depth perception due to a loss of flexibility in the lens, and cataracts, cloudiness and difficulty seeing visual details also occur. The sense of smell and taste become diminished and there is a reduced ability to perceive things through the sensory system.

In the musculoskeletal system, muscle weight, strength and endurance decrease with age. This is due to several things: Muscle cells actually accumulate more fat!; Muscle function slows and it takes longer for a muscle to achieve a state of relaxation after exercise; Due to reduced efficiency of the cardiovascular system, less nutrients are delivered to the muscles and waste products are not effectively removed. Elderly persons exhibit a reduction in fine motor co-ordination and reaction time speed, and bones become more hollow and porous, brittle and weak and easily fracture, and can take longer time to mend.

A compromise of cardiovascular functioning is due to reduced elasticity of the blood vessels, leaving them slower and more clogged, thereby reducing capillary transport. Cardiac output begins to lessen in early maturity. These two factors combined can lead to increased blood pressure. Pulmonary function declines since there is a reduction in vital capacity, lung diffusion and thoracic wall compliance. The effects of injury or insults to organs in earlier life are being realized at this later age, and heart and kidney problems can change the body's normal rhythms / metabolism and cause accumulation of toxic body wastes.

With aging, there is a decreased ability of the body to cope with stress (including the stress of disease), therefore causing chronic conditions such as arthritis, heart disease, high blood pressure, visual and hearing impairments. There can be an increase in stress due to health problem and life cycle crises. Seniors experience chronic sleep deprivation, and diminished antibody production

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Nutritionally, slower metabolism and general reduced physical activity usually lead to excess adipose tissue storage! As the human body ages it becomes less able to use the various kinds of fat in its food, so they become stored and can lead to arteriosclerosis, and inadequate calcium intake can lead to osteoporosis. Dogs do not tend to suffer from arteriosclerosis or geriatric osteoporosis but this in part can be due to the feeding of a balanced and often scientifically formulated diet. Constipation can be common as well due to poorer muscle tone in the intestinal walls.

Psychologically, humans seem to fair worse than our animal counterparts. Humans can be an awareness of stiff joints and shortness of breath. People can become more cautious with movement in general due to an increased fear of falling and vulnerability. Confusion, stress and frustration occur over reduced energy levels, slowness of thoughts and action and poorer muscle tone. While we are unable to ask our canine companions how they feel about aging, personal observation of older dogs would suggest that they accept their aging changes much easier.

Cognitively, elderly humans exhibit a reduction in the speed of performing both mental and physical tasks (slower reaction times, perceptual processing abilities and cognitive process). Some of these changes can be due to nutritional deficits, over the counter drug misuse or too many prescription drugs and anxiety, grief, depression or fear can distort thinking. Those who keep actively involved in intellectual activities perform better than those who are inactive. This could certainly hold true for dogs as well.

### **HEALTH BENEFITS TO PHYSICAL CONDITIONING OF THE SEDENTARY ELDERLY PATIENT (CANINE OR OTHERWISE!):**

- Better oxygen transport and aerobic capacity
- Reduction in osteoporotic changes
- Reduce blood pressure
- Improved breathing capacity
- Improved joint mobility
- Tranquillizer effect that reduces neuromuscular tension and anxiety

### **CONSIDERATIONS FOR PRESCRIBING EXERCISE TO THE OLDER PATIENT**

The aged patient cannot exercise for as long of a time at high or moderate intensity levels (due to slower rates of oxygen utilization and slower time to increase heart rate to maximum capacity). Therefore they utilize anaerobic exercise to provide their energy if exercising at high / moderate levels. The aged patient is more at risk of musculoskeletal and cardiovascular problems and may become more easily fatigued hence susceptible to injury. Additionally, seniors have more difficulty adapting to and recovering from physiologic stimuli.

The rehabilitation therapist should consider the following:

- Warm up and cool down are extremely important with an exercise regime

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- Avoidance of rapid or major changes in intensity level is advised
- Starting with a program at a low intensity and very gradually increasing the activity level is necessary.
- More time may be needed at each exercise level (frequency, duration and intensity) of exercise to allow for exercise induced physiological compensations / adaptations.
- Games involving bodily contact, rapid or complicated movements, sharp turns, excessive competition and environmental extremes (heat, cold and altitude) should be avoided.
- Heavy weights, isometrics and extensive arm/front leg exercises in patients with heart disease can cause an exaggeratedly marked increase in heart rate and blood pressure.

It is advised that for cardiovascular endurance and control of body fat, exercising 3x / week is necessary and for general well being, some form of exercise daily is appropriate. The type of exercises can incorporate large muscle groups with low to moderate intensity, co-ordination exercises to train for balance and flexibility, rhythmic stretching and calisthenics that target the thighs, back, abdomen and arms.

The canine practitioner would be wise to take all of these aging changes into consideration when rehabilitating or conditioning the elderly canine patient. Owners should be made aware of these aging changes when discussing exercise and activity participation with their older dog.