

Health Care of the Geriatric Llama and Alpaca

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Photographs by Corry Jeanne Mortensen

Intense breeding of llamas has been conducted in North America for over 25 years. While alpaca breeding began more recently, the principles to be discussed apply to them as well. Many older generation llamas are entering their golden years. In other livestock enterprises, aging, nonproductive animals are usually culled from the herd, as they are non-profitable. Llama owners are not usually willing to accept culling as an alternative and now consult with veterinarians to deal with the special problems of aging llamas. Small animal practitioners deal with geriatric pets routinely, now those who deal with llamas and alpacas are often asked to provide such service.

Age Changes of Medical Importance

All living organisms pass through a life cycle of genesis, growth, reproduction, maintenance, regression and death. Just as surely as there is birth and reproduction, organ systems eventually wear out and body shape and organ functions change.

All organ systems age, but, changes in some are more dramatic than in others. This discussion is limited to a few systems, including dental, skeletal, reproductive, special senses and the immune system.

DENTAL

There are two stages in the life of a llama when dental problems are likely to occur: When the permanent cheek teeth erupt (3.5 - 5 years) and, after a lifetime of chewing and grinding that wear teeth. The precise age when teeth become worn varies, but is determined by the type of feed provided over the years, inherent dental quality and occlusion of teeth.

Malocclusion of teeth is more common in alpacas than llamas, but is a problem that arises in both species. Breeders



Figure 1. Loss of incisors in a 20-year-old llama.



Figure 2. Accumulated plug of feed material in the cheek of a llama with poor dentition.

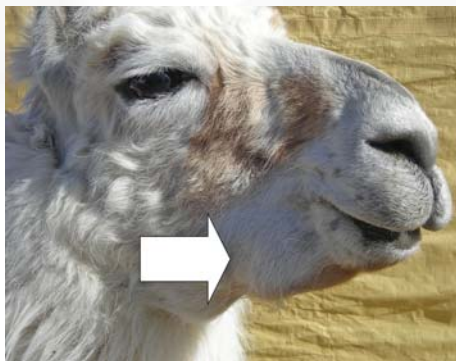


Figure 3. Bony mass on the lower jaw (mandible) of a llama.

desiring and expecting longevity in their animals should be advised to select breeding stock with sound dental anatomy. Pre-purchase examinations should include a thorough dental examination consisting of the following: Procurement of a history of dental disease or surgery (trimming the incisors, disarming the canines); visual evaluation for malocclusion; palpation of the mandibles and maxilla for bony

involvement or missing teeth; as complete an oral examination as possible.

Llama and alpaca teeth normally have sharp enamel points on the lingual (tongue) aspect of the lower jaws and cheek aspect of the upper jaws. Dental flotation is not indicated unless evidence of lacerations of the cheek or tongue is substantiated by visual inspection or loss of a tooth results in overgrowth of the opposite tooth.

The dental conditions seen in older llamas and alpacas include excessive wear, uneven wear (wave mouth), loss of a tooth or teeth (Figure 1), gingival disease, tooth abscesses, grass awn accumulation in the mouth and oral laceration.

Clinical signs of dental disease: Weight loss, abnormal chewing, quidding (spitting out wads of partially chewed feed) (Figure 2), abrupt cessation of chewing as if a sudden pain has struck, partially chewed fibers in fecal pellets, swellings on the jaws or over the maxillary teeth roots (Figure 3), odor or discharge from a nostril, apparent sensitivity to drinking cold water and visibly worn or deformed teeth.

Diagnosis

A thorough examination of the mouth may require sedation. Llamas are unable to open the mouth widely and are reluctant to allow a thorough examination. Missing teeth may be detected by palpation through the cheek. Radiographs may be required for a definitive evaluation. Oblique views are required to visualize all arcades.

Management

The challenge is to make a diagnosis, provide a prognosis, correct specific diseases, or recommend making it easier for the animal to be nourished by providing more easily chewed feed. Heated water should be provided in the winter in cold climates. If weight loss is observed, increase the proportion of concentrates in the diet.

SKELETAL SYSTEM

Llamas used for packing may experience more wear and tear on the skeletal system than breeders. Animals with basic conformational weakness are more prone to unsoundness in later life. Expect to see changes in conformation of older animals. A female that has produced numerous crias may develop



Figure 4. Lordosis in a 12 year old llama.



Figure 5. Llama over at the knees (buck kneed).



Figure 6. Llama with dropped pasterns (down in the fetlock).

lordosis (Sway back) in her old age (Figure 4). The lordosis may intensify as term nears, and may return to near normal following delivery.

Likewise, the stretching of tendons and ligaments may cause a llama to be over at the knees (buck kneed) (Figure 5) or down in the fetlock (Figure 6). It is important to evaluate such conformation defects in a proper light, related to circumstance. Such faults present in a young female, should raise concern in regard to breeding this female and perpetuating a fault. However, results of normal wear and tear are not usually of genetic origin.

Each skeletal condition should be evaluated as to impact on function, presence of pain and whether or not corrective measures are possible. Degenerative changes and bony spurs may occur in any joint including those of the spine (spondylosis). Spondylosis may be present as an incidental finding, but trauma and/or calcium:phosphorus imbalance may exacerbate the condition.

Young animals with conformation faults are more prone to suffer degenerative changes and calcification of collateral ligaments as they age, because of asymmetrical wear on joint surfaces or tangential forces from improper angulation. Older llamas may move about more slowly or stiffly as a result of pain, but they may also prefer to conserve energy and be naturally more sedate.

There may be reluctance to roll in the dust bath or the head, neck or body may be held in peculiar positions. They may be stiff when first arising in the morning or after prolonged recumbency, have unnecessarily frequent and/or prolonged periods of recumbency, or resist turning one way or the other when being led. The head may not be held upright. Lameness, frequent resting of the head and neck on fences or feed bunks, constant shifting of weight from one leg to another may be observed. Affected llamas may graze while lying down.

Management

Attempt to identify specific conditions and deal with them, if treatable. However, in many cases there is little a veterinarian can do. Use caution in placing llamas on long-term anti-inflammatory or antiarthritic drugs, which may produce significant untoward side effects (production of stomach ulcers). However, some llamas have been on long-term phenylbutazone therapy for years (L. Johnson, personal communication). Make the animal as comfortable as possible with bedding, and sandy or grassy spots in cool shaded areas.

From a preventive standpoint, select animals that are well conformed to begin with and keep feet trimmed properly. Animals that must compensate for mechanical instability are more prone to develop skeletal unsoundness.

VISION AND HEARING

Vision and hearing may diminish. Senile cataracts occur in most species, but have not yet been reported in llamas or alpacas. Llamas and alpacas are both visual and auditory in their social communication, yet animals with impaired vision and/or hearing may function admirably in a familiar enclosure. Problems have been noted when such animals have been shifted to unfamiliar enclosures or grouped with strangers. Be perceptive and aware of changes that may be occurring in your animals.

IMMUNITY, METABOLISM AND ORGAN FUNCTION

Little is known about the immune system of llamas and even less about the immunology of the aging llama. In humans and other domestic animals, old individuals have shown diminished resistance to disease. What might be a mild, easily treated infection in a 5-year-old llama may become a major battle for a 25-year-old. In human medicine, old age may be the most common form of immune deficiency. Drugs may not be metabolized as readily, thus are either less effective or may become more toxic. Greater caution must be exercised with anesthesia, because diminished liver and kidney function may slow metabolism of anesthetic agents.

Elderly humans may have lost approximately 30% of kidney function without ever having experienced specific kidney disease. The cardiovascular system is not as efficient in old animals, nor is respiratory function.

FEEDING AND NUTRITION

Aside from the feeding problems associated with dental disorders, older animals have lower requirements for energy and protein. Overfeeding is a risk for older animals (Figure 7). On the other hand, requirements for vitamins may be slightly higher. Periodic weighing and diet modification may help to keep older llamas in optimum condition. A diet of equal parts alfalfa pellets, whole cottonseed and flaked corn with 1% molasses has proven to be an effective geriatric supplement when fed up to 50% of the dry matter intake plus free-choice forage, (L. Johnson, personal communication).

REPRODUCTIVE PERFORMANCE

Ideally, a healthy llama female could produce a cria every year from the time she is two until she is 20, but that is not likely to happen. A few females have produced 17 crias, but a more realistic average would be 8 - 12. Many factors determine productivity, and the aging process is one of them. Llamas do not experience a menopause, so pregnancy may occur into old age. In old age, llamas may die from some other cause with a fetus in the uterus.

However, ovarian function may wane or cease entirely. The age at which this occurs is highly variable and may be genetically influenced in llamas and alpacas, as it is in all other domestic animals.

Reproductive function is a fine-tuned balance of hormonal influences on healthy organs such as the ovaries and uterus. The endocrine system may undergo diminished activity with aging as do other organs. The ovaries may have a finite number of potential follicles present at birth. When those follicles have been expended or prevented from developing due to scarring there will be no more crias. In addition, a female may be receptive to a male, but insufficient luteinizing hormone is produced to cause ovulation. Or, if ovulation does take place, insufficient progesterone may be produced to maintain pregnancy.

Many old llamas and alpacas are able to carry the fetus to term without intervention, but in some instances the female must be supplemented with progesterone to bring the pregnancy to term. Successful reproduction in a female llama over 16-18 years of age may be a hit and miss affair. Even less is known about the reproductive longevity of male llamas than is known

of females. However, there are males known to be successful breeders well into their 20s. Arthritis may have a dramatic negative effect on libido.

Evaluation of senile infertility: The signs of senile infertility are no different from signs of infertility encountered in younger animals. More time and effort may be necessary to evaluate an older animal to establish whether or not a specific health problem exists or if the reproductive tract is fully functional. A single visit evaluation is not likely to provide any meaningful information for management of the older female. Repeated, or even daily, examination may be required to evaluate the function of the ovaries. Evaluation of hormone levels is now possible.

Crias from older females: Crias born to aged dams may be denied adequate milk, because mammary gland function may also diminish with age, due to scarring and inadequate hormonal balance. The quality and quantity of colostrum of aged animals may be suspect, because of diminished immune function.



Figure 7. Obesity and lordosis in a 12 year old llama.

MEETING THE CHALLENGE OF THE OLDER LLAMA

No one has found a magical elixir to maintain perpetual youth. The speed of development of dental problems may be

slowed by proper feeding. Regular nail trimming may minimize the development of arthritis and conformational faults. Regular health examinations may uncover diseases before they become chronic and debilitating. Diet should be reevaluated periodically.

Llama owners want their charges to live a quality life. Crucial to maintaining that quality is astute observation that detects subtle changes and allows correction of specific diseases before they become major problems.

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About the Author

Murray Fowler grew up on a small farm in Utah. A degree in Animal Husbandry at Utah State University preceded his professional DVM degree from Iowa State University in 1955. Three years were spent in a horse practice in Southern California prior to joining the faculty of the Veterinary School at the University of California, Davis in 1958. After 10 years of teaching in the area of large animal medicine and surgery, he was asked to develop a program in Zoological Medicine (captive and free-ranging wild animals), the first of its kind anywhere in the world. When alpacas and llamas became popular in the private sector he was in a position to help with their medical problems.

He is the editor, author or co-author of 22 books, six of which deal with camelids. The second edition of his book on the Medicine and Surgery of South American Camelids is now in print. Eric Hoffman and he published The Alpaca Book for owners and breeders. He and his wife Audrey published a small book on First Aid for Llamas and Alpacas.

After 34 years of service to the University of California he retired, and is now Professor Emeritus of Zoological Medicine. He remains active in consultations with colleagues and continues to participate in camelid conferences and workshops world wide.