

ALPACA & LLAMA & BEHAVIOR-- And its Implications for Illness Detection

Murray E. Fowler, DVM
University of California, Davis
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Introduction

Why be concerned about behavior? Certainly getting to know more about your animals means more enjoyment as you care for them and spend time observing them. Understanding behavior is necessary if you plan to train your animals to participate in competition, use them for carting or minimize stress in necessary veterinary procedures. A knowledge of normal behavior allows you to pick up on abnormal behaviors, especially those involved with early detection of illness.

All four species of South American camelids (SAC) are social animals. Alpacas are generally more flock or herd oriented (banding instinct) than llamas. Alpacas are also shy, more easily frightened and less curious than llamas. Only with the knowledge of the normal is it possible to evaluate the abnormal, but space does not permit a detailed discussion of all normal llama and alpaca behavior. The reader is referred to standard references. Some normal behaviors will be illustrated along with a discussion of altered behaviors that have significance in illness detection. Communication is the passage of information from one individual to another with the goal of modifying the behavior of the receiver. An effective means of communication is vital for the survival of any population of wild or domestic animal, just as it is in human society. South American camelids communicate with each other, humans and other animals by body language, vocalization, and scent. Body language, including ear and tail position are sure indicators of the mental state of a llama or alpaca.

SOME SELECTED BEHAVIORS

Body language

Ear position conveys important social information. Handlers should understand these signals in order to minimize stress for both animals and humans.

The ears of a contented, un-aroused SAC are in a vertical position and turned forward. In the alert animal, the ears are cocked forward. Relaxed SACs may allow the ears to lie horizontal to the rear. This is a normal position and should not be considered aggression, because other signs of aggression are absent. In some individuals the ears may appear to spread sideways from the top of the head. This ear position may be used when listening to something going on behind them or just for relaxation. Asymmetrical ear positions may also be seen.

Various degrees of aggression are communicated between herd-mates by ear, head and tail position, usually displayed in concert. Ear and tail position may be in a continual state of flux, especially in feeding situations without adequate space for all herd members. Mild to moderate aggression is signaled by the head held horizontal with, 1), the ears positioned above the horizontal, 2), The ears horizontal (in the same plane as the head, 3). The ears below the horizontal, or 4). The ears flattened against the neck,

Intense aggression is exhibited by the nose being pointed in the air and the ears flattened against the neck.

Tail position also communicates social information. In the non-aroused SAC, the tail lies flat against the body. Mild aggression or alertness is indicated by the tail being slightly elevated, but below horizontal. As the degree of agitation escalates, the tail may be carried horizontal, curled above horizontal or vertical. Basically the higher the tail, the higher the level of aggression. The tail may also be seen to wave from side to side, especially in males that are slightly agitated. These aggressive behaviors are employed by social animals to minimize outright fighting.

Submissiveness in the llama, and alpaca is indicated by curving the tail forward over the back, with the head and neck held low, the ears in a normal to above horizontal position, and the front limbs slightly bent, Fig. 9. This behavior is frequently seen in SACs that become imprinted on humans.

Llamas generally move at normal gaits with the head held vertically or slightly forward. Alpaca normal neck position is approximately 70 degrees above horizontal. When either of these species rush or charge at dogs, coyotes, other SACs or humans, they do so with the neck held almost horizontal. This position may be used for balance as it is also the head and neck position used when running down hill.

Vocalization

A gradient of sounds has been described as humming (bleating). The pitch and tone of the humming is significant in SAC communication. Franklin describes the **contact hum** as an auditory contact between herd members and especially between a mother and her cria. **Status humming** is a deeper tone that communicates contentedness, tension, discomfort, pain or relief. The **interrogative hum** (question) is higher pitched and has an inflection at the end. Other variations in intonation are described as a **separation hum** and a **distress hum**. Llamas emit a snort characterized by a short burst of air through the mouth with loose lips. The snort indicates mild aggression. A clicking sound can be made with the tongue, which also indicates mild aggression. A grumbling threat is emitted when a feeding animal is approached too closely by another, or when an aggressor is about to regurgitate on an offender.

Screaming indicates extreme fright. Some llamas and alpacas scream continuously when restrained for diagnostic or therapeutic procedures. Screeching is a loud squealing sound, usually made by males chasing one another during a territorial dispute or when males are fighting with each other. The SAC alarm call is emitted when a male or female perceives danger to be near. The approach of strange dogs or other predators may trigger an alarm call. The sound is a high-pitched staccato series of sounds and has been described as whistling or neighing, and by some as similar to the braying of a hoarse donkey. When the alarm call is sounded other SACs within hearing become alerted and turn toward the source of the sound.

Male llamas and alpacas emit a rhythmic expiratory grunting sound called orgling while chasing a female or copulating. The word orgling is not found in a dictionary, but is in common usage in the camelid industry.

Recumbency

Sternal recumbency (lying down) is the most common position for rest and relaxation for llamas and alpacas. In fact, that position is considered the default position for them

when faced with any unpleasant situation. When lying sternally, the front legs are usually folded beneath the chest, but SACs have the unique capability to lie with the forelimbs extended forward. South American camelids have a pronounced calosity over the sternum and they may remain recumbent sternally for hours to days without compromising the circulation of the limbs. Lateral recumbency is also a normal position, with the animal apparently sleeping or sunning itself via the thermal window. An evaluation of the forms of recumbency is important in for illness detection.

Scent behavior

In SACs, glands are associated with each hair follicle. Sweat glands are generally found widely distributed over the surface of the skin but are more dense on the abdomen, which is sparsely covered with hair (thermal window). SACs have unique, oval-shaped, hairless patches on both sides of the rear legs. These are actually scent glands which produce alarm pheromones, perceived as "burned popcorn" odor to humans. The glandular secretion solidifies upon excretion into a leathery sheet on the surface of the skin that can be peeled off.

A pheromone is a substance secreted to the outside of the body and smelled by another animal of the same species, initiating a specific behavioral reaction. Males housed with females, may sniff at the dung pile following urination by the females, in order to pick up the scent of pheromones secreted in the urine of the female and which may indicate that she is receptive for breeding. The male then may go about sniffing the perineal area of females to precisely identify the receptive individual

Scent glands are also found between the toes on all four feet. The specific function of these glands is unknown, but they are probably associated with individual and group identification.

BEHAVIORAL CHANGES ASSOCIATED WITH ILLNESS

Understanding the basics of normal SAC behavior is necessary in order to observe and understand altered behaviors that may signal the onset of discomfort or illness. *Many of the tell-tale indicators of illness are an exaggeration of normal behavior.* See table 1 for a listing of altered behavior. Other behavioral changes associated with illness may include:

1. Self separation from the herd.
2. Normally docile individuals become aggressive.
3. Aggressive or dominant animals become submissive.
4. Changes in the frequency, posture and productivity at the dung pile.
5. Prolonged recumbency.

Abnormal vocalization

The normal humming pattern for each individual becomes important background information. The character of the humming must be evaluated within the context of the existing situation. As an example, if a cria has recently been weaned, it is normal behavior for either the mother or the juvenile to hum excessively. If the same female were to change humming patterns for no apparent social change, then more attention should be given.

Groaning is a vocalization generally associated with discomfort or pain, however it may be an acceptable sound in a recumbent female in advanced pregnancy or during parturition. At other times, groaning is associated with obstruction of the gastrointestinal or urogenital system. Humans who have experience abdominal discomfort may relate to groaning.

Although not a vocalization, grinding of the teeth is an oral sound indicative of abdominal discomfort (colic). Such grinding is often accompanied by a pained countenance, manifested by rigid facial muscles, often described as a fixed facial expression.

Pouting is a normal consequence of an unpleasant interaction between SAC males, and is usual following a fighting episode. The facial muscles become tense. The lower eyelid is pulled down, exposing a segment of conjunctival mucous membrane. The ears are positioned behind the vertical; the degree of flattening commensurate with the anger of the individual. The other prominent characteristic of pouting is the mouth held open and the nostrils flared. SACs are primarily nasal breathers and unless respiration is severely compromised, open-mouth breathing does not occur. Pouting animals are generally not in respiratory distress so differentiating between pouting and dyspnea should be easy.

Eye

The large expressive eyes of SACs attract immediate attention. It has been said that the eye expresses the emotional state of an animal. Observant people are quick to perceive health or illness on the basis of eye clarity, pupillary dilatation or constriction and eyelid position.

The eyes of a healthy SAC should be clear, bright, and have positive pupillary and palpebral reflexes. The appearance of the eyes provides the basis for abnormal countenance (facial expression). Both eyes will usually appear the same, in contrast to those of an animal suffering from trauma or specific ophthalmic diseases that may involve only one eye. In illness, the cornea may appear to be glazed or cloudy. It is difficult to describe an apathetic look or a pained expression, but these are present in animals as well as humans. Some systemic as well as local diseases stimulate excessive tearing or exudation.

Dung pile usage

Dung pile usage is not only a social focal point in the life of SACs, but should be used to help monitor the well-being of the herd and individuals within the herd. Prolonged defecation or urination may signal a variety of digestive, urinary and reproductive system disorders. The constipated SAC may strain to pass feces or urine. Groaning may be associated with straining. Repeated attempts to urinate or defecate with no feces or urine forthcoming are signs of a serious problem. The affected animal may reposition itself or leave the dung pile momentarily, only to return and try again. Various musculoskeletal or nervous system disorders may cause alteration in the animal's posture at the dung pile, or standing or moving.

Recumbency

South American camelids that are unwilling or unable to stand present a special challenge to owners and veterinarians who attend these animals. Variations in the recumbent state are listed in table 2.

CONCLUSIONS

New owners may over-react to perceived changes in behavior and become alarmed, frequently calling upon their veterinarian to evaluate inconsequential matters. A comparison could be made with a first-time human mother who jumps to conclusions of illness with normal variations in the sounds and movements of her infant. It is inappropriate to shrug off the worried owner's concern. More often than not the owner/manager is the first to pick up on subtle behavioral changes that should be considered.

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Table 1. Altered behaviors

Normal Behavior	Altered Anatomy & Behavior	Possible Cause
Normal gaits of SACs, walk, pace, trot, gallop, stott	Lameness	Trauma, musculoskeletal disorders
	Ataxia (incoordination)	Spinal column trauma, meningeal worm
	Angular limb deformity, mechanical lameness	Congenital defects of musculoskeletal system
Normal vocalization (humming)	Groaning, grunting, tooth grinding	Colic
	Normal hierarchical status	Hormonal imbalance
Dominance behavior	Becomes submissive	Loss of status in the herd, general illness, depression
Submissive behavior	Becomes aggressive	Juvenile male maturing, Hormonal change
Bright, expressive eyes	Dullness, Inattentive gaze	Depression, infectious diseases
Pouting behavior	Exposure of the conjunctiva of the lower eyelid (appears like an ectropion)	Anger, post fighting posture, post alteration of any kind, pain

Table 4. Recumbent behavior as an indication of health or illness

POSITION	POSSIBLE CAUSES	CONCERN LEVEL FOR OWNERS & VETERINARIANS (1= normal, 5=grave)
STERNAL, bright, alert, able to hold head up, good appetite, able to stand	Healthy SAC, normal behavior	1
STERNAL, head laid on the ground in front of the body	May be a normal resting or sleeping position, or indicate slight depression (an incipient sign of many illnesses if accompanied by other signs)	1-2
STERNAL, anorectic, won't drink, will stand only if forced to do so	Slight to moderate depression	4
STERNAL, head and neck held back over the thorax	Colic, neurologic disorders	5
LATERAL, able to right self to sternal, bright and alert, able to stand	Healthy SAC, may be resting, sunning or sleeping	1
LATERAL, able to right self to sternal but unwilling or unable to stand	Slight depression, incipient stage of many diseases, weakness, anemia, myopathy	3
LATERAL, Head an neck pulled back over the top of the body, unable to right self to sternal	Moderate to marked depression	4-5
LATERAL, flaccid paralysis, non-responsive to stimuli	Head and neck trauma, tick paralysis, rabies, enterotoxemia	5
LATERAL, twitching, seizures, forced running	Encephalitis, head & neck trauma, rabies	5