GOAT CARE

Physiology of Goats

The typical lifespan of a goat is approximately 12 to 14 years. However, most sanctuary animals come from abusive factory farm conditions and, consequently, may have more health problems and shorter life spans.

Mature female goats ("does") of the larger breeds (including Alpine, Nubian, Saanen, and LaMancha) generally weigh between 125 and 175 pounds. Mature male goats ("bucks" if uncastrated, and "wethers" if castrated) of the same breeds generally weigh between 150 and 225 pounds. Females and males of smaller breeds (such as Pygmy) weigh between 40 and 80 pounds and between 60 and 90 pounds, respectively. Normal body temperature for goats is 101 °F to 102 °F.

Nutritional Needs of Goats

Water. Clean, fresh water must always be available to your goats. Use heavy containers to prevent spilling. Although expensive, an automatic watering system can be a good investment because it greatly reduces water waste. Such systems are especially helpful during the winter in areas where temperatures drop below freezing.

Minerals. Essential to daily nutrition, minerals should always be available to your goat. Goat minerals come in multiple forms, including loose minerals and mineral blocks. If you are keeping sheep and goats together, make sure that the minerals you use are formulated for both species because sheep cannot tolerate copper. Goats, however, do need cooper and can have many health problems without it, so goats kept with sheep should receive a supplement.

Feed. As ruminants (animals with stomachs that have four chambers), goats rely mainly on hay or pasture to fulfill their dietary needs. They need at least eight hours of grazing time per day.

The best pastures include clovers and mixed grasses. When using only pasture for roughage, be careful not to overgraze. The best system for grazing is to use two or more pastures and rotate as needed. This method not only allows unused pastures to regenerate, but it also cuts down on parasite problems. Before giving your goats access to a pasture, be sure to remove all plants that are poisonous to them. Contact your County Agricultural Extension agent for a complete listing of poisonous plants in your area. Never put goats on a very rich clover or alfalfa pasture that is wet with rain or dew because this can cause bloat.

If adequate pasture is not available, feed your goat grass-type hay such as timothy. Alfalfa hay is very high in calcium and protein and should be used only for sick, pregnant or debilitated animals. To locate a source of hay in your area, check with your County Agricultural Extension agent for a listing of hay/straw auctions or look in the farming section of your local paper. Because hay is less expensive per bale when purchased in

large quantities, building some type of hay storage structure or loft can be well worth the investment if you have more than a few goats.

Goats are born browsers and actually seem to prefer eating leaves, weeds, briars, and other plants to grazing only on grasses. Make sure you have a full list of plants that are toxic to goats because they are numerous. Many ornamental plants, such as rhododendron, can be fatal to goats.

Because grain is very high in fat and causes kidney and bladder stones in goats, especially wethers, we discourage feeding it regularly to healthy goats. It may, however, be used to supplement hay or pasture for goats with dental issues or other ailments that cause unhealthy weight loss. When feeding grain to wethers, use a grain that contains ammonium chloride to help prevent stones from forming. Monitor all goats for obesity, which is very unhealthy for them. Older goats can easily gain too much weight on even small amounts of feed or hay.

Handling Goats

When working with goats, be very calm and gentle in your approach. Goats are nervous by nature and will spook easily if you yell or handle them roughly.

When handling your goats, use a rope halter (available at farm supply stores or through catalogs). If your goats have horns, these can also be held to control them, although some goats do not like this. It is best to have a second person to assist you. Handling your goat too roughly will cause him to struggle more, so the best amount of restraint is just enough to keep him still.

Shelter Requirements for Goats

Building. For goat housing, we recommend the use of a pole barn, not a shed. We also recommend dirt floors over wood ones, which can be slippery and therefore put goats at risk of torn ligaments and joint damage. Allow at least 25 square feet per goat, and be sure the shelter has good ventilation and no direct drafts. Always provide your goats with plenty of clean, dry straw for bedding. Remove damp and soiled straw daily, replacing it with fresh straw. Lightly spreading hydrated lime on any wet areas will help control moisture and prevent the spread of bacteria.

Fencing. In addition to adequate shelter, goats need a fenced-in outdoor area. The ideal fencing to use for goats is 4-foot-high, woven wire, "no climb" horse fencing, available at farm supply stores. High tensile electric fencing can also be used, especially if you are housing cattle and goats together. Field fencing, which has large, square openings, puts goats, especially those with horns, at risk of getting their heads caught. Regularly walk along your fence line to check for holes dug under the fencing by predators.

Tethering. Tethering your goats (putting them on a long leash) is not recommended as it can be stressful for them. Tethering is also very dangerous because a goat can accidentally hang himself on a tether.

Pasture. We recommend one acre of land for every two goats, although the amount of pasture necessary varies according to the quantity of hay the goats are fed. For warm weather, the fenced area must have plenty of shade. Erect fences around any shade trees you want to keep because goats are great landscapers and will destroy unprotected trees.

Health Care for Goats

Maintenance. Goats are relatively easy to take care of, and sanitary housing, good quality pasture, nutritious food, and plenty of sunshine will greatly help to reduce health problems.

Goats need to have their hooves trimmed every four to six weeks. This is very important because neglect of hooves can lead to lameness and infection. Hoof trimming is a simple procedure that your veterinarian can teach you. Hoof trimmers are available through farm supply stores or catalogs.

During your daily contact with your goats, always be on the lookout for any physical or behavioral changes. Symptoms indicating illness include loss of appetite, limping, listlessness, labored breathing, diarrhea, discharge from the eyes or nose, and abnormal body temperature. If any of these symptoms occur, consult your veterinarian immediately.

Vaccines. Make sure your goats are vaccinated for rabies, tetanus, and clostridium (CTD). The rabies vaccine can be hard on goats, therefore the other vaccinations should be given at least one month before or after the rabies vaccine.

Common Health Issues of Goats

Upper Respiratory Infections. A respiratory infection is any infection that affects the goat's breathing apparatus, including the nose, trachea/windpipe, bronchi, and lungs. Symptoms include nasal discharge, excessive coughing or sneezing, loss of appetite, and increased body temperature. If any of these symptoms occurs, consult with your veterinarian immediately.

Coccidiosis. Coccidia are protozoan parasites that, when present in small numbers, cause very little damage to adult goats, most of whom are infected and immune. Kids, however, are extremely susceptible to coccidia, and an acute infestation of this parasite can be fatal to them. Almost all species of animal have their own strains of coccidia, and the coccidia, for example, of rabbits and chickens do not cause disease in goats. The coccidia of sheep, however, may be responsible for some disease in goats. You should have a fecal sample from your goats analyzed every three months to monitor their parasite load.

Other Internal Parasites. Parasites thrive in areas that are cool and damp. We encounter far more parasites at our East Coast shelter than at our West Coast facilities, where the climate is dryer and hotter. Parasites are one of the most prevalent health threats among goats, and many types of parasites have developed resistance to the most common treatments. Strongyles are one of the more common parasites, but a few that are much

more dangerous to your flock are listed below. Regular fecal checks and a strict treatment program for your goat herd are imperative.

Lungworms. Lungworms, like many parasites, are passed through the feces and then ingested by grazing animals. They then travel to the lungs and trachea. Only in severe infestations do these parasites cause sheep to manifest clinical signs such as fever, coughing, and nasal discharge, but older animals, younger animals, or animals with weakened immunity can become quite sick and even die from these parasites.

Barber Pole (*Haemonchus*). Barber pole is the most deadly of the stomach worms that infest sheep and goats. Barber pole is a blood-sucking parasite that pierces the lining of the abomasums, or the true stomach, of the goat. This process causes anemia and can quickly lead to death. The most obvious symptom of this parasite is anemia. Many goats have black or gray gums, which makes the gums difficult to use to diagnose anemia. The "FAMACHA system" can help you identify anemia by examining the lower eyelid of a goat. Cards are used in this system to help you identify anemia by comparing the color of the lower eye lid with a color chart. Bottle jaw or fluid accumulation under the chin is another sign of this infestation. In many areas of the country, these parasites are becoming resistant to antibiotics. Because these parasites lead to fatalities, it is imperative that a proper worming program is established at your shelter.

Bloat/Grain Poisoning. Bloat is a serious condition commonly caused by overeating grain or new pasture. Preventive steps should be taken to stop bloat from occurring. Do not put goats out on new pasture until their digestive systems have adjusted to that type of pasture. Be especially careful to prevent bloat if you have fields of rapidly growing plants such as alfalfa and clover. Gradually introduce goats to new pasture by feeding them some of the new pasture for a few days along with their regular hay. Then, turn them out for only a few hours at a time, making sure that the field is not wet. A wet field is more likely to cause bloat than a dry field. Make sure feed barrels and bags are completely inaccessible. Goats will gorge themselves on grain, which leads to bloat and grain poisoning.

The first obvious symptoms of bloat are distension of the rumen of the left side, labored breathing, and signs of discomfort such as kicking, grinding teeth, bawling, and profuse salivation. Any evidence of bloat *should be deemed an emergency*; you should contact your veterinarian immediately. Also have bloat remedies on site at all times when you house ruminants because a vet may not be immediately available. Remember that prevention is the best approach; bloat caught late is likely to be fatal.

Abscesses. Abscesses are pockets of infection filled with pus, usually caused by wounds or cuts that have penetrated the skin. Abscesses can occur anywhere on a goat's body and are indicated by swellings or lumps under the skin. If you notice any unusual lumps or swellings on your goat, isolate him from the herd and contact your veterinarian. Abscesses can be signs of other health conditions, including CL, described below.

Caseous Lymphadenitis (CL). Caseous lymphadenitis (CL) is a chronic disease that causes enlarged, localized, and non-painful abscesses on the skin, organs, and lymph nodes. There are two forms of CL, internal and external. The external form, which results in abscesses on the skin, can become internal via blood or the lymphatic system, affecting the internal lymph nodes and organs. One of the first outward signs of CL is large, pusfilled abscesses. If your goat has an abscess, you should separate him from the herd and have a vet take a culture of the pus. This is the most accurate test for CL. If it is CL, the pus in the abscess is contagious and can spread the disease. If you are sheltering goats, you are highly likely to encounter individuals who are CL-positive. It can be difficult to navigate the vast amount of material available on CL, so we urge you to speak with someone at Farm Sanctuary for the most reliable and pertinent information. The bottom line, however, is that CL is contagious, and, if you are rescuing goats, you will eventually take in someone who has it.

Caprine Arthritis and Encephalitis (CAE). Caprine arthritis-encephalitis (CAE) is an RNA virus, or retrovirus, that affects both goats and sheep. CAE-positive animals are infected for life. Many of the goats at our shelters, like many rescued goats in general, are CAE-positive. This includes our older goat herd — many of whom arrived with CAE and have been living with the condition for more than 12 years. Many animals affected with CAE can live long, happy, and comfortable lives.

The CAE virus is transmitted mainly in utero and through the colostrum contained in a mother goat's milk. Horizontal transmission is also possible through infected blood, but we have not encountered that phenomenon among our goats.

Most goats infected with the virus are asymptomatic. When the virus does produce symptoms, they manifest in one of five presentation patterns:

- arthritis (most common)
- encephalitic form (kids between two and six months of age)
- pneumonia
- mammary form/mastitis
- chronic/progressive weight loss

1. Arthritic Form

The arthritic form is the most common and appears in mature goats over the age of six months. The arthritis is usually chronic and progressive, but there can be a sudden onset, which we have seen in our older goats. Most of the goats here, however, start showing signs of being arthritic when they are over the age of seven, at which point the condition begins to progress slowly in some cases and rapidly in others. The arthritis affects the joints, starting, in most of the cases we've seen, with soreness and swelling in the front joints. Sometimes the joints become filled with fluid and quickly refill when drained.

The first signs of the arthritic form are subtle. The goat may spend more time lying down and be reluctant to stand for long periods. He may favor a leg or limp on a sore leg or tap it while he is standing. More advanced arthritis manifests in obvious swelling at the joints and more severe pain. We have also noticed that the goats with this condition lose weight and look unthrifty at times, with dull thick coats.

2. Encephalitic Form

This form, less common than the arthritic, most often affects kids, and particularly those between the ages of two and six months. An infected kid will display coordination difficulties and trouble placing his limbs properly when he walks. These symptoms progress into a gradual paresis and paralysis, which usually begin at the hind legs then move to the front legs. The condition may then lead to neurologic deficits including depression, blindness, head tilt, tremors, circling, and facial nerve deficits. The encephalitic form of CAE is fatal.

3. Chronic Interstitial Pneumonia

This form is first apparent by the development of a chronic cough. This is followed by weight loss, rapid breathing, rough lung sounds, and enlarged lymph nodes. We have seen this form in older animals who were asymptomatic carriers for years.

4. Mastitis Form/ Mammary Form

The mastitis form is more of an issue when goats are used for breeding, but even goats who are out of production can be affected. Signs include a very hard udder that does not express milk. We see this in many of the sheep and goats who arrive at our shelters pregnant. The only difficulty we have encountered with this form is the inability of the affected goat or sheep to nurse her kids.

5. Progressive Weight Loss

We have observed this form in nearly all of our CAE-positive sheep and goats. Affected animals are unthrifty looking, with thick, dull coats, and they lose weight progressively over the years.

Diagnostics can be done through an Elisa test of the blood, joint taps to check the synovial fluids, necropsy (in cases where kids have encephalitic form), radiographs of the lungs, evaluation of the mammary gland, and serologic testing for antibodies. The blood test has been known to produce false positives but rarely false negatives, so a negative on the test is usually accurate.

Treatment is management of the symptoms and supportive care. Perform frequent hoof trimming, provide soft bedding, keep affected animals out of drafts in the winter, and administer non-steroidal, anti-inflammatory drugs (NSAIDs) for pain when needed. We have also used some antibiotic therapy and use antibiotics for secondary infections.

Sore Mouth/Contagious Ecythema. Sore mouth is a virus that creates lesions or blisters, usually on the mouth, that rupture, become pustular, and then form a scab. These lesions usually heal within a month, but they can be complicated by secondary bacterial infections and therefore should be monitored closely. Because sore mouth is highly contagious, it is imperative to isolate animals who are newly arrived at your facility or who display any symptoms, until they receive a clean bill of health.

Hoof Rot. Hoof rot is a bacterial infection of the hoof. It is more prevalent during wet seasons or when goats spend long periods of time on wet ground, which softens the hooves and feet and makes them more prone to openings. By tending to your goats' hooves on a regular basis, keeping your pastures free of wet areas through proper drainage, and keeping bedding clean and dry, you will help prevent the occurrence of hoof rot.

One or more hooves can be infected at any time. Symptoms include lameness, swelling between claws, and an elevated temperature. If left untreated, the foot will begin to "rot," creating a foul-smelling discharge. To treat hoof rot, trim out all rotten areas that you are able to remove. Clean the foot well with a product designed for treating hoof rot, such as Dr. Naylor® Hoof & Heel Care. We also recommend treatment with an antibiotic from the tetracycline family. Proper hoof maintenance is the best way to prevent this condition. There are different types of hoof rot, so if you are unsure check with your vet. Contagious hoof rot is very serious and hard to treat. It also requires a more serious approach to treatment including hoof bathes, systemic antibiotics, and aggressive trimming.

Incoming Goat Procedures

When goats arrive on your farm, they must be isolated in a strict quarantine area, and ISO suits (Tyvek, coveralls, or even scrubs), boot covers, and rubber gloves should be used unless the goats came from another sanctuary and have received a clean bill of health. If animals are in poor shape, do not spread straw on pastures. Pile it in a separate area on the farm until all tests below are complete and conclusive. Goat must remain in quarantine for a minimum of four weeks.

- Check all hooves immediately, trim them, and look for any indication of hoof rot.
 If hoof rot is present, have it diagnosed to determine if it is contagious.

 Immediately set up hoof rot mats and carry out individual treatments on all goats that need it.
- Check for any discharge or watery eyes and, if present, have a vet determine if it is pink eye. If so, treat immediately and wear gloves when handling all animals.
- Check weekly for lumps and bumps on the skin of each individual animal and culture any abscesses found for CL. If, after four weeks, there is no sign of CL, you can test for it, but tests often give false negatives or false positives. The most accurate test is a pus sample from an abscess. Tests for either disease are not considered accurate in lambs and kids up to three months of age due to antibodies received from their mother.

- Send in fecal samples for analysis and treat as needed. Many goat and goat
 parasites are resistant to medications, so multiple treatments with various types of
 medications may be required.
- If you are concerned that CAE may be present, have blood tests taken to rule it out
- Vaccinate all goats with Bar-Vac CDT. Pregnant and nursing mothers may need a
 booster shot if they remain isolated longer than four weeks. Lambs should be at
 least four weeks old before vaccinated unless your vet advises you to vaccinate
 earlier.
- Shear goats, if weather permits, to get a better view of their skin so that abscesses, external parasites, or problems affecting the skin are visible.
- Check for external parasites or skin problems. Treat lice with topical treatment, which is available in most farm catalogs.
- If there is a chance that a goat is pregnant, have a vet check her status immediately. Check all animals for sores on their mouth because many arrive with Orf, or soremouth, which is contagious to humans as well. If there is even a possibility that orf is present, gloves must be worn at all times by all staff caring for the animal or handling their bedding.
- Neuter all unaltered males. Older goat should be neutered in a hospital setting, and we recommend a full scrotal removal under anesthesia. Lambs usually can be neutered on-site by a large-animal vet. If you are unsure of the best method to use, please contact us at the shelter.
- Keep new goats or goats in isolation pens in the resident barn for at least two weeks to allow them to adjust to their new herd mates before they are put together.
- Follow all requirements set by USDA and APHIS when transporting animals outof-state to new homes.
- Animals should be healthy and parasite-free before being adopted and moved to a new home or placed with resident animals on the main farm.

These are just a few of the most common problems affecting goats. If your goat exhibits any unusual behavior or symptoms, it's always best to consult with your veterinarian.

Resources for Goat Care

Please note: Many of the catalogs listed contain products commonly used in animal agriculture. Unfortunately, there are no farm catalogs that list only cruelty-free items. Omaha Vaccine Company: PO Box 7228, Omaha, NE 68107; phone: 800-367-4444 Nasco Farm & Ranch: 901 Janesville Ave., Fort Atkinson, WI 53538-0901; phone: 800-558-9595

Valley Vet Supply: PO Box 504, Marysville, KS 66508; phone: 800-468-0059