



# Canadian Pony Club Hoofnotes

*Horsemanship Development Guide*

## HORSE WINTER CARE





## Natural adaptations

In the fall, driven by changes in the hours of daylight the horse will start to prepare for colder weather.

Preparation for colder weather starts with physical and behavioural adaptations.

1. The coat grows thicker,
2. The horse will increase its food intake to gain necessary stores of fat for the longer winter months.

Once the temperature drops and winter has arrived the horse can stay warm through:

Digestion while eating fibre (hay) the horse's digestive tract creates heat

Body design the horse's extremities need less blood, which prevents heat loss.

Movement running and playing will increase the horse's body temperature

Piloerection (or goosebumps) is an involuntary reflex where tiny muscles at the base of hair follicles contract to make hair stand on end. This action creates an insulating layer of trapped air against the skin to retain body heat. It is a vital thermoregulation mechanism for horses to stay warm

Shivering is an automatic, involuntary defense mechanism where muscles rapidly contract and relax to generate heat when the body's core temperature drops.

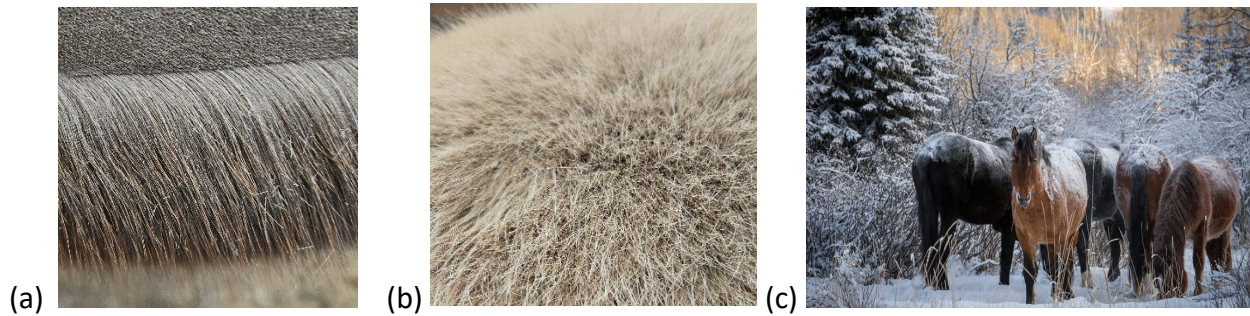
## Winter Coat

Horses in a natural coat naturally prefer a temperature between 5°C and 25°C. They develop a thick winter coat which comprises of two layers of hair – longer guard hairs and finer hairs which act as an undercoat.

The guard hairs (a) help shed rain while the undercoat traps warm air to insulate the skin. This along with the natural oils in the horse's coat will also help to 'waterproof' them making horses well adapted to winter conditions.

As the air gets colder **piloerection** (b) takes place. Piloerection (or goosebumps) is an involuntary reflex where tiny muscles at the base of hair follicles contract to make hair stand on end. This action creates an insulating layer of trapped air against the skin to retain body heat. It is a vital thermoregulation mechanism for horses to stay warm.

You will know if your horse has good insulation from hair and fat in cold weather as the snow will sit on their back and not melt (c)



### Body adaptations

Horse's bodies are built for surviving the cold. Their legs have adapted to have very little soft tissue that needs blood supply. The result is that the vast majority of the blood in a horse's body remains in their core and doesn't get chilled in the legs. When blood is pumped to extremities, like the tail and legs, it cools quickly, but if it remains in the trunk of their body, it stays warm.

The lower leg is mostly tendon and bone, which resist the effects of cold much better than muscle.

The horse's hooves have shunts in them that open and close on demand to regulate the foot's temperature. Cold weather normally reduces blood flow to the limbs and hooves, but they can open up the shunt to their feet to temporarily increase blood flow and warm the feet. After they are sufficiently warmed up the shunts close again.

Warm blood flows from the heart in the artery down through the leg next to the vein that is sending cold blood from the extremities back to the heart as the run close together they work to cool the blood going down and warming it on the way back, this is called counter current heat exchange. A design that does not waste heat. This is also a coping mechanism that keeps their cold feet from chilling the rest of their body when standing in snow.

The horse's respiratory system is designed to warm incoming air. By the time the air gets through the upper airway, the air is warmer and not as abrasive to the lungs. Cold stress on the lungs, therefore, is minimal.

### Shivering

We have to monitor horses that shiver, this is another mechanism to generate warmth, burning fuel in the muscles. When minor, temporary shivering is normal but persistent trembling indicates the horse is struggling to maintain its core temperature and immediate intervention is needed in the form of shelter, blanketing, or extra forage. Shivering helps the body keep warm but at great metabolic cost and they may eventually run out of energy to keep up their body temperature in this manner.



Another way to keep warm is to keep moving, which is why you may see your horses play, run and buck when it's cold.

### Stable management practices in the winter

#### Shelter



Horses can normally withstand very low temperatures, but wind and rain significantly decrease the horse's ability to stay warm.

Access to shelter can help keep your horse warmer. This can be a run-in shed, a windbreak, a low spot in your field, a thick hedge or stand of trees. Anything that can block the wind.

You may notice that horses will also turn their bum against the wind to get some shelter and will huddle up together.

Shelters should be pinned down so high winds do not blow them over. Check they are in good repair and safe for your horse to be in, roofing can blow off or leak where the sides meet the ground. Make sure there is no area for your horse's legs to get stuck when laying down. Sometimes for extra warmth they can be bedded out with straw.

#### Blankets

To blanket or not to blanket is a big debate topic and it is dependent on many factors. Horses with a natural hair coat and in good condition will do fine without blankets if they can get out of the wind or rain.

Here are some general guidelines:

- **Body Clipped Horses:** Start blanketing when the temperature gets below 16° C, or anytime it is rainy or windy
- **Lighter breed fine Hair Coat Horses:** Start blanketing when the temperature goes below 4° C
- **Heavy Hair Coat Horses:** Start blanketing when the temperatures go below -15° C, but only if the horse is showing signs of being cold.

Horses that need to be blanketed sooner are:

- Horses without adequate shelter
- Horses that don't have access to enough quality forage and are in danger of losing too much weight if they spend their calories on maintaining their body temperature
- Horses that are underweight
- Horses that are old (over 20 years of age)
- Horses that are very young (under 2 years of age)
- Horses that are not used to the climate



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- Horses that don't have an adequate winter coat
- Poor teeth, parasites and disease will decrease the cold tolerance of horses.

Certain breeds do better in the cold than others. Drafts and Ponies are normally better equipped to handle the cold than light horses and in particular hot-blooded horses.

### **Important considerations!**

It is very important to keep in mind that there are times when blanketing or blanketing with the wrong type of blanket is worse than not blanketing.

A blanket will make your horse's hair coat lie flat, thus removing that insulating layer of warm air. If the amount of insulation in the blanket is less than what your horse's natural coat would provide, then he will be cold.

Make sure that any blankets used for turnout are waterproof! A wet blanket will make your horse cold.

Too many blankets, or too heavy a blanket will make your horse sweat. Stick your hand under your horse's blankets to make sure he is not too hot. Additionally, you should not see sweat marks on your horse when you take the blanket off.

Check your horse daily when its wearing a blanket, you may not notice changes in body weight or skin condition when it is wearing a blanket. Weather fluctuations may also require blanket changes. Make sure the blanket it still secure and no straps have gotten loose.



In the picture above we see horses with access to shelters and windbreaks and quality forage. To the left a warmblood not yet acclimatised to living outside wearing a blanket. In the middle a Highland Pony, due to its breed it does not require a blanket. On the right a pinto, also a warmblood that is used to the climate and also does not require a blanket. You can see the snow accumulating on the horses' backs, which means they are not losing heat through their coats.



### **Feeding**

#### **Water**

Most important is a reliable supply of water. During the wintertime horses often start drinking less. Without sufficient water the horse will not be able to process their hay, and this could lead to impaction colic.

Most horses will drink more in cold weather if the water is slightly warmer (2 - 10°C). In most Canadian climates this means the addition of a heater to the water tank. Make sure to check that the heater is working properly and does not 'shock' the horse, as it will keep the horse from drinking.

Snow is not a good source of water. Horses may need up to 10 times the amount of snow to produce enough fluid to process the forage. Plus, they would burn more energy raising the temperature of the snow.

Salt and mineral blocks should be available for your horse. Make sure the mineral block is appropriate for horses and your area. Adding salt to the horse's diet may encourage your horse to start drinking more in the winter and can also be added as a loose salt to your horse's feed. A full-sized horse requires around 2 tablespoons of salt per day.

Another way to add more water to a horse's diet is providing soaked feeds such as hay cubes or beet pulp.

#### **Forage**

Nature designed horses to gain weight during the summer and store fat to be used in winter when food is in short supply. You will see your horse naturally want to increase its food intake around the mid to end of the summer, this is also because they need to supply more nutrients to the body to increase the production of a winter coat.

If your horse starts out at a good weight (Henneke scale 5 or 6) at the beginning of winter, it is much easier to keep their weight steady. If your horse is skinny going into winter, it is much harder to put weight on or to maintain their weight.

We discussed that good quality forage can help in keeping your horse warm. Horses have a digestive system that ferments forage and that is their internal heater.

Most horses will need 1 to 2.5% of their body weight per day in forage. When the temperature dips below -15° C that needs to increase by approximately 1%. As the temperatures plummet further you will need to increase again.

Although the cost of feeding your horse will go up in wintertime, the extra cost of feed needed to rehabilitate a thin horse back to normal will equal or exceed the cost of the feed that should have been given to the horse to maintain its body weight.

Winter pasture should not be relied upon to provide the only source of forage for horses. Not only is the nutrient quality poor but, in deep snow, the maintenance energy needs of horses can increase by 40% because the horses must paw through the snow to find feed.



Giving your horse the correct nutrition throughout the winter will help ensure they enter spring looking and feeling their best.

### Winter Health Considerations

The largest concern during the winter may be impaction colic. The following may contribute to a higher risk:

- Natural decrease in water intake during the winter
- Replacing grass with hay. Forage is less succulent which further reduces water intake
- Decrease in exercise (riding less and possibly stabling / sheltering more)

Stiff, uncomfortable joints can occur due to less movement and cold. Cold can also exaggerate signs of arthritis.

With heavy snowfall, snow and ice will gather around horse's hooves. When the snowballs get large and heavy, they make it difficult for the horse to walk, and it stresses the joints and tendons in their legs. It may also make them more prone to slips and falls that can lead to injuries. Remove snow that packs into the hoof regularly.

In general horses will have better traction in the snow when they are barefoot, but if they are shod, snow pads can help prevent the forming of ice balls and borium or studs can provide more traction. Walking on icy surfaces can also cause bruising of the sole and in extreme cases this may lead to abscesses or laminitis.

Frostbite is something you will rarely see in horses. Most susceptible are the tips of the ears in newborn foals.

Horses that spend a large amount of time inside should be monitored for developing respiratory issues. This can also occur in horses eating dusty hay.

When your winters are wet, you should also be on the lookout for thrush, scratches and rain scald or rain rot.

Having horses in close quarters with other horses (as is often the case during the winter months) can increase the risk of spreading contagious diseases. Proper hygiene and quarantine protocols should be in place.

### Trailer in the winter

First and foremost, consider the road conditions. If the roads are bad reevaluate your need to be on the road with a horse trailer (e.g. emergency vet visit)

Horses in a trailer normally are able to warm up this small space through their own body heat. Be careful not to over-blanket your horse in the trailer. Likely a healthy horse with a good coat can be trailered comfortably during the winter months without a blanket.

Good ventilation remains important in the trailer, even during cold weather.



If our horse was exercised before they go on the trailer, make sure they are properly cooled out.

In Canada there are no formal rules for trailering horses in extreme cold and unfortunately very little information is available. The Horse Welfare Alliance of Canada advises that the temperature in the trailer should ideally remain above  $-10^{\circ}\text{C}$ . Considering that horses would raise the temperature in the trailer, the more horses in the trailer the higher the temperature, the temperature outside could actually be lower.

### Riding in the winter.

As the temperature drops you will need to change your exercise plan.

#### Outdoor riding

Riding outdoors in the winter can be a fun experience for you and your horse. Caution should be taken with ground conditions (ice is both slippery and hard) and knowing the area you are riding in (major holes or things on the ground that can't be seen due to snow).

Heavy deep snow can be hard on your horse, its like riding in deep sand, so you should not overdo it. Bruised soles and abscesses are common during the winter due to frozen ground and the freeze thaw cycle.

Shoes with ice nails, borium and snow pads can help if you intend to ride regularly in the winter.

How cold is too cold? That will depend a lot on the overall health of your horse and your tolerance to cold. Remember you still must make sure your horse is comfortable after you ride and you have to finish putting them and all your equipment away.

Usually  $-25^{\circ}\text{C}$  and below is a cut off for riding. Equestrian Canada advises against strenuous exercise below these temperatures. And extended warm and cool down periods when the temperatures are below  $5^{\circ}\text{C}$ . Make sure to consider the windchill as well.

#### Indoor riding

Even if you are riding in an indoor arena, warm up and cool down still should be longer than in normal weather. Take note that the indoor arena temperature should not be too warm. When it is below freezing outside, the temperature in the arena should be slightly above (up to  $10^{\circ}\text{C}$ ).

A proper plan for warm up and cool out is essential. Make sure you set aside enough time in your schedule to finish a proper warm up and possibly length cool down.





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The horse's body will need more time to warm up its tendons, ligaments and muscles. You will need a long cool out, especially if your horse is sweaty when you have finished riding – which is quite likely in the winter - they will need to be dry at skin level before they are turned back out.

A blanket on a sweaty horse will cause skin problems and may cause the horse to be too cold outside. Some people blow dry their horses. Do not blow dry their face (they hate it).

A clip can help with cool down time but blanketing clipped horses for the winter will be necessary.

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