Horse Health Prediction Research

***Surgery***

Horses require surgery for many diff reasons but the most common reasons for surgery include: Orthopedic, Soft tissue, abdominal, fracture repair, laceration repair, eye surgery, mass removal, etc.

***Age***

The average lifespan of a horse is 25-30 years. Here young horses are specified as foals up to 4 years old, and adults are 5 and above.

***Rectal Temp***

The normal rectal temp of an adult horse is 99.5 - 101.5°F. Temps below normal may indicate hypothermia and temps above normal may indicate a fever.

***Pulse***

A normal heart rate for an adult horse ranges from 28–48 bpm. Larger breeds are on the lower end of the range, while smaller horses tend to be on the higher end. Newborn foals will have a higher heart rate, ranging from 80–120 beats per minute, while yearlings range from 40–60 beats per minute.

***Respiratory rate***

The normal respiration of a horse is 8-16 breaths per minute. Heat, humidity, exercise, fever, and pain can increase the RR. A high RR is cause for concern.

***Temp of extremities***

A horse's extremity temp, particularly in the limbs, is typically lower than their core body temp. A normal range is 95-98.5°F

***Peripheral pulse***

This is slightly different from a regular pulse: it is the palpable wave of blood moving away from the heart through the horse's vessels. You can check it in the maxillary artery (under jawbone), radial artery (inside horses knee), digital artery (below fetlock), and under the bottom jawbone. The average is 25-45 bpm.

***Mucous membrane***

A horse’s mucous membrane are tissues that line the body cavities where skin meets a body opening. You can check it by lifting the horse's lip and checking color and moistness. Normal pink is average. Pale pink can indicate shock or infection. Bright pink indicated the beginning of toxicity. Bright red can indicate toxicity. Dark cyanotic (dark blue or purple) indicates oxygen deprivation and potential tissue damage. Pale cyanotic (light blue or gray) indicates poor blood circulation or anemia.

***Capillary refill time***

The CRT is a noninvasive test that measures the hydration, blood pressure and overall health of a horse. It involves pressing on a horse's gum and counting how long it takes for the color to return. Under 3 seconds is good, more than 3 is concerning.

***Pain***

Alert means no pain and it's responding to the environment. Mild pain is shown by stiffness in movement. Severate pain is shown by a withering head, unable to bear weight, and obvious discomfort. Extreme pain is shown by a horse not being able to move, agitated, panicky, etc. A depressed horse may be withdrawn, unresponsive, and anxious.

***Nasogastric tube***

None slight significant

Also known as stomach tubing, it involves passing a hollow tube up a horses nose into the stomach in order to administer fluids and treatments.

***Nasogastric reflux***

This occurs when fluid, food, or other contents build up in the stomach due to an obstruction. Less than 1 liter is normal, more than 1 is cause for concern.

***Nasogastric reflux ph***

The pH of this fluid can range from 1.5-7. It depends on the region of the stomach and time of day because throughout the day, more gastric juice is secreted by the stomach.

***Packed cell volume***

This is a blood test that measures the percentage of red blood cells. A normal range is 32%-48%. Below 30 indicates anemia, but above 48 can indicate a splenic contraction, which is common in critically ill horses.

***Abdomo appearance***

This is evaluating the color of the abdominal fluid. Seroanguinous is turbid and orange to bloody, which is cause for concern. Cloudy can indicate infection, inflammation, or other serious conditions. Clear is healthy.

***Abdomo protein***

The protein levels of a horse's abdominal fluid can indicate a horse's health as well. A healthy protein concentration is typically less than 2.5 g/dL.

**After conducting some research it seems like every feature is very important in its own way, so it’ll be up to the model to determine which features have the highest predicting power.**