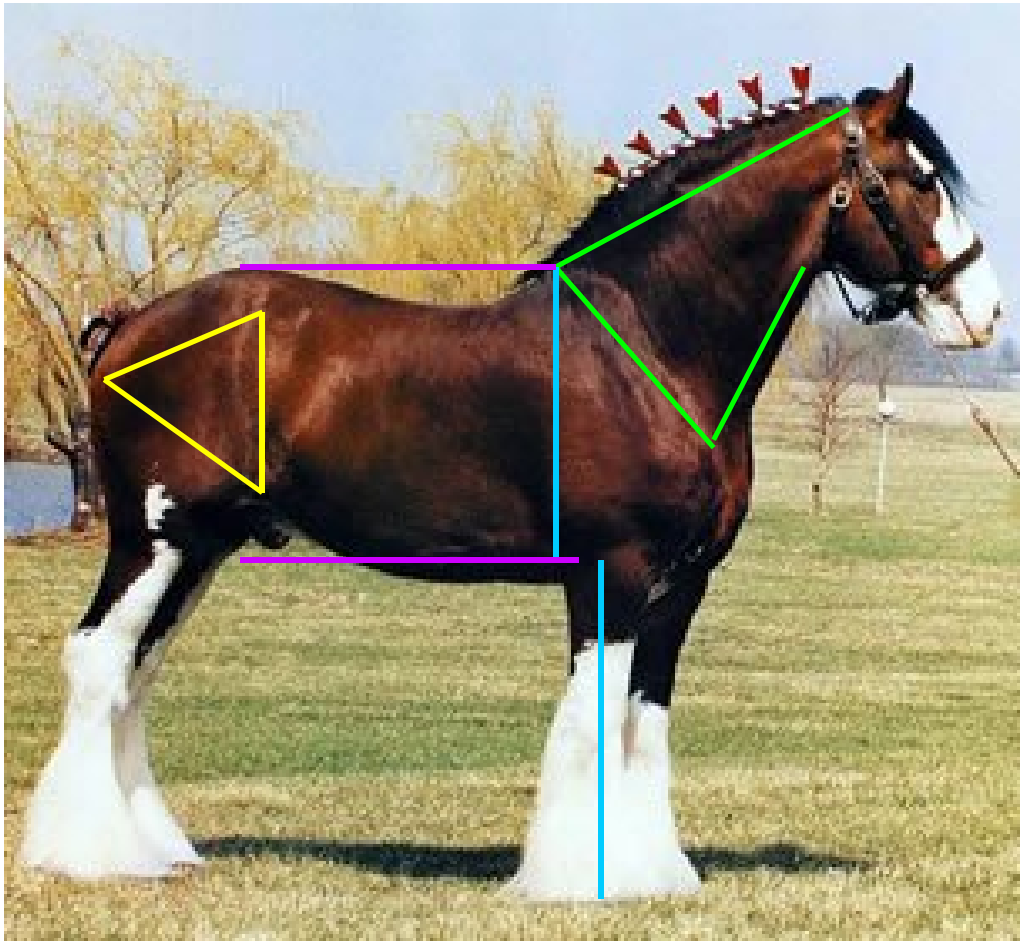
Riding Clydies
...and other heavy breeds or crosses
A Lucan Lodge Rider Guide

Draft horses and their derivatives have become very popular as ridden horses in the past several years. Clydesdale, Percheron and Shire crosses are the most common, and numbers have increased over several decades with a rise in the number of active adult riders. Heavy horses have been popular infusions to traditional Thoroughbred saddle horses in particular, due to their larger size, increased strength and often quieter temperament. Draft breeds and derivatives have some specific characteristics that make them excellent candidates for performance and pleasure, but also have some specific considerations, including genetics, management and conformation, to take in to account when embarking with them on ridden careers.

Understanding Conformation

Photo Report:



Green lines: The length of rein and shoulder are important to athleticism and ride quality. The top line of the neck should be about twice the length of the bottom line, with a shoulder slope of 45 to 50 degrees. Clydesdales should have higher head carriage, with medium length necks, well arched and deep across the shoulder. The shoulders are wider than those of a saddle horse, but lie close to the ribs at the top of the body, tapering into the back. Although the shoulder and pastern angles are selected for symmetry in saddle breeds, the Clydesdale can have a longer, more sloping pastern, (particularly on the front legs) designed to dissipate concussion, along with the more upright shoulder, designed to pull into a collar. Clydesdales should also have a shorter humerus and radius, keeping their forelegs set well, under their body, and maximising their power.

Blue lines: The vertical balance is important, with the heart depth ideally the same as the length of the legs. This ensures the horse has sufficient respiratory capacity for performance. Clydesdales should have deep bodies, with an equal leg to heart depth ratio, allowing them to use their weight to best advantage. Clydesdales are bred for good bone – dense, strong and large lower leg bones especially. The legs (both front and back) are set under the horse's body, with the muscles of the shoulders and quarters protruding well beyond them when viewed from the front or back. The legs are quite close to each other, with turned-in hocks and turned-out hind feet.

Yellow lines: The hindquarter is essential for forward and active movement. The lines from point of hip to point of buttock and stifle should show a deep, level hindquarter. Clydesdales have a long croup, with a well-rounded haunch, and wide hips. The thigh (fibula) is short and strong, and the gaskin should lie at an angle of about 45 degrees.

Purple lines: The horizontal balance is important for athletic ability. The topline should again be shorter than the underline, producing a strong back and long stride length. The Clydesdale should have a short broad back, with a wide and short coupling (sacroliliac region), although their coupling may be longer than that of other draft breeds. Clydesdales are usually built 'downhill', with a higher croup than wither.

Clydesdales are bred for good action, and selected for range of stride with the hind legs particularly. Stepping short is a fault, and as well as tracking well forward, the leg joints should also bend and elevate with each step. This gives an overall impression of a lively action, rather than a flat level stride. The hind feet travel very close to each other in motion.

This image demonstrates the desirable high Clydesdale knee and hock action at a trot.

Unique Clydesdale

hind leg conformation

Shires also have specific conformational points of difference to other breeds. They have larger heads than many other draft breeds, bulky shoulders, rounded loins (coupling) and powerful legs. They are also touted as one of the most docile of the larger breeds. They can be more heavily feathered than other drafts, but feathering was selectively reduced when Shires became established in America.

Percherons have less feather, and can be slightly smaller than Shires or Clydesdales, with a quicker action, but still a very docile temperament traditionally. They have a significant Arabian influence in their gene pool. Percheron stallions have a high degree of prepotency, so when crossed with mares of other breeds to offspring retain a lot of the Percheron characteristics. This has made them popular as cross sires, currently and historically (in the early 20th Century registered Percherons outnumbered Shires and Clydesdales more than three to one).

Understanding Genetics

Breeding

Clydesdales have developed from Flemish, Cleveland Bay and Friesian stock, as draft (hauling) horses rather than saddle mounts. They are a true 'cold blooded' breed. Percherons have Arabian blood however, mixed with their French native genes. Having been selective bred for power, rather than speed or agility, Clydesdales and other drafts have adapted over the centuries to have different musculoskeletal and metabolic functions.

A comparison of force, speed and oxygen consumption between draft and thoroughbred horses under load showed that drafts used about half the oxygen, performed at about half the speed, and had a lower speed at which they showed peak efficiency. These factors are probably caused by the differences in contraction velocities of the locomotor (moving) muscles, which are the result of these centuries

of selective breeding. We can anticipate that the stronger the draft influence in a horse, the slower the contraction velocities of their muscles, and the lower their aerobic capacity. The popular cross with thoroughbreds will improve the speed efficiencies of drafts, but a heavy horse will, by virtue of its genetics, not be as suitable for fast work as lighter breeds and crosses. Thoroughbreds also had a nearly ten percent higher stride frequency at a gallop than drafts in a Kansas State University study, twice as high as was expected on the basis of bodyweight. The researchers proposed that thoroughbreds must have also had higher muscle elasticity to achieve this advantage over the drafts.

A Clydesdale Thoroughbred cross

Muscle constitutes around 53% of body weight in adult thoroughbreds, but possibly only around 45% in draft horses. Draft conformation is geared more to the mechanic of pulling at sub-maximal intensity, rather than running at maximal intensity. Drafts may have even 'devolved' to have lower lung capacity than prehistoric horses. They also have genetically lower amounts of fast twitch muscle fibres than thoroughbreds and a higher proportion of slow-twitch fibres. These differences exist in unconditioned, unbroken horses, so are not a result of training.

Management

Feeding

- Clydesdale and Clydesdale cross mares produce more milk than most other breeds, and this can lead to growth problems in their offspring or fostered foals. Developmental Orthopaedic Diseases range from bone cysts to wobblers syndrome, and over-nutrition during growth is a major cause. DOD is more common in Thoroughbreds, Standardbreds, quarter horses and warmbloods than in the heavier breeds, which may be because they are fed higher-energy rations to promote earlier development for their disciplines. *Performance* Clydesdale cross foals are therefore at fairly high risk of DOD, as they are potentially oversupplied with milk as well as hard feed.

  Any large breed of mammal is at risk of DOD if it grows too quickly. Clydesdales and other drafts are the largest of the horse breeds, and as such at highest risk naturally. Even though the ridden breeds display a higher *prevalence*, they probably do not have a higher natural *predisposition*.

- Draft breeds should be fed diets higher in fats and fibre than carbohydrates and starch, due to their increased prevalence of muscle disorders like EPSM, which is discussed more under *Health Issues* below.

- Clydesdales, or other heavy breeds or crosses, need to consume more food than lighter horses. All horses need to eat about 1kg of roughage per 100kg of bodyweight, and with drafts weighing in anywhere from 600kg to a ton, as opposed to thoroughbreds which range from about 400 to 600kg, you can expect to feed an extra two to four kilos of hay a day. The total amount fed should be around 2% of their bodyweight per day, which can add up to 20kg for a 1,000kg horse.

- Unfortunately, malnutrition is common in heavy horses, as owners either do not feed enough to compensate for their high maintenance requirements, or feed too much to young stock while they are growing. The higher fat diets, although excellent for preventing muscle myopathies, can also result in a poor mineral and vitamin balance if supplements are not fed. A study of Percheron geldings found that standard provisions of calcium and phosphorous were inadequate for them, indicating that draft breeds may have higher natural requirements for these minerals than most other horses.

Health Issues

Diet has a significant impact on the likelihood of Clydesdales and other drafts to succumb to some of the health issues they are genetically predisposed to.

- EPSM, or Equine Polysaccharide Storage Myopathy, is extremely common in draft breeds, with 87% found to be positive for the genetic mutation that causes it (in about 85% of cases), as opposed to only 24% positive in other light horse breeds. EPSM has been implicated in or associated with 'tying up' (exertional rhabdomyolysis or Monday Morning Disease) as well as muscle wastage and 'shivers', difficulty backing up, and difficulty rising after lying down. The genetic mutation stops the horse being able to digest carbohydrates properly, resulting in insufficient energy being provided to the muscles. This leads to muscle damage during exercise, which can be severe and even fatal. This is where higher fat diets become necessary for heavy breeds, as an alternative energy source to carbohydrates. Vitamin E and Selenium have also been suggested as beneficial supplements.

- As discussed, drafts, because of their sheer size, are predisposed to Degenerative Orthopaedic Disease (DOD), which is often triggered or exacerbated by improper feeding. DOD related issues include:

  Osteochondritis dissecans (OCD): thickening, cracking and tearing of the joint cartilage of growing horses. Loose fragments of cartilage or bone may be present in the joint space, causing swelling, pain and lameness.
  Physitis: inflammation, thickening and flaring of the growth plates in the lower end of the tibia (gaskin), radius (forearm), or cannon bones.
  Angular limb deformities: outward or inward deviation of the lower legs, involving the knee, hock, or fetlock joints. An angular limb deformity of the knee will result in either a knock-kneed or bow-legged appearance.
  Flexural deformities (contracted tendons, club foot): tightening or shortening of the flexor tendons at the back of the lower legs, producing a "knuckled over" or upright appearance to the limb. The knee, fetlock and coffin joints are most commonly affected.

Subchondral cystic lesions (bone cysts): fluid-filled cysts occurring within a bone. The lesions most commonly affect the lower end of the thigh bone (femur) at the level of the stifle, but can also be found in the knee, fetlock, pastern and shoulder joints.
Cervical vertebral malformation (wobbler syndrome): compression of the spinal cord in the neck, causing weakness, uncoordination and an unsteady gait. This is usually most obvious in the hindlegs, but can progress to also involve the forelegs.
Cuboidal bone malformation: malformation or collapse of the small bones within the hock or knee joints. This may cause lameness, sickle-hocks, or angular limb deformities.

- Draft horse teeth may 'age' faster than those of other breeds. One comparative study of draft horses with Standardbreds showed the draft horse incisors were more liable to wear down, and changed appearance earlier. As well as having implications for the viability of draft horses as they age, it could also mean that draft breeds are attributed higher ages according to their dentition than they should be.

- Clydesdales, Shires and Belgian Drafts are also prone to Chronic Progressive Lymphedema. The dermal (skin) lymphatic system malfunctions in this disease, resulting in severe swelling and fibrosis, immune compromise, and secondary lesions and infections, which are not very responsive to treatment. Over time the thickening becomes permanent and hard, and exercise can exacerbate the cracking of the skin. Affected horses are not usually able to be rehabilitated and brought back into work.

- Clydesdales also seem to be more prone to hoof canker – a thrush-like overgrowth of the frog and sole, with an associated 'rotting'. Clydesdales and other Drafts require experienced farriers to help balance and maintain their very large hooves, and manage canker if it occurs.

- In one study of nearly 50 Clydesdales, some degree of abnormal arytenoid movement (movement of the cartilage in the throat) was observed in 50% of the animals over one year of age. This makes these individuals more prone to 'roaring', as the cartilage does not move far enough out of the airway when the horse is exercising strenuously. The arytenoid cartilage and vocal cord lie across the throat as air rushes in and out, blocking the flow and making a loud noise (a roar, or whistle). Even partial paralysis of the dorsal cricoarytenoid muscle, which moves the cartilage aside, will have an effect on performance. Another study found that 5% of Clydesdales tested had some luxation (collapsing) of the cartilage even at rest. On average, the finer, longer necked Clydesdales in the first study had a higher incidence of abnormal movement, so if this body type is a contributing factor, the prevalence could be even higher in saddle-breed crosses.

Understanding Retraining

Many draft horses are broken first to harness and then to saddle. As with Standardbreds, the transition from harness to saddle is usually not a difficult one, although special consideration needs to be taken when attiring a draft horse or cross. Poorly fitting saddles and bits are common, as it is hard to source large or broad enough tack. Poorly fitting tack can cause physical and behavioral problems.

The particular strengths and weaknesses of Clydesdales and other drafts for work under saddle needs to be considered before a training program is undertaken. They have been bred for power, not speed, so their muscles and lungs are harder to train for fast work than those of lighter horses. And their conformation also plays a role:

- The higher, longer croup makes it slightly harder for the classic Clydesdale to engage and collect its hindquarters, and elevate the forehand.

- The close-set hocks can cause interference, and place additional strain on horses worked at speed, especially in fast trots or canters. The steep long croup enhances upward action, but reduces forward reach.

- The power of a pulling horse comes from the forequarters, as opposed to the hindquarters for a dressage or jumping horse. Coupled with the prevalence of ESPM in drafts, which can result in a weakened hindquarter, the natural tendency to be heavier and deeper in the neck and shoulder can impact their versatility for performance disciplines.

- The more upright shoulder and shorter humerus, while enhancing the high action of the Clydesdale, can limit its forward reach on the straight, when bending and for lateral movements. The setting of the elbow directly under the wither can contribute to a bumpier ride, although the sloping pasterns to dissipate some of the extra concussive force of the hooves landing.

Special Note: 'Couping'

Some owners and handlers of halter Clydesdales 'coup' the horse. Couping is the process of elevating one side of the hind shoes only, to encourage the desirable 'close together' placement of the hind feet. Couping (especially when done on young growing horses) may cause damage and discomfort, and the effects on bone and ligaments are potentially long lasting. Such horses should be thoroughly vetted before being brought into ridden work.

The Last Word

Despite being dispatched of in large numbers after the advent of improved vehicles and farm machinery between the two World Wars, and nearly made extinct, Clydesdales and other draft breeds are making a comeback as riding horses, especially crossed with lighter saddle breeds. New breeds are being registered and recognised, including Clydesdale Cross Sport Horses and Percheron Warmblood Competition Horses –the famous Peppermint Grove was one such horse! Heavies are making a comeback, due as much to their sweetness as to their strength and size. We can look forward to seeing more and more of them in the near future!

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Resources:

Clydesdale Cross Sport Horse Association

http://www.ccsha.com/about.html

Percheron Warmblood Competition Horses

www.percheron.com.au

Shire Horse Society Australia

www.shirehorsesociety.com.au