

# TALKING DRESSAGE

ISSUE 3 2010



## From the editor...

It's now well into another year of training and competition for dressage enthusiasts. Although around 65% of competitive dressage riders are 35 or older, a large number of younger riders are competing on a regular basis. The dedication of these younger riders balancing studies, work and family commitments has to be commended. With pony dressage becoming popular as well, dressage is still the fastest growing horse sport discipline in Australia.

In this issue, we discuss the conformation required for soundness in a dressage horse. Many young horses develop limb abnormalities if their rate of growth is excessive for their age. We provide a simple measurement of upper limb length which can provide an estimate of a horse's stride flow, stride length and movement - useful when you are purchasing a new horse.

We touch on summer laminitis which is a particular problem in older Warmbloods suffering from underlying Equine Metabolic Syndrome (EMS) and associated insulin resistance (IR).

We also include an interesting Research Roundup which has significance when requesting a vet check of a well performed dressage horse.

All the best for 2010 and enjoy your dressage.

*Dr John Kohnke BVSc. RDA*

## Research Round-Up

### Pre-Purchase Imaging of Bones and Joints

A recent paper presented by Dr. Richard Mitchell of Connecticut USA at the Am. Assoc. Equine Practitioners Annual Dec 2009 Convention in Las Vegas, compared the various forms of imaging now available for pre-purchase examinations of a performance horse. The extent of the imaging techniques that can be carried out depend on the purchase price, the amount of money which can be budgeted for imaging, the local availability of the imaging equipment and the skill of interpretation. Generally for horses over \$10,000, more sophisticated imaging is recommended, especially in horses over 10 years of age.

Good radiograph (X-ray) technique is the basis for joint imaging when operated and interpreted by experienced veterinarians. The new digital X-ray technology, which does not use film to capture images and allows fine adjustments to be made to enhance specific lesions within the image, improves the accuracy when pinpointing mild joint or bone changes not visible on conventional radiograph film images. It is essential that good X-ray technique should be complemented by a thorough physical examination including palpation, joint flexion tests and trot outs in a figure '8' pattern. Dressage horses commonly develop front fetlock, hock and stifle-related lameness as they age, so particular attention must be taken of these joints.

#### HANDY HINT 2: Reducing Stable Weaving

A number of highly trained horses can develop the weaving 'stereotypic' habit or vice over the stable door when boxed. Chronic weaving can place excessive weight and torsion/twisting forces on the lower limb joints and hooves. The habit of running the fence line has a similar affect on the lower limb joints. Although there are various reasons put forward why a horse starts to weave, in most cases, it is considered to be due to boredom of confinement. Older methods to curtail weaving included the use of hobbles and weaving chains. Recent observations suggest that placing a large mirror on the inside of the stable wall next to the door or window where the horse stands to weave can help to overcome this habit. It is believed that the horse sees the mirror image of its weaving movement and becomes confused - the weaving stops in 90% of cases, even in chronic weavers!  
Try it!

Ultrasound imaging of tendons is also a useful imaging modality in older horses, but often the limbs have to be clipped to obtain clearer images and many sellers are reluctant to allow clipping as it can highlight the area of scanning to another prospective buyer until the hair grows in 2-3 months. However, if all legs are clipped to the same extent, instead of the one 'suspect' limb with tendon swelling, then some owners are prepared to allow ultrasound imaging of tendons and ligaments as a pre-purchase exam evaluation. Many joint problems can be confirmed by ultrasound following reduced flexion tests where X-rays are not conclusive.

Nuclear Scintigraphy can confuse X-ray findings, but it is helpful determining bone decalcification associated with navicular syndrome, pedal osteitis, bone demineralisation and sesamoid injuries. It is costly, but it can help confirm clinical findings.

MRI is another new modality which is considered to be the ultimate imaging method for locating musculo-skeletal pathology, even in an apparently sound horse. However, only some specialised equine clinics and University Centres currently have MRI facilities. It is useful to identify developing bone, joint and soft tissue injuries in older horses and improves the accuracy of a pre-purchase examination. However, MRI can identify pathology which may not affect a horse's future career as a dressage horse and complicate the interpretation of the imaging findings.

Reference: R D Mitchell (2009) AAEP Proc 55 pages 296-300

### In this issue...

- \* **Research Roundup - Pre-purchase imaging**
- \* **Conformation for Dressage - Soundness and Movement**
- \* **Summer Laminitis - be vigilant**

**Plus handy hints and lots more!**

#### HANDY HINT 1: The Best Form of Warm-Up Exercise

It is important to warm your horse up by routine low level exercise prior to dressage training in an arena. Studies have shown that leg stretching exercises do very little in terms of preparing muscles for loading as these exercises are passive non-loaded movements. Lungeing is the most common form of warm-up, but observations indicate that in a well conditioned horse, excessive loading and strain can occur on the inside front limb and fetlock on the circle before these structures become readily flexible and gain full movement. Studies have shown that lungeing at a trot, even in a wide diameter circle in excess of 3 minutes, can overload the lower limb joints in a heavy horse. Horses should not be worked at a canter on a lunge circle.

One of the most beneficial warm-up routines is to lightly massage the neck, shoulder and hind quarter muscles for 10-15 seconds on each side, then walk the horse (already geared up) over 3 parallel jumping poles spaced 4 metres apart on a flat surface, at an angle of 45° to the poles, in a figure 8 pattern for 4-5 laps. This exercise helps to flex the upper body and spine, strengthen the sacroiliac and lower back area, stretch muscles on both sides on the figure '8' turns and encourages the horse to lift its legs and lightly flex the tendons. Then a walk to the arena, mount and walk 60 metres up the centre line in a zig-zag pattern, turn at C and lightly trot in a zig-zag, shoulder in movement back to A to warm and limber up for the day's training exercises.

**Kohnke's Own® Contact Details**

FREECALL 1800 112 227 - FREE FAX 1800 112 228

Website: [www.kohnkesown.com](http://www.kohnkesown.com) - Email: [info@kohnkesown.com](mailto:info@kohnkesown.com)

Postal Address: PO Box 3234, Rouse Hill, NSW, 2155

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# Conformation for Dressage – Soundness and Movement

The breeding of Warmblood horses, sport horse - draught crosses and Thoroughbred - Warmblood crosses for dressage, has resulted in a heavier boned and muscled horse with natural, inherited 'big' movement. The retired Thoroughbred racehorse was the mainstay of equestrian and the fledgling Dressage sport for many years. These animals often carried a legacy of musculo-skeletal injury and unsoundness which caused lameness issues in the long term training of competitive and upper level dressage horses.

Another example of potential for limb stress injury as a horse ages, is the Warmblood - Thoroughbred cross producing an athletic, tall horse with a Warmblood's size, weight and appetite, but often carried on 'spindly' Thoroughbred limbs. Soundness can be an issue in middle age or older when such a horse reaches the higher levels of competitive dressage.

Is a 'heavy-boned' young horse with the size, 'big' movement and 'presence' the best choice? It certainly is a way of providing the foundation of strength and soundness required for a long career in dressage. The major difference in dressage horses is that a dressage career can extend to the late teens for a well performed horse, an age at which most other competitive horses have broken-down or have been retired to stud or the paddock.

Heavy body condition, above average height and muscle strength, can be a disadvantage in terms of increased weight bearing and loading on limbs and joints in younger horses.

## A Suitable Age to Start Training

Some inherited and acquired conformational defects, including limb deviations, can be caused by excessive body condition and weight loading, especially in a young horse less than 3 years of age. Other musculo-skeletal stress conditions with a potential to cause breakdown injuries are influenced by the depth and cushioning of the working surface, the degree of concussion, speed of exercise, poor farriery techniques as well as diets inadequate in important bone and joint minerals.

## Conformation

Conformation is a key factor in the long term soundness of any athletic horse, especially if it is to be trained to the highest level of horse sport discipline, such as dressage.

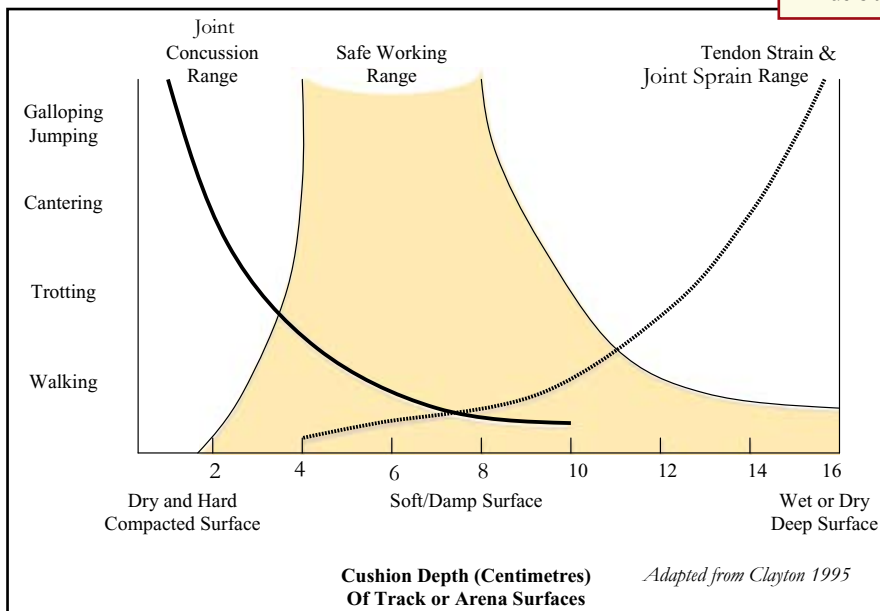
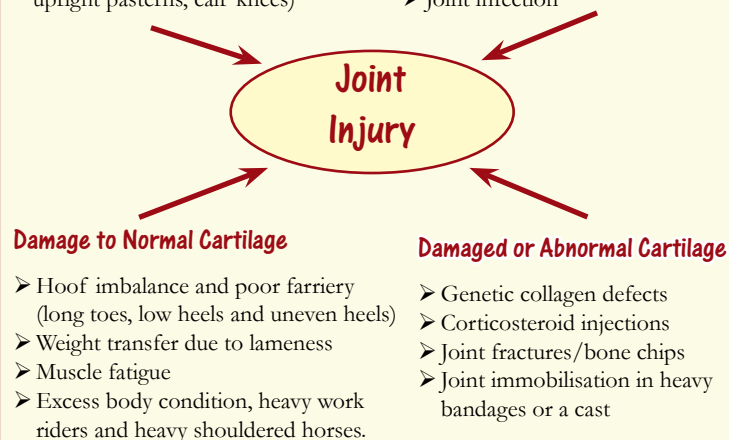
Conformation is not just having straight, strong limbs, clean joints and good body proportions. It is the whole package of musculo-skeletal strength, upper limb length for movement and even 'inherited' bloodline history of soundness.

### Abnormal Exercise Stress

- Repetitive impact loading
- Overloading/high speed exercise/accidental falls
- Concussion on hard surfaces, sprain on deep working surfaces
- Conformational abnormalities (eg upright pasterns, calf knees)

### Normal Exercise Stress

- Joint membrane inflammation
- Joint 'looseness' - weak or strained ligaments
- Cartilage and/or bone inflammation
- Ageing and deterioration
- Joint infection



### HANDY HINT 3: Conformation of the Hocks is important

Surveys indicate that dressage horses are prone to progressive arthritic changes affecting specific joints. The hocks are the first joint affected due to 'impulsion' loading, then the front pastern joints, the middle joint in the knees and lastly the front and rear fetlocks. In a young horse worked too hard before maturity the fetlocks and hocks are the first joints to develop overloading and 'wear and tear' injuries. When purchasing a young horse for dressage training and competition, ensure that it is well conformed, has strong hocks and is sound in all other joints. In an older advanced horse, it is important to seek a soundness check, focusing on the hocks, pasterns, fetlocks and knee joints. These are the high risk joints which are more prone to 'wear and tear' and arthritic change as a dressage horse ages. Refer to pre-purchase imaging on page 1.

Many Warmblood breeds do not reach skeletal maturity until 5-6 years of age. A 'work and rest' training schedule is considered the best way to educate and develop a young horse to help ensure the best chance of long term soundness. This schedule includes breaking-in at 2 ½-3 years over a 3-4 week period. This is followed by paddock rest for 1-2 months. Then repeat short 3-4 week periods of education and training, interspaced with paddock rest, until 4 years of age. Such a program can significantly reduce the risk of joint and limb abnormalities developing in a young horse and set the foundation of musculo-skeletal strength in preparation for a long term career in dressage.

Pushing a young horse too fast, too early, on a hard or very deep arena surface, with an inadequate diet, increases the risk of long term soundness issues.

Soundness is also influenced by the growth and development of the young horse, often related to its genetics, diet and rearing in the first 5 months in particular, as well as from weaning until 18 months of age. These factors can influence future long term soundness - an important criterion in the career of any dressage horse.

Too many riders have spent countless hours, days and years in schooling and achieving a high level of competition skill, only to have a middle-aged horse start to develop joint and tendon problems because of poor nutrition and management as a youngster. If you breed your own dressage horse, you can have control on its upbringing - if you purchase a young horse over 2 years of age, you have no influence on its critical formative first 2 years.

**HANDY HINT 4: The Formative First 6 months of Life**

Drs Barneveld and van Weerin carried out studies of Warmblood foals in Holland during 2000-2002. They demonstrated that joint cartilage formation and maturation on joint surfaces was completed by 5 months of age in a growing foal. The factors that increased the risk of weak musculo-skeletal and joint formation during this critical period were imbalanced and inadequate mineral and trace-mineral nutrition, excess body weight gain and growth rate due to high grain based diets and restricted exercise by confining young horses to yards rather than allowing free paddock exercise to promote strong healthy cartilage in joints.

**Breed Influences**

Breed, bloodline or genetic influences can also be critical factors in long term soundness. Some breeds, such as the Swedish and Belgium Warmbloods, appear to have a genetic tendency to develop DOD or Developmental Orthopaedic Disease. DOD is now referred to as Development Skeletal Problems (DSP). DSP is manifested by the development of 'big joints' or growth plate abnormalities (epiphysitis in the knees and hocks and physitis in the fetlocks), bent legs or limb deviations and internal joint cartilage weaknesses, rather than inherited poor limb conformation. DSP is not a disease as such, but more of a condition resulting from multiple causes, especially restricted exercise and excess feeding which can be manifested in animals with a genetic tendency for rapid growth rates. The genetic or breed influence increases the risk of abnormal calcification of bones, poorly formed cartilage, limb deviations, joint growth plate abnormalities and severe cartilage defects, such as Osteochondritis Dissecans (OCD), in the shoulder and stifle joints. The environmental influences are an excessively rapid growth rate (many Warmblood breeds are extremely 'good doers' as foals and weanlings), reduced paddock exercise, imbalanced diets with excess starch energy from grain and/or high producing grass 'cow pasture' and/or protein excess. Lack of adequate trace-minerals, including copper, zinc, manganese and selenium in the growing ration is also a contributing factor. Many owners of these and other Warmbloods often do not recognise the signs of DSP early enough and although they may reduce the energy intake in a weanling's or yearling's diet, for example, by cutting the amount of a commercial feed, they often fail to supplement with extra trace-minerals to correct the shortfalls in the diet to assist and foster normal joint formation.

**Upper Limb Length and Movement**

A long hind limb above the hocks and forelimb above the knees, provides the stride length and 'leverage' to create extended movement and power for propulsion.

Whilst 'propulsive' power from hind quarter muscle development provides the strength for long, suspended and floating stride desirable for the passage movement, it also helps to provide the strength and propulsion power, as well as stride length and 'leverage' in the extended trot movement.

Many Warmbloods, due to their Draught Horse heritage for size and strength, inherit short cannon bones and a long upper limb length for power and stride 'leverage', consistent of the draught or 'pulling power' of their ancestors.

**HANDY HINT 5: Fertility in AI Stallions**

There are many reasons for reduced semen quality and fertility in an AI collected stallion. Semen quality generally starts to reduce once a stallion is 13 years of age or older. Other common causes include obesity with insulin resistance (type II diabetes) and either a lack of fitness, or excessive exercise and lunging to improve physical fitness which tire a stallion and reduce his libido for natural and AI breeding. Diet can also influence semen quality. A low or inadequate intake of phosphorus, zinc, Vitamin E (and/or selenium) and Vitamin A can result in lower semen volume and sperm motility. Providing a well balanced diet with access to grazing and exercise can help maintain fertility. Recently, a number of breeders with AI stallions have found that a course of **Kohnke's Own Muscle XL** helps to correct low levels of zinc, Vitamin E and sulfur in the diet, as well as provide the highest quality protein available.

Their observations suggest that a daily supplement of 50 - 60 g Muscle XL given during the high demand AI collection period is helpful in maintaining optimum fertility in a working stallion.

**Offset Cannon Bones**

Predisposes to:

- High splints
- Knee weakness
- Hoof concussion



Varying degrees of 'offset' cannon bones are the most common conformation fault, which shifts upper limb weight onto the inside splint bone on the front limbs, with risk of high splints in young, heavy horses worked on a hard, concussive surface or lunged on a tight circle.

**Evaluating Upper Limb Length**

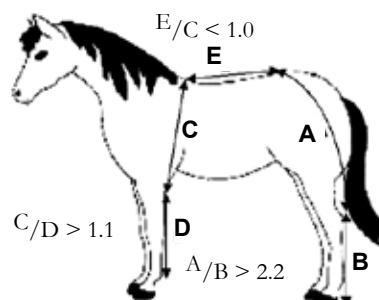
Simply viewing a horse from the side will provide a guide to the relative proportion of upper limb length to lower limb length in the standing horse.

The upper limb proportions can be easily measured using a method pioneered by the late Larry Dodson, an American feedlot expert who grew up in North Dakota USA and had a passion for thoroughbred racing.

As a young boy back in the 1930's, Larry lived on a Native American Indian reserve and learnt how to ride from an early age. The Indians also showed him how they measured their horses, (native Appaloosas), to estimate stride length and speed. Using reeds as strings, they measured upper and lower limb proportions. After settling in Australia over 40 years ago, Larry painstakingly measured over 20,000 Thoroughbred horses from photographs and in the flesh to develop his limb ratios.

His widow, Glenda, has allowed me to publish his measuring system which can help score a horse's hind limb leverage, strength and propulsive 'power' during medium and extended exercise movements.

The system is accurate from 18 months of age in a young horse and can provide an additional criterion on which to select a horse that you have bred or are purchasing for dressage.

**Lumbo-Sacral Joint****Evaluating Upper Limb and Stride Length**

Horses with short cannon bones and longer upper limbs from the hocks and elbows have a longer stride length and speed when working. When the horse is standing square, a tape measure can be used to measure length ratios between the upper and lower limbs on the near side.

**Measurement A (Upper Hind limb Length)** - From the lumbo-sacral joint (see location on diagram) in a line following the shape of the rump to the point of the hock. Larry found that elite racehorses had an upper hind limb length of more than 140 cms.

**Measurement B (Lower Limb Length)** - Point of hock directly to ground surface. Ratio A divided by B should be greater than 2:2.

**Measurement C (Upper Front Limb Length)** - Mid withers (flat area) to point over shoulder to point of elbow.

**Measurement D (Front Lower Limb)** - Point of elbow to point of fetlock. Ratio C divided by D should be greater than 1:1

**Measurement E (Length of Back)** - Ratio E divided by C should be less than 1:0

These measurement ratios can provide a guideline to length of stride and are more accurate from yearling age and older as the skeleton matures.

**Conformation and Soundness**

Conformation can have a direct influence on a horse's long term soundness and correct movement for dressage.

Readers are referred to the website [www.kohnkesown.com](http://www.kohnkesown.com) for the review article on Conformation and Soundness, originally published in the book Talking Horses Common Problems Edition 1 pages 5 & 6.





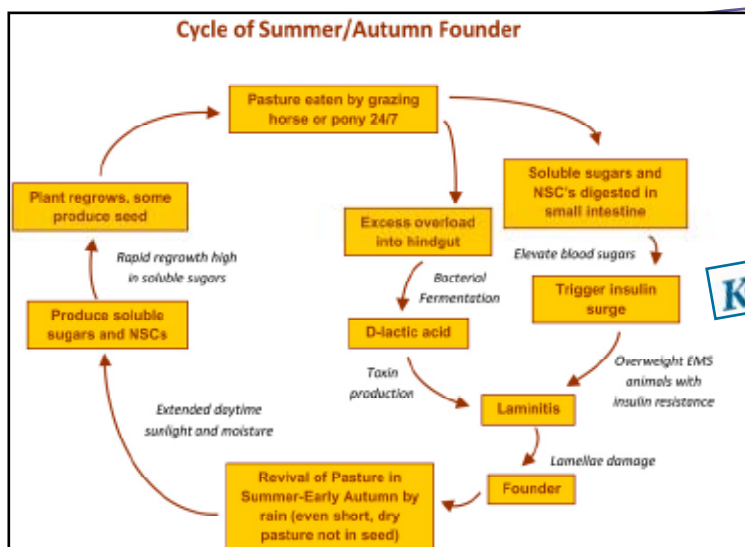
# Summer Laminitis

The 2009 - 2010 summer season has seen an increase in the incidence of what is termed 'summer laminitis'. Many older dressage horses in good condition were turned out over the Christmas holidays onto short, dry pasture for 24/7 grazing and recreation as a spell from training.

The pasture conditions in many parts of Victoria and Tasmania, being in a winter rainfall area, resulted in pastures drying off early in warmer months of October and early November. An unseasonal rain period in mid November 2009 rejuvenated the grass based pastures as green pick. A normal very hot and dry period in early to late December with no rain, dried off this re-growth and the short, growing succulent plants went into stress mode.

The short dead and sparse pasture appeared to be safe for extended daytime turn out periods or 24/7 paddock spell. However, the sudden drying off of the plants resulted in an increase in the soluble sugar content of the plant bases.

The high risk horses were those in good condition, ranging from 10-14 years of age, which over the years of training and hard feeding, had developed Equine Metabolic Syndrome (EMS). This results in an intolerance to glucose and soluble sugars (high in the stressed 'highly palatable' dying grass - often ryegrass, cocksfoot, paspalum and fescue based - in horses with an already balanced 'knife-edge' of reduced sugar tolerance and underlying Insulin Resistance. This is a 'Type 2 Diabetes-like metabolic syndrome resulting in high circulating blood insulin hormone levels which can trigger laminitis and founder in as little as 2-3 days. The daily exercise of training helped these horses to 'burn' up blood glucose, but once they were turned out to spell on the high risk 'sugary' pasture, insulin levels overshot and resulted in laminitis.



## Shoeing and Turning out a Horse with Laminitis?

There are many 'schools of thought' about shoeing and exercise for a horse recovering from laminitis. Recent observations suggest that leaving the hoof as natural as possible without shoeing during the laminitic phase appears to be the best option in many heavy horses. Avoid interfering with hoof angles during the 'lame stage' of laminitis. Do not turn a horse out even after it can walk soundly again – walk it on the lead daily for 5-10 minutes for 2-3 weeks on soft damp ground or saw dust spread out on the arena. It takes up to 6 weeks for the lamellae to regain their supportive action and any over-loading by 'hooning' around in a paddock or yard after turn-out, can damage the healing lamellae.

After the horse has recovered, the hooves can be trimmed and shod with reverse shoes and other corrective bare-foot trimming. Discuss the options with your vet.

## Managing IR-induced Laminitis

If a resting or working horse under the conditions described at left, develops foot soreness and laminitis, prompt confinement to a small yard or stable, anti-inflammatory medication with 'Bute' or other pain-killers twice each day is essential. Icing the hooves at least 2-3 times daily for a minimum of 30 minutes each time in a tub of ice, or bags of ice wrapped around the hooves, is beneficial to reduce pain and inflammation and restore blood flow to the lamellae. Standing the horse on a bed of damp sand in front of the feeder will help to minimise the extent of internal collapse and pedal rotation within the affected hooves. Change the diet immediately.

1. Do not feed 'grassy' hay - especially ryegrass/cocksfoot/paspalum/fescue mixtures or 'meadow' hay with clover, unless it is soaked in double its volume (1 biscuit = 15 litres so soak it in 30 litres) of warm water to leach out soluble sugars and then air-dry the hay for a couple of hours in a hay net before feeding.
2. Feed half a biscuit of soaked lucerne hay per 200 kg bodyweight to provide quality protein and calcium to assist repair and attachment of the lamellae.
3. Feed a small hard feed of half a cupful of sugar beet (soaked) and litre of lucerne chaff per 100 kg body weight each morning and evening. Do not allow paddock turnout or grazing.
4. To help make up shortfalls of salts and soluble nutrients leached out when the hay is soaked to reduce the sugars, add 10 g **Kohnke's Own Cell-Provide®**, 10 g **Cell-Salts™** and 15 g **Trim™** per 200 kg body weight in each of 2 small feeds per day.

### HANDY HINT 6: Consider a Glucosamine Supplement during Recovery from Laminitis

A daily glucosamine supplement, such as **Kohnke's Own Nutricart®** with MSM and trace-minerals, can help assist joint function and provide structural nutrients for hoof repair. A supplement of Omega-3/Omega-6 oil may also be beneficial, such as 100 mL **Kohnke's Own Energy-Gold™** daily, to provide fat as energy (contains no sugars) and Omega oils for natural anti-inflammatory action.



## Product of the Month

Boldness, muscle bulk, topline, propulsive power and strength are desirable in a competitive dressage horse, especially those performing at higher levels.



**Muscle XL** is the ultimate supplement to provide the specific raw materials, including high quality protein and amino acids, organic zinc, Vitamin E and organic sulfur as muscle 'food' to build-up muscle in conjunction with exercise.

Only human grade, high protein whey isolates are used in Muscle XL to ensure the best results. Kohnke's Own pioneered the use of whey isolates in horses and as a result of 3 years field research, it was proven that the best benefit was obtained when Muscle XL is given in a small double-handful of feed, or as a water slurry over the tongue, within 15 minutes after exercise and training.

When used as directed, **Muscle XL** can build-up the top-line and maintain muscle bulk and strength in 10-14 days. Short repeat courses for 5-7 days in the lead up to major competitions will help maintain optimum topline and strength.

It does not contain hormones or herbs and other FEI prohibited substances

Available in 800 g (1 horse course), 2 kg, 6 kg and 10 kg packs.

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