



**DODSON & HORRELL**

ANIMAL HEALTH, NUTRITION AND WELL-BEING

FEEDING SUCCESS

# DEVELOPMENTAL ORTHOPAEDIC DISORDER

## All you need to know

### What is DOD?

DOD is an umbrella term used to describe a variety of conditions associated with abnormal skeletal development in young, growing animals, including:

- **Osteochondrosis Dissecans (OCD):**  
This is one of the most prevalent DODs and involves abnormal endochondral ossification of cartilage into bone. Joints commonly affected are the fetlock, hock, stifle and shoulder.
- **Physeal Dysplasia:**  
Also called epiphysitis/physitis, this involves inflammation of the growth plates at the end of the long bones. This is typically seen in the knees and/or fetlocks of overconditioned/ rapidly growing foals.
- **Flexural Limb Deformities (FLD):**  
Often known as contracted tendons or ballerina syndrome, these are caused when the tendons do not elongate in proportion to bone growth.
- **Angular Limb Deformities (ALD):**  
Deviation of the limb from the mid-line at the knee, hock or fetlock.
- **Wobbler Syndrome:**  
Compression of the spinal cord due to instability of the vertebral column or a narrowing of the spinal canal. Usually diagnosed in horses less than 2 years of age.

### What causes DOD?

- Many different factors have been linked to DODs. It is likely that there is not one single cause but multiple contributing factors. These may include:
- **Genetics:**  
It is thought that there is a heritable component to some DODs. Some breeding societies, such as the Irish horse board and Danish Warmblood registry, will not register breeding stallions with OCD.
- **Nutritional Factors:**  
Excess calories, mainly from a high starch source/ soluble carbohydrate source, are one of the most important factors associated with DODs. Deficiencies or imbalances in minerals can also contribute.
- **Hormonal:**  
Feeding large, infrequent, high starch/sugar meals leads to peaks and troughs in blood insulin and glucose concentrations. These excesses may negatively impact the growth hormones involved in growing the sub-chondral bone, leading to malformation.



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# FEEDING AND MANAGING YOUNGSTOCK WITH DOD

Once your vet has diagnosed DOD they will be able to advise you on an appropriate treatment strategy for the particular problem.

- **Growth:**  
Fast-maturing breeds, such as Thoroughbreds, are at an increased risk of DOD. Periods of compensatory growth, for example post weaning, infection or stress, are also a known risk factor.
- **Trauma:**  
Damage to the growth plates appears to be a trigger factor for some forms of DOD, this could be caused by exercise on hard ground, or not enough walking and low level activity.

## FEEDING AND MANAGING YOUNGSTOCK WITH DOD:

Once your vet has diagnosed DOD they will be able to advise you on an appropriate treatment strategy for the particular problem.

### Feed the mare a balanced diet:

Bone and cartilage formation begins before the foal is born and therefore it is extremely important to ensure that pregnant mares receive a diet balanced in proteins, vitamins and minerals, but she should try to maintain a reasonably consistent body weight throughout pregnancy, and weight losses and weight gains should be managed carefully. Feeding the broodmare a diet deficient in copper may increase the risk of DOD in the foal.

### Limit calorie intake:

Research has shown that foals who are heavier than average have a higher incidence of DODs. You should not allow your foal to become overweight and ideally just be able to see their ribs. If your foal is at risk of being overweight access to grazing may also need to be restricted. They should not receive large amounts of concentrate feeds however you should ensure that their vitamin and mineral intake is not compromised as this can exacerbate any skeletal problems.

### Balance vitamins and minerals:

To ensure correct bone and cartilage development foals must receive a fully balanced diet. Deficiencies or imbalances in minerals such as calcium and phosphorus will increase the risk of DOD. From 2 months old mares milk will not provide sufficient minerals and so feeding a suitable creep feed is recommended.

### Monitor growth rate:

Rapid growth or periods of compensatory growth (e.g. postweaning) are both major factors in the aetiology of DOD. The highest risk period appears to be

between 3-9 months of age, when growth rates are at their peak. Maintaining a smooth, correct growth curve is essential. If possible, weigh your foal regularly to monitor their growth rate. Unfortunately, weigh tapes are not accurate for young, growing horses and so you will need to use a weighbridge.

### Limit glycemic response:

Some young horses many have elevated post-feeding plasma glucose levels, followed by a marked insulin response. It is thought that these changes can detrimentally affect cartilage formation, increasing the risk of problems such as OCD. Research shows that feeding 1g starch per kg bodyweight per meal helps limit the insulin response, and moderate growth rates.

### Provide optimal protein:

Contrary to popular belief protein levels does not normally contribute to DOD, however high-quality source of amino acids (a type of protein that the growing horse requires for growth) are essential for correct growth and development. An appropriate concentrate feed will provide your foal with a source of essential amino acids.

### Test your forage:

Forages such as grass and hay are a major part of the young horse's diet, however, their mineral content varies widely and a forage only diet is likely to result in deficiencies or imbalances in minerals essential for healthy bone development. It is a good idea to have your forage tested so that you can identify and correct any mineral deficiencies or imbalances.

### Feed a specific supplement to aid bone health:

Specific supplements formulated to support bone health are commercially available. Omega-3 fatty acids and Vitamin K have been shown to increase bone mineral density. Silica and marine algae are also thought to aid bone health and repair.

### Exercise appropriately:

Gentle exercise, such as turn out, is important as it provides positive stress which benefits correct development of bones. Excessive exercise or sudden changes to exercise levels can also increase the risk of DODs. It is important to introduce changes to exercise gradually.

**We are here to help!**

DOD covers a variety of disorders and can affect a wide range of breeds and ages. Managing youngstock with DOD will require input from your vet, farrier and of course a Nutritional Advisor.

Please visit our website, get in touch via social media or call: **01832 737300**

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