# Congenital joint laxity and dwarfism (CJLD) in suckler and dairy calves—what can the veterinary practitioner do?

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Dwarfism refers to a reduction in animal size. There are many different types of dwarfism. In many cases the cause is unknown. Where the cause is known, genetic defects are the most common diagnosis. Other diagnoses include infectious, toxic and nutritional causes.

## CJLD

In recent years, herd outbreaks of dwarfism with associated leg abnormalities have been reported by Irish farmers, mainly in suckler herds but occasionally in dairy herds. These cases differ from other types of dwarfism in two key respects. Firstly, more than one case tends to occur in a herd and, secondly, as well as having short legs the legs are twisted or bowed. These calves are born (congenital) with bowed or rotated legs (joint laxity) and are shorter than normal (dwarfs), hence the disorder is called Congenital Joint Laxity and Dwarfism (CJLD). Other names for the condition include chondrodystrophy of unknown origin (CCUO) and joint laxity and dwarfism (JLD). Internationally, this condition has occurred where pregnant cows are grazing pasture during severe drought or where diets based on only silage or poor quality hay have been fed to housed cattle (see the reading list for further information). So far, in Ireland, it has been identified only where silage was being fed and only in a small number of herds.

## LOOK OUT FOR

CJLD is not a common problem though it is probably under-reported. The annual incidence varies from years with few cases reported to years with apparently numerous outbreaks. Late spring-calving suckler cows, generally older cows, which were fed on silage alone last winter are at greatest risk of producing these calves. Occasionally, the problem also occurs in dairy herds fed similarly. In some herds, only a few deformed calves are born but, in bad outbreaks, up to 80% of calves can be affected. The calves are born at full term. They may have hard calvings due to their broad shoulders and large head. After calving they may be unable to stand and suck because of the bowing of the front legs and the 'banana-shape' of the hind legs (see photo). Note the leg joints are not fused (arthrogryposis) as in Schmallenberg virus infection which also produces undersize calves. If they do stand, calves with CJLD do so often stand with a wide-base stance. It is fairly obvious that they are dwarfed in size with short thick legs. If they survive after birth, they grow and put on weight but never grow to the height of normal weanlings. At the end of the year the group will look like the steps of a stairs with cattle of various heights present. As there are other types of dwarfism with different causes it is best to advise clients to have these calves examined by a vet to confirm the diagnosis. In cases sent to the local regional vet lab they can confirm the clinical diagnosis without resorting to expensive testing for toxins or poisons.

## CAUSES

The only consistent factor seen with this form of dwarfism in Irish herds is feeding pregnant cows grass silage alone during mid-pregnancy. Though the condition is generally associated with pit silage, it can occur with big bale silage. Silage-associated factors known to cause congenital defects in calves include manganese deficiency and mycotoxins. Secondary manganese deficiency can be associated with naturally high soil pH or over-liming and excessive soil iron contamination of silage. Mycotoxins are associated with mouldy silage. Unknown silage-associated factors may also be involved. No single cause has been definitely identified as yet but a silage-associated factor is most likely the cause. The important point here is that the deformity in the foetus occurs around the fourth month of pregnancy. So for calves born in May and June this represents December and January as the risk periods. This nutritional cause is consistent with the higher incidence of affected calves born later in the spring after a longer period on silage and the high incidence in the north of Scotland where the winter feeding period is also longer.

## WHAT ABOUT THE BULL AND BVD?

Though the evidence indicates that this particular type of dwarfism is caused by a nutritional factor, this is not generally widely known. Instead, the condition is most commonly blamed on the bull and BVD virus infection. Commonly, the responses are to get rid of the bull or ear or blood sample the calves or cows for BVD and to cull

and vaccinate if they are positive. There is no evidence that replacing the bull will solve the problem and calves sired by either AI or natural service bulls of different breeds can be affected. Genetic forms of dwarfism do occur but they differ from the type described here, hence the importance of a veterinary examination of affected calves. There is no evidence that BVD virus infection is involved in CJLD. As some 98% of all herds in the country will have been exposed to BVD virus, positive blood samples (for antibodies) are not diagnostic. While BVD virus infection does cause congenital defects in calves these commonly involve the eyes and the brain resulting in varying degrees of blindness and poor balance from birth. Affected calves may also be growth-retarded (small for age) but do not have the typical dwarfism with short bowed legs. Vaccinating against BVD virus may be advisable for other health reasons, but it will not prevent this form of dwarfism.

## WHICH HERDS ARE TYPICALLY AT RISK?

In the majority of cases spring-calving suckler herds are affected though it may occur in dairy herds. All breeds may be affected. Many cases are reported in the west of Ireland but it can occur country-wide. The majority of cases are born in April, May and June. This indicates that December is the month of greatest risk. The annual incidence varies, from years with few cases reported to years with apparently numerous outbreaks. This probably reflects conditions during silage harvesting in the previous May and June and an early start to silage feeding in the autumn. Given the weather conditions and the prolonged period of silage feeding this past winter, practitioners should be particularly alert to outbreaks during this summer's calving season. It should be noted that the condition is probably grossly under-reported.

## WHAT CAN BE DONE ABOUT IT?

If a farmer had a calf or calves that look like the ones in the photos accompanying this article they may be at risk of further cases in this or next year.

Have the affected calf or calves examined by a vet to confirm the condition is CJLD and not some other type of defect with a different cause.

Secondly, farmers have to accept their losses in the calving season it is first diagnosed, as you cannot alter the outcome in the heifers and cows left to calve.

You and your clients need to plan the feeding programme for the following winter with your local agricultural adviser. In affected herds, you need to replace approximately a quarter of the silage dry matter intake with alternative fodder (e.g. hay or straw), barley, pulp or meal.

Though cases do occur in herds supplemented with trace minerals, providing an adequate dietary mineral/vitamin balance to cover possible reduced manganese bioaccessibility in silage is advisable in pregnant cows. Avoid feeding visibly mouldy silage to pregnant heifers or cows.

The key is to implement dietary changes early in the

autumn/winter, especially in early silage-feeding years, not just a month before calving, as is commonly done. Given that cows are group-fed silage, some will eat more than others so a few cases may still occur in affected herds even when dietary changes are made.

Lastly, pulling back mean calving date to earlier in the year will reduce the length of time spring calvers are on silage over the winter and so reduce the duration of silage feeding during the risk period of pregnancy.

## FURTHER READING


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# Reader Questions and Answers

**1. WHAT DOES CJLD STAND FOR?**
(a) Contracted joint and leg dwarfism.
(b) Congenital joint and leg dwarfism.
(c) Congenital joint laxity and dwarfism.
(d) Calf joint laxity and dwarfism.

**2. WHAT IS THE LIKELY CAUSE OF CJLD?**
(a) BVD virus infection.
(b) A genetic defect.
(c) Iodine deficiency.
(d) A silage-associated factor.

**3. UNDER WHAT CIRCUMSTANCES DOES CJLD TYPICALLY OCCUR IN IRELAND?**
(a) Autumn-calving dairy herds.
(b) Spring/summer-calving suckler herds.
(c) Spring/summer-calving dairy herds.
(d) Autumn-calving suckler herds.

**4. WHAT CAN A VETERINARY PRACTITIONER DO ABOUT CJLD?**
(a) Advise the farmer to cull the sire of the calves.
(b) Advise the farmer to vaccinate against BVD and leptospirosis.
(c) Advise the farmer that it's just a genetic defect and nothing can be done about it.
(d) Advise the farmer to alter his/her feeding programme from mid-pregnancy onwards.

ANSWERS: 1. C, 2. D, 3. B, 4. D.