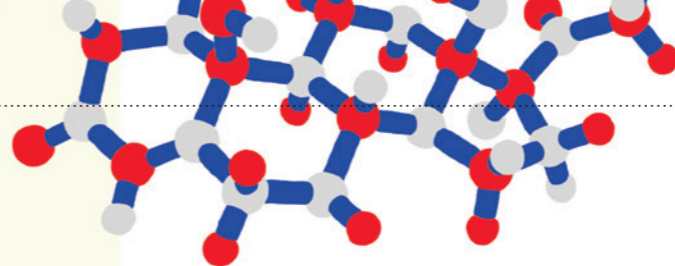


It's all chemical:

# A CLOSER LOOK AT EQUINE CUSHING'S DISEASE



Our illustrations (left and above) show the chemical structure of the hormones, such as cortisol, and proteins affected by Cushing's disease

The latest thinking on Cushing's disease points to a cause that's intrinsic to your horse's chemical make-up: hormones. Petplan Equine veterinary expert Gil Riley explains

**Y**ou've almost certainly come across the signs of Cushing's disease in a busy yard before. It commonly affects older horses, and their fluffy coats (regardless of the time of year) and potbellies are unmistakable. In fact, recent Petplan Equine research shows that it's now one of the five most claimed for conditions in horses. But does that mean it's becoming more common? 'No,' says Petplan Equine vet, Gil Riley. 'It's simply that horses are now living longer, thanks to a rise in the level of horse care. Cushing's generally affects horses aged 15 to 40 years old so, two or three decades ago, many wouldn't have developed the condition, as they simply wouldn't have become old enough to do so.'

#### New thinking

Ongoing research is also improving the understanding of what Cushing's actually is. 'Originally, it was thought a benign tumour on the pituitary gland caused the condition,' Gil explains. 'The pituitary is a pea-sized gland found at the base of the brain. It's responsible for creating (or prompting the creation of) hormones that regulate important functions in your horse's body, such as heat regulation and hair growth.'

'As a result of extensive research, we now know that Cushing's isn't actually caused by a tumour - rather, it's a hormonal disease triggered by a malfunction of the pituitary gland. For this reason, the condition is now also known as Equine Pituitary Pars Intermedia Dysfunction (PPID).'

#### Cushing's and your horse's hormones

'To understand Cushing's disease, you need to first understand how it affects your horse's hormones,' Gil says. 'This is because the

condition causes a "hyper-state" of the pituitary gland. In other words, the gland is unable to regulate itself and therefore produces too many hormones.'

One of these hormones is called ACTH. It's produced by the pituitary, and works by prompting other glands in your horse's body to create cortisol. Cortisol is a hormone that, in the right levels, helps to reduce inflammation. In a healthy horse, the pituitary shuts off production of ACTH once enough cortisol has been produced. However, in a horse with Cushing's, the pituitary gland isn't able to regulate the right hormonal levels. Instead it keeps pumping out ACTH - leading to excess levels of cortisol. This hormonal imbalance results in symptoms such as unusual fat distribution (most often a potbelly and fat pads above the eyes), a weakened immune system, lethargy, premature ageing, a vulnerability to sarcoids, lice infestations and, in some cases, inexplicable bouts of laminitis.

The pituitary gland doesn't just over-produce ACTH; it also creates excessive amounts of many other proteins that, in the correct levels, are necessary for the healthy functioning of your horse's body. One of these proteins is called CLI, and is responsible for coat growth (it's also what gives your horse his thicker coat in winter). In Cushing's, the CLI protein is produced all year round, which is why horses that suffer from the condition always look furrrier than their healthy stablemates.

#### The 'radical' cause

So, why does the pituitary gland lose its ability to self-regulate? 'It's because the cells within it are very vulnerable to oxidative stress,' says Gill. 'This happens when free radicals - >

## CUSHING'S DISEASE: AN OWNER'S STORY

'Two summers ago Toby, my 16-year-old pony, started having terrible discharge from his nostril,' says Emma Pratley. 'Thinking it was a sinus infection, the vet put him on antibiotics. It cleared up but, once the antibiotics had finished, it was back. 'It was then found that Toby had a tooth abscess that was affecting the sinus cavity, so he had some teeth removed and the infection flushed out. 'But, because he'd had a couple of health issues in a row, my vet started to suspect Cushing's disease, as it's known to suppresses the immune system. Toby was also 14 at this stage - just approaching the age that the condition usually appears. He was diagnosed with Cushing's, and has since been on a daily dose of Prascend [a form of Pergolide] to control it. 'It takes him longer to lose his coat, and we keep an eye on his diet, but other than that we treat him just like a normal pony.'

# 'WE NOW KNOW THAT THIS IS A HORMONAL DISEASE, SET OFF BY A MALFUNCTIONING PITUITARY GLAND'

damaging substances produced by fat tissue – are released within your horse's body. The longer horses live, the more their cells are exposed to free radicals and, therefore, the greater the chance of them developing Cushing's disease.

'As free radicals are created by fat tissue, it follows that one of the main causes of oxidative stress is obesity. So, not only does bad feeding expose our horses to a range of diseases in earlier life, but the latest research shows that it may also increase their risk of Cushing's disease in later life.'

## Treatment and management

'Only a few years ago, horses with Cushing's were given just two years to live,' says Gil. 'That was because we used to diagnose them a lot later, and we didn't have a treatment. But, thanks to veterinary advances as well as the development of a medicine called Pergolide, these horses are now able to enjoy much longer and fuller lives.'

Pergolide enhances the effectiveness of the pituitary gland and helps it to self-regulate once again. It costs around £1 per tablet, works in 80 per cent of cases and has limited side effects. To check if the treatment is still working and that the dosage is correct, a simple blood test is usually taken at the same time as your horse's yearly vaccinations. However, Gil cautions that, 'It's not a cure, it's a management of the disease and your horse will need to be on this treatment for the rest of his life.'

'I also advise owners to clip their horse's heavy coat to manage sweating. Additionally, you should feed a high-quality, balanced diet with plenty of fibre and, if possible, put a sensible exercise regime in place for your horse. This will help to keep his weight down and manage his insulin levels, aiding in the prevention of laminitis.'

☺ For our helpful online guide to Cushing's disease, visit [petplanequine.co.uk/top5/](http://petplanequine.co.uk/top5/)

## CUSHING'S AND LAMINITIS

The latest research shows that 90 per cent of laminitic cases are actually due to an hormonal imbalance – with Cushing's disease being one of the most common causes. While more research is needed to determine the exact link between the two conditions, one theory focuses on the role of high insulin levels (the hormone responsible for regulating blood sugar). Most horses that have Cushing's are prone to developing high insulin levels when they eat feed that's high in starch – and it is these high insulin levels that are known to cause laminitis.