Rein in the impact of strangles

Discover Strangvac®

An innovative approach for immunisation against strangles

Dechra
Veterinary Products

Introduction to strangles

Strangles is a highly contagious respiratory disease in horses worldwide. It is caused by the bacterium *Streptococcus equi* subspecies *equi* and is characterised by fever and abscessation of the lymph nodes of the head and neck.

The disease can affect any age, sex or breed of horse and is endemic in the horse population, meaning it is always circulating at any given time.

An effective vaccine is needed to break the hold that strangles has on horses.

Prevalence in Europe

Horses travel within and between countries, or even around the world to attend equine events, which creates a risk of transmission of infectious diseases.

There are approximately 300 outbreaks of strangles diagnosed each year in the UK,[1] and 100 per year in Sweden,[2] with a similarly high prevalence of the disease believed to occur throughout Europe. However, the true prevalence of strangles outbreaks may be even higher as not all cases are reported to veterinarians, or confirmed through laboratory diagnosis.

About the disease

Understand the signs

Horses show various clinical signs of strangles.

These include:

- Fever (body temperature >38.5°C)
- Purulent (pus) nasal discharge
- Soft moist cough
- Depression
- Lack of appetite
- Abscesses in the lymph nodes of the head and neck (and other body sites in rare cases)
- Up to 100% morbidity in unprotected herds

No signs doesn't mean no strangles

Outwardly healthy horses are often overlooked as not being a risk, but it is important to remember:

- A horse may be infected, but not yet show any clinical signs
- A horse may have atypical strangles. This horse can have very mild clinical signs of strangles with no obvious abscesses
- Horses not yet fully recovered from the disease can still shed the bacteria
- In around 10% of horses, *Strep. equi* persists in the guttural pouch after recovery from the acute disease. These 'carriers' look healthy, but can intermittently shed the bacteria for months or years[3, 4]

If horses show signs synonymous to strangles, they should be isolated as a precaution, pending veterinary advice.

How is strangles picked up?

Horses are infected with the bacterium *Streptococcus equi* through contact with infected horses or materials, such as shared drinking troughs or feed.

Watch our short animation to discover more about how strangles is transmitted, and how it can lead to a horse becoming a carrier.

How is strangles treated?

Treatment options are limited. Early treatment of exposed horses revolves around good nursing care to alleviate clinical signs and may include NSAIDs. Antibiotics (penicillin) may prevent abscess formation but should only be considered very early in the disease process, if at all. Horses that are treated with antibiotics may remain susceptible to strangles and antibiotic resistance is emerging.[5]

How is strangles managed?

Handling an outbreak of strangles is cumbersome and often requires a high investment in both time and money.

Watch our short animation to discover how the 'traffic light' biosecurity strategy can minimise the impact of an outbreak.

For more information on strangles, please visit www.dechra.co.uk/strangles.

Strangvac®

Strangvac is a novel vaccine used for the active immunisation of horses from five months of age.

The vaccine is indicated to:

- Lessen the clinical signs of disease in the acute stage of infection[6]
- Reduce the number of lymph node abscesses[6]
- Target all known global strain types[7]

Technologically advanced

Strangvac is a unique product that contains recombinant fusion proteins, which provide a broad, effective immune response.[6] It does not contain live bacteria.

The antigens in Strangvac are well conserved and Strangvac is expected to protect against all variants of *Strep. equi*.[7] All field strains examined to date had at least six identical antigens to the eight in Strangvac.[7] 98% of strains had none or only one amino acid variation relative to the 1,580 amino acids that make up the eight antigens in Strangvac.[7]

Intramuscular administration

Strangvac is currently the only European vaccine against strangles that can be administered intramuscularly.

DIVA capability

Differentiating Infected from Vaccinated Animals (DIVA) vaccines, like Strangvac, are designed to achieve two goals. These goals are the immunological protection of the host and the differentiation of the infected from the vaccinated animal, so vaccinated horses test negative in diagnostic tests for strangles.

The proteins contained in Strangvac are different to those used in the diagnostic blood test for exposure to strangles. Strangvac also contains no live *Strep. equi* or DNA from *Strep. equi* and so cannot trigger positive diagnoses by culture or PCR-based tests.[6]

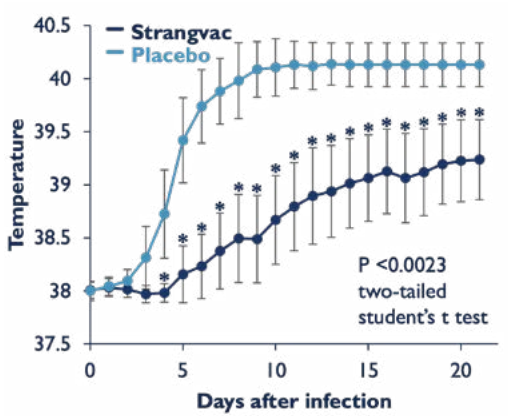
For more information on Strangvac, please visit www.dechra.co.uk/strangvac

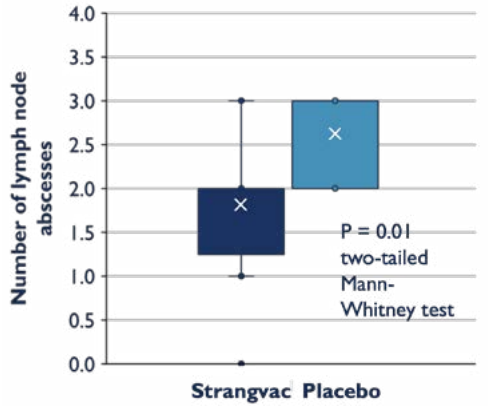
Strangvac efficacy

Studies were conducted on ponies vaccinated with Strangvac or with a placebo (containing adjuvant only) and experimentally infected with *Strep. equi*.

Study results – onset of immunity

The study showed that Strangvac reduced both the clinical signs of infection and the number of lymph node abscesses following challenge at two weeks after the second dose.[6]

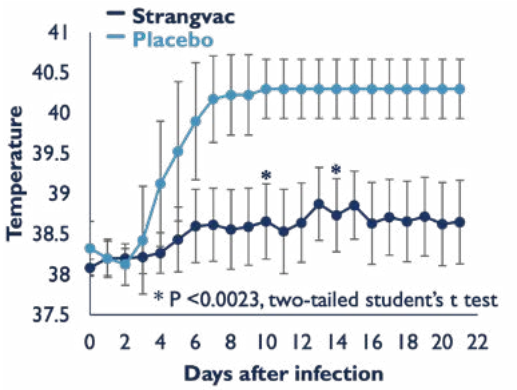


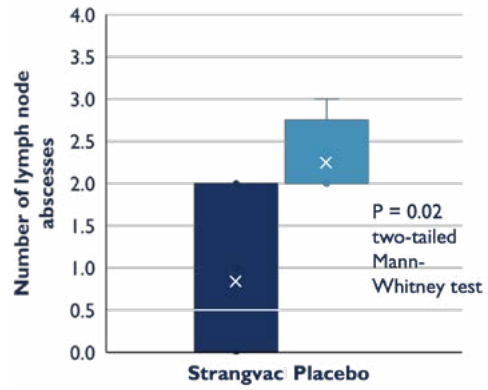


Data are shown as last observations carried forward

Study results – duration of immunity

The study showed that Strangvac reduced both the clinical signs of infection and the number of lymph node abscesses following challenge at two months after the second dose.[6]





Data are shown as last observations carried forward

Vaccination schedule

Primary vaccination course

The primary course is two doses administered four weeks apart.

Re-vaccination

In horses at high risk of *Strep. equi* infections, it is recommended to repeat the primary vaccination course after two months.

Data for prolonged clinical protection from the administration of single-dose re-vaccinations is currently not available.

Based on measured antibody titres, immunological memory response was found in horses following repeated vaccination six months after primary vaccination. The role of the measured antibodies in the immune response relevant for the protection against strangles is not known.

Additional published studies

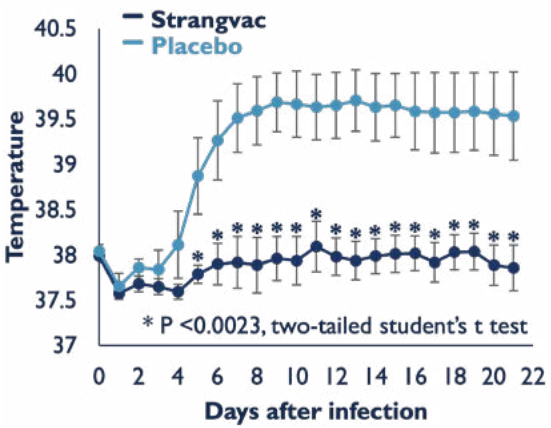
Study: Enhanced immunity post-third vaccination

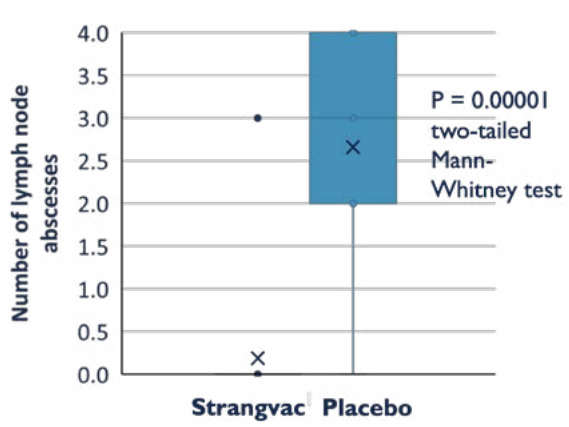
This study showed increased efficacy when ponies were challenged at two weeks after a third dose (given three months after the second dose), where Strangvac protected 94% of ponies from the signs of strangles.[6]

Results showed that only one out of sixteen vaccinated ponies became feverish (rectal temperature of 39,0°C or above on two out of three consecutive days) after a challenge with a dose that induced fever in all control ponies.

The study also found that only one Strangvac-vaccinated pony developed an abscess.

Explore study results in full



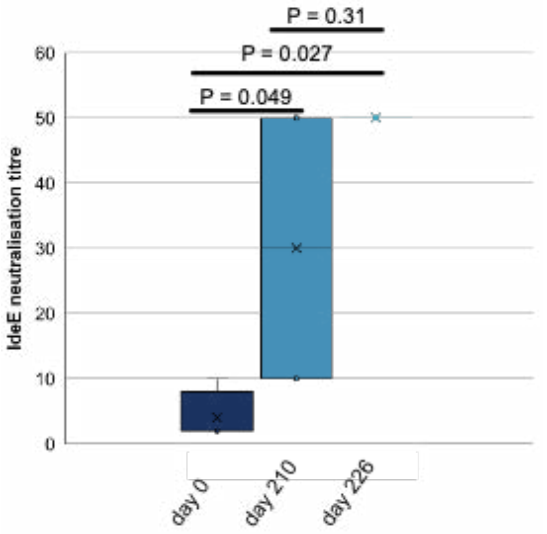


Data are shown as last observations carried forward

Vaccine responses neutralise IgG-cleaving activity

Studies showed that IdeE cleaves immunoglobulin, protecting *Strep. equi* from the immune response.[8] The addition of IdeE increased the protection provided by prototype vaccines in ponies.[9] Another study showed that the IdeE inhibitory activity persisted for six months after second vaccination with Strangvac.[10] All ponies had maximum levels of neutralising activity two weeks after a third dose.

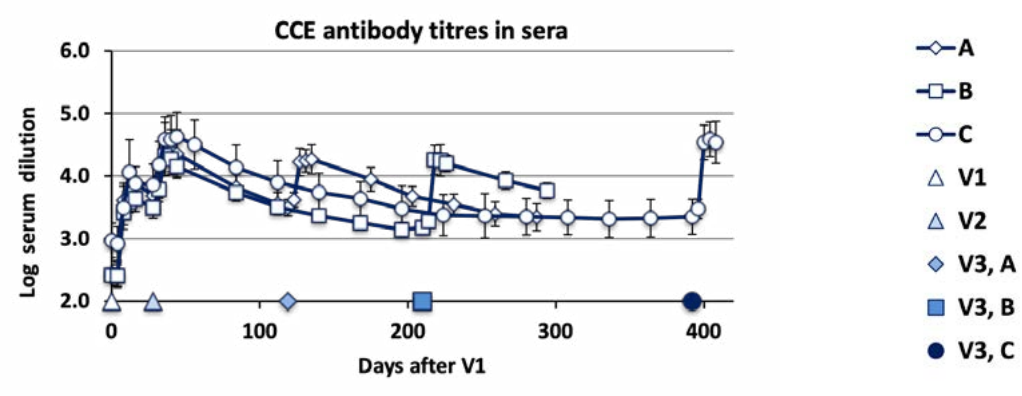
The graph shows the ability of sera from horses pre-vaccination (day zero), six months after second vaccination (day 210) and two weeks after third vaccination (day 226) to inhibit the activity of IdeE.

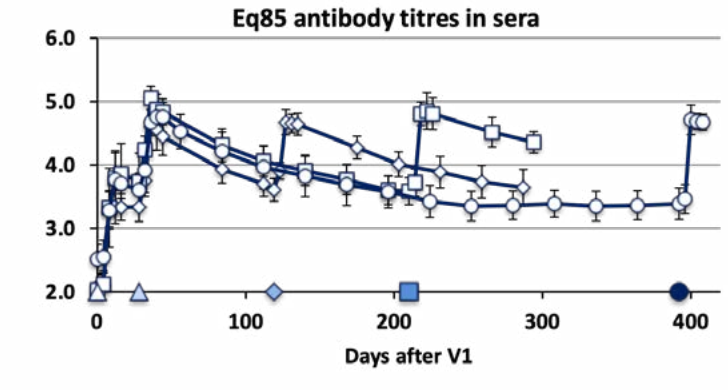


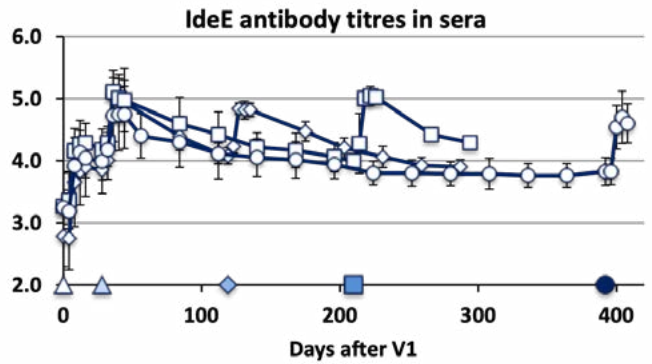
Study: Antibody response to vaccination

Studies on 66 horses and ponies, which were all vaccinated with Strangvac, showed that they developed antibody responses to all three vaccine components measured in serum samples.[6]

The below graphs show Strangvac-induced antibody responses in serum. They show that antibody titres increased after the second vaccination relative to after the first vaccination, and that a third vaccination provided a similar response, irrespective of whether this was given three, six or twelve months after the second vaccination.[6]







In conclusion

Strangvac reins in the impact of strangles through active immunisation of horses.

The vaccine, which contains recombinant fusion proteins, is able to:

- Provide a broad, effective immune response[6]
- Lessen the clinical signs of strangles
- Reduce the number of lymph node abscesses
- Protect against all variants of *Strep. equi*[7]

Strangvac is administered by intramuscular injection and it features DIVA capability.

Get in touch

To learn more about Strangvac,
please visit www.dechra.co.uk/strangvac.

References

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[10] Righetti et al., Functional activities of antibody responses following vaccination of ponies with a multicomponent subunit vaccine against strangles. Equine Vet J, 2021; 53, Suppl. 56: 26.

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