

## The horse's vision

Understanding how horses see, enables us to better grasp their behaviour in a number of situations. This fact sheet gives the main characteristics of horses' vision, and their practical consequences.

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Technical level   



A bay horse's eye

## Dichromatic, with a wide field of vision



Draught horses at pasture

Thanks to the **lateral position** of their large eyes, and their **long pupil**, the horse has a **particularly wide field of vision, around 340°**. A horse can see from its left haunch to its right haunch. In comparison, human field of vision is around 190°.

From the side, **monocular vision** (seen by one eye) the horse can rapidly detect movement, a valuable asset for a herd animal with a status of prey animal. Thus, in its natural state a herd has a permanent panoramic view of its surroundings. This vision is maximal, albeit not very clear, when the horse's head is lowered.

### Vision when ridden or harnessed

When ridden, the horse has a wider range of vision than the rider, which sometimes leads to reactions the rider does not have time to anticipate.

When looking ahead, binocular vision (= seen by both eyes at the same time) is more precise, and allows the horse to assess distances of objects by lifting the neck. In natural conditions, when afraid, the horse first flees, then turns to face the cause of its flight with ears pricked forward.



Horse with its head up coming to a fence

Coming into an **obstacle or a fence**, the horse will have its **head high**, so as to better assess the distance before the jump, and the height. When working with the **neck hyperflexed** (rollkür), the **horse's field of vision is restricted**. Thus when jumping, if the neck is overbent, the horse will have trouble assessing the height and profile of the obstacle.

Finally, in some disciplines, such as racing or carriage driving, blinkers are used to restrict lateral vision, and avoid potential distractions.

In the same way, limiting the horse's vision in some situations (giving an injection, clipping, or some stages of breaking in) can restrain the expression and behaviour of the horse's natural fear.

### Horses' blind spots

**Blind spots** are few, but you should be aware of them. : They are **just behind the rump** (take care on how you approach your horse) and **under his nose**, when his head is up. Care should be taken when feeding rewards from the hand – you could be nipped – or letting small children stand in front of a horse.



Tactile hair on the chin

The horse possesses long **tactile hairs** around **the chin and eyes**, to compensate for its eyesight. These send vibrations to a sensory organ at their base, and they should not be cut.

### Colour vision

The horse has a **dichromatic vision**, i.e a palette of colours from blue to yellow, short to medium wave frequencies, but cannot distinguish red or green (which appear grey to the horse).

### Good twilight vision, but with slow accommodation

Horses have good **twilight vision**, thanks to retinal cells (rod cells) and the tapetum lucidum, which reflects light from the retina. In nature, night grazing represents between 20 % to 50 % of daily grazing time.

However, horses have a **slow accommodation time when light varies suddenly**, this should be taken into account when attempting to take a horse into a darker place (stable or trailer), or when working where lighting is variable : trees around an arena for example. The horse then needs **a lapse of time to adjust**.

## How do I know if my horse can see well?

As for humans, horses can have **adjustment disorders**, such as **myopia** (near-sightedness, the horse sees blurred at distance) or **far-sightedness**. This can lead to **hesitant steps, very mobile ears, and inconsiderate shying**.

Sometimes a horse will exaggerate lifting his front feet, have trouble avoiding obstacles, and will work or jump differently in different light conditions. Specific tests can confirm any disorders. A horse who is blind in one eye will also show different behaviour, in trying to maximise the use of his good eye. When out in a field, he will move around carefully.

## Eye Trauma : react quickly... and appropriately

Because the horse's eyes are positioned laterally, they need all your attention. A **trauma to the eye** will present **weeping, redness and conjunctivitis**. **The horse will keep his eye closed, shuns light, and stands prostrate in a corner**.

When there is an accident or an affliction to your horse's eye, preferably place him in a dark place.

When there is any trauma near the eye, an ulcer or uveitis, diagnosis must be made quickly and accurately so as to implement appropriate treatment conscientiously, sometimes needing several applications daily. Eye affections are frequently painful, therefore immobilisation should be put in place to allow effective and safe treatment.



Uveitis and blindness



Treating an eye



Closed swollen eye with weeping

## About our writers

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