Medical criteria for candidate licensed stallions

Veterinary examination of breeding stallions

Candidate licensed stallions must undergo a veterinary examination before they are presented at the Zangersheide stallion selection. Here below we will go through the various procedures and medical criteria that candidate sires should meet. The text may be a little technical and it summarizes only the most important deviations, with an explanation for the consequent positive or negative advice.

By: Filip Vandenberghe, Frederik Mijten, Frederik Bruyninx

Examination for sport purposes or for selection as a breeding stallion: what is the difference?

In an examination of a sport horse the emphasis lies on such deviations as could hazard the sport career of that horse prematurely. In an examination of a breeding stallion one mainly screens for proven hereditary defects, which also have an influence on the sport. There is a vast overlap between these two examinations, but there are considerable differences, too. The procedure of the stallion selection is largely similar. The difference is in the interpretation of the findings and the weight attached thereto. An example: a horse can be temporarily lame as a result of an accidental trauma and can therefore not pass a sport examination. Think of, for example, a sprain or a contusion. But that does not mean that this horse can not be licensed for breeding. After all, the deviation is not a hereditary defect. Reversely, a cryptorch, a stallion of which 1 (or 2) testicle(s) have not engaged, will not be licensed as a stallion, but he can be a perfect sport horse after castration. So there are differences in various fields, which explains that a horse can pass examination for one but nor for the other purpose. However, it is not always a black or white issue and we expect from our licensed stallions that they are successful in the sport. We therefore apply a more global examination with many points in common.

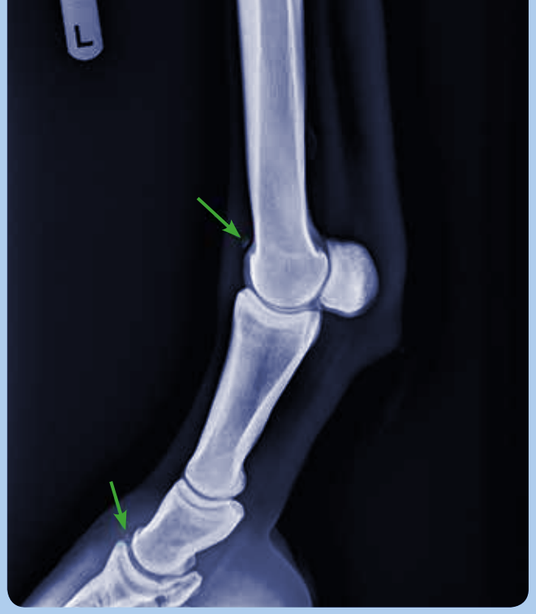
Protocol candidate breeding stallions Studbook Zangersheide

Unlike the prevailing practice of other studbooks, the medical examination of Zangersheide breeding stallions need not take place in one and the same place. Every competent veterinarian may perform the examination according to the protocol that can be downloaded from our website. The owner may therefore have his own vet perform the examination. This veterinarian, however, is obliged to complete the standard form from Zangersheide correctly, in good conscience and at his/her own responsibility. The veterinary committee of Zangersheide, consisting of Dr. Frederik Bruyninx, Dr. Frederik Mijten and Dr. Filip Vandenberghe, evaluates every case and related X-rays and gives its advice to the stallion jury. All fully completed and signed examination reports and X-rays must be in the possession of this committee before the start of the stallion selection. For veterinarians: on the USB stick the images have to be stored in DICOM format. The examination and X-ray reports may not be older than 1 year.

Clinical examination

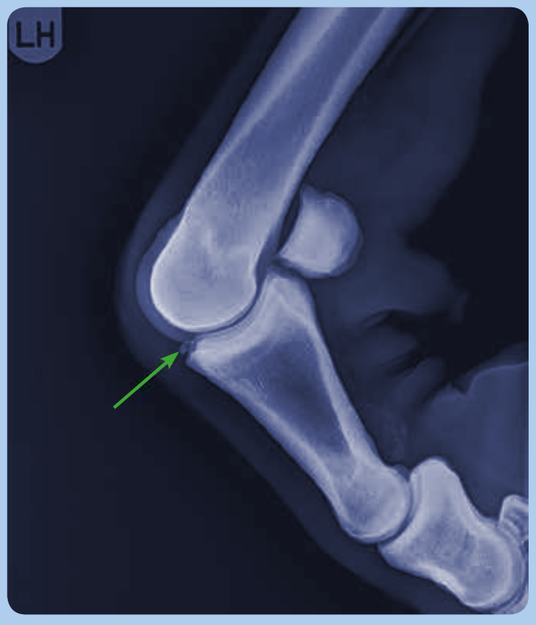
Clinical examination summarily follows the protocol as described on the examination form. The vet will pay special attention to hereditary defects, such as poor foot conformatoin, strongly asymmetric testicles (more than 50%) or non-engaged testicles, considerable deviations of the jaw prohibiting any contact between the upper and lower incisors, strongly asymmetric front feet, whistling noise upon inhalation, shivering, spinal ataxia (wobbler), etc… The horses are tested on a soft and a hard floor in a straight line and both turns and flexion tests of four legs will be performed. The findings must be noted carefully and in detail on the examination report. In case of any doubt during the clinical examination, further examination is recommended to arrive at a diagnosis and formulate an advice. Examples are an endoscopy of the throat, an echocardiagram of the heart in case of heart murmurs or a neurological TMS test in case of possible ataxia.

Fetlock: osteochondrosis of the sagittal head: negative advice for breeding.



Fetlock: fragment plica synovialis. We also see a fragment in the hoof joint. Both render a positive advice for breeding.

Fetlock: fragments at the back of the pastern. Positive advice for breeding.



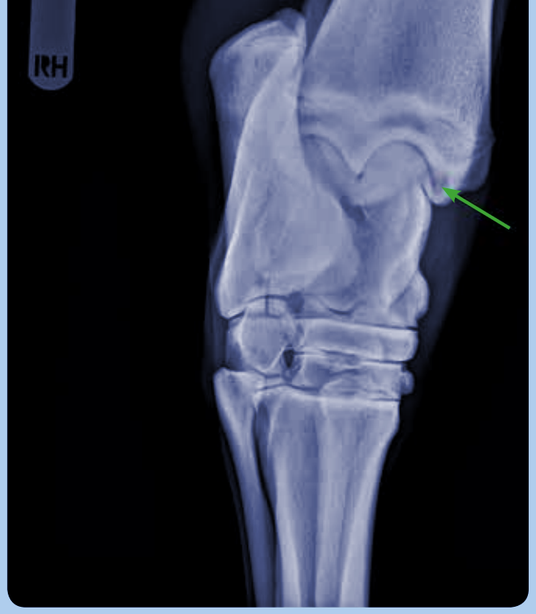
Fetlock: Fragment upper side of pastern. Positive advice for breeding.

Radiographical protocol

The X-ray examination requires a minimum of 14 X-rays: anterior-posterior (oxspring) and lateral pictures of both front feet, lateral pictures of the 4 fetlocks, anterior-posterior and lateral pictures of the hocks and lateral pictures of the stifles. On the X-rays of the stifles both the trochlear ridges and the condyles of the femur must be well visible. In case of any doubt about existing or non-existing pathology, extra X-rays should be made, preferably already by the own vet. The committee has a right to take additional X-rays during the stallion selection itself.

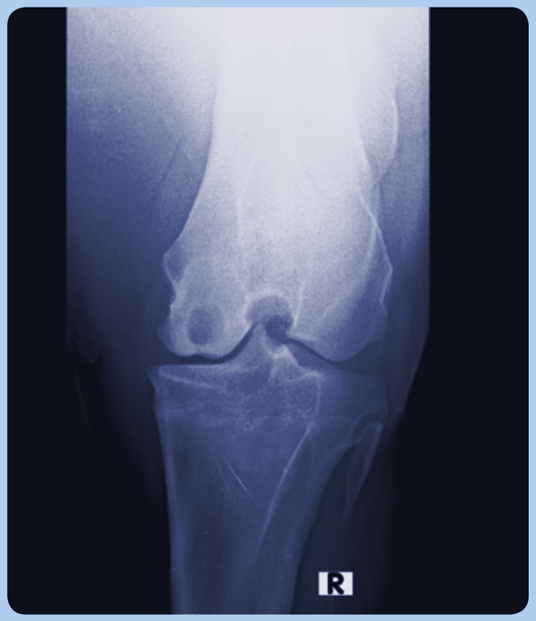
The front feet

The navicular bones are screened for visible X-ray signs of podotrochleosis (navicular disease). This evaluation is, of course, not a black or white interpretation, since there are many grey zones. The navicular bones are globally evaluated and receive a score depending on the weight attached to certain findings. X-ray signs of podotrochleosis are: several deeply penetrating and branching synovial fossae at the distal articular margin, medullary sclerosis, distal border fragments and considerable new bone formation around the upper edge of the navicular bones. As we said before, evaluation does not take place per 1 single parameter, but globally. Like a horse with several shallow synovial fossae can get a positive advice, this may also be the case if the only finding is a very small navicular bone fragment. A single deep and branching synovial fossa, a vague delineation between the cortex and the medulla of the navicular bone or a larger navicular bone fragment with additional osteolysis in the opposite bone, will result in a negative advice. How is it that in the evaluation of the navicular bones we do not have a clear line between good and bad? For scores of years we have used the X-ray technique to evaluate the navicular bones. We had nothing else available, after all, to get a medical picture. The X-ray technique is, however, notorious for not being super sensitive in the detection of all signs of podotrochleosis. X-rays only display the bone and not the surrounding soft tissue structures, such as the bursa and the deep digital flexor tendon. X-rays can also not detect any 'bone oedema" of the navicular bone, one of the most important indications of navicular disease. For lack of anything better, we tried for years to get more information from X-rays than they intrinsically revealed with the result that the criteria applied are not 100% watertight. What we 'see' on an X-ray is not the precise reflection of reality. To just dump X-ray technology and be only led by, for example, an MRI (magnetic resonance imaging, a much more sensitive technique) is many bridges too far, since in a great majority of cases X-rays still give us very valuable information. But we should realise and accept that there is a grey zone with room for interpretation. Navicular bone fragments are always an item of discussion with several interpretations in different countries. However, the experience based on thousands of MRI studies has taught us that the presence of a navicular bone fragment by itself is not enough to diagnose a horse as suffering from podotrochleosis. The size of the fragment and especially additional MRI signs elsewhere in the navicular bones clearly confirm or deny the diagnosis. That has motivated us, in the case of the presence of a small fragment as the only finding, not to immediately exclude a horse from breeding.

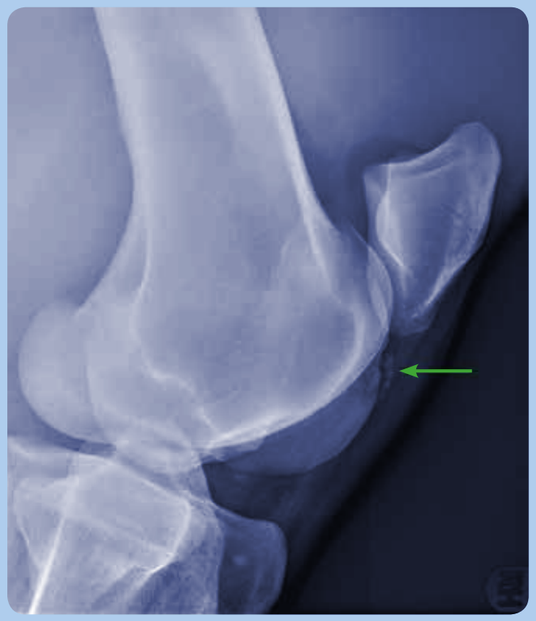


Hock: OCD at the level of the medial malleolus. Negative advice.

Hock: OCD at the level of the intermediary head of the tibia: Negative advice.



Knee: Subchondral bone cyst medial femurcondyl: Negative advice.



Knee: OCD of the lateral trochlea head of the femur: Negative advice.

Osteochondrosis dissecans (OCD)

OCD is a developmental disorder in which there is a fault in the normal ossification of the cartilage in the first year of life. This can present itself in 2 forms; the well-known fragments (chips) and smoothing of the joint contours or bone cysts. OCD has been proven to be a hereditary defect which motivates a negative advice for a breeding stallion. However, to make it more complex, not all bone fragments or bone cysts are caused by OCD. Clear differentiation and correct interpretation are therefore of crucial importance. OCD can occur in many different joints of the horse, including the spine, but is most often found in hocks, stifles and fetlocks. Most scientific knowledge was acquired about these joints in specific.

The fetlock

The fetlock can display a great variety of fragments. The acceptability thereof differs strongly for breeding stallions or sport horses. A summary.

- 3 types of fragments on the front of the joint (fore- and hind-legs):
- dorsal margin of the first phalanx
- in the plica synovialis (a fold of the joint bandage)
- at the level of the sagittal ridge of the cannon bone.

All three types of fragments increase the risk of premature irreversible damage of the joint and the development of arthrosis in the joint leading to lameness. Such horses therefore carry an increased risk as sport horses. However, only the form at the level of the sagittal ridge of the cannon bone can prove hereditary osteochondrosis. The other 2 types are not expressions of OCD and may therefore be present in a licensed stallion. There is another reason why these fragments do not lead to rejection as breeding stallion. These fragments can be easily removed via keyhole surgery without leaving any traces on X-rays made later. Horses that have undergone such surgery before the selection would thus get a positive advice and the ones without surgery a negative advice. The surgery itself does not influence heredity and may therefore also not influence the advice for a breeding stallion. In the case of hereditary OCD when the fragment has been removed there will always be

a depression in the adjoining stem bone. You will always see it on an X-ray, so even when the horse has had surgery, it will still get a negative breeding advice. For the sport we do recommend that all 3 types of fragments are removed preventatively.

- 2 types of fragments at the back of the joint:
- palmar/plantar margin of the first phalanx.
- small fragments at the top of the sesamoid bones.

None of these are OCD and will therefore generate a positive advice for a breeding stallion. Since they rarely or never cause premature arthrosis in the joint, they also generate a positive advice for a sport horse. They may sometimes cause overfilling of the joint and are often preventatively removed in racehorses.

The hocks and stifles.

The hocks and stifles are places where we frequently find OCD. The X-rays show the classic OCD places in the joints. All will receive a negative breeding advice. Even when the fragments were surgically removed, a smoothing or depression remains visible. Especially OCD in the stifles also has an influence on the advice for a sport horse. Not seldom OCD at the level of the trochlear ridges is so prominent that in foals it causes serious swelling of the joints and (serious) lameness. In adult horses the lameness is less or absent, but optimum performance is considerably impeded as a result of premature arthrosis of the femoropatellar joint. Considerable OCD in the stifles, even after surgery, should therefore be approached with the necessary reserve in sport horses. A small OCD in the stifle may, after surgery, be perfectly symptomless for the sport.

Bone cysts

Bone cysts are regions in the bone underlying the joint cartilage of decreased bone density. This can be caused by a development disorder such as the earlier described osteochondrosis. This is the hereditary form that excludes a stallion from a breeding career. A common place of occurrence is the inside of the tibia in the stifle of the horse, but bone cysts can also occur in many other places. A second cause for decreased bone concentration can be as a result of bone necrosis. This occurs after a single, heavy trauma or an accumulation of micro trauma. The cause is therefore not heredity and produces no impediment for a breeding stallion.

Dr. F. Vandenberghe

Filip Vandenberghe completed his studies as a veterinarian at Gent University in 2001 and then specialised for 3 years in the orthopaedics of the horse at the Veterinary Faculty in Merelbeke. In 2004 Filip moved to the veterinary clinic De Bosdreef, where he became a partner in 2008.

Filip was one of the pioneers world-wide in the development of the MRI of the standing horse. After more than 5,000 MRI examinations he is considered one of the international experts in the field. In 2011 Filip received European recognition as Associate of the ECVDI, the board of specialists of medical imaging of the horse. Besides being an image developer with European recognition, his main task remains the orthopaedic and sport monitoring of the horse. In former years he specialised in vague performance complaints in the sport horse. His patients often have a long previous history of reduced performance, the cause of which is not easy to find. With a sharp clinical eye, good multi-disciplinary communication, objective imaging and a good dose of gut feeling a solution is often found. You can find him at international conventions several times a year as invited speaker on the subject of orthopaedic and medical imaging.

Every day Filip receives his national and international clients at the veterinary clinic in Moerbeke-Waas. In order to meet the high demand, a totally new accommodation is erected there, which will open its doors early 2017.

Dr. F. Mijten

In 2000 Frederik Mijten completed his veterinary studies specialised in horses. He gained his practical experience and opportunity to refine his specialisation at Zangersheide. The father of Frederik is also a veterinarian and in that capacity he worked more than 21 years at Zangersheide, where he was mainly involved with equine sexual reproduction. Frederik wanted to broaden his horizon and combined with Equivet, a practice with several vets and specialists. Frederik Mijten is the paediatrician of the horses. He has a good understanding of the growth and evolution of a foal and monitors these from youngster to sport horse. It is therefore no coincidence that Frederik Mijten is often called in as an authority on the medical screening of several horses and foal auctions. He kept count, but Mijten guesses that he annually assesses the X-rays of about 1,000 horses. Not only at auctions, but also in big as well as small studfarms he is consulted for X-ray and clinical advice and assessment of foals, youngsters in training and sport horses. His expertise is also in demand with buyers and sellers of horses. Frederik Mijten can almost daily be found at Zangersheide. He is the vet in charge of the AI Centre and he screens the foals and youngsters. Also at Z-Events he is the veterinary spokesman; at stallion selections, auctions and international competitions.

Dr. F. Bruyninx

Frederik Bruyninx has been a horse sport vet for 14 years. His father Guido is a well-known horse dealer, so Frederik had grown up among horses. He was a pony rider, then a soccer player but eventually chose to read veterinary medicine in Gent. After completing his studies in 2002 he almost automatically specialised in horses. First as generalist he developed into a specialist in sport medicine. To do so, Frederik perfected his studies and know how in the USA where, up until today, he is coached by Tim Ober, the vet of the American showjumping team. All those Tim Ober has been the big mentor and teacher of Frederik, who has been team vet for the Belgian showjumping team for 2 years now. Before then he had also been the team vet of the junior riders. Besides his official work as a team vet, Frederik is also sport vet for several big stables, such as Zangersheide, Stephex Stables, Stal Lansink and for Pieter Devos, Gregory Wathelet and François Mathy.