



Classical Horse Training

Combining art with science to achieve balance and harmony



CASESTUDY MÖKKUR 1989-2020



Disclaimer

This booklet is designed as a case study for personal learning purposes. It does not replace veterinary diagnosis and no definite medical conclusions for personal situations can be drawn from this document.

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INTRODUCTION

This case study will take you on a journey to the story of the horse 'inside-out'.

Mökkur (31) will tell you his life story through beautiful pictures taken during his dissection. Sharing these pictures will allow you to see what is going on inside and how everything is connected. It will give you a deeper understanding and knowledge of the equine species.

We hope you will enjoy this footage, that was made with full respect for Mökkur.

A special thanks to Sharon May-Davis for making this journey possible as well as to the owner for donating Mökkur so we could give back his voice.

PERSONAL DETAILS

Name horse: Mökkur
Sex: Gelding
Breed: Icelandic
Pedigree: Unknown
Date of birth: 1989
Background: Showing & Leisure

Nutrition: Hay and carrots

Management: Pasture during the day, stabled at night



HISTORY

Unfortunately, we don't know much about Mökkur's history. We were told that in his early years he did some Icelandic showing competitions, but that for most of his life he was used as riding school pony and recreative purposes such as trail rides.

Mökkur had a very strong personality and managed to stay comfortable in an uncomfortable for quite some time. However, age started to play up and in the last year before the dissection he also got a colic.

Mökkur was on a very special diet. His owners fed him a couple kilos of carrots every day because "he liked it". This is the first time we have come across such a diet and naturally this is not very healthy.

Because Mökkur's health started to deteriorate, his owners donated him for dissection.

ASSESSMENT

When the decision was made to donate Mökkur for dissection, a final assessment under supervision of the team of Equinestudies was planned. The assessment took place in Sweden around September 2020.

During the assessment it became immediately clear that Mökkur had a very strong personality – this is what probably kept him going through that long in his uncomfortable body.

Another interesting feature was that despite his age of 31, he was still extremely strong. When he saw some grass along the road, there was no stopping him, and he would easily drag us – as handlers – along. He was quick, determined and very powerful.

Upon observation and palpation there was lots be felt. He didn't like to be palpated on his face and we couldn't check his teeth so we were considering there might a problem there.





There was asymmetry and atrophy in his chest, shoulder, back and hind quarters. There was hypertrophy of the rhomboid and hamstrings and the fascia of the Tensor Fascia Latae felt strained on both sides, but especially the right.



His back was swayed with a clear rotation and asymmetry in his thoracolumbar spine and pelvis. The latter was also a bit tilted.





His feet were not in the best condition and he stood quite wide in the front with toes pointed out and narrow in the hind. His hocks were turned inwards (cow-hocked).





Finally, we noticed that he struggled with breathing. He had a clear heave line on his abdominals and his breathing pattern was irregular.



In the **walk** he often did a toe landing on the outside, especially on the right front. There was also poor knee function.



From the hind he was really dragging the toes and there was almost no barrel movement. The back was really tight. His hips moved abnormally and instable. There was a lot of left and right movement and it looked as if he tried to use his hip to “come around” his stiff barrel.

His tail mostly hung to the left side and see if you can observe the twist in his spine.

Both hocks and stifles were also compromised.

In the **trot** the toe dragging became worse and he also lost his coordination. From the side there was also a lot of tension on the deltoid muscle visible and clear atrophy of the quadriceps and tensor fascia latae.

However, that being said. He still “hold” himself extremely well. He didn’t really show easily what was bothering him in his body and we could tell that he knew very well how to manage himself in an uncomfortable body. He was clearly experienced in this.



After the trot, also asked him **up and down hill** – this revealed he had a bit unstable elbows on both sides. However, we have seen worse – especially considering his age. So this wasn't too bad.



Finally, we also tacked him up and the most extraordinary thing happened: his biomechanics changed considerably! There was no more toe-dragging and he started to move with significantly more power. This showed us that he adapted very well to the demands placed him. As soon as we put the saddle on it was as if his mind set changed like *“oh okay I know this. I know what is happening and what we are going to do”*. As if he prepared himself for a trail ride and he adjusted his whole posture to the demand. This again showed us how much experience he had and how he has been extremely well managing himself to stay comfortable in an uncomfortable body this long. What an amazing horse.



DISSECTION



The dissection of Mökkur took place in August 2020 in Sweden.

He is now free from his hurtful body and his life story will live on.

Below you can find an overview of the main findings.

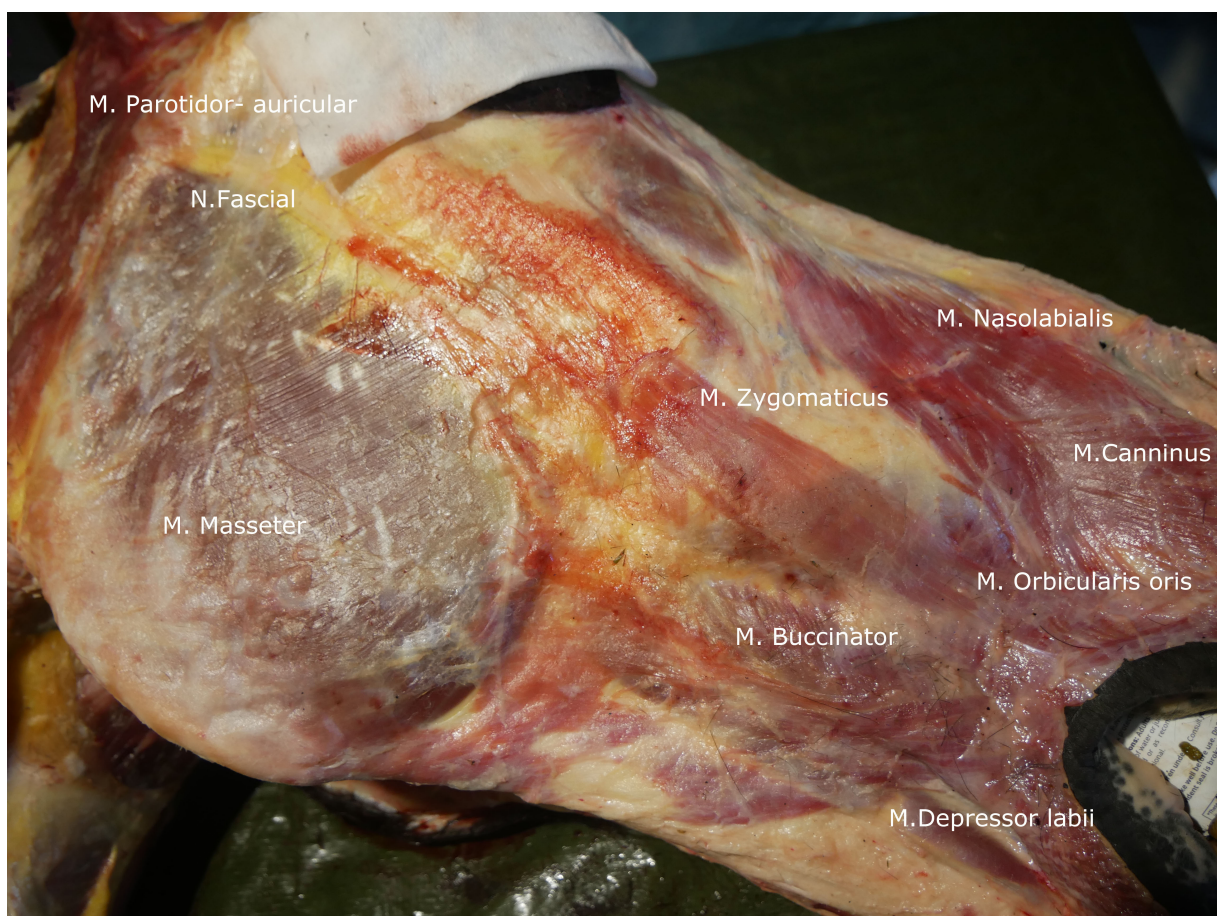
HEAD

As we expected from the assessment, his teeth were not in a good shape. There was a lot of tartar and sharp hooks as well as food pockets.



He also had extra fat in his head area. This is a sign that something is wrong because the body starts to produce extra fat as a form of protection. The size of his orbital fat pad also indicated he was insulin resistant.

Another interesting finding was that he had several very big nerve bundles – compared to other horses we have seen - over his face. Each horse has facial nerve, but there exact location and size can differ from horse to horse. This can be considered as the horse's personal signature.



His *Obicularis Oris* was also more developed than normally seen in a domesticated horse. This was the first indication that Mökkur might have some primitive traits.

NECK

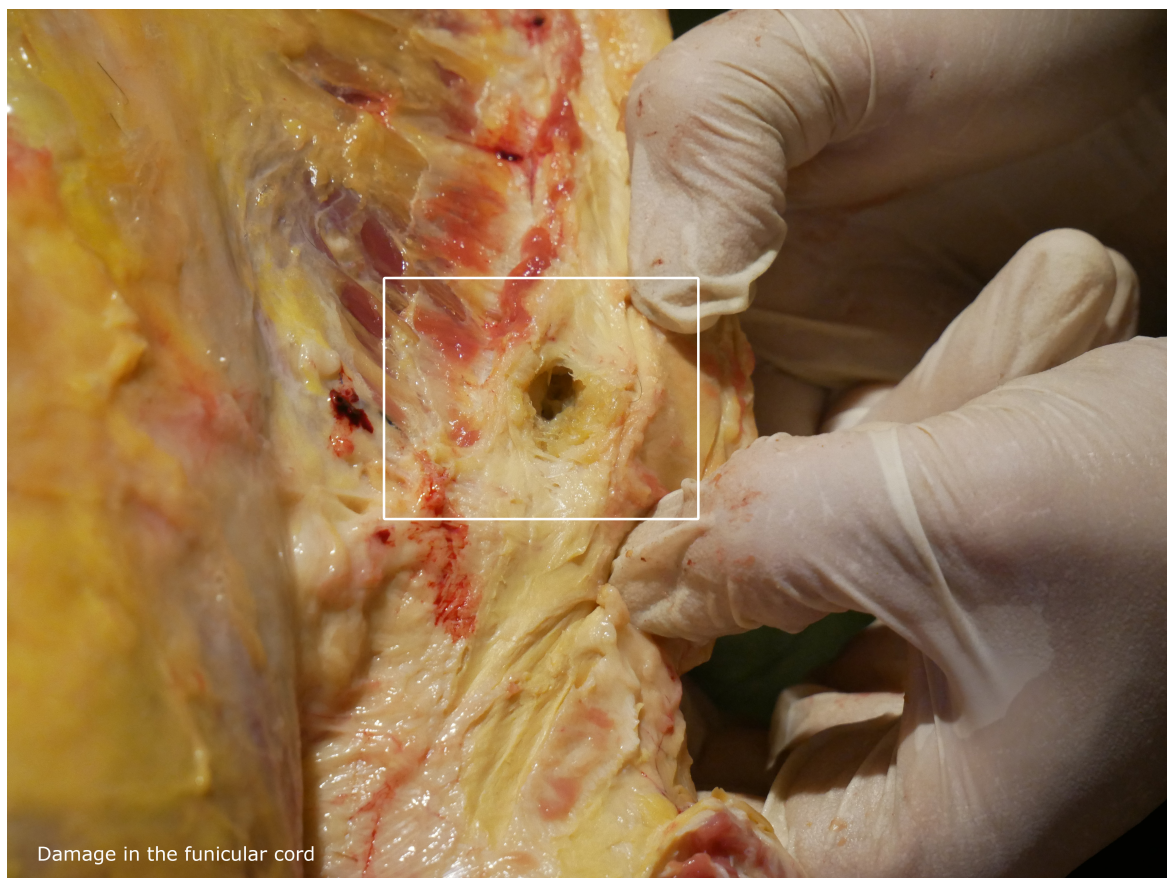
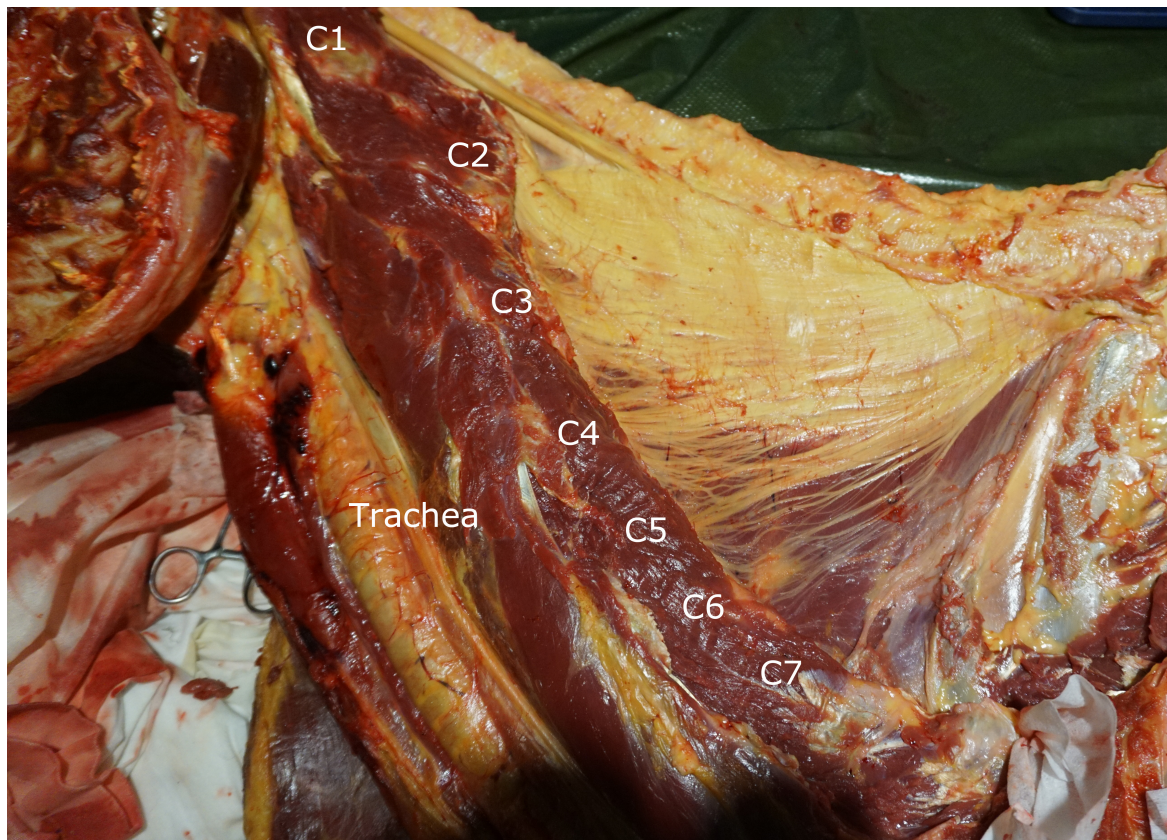
His *Splenius* muscle was more developed than seen in domesticates. This is another primitive trait.

His *Rhomboid* was hypertrophied on both sides. This indicates a long-term hind end problem as the muscle often acts as a counter lever for hind limb lameness.



He had *Nuchal Ligament Lamellae* fully till C6 and latent fibres to C7. This is a significant finding as most domesticated horses only have the Lamellae present up till C5. This indicates again that Mökkur still had some primitive traits.

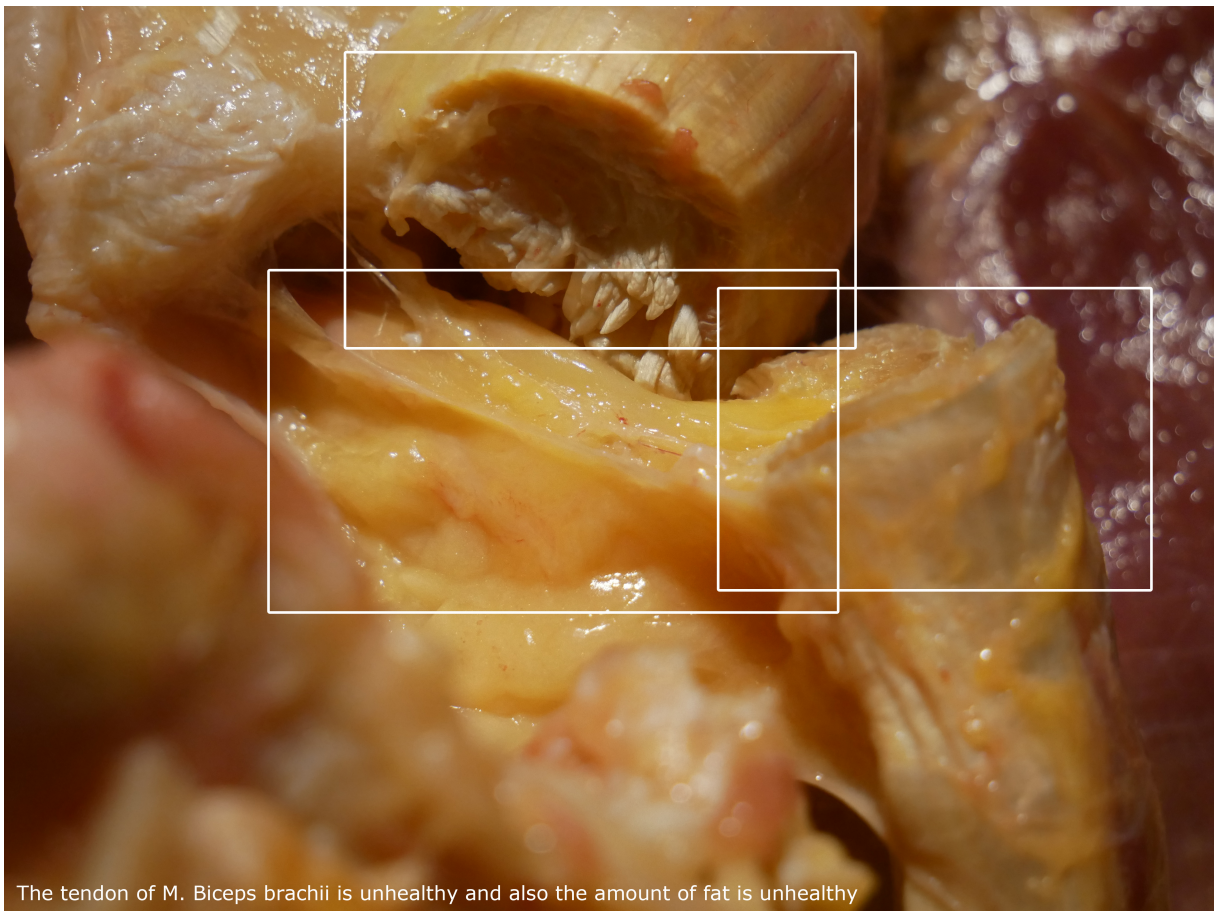
Unfortunately, he did suffer some trauma in the funicular cord. This is probably because of an accident such as flipping over.



CHEST / SHOULDER

The tendon of the *Biceps Brachii* is unhealthy and it was split – indicating it had been under a lot of strain. The bicep has an important function on the elbow and as such when it is compromised, it leads to elbow instability.

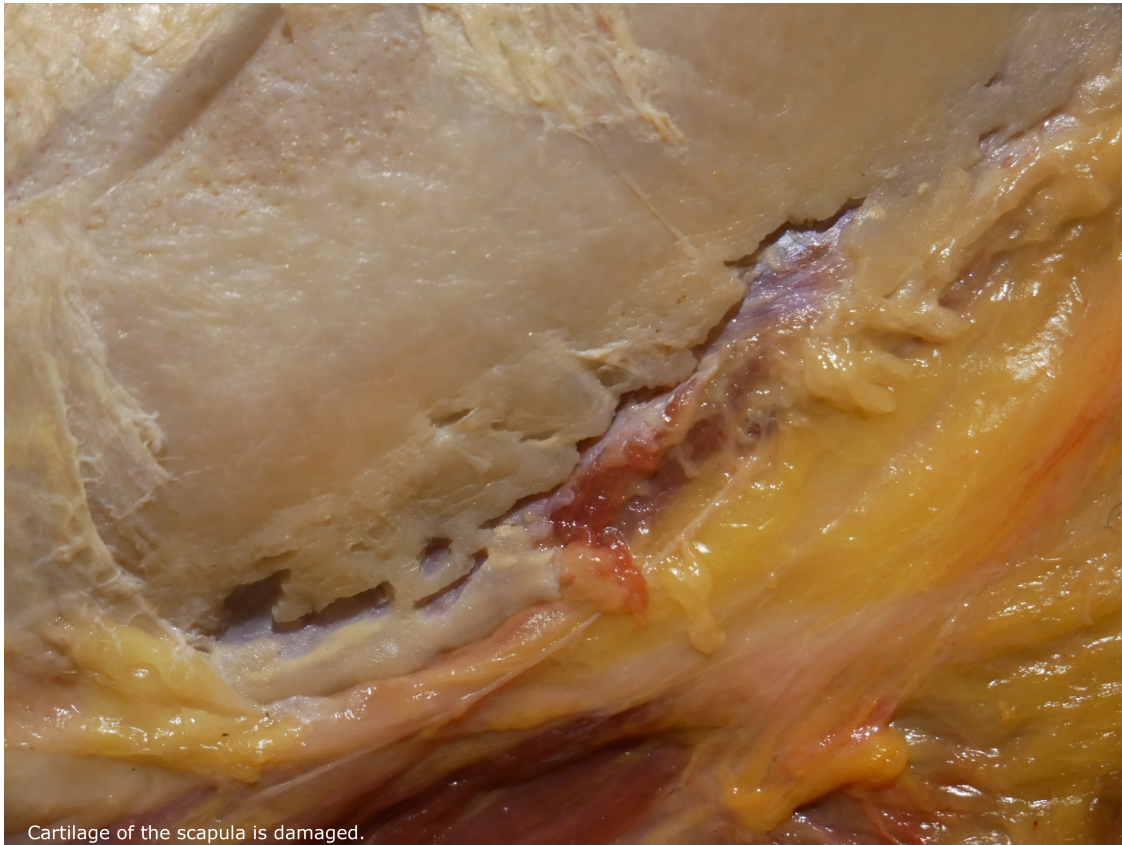
There was also too much fat. As mentioned before, the body can produce extra fat as a means of protection.



The tendon of M. Biceps brachii is unhealthy and also the amount of fat is unhealthy

There was asymmetry in the size of the scapulae. The cartilage of the left scapula was badly damaged. There was also tendon sheath on the scapula. This damage is often due to bad fitting saddles.

The shoulder joint was also really compromised and inflamed.



Cartilage of the scapula is damaged.

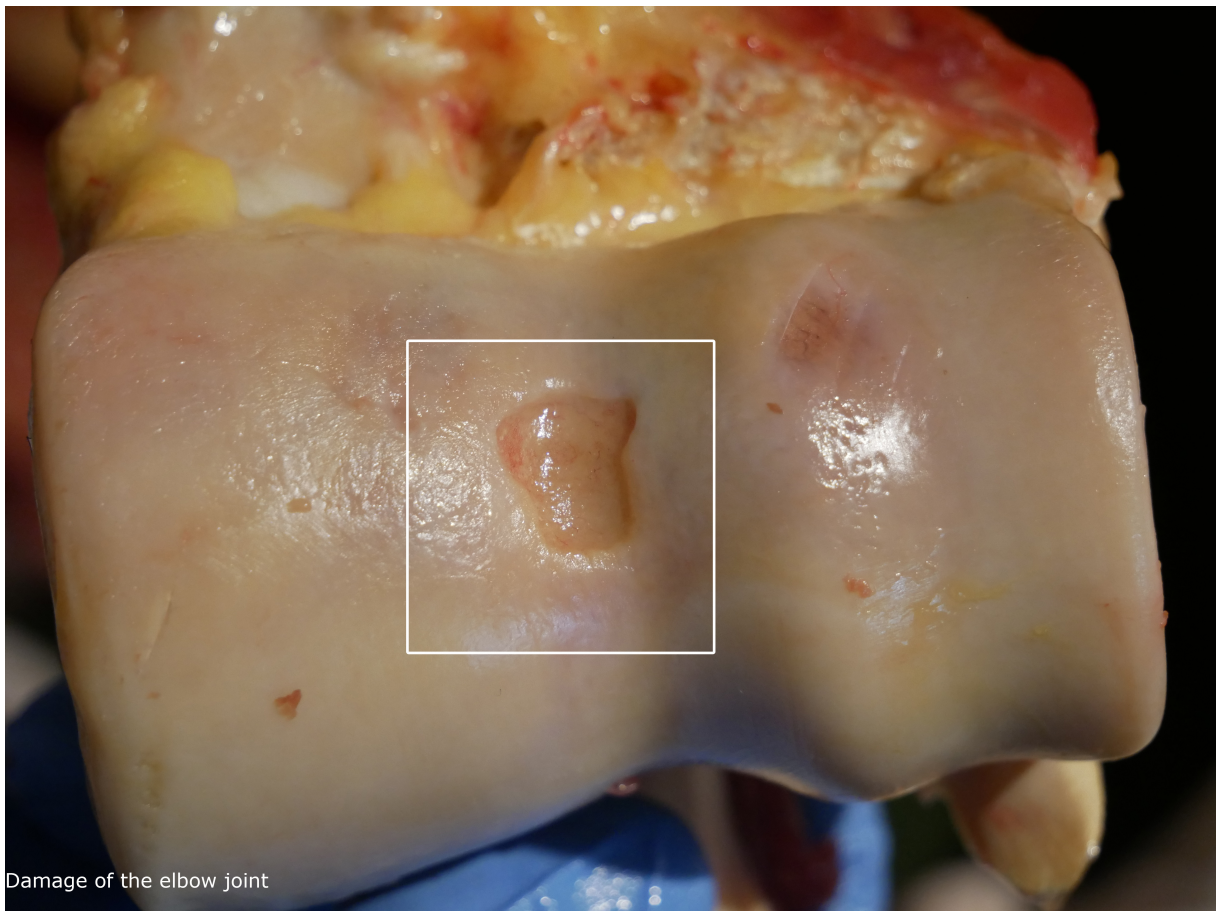


Shoulder joint is badly inflamed

Greater Tubercle

FRONTLEG

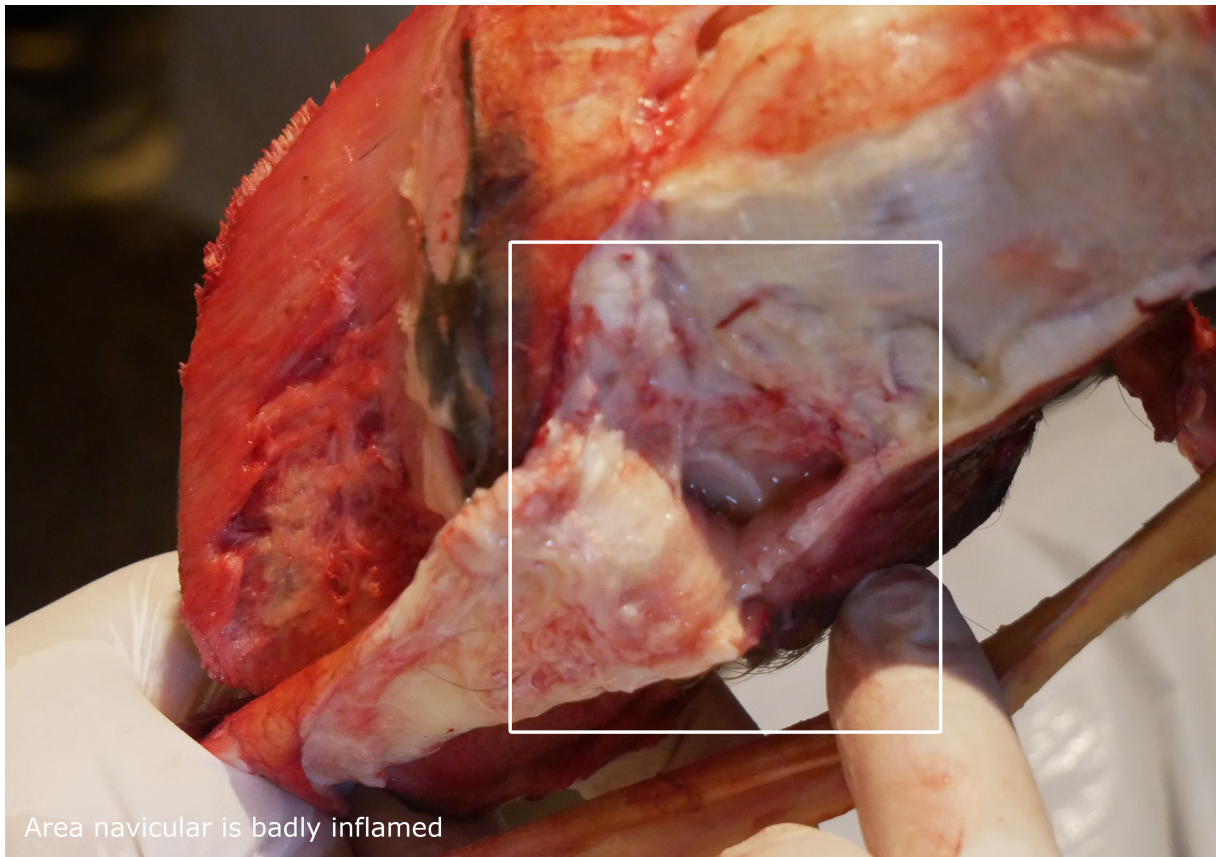
The elbow joint showed some lesions, but not nearly as bad as we have seen it before. We have seen plenty of worse cases in younger horses. As such, despite his damage in the shoulder area, Mökkur didn't compensate this fully on his elbows. This shows that each horse compensates differently.



There was some inflammation the Deep Digital Flexor Tendon.

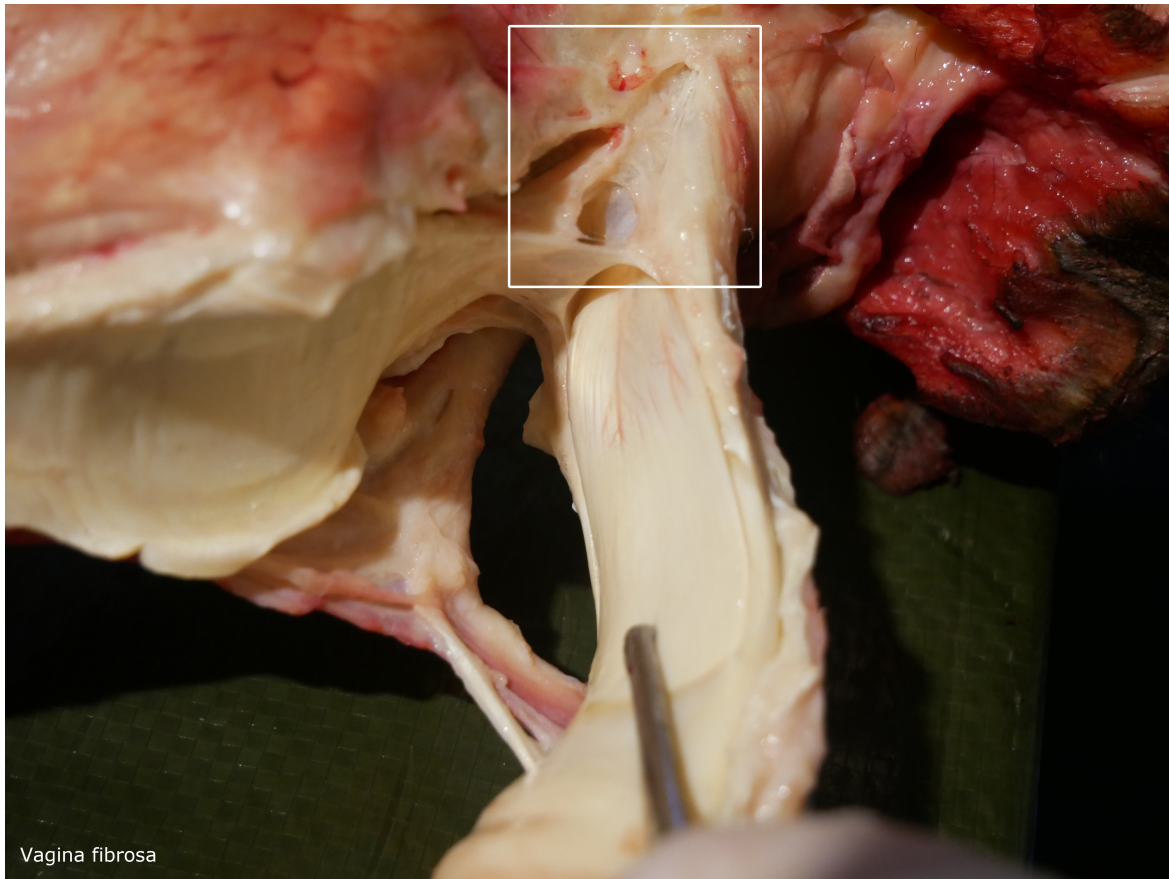
Interestingly, his splint bones had uneven length – they were shorter on the outside and he also had an extra ligament. These are also primitive traits.

His feet were in bad state. He had laminitis in his right front foot as well as very bad inflammation in his navicular.



Area navicular is badly inflamed

Interestingly, the Vagina Fibrosa ligaments were in quite a good state – especially compared to what we normally see. We often see them very inflamed and ruptured, but in Mökkur they were – considering his age – pretty good still.



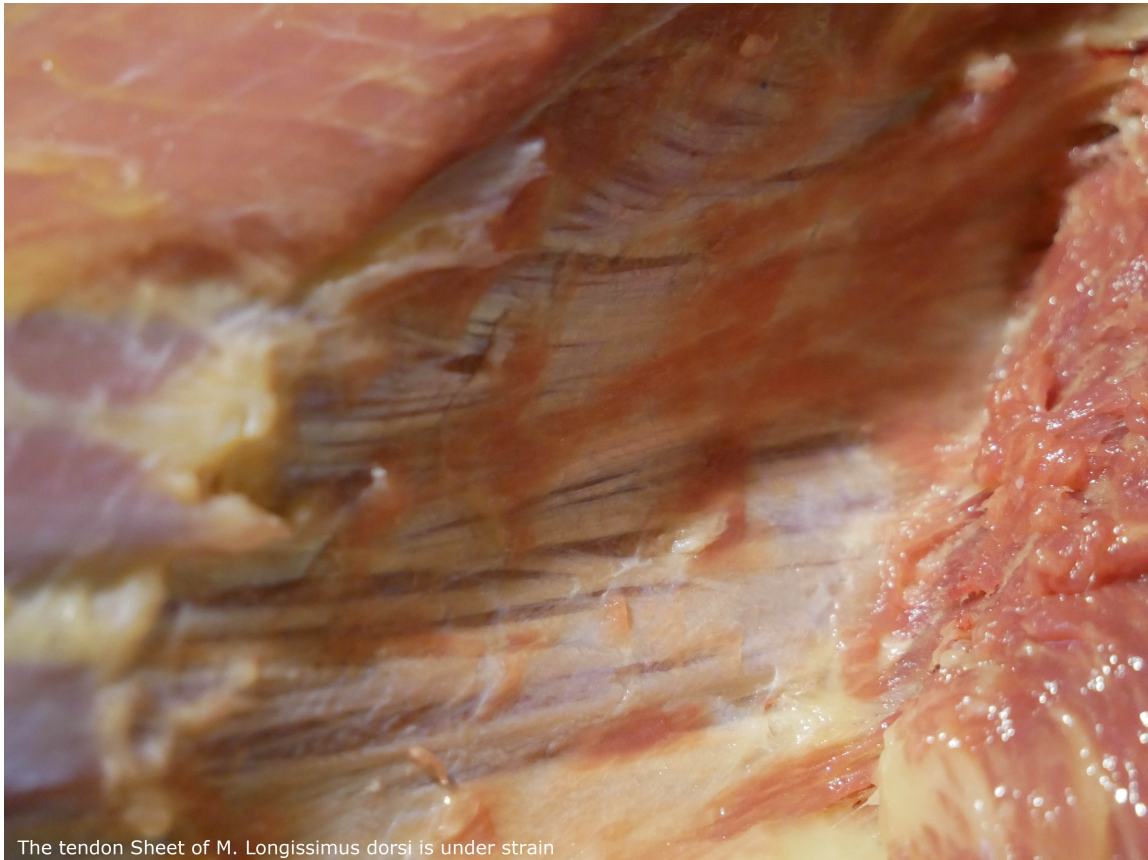
BACK, BARREL AND BELLY

There was a tear in his *Latissimus Dorsi* muscle on the left side as well as on the *Intercostals* and *Iliocostalis*.

The *Cutaneous Trunci* ran much deeper under the belly than normally seen in domesticates and as such, this was another sign of primitive traits.

The tendon sheet of the *Longissimus Dorsi* was under quite a bit of strain.

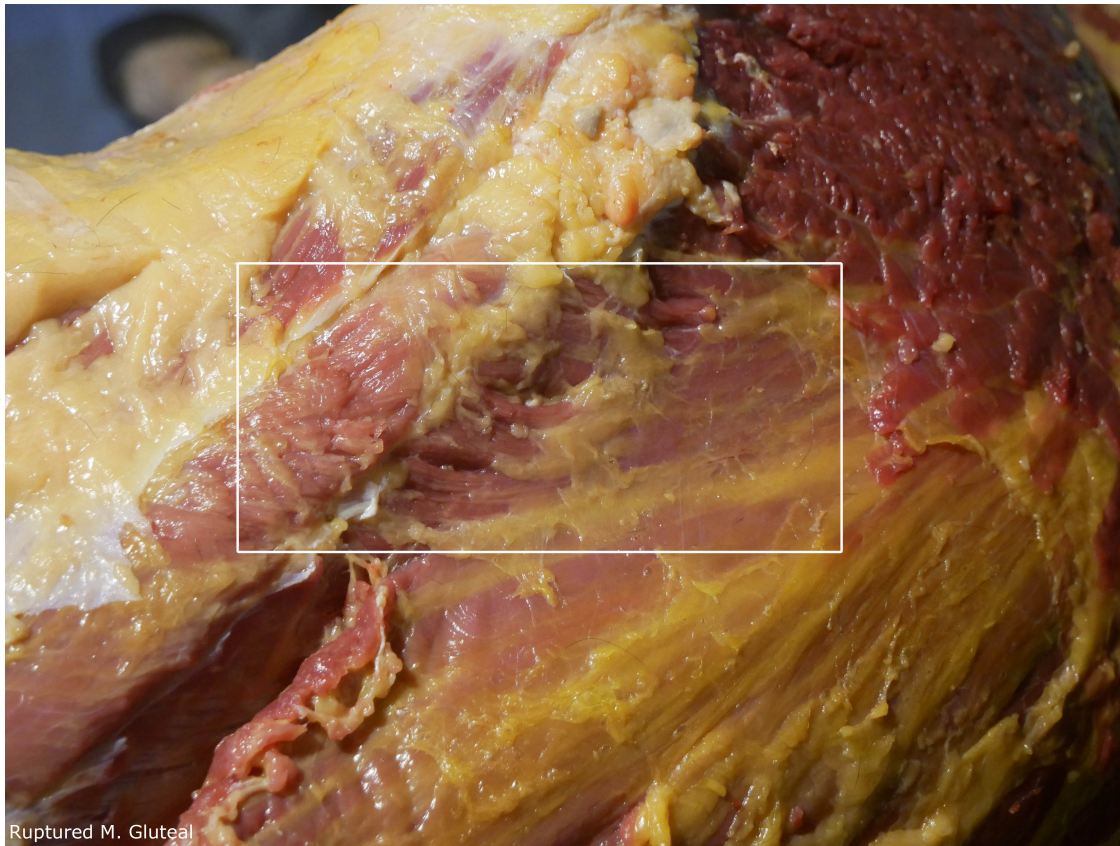
He also had some kissing spines – just behind the saddle.



HINDQUARTER

The attachment of the *Middle Gluteal Tongue* was weak. The muscle itself also had a rupture. The *Deep gluteal* also had some tears.

The *psaos group and Quadratus Lumborum* were much more developed than seen in domesticated horses. This is again another primitive trait. Strong *psaos* and *Quadratus lumborum* is very desirable as it will give a lot of support to lower back.



Ruptured M. Gluteal



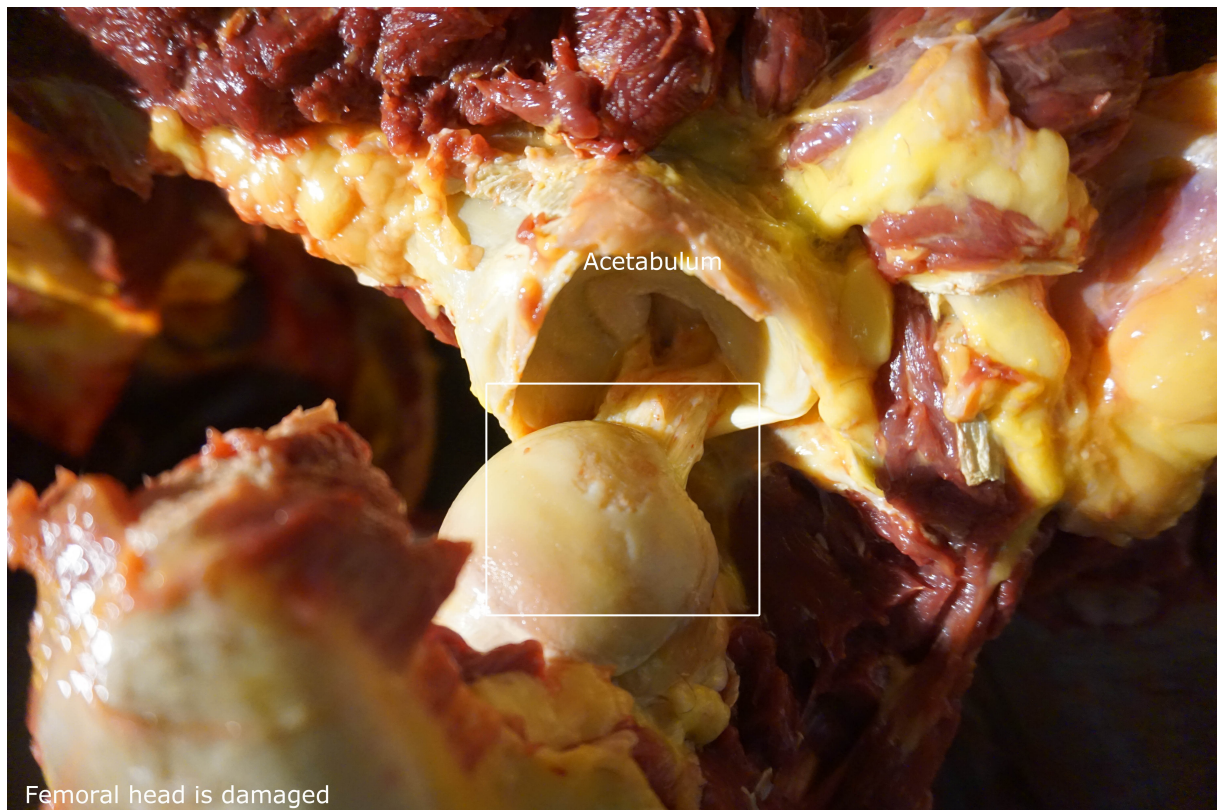
Finally, we found quite a big smegma bean in his penis. It is important to check this regularly with gelding and stallion as it can cause irritation.



HIND LIMB

Both hip joints were in a bad state. The left hip joint was severely damage with lots of calcification, inflammation, ruptured ligaments and worn-out patterns.

The stifles and hocks were also compromised, but the hip joints really stood out.



DIGESTIVE SYSTEM

There were calcifications throughout the digestive system. He also had extra fat around the small intestine and some inflammation throughout – but no ulcers.

His stomach showed some bots present.





ORGANS

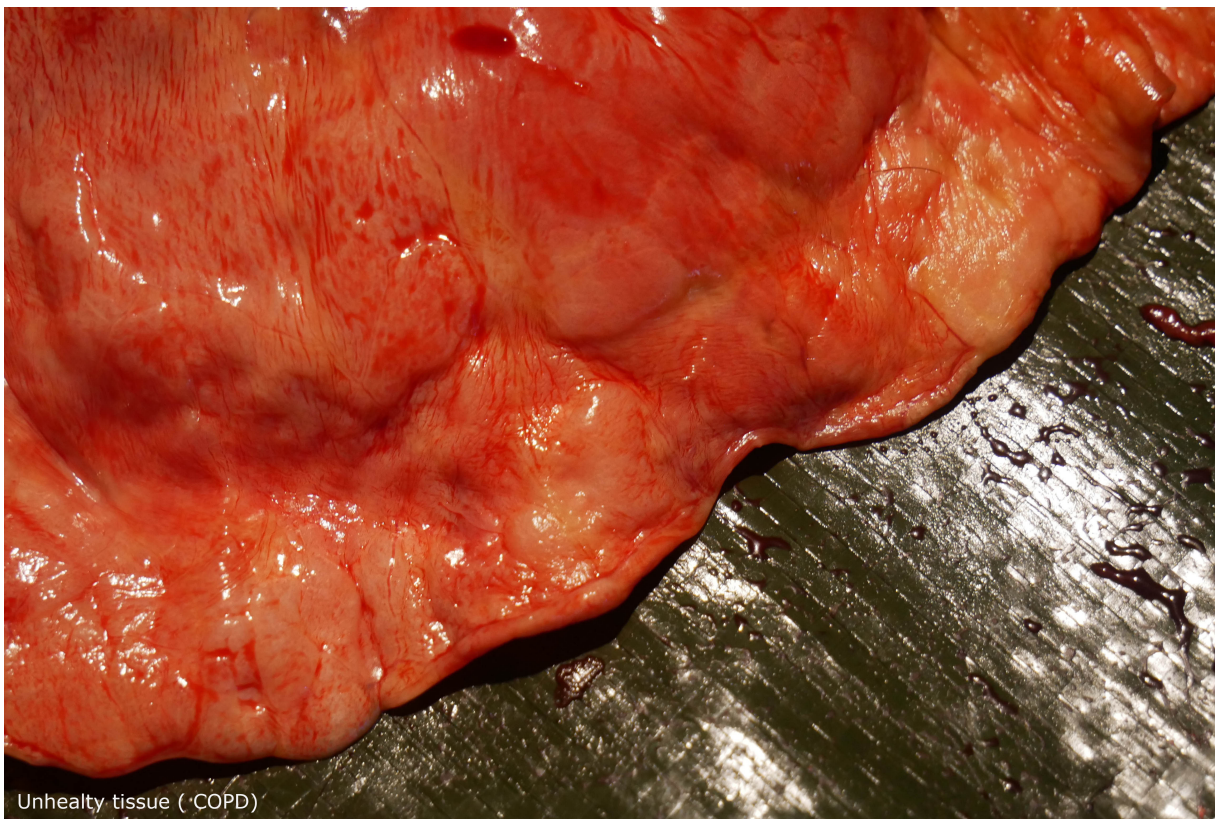
The spleen had some scar tissue – this can be caused by a bad fall or slip.

What really stood out was the bad quality of his lungs. He had suffered from a condition called COPD. This is a respiratory disease. In the assessment we already noticed his poor breathing and the state of his lungs were quite shocking. Unfortunately, we see this more often.

The other organs were normal.



Scar in spleen



Unhealthy tissue (COPD)

OVERALL

A general observation was that his fascia was really fibrous in structure that normal, indicating it was quite tight.



BONE PREPARATION

After the dissection, Zefanja prepared some of his vertebrae and in the preparation process severe arthritis on C1 (the atlas) was revealed. It is very lumpy bumpy



CONCLUSION

Thank you for taking the effort to study Mökkur's life 'inside-out' Through his dissection, he unravelled all his secrets and taught us a lot. It is our goal to learn so much that we can prevent horses from ending up the same fate as Mökkur. We hope that this case study has inspired and educated you so that Mökkur's story will not be forgotten and that together we can help more and more horses in the future.

