

# Movement analysis by a dog with lower back pain, treated with orthomanual veterinary medicine and measured with the pressure plate

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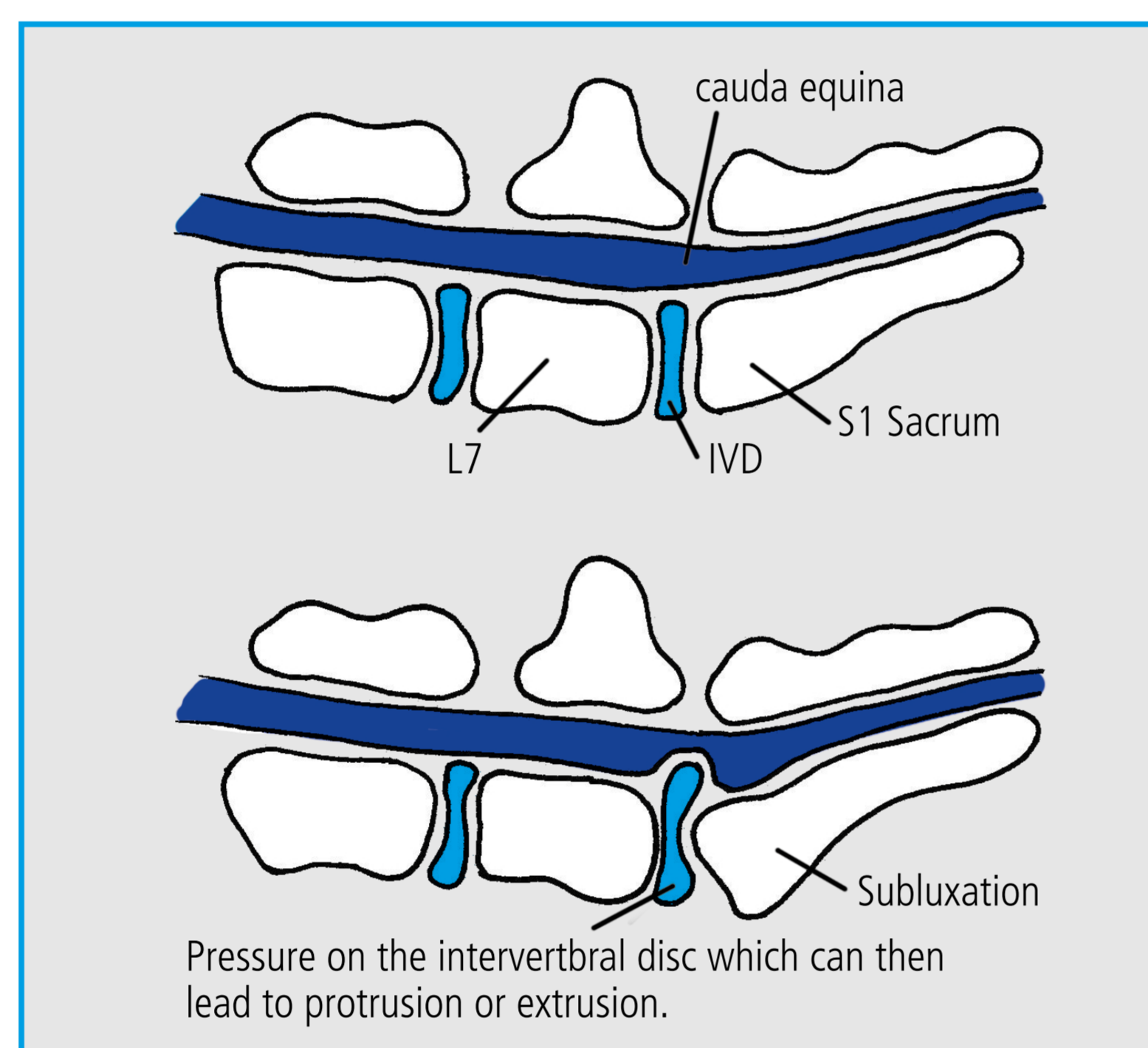
## Abstract

Charly, a 2.5 year old crossbreed dog, was referred to the Clinic with unwillingness to jump into the car. A CT scan of the lower back was included showing degenerative lumbosacral stenosis (DLSS). Physical, neurological and orthopedic examinations showed pain during palpation of the lumbosacral region and lumbosacral instability. Concurrent orthopaedic, neurological or systemic disorders were excluded.

The dog was treated orthomanually with manipulation of the lower back, followed by a managed mobility regime. In addition, gait assessments were performed with a pressure plate before and immediately after treatment and after two weeks and three months. Two weeks after treatment the dog could walk very ably and was completely pain free in the lower back. Three months after treatment, her gaits had improved further, and Charly was able to jump without discomfort. The positive outcome of this field case is in line with the overall good clinical and research outcome after application of orthomanual treatment policy of lower back pain patients<sup>(1,2,3)</sup>.

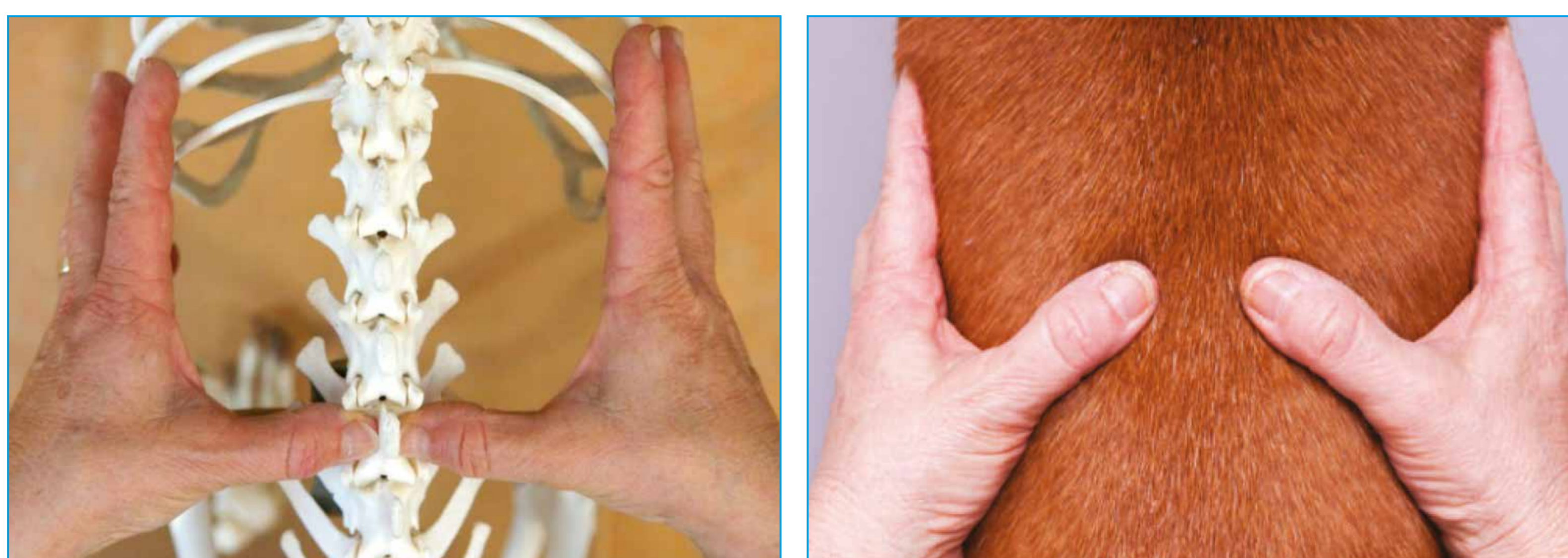
## Lower back pain

Lower back pain is a problem frequently seen in dogs with different conditions as the underlying cause. Degenerative lumbosacral stenosis (DLSS) is the most common cause. DLSS is a multifactorial degenerative condition. Abnormal movement within the lumbosacral junction leads to degeneration of the intervertebral disc (IVD), which in turn causes vertebral instability and ventral subluxation of L7 or S1. This produces additional pressure on the intervertebral disc which can then lead to protrusion or extrusion. This causes proliferation of bone and soft tissue, which ultimately leads to compression of the cauda equina. This is expressed through pain and neurological dysfunction<sup>(4-7)</sup>.



## Orthomanual Veterinary Medicine

DLSS in dogs can be treated in many different ways: conservative, surgical or orthomanual<sup>(4-6,8-10)</sup>. Orthomanual veterinary medicine is a non invasive, animal friendly treatment method focused on the symmetry of the skeleton and spine. Orthomanual treatment is based on the principle that a vertebral misalignment can cause pain, reduced mobility and loss of function. The objective of orthomanual treatment/orthomanipulation is to manually adjust the misalignments of the vertebra and in joints. Thus to create favourable conditions for recovery and improvement of the neurological state<sup>(11,12)</sup>.



Evaluation of the position and symmetry of the transversal processes

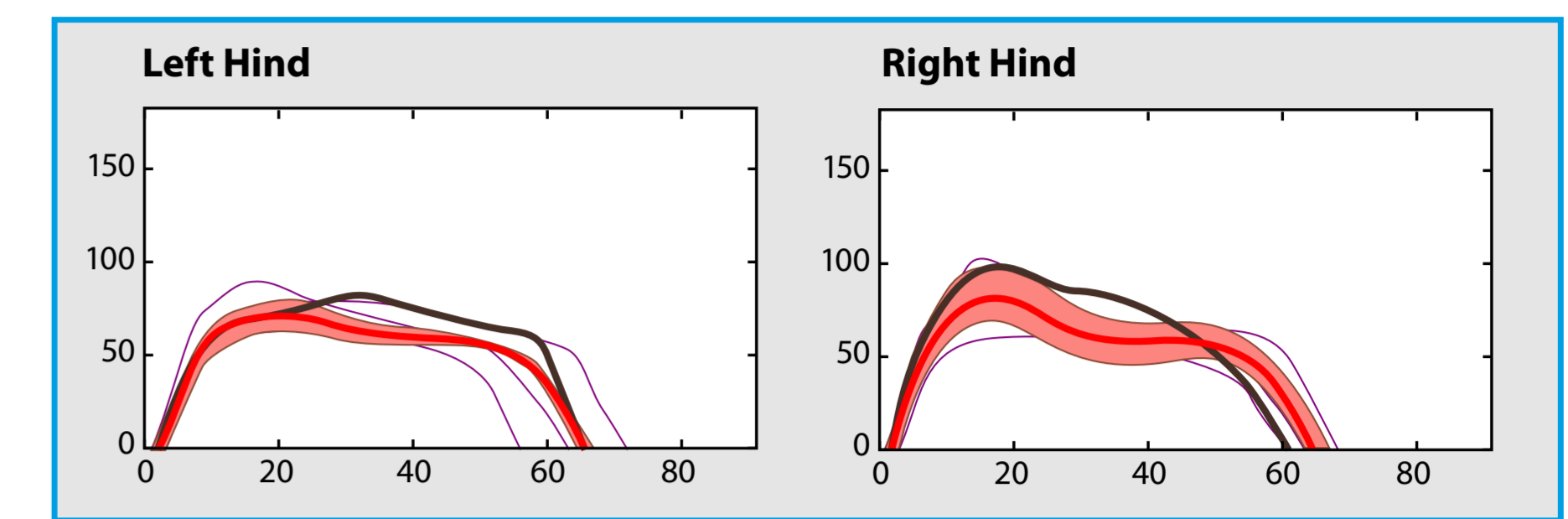
## Research objectives

The aim of this research is to objectively investigate the effect of orthomanual therapy on the abnormal gait pattern of dogs with lower back pain. Charly's movement patterns were evaluated using a pressure plate before treatment, immediately following treatment, two weeks and three months after treatment. The pressure plate is a pressure sensitive walkway (1 m x 5 m) with which gait patterns can be objectively analysed<sup>(13-16)</sup>. The owner led Charly over the pressure plate. The dog walked across the plate on a straight-line path at her chosen pace (an easy trot).

## Results

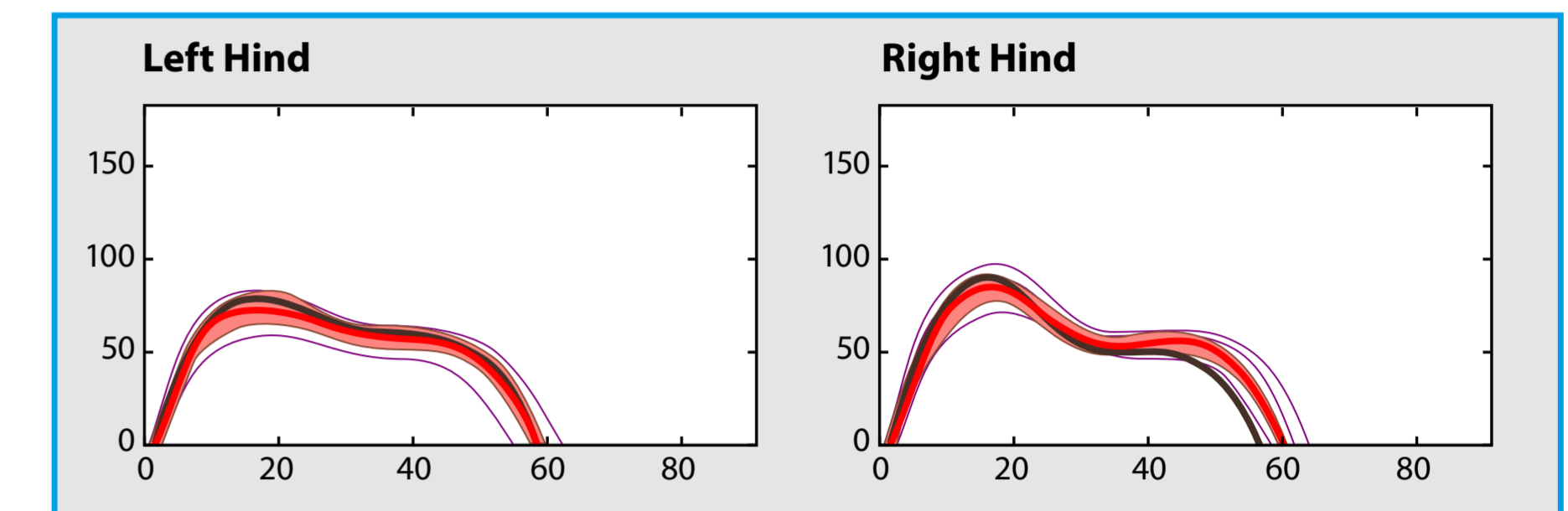
### Before orthomanual treatment

The left hind leg was being loaded less than the right hind leg. Neither hind limbs rolled over completely, with the left hind being slightly worse than the right hind. Additionally, the loading of the hind quarters as a whole was somewhat diminished.



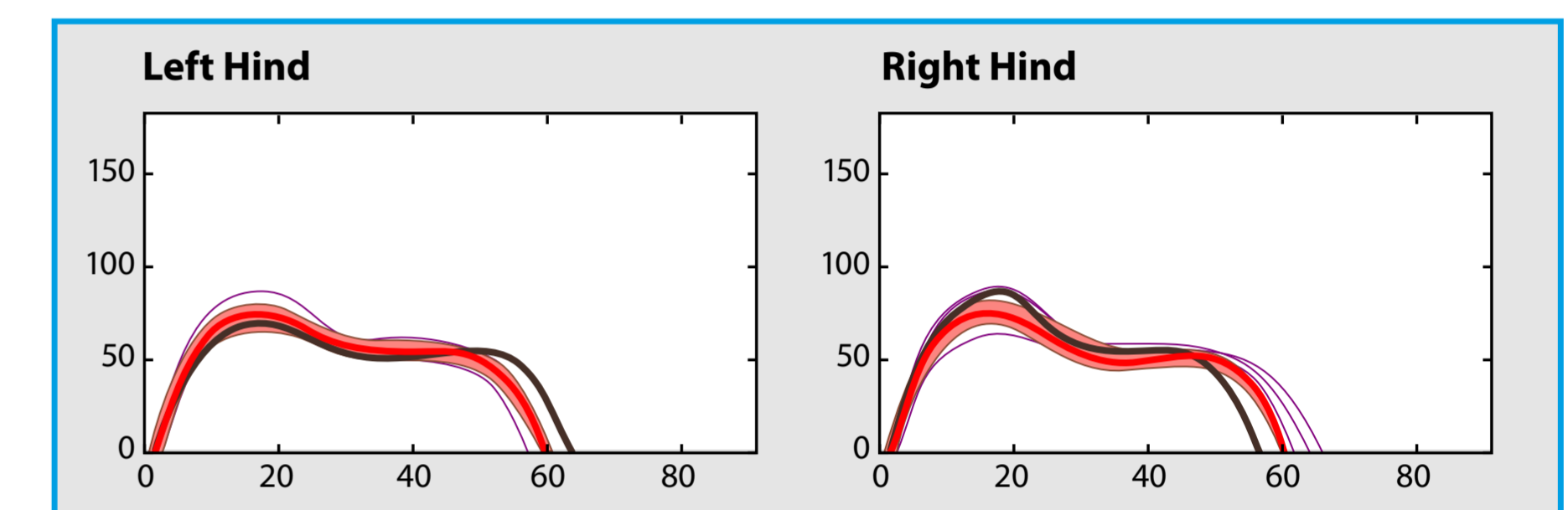
### Immediately after orthomanual treatment

The left hind leg was being loaded slightly less than the right hind leg, but both hind limbs were being used with more strength than before treatment. The hind limbs were rolling over somewhat better, and loading of the hind quarters was a bit improved.



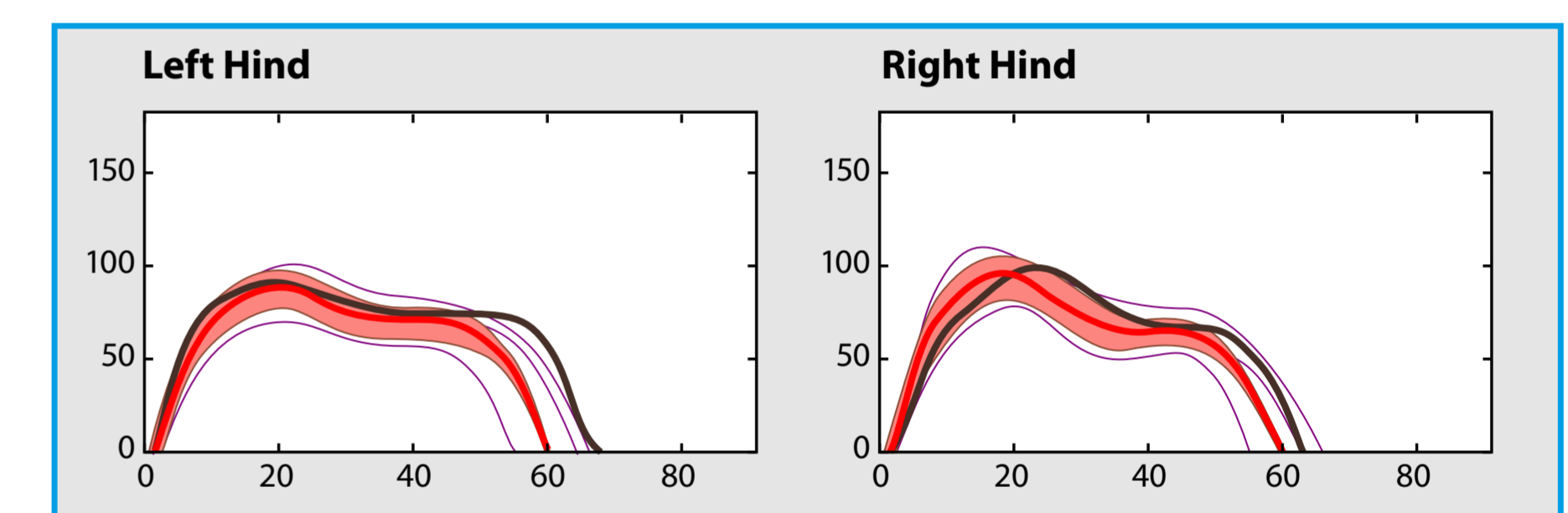
### Two weeks after orthomanual treatment

The left hind leg was being loaded more than before the treatment, and the right hind leg was being loaded a bit less than before treatment. The strength of the left hind leg was still somewhat less than that of the right hind leg, but the difference in the loading of the two was reduced. The hind limbs were rolling over well, with improved use of the hind quarters while walking.



### Three months after orthomanual treatment

Both hind legs were being loaded more strongly than before treatment; with the left hind leg showing slightly less strength than the right hind. Both hind limbs were rolling over well, and the hind quarters was being used better when walking.



Plotted on the horizontal axis is time (125 is equivalent to 1 second) and the vertical axis represents force. The black line is the selected paw on the plate. The thin coloured lines represent the pressures of the other paws on the plate. The red line represents the average, with the red area being the standard deviation. From the graphs we see that at each data point, the left hind limb bears slightly less weight than the right hind limb. Further, the graphs exhibit an increasingly biphasic pattern. Such a biphasic pattern is seen in dogs with a "healthy locomotor apparatus", in which the dog first places more weight on the posterior part of the paw, then rolls over the paw, and then places weight on the front part of the paw before lifting the limb. Conclusion: Charly was rolling over her hind feet better.

## Conclusion

Over a three month period, Charly exhibited substantial improvement, as determined by both clinical assessments and objectively measured using the pressure plate. Three months after treatment, Charly was walking very ably in clinical terms, and she was pain free. These clinical improvements were confirmed by findings from the pressure plate tests, which showed her hind limbs were striking the ground with more force. She was also rolling over her feet better, and used her hind limbs better when walking. This case report and its favourable outcome represents positive results of our manipulative techniques as part of the results and outcome of scientific researches conducted in our Clinic and in coworking with the Utrecht University in The Netherlands and the Universidad Cardenal Herrera CEU in Valencia, Spain<sup>(2,3)</sup>.

## Bibliography



<https://www.kreupeldier.nl/ESVN-symposium-bibliography.php>

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