Some summarized suggestions on the application of LUMBAR mechanical TRACTION…

Effects of mechanical traction

Sustained traction has three effects on the lumbar spine.

- *The distance between the vertebral bodies increases, which creates more space for reduction.*
- *The posterior longitudinal ligament tautens and thus exerts a centripetal force on the protrusion. This means that a posterocentral protrusion responds better to traction and a posterolateral one not so well.*
- *And thirdly, discography shows that a subatmospheric pressure is induced, by which a centripetal force is exerted upon the protrusion.*

Indications

Sustained traction can be considered in the following disorders :

- *A lumbar nuclear disc protrusion*
- *A mixed protrusion (partly annular, partly nuclear)*
- *S4-pain : only a very cautious attempt. In case of incontinence the patient should be referred at once*
- *An upper lumbar disc protrusion (L1 and L2)*
- *A recurrent disc protrusion at the same level after laminectomy*
- *A primary posterolateral protrusion which lasted less than three months.*

Contraindications

- *Acute lumbago (annular or nuclear) : each movement causes twinges in the back and or the lower limb. This is the contraindication. The patient might be comfortable during the traction, but when the tension is released, the patient is much worse. It may take one hour or more before he can stand up again. This should be avoided.*
- *An annular protrusion : manipulation is a better idea.*
- *Patients over 60-65 years of age : the water content of the disc has largely receded at that age. Applying traction or not in similar cases is a subjective manner, depending on the information from the history.*
- *Certain cases of sciatica :*

a) *with neurological deficit (sensory and/or motor)*
b) *with gross deviation sideways or in flexion*
c) *sciatica which has persisted for six months in a patient under 60.*
d) *Primary posterolateral protrusion of over three months' standing.*

- *Pregnancy : from the fifth month onwards.*
- *Respiratory or cardiac insufficiency : the patient does not tolerate the thoracic harness.*
- *A patient with a cold should not be put on traction, because a cough or a sneeze during traction can be very painful. (The same applies for laughing !)*
- *Immediately after a manipulation session.*
- *Any situation in which traction cannot be given comfortably.*

Technique

Position of the patient / criteria

Traction can be given in several positions. The more common one is with the patient supine, using a pelvic and a thoracic harness with the straps anteriorly. A small cushion is used under the patient's knees.

Some variations may be useful : if the patient feels more comfortable in flexion (and extension in standing is painful and limited), a flexion bench under the patient's knees is going to be more comfortable. If extension is comfortable, most likely the patient is going to prefer the position with the small cushions under the knees.

Positions in prone lying are described, which in theory are useful ; in practice, however, they are less feasible.

Traction

Traction should be sustained ; intermittent traction is less efficient : a certain traction force should gradually be built in, maintained for some time, and then very slowly released.

How many kilogrammes of traction force are needed ? Opinions differ.

Levernieux found that a traction force of 10-30 kg results in a widening of about 1,5 mm between two lumbar vertebral bodies. Troisier obtained similar findings : a widening of 1 to 1,5 mm per level. At least 30 to 35 kg are needed to have a beneficial effect in the lumbar spine . Others have demonstrated that the traction force should at least be 25 % of the body weight. Another study confirms that a traction force of less than 25 % is equivalent to a placebo-effect.

The amount of traction generally lies between 40-55 kg, for about 30 minutes. The first session is less : some 36 kg for about 20 minutes. In the next sessions, duration and amount of traction increase.

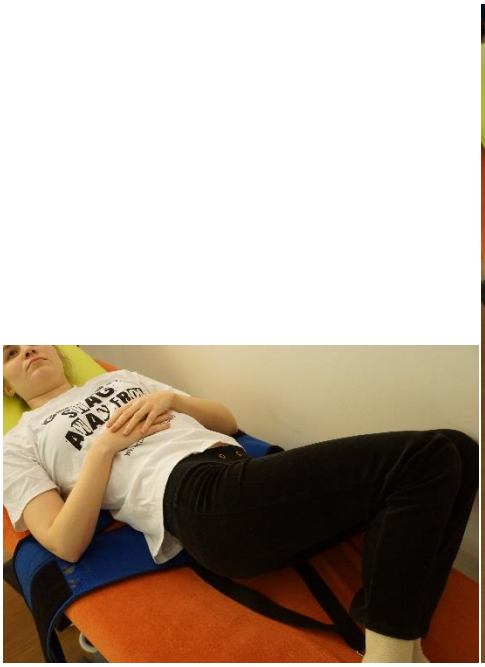
Treatment is given on five consecutive days, followed by two days rest. Two to three weeks are required.

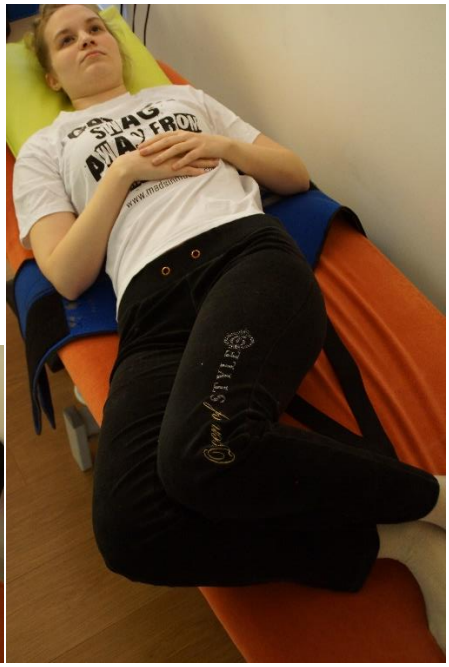
In each session the patient is examined, in order to assess the evolution. Since the back can be tender for some minutes immediately after traction, the examination is done before traction, to avoid a false positive interpretation. The articular movements in standing (extension and side flexions), trunk flexion with added neck flexion and the SLR are the main tests that can be used before traction.

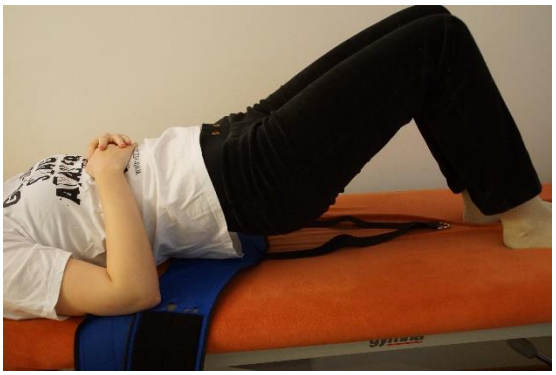
After the traction

The tension should be released very gradually (if possible in about 1-2 minutes), without any abrupt movement. Then the harnesses are opened, the thoracic one first. This too should be done smoothly, to avoid painful twinges.

After traction the patient should not stand up straight away. She has to perform some gentle movements in supine lying : flexing and extending a knee, with both knees together small pelvic rotations, and eventually lifting his pelvis off the couch.







If she manages all this without any discomfort, she can now get off the couch : rolling on to one side, bending both knees, bringing both feet outside the couch, pushing herself up into sitting, and standing up immediately.

For the next ten minutes or so, sitting should not be allowed and she goes for a little walk before driving home.

Results

We expect improvement to start after 3-4 sessions ; if not, perhaps we might change the position in which traction is given. If there is no improvement after 5-6 sessions, traction is abandoned.

In ideal situations, traction is given daily, mostly for about 2 weeks, max. 3 weeks. A CT-scan study shows reduction of disc material taking place in 78,5 % of central, 66,6 % of posterolateral and 57,1 % of lateral protrusions

Just reducing the internal derangement is not enough ; avoiding recurrences is the other part of our job. Hence, the patient should be explained which mechanism(s) is responsible for his symptoms, so that he grasps the use of a good prophylactic strategy and will be able to put it into practice.

Questions – suggestions ?

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