

# **Mattresses and chronic lower back pain.**

**Undergraduate research project at the Institute of Sports Science and Clinical Biomechanics.**



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## Resumé

The problems associated with back pain have been on the increase in recent decades and back pain is now amongst the most common health problems in our society. In most cases the mechanics of the illness are not known, neither are we sure about which treatments are effective. Apart from anything else, no one really knows which mattresses we should recommend for people with chronic back pain, let alone whether there is any likelihood of different types of mattress having different effects on existing back pains.

In this project we have attempted to look into the last question.

The research is based upon a comparison of three structurally different mattresses: a waterbed (Akva Waterbeds), a viscoelastic foam mattress (Tempur) which slowly shapes itself around the body and a firm mattress (Futon/ Innovation). The following parameters have been used in the evaluation of any possible effects:

- General changes to pains in the back and legs over this period.
- Ability to carry out daily activities.
- Ability to carry out usual work.
- Improvement in sleep and sleeping patterns.
- Objective functional analysis.

The project is a randomised, stratified, single-blind, parallel-group study.

128 (men, n = 50; women, n = 78)

Patients with chronic back pain aged between 18 and 60 were included. The participants were tested on mattresses that were randomly selected for a period of 4-5 weeks. They completed questionnaires before and after the test period.

In these types of surveys a degree of improvement is often noted irrespective of which treatment is tested. In all likelihood a type of placebo effect plays a part. The interesting thing about this is whether the differences in improvement are related to the three mattresses.

The preliminary results of the survey do not show any significant difference between the three mattresses. However, out of the three types of mattress, water mattresses appear to fare best when it comes to back pain (P= 0.09). With the group that tested the waterbed, the participants stated that back pain had reduced by approximately 10% (P= 0.05).

There is no sign that a new mattress has an influence on back problems as such, since none in the three groups had an impact on the objective goal. Nevertheless there seems to be some indication that any minor changes to subjective pain may be ascribed to improved sleep. However there is a significant correlation between these parameters, as it was found that those who reported a decrease in pain after the survey were the people who had a better sleep (P= 0.03)

The result shows that changing one's mattress cannot be expected to do much to alleviate back pain. There are however certain parameters which we have not made allowances for in the study. This seems to indicate that it would be interesting to make further studies within this area. We may also add that similar studies have indicated positive results and these ought to be demonstrated.

The results shown below are a part of a larger project with a total of 159 participants, which are expected to be published in autumn 2003.

Those interested may make contact by E-mail to the address given earlier. (see front page).

Project design:

The project is a randomised, stratified, single-blind, parallel-group study.

Based on the following criteria, 128 (men, n = 50; women, n = 78) patients with chronic back problems were included.

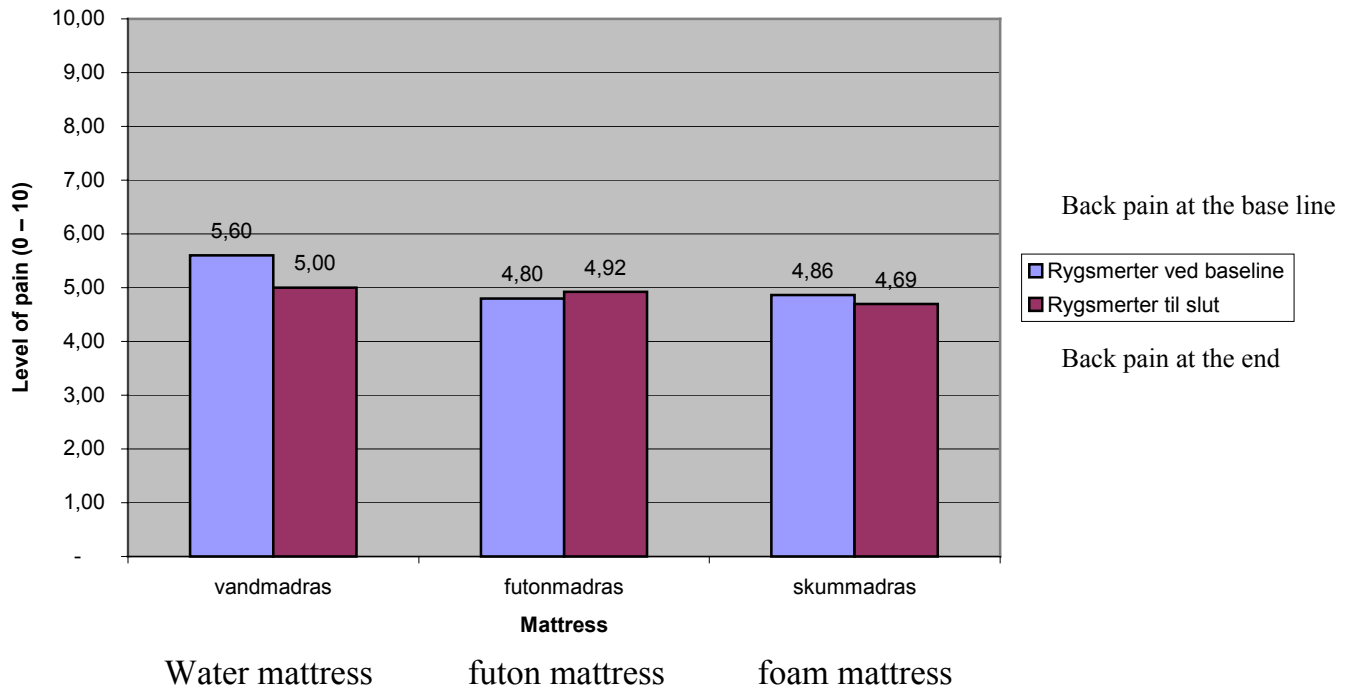
*Inclusion:*

- Chronic lower back pain of a degenerative character, but with a fairly stable level of pain over approximately 6 months.
- Ages 18 to 60
- Back pain occurring every day, particularly felt in the mornings and again at night.

*Exclusion:*

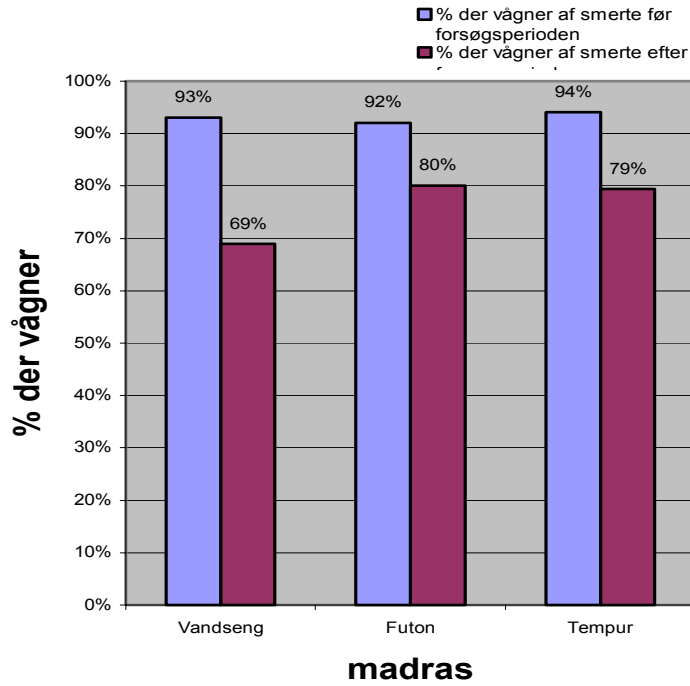
- The subject already owns one of the three beds.
- The subject has other significant illnesses that could possibly give problems at night or interfere with sleep.
- The subject is currently undergoing medical treatment unless the treatment is long-term and started more than three months before the beginning of the trial period and needs be carried out during the whole of the present bed trial.

**The effect the mattresses have on back pains**



**% people who are woken by pain.**

**% personer der vågner af smerter.**



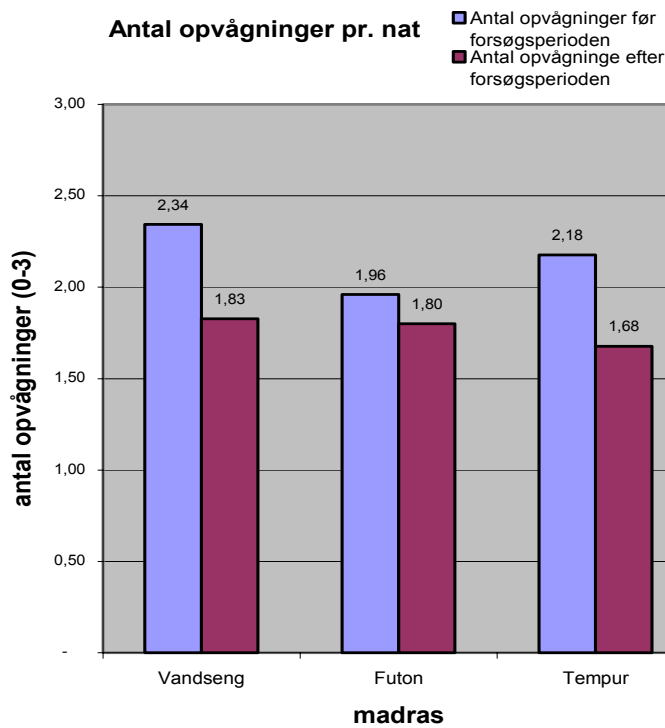
↑ % who are woken by pain before the trial period

↑ % who wake afterwards

(Text on side)  
% waking up

Waterbed Futon Tempur  
**Mattress**

**Number of times woken at night**



Number of times waking after the trial period

Numbers of times waking before the trial period

(Text on side)  
Number of times waking (0-3)

Waterbed Futon Tempur  
**Mattress**