

The Department of Clinical Neuroscience
Unit for Personal Injury Prevention

Prevention of chronic back pain
The Yoga Project – a pilot study
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Purpose

The purpose of this study is to investigate the benefits of Kundalini Yoga as a treatment method for non-specific back pain. The scoring system used in the investigation measures changes in the perceived pain score and how pain affects various aspects of psychological well-being and behaviour such as e.g. perceived control of pain and quality of sleep.

Method

The Yoga Project is a prospective experimental pilot study. The aim is to obtain an initial indication of the extent to which Yoga can prevent and alleviate pain in the spinal column. As the experiment was performed under field like conditions, it cannot be claimed that all independent variables that could be expected to feature could be kept constant. Having said that, these were to be clearly identified wherever possible. The design is structured with both experiment and control groups. Pain scores were recorded at four measuring points, (1) before intervention and (2) at the end, plus a further two (3, 4) measuring points after the end of the intervention. However, this paper will only cover the first three score recording occasions. The project was approved by the research ethics committee at the Karolinska Institute 1998-03-09 (appendix 1).

Results expected

To obtain an initial indication as to whether yoga is a possible treatment method for the prevention of chronic back pain.

The Yoga Sessions

The six-week treatment plan for the project is naturally too short to have time to go through all eight points and as such, the Yoga will be addressed somewhat superficially. Exercises aimed at the back along with meditation will be influential factors. A Yoga session usually follows a set structure. You start with a warm up consisting of around four breathing and physical exercises that are not very strenuous. This is followed by a few minutes relaxation. After this come the exercises chosen for the session. There are around eight in total ranging from thirty seconds to five minutes each to complete. Breathing is an integral part of all the exercises. This is because breathing is considered to be as equally important as the physical exercises in gaining the most benefit out of Yoga. The physical exercises are followed by meditation for a few moments. The time spent on this can vary from one session to another. Two different sessions will feature during the project, a long session and a shorter one. Both are what can be termed "back sessions".

The findings

The results of the pain scores recorded at measuring points 2 and 3 are looked at in the final report. At both these points, the participants' pain scores were compared with those recorded at measuring point 1. The results from point 4 will be added to the paper at a later date.

Statistical method

The variables for pain, mood and quality of sleep in the pain diary were initially made up of three values each for each scoring day. The scores from three days were included for each measuring point. The three values entered for each score measurement day were then converted into three average values. The average value per scoring day was then converted into an average value for the entire score. This enabled an average value per variable and score to be obtained.

Two variables have been excluded from the final report as they they were considered not to have any practical application in this survey. This was question 4 (OEQ) that looks at medication taken over the last seven days. Question 3 (OEQ) that looks at the number of days in which medication has been taken over the last seven days has been used instead as a measure of medication, as this has a broader statistical application. The pain diary question on being fit for work on the pain score measuring day concerned has also been excluded. Sick leave was looked at using question 10 (OEQ) instead. Average value and standard deviation for relevant variables at scoring points 1, 2 and 3 are shown in table 8.1 below.

The Wilcoxon Signed Rank test has been used when calculating statistics on changes in the experiment and control groups respectively. As the variables differ numerically, an increase can indicate a positive development for one variable and a negative development for another. The independent samples t-test has been applied when calculating changes between the experiment and control groups.

Results pain score measurement point 2

Unfortunately, there were drop outs in the experiment and control groups between the measuring points. 1 person in the experiment group and 4 people in the control group did not respond at measuring point 2. When scoring changes within the group, all variables except one showed a change. In the case of the control group, the questionnaire question on sleep quality showed no change.

All changes bar two were more positive for the experiment group than for the control group. This does not, however, have to mean that all numerical changes were caused by any genuine change for the group. This is partly because many of the changes were small and also because the groups were so small that big individual changes can more easily affect the results in either a positive or negative direction (see further in Discussion). The two changes where the control group showed more positive results were the number of pain free days and the feeling of being in control. One should not give too much weight to the latter question as its validity is considered to be too low (see Method-scoring system).

The experiment group showed significant differences when it came to the questionnaire; pain score (question 2), medication (question 3) and sleep quality (question 5) and in the pain diary, pain and quality of sleep. In the case of the control group, there was a significant difference in terms of number of pain free days (question 1) on the questionnaire.

Significant differences between the experiment and control groups could be seen in the questionnaire regarding pain score (question 2), medication (question 3) and sleep quality (question 5) and in the pain diary with regard to pain score. In the case of question 2, the experiment group had progressed in a more positive direction than the control group. The experiment group took medication less often (every 0.72 days) than the control group (every 0.51 days). Quality of sleep had improved for the experiment group and worsened for the control group.

Results pain score measurement point 3

There were the same number of drop outs at measurement point 3 except this time 2 people had dropped out of the experiment group and 3 from the control group. Changes within the group at measurement point 3 were scored as the difference between point 1 and point 3. None of the variables remained unchanged by this measurement point.

The experiment group showed significant differences when it came to the questionnaire; number of pain free days (question 1), pain score (question 2), medication (question 3), sleep quality (question 5) and feeling down (question 7) and in the pain diary, pain. For the control group, a significant reduction in pain was recorded in the pain diary.

Significant differences between the experiment and control groups could be seen in the questionnaire variable anxiety, nervousness, irritation. Here, the experiment group had made positive progress while the control group had moved in a negative direction.