Research about Naprapathic Manual Therapy

10 year anniversary
The Degree Programme in Naprapathy
Kymenlaakso University of Applied Sciences

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Scandinavian College of Napropathic Manual Medicine
Back and neck pain. Epidemiological studies on some risk factors and treatments, including Naprapathic manual therapy
Important with research within Naprapathy performed by naprapaths!?  

- Required to get an academic degree in Sweden  
- Required to development and quality assurance of Naprapathy  
- Provide knowledge about diagnostics, treatment and prognosis of disorders of the musculoskeletal system
Search at internet for Naprapath*

- Google
  - Naprapat*
    - 2 040 000 hits
  - Chiropractic*
    - 208 000 000 hits
Search at PubMed

- **Musculoskeletal Manipulations (MeSH)**
  - Various manipulations of body tissues, muscles and bones by hands or equipment to improve health and circulation, relieve fatigue, promote healing.
  - 10 516 hits
- **Chiropract***
  - 5523 hits
- **Naprapath***
  - 16 hits
PubMed: Naprapath* 16 articles
WHAT IS NAPRAPATHY?

Cal State J Med. 1923 Sep;21(9):381.

The Journal is not infrequently asked this question. We will answer it by quotations from "The Pacific Naprapath," published apparently by one of the College’s early publications, and by "Dr." Oakley (not Dudley) Smith, "founder and president of the Chicago College of Naprapathy."

- Does naprapathy teach that displaced vertebrae cause disease?
  → No, because naprapathy has proven in laboratory and clinic that vertebrae do not become displaced, or get out of place. On the contrary, they get too much in place, are drawn too closely together.

- Does the napraphath 'adjust' the vertebrae?
  → No, he uses the vertebrae as levers to stretch shrunken and contracted ligaments.

- Does naprapathy teach that the nerves are pinched by the bones of the spine?
  → No. It teaches that the nerve function is impaired by the contraction of the connective tissue through which the nerves pass. Naprapathy teaches that the real disease is the shrunken ligament, and that conditions in the body heretofore believed to be disease are but the symptoms of the real disease in the ligament, THE LIGATIGHT, the predisposing cause.

The Journal is not infrequently asked this question. We will answer it by quotations from "Dr." Oakley (not Dudley) Smith, "founder and president of the Chicago College of Naprapathy."
Quality of Life and Cost of Care of Back Pain Patients in Finnish General Practice

Heikki M. Hemmilä, MD

Study Design. A cohort of 114 primary care patients were studied for 1 year before and 1 year after a randomized clinical trial.

Objectives. To explore the therapy use, societal costs, and quality of life of patients with prolonged back pain. To compare the effects of physiotherapy, bone setting, and light aerobic exercise on these measures.

Summary of Background Data. Analyses of back pain have mostly focused on the minority of patients who cause high costs and a heavy burden on national economies. The majority with low costs have aroused less interest. The patient’s choice of therapy, especially alternative medicine, has seldom been evaluated despite the increasing popularity of alternative therapies.

Methods. Data were collected from the Social Insurance Institution files, patient records, and questionnaires: the Nottingham Health Profile (NHP).

Results. One year before enrollment a third of the patients had consulted primary care. Half of them had had some therapy: mainly massage, physiotherapy, naprapathy, or bone setting. One third of the direct costs were spent on complementary therapies and another third on rehabilitation. Sick leave accounted for 55% of the total costs (US$129). The mean total costs slightly increased after the randomized therapy (US$139). The costs of ambulatory care, with the study therapies included, were similar, whereas physiotherapy seemed the cheapest (US$63) and bone setting the most expensive (US$270) alternative in view of the total costs. More NHP subscales were improved by physiotherapy and bone setting than by exercise.

Gross Domestic Product (GDP). In the Netherlands, the direct and indirect costs were US$0.37 and 4.6 billion, respectively, accounting for 1.7% of the Dutch GDP in 1991.28 The corresponding Swedish estimates in 1990 were US$0.24 billion for direct and US$3.8 billion for total costs, which corresponded to 1.7% of the Swedish GDP. Frymoyer and Cats-Baril calculated in 1990 that back pain caused direct costs of US$24.3 billion and indirect costs of US$75–100 billion in the United States, which corresponded to 1.7–2.1% of the U.S. GDP.

The societal costs of back pain have also been assessed in cohort studies as costs per episode of care,2,3,5,7,10,15,30 or in clinical trials as costs per year,3,5,13,16,21,23 but there is so far no consensus as to how to collect and analyze costs data.26 Most economic studies have been based on the viewpoint of the payer, i.e., the insurance company, the employer, or society. The losses to the patient and family have been assessed less often.15

How individual patients treat their back pain is not well known. Especially the use of unconventional therapies is unknown, although the rate of use is generally high, ranging from 10% to 49% in different countries,14 with a rising trend during the past few decades.44 This study attempted to list all the diagnostic and therapeutic procedures used by the patients enrolled in a clinical trial,14 both before and after the interventions.

Study design

→ Cohort of 114 primary care patients

Conclusions

→ A third of the direct back pain costs were spent on complementary therapies.

→ Physiotherapy and bone setting seemed able to improve the quality of life of patients with prolonged back pain.
CONCLUSION:

Despite barriers it was possible to develop a model for IM adapted to Swedish primary care managing non-specific back and neck pain (n=80).

The study was underpowered to detect any statistically significant differences between the groups.
The Course of Symptoms for Whiplash-Associated Disorders in Sweden: 6-Month Followup Study

SARA CRUTEBO, CHARLOTT NILSSON, EVA SKILLGATE, and LENA W. HOLM

ABSTRACT. Objective. To describe symptom patterns and the course for recovery in persons with whiplash-associated disorders (WAD) over 6 months after a car collision, and to investigate associated gender differences.

Methods. The study population was based on insurance claimants, 18-74 years of age, who reported WAD after a collision, between January 2004 and January 2005. At baseline and again 6 months later they were asked to complete a questionnaire that included questions about presence and severity of pain and other possible WAD symptoms. It also included measurements of posttraumatic stress as well as anxiety and depression.

Results. A total of 1,053 persons were studied. The most common symptoms at baseline after neck pain were reduced cervical range of motion (83.9% of men, 82.8% of women), headache (61.9% and 69.3%, respectively), and low back pain (35.9% and 36.1%). Some symptoms were already transient at baseline and symptoms such as neck pain, reduced cervical range of motion, headache, and low back pain decreased further over the 6 months. Baseline prevalence of depression was around 5% in both women and men, whereas posttraumatic stress and anxiety were more common in women (19.7% and 11.1%, respectively) compared to men (13.2% and 8.6%). The majority of all reported associated symptoms were mild at both baseline and follow-up.

Conclusion. Our findings support that the symptom pattern of WAD and the prevalence of many of the symptoms decreased over a 6-month period. (J Rheumatol First Release May 15 2010; doi:10.3899/jrheum.091211)

Key Indexing Terms: WHIPLASH INJURIES NECK INJURIES PROGNOSIS COHORT STUDIES

Whiplash trauma is strain of the cervical spine occurring in an acceleration-deceleration movement of the head and spine, for instance in car crashes. The most common direction of impact is rear-end, but the injury also occurs after front and side collisions as well as rollover collisions. The Quebec Task Force coined the term whiplash-associated disorders (WAD) in order to move away from the mechanism of the injury and instead describe the consequences of the injury. The Quebec Task Force also suggested a numeric classification system for WAD (Grade 0-4), where grades 1-3 are considered to be symptomatic. Clinically, grades 1 and 2 are the most common, whereas grade 3, the most severe, constitutes only 2%-5% of all acute cases (grade 4 is spinal fracture, thus another diagnosis). Grade 0 is not considered an injury but rather an exposure to the trauma mechanism. Neck pain is the cardinal feature of WAD, but reduced range of motion, headache, and other associated pain problems are also reported. WAD is the most common injury following car collision in many Western countries. The annual incidence in Sweden in 1997 was 320 per 100,000 inhabitants. There has been a decrease in the incidence of traffic injuries including WAD in Sweden over the last 4 years.

Most common (after neck pain)

→ reduced cervical range of motion (84% of men, 82% of women),
→ headache (61% and 69%, respectively)
→ low back pain (36% and 36%).

The majority of all reported associated symptoms were mild at both baseline and follow-up.

Conclusion.

→ Symptom pattern of WAD and the prevalence for many of the symptoms decreased over a 6-month period.

- Very important to select proper mechanical stimulation (such as naprapathy) in the early and middle stage of osteoarthritis, which regulate the expression of integrin to affect the function of chondrocytes, repair the damaged chondrocyte and delay the articular cartilage degeneration.
Naprapathic Manual Therapy or Evidence-based Care for Back and Neck Pain

A Randomized, Controlled Trial

Eva Skillgate, DN,† Eva Vingård, MD, PhD,‡ and Lars Alfredsson, PhD§

**Objectives:** To compare naprapathic manual therapy with evidence-based care for back or neck pain regarding pain, disability, and perceived recovery. Naprapathy that is common in the Nordic countries and in some states in the United States is characterized by manual manipulations with a focus on soft and connective tissues, aiming to decrease pain and disability in the musculoskeletal system.

**Key Words:** back pain, neck pain, complementary therapies, manual therapy, evidence-based care


Skillgate et al. BMC Musculoskeletal Disorders 2010, 11:26
http://www.biomedcentral.com/1471-2474/11/26

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The long-term effects of naprapathic manual therapy on back and neck pain - Results from a pragmatic randomized controlled trial

Eva Skillgate1,2,3,††, Tony Bohman††, Lena W Holm1,2, Eva Vingård2, Lars Alfredsson1

**Abstract**

**Background:** Back and neck pain are very common, disabling and recurrent disorders in the general population and the knowledge of long-term effect of treatments are sparse. The aim of this study was to compare the long-term effects (up to one year) of naprapathic manual therapy and evidence-based advice on staying active regarding nonspecific back and/or neck pain. Naprapathy, a health profession mainly practiced in Sweden, Finland, Norway and in the USA, is characterized by a combination of manual musculoskeletal manipulations, aiming to
Aim
To compare Naprapathic manual therapy to evidence-based care provided by a physician for back and/or neck pain regarding pain and disability, health related quality of life, perceived recovery, sick leave, consumption of health care and medicine

Method
A randomized controlled trial (n=409)
At the clinic

- Informed consent
- Questionnaire
- Physical examination, diagnose and prescription
- Exclusion
- Randomization
Inclusion criterias
Present unspecific pain in back and/or neck, since at least two weeks, of the kind that cause marked dysfunction at work and/or in leisure time.

Study population
Advertising among employees at two big public companies (about 40,000, mainly women in the healthcare sector, within education and in the postal service).
Exclusion criteria

Symptoms too mild, pregnancy, specific diagnoses, recent manual treatment (with the exception of massage) or evidence based care, inability to understand Swedish.

Surgery in the painful area, specific diagnoses as acute prolapsed disc, spondylolisthesis, stenosis, and “red flags”.
Interventions

Naprapathy
- Maximum 6 visits within 6 weeks

Evidence-based care provided by a physician
- Advice to stay active and how to cope with pain
- Booklet
- A second consultation scheduled after 3 weeks
Data collection
Questionnaire after 3, 7, 12, 26 and 52 weeks

Outcome
Pain and disability, health related quality of life, perceived recovery, sick leave, consumption of health care and medicine
Baseline characteristics

Age (mean) 47 y
Women 71%
Neck/shoulder pain 58%
Duration pain
  < 3 months 26%
  > 1 year 56%
Previous episodes of pain in back or neck 87%
Clinically significant improvement

Dichotomized outcomes were defined based on what is believed to correspond to a clinically significant improvement (Farrar 2001, Turner 2004, van Tulder 2007)

- Pain: at least a two-step decrease (compared to baseline) in pain score (CPQ).
- Disability: at least a one-step decrease (compared to baseline) in disability score (CPQ).
Clinically significant improvement

<table>
<thead>
<tr>
<th></th>
<th>Index</th>
<th>Control</th>
<th>RD (95% CI)</th>
<th>RR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>12 weeks</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td>69%</td>
<td>42%</td>
<td>27% (17-37)</td>
<td>1.6 (1.4-2.0)</td>
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<tr>
<td>Disability</td>
<td>73%</td>
<td>55%</td>
<td>18% (7-28)</td>
<td>1.3 (1.1-1.6)</td>
</tr>
<tr>
<td><strong>26 weeks</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td>65%</td>
<td>44%</td>
<td>27% (17-37)</td>
<td>1.5 (1.2-1.8)</td>
</tr>
<tr>
<td>Disability</td>
<td>74%</td>
<td>63%</td>
<td>11% (4-22)</td>
<td>1.2 (1.0-1.4)</td>
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<tr>
<td><strong>52 weeks</strong></td>
<td></td>
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</tr>
<tr>
<td>Pain</td>
<td>67%</td>
<td>50%</td>
<td>17% (7-27)</td>
<td>1.3 (1.1-1.6)</td>
</tr>
<tr>
<td>Disability</td>
<td>75%</td>
<td>58%</td>
<td>17% (5-28)</td>
<td>1.3 (1.1-1.5)</td>
</tr>
</tbody>
</table>
Recovery

Proportion very much improved since the study started
Pain

Mean of three questions graded from 0 (no pain) to 10 (worst possible pain)
Disability

Mean of three questions graded from 0 (no at all) to 10 (can not go on)
Proportion with good health related quality of life (SF-36)

<table>
<thead>
<tr>
<th>Good</th>
<th>Baseline</th>
<th>26 weeks</th>
<th>52 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Index</td>
<td>Contr.</td>
<td>Index</td>
</tr>
<tr>
<td>Bodily Pain</td>
<td>2%</td>
<td>3%</td>
<td>37%</td>
</tr>
<tr>
<td>Physical Function</td>
<td>17%</td>
<td>22%</td>
<td>41%</td>
</tr>
<tr>
<td>Social Function</td>
<td>35%</td>
<td>33%</td>
<td>51%</td>
</tr>
<tr>
<td>General Health</td>
<td>34%</td>
<td>35%</td>
<td>38%</td>
</tr>
</tbody>
</table>

p ≤ 0.05
Repeated measurements and loss to follow up

Generalized Estimating Equations (GEE):
  Statistically significant differences between the groups considered over one year regarding clinically significant improvement in pain ($p=0.002$) and in disability ($p=0.005$) favoring Naprapathic manual therapy.

Sensitivity analyses:
  Estimate the impact of missing responses
  → sensitivity analysis for the primary outcomes using multiple imputations (Rubin & Schenker 1991).
  → No systematic differences in results between analyses with and without imputed primary outcome values.
Conclusion

This trial suggests that combined manual therapy, like Naprapathy, is effective in short and in long term, and might be an alternative to consider in outpatient clinics for patients with back or neck pain.
"Naprapati bättre än traditionell behandling" - SVERIGE. Naprapati fungerar bättre än erkänd och rekommenderad behandling av rygg- och nackproblem, visar en ny studie. Läs mer

"Viktigt att inte styras av gamla fördomar." Karin Bojs, DN Vetenskap, välkomnar forskning om naprapati. Se webbtv.
Naprapathic Manual Therapy or Conventional Orthopedic Care for Outpatients on Orthopedic Waiting Lists?

A Pragmatic Randomized Controlled Trial

Stina Lilje, DN,* Håkan Friberg, MD,* Anders Wykman, PhD,† and Eva Skillgate, PhD,*§‖

Objectives: Traditionally, orthopedic outpatient waiting lists are long, and many referrals are for conditions that do not respond to interventions available at an orthopedic outpatient department. The overall objective of this trial was to investigate whether it is possible to reduce orthopedic waiting lists through integrative medicine. Specific aims were to compare the effects of naprapathic manual therapy to conventional orthopedic care for outpatients with nonurgent musculoskeletal disorders unlikely to benefit from surgery regarding pain, physical function, and perceived recovery.

Methods: Seventy-eight patients referred to an orthopedic outpatient department in Sweden were included in this pragmatic randomized controlled trial. The 2 interventions compared were naprapathic manual therapy (index group) and conventional orthopedic care (control group). Pain, physical function, and competence and resources available at an orthopedic outpatient department.1–3 There seems to be a gap between the management skills of general practitioners and physiotherapists in primary care and those of orthopedic surgeons. When investigating the waiting lists of the orthopedic department in the county hospital in southern Sweden, where this study is conducted, the number of patients on the waiting lists who only received a single appointment with an orthopedist with “no intervention” was 46%. The same problem is observed in other studies in which the number of inappropriate referrals varies from 43% to 66%.1,3 There is a risk that less urgent conditions become chronic while waiting; meanwhile, patients with severe disorders have to wait a long time unnecessarily.
Aim

(Lilje et al. Clinical J Pain 2010)

- **Aim**: to investigate whether it is possible to reduce orthopedic waiting lists through integrative medicine. Specific aims were to compare the effects of naprapathic manual therapy to conventional orthopedic care for outpatients with nonurgent musculoskeletal disorders unlikely to benefit from surgery regarding pain, physical function, and perceived recovery.
Method
(Lilje et al. Clinical J Pain 2010)

- Randomized Controlled Trial, n=78
- Material
  → Patients on orthopaedic waiting lists
    - 18-65 years
    - mean 42 years
    - 61% women
    - the foot and knee most common pain sights
- Exclusion criteria:
  → Surgical cases, positive x-ray, full time sick-leave and explicit wish to have an orthopaedic opinion
Outcomes
(Lilje et al. Clinical J Pain 2010)

- **Primary outcomes**
  - pain
  - physical function (SF36, VAS)

- **Secondary outcomes**
  - perceived recovery
  - patients being discharged from the waiting lists
  - level of agreement
  - number of treatments and interventions

- **Follow-up**
  - 12, 24 and 52 weeks
Results
(Lilje et al. Clinical J Pain 2010)

- Previous interventions; consultations with physicians, physiotherapy, radiography, injections, drugs etc
- Significantly larger improvement in pain and physical function (primary outcomes) in the index group
- Proportion reporting little or significant improvement (perceived recovery) was almost twice as high in the naprapathy group after 24 and 52 weeks
- Discharged from the waiting lists; 62%
- Level of agreement; 75%
Conclusions
(Lilje et al. Clinical J Pain 2010)

- The trial suggests that naprapathic manual therapy may be an alternative to consider for orthopedic outpatients with disorders unlikely to benefit from surgery.
MINT-trial (the Manual INTervention trial)

Aims

- Compare the effect of three combinations of Naprapathic manual therapy (NMT) on non-specific back and neck pain of duration > 1 week
- Examine prevalence, severity and duration of adverse reactions after NMT
- To identify subgroups of patients who have greater benefit from the treatments.
Method/Material

- RCT with three arms (target number: 1 050 patients)
- Outcomes
  - Primary: Pain/disability and prevalence, duration and intensity of possible adverse reactions.
  - Secondary: Quality of life and perceived recovery.
- Inclusion criteria
  - Patients 18-65 years seeking care at the students clinic at The Scandinavian College of Naprapathic Manual Medicine with a new episode of non-specific neck and/or back pain (duration ≥ one week).
- Exclusion criteria
  - Pain ≤ 2 on a 10 point NRS, pregnancy, contraindication for manual therapy, recent trauma, specific diagnosis, red flags, recent treatment.
Methods/Material

- Treatment arms (all given by students in year 4):
  - NMT (a combination of soft tissue techniques, stretching, and spinal manipulation/mobilization)
  - NMT but not spinal manipulation
  - NMT but not stretching (treatment or advice).
  - Patients will get up to 6 treatments within 6 weeks.

- Data collection
  - Baseline questionnaire
  - Medical charts
  - Questionnaires about adverse reactions at new appointments
  - Questionnaires regarding the outcomes four times within a year.
Inkluderade i MINT HT 2010

antal

vecka

Inclusion first semester
Now app 650 included!!

Characteristics (n=513)

→ Women, % 60
→ Age, mean 36
→ University Education or higher, % 55
→ Daily smoking, % 17
→ Previous naprapathic treatment, % 55
→ Back pain, % 41
→ Neck pain, % 59
→ Pain duration > 6 months, % 31
→ Pain intensity, median (NRS 0-10) 5
→ Disability median (NRS 0-10), % 3
→ Fair or poor general health, % 6
Acknowledgements for financial support

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- Swedish Naprapathic Association
- Scandinavian College of Naprapathic Manual Medicine
- Health Care Science Post-Graduate School, Karolinska Institutet
- The Centre for Health Care Science at the Karolinska Institutet

Thank you!
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Statistical analysis

- “Intention to treat”
- The proportion with clinically significant improvements in pain and disability were compared, illustrated as Relative Risks (RR) and Risk Differences (RD)
- Mantel Haenszel’s method to test for confounding
- Generalized Estimating Equations (GEE)
  the effect over one year, taking correlated repeated measurements into consideration \( (\text{Zeger 1986}) \)
- Sensitivity analyses
  multiple imputation with “predictive mean matching method” \( (\text{Rubin 1987}) \)