



RESEARCH STRATEGY

2012-2016

NORDIC INSTITUTE OF CHIROPRACTIC
AND CLINICAL BIOMECHANICS

 **NIKKB**

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PREFACE

The Nordic Institute of Chiropractic and Clinical Biomechanics (NIKKB) is proud to present our strategic research plan for 2012-2016. The plan will strengthen our position as an international centre for research, quality assurance, and knowledge transfer within chiropractic by focusing on research areas where NIKKB has a track record of high quality research. The support from the Danish chiropractors and the Danish regions through the Danish Chiropractors' Research Foundation has provided the necessary stability and continuity over the years and we are grateful for their continued support.

In order to develop evidence-based chiropractic practice to maximize our contribution to the Danish health care system, we need more knowledge about chiropractors and patients with musculoskeletal disorders. That is why this plan places even greater emphasis on practice-based research through NIKKB's network of chiropractic research clinics. Importantly, we need to conduct research into how chiropractors can most effectively contribute to the prevention of musculoskeletal disorders. This is why NIKKB has a strong focus on epidemiological and prevention research. We also need knowledge about how chiropractors can further contribute to the health care needs of the Danish population. This is why we have a focus on key clinical areas where NIKKB has a track record of successful research namely: spinal pain, musculo-

skeletal chest pain, and osteoarthritis of the hip. To this end, we will continue to maintain existing, and build new, research collaborations both within and outside Denmark. For example, the recent formation of chiropractic research institutions in Norway and Sweden will strengthen the profession's research profile across the Nordic countries.

In 2010, NIKKB celebrated its 20th anniversary. Since 1991, NIKKB researchers have published more than 225 peer-reviewed papers, book chapters, and reports. NIKKB now has a good blend of senior and junior researchers as well as a sound and supportive infrastructure. In 2013, NIKKB will relocate to the campus of the University of Southern Denmark, while continuing to retain its independence. This will greatly enhance our opportunities to fulfil the goals outlined in this plan because NIKKB will become part of a dynamic multi-disciplinary environment.

With this new strategic research plan, we commit to continuing the strong tradition at NIKKB for producing timely and relevant research in collaboration with our partners to enhance the development of the chiropractic profession and ultimately, to improve the health of people suffering from musculoskeletal disorders.

Henrik Wulff Christensen

Director

Nordic Institute of Chiropractic and Clinical
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STRATEGIC PLAN

Context

Chiropractors are relatively new partners in the Danish national health care system, and therefore there is a paucity of knowledge about the chiropractic profession in general, the chiropractic clinical encounter, and the nature of chiropractic interventions. Despite the advances made in recent years, we still know very little about

- why patients see chiropractors;
- how chiropractors practice;
- what the course and trajectories of various complaints treated by chiropractors are;
- which factors affect these trajectories;
- whether the trajectories and factors affecting them are different for patients seeing chiropractors compared with patients seeing other health care providers;
- what the effect of chiropractic interventions is;
- how chiropractors view themselves and their role in the health care system;
- how society and other players in the health care system view chiropractors;
- and how chiropractors can add value to a publicly funded health care system.

Vision

A world leader in role modelling the active partnership between chiropractic research and chiropractic clinical

practice to identify best practice care for the benefit of patients with musculoskeletal disorders.

Purpose

To establish an evidence-based foundation for the development of chiropractic principles and practice in the Danish health care system.

Strategic Priorities

The research efforts at NIKKB are specifically focused on addressing issues related to the on-going development of the profession. To this end, our strategic priorities will be to:

- Facilitate the on-going systematic collection of data from cohorts of patients suffering from a range of musculoskeletal conditions by building and maintaining a practice-based network of chiropractic clinics and applying novel technologies such as SMS-tracking in the follow-up of these patients;
- Closely monitor and identify the characteristics of patients seeking chiropractic care, map the interventions delivered, and describe the clinical course;
- Describe the characteristics and trajectories of musculoskeletal patients seeking care in the primary health care sector by working closely with primary care research units;
- Articulate a chiropractic professional identity which differentiates the unique contribution of chiropractors to the multidisciplinary nature of the Danish

health care system through on-going qualitative interviews;

- Study the development of integrated musculoskeletal health care practices in primary and secondary care settings with the aim to strengthen the contribution of chiropractic.

Research focus

To meet these strategic priorities, the following research areas will be the principal focus up to the end of 2016:

1. Epidemiological and prevention research
2. Spinal pain
3. Musculoskeletal chest pain
4. Osteoarthritis

EPIDEMIOLOGICAL AND PREVENTION RESEARCH

Epidemiological research deals with the mapping of health and disease in populations and the study of factors affecting onset and prognosis. Therefore, it provides a good basis for the identification of modifiable risk factors that could enhance prevention in all, or in subgroups of, patients. In Denmark, we have unique opportunities for linking information from large population-based databases and public registries using the person-specific identification number (CPR). Thus, information on a wide variety of health, lifestyle, work and social issues can be obtained about patients and cohorts with the possibility for long-term follow-up. NIKKB's collaborators in this area include The Spine Centre of Southern Denmark, The Danish Twin Registry, The National Birth Cohort and The National Institute of Public Health.

Two areas are particularly well suited for prevention research:

- (i) Children and adolescents - because musculoskeletal disorders start early in life and evidence indicates that some individuals with early complaints start a trajectory of long-term pain and disability, placing early prevention and early effective treatment high on the research agenda all over the world;
- (ii) Work disability - because musculoskeletal disorders and back pain often lead to an inability to work,

which results in significant social and financial costs to the individual and to the society.

Specifically, we will:

- Develop methods in prognosis research based on, for instance, multivariate models, structural equation models, latent class analyses, and data mining in databases and registries;
- Study patterns of co-morbidity in the musculoskeletal and other body systems in order to identify how musculoskeletal disorders impact the general population, with a special focus on children and adolescents;
- Perform registry-based research to study patterns and long-term consequences of musculoskeletal complaints in the general and working population, focusing specifically on long-term sick leave and the use of health-related social benefits;
- Conduct registry-based research aimed at identifying modifiable prognostic factors in order to identify feasible targets for prevention and treatment;
- Participate in community-based cohort studies where physical testing and clinical examination of school children are studied to identify risk-factors for musculoskeletal complaints;
- Take part in school-based studies to determine prevalence, course and possible treatment effects for musculoskeletal injuries and complaints;
- Implement intervention studies relating to the pre-

vention of pain and disability in children, adolescents and adults in relation to work disability.

SPINAL PAIN

Low back and neck pain are the most frequent and costly musculoskeletal conditions in Denmark and the most common reasons for seeking chiropractic care. Too little is known about primary care for spinal pain with respect to the course of pain, the factors related to prognosis, and who will benefit from which interventions. NIKKB has initiated projects about the clinical course, prognostic factors, and sub-groups in low back pain and plans to extend this research to midback and neck pain in the near future.

Specifically, we will:

- Advance the sub-grouping of patients based on clinically useful classification, the course of their pain, and consequences of their pain;
- Identify early predictors of outcome based on baseline variables and early response to treatment;
- Link primary sector patient data to national registries through Statistics Denmark in order to study the effect of clinical predictors on social consequences such as the seeking of health care, sick leave, disability pension, and lost time at work;
- Perform randomised clinical trials to determine the effectiveness of specific interventions in both adult and young populations.

MUSCULOSKELETAL CHEST PAIN

Chest pain is one of the leading causes of hospitalization, but only around half of the patients admitted to chest pain clinics and cardiology departments complaining of chest pain suffers from a cardiac condition. A range of other conditions can produce the symptoms of chest pain, one of which is pain and dysfunction in the musculoskeletal system.

Researchers from NIKKB have shown that it is possible to identify patients suffering from musculoskeletal chest pain and that treatment by chiropractors appears to be an effective intervention for this sub-group of patients. However, there are still many unanswered questions and NIKKB will continue to pursue epidemiological and clinical research in the field of musculoskeletal chest pain.

Specifically we will:

- Perform registry-based epidemiological research to study the natural course and prognosis of chest pain in the population and in sub-groups of the population;
- Develop and validate diagnostic procedures in musculoskeletal chest pain for use in primary care clinics;
- Use advanced PET/CT technology to study possible sources of pain in patients identified as having musculoskeletal chest pain;

- Perform randomized clinical trials to determine the effectiveness of specific interventions in patients with musculoskeletal chest pain.

OSTEOARTHRITIS

Osteoarthritis is the most commonly diagnosed joint condition and its prevalence is increasing as the population ages. For instance, NIKKB research has shown that osteoarthritis of the hip is a common but under-diagnosed condition in chiropractic practice and it is often chiropractors who make the initial diagnosis of this condition in their patients.

Surgery is an effective treatment option for some patients in end-stage osteoarthritis but there is a need for treatments that can relieve symptoms and maintain function in earlier stages of the condition and postpone surgery as long as possible. Evidence-based interventions in early osteoarthritis of the hip can all be performed by chiropractors. These include advice regarding weight loss, pharmacological treatment, and self-care via training and exercise combined with information on how to manage daily activities. In addition, manual treatment in the form of joint manipulation and soft-tissue treatment has shown very promising results in case studies and preliminary clinical trials.

Specifically we will:

- Conduct registry-based epidemiological research to study the natural course and prognosis of osteo-

arthritis with a special focus on the hip along with its determinants;

- Investigate the effect of self-care, exercise, and manual treatment in the different stages of osteoarthritis of the hip.

COMMITMENT TO COLLABORATION

To achieve research excellence in these areas, we aim to maintain existing, and build new, collaborative partnerships with research institutes both within Denmark and abroad. NIKKB has a reputation as a collaborating institution: locally through the Clinical Locomotion Network comprising partners at the University of Southern Denmark and the Spine Centre of Southern Denmark, in addition to many projects with departments at Odense University Hospital; and globally with its many international collaborators including the recent establishment of chiropractic research institutions in Norway and Sweden, which will strengthen the Nordic dimension in the coming years.

