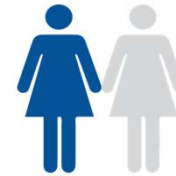


# Management of Chronic Neck Pain Patients

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physiotherapist, MR, PhD



## Background - Neck Pain: frequent



**Denmark:**

51% of adults: neck-shoulder pain in previous 2 weeks, (13% with severe pain)  
(Sundhedsprofil 2013)

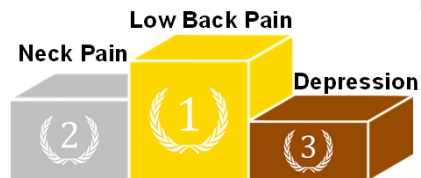


**Primary care physiotherapy:**

21% referred with neck pain  
(de Vos Andersen 2014)

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## Background - Neck Pain: a burden



**in Denmark / Western Europe:**  
Ranking No. 2 as Years Lived with Disability  
(Kassebaum NJ, et al, 2015)

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## Background - Neck Pain: costly

**In Denmark, yearly:**



Working population with neck pain :  
**+ 4,5 mio. days sick leave**  
(16% of all sick leave)



Treatment costs: **920 mio. kr.**  
(primary care, medication)



Loss of productivity: **2.030 mio. kr.**

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(Flachs EM, 2015)

## Background Managing Chronic Neck Pain patients?

Recent reviews:



Insufficient evidence for a specific physiotherapy modality or for treatment aiming at chronic neck pain patients

(Sutton, Côté et al. 2013)



**Patient education:** small benefits, combined with physiotherapy (Yu, Cote et al. 2014)

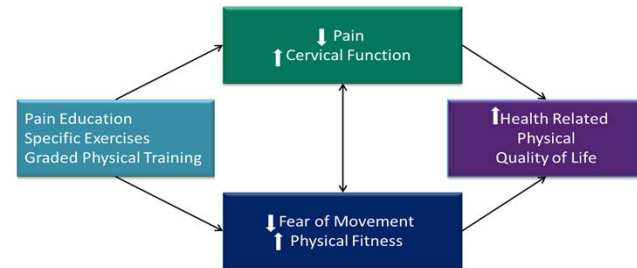


**Multimodal care:** no multimodal care package superior (Sutton, Côté et al. 2014)

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## Objectives

Will chronic neck pain patients treated with education in pain management, exercises and physical training report larger improvement in physical quality of life compared with those treated with pain education only?



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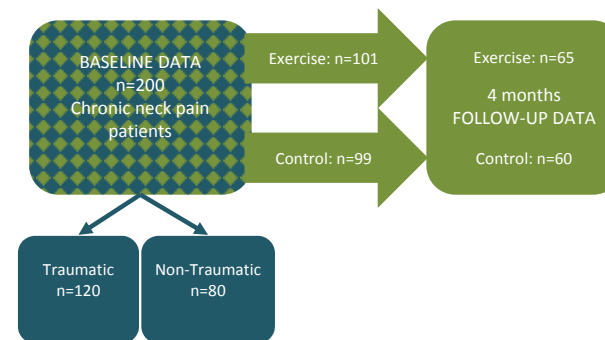
## Background Managing Chronic Neck Pain patients?

Challenges in the clinic: How to manage chronic neck pain patients?



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## Overview



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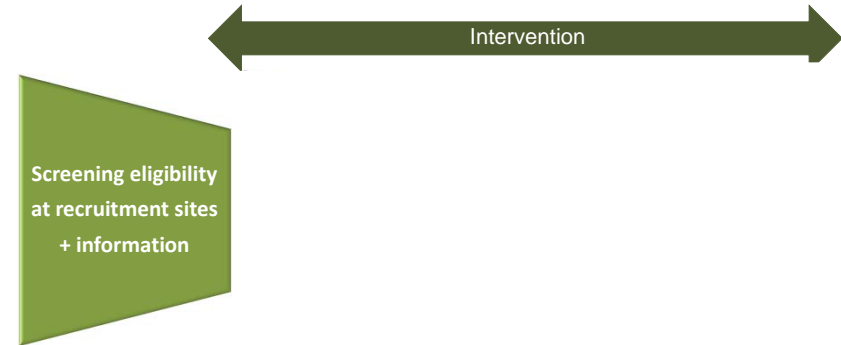
## Methods - Settings

- Physiotherapy clinics  
Århus, Vejle (n=59)
- Hospital out-patient  
clinics in Silkeborg,  
Esbjerg, Middelfart  
(n=130)
- Rehabilitation Centre  
Odense Municipality  
(n=11)



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## Methods - Procedures



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## Methods - Population

### Inclusion criteria:

- adults (>18 years)
- neck pain >6 months
- reduced neck function (NDI > 10/50)
- pain primarily in the neck
- completed diagnostic procedures (medical investigations, diagnostic imaging)
- ability to participate in exercise program

### Exclusion criteria:

- neuropathies/radiculopathies
- severe depression (Beck Depression Inventory-II >29)
- being in unstable social / working situation
- pregnancy
- known fractures

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## Methods - Intervention



## Methods - Intervention

### Pain Education

4 sessions:

1. Pain mechanisms
2. Thoughts: useful – not useful
3. Resources / Activities / Pauses
4. Support, participate, prioritise

- Fremkald den rette støtte fra omgivelserne



- Erstat det du ikke kan med noget du kan

SORT ----- HVIDT

- Prioritér, vær MED og I GANG



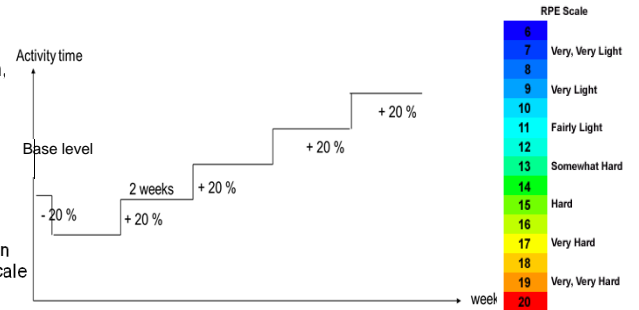
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## Methods - Intervention

Physical activity (bike, run, swim etc.) 3 x weekly

A. Increase time 20% every 2 weeks

B. Rate of Perceived Exertion targeted 11-14 on Borg scale



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## Methods - Intervention

Progressive exercises 2 x daily:

1. cervical flexors
2. cervical extensors
3. scapula control/stability
4. eye – neck coordination
5. standing balance

postural correction

Progression exercises for Cervical Flexors



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## Methods - Primary outcome: SF36



<b>SF36 Physical Component Summary</b>	Physical functioning: activities, walking, stairs, bending, lifting, dressing
	Role physical: cut down time, accomplish less, limited activities, difficult activity
	Bodily Pain: magnitude, interference of pain
	General Health: rating, sick easier, healthy as anyone, health worse, excellent

<b>SF36 Mental Component Summary</b>	Vitality
	Social Functioning
	Role emotional
	Mental Health

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## Methods – Patient Reported Outcomes



Variable	Content
EuroQol-5 dimensions	Quality of life, self-care, usual activities, pain, anxiety, 3-scales
EQ-Visual Analogue Scale	Self-rated health (0 – 1.00)
Neck Disability Index	Neck pain related disability (0 - 50)
Patient-Spec. Funct. Scale	Patient chosen activities (3) rated on difficulty (0 – 10)
Pain Bothersomeness	Dimensions of impact of pain (0 - 10)
Tampa Scale of Kinesiophobia	Fear of movement, injury, re-injury (17 – 68)
Beck Depression Inventory-II	Measurement of depression on 21 items (0 – 63)
Impact of Event Scale	Post-traumatic Stress Disorder (0 - 75)
Global Perceived Effectiveness	Global effect of the intervention (-5 til +5)

HR-QoL  
Function  
psychological factors  
Self-perceived effect

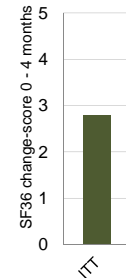
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## Results

Outcomes	Significant Improvement Exercise group (Intention To Treat n=200)	Significant Improvement Exercise group (Per Protocol – 75% adherence* n= 125)
SF36 – Physical	✓	✓
SF36 – Mental	✓	✓
Depression	✓	✓
Range of Motion	extension	✓
Pressure Pain Threshold	cervical bilateral	only left
Muscle Function	✓	✓

\*Adherence: 75% attendance of sessions

## Results – SF36 PCS change-score 4 months



More effective:

- Those with 75% adherence (3.4)
- Non-traumatic (4.6)
- Shorter duration of symptoms (4.8)

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ITT = INTENTION TO TREAT EXERCISE PP = PER PROTOCOL EXERCISE

## Methods – Outcomes Clinical Tests



Variable	Content
Crano-Cervical Flexion Test	Test deep cervical flexors using biopressure feed back
Cervical Extensor Test	Test of cervical extensors, 120s. of isometric hold
Cervical Range of Motion	Degrees of all active movements with inclinometer and "rotation device"

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## Discussion – more about SF36- PCS

- Increase SF36-PCS: 2.8 (ITT) and 3.4 (PP)
- Traumatic PP: 1.4 ; Non-traumatic PP: 4.6

Worth the trouble??

Other studies: minimal clinical relevance SF36-PCS?:

- 2.0: chronic knee pain patients exercising
- 4.4: rheumatoid arthritis patients medical treatment
- 4.1: chronic neck pain patients surgical fusion

Depend on: resources versus burden of treatment

→ Traumatic group: less effect of the treatment and fewer resources .....



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## More details ...

Manual Therapy 26 (2016) 132–140



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journal homepage: [www.elsevier.com/math](http://www.elsevier.com/math)



Original article

Does a combination of physical training, specific exercises and pain education improve health-related quality of life in patients with chronic neck pain? A randomised control trial with a 4-month follow up



I. Ris <sup>a, b, \*</sup>, K. Søgaard <sup>a</sup>, B. Gram <sup>c</sup>, K. Agerbo <sup>d</sup>, E. Boyle <sup>a, e</sup>, B. Juul-Kristensen <sup>a, f</sup>

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## Conclusions

Compared to **pain education** only,  
**exercise + physical training + pain education** is  
superior in:

**Health Related Quality of Life,  
Depression,  
Muscle function,  
Extension,**



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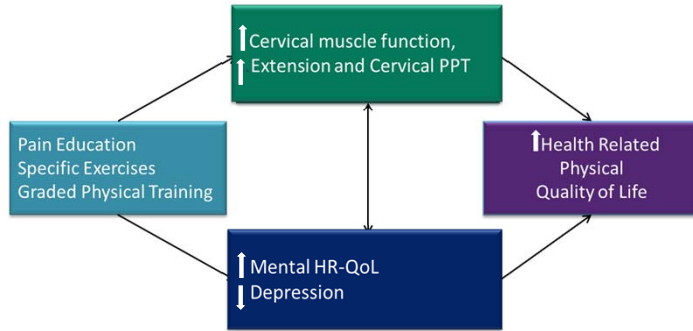
## Perspectives – management?

- **Pain education, exercises and physical training** should be considered as treatment for chronic neck pain patients
- The effect will be **mainly on HR-QoI, mood, and cervical muscle** function
- This may **have stronger effect on non-traumatic** chronic neck pain patients with duration of symptoms less than 2 years.



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## New model?



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## Perspectives

There is NO miracle cure.

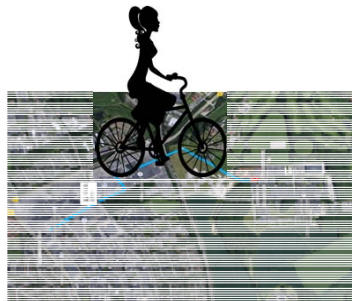


Pain education, graded activity and exercises are relevant to introduce to the patient as a treatment option, underlining the effect being mainly on quality of life.

The final treatment plan should be based upon a shared decision.

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## Perspectives - Back in the clinic?



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## Perspectives – the future?



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## Thanks to:

### Supervisors:

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### Staff and patients at:

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- Odense Municipality
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- Neurological outpatient clinic, Hospital Southwest Jutland
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- Danish Rheumatism Association,
- Research Foundation of the Danish Association of Physiotherapy,
- Fund for Physiotherapy in Private Practice,
- Danish Society of Polio and Accident Victims (PTU).

### Important others:

Fellow Phd students, master and bachelor students  
Senior researchers Centre for Muscle and Joint Health  
Family and friends

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## Thank you for your attention



Center for **MUSCLE AND JOINT** Health

