

# Smärta, nutrition och levnadsvanor: Vi vill göra skillnad för patienter med långvarig smärta

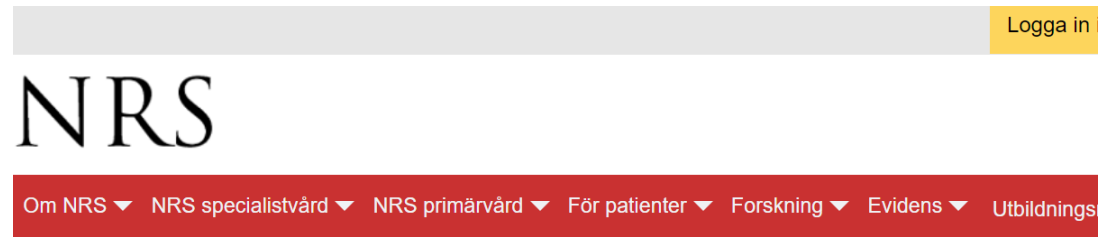
**Huan-Ji Dong**

Överläkare & Docent i rehabiliteringsmedicin

*Smärt- och Rehabiliteringsklinik, Universitetssjukhuset i Linköping, Region Östergötland  
Institutionen för Hälsa, Medicin och Vård, Linköpings Universitet*

# Acknowledgements

- Research network in National Pain Registry



## Välkommen till Nationella Registret över Smärtrehabilitering, NRS

Registrets syfte är att:

1. Utveckla och säkra vårdens kvalitet
2. Jämföra resultat på gruppnivå mellan olika enheter i landet
3. Ge deltagande enheter möjlighet att följa upp den vård som ges
4. Utifrån adekvata jämförelser med andra enheter utgöra diskussioner om förbättringsarbete inom den egna enheten



# PAIN MANAGEMENT



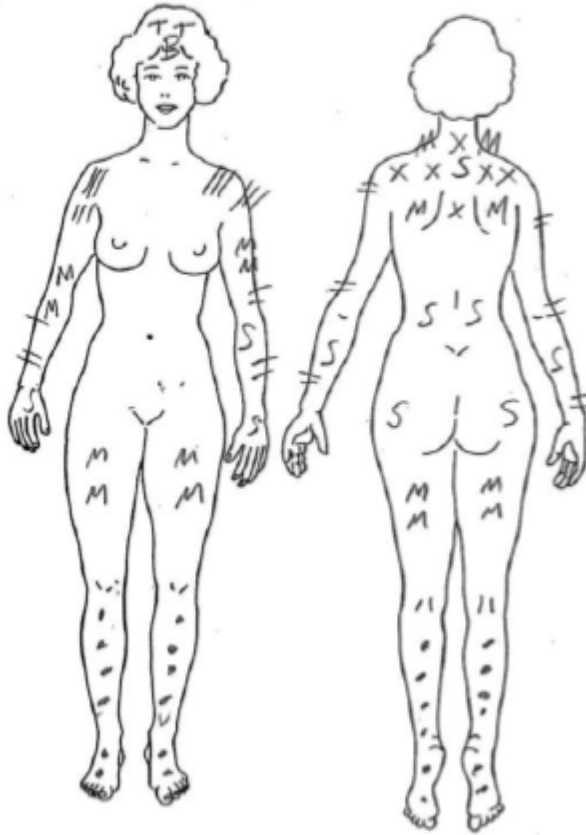
## *Right approach in right time*

- Pharmacological treatments
- Invasive procedures
- **Pain rehabilitation**

*Right approach to right patient*



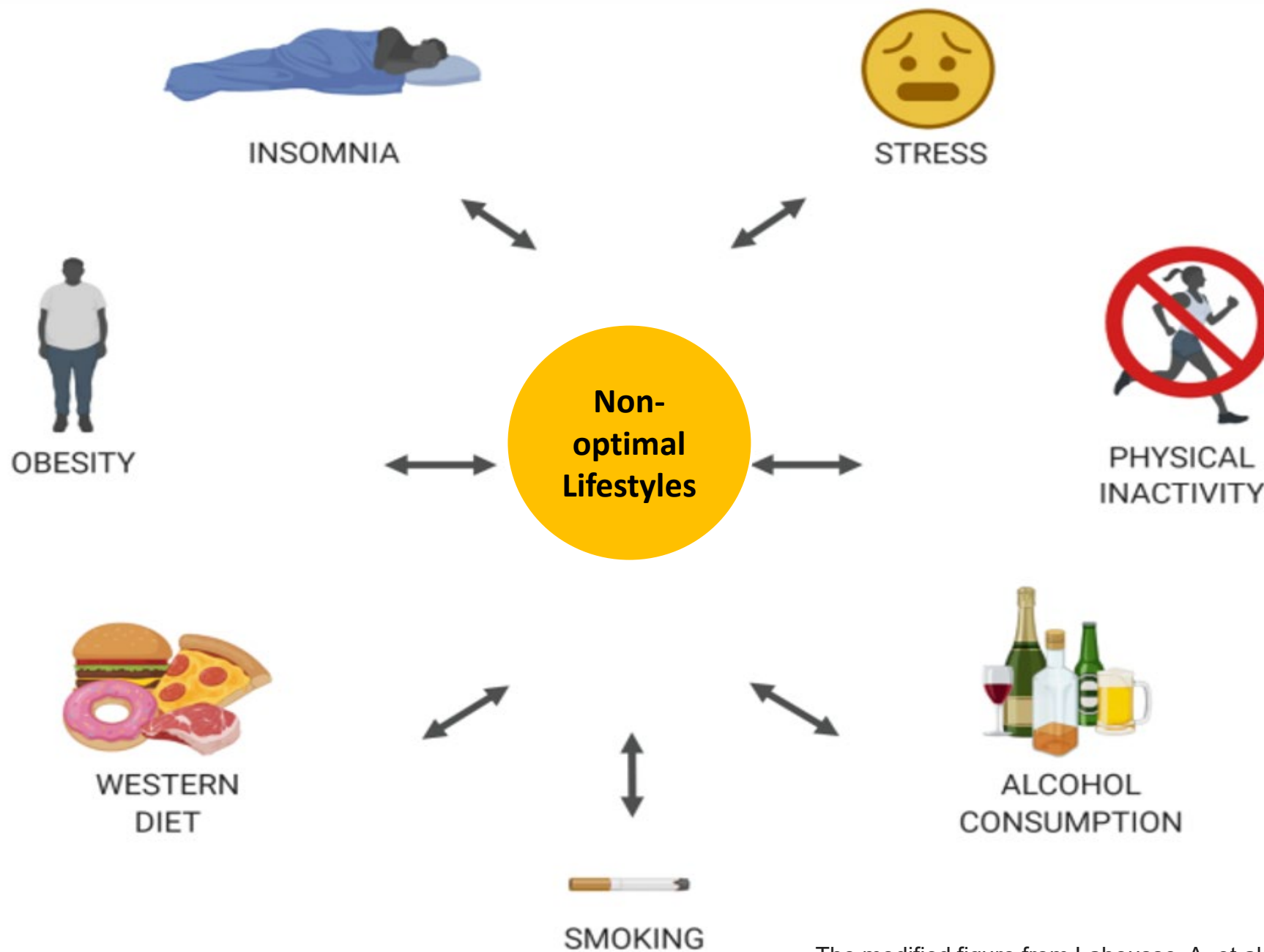
MMM MMM	XXXX XXX	=== ===	TTT TTT
Molande	Brännande	Hande	Tryckande
/// /// /// /// /// ///	•••• •••	SSS SSS	BBB BBB
Huggande, skärande	Stickande "sockerdricka"	Muskelkramp	Bultande
			DDD DDD
			Övrigt



# Who need Pain rehabilitation?

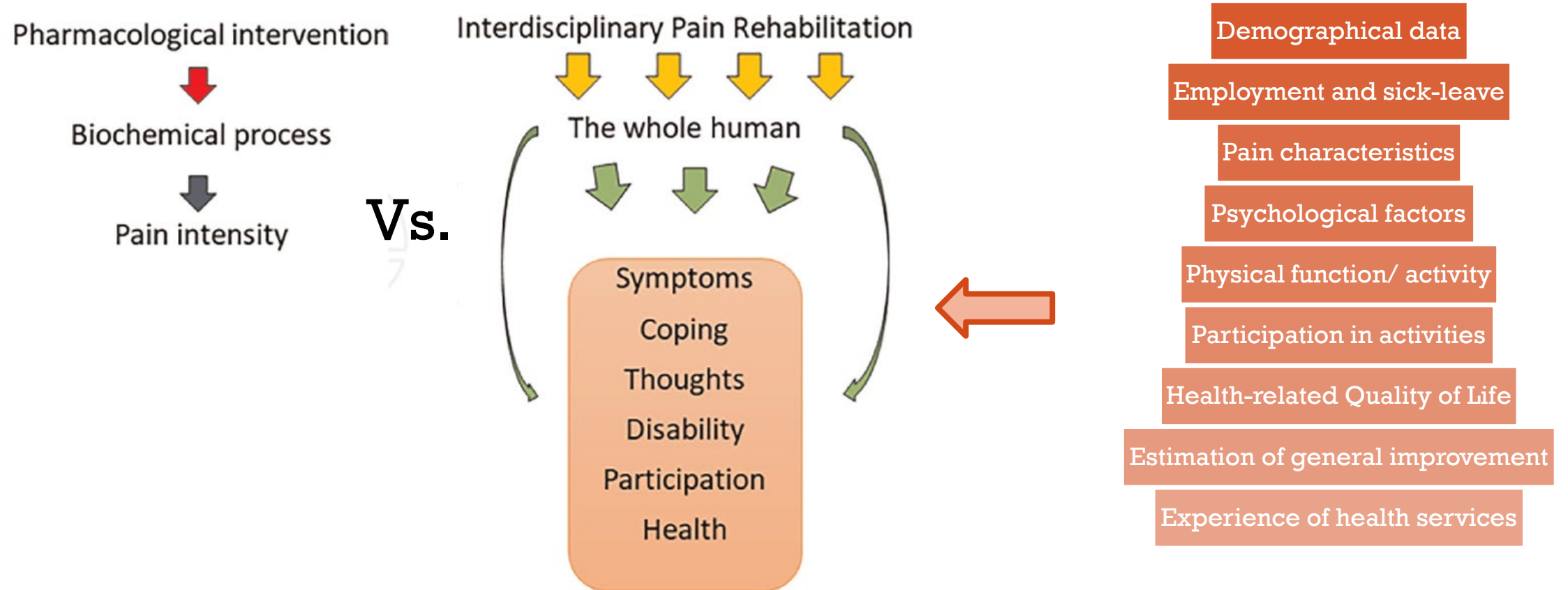
## A typical patient in everyday clinical practice:

- a multi-task mom with limited supports
- low education, low-paid work, or unemployed
- long pain duration, constant pain, spread pain...hard to explain a variety of pain types
- too little sleep
- emotional distress
- comorbidities (e.g. rheumatic diseases, neurological diseases, metabolic diseases, psychiatric diseases)
- physical dysfunction and disability
- ***non-optimal lifestyles***



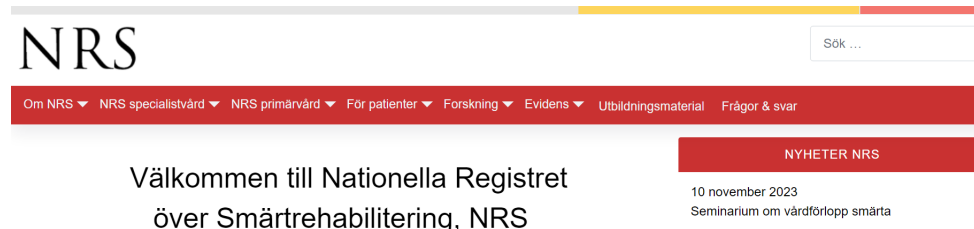


# PAIN REHABILITATION



# NRS: Quality registry data from clinical settings

Clinical  
epidemiology  
*Clinical population*



Demographical data  
Employment and sick-leave  
Pain characteristics  
Psychological factors  
Physical function/ activity  
Participation in activities  
Health-related Quality of Life  
Estimation of general improvement  
Experience of health services

## One Nutrition Parameter:

**BMI= body weight (kg)/height (m)<sup>2</sup>**



# Vår forskning med NRS data (2017-2024)

*- Challenges in  
Pain Management*



# STUDY 1 (2019) Research Question: Is obesity an obstacle factor for patients to improve HRQoL and maintain improvements after pain rehabilitation?

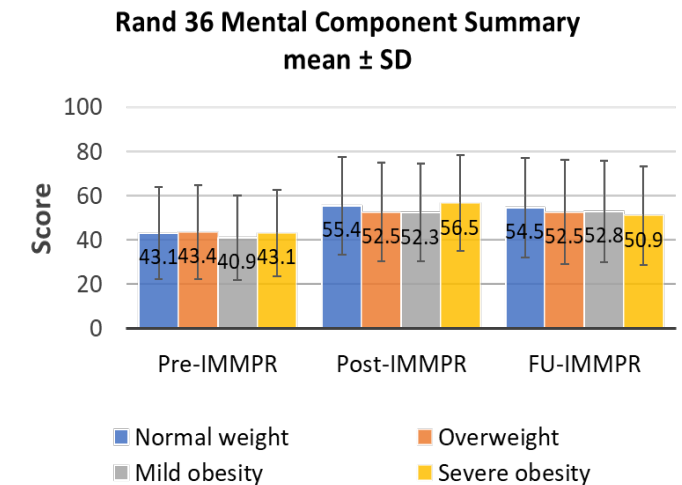
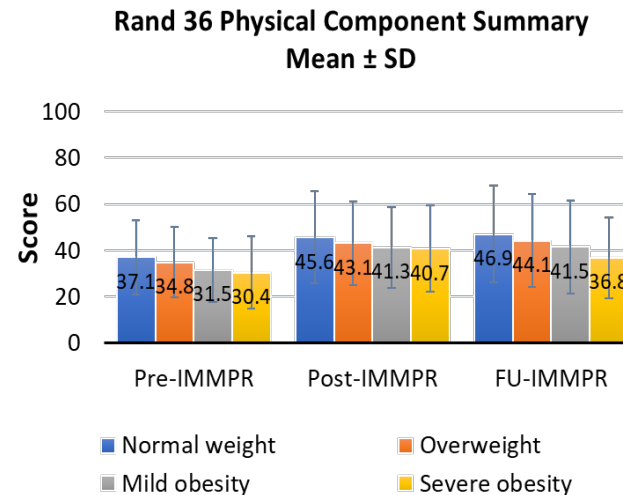
Received: 22 May 2019 | Revised: 3 July 2019 | Accepted: 21 July 2019  
DOI: 10.1002/ejp.1457

## ORIGINAL ARTICLE

EJP  
European Journal of Pain  
WILEY

**Maintenance of quality of life improvement for patients with chronic pain and obesity after interdisciplinary multimodal pain rehabilitation – A study using the Swedish Quality Registry for Pain Rehabilitation**

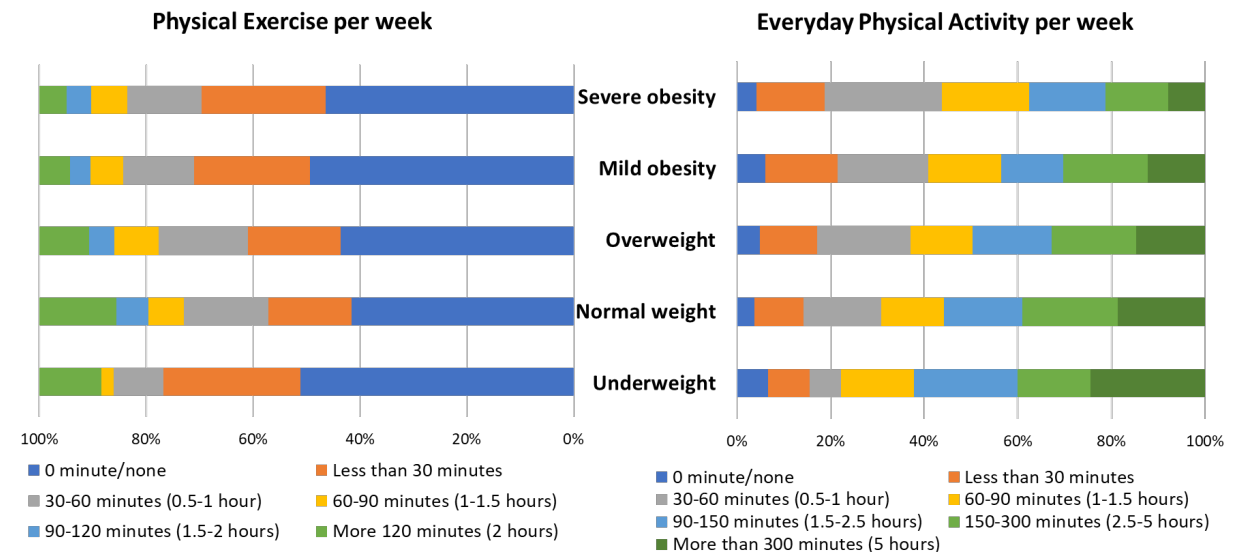
Huan-Ji Dong<sup>1</sup> | Britt Larsson<sup>1</sup> | Marcelo Rivano Fischer<sup>2,3</sup> | Björn Gerdle<sup>1</sup>



- **Answer: YES. Severe obesity (BMI≥35.0) had negative impact on physical health** (mixed-linear regression model,  $\beta = -4.39$ ,  $p < 0.05$ ).
- **Good news: Patients in all BMI categories** achieved sustainable HRQoL improvements.



# STUDY 2 (2020) Research Question: Is insufficient physical activity (PA) affected by high BMI for patients living with chronic pain?



- **Insufficient PA (<150min/ week)** consider both PE and EPA (PE min x2 + EPA min).
- **Answer: YES.** Patients with mild obesity had an elevated risk of **65%** and patients with severe obesity had an elevated risk of **96%** for insufficient PA (logistic regression model).



## STUDY 3 (2021)

**Research Question:** Did patients with obesity achieve **weight reduction** after they had **pain relief** (30% Numeric Rating Scale↓)?

Journal of Pain Research


Dovepress

open access to scientific and medical research

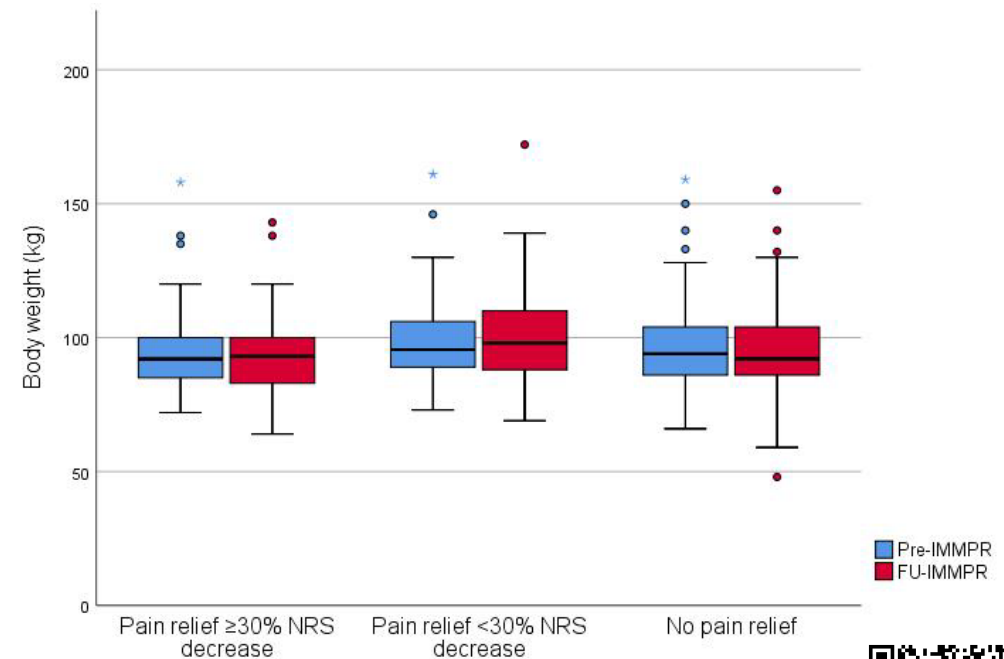
Open Access Full Text Article

ORIGINAL RESEARCH

### Lose Pain, Lose Weight, and Lose Both: A Cohort Study of Patients with Chronic Pain and Obesity Using a National Quality Registry

Huan-Ji Dong 

**Background:** It is known that chronic pain makes it difficult to lose weight, but it is



**Answer: No**, no significant change of body weight at 12-month follow-up. Weight change was not associated with changes of pain intensity ( $p > 0.05$ ).



## Summary of study 1-3 *using NRS data*

- Poor nutrition (i.e. obesity) negatively affected patient-reported outcomes measure (i.e. HRQoL and physical activity level).
- Patients with obesity had limited improvements after pain rehabilitation, and no significant change of body weight.

*Weak outcomes need right approach*



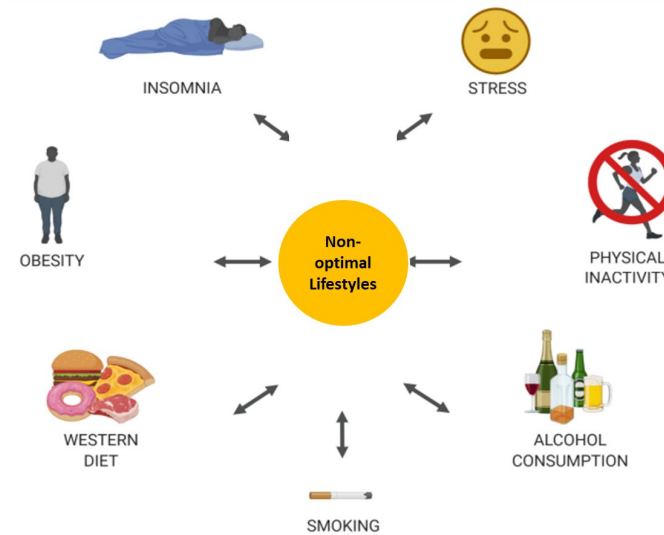


## Participants in NRS:

- **Patients' perspectives**

## More than NRS data

- **Interview** our patients about lifestyle aspects related to their pain experiences
- Information from **lifestyles questionnaires** in clinical settings



## Livsstilsfrågor

## NRS Specialistvård Frågeformulär

### Mat

1. Äter du regelbundna måltider?
  - ☐ Ja, varje dag.
  - ☐ För det mesta.
  - ☐ Jag försöker men det blir inte alltid så.
  - ☐ Nästan aldrig.
  - ☐ Jag äter alltid oregelbundet
2. Hur ofta äter du grönsaker?
  - ☐ Minst 2-3 gånger per dag.
  - ☐ 1 gång per dag.
  - ☐ Några gånger per vecka.
  - ☐ Sällan eller aldrig.
3. Hur mycket frukt äter du?
  - ☐ 4-5 stycken per dag.

### Motion

7. Hur mycket senast har du gått ut etc?
  - ☐ Ingen gång
  - ☐ Någon gång
  - ☐ Flera gånger
  - ☐ Dagligen
8. I vilken senast har du varit fysiskt aktiv?
  - ☐ Rör mig inte



## STUDY 4 (2023)

### Connections between Pain, Obesity and Lifestyle Changes: Patients' Perspectives after Pain Rehabilitation

**Theme:**  
*Lifestyle changes  
are burdensome  
with a body  
broken by both  
pain and obesity*

Pain **disturbing days  
and nights** worsens  
weight control

Pain-related **stress**  
makes lifestyle  
changes harder

A painful and  
obese body  
intertwined with  
**negative emotions**

The **overlooked  
impact** of obesity  
on chronic pain

*"Since I didn't fall asleep, I  
was awake at nights and  
then it happened that I ate  
some sandwiches..." –  
Participant No. 10*

*"I am doing things slowly  
due to my low energy level,  
and it makes me feel  
stressed. This feeling drives  
me to eat unhealthy food." –  
Participant No. 5*

Storm et al. *BMC Musculoskeletal Disorders* (2023) 24:840  
<https://doi.org/10.1186/s12891-023-06961-2>

BMC Musculoskeletal  
Disorders

#### RESEARCH

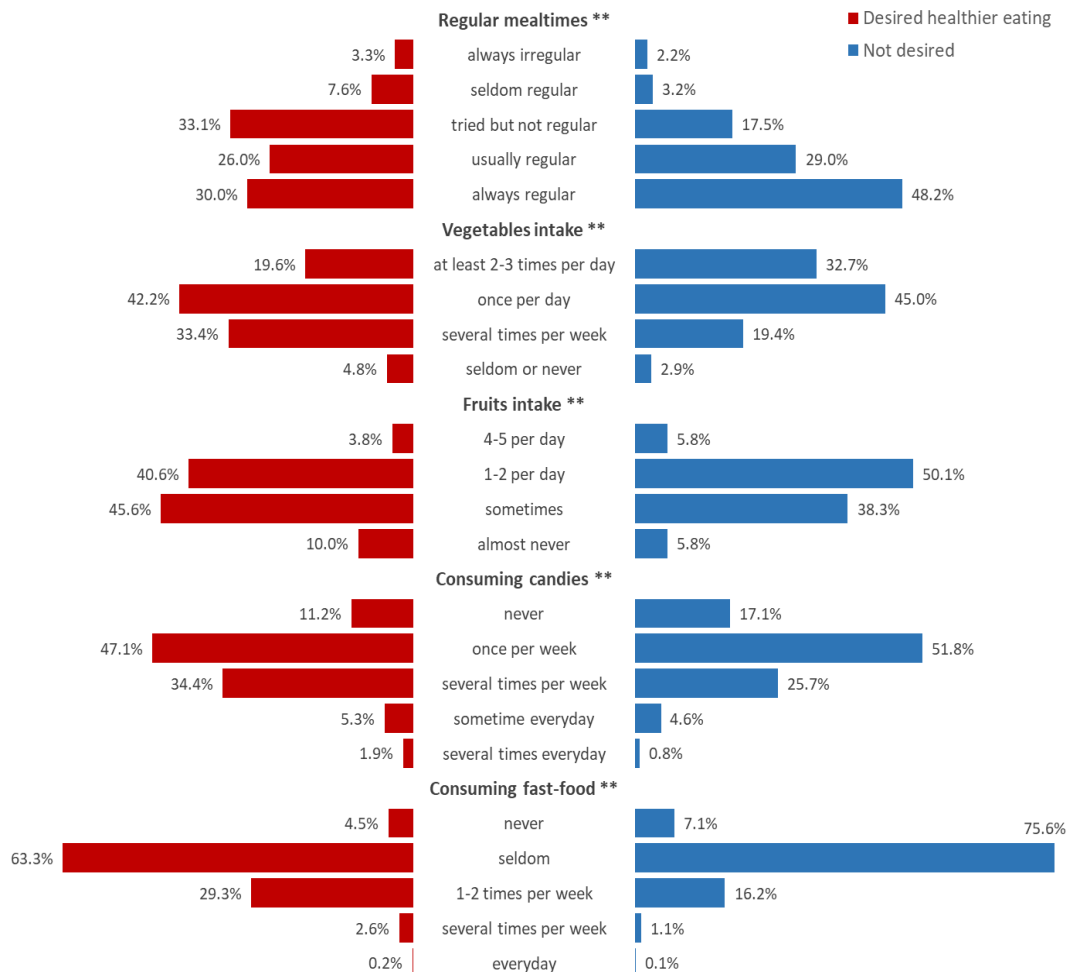
#### Open Access

Lifestyle changes are burdensome with my  
body broken by pain and obesity: patients'  
perspectives after pain rehabilitation

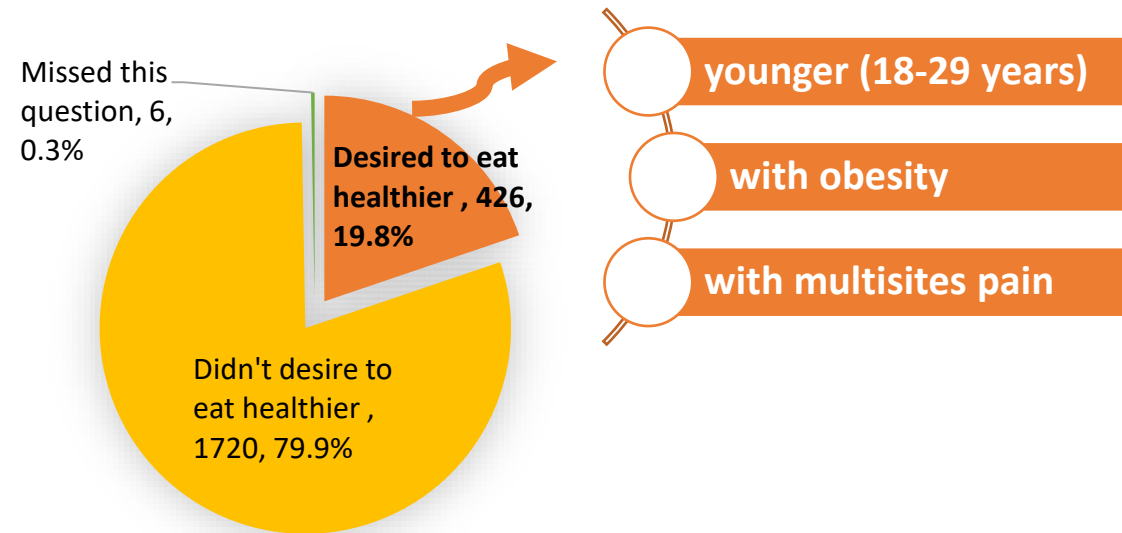
Elin Storm<sup>1</sup>, Nina Bendelin<sup>1</sup>, Kim Bergström Wessman<sup>1</sup>, Maria M Johansson<sup>2</sup>, Mathilda Björk<sup>1</sup> and Huan-Ji Dong<sup>1\*</sup>



# STUDY 5 (2024) Eating habits and patients' desire to eat healthier



Missed this  
question, 6,  
0.3%



scientific reports

OPEN

Eating habits and the desire  
to eat healthier among patients  
with chronic pain: a registry-based  
study

Huan-Ji Dong<sup>1,2</sup>, Katherine Brain<sup>2,3</sup>, Max Olsson<sup>1</sup>, Elena Dragioti<sup>1,4</sup>, Björn Gerdle<sup>1,5</sup> & Bijar Ghafouri<sup>1</sup>

Check for updates



# To include nutrition care in pain management

1. Do our patients **need** nutrition care? **YES.**
2. Are our patients **interested** in nutrition care? **YES.**

*Right approach to right patient*



# WHERE ARE WE GOING?

- *Our Challenges in  
Pain Rehabilitation*



# To include nutrition care in pain management 2020



**2020 GLOBAL YEAR FOR THE PREVENTION OF PAIN**

## Why, what and how of nutrition for people experiencing chronic pain



**Prof Clare Collins** PhD, BSc, Dip Nutr&Diet, Dip Clin Epi, FDAA  
@ProfCCollins

**A/Prof Tracy Burrows** PhD, B Nutr&Diet (Hons I), AdvAPD  
@DrTracyBurrows

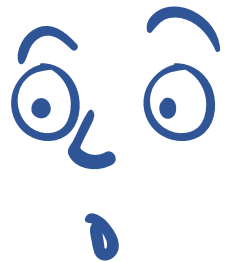
**Dr Katherine Brain** PhD, Nutr&Diet (Hons I), APD  
@Dr\_KBrain



International Association for the Study of Pain

# IASP

*Working together for pain relief*



Curious

[Webinar: Why, what and how of nutrition for people experiencing chronic pain](#)

# 6 TIPS FOR NUTRITION AND PAIN MANAGEMENT

Nutrition and Chronic Pain

## 1 REDUCE INFLAMMATION TO HELP PROTECT YOUR BODY FROM OXIDANT DAMAGE

Polyphenols are compounds found in fruit and vegetables and have antioxidant and anti-inflammatory properties.

## 2 GOOD QUALITY FATS

Omega-3 fats and olive oil both help to reduce inflammation and enhance the immune system.

## 3 PREVENT VITAMIN AND MINERAL DEFICIENCIES

Common micronutrient deficiencies in people experiencing pain include Vitamin D, Vitamin B12 and magnesium.

## 4 WATER INTAKE

Dehydration can increase sensitivity to pain. It can also have other effects on health outcomes, especially in older populations, such as poor wound healing and constipation.

## 5 INCREASE FIBRE

Fibre is important for proper digestion and maintenance of a healthy microbiome and weight management.

## 6 REDUCE AND LIMIT ULTRA- PROCESSED FOODS AND SUGAR INTAKE

These foods and drinks contain high amounts of energy and very low (or no) amounts of beneficial nutrients [12]. These foods can increase inflammation and oxidation which can worsen pain experiences.



# Collaborative work

**Recommendations** for nutrition in pain management



Dr. Ömer Elma, Vrije  
Universiteit Brussel, Belgium



Dr. Katherine Brain, HIPS,  
HMRI & UoN, Australia



Elma, Ö., Brain, K., & Dong, HJ. (2022). The Importance of Nutrition as a Lifestyle Factor in Chronic Pain Management: A Narrative Review. J Clin Med, 11(19).

Screening for general healthy eating



Basic nutrition recommendations



Complex nutrition recommendations



Personal medical nutrition therapy

*Right approach to right patient*

# To include nutrition care in pain management 2023

BPS Webinar: Nutrition and Chronic Pain Management



IASP 2023  
**GLOBAL YEAR**  
Integrative Pain Care  
#globalyear2023

**Nutrition and  
chronic pain  
management: A  
new frontier**

Prof (Dr) DEEPAK RAVINDRAN  
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HON PROF, TEESIDE UNIVERSITY  
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COMMUNITY PAIN SERVICE, BERKSHIRE IPASS  
BOARD CERTIFIED LIFESTYLE MEDICINE PHYSICIAN

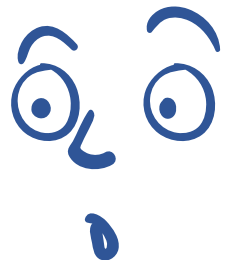
deepakravindran.co.uk

DR DEEPAK RAVINDRAN - BPS NUTRITION NOV 2023  
This Photo by Unknown Author is licensed under CC BY

25:30 / 1:34:02



International Association for the Study of Pain  
**IASP**  
*Working together for pain relief*

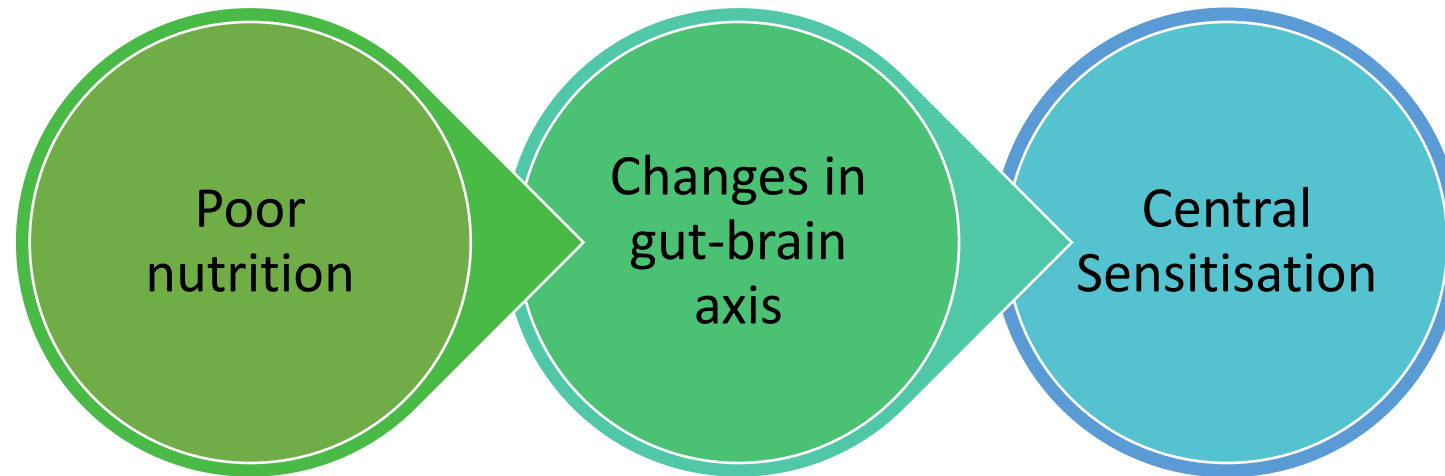


Curious

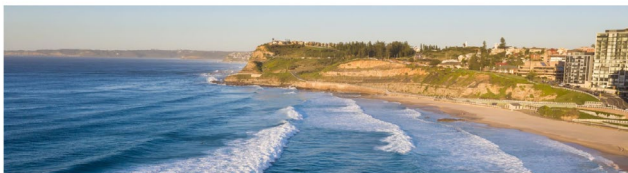
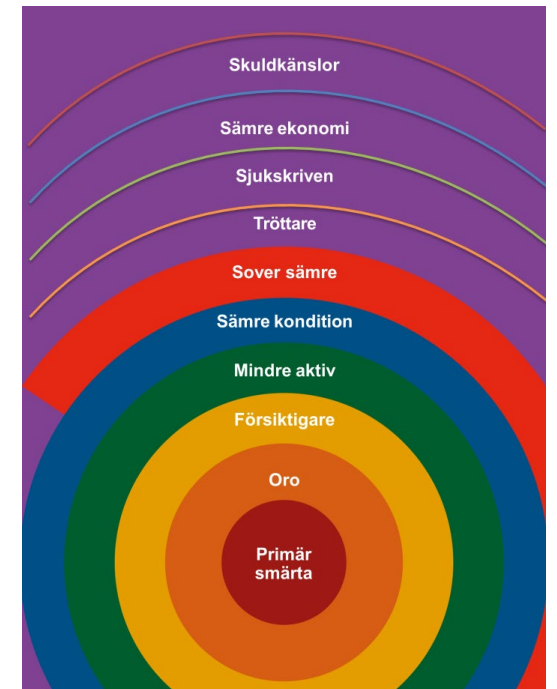
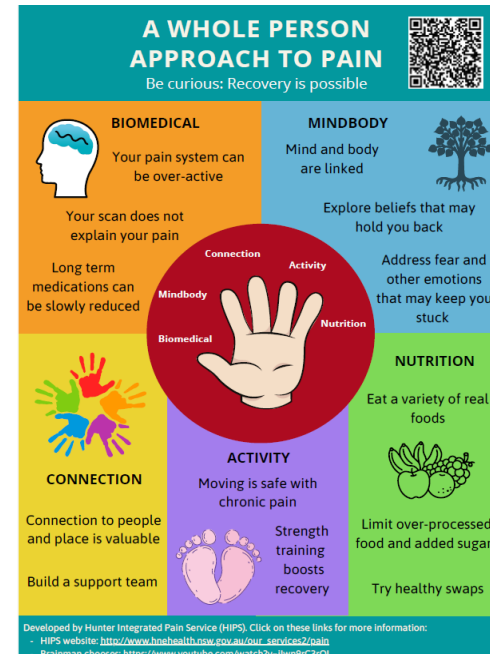
[BPS Webinar: Nutrition and Chronic Pain Management](#)

# A brief understanding about nutrition-nervous system

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# Our understanding about approaches to *'pain rehabilitation'*



Hunter Integrated Pain Service



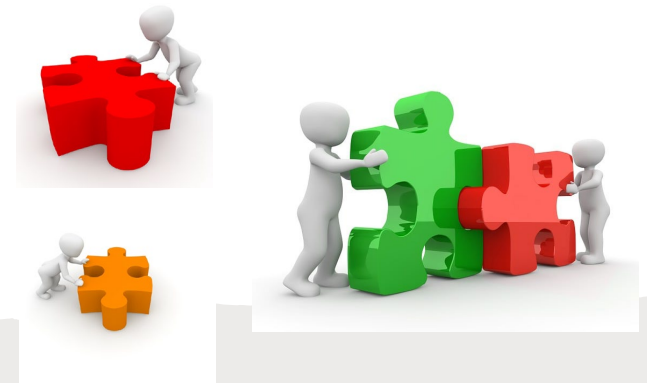
# Pain rehabilitation:

We are an multidisciplinary team  
to treat patients in an interdisciplinary pathway

## *for Patients, and with Patients*

- Physician
- Nurse
- Physiotherapist
- Occupational therapist
- Psychologist
- **Dietitian**
- Researcher

**Our team** in Pain Rehabilitation Clinic,  
Linköping University Hospital



# Challenges for patients

Interventional  
study

*Pain management*

- No sustainable motivation
- No time
- No money
- No energy
- ... ..



*Which strategy will work for my patient?*





# Challenges for health professionals

Interventional  
study

*Pain management*

- Busy GPs
- Dietitians' knowledge and skills
- Rehabilitation team with knowledge of nutrition care
- Evidence: effects measure from clinical populations (real—world data)
- ... ..

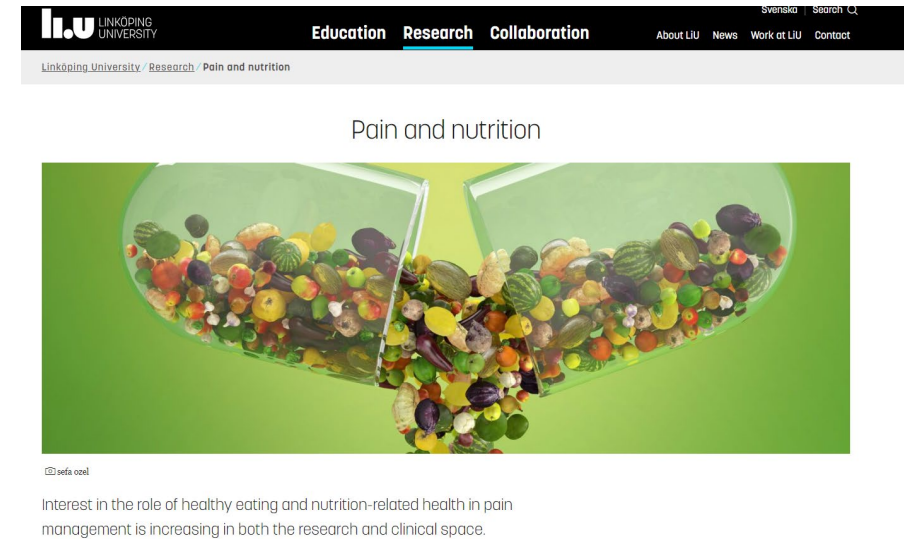


*How can we practice nutrition care in pain management?*



# We want to make difference

- **Collaborations** for the purpose: to include nutrition care in pain rehabilitation
  - Painomics©, Linköping University (LiU)
  - Core Facility, Karolinska Institute (KI)
  - Hunter Integrated Pain Service (HIPS), John Hunter Hospital, Newcastle, Australia
  - University of Newcastle (UoN), Australia



Prof. Bijar Ghafouri, Painomics©, LiU



Post-doc. Maria Henström, Core Facility, KI



Dr. Chris Hayes, HIPS, HMRI & UoN



Prof. Marie Löf, Core Facility, KI



Dr. Katherine Brain, HIPS, HMRI & UoN



Prof. Clare Collins, HMRI & UoN

# STUDY 6 (2022) Biomarkers related to increased BMI



Musculoskeletal  
Research Paper

OPEN

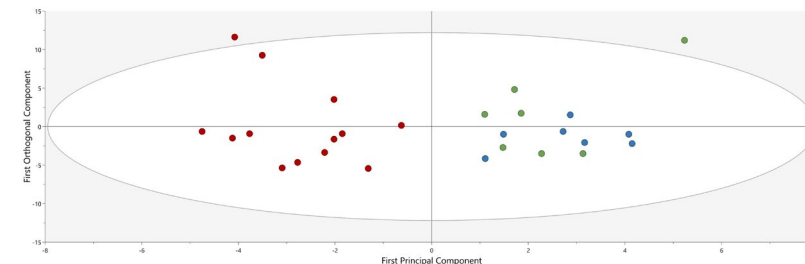
PAIN  
REPORTS

## Fibromyalgia in women: association of inflammatory plasma proteins, muscle blood flow, and metabolism with body mass index and pain characteristics

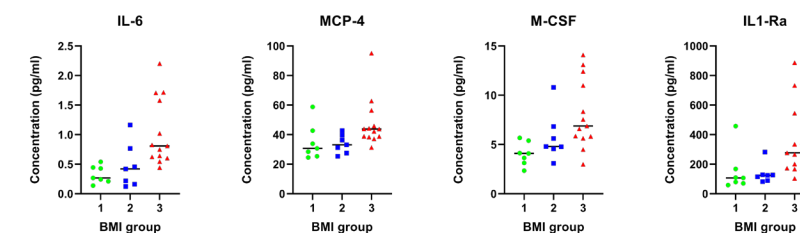
Bijar Ghafouri<sup>a,\*</sup>, Emelie Edman<sup>a</sup>, Marie Lörb<sup>b,c</sup>, Eva Lund<sup>d</sup>, Olof Dahlqvist Leinhard<sup>d,e,f</sup>, Peter Lundberg<sup>d,e</sup>, Mikael Fredrik Forsgren<sup>d,e,f</sup>, Björn Gerdle<sup>a</sup>, Huan-Ji Dong<sup>a</sup>



Proteomic study  
in Painomics©



Orthogonal partial least squares discriminant analysis (OPLS-DA)



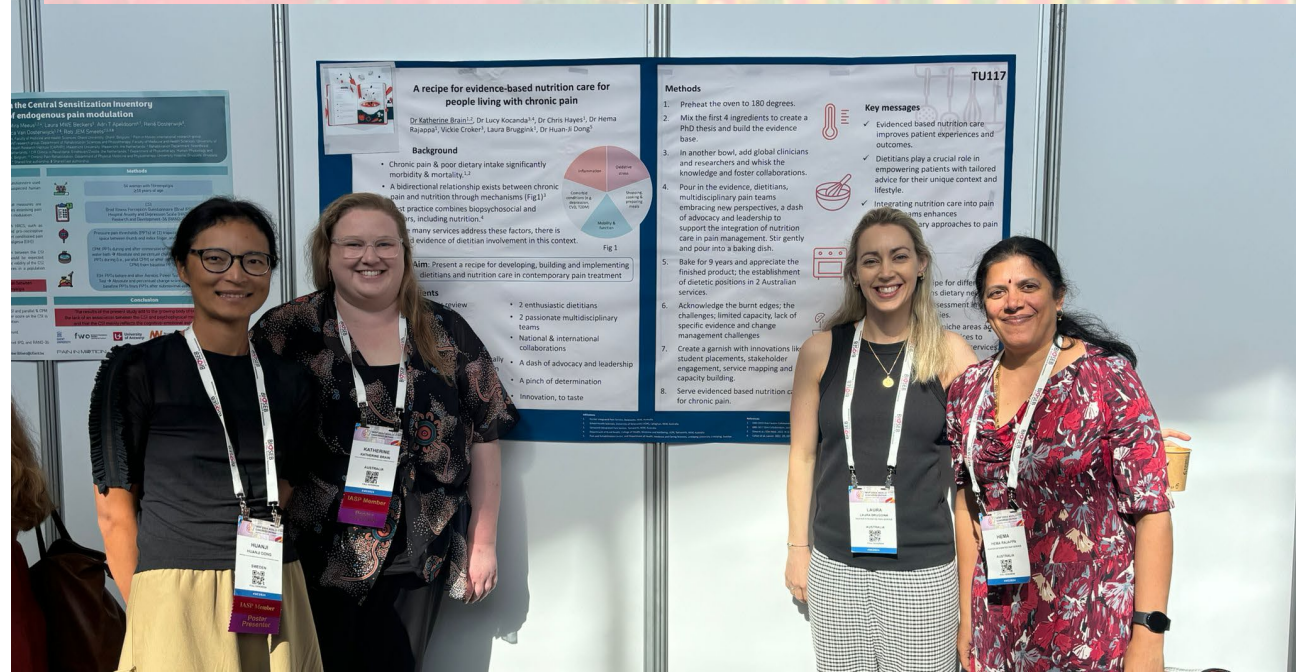
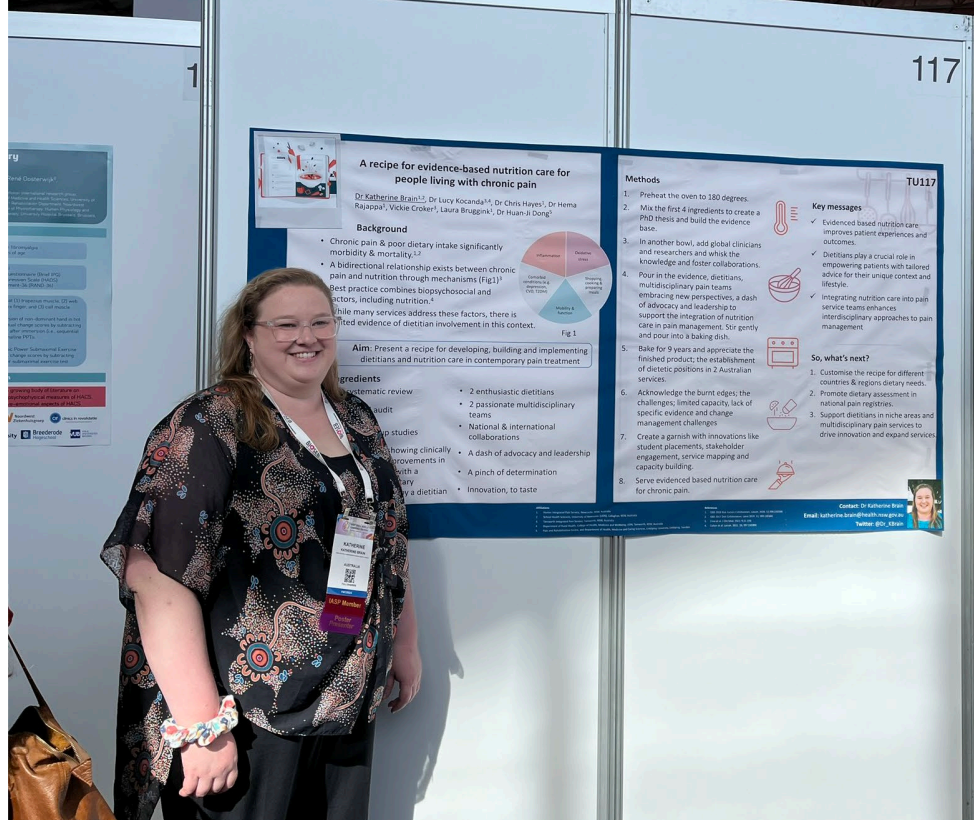
IL-6 (Interlukin -6)

MCP-4 (Monocyte chemotactic protein 4)

MCSF (Macrophage colony-stimulating factor 1)

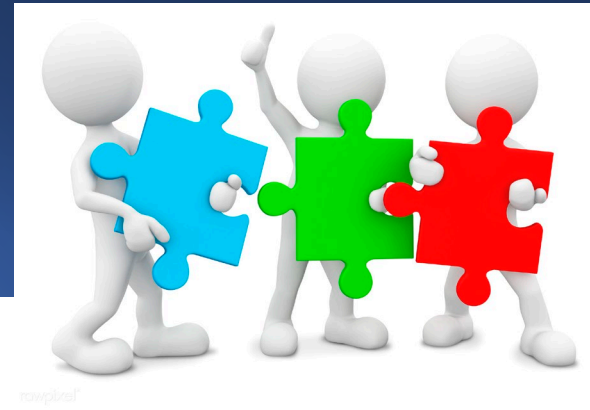
IL-1Ra (Interleukin-1 receptor antagonist protein)







# More acknowledgements



- Grants:

- ✓ Swedish state under the agreement between the Swedish government and the county councils, the ALF-agreement
- ✓ Linköping University: e-health strategy
- ✓ Research center, Linköping University Hospital
- ✓ Patient organisation: Fibromyalgia association
- ✓ Dr. P Håkansson Stiftelsen

- Scholarships:

- ✓ Swedish Society of Medicine
- ✓ Swedish association of pain physicians



*THANK YOU!*

