

INPLASY PROTOCOL

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Review is not financially
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**Review Stage at time of this
submission:** Formal screening
of search results against
eligibility criteria.

Conflicts of interest:
None declared.

INTRODUCTION

Review question / Objective: Is there an
association between pain intensity and
body composition in chronic low back pain
patients?

Association between pain intensity and body composition in adults with chronic low back pain: A Systematic Review and Meta-Analysis

Liechti, M¹; Menegon, M²; Schurz, A³; Lutz, N⁴; Taeymans, J⁵.

Review question / Objective: Is there an association between
pain intensity and body composition in chronic low back pain
patients?

Condition being studied: Evaluation of adults with chronic
non-specific low back pain and the association between pain
intensity and body composition, including measures of body
mass index, waist circumference, waist hip ratio, fat mass, fat
distribution or adipose tissue.

Information sources: Pubmed, CINAHL, Embase, The
Cochrane Library and Web of Science. Google Scholar will be
used for grey literature. No trial registers will be screened.

INPLASY registration number: This protocol was registered with
the International Platform of Registered Systematic Review and
Meta-Analysis Protocols (INPLASY) on 16 December 2022 and
was last updated on 16 December 2022 (registration number
INPLASY2022120064).

Rationale: Overweight and obesity affects
many people in the world and reached
about 60% of adults in the WHO European
Region. Several reviews showed an
increased risk of low back pain in
overweight or obese adults. However, low
back pain was measured differently across

studies and frequently prevalence of pain was measured by a single question (presence of low back pain with yes/ no). Information about quantitatively measured pain intensity and its association with body composition in adults with chronic non-specific low back pain remains unclear.

Condition being studied: Evaluation of adults with chronic non-specific low back pain and the association between pain intensity and body composition, including measures of body mass index, waist circumference, waist hip ratio, fat mass, fat distribution or adipose tissue.

METHODS

Search strategy: (back pain[MeSH Terms] OR "back pain"[Title/Abstract] OR "lumbar pain"[Title/Abstract] OR "lumbago"[Title/Abstract] OR "back ache"[Title/Abstract] OR "LBP"[Title/Abstract] OR "CLBP"[Title/Abstract] OR "NLBP"[Title/Abstract] OR "back disorders"[Title/Abstract] OR "chronic low back pain"[Title/Abstract])

AND

(overweight[MeSH Terms] OR body weight[MeSH Terms] OR body constitution[MeSH Terms] OR adipose tissue[MeSH Terms] OR anthropometry[MeSH Terms] OR overnutrition[MeSH Terms] OR "overweight"[Title/Abstract] OR "body mass index"[Title/Abstract] OR "bmi"[Title/Abstract] OR "adiposity"[Title/Abstract] OR "body composition"[Title/Abstract] OR "waist-hip ratio"[Title/Abstract] OR "total body fat mass"[Title/Abstract] OR "waist circumference"[Title/Abstract] OR "obesity"[Title/Abstract] OR "body weight" [Title/Abstract] OR "underweight" [Title/Abstract] OR "thinness"[Title/Abstract] OR "body fat distribution"[Title/Abstract] OR "body constitution"[Title/Abstract] OR "adipose tissue" [Title/Abstract] OR "anthropometry"[Title/Abstract] OR "overnutrition"[Title/Abstract]).

Participant or population: Female and male adults, aged 18 years or older with non-specific low back pain (lasting for a minimum duration of 3 months) will be

included. Information about pain intensity and body composition (Body Mass Index, waist circumference, waist-hip ratio, body fat mass (total or in percentage), adipose tissue or body fat distribution) must be reported in studies to be included. Studies which investigate specific causes for low back pain such as spinal stenosis, sciatica, disc hernia, nerve root compression, disc degeneration, spondylolysthesis or tumor will be excluded. Further, pregnancy-, postpartum- or osteoporotic-related back pain as well studies which only included patients with neck or thoracic back pain will be excluded.

Intervention: For inclusion, an association of pain intensity and body composition must be studied. If measures of pain intensity are missing but studies reporting relationships between low back pain occurrence and body composition this will lead to exclusion.

Comparator: None.

Study designs to be included: Any study designs assessing relationships, such as cohort studies, case control studies, cross-sectional studies or longitudinal studies will be included.

Eligibility criteria: Abstracts, study protocols, systematic reviews, meta-analyses are excluded.

Information sources: Pubmed, CINAHL, Embase, The Cochrane Library and Web of Science. Google Scholar will be used for grey literature. No trial registers will be screened.

Main outcome(s): The main outcome includes the association between pain intensity and different measures of body composition.

Additional outcome(s): No additional outcomes are defined.

Data management: Two independent researchers will screen the studies for title/ abstracts and full text. If any disagreements occur, a consensus meeting

with a third investigator will be held to solve discrepancies. For the screening process, Rayyan web app is used. Extraction of data will be performed independently by two researchers and collected in an excel spreadsheet. Data will be stored on the Sharepoint of the university.

Author 2 - Massimo Menegon.
Author 3 - Alexander Schurz.
Author 4 - Nathanael Lutz.
Author 5 - Jan Taeymans.

Quality assessment / Risk of bias analysis:

The risk of bias will be performed independently by two reviewers using the Critical Appraisal Skills Programme (CASP). The CASP Cohort Study Checklist and the CASP Case Control Checklist will be used to rate cohort and case control studies, respectively. If disagreements between the two reviewers occur, they will be solved through discussion and if necessary by a third reviewer.

Strategy of data synthesis: A Meta-Analysis

will be performed using a random-effect approach. Odds ratio or risk ratios will be calculated as effect measure and a forest plot will be created for visualization. Statistical heterogeneity will be assessed.

Subgroup analysis: If possible, the performance of subgroup analysis will be done (e.g. for gender), depending on the heterogeneity of the included articles.

Sensitivity analysis: If applicable, a sensitivity analysis is performed. Authors will be contacted in case of missing or uncertain patient data.

Language restriction: Studies of all languages will be included.

Country(ies) involved: Switzerland/
Belgium.

Keywords: Low back pain, obesity, body mass index, weight, epidemiology, pain severity.

Dissemination plans: Publication in a peer-reviewed journal.

Contributions of each author:

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