Research article

# Data-driven subtypes of major depressive disorder: a systematic review

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*BMC Medicine* 2012, **10**:156 doi:10.1186/1741-7015-10-156

Published: 4 December 2012

## Abstract (provisional)

### Background

According to current classification systems, patients with major depressive disorder (MDD) may have very different combinations of symptoms. This symptomatic diversity hinders the progress of research into the causal mechanisms and treatment allocation. Theoretically founded subtypes of depression such as atypical, psychotic, and melancholic depression have limited clinical applicability. Data-driven analyses of symptom dimensions or subtypes of depression are scarce. In this systematic review, we examine the evidence for the existence of data-driven symptomatic subtypes of depression.

### Methods

We undertook a systematic literature search of MEDLINE, PsycINFO and Embase in May 2012. We included studies analyzing the depression criteria of the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV) of adults with MDD in latent variable analyses.

### Results

In total, 1176 articles were retrieved, of which 20 satisfied the inclusion criteria. These reports described a total of 34 latent variable analyses: 6 confirmatory factor analyses, 6 exploratory factor analyses, 12 principal component analyses, and 10 latent class analyses. The latent class techniques distinguished 2 to 5 classes, which mainly reflected subgroups with different overall severity: 62 of 71 significant differences on symptom level were congruent with a latent class solution reflecting severity. The latent class techniques did not consistently identify specific symptom clusters. Latent factor techniques mostly found a factor explaining the variance in the symptoms depressed mood and interest loss (11 of 13 analyses), often complemented by

psychomotor retardation or fatigue (8 of 11 analyses). However, differences in found factors and classes were substantial.

### Conclusions

The studies performed to date do not provide conclusive evidence for the existence of depressive symptom dimensions or symptomatic subtypes. The wide diversity of identified factors and classes might result either from the absence of patterns to be found, or from the theoretical and modeling choices preceding analysis.



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**Research article**

# Mindfulness-and body-psychotherapy-based group treatment of chronic tinnitus: a randomized controlled pilot study

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*BMC Complementary and Alternative Medicine* 2012, **12**:235 doi:10.1186/1472-6882-12-235

Published: 28 November 2012

## Abstract (provisional)

### Background

Tinnitus, the perception of sound in absence of an external acoustic source, impairs the quality of life in 2% of the population. Since in most cases causal treatment is not possible, the majority of therapeutic attempts aim at developing and strengthening individual coping and habituation strategies. Therapeutic interventions that incorporate training in mindfulness meditation have become increasingly popular in the treatment of stress-related disorders. Here we conducted a randomized, controlled clinical study to investigate the efficacy of a specific mindfulness- and body-psychotherapy based program in patients suffering from chronic tinnitus.

### Methods

Thirty-six patients were enrolled in this pilot study. The treatment was specifically developed for tinnitus patients and is based on mindfulness and body psychotherapy. Treatment was performed as group therapy at two training weekends that were separated by an interval of 7 weeks (eleven hours/weekend) and in four further two-hour sessions (week 2, 9, 18 and 22). Patients were randomized to receive treatment either immediately or after waiting time, which served as a control condition. The primary study outcome was the change in tinnitus complaints as measured by the German Version of the Tinnitus Questionnaire (TQ).

## Results

ANOVA testing for the primary outcome showed a significant interaction effect time by group ($F = 7.4$; $df = 1,33$; $p = 0.010$). Post hoc t-tests indicated an amelioration of TQ scores from baseline to week 9 in both groups (intervention group: $t = 6.2$; $df = 17$; $p < 0.001$; control group: $t = 2.5$; $df = 16$; $p = 0.023$), but the intervention group improved more than the control group. Groups differed at week 7 and 9, but not at week 24 as far as the TQ score was concerned.

## Conclusions

Our results suggest that this mindfulness- and body-psychotherapy-based approach is feasible in the treatment of tinnitus and merits further evaluation in clinical studies with larger sample sizes.

The study is registered with clinicaltrials.gov (NCT01540357).



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**Research article**

# Complementary and alternative medicine (CAM) providers' views of chronic low back pain patients' expectations of CAM therapies: a qualitative study

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*BMC Complementary and Alternative Medicine* 2012, **12**:234 doi:10.1186/1472-6882-12-234

Published: 27 November 2012

# Abstract (provisional)

## Background

Some researchers think that patients with higher expectations for CAM therapies experience better outcomes and that enthusiastic providers can enhance treatment outcomes. This is in contrast to evidence suggesting conventional medical providers often reorient patient expectations to better match what providers believe to be realistic. However, there is a paucity of research on CAM providers' views of their patients' expectations regarding CAM therapy and the role of these expectations in patient outcomes.

## Methods

To better understand how CAM providers view and respond to their patients' expectations of a particular therapy, we conducted 32 semi-structured, qualitative interviews with acupuncturists, chiropractors, massage therapists and yoga instructors identified through convenience sampling. Interviews were recorded, transcribed and analyzed thematically using Atlas ti version 6.1.

## Results

CAM providers reported that they attempt to ensure that their patients' expectations are realistic. Providers indicated they manage their patients' expectations in a number of domains--- roles and responsibilities of providers and patients, treatment outcomes, timeframe for improvement, and treatment experience. Providers reported that patients' expectations change over time and that they need to continually manage these expectations to enhance patient engagement and satisfaction with treatment.

## Conclusions

Providers of four types of CAM therapies viewed patients' expectations as an important component of their experiences with CAM therapy and indicated that they try to align patient expectations with reality. These findings suggest that CAM providers are similar in this respect to conventional medical providers.




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**Review**

# Coordinative variability and overuse injury


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*Sports Medicine, Arthroscopy, Rehabilitation, Therapy & Technology* 2012, **4**:45 doi:10.1186/1758-2555-4-45

Published: 27 November 2012

## Abstract (provisional)

Overuse injuries are generally defined as a repetitive micro-trauma to tissue. Many researchers have associated particular biomechanical parameters as an indicator of such injuries. However, while these parameters have been reported in single studies, in many instances, it has been difficult to verify these parameters as causative to the injury. We have investigated overuse injuries, such as patella-femoral pain syndrome, using a dynamical systems approach. Using such methods, the importance of the structure of coordinative variability (i.e. the variability of the interaction between segments or joints) becomes apparent. We view coordinative variability as functionally important to the movement and different from end-point or goal variability. Using concepts derived from the work of Bernstein, we conducted studies using a continuous relative phase and/or modified vector coding approaches to investigate the coordinative variability of overuse injuries. Consistently, we have found that the higher variability state of a coordinative structure is the healthy state while the lower variability state is the unhealthy or pathological state. It is clear that very high coordinative variability could also result in injury and that there must be a window of 'higher variability' in which non-injured athletes function. While this finding that coordinative variability is functional has been shown in several studies, it is still not clear if reduced variability contributes to or results from the injury. Studies are currently underway to determine the potential reasons for the reduced variability in injured athletes. Nevertheless, our laboratory believes that this understanding of how joints interact can be important in understanding overuse injuries.



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**Short report**

# Clinical descriptive measures of shoulder range of motion for a healthy, young and physically active cohort

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*Sports Medicine, Arthroscopy, Rehabilitation, Therapy & Technology* 2012, **4**:33 doi:10.1186/1758-2555-4-33

Published: 10 September 2012


# Abstract

## Background

The objective of this innovative research study was to describe clinical shoulder complex range of motion (ROM) measures for a young, healthy, and physically active population. This investigation represents a cross-sectional experiment conducted at a military academy-based sports medicine center. Military cadets with no history of shoulder complex injury were assessed within two months of enrollment in the academy; 548 men (18.8□±□1.0□yr, 75.2□±□12.2□kg, 178.3□±□7.4□cm) and 74 women (18.7□±□0.9□yr, 63.2□±□8.9□kg, 165.2□±□6.9□cm) participated. Descriptive measures included cross-body adduction (CAD), flexion (FLX), external rotation (ER0) with the shoulder complex in adduction and elbow flexed to 90°, internal and external rotation (IR, ER) with the shoulder complex at 90° of abduction and elbow flexed to 90° as well as arc (ARC) of IR-ER using standardized clinical quantification techniques. Bilateral and sex differences were evaluated using dependent and independent t-tests, respectively. Percentiles by arm dominance and sex were also calculated for all ROM measures.

## Results

Data were normally distributed. Active and passive ROM measures indicated significant bilateral differences (P□<□0.05) except for ARC. Sex differences (P□<□0.05) were noted for active and passive CAD, FLX and ER0 for the dominant arm as well as active and passive CAD, FLX and ARC for the non-dominant arm.

## Conclusions

These original data provide descriptive measures for shoulder complex ROM excursions, assisting sports medicine practitioners in potentially identifying clinical deficiencies and functional outcomes following shoulder injury.



## *Keywords:*

Shoulder; Scapulohumeral; Range of motion; Measurement; Goniometry


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Open Access **Research article**

# Surgical treatment of lumbar spinal stenosis with microdecompression and interspinous distraction device insertion. A case series

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*Journal of Orthopaedic Surgery and Research* 2012, **7**:35 doi:10.1186/1749-799X-7-35

The electronic version of this article is the complete one and can be found online at: http://www.josr-online.com/content/7/1/35

Received: 17 March 2011
Accepted: 25 October 2012
Published: 29 October 2012



## Abstract

### Background

Interspinous distraction devices (IPDD) are indicated as stand-alone devices for the treatment of spinal stenosis. The purpose of this study is to evaluate the results of patients undergoing surgery for spinal stenosis with a combination of unilateral microdecompression and interspinous distraction device insertion.

### Methods

This is a prospective clinical and radiological study of minimum 2 years follow-up. Twenty-two patients (average age 64.5 years) with low-back pain and unilateral sciatica underwent decompressive surgery for lumbar spinal stenosis. Visual Analogue Scale, Oswestry Disability Index and walking capacity plus radiologic measurements of posterior disc height of the involved level and lumbar lordosis Cobb angle were documented both preoperatively and postoperatively. One-sided posterior subarticular and foraminal decompression was conducted followed by dynamic stabilization of the diseased level with an IPDD (X-STOP).

### Results

The average follow-up time was 27.4 months. Visual Analogue Scale and Oswestry Disability Index improved statistically significantly ($p < 0.001$) in the last follow-up exam. Also, the walking distance increased in all patients but two. Posterior intervertebral disc height of the diseased level widened average 1.8 mm in the postoperative radiograph compared to the preoperative. No major complication, including implant failure or spinous process breakage, has been observed.

### Conclusions

The described surgical technique using unilateral microdecompression and IPDD insertion is a clinically effective and radiologically viable treatment method for symptoms of spinal stenosis resistant to non-operative treatment.

***Keywords:***
IPDD; X-STOP; Microdecompression; Spinal stenosis

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Highly accessed **Research article**

# The effectiveness of acupuncture in treating chronic non-specific low back pain: a systematic review of the literature

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For all author emails, please log on.

*Journal of Orthopaedic Surgery and Research* 2012, **7**:36 doi:10.1186/1749-799X-7-36

Published: 30 October 2012

# Abstract (provisional)


## Background

Low back pain is a common musculoskeletal disorder defined as pain and soreness, muscle tension, or stiffness in the lumbosacral area of the spine which does not have a specific cause. Low back pain results in high health costs and incapacity to work causing an economic burden to society. The optimal management of non-specific low back pain appears to be undecided. Recently published guidelines support the use of acupuncture for treating non-specific low back pain and it has become a popular alternative treatment modality for patients with low back pain.

## Methods

A comprehensive systematic literature search was conducted through Medline using Ovid and Medical Subject Headings for randomized controlled trials published in the last 10 years. The outcomes scored were subjective pain scores and functional outcome scores.

## Results

Eighty two randomized studies were identified, of which 7 met our inclusion criteria. Three studies found a significant difference in pain scores when comparing acupuncture, or sham acupuncture, with conventional therapy or no care. Two studies demonstrated a significant difference between acupuncture treatment and no treatment or routine care at 8 weeks and 3 months. Three studies demonstrated no significant difference between acupuncture and minimal/sham acupuncture with no difference in pain relief or function over 6 to 12 months.

## Conclusions

This review provides some evidence to support acupuncture as more effective than no treatment, but no conclusions can be drawn about its effectiveness over other treatment modalities as the evidence is conflicting.