



No Gain, No Pain? – What is the effect of diet-induced weight loss on osteoarthritis-related knee pain?

CLINICAL QUESTION

Will diet-induced weight loss reduce osteoarthritic knee pain in overweight and obese adults?

BOTTOM LINE

Observational data suggests that obesity may be a risk factor for developing osteoarthritis, however trials reporting diet-induced weight loss alone (example 5% weight loss) demonstrate limited, likely clinically insignificant improvements in osteoarthritic pain (~5 points on 100-point pain scale) compared to control. Studies are limited by the small magnitude of weight loss.

EVIDENCE

- Highest quality systematic review and meta-analysis, 4 randomized, controlled trials (RCTs), 676 patients, BMI~35.¹
 - Mean diet induced weight loss 8% (8.5kg) versus 3% (2.7kg) control.
 - Statistical improvement in pain scales with diet-induced weight loss: Effect size=0.33.
 - Equivalent to ~5 points on 100-point scale.²

- Improvement ranged from 2-9 out of 100.
 - Minimal clinically detectable difference 9-10.^{3,4}
- Additional systematic review and meta-analysis, diet induced weight loss versus control, BMI~34.⁵
 - Change in pain scales from diet-induced weight loss alone not statistically different from control (5 RCTs, 616 patients).
 - Diet-induced weight loss + exercise resulted in statistical improvement in pain scales over control, 3 RCTs, 264 patients.
 - Effect size=0.37.
 - Improvement on 100-point pain scale ranged from 2-11.
- Limitations: Relevant studies excluded.

CONTEXT

- Meta-analysis of 22 cohort studies found that patients with BMI >30 were twice as likely to have knee osteoarthritis (OR 2.66).⁶
- One RCT, mean BMI ~35, reported that intensive diet and exercise interventions prevented development of knee pain at one year (secondary analysis).⁷
- Guidelines recommend education and exercise programs with or without dietary weight management for knee osteoarthritis, citing insufficient evidence for dietary management alone.⁸
- Exercise results in 47% of osteoarthritis patients achieving a 30% reduction in pain compared to 21% in control.⁹
- No RCTs examine more substantial forms of weight loss (i.e. bariatric surgery) and knee pain.
 - Observational data suggests surgically induced weight loss of ~15-35% resulted in ~75% of people experiencing some benefit in knee pain.¹⁰
- There is no one size fits all diet. If weight loss is desired, patients should choose a diet they can adhere to.¹¹

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Authors do not have any conflicts of interest to declare.

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