

# Review: Sparse evidence supports lifestyle modifications for reducing symptoms of gastroesophageal reflux disease

Kaltenbach T, Crockett S, Gerson LB. Are lifestyle measures effective in patients with gastroesophageal reflux disease? An evidence-based approach. *Arch Intern Med.* 2006;166:965-71.

**Clinical impact ratings:** GIM/FP/GP ★★★★★☆ Gastroenterology ★★★★★☆

## QUESTION

In patients with gastroesophageal reflux disease (GERD), what is the evidence that lifestyle factors are associated with symptoms or physiologic measures of GERD and that lifestyle modification interventions can improve GERD symptoms?

## METHODS

**Data sources:** MEDLINE and Ovid (1975 to 2004).

**Study selection and assessment:** English-language studies of any design that evaluated the effect of lifestyle factors or modifications on physiologic or clinical aspects of GERD. A standard scoring system with 5 levels of evidence was used to assess the quality of individual studies: level A, randomized controlled trials (RCTs) with consistent evidence; level B, cohort, case-control, nonrandomized, or uncontrolled studies; level C, case reports, flawed trials, or population studies; level D, expert opinion; level E, insufficient evidence or studies with conflicting data. 100 studies met the selection criteria, including 16 studies of lifestyle modification.

**Outcomes:** Heartburn symptoms, esophageal pH, and lower esophageal sphincter pressure (LESP).

## MAIN RESULTS

Level B evidence indicated associations between increased esophageal acid exposure

or lowered LESP and tobacco (12 studies), alcohol (16 studies), chocolate (2 studies), carbonated beverages (2 studies), fatty foods (9 studies), and sleeping in a recumbent position (1 study) or on the right side (3 studies). Level B evidence for an association with worsened GERD symptoms existed only for tobacco, alcohol, and a recumbent position. Physiologic and clinical evidence for an association with GERD was weak or conflicting (level C, D, or E) for obesity (24 studies), caffeine (14 studies), spicy foods (2 studies), citrus (3 studies), mint (1 study), and late evening meal (3 studies). Level A evidence on the efficacy of lifestyle modification interventions was limited to a few small RCTs (Table). For weight loss, 4 poor-quality studies showed a benefit that was not confirmed by the single RCT. 1 RCT showed no benefit from avoiding late evening meals. 1 of 2 RCTs on sleeping in a head-elevated posi-

tion showed some evidence of improvement in acid exposure duration; 1 nonrandomized study in 63 patients showed benefit in both physiologic measures and symptoms of GERD. Level B studies have not provided clear evidence that abstinence from tobacco (3 studies) or alcohol (1 study) improves GERD.

## CONCLUSIONS

Some evidence exists that several lifestyle factors are associated with symptoms and physiologic measures of gastroesophageal reflux disease (GERD). There is little evidence to support the efficacy of lifestyle modifications to reduce the symptoms of GERD.

*Source of funding:* American Gastroenterological Association.

*For correspondence:* Dr. L.B. Gerson, Stanford University School of Medicine, Stanford, CA, USA. E-mail [lgerson@stanford.edu](mailto:lgerson@stanford.edu). ■

## Evidence from randomized controlled trials of the efficacy of lifestyle modification interventions in GERD

Interventions	Number of trials (n)	Results
Weight loss	1 (20)	No improvement in acid exposure or GERD symptoms
Avoiding late evening meal	1 (20)	No improvement in reflux frequency or duration or acid exposure duration
Sleeping with head of bed elevated	1 (209)	No improvement in GERD symptoms
Sleeping with head of bed elevated or on wedge	1 (15)	No improvement in reflux frequency; improvement in acid exposure duration (wedge only)

## COMMENTARY

GERD, a common disorder that significantly decreases quality of life, has become an important health burden worldwide (1). There has been burgeoning use of acid suppressive, surgical, and endoluminal therapies for managing GERD (2). Experts typically also recommend lifestyle modifications in patients with GERD, although supporting data are sparse.

Kaltenbach and colleagues have critically evaluated the existing literature for evidence-based information on lifestyle measures in GERD. In several nonrandomized studies, elevation of head of the bed, left lateral decubitus positioning, and weight loss were associated with some improvement in GERD variables. However, the authors found a paucity of high-quality RCTs evaluating lifestyle interventions in GERD management and no convincing evidence for their efficacy. Surprisingly, only 1 published RCT (with negative results) has studied the effect of weight loss on GERD symptoms. In another RCT, sleeping on a wedge was associated with less esophageal acid exposure, whereas the improvement with head-of-bed elevation was not statistically significant.

Given these findings, what are the clinical implications of this study? Currently, insufficient evidence exists to support the recommendations of head-of-bed elevation, sleeping in left lateral decubitus position, and weight loss as effective interventions for GERD. However, the efficacy of lifestyle modifications has not yet been assessed adequately; thus, they should not be discarded entirely. Such modifications should not be recommended as the primary treatment in patients with bothersome GERD symptoms, but they may play an adjunctive role with acid-suppressive therapy or antireflux surgery. Future research on this subject should involve large, well-designed RCTs to gain insight into the effect of lifestyle modifications, especially weight loss, on GERD symptoms and esophageal acid exposure.

Sachin Wani, MD  
Prateek Sharma, MD, FACC  
VA Medical Center and University of Kansas School of Medicine  
Kansas City, Kansas, USA

## References

1. Wilkum I, Carlsson J, Vakil N. *Am J Gastroenterol.* 2006;101:18-28.
2. Dent J, Armstrong D, Delaney B, et al. *Gut.* 2004;53 Suppl 4:iv1-24.