

# INPLASY

## The efficacy of dietary interventions in patients with gastroesophageal reflux disease: A systematic review and meta-analysis of intervention studies

INPLASY2023120088

doi: 10.37766/inplasy2023.12.0088

Received: 22 December 2023

Published: 22 December 2023

Lakananurak, N<sup>1</sup>; Pitisuttithum, P<sup>2</sup>; Susantitaphong, P<sup>3</sup>; Patcharatrakul, T<sup>4</sup>; Gonlachanvit, S<sup>5</sup>.

### Corresponding author:

Narisorn Lakananurak

narisorn.l@chula.ac.th

### Author Affiliation:

Faculty of Medicine, Chulalongkorn University.

### ADMINISTRATIVE INFORMATION

**Support** - None.

**Review Stage at time of this submission** - Completed but not published.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY2023120088

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 22 December 2023 and was last updated on 22 December 2023.

### INTRODUCTION

**Review question / Objective** International guidelines recommend dietary interventions as one of the important treatments for patients with gastroesophageal reflux disease (GERD). These recommendations, however, are largely based on uncontrolled studies. Most of these studies focus on diet as a risk factor of GERD, but do not focus on dietary interventions and their effect on improvement of GERD-related outcomes. At present, even though diet is generally recommended in clinical practice, a systematic review and meta-analysis focusing on the effect of dietary interventions specifically in patients with GERD is lacking. We conducted a systematic review and meta-analysis of dietary interventions in adults with GERD in order to evaluate the effectiveness of dietary treatment on GERD-related outcomes.

**Condition being studied** GERD was defined according to the American College of

Gastroenterology as the condition in which reflux of gastric contents into the esophagus results in symptoms and/or complications.

### METHODS

**Search strategy** Two independent researchers searched PubMed/MEDLINE, Web of Sciences, and Scopus for relevant publications up through June 2023. The systematic search was conducted using Medical Subject Heading (MeSH) together with non-MeSH keywords in the title and abstract including: “Diet” OR “Food” OR “Dietary Pattern” OR “Food Pattern” AND “Gastroesophageal Reflux” OR “GERD” OR “Gastric acid reflux” OR “Gastroesophageal reflux disease” OR “Esophageal reflux” OR “Heart burn” OR “Barrett’s esophagus” OR “Reflux esophagitis”. No restrictions on language, time of publication, and study location were applied.

**Participant or population** Patients with GERD.

**Intervention** Dietary interventions.

**Comparator** Pre-dietary intervention or placebo.

**Study designs to be included** Intervention study.

**Eligibility criteria** Dietary interventions focusing in GERD patients.

**Information sources** PubMed/MEDLINE, Web of Sciences, and Scopus.

**Main outcome(s)** GERD symptoms, pH measurement outcomes, and quality of life.

**Quality assessment / Risk of bias analysis** The quality of the randomized controlled studies in this review was evaluated using the Jadad scale. The scoring system includes a total score of 5 evaluating randomization (2 points), blinding (2 points), and withdrawal (1 point). A total score of  $\leq 3$  was categorized as low quality. The Newcastle-Ottawa scale was utilized to assess the quality of non-randomized control studies. A maximum score of 9 is comprised of study group selection (4 points), comparability (2 points), and outcomes (3 points). A total score of  $\leq 3$  was considered to indicate low quality; 4–6, medium quality; and  $\geq 7$ , high quality.

Two reviewers evaluated the quality of each study independently. The results were compared and discussed between the reviewers to reach consensus on any disparities. Major disagreements were brought to a third reviewer to make a consensus.

**Strategy of data synthesis** Data extraction was performed by two independent researchers utilizing the Covidence program. Any disagreement was discussed and resolved accordingly. For each article, the name of the study, the first author's name, publication year, study location, study period, study design, sample size, study population demographics (e.g., age, sex, body mass index (BMI)), dietary intervention and control, and outcomes (all reported data on association between GERD and diet) were extracted.

All findings were narratively synthesized. Meta-analysis was also performed using the Comprehensive meta-analysis software (version 2), where two or more studies had sufficient clinical homogeneity in intervention and comparative characteristics. Continuous data were reported using mean change. Binary data were assessed and reported using a risk ratio (RR). Heterogeneity was evaluated with the I<sup>2</sup> statistic, where a value  $> 50\%$  was considered to represent substantial

statistical heterogeneity. A p-value of less than 0.05 was considered statistically significant.

**Subgroup analysis** None.

**Sensitivity analysis** None.

**Language restriction** English.

**Country(ies) involved** Thailand.

**Keywords** Diet; food; dietary therapy; gastroesophageal reflux; GERD; meta-analysis.

#### Contributions of each author

Author 1 - Narisorn Lakananurak - The author contributed to the conception and design of the research, the acquisition and analysis of the data, drafted the manuscript and critically revised the manuscript.

Email: narisorn.l@chula.ac.th

Author 2 - Panyavee Pititittithum - The author contributed to the conception and design of the research, the acquisition and analysis of the data, drafted the manuscript and critically revised the manuscript.

Email: panyavee.p@chula.ac.th

Author 3 - Paweena Susantitaphong - The author contributed to the conception and design of the research, the acquisition and analysis of the data, and critically revised the manuscript.

Email: paweena.s@chula.ac.th

Author 4 - Tanisa Patcharatrakul - The author contributed to the conception and design of the research and critically revised the manuscript.

Email: tanisa.p@chula.c.th

Author 5 - Sutep Gonlachanvit - The author contributed to the conception and design of the research and critically revised the manuscript.

Email: sutep.g@chula.ac.th