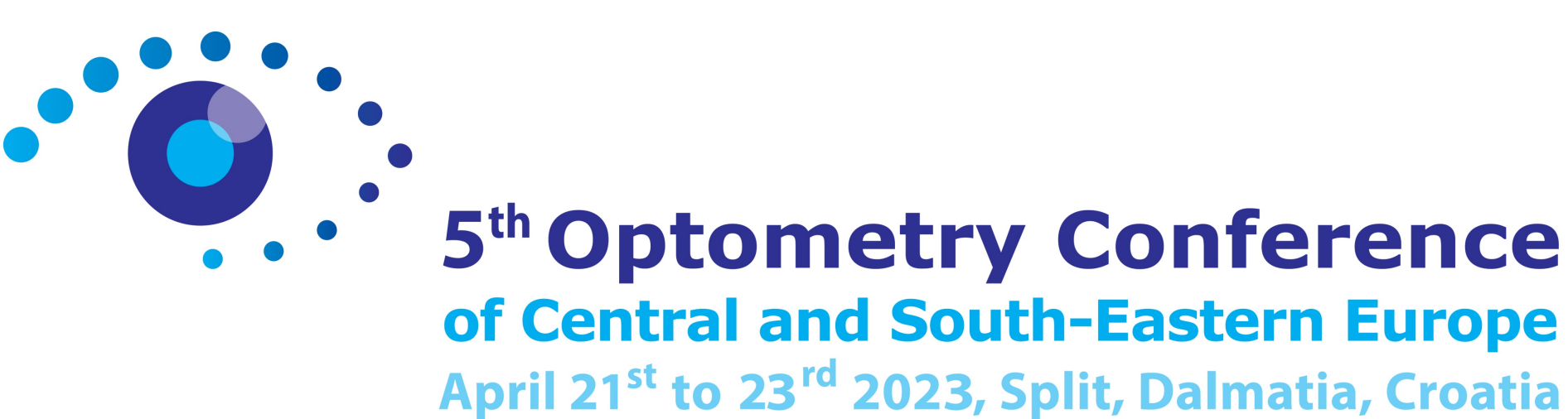
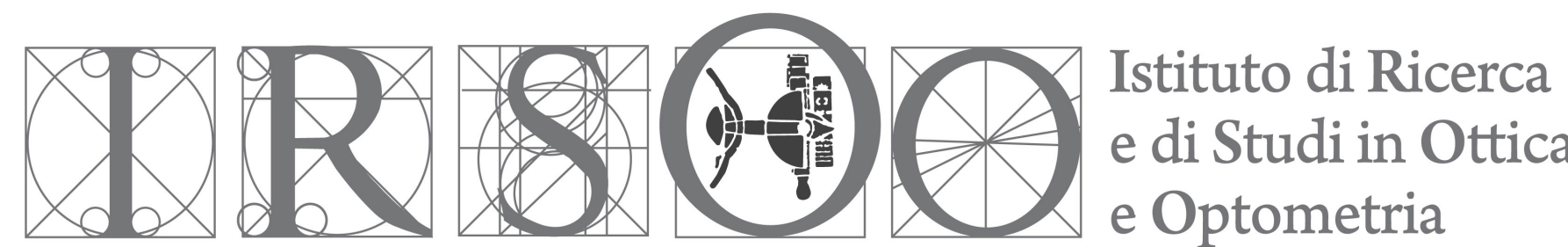


Effectiveness of Omega-3 supplements in the treatment of dry eye.

A systematic review



Giulia Cenini¹, Sabrina Giometto²
Irsoo – Vinci (FI)¹
University of Pisa²



Purpose

Dry eye syndrome (DES) is a multifactorial inflammatory disorder of the ocular surface, with an increasing incidence in the world, that significantly affects visual function, as well as quality of life.

The aim of this study is to critically evaluate the scientific evidence regarding the efficacy of oral supplementation with omega-3 fatty acids for the treatment of dry eye syndrome.

Method

- The systematic search was conducted in June 2022 using the electronic databases PubMed and Cochrane Library, using the following terms: ((dry eye) OR (dry eye syndrome) OR (dry eye disease) OR (DED)) AND ((omega 3) OR (omega 3 fatty acid) OR (omega 3 fatty acids) OR (EPA) OR (DHA) OR (PUFA))
- INCLUSION CRITERIA:** randomized controlled trials (RCTs) comparing oral omega-3 fatty acid supplementation with placebo in patients with mild to severe dry eye disease
- OUTCOME MEASURES:** ocular surface disease index (OSDI), tear breakup time (TBUT), Schirmer test and osmolarity
- The pooled effect sizes were estimated using a random-effects model or a fixed-effects model depending on the level of heterogeneity. Heterogeneity was evaluated using Q and I² tests

RESULTS

Identification of studies via databases and registers

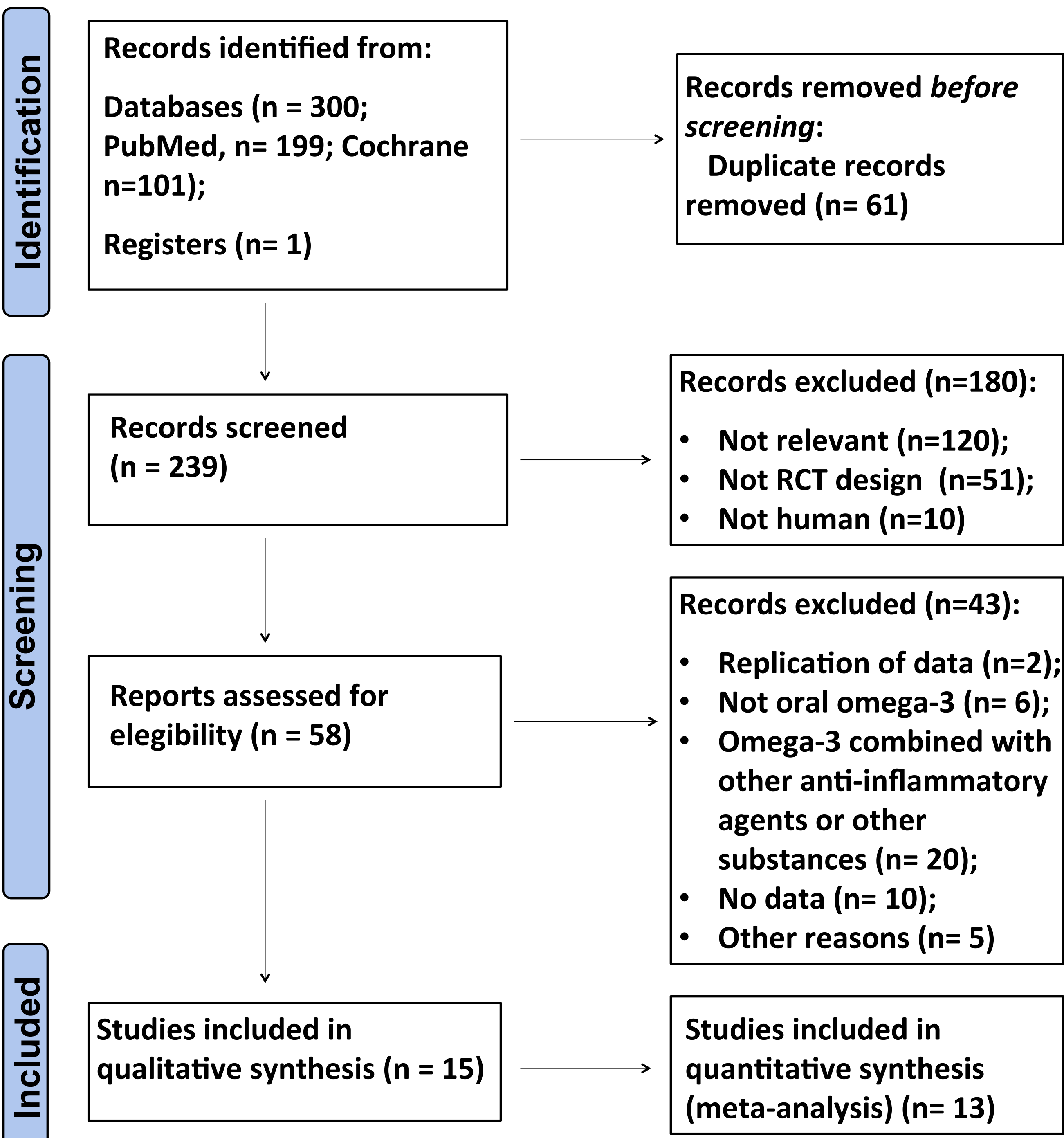


Figure 1. PRISMA Flow Chart

- Trials involved a total of 3069 participants from 6 countries with dry eye of variable severity and etiology (71% women)
- The mean age was 48.4 years (46.7 treatment group; 49.3 control group)
- Follow-up ranged from one to 12 months
- All the studies were published between 2011 and 2021
- Most of the studies used a dosage of omega-3 greater than 1000 mg per day

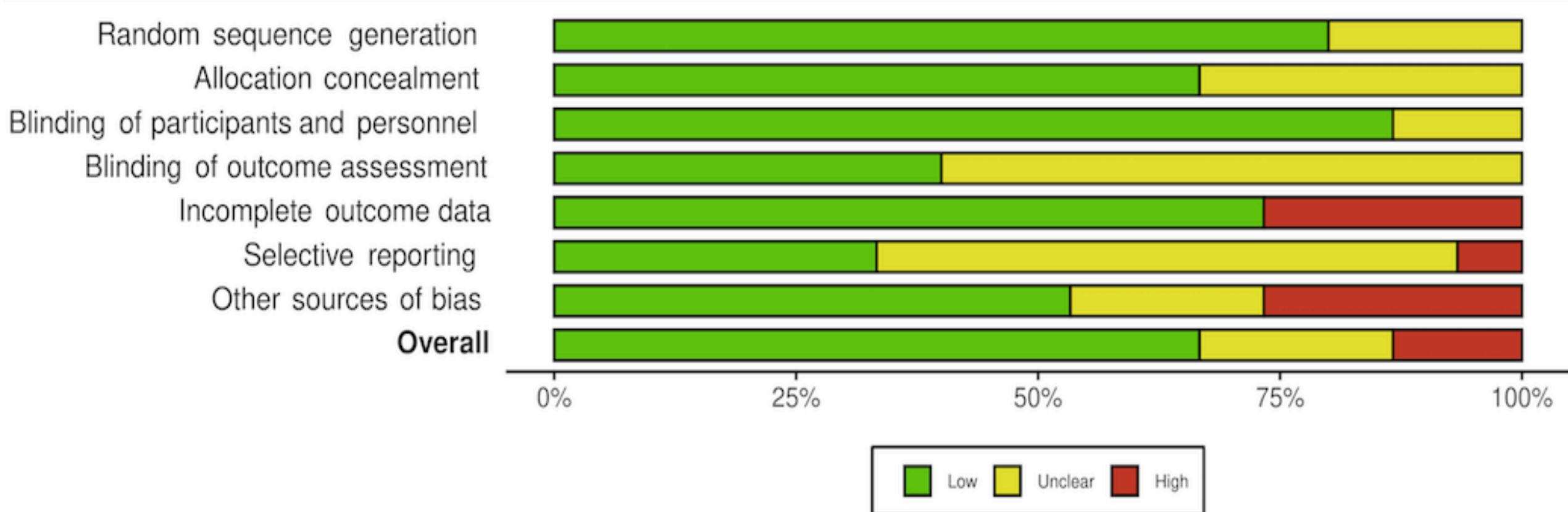


Figure 2. Qualitative results. Percentage of the risk of bias of the included studies using Cochrane Collaboration tool.

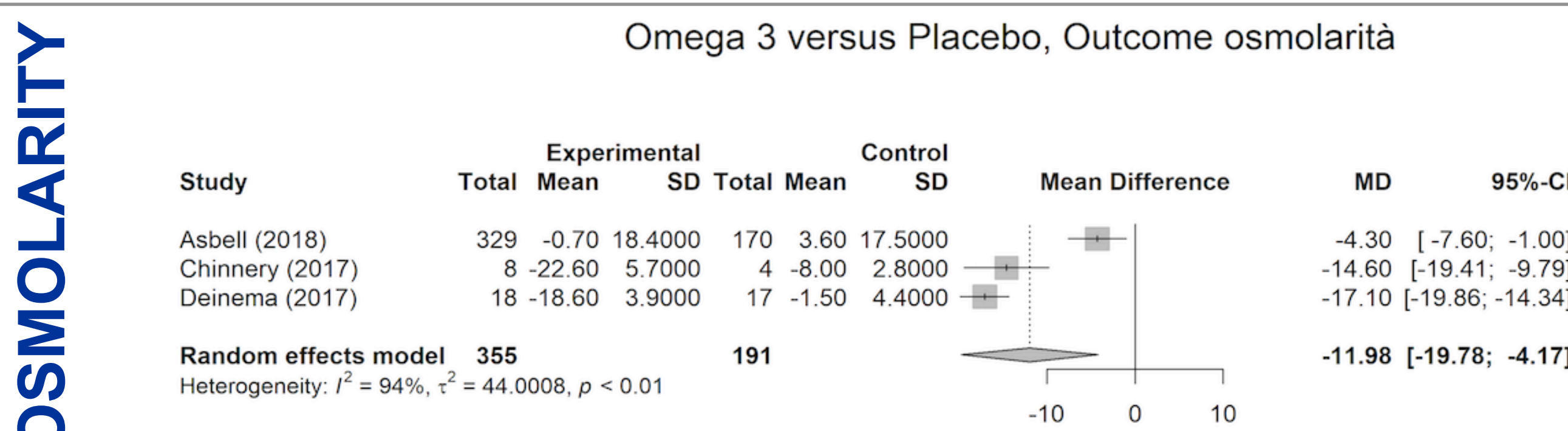
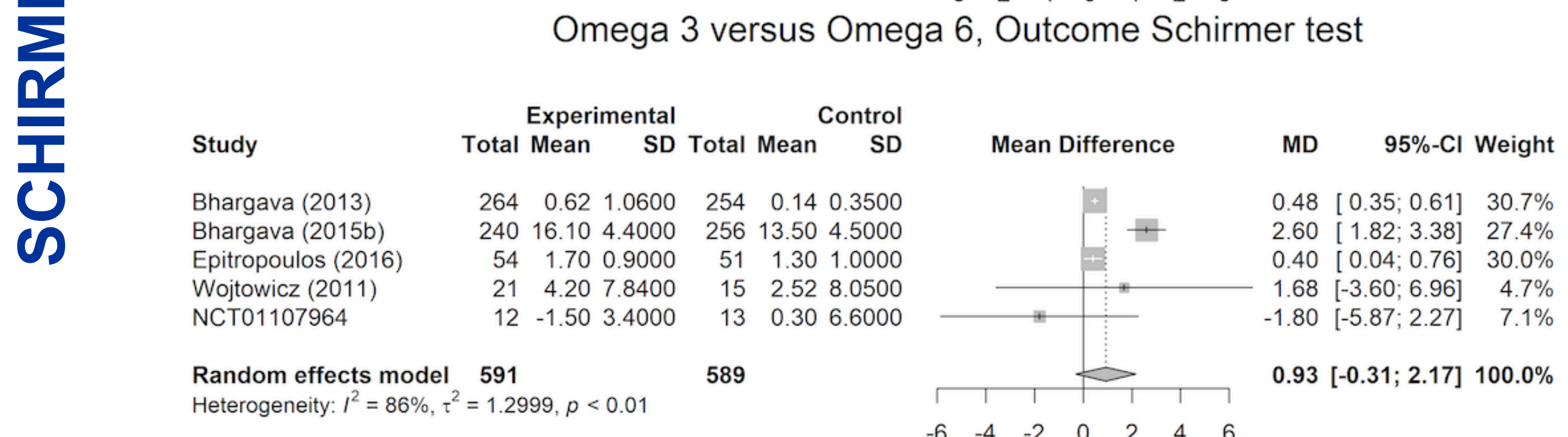
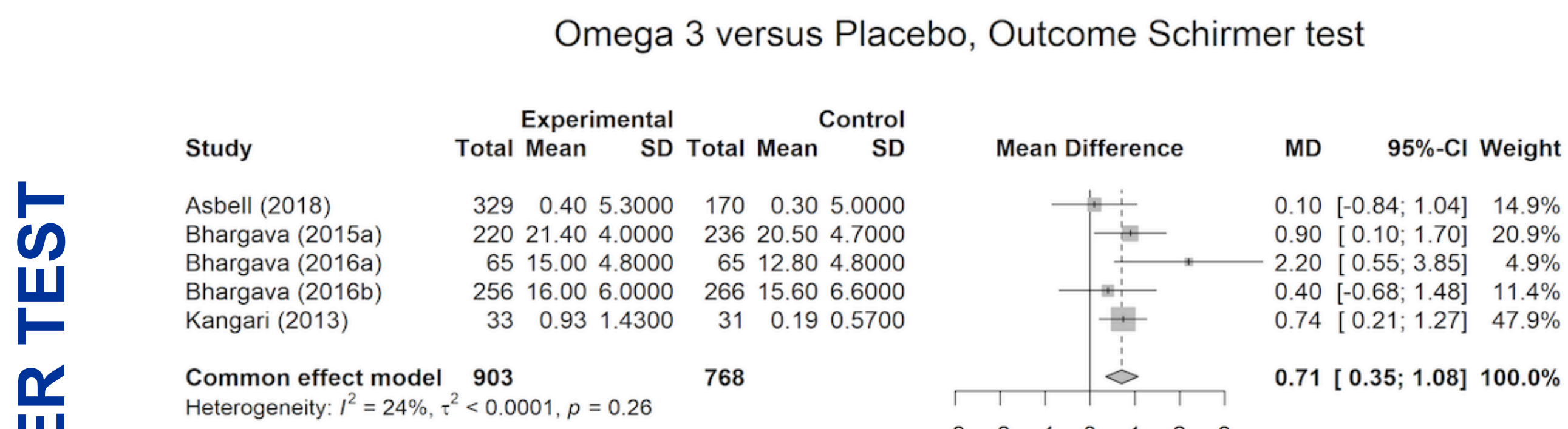
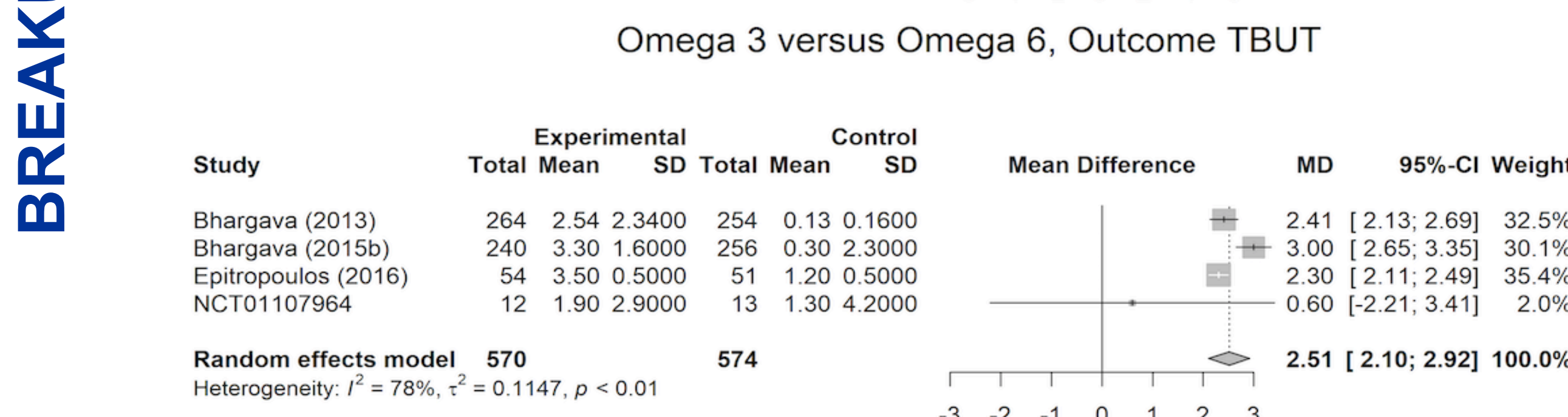
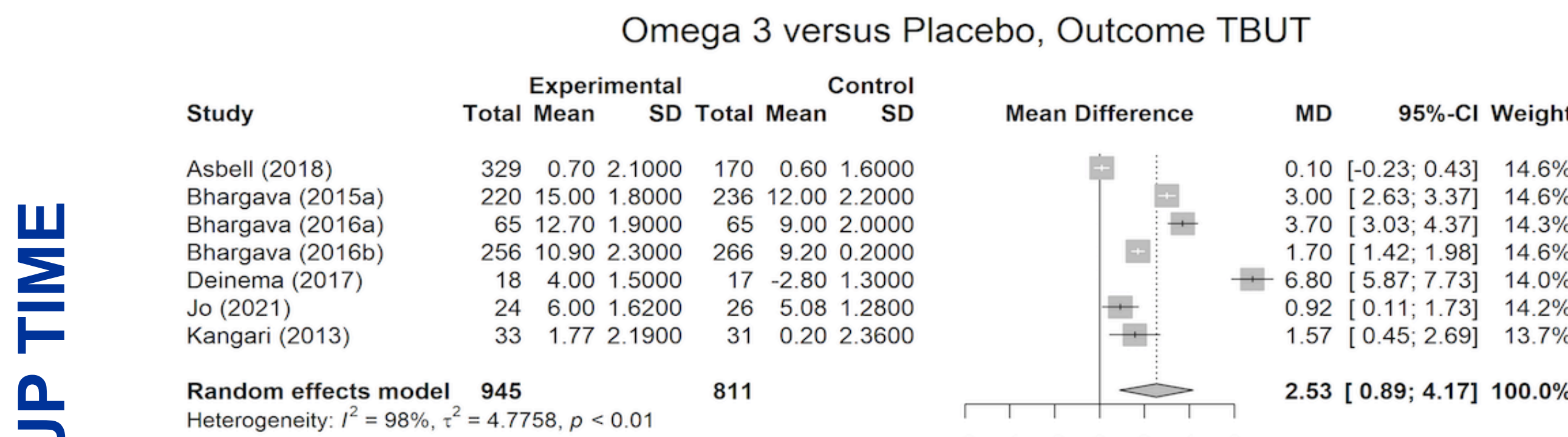
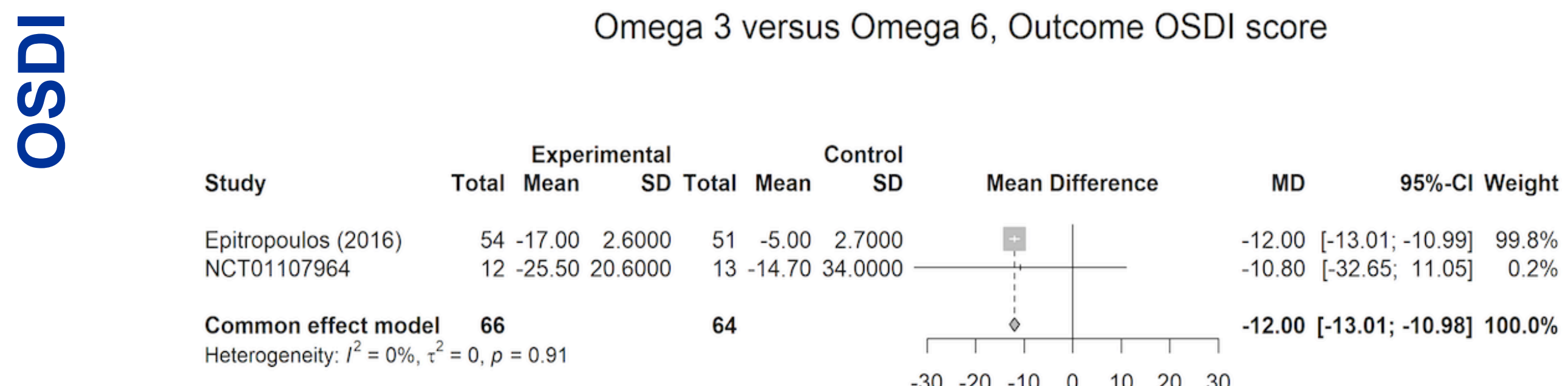
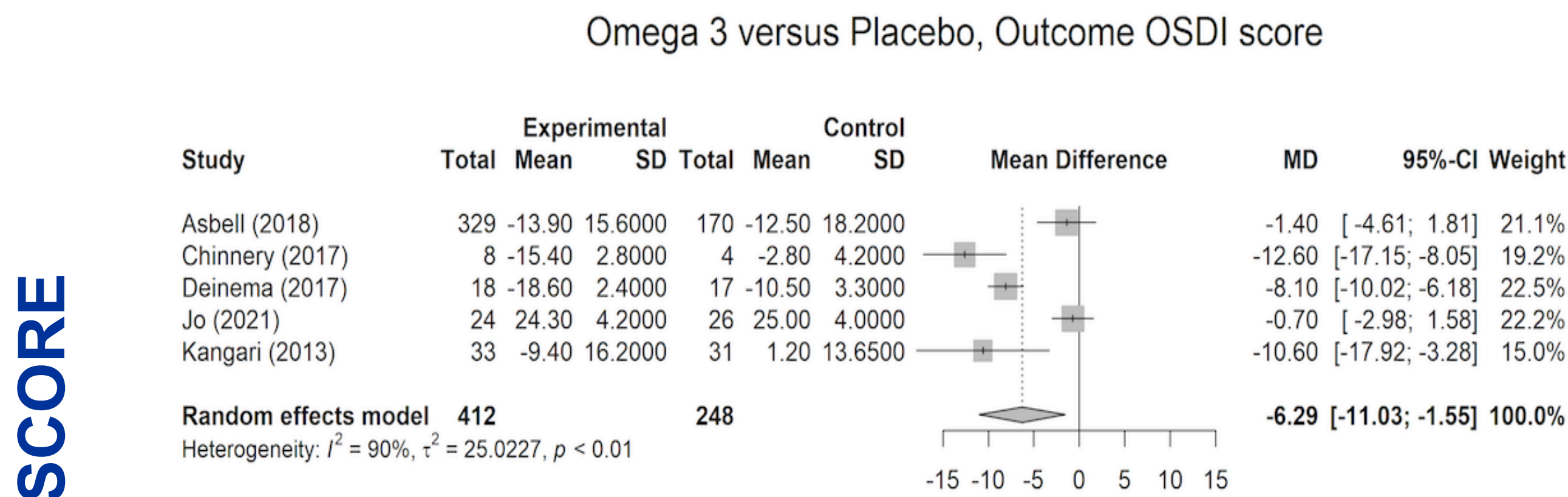


Figure 3. Meta-analysis of outcome measures.

Discussion

- The studies were divided into two subgroups according to the type of placebo used: olive oil and medium-chain triglycerides or oil largely containing omega-6 (corn and safflower oil)
- Estimation of the aggregated results shows that patients who received the treatment experience greater improvements than those who received placebo

Limitations

- High statistical heterogeneity of the studies
- Variations among dose and composition of treatment and placebo

Conclusions

Oral supplements of omega-3 fatty acids can contribute to reduce signs and symptoms of dry eye syndrome and may be an effective therapy in clinical practice.
It is recommended for future to use a placebo as neutral as possible.

Acknowledgments

Special thanks to IRSOO for the provided opportunity and to Fossetti A. for assistance.