

β -(1→3,1→6)-D-GLUCANS IN DISEASE PREVENTION AND HEALTH PROMOTION – A SYSTEMATIC REVIEW OF RANDOMIZED CONTROLLED TRIALS

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INTRODUCTION

- β -Glucans are categorized as dietary fibers due to their ability to reach the large intestine undigested and undergo fermentation by gut microbiota
- This heterogeneous group of polysaccharides exhibits a wide range of biological properties, as a result of their varying morphology
- β -(1→3,1→6)-D-glucans is a form of β -glucans that is naturally found in the cell walls of yeast and higher fungi

Purpose of review: To assess the impact of consumption of β -(1→3,1→6)-D-glucans on health outcomes

MATERIALS & METHODS

Databases reviewed: PubMed, Cochrane Library, Web of Science

Inclusion criteria:

- ✓ Clinical trials with healthy individuals and/or patients
- ✓ Use of β -(1→3,1→6)-D-glucans (no other form of β -glucan)
- ✓ Full-text publication in English

Exclusion criteria:

- ✗ Lack of control group or randomization
- ✗ Non-oral administration

RESULTS

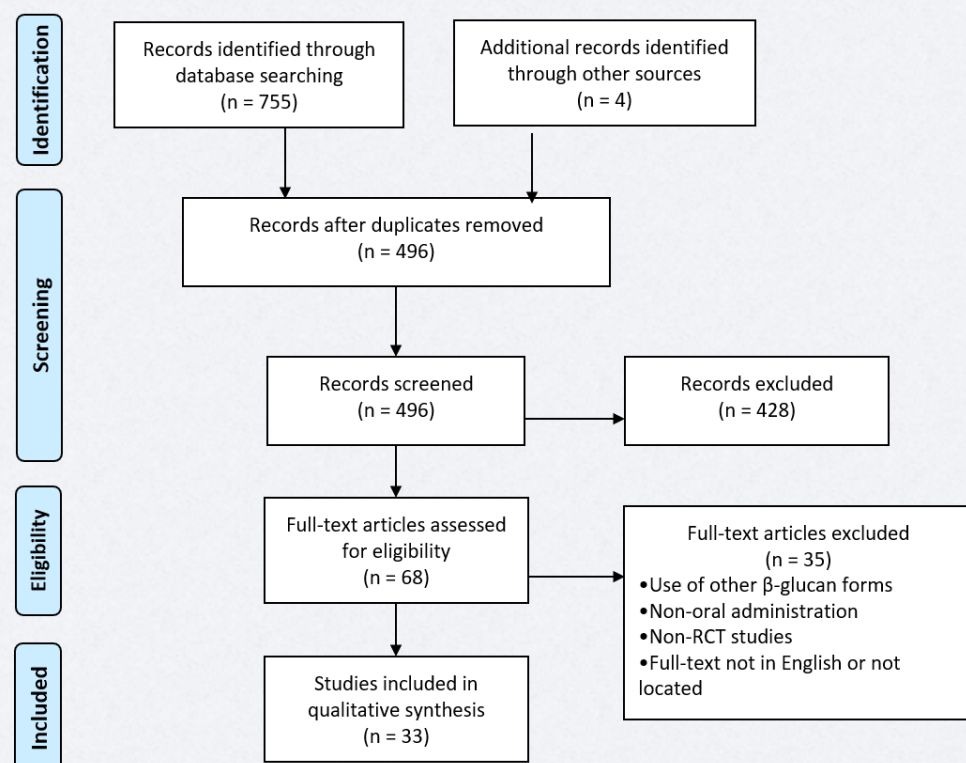


Figure 1: Flow diagram (The PRISMA Group, 2009)

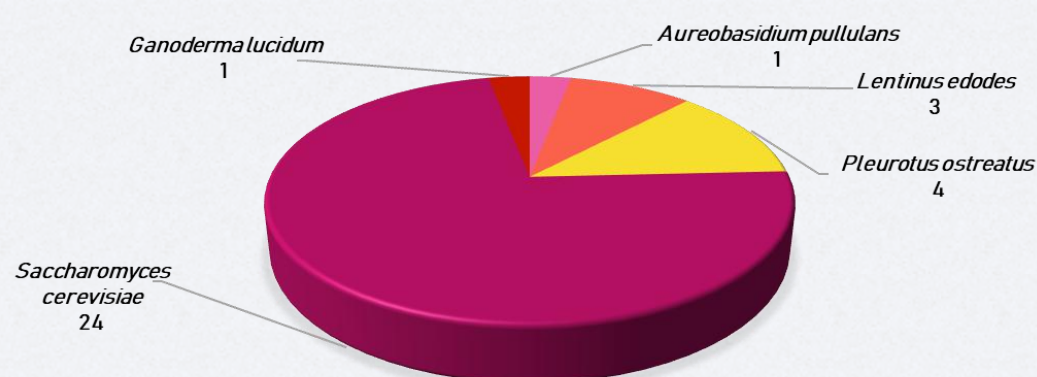


Figure 2: β -Glucan source. Most of the trials used yeast-derived β -glucan. The daily dosage varied across studies from 2.5 mg to 1 g and was administered for 1 to 26 weeks.

Immunomodulation



- Strengthened immune defence
=> reduction of incidence and symptoms of cold, flu and upper respiratory tract infections
- Alleviation of allergic symptoms

Overweight adults



- ↓ Body fat mass
- ↓ Abdominal circumference

Cancer patients



- (Co-administration with chemotherapeutic drugs)
- Quality Of Life score enhancement
 - Prolonged survival

Mental health



- Improvement of mood state
- Amelioration of overall wellbeing

CONCLUSIONS

Supplementation with β -(1→3,1→6)-D-glucans is well-tolerated and their health-promoting properties are manifested primarily through the potentiation of the immune system.

PERSPECTIVES

Further investigation is required in order to unravel the molecular mechanisms of the aforementioned effects, as well as to establish the optimal administration parameters and source of extraction.

REFERENCES

Auinger 2013; Bergendiova et al., 2011; Bobovčák et al., 2010; Carpenter et al., 2013; Dharsono et al., 2018; Feldman et al., 2009; Fuller et al., 2012; Fuller et al., 2017; Gaullier et al., 2011; Graubau et al., 2012; Henao et al., 2018; Jesenak 2013; Jesenak 2014; Jippo et al., 2015; Jung et al., 2014; Kirmaz et al., 2005; Leentjens 2014; McFarlin et al., 2013; Meng et al., 2016; Mosikanon et al., 2017; Nakano et al., 1999; Ostadrahimi et al., 2014a; Ostadrahimi et al., 2014b; Richter et al., 2015; Santas et al., 2017; Strączkowski et al., 2018; Talbott & Talbott, 2009; Talbott & Talbott, 2010; Talbott & Talbott, 2012; Talbott et al., 2013; Vaclav et al., 2013; Yamada et al., 2007; Yenidogan et al., 2014

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