

OligenTM

METABOLIC SYNDROME

BACKGROUND:

Metabolic syndrome (MetS) refers to the presence of a cluster of risk factors for cardiovascular disease (CVD), nonalcoholic fatty liver disease (NAFLD), and diabetes (1). According to the National Heart, Lung, and Blood Institute (NHLBI), the group of dysregulated metabolic factors involved includes at least three of the following: abdominal obesity, high blood pressure, high fasting glucose levels, high triglyceride levels and low HDL (2). MetS is often accompanied by systemic inflammation and oxidative stress. The frequency of MetS is significantly higher amongst overweight and obese people, although it does occur in people of normal weight (3). Therapeutic and dietary interventions are urgently needed moving forward to lower the risk of MetS. The health beneficial properties of extra virgin olive oil (EVOO) are largely attributed to phenolic compounds, including hydroxytyrosol and tyrosol, as well as secoiridoids such as oleocanthal (OC), oleacein (OLC), oleuropein and others (4). OC and OLC, extracted from EVOO and formulated to high concentrations in Oligen, are potent antioxidants and anti-inflammatory agents, and are likely to exhibit beneficial properties regarding MetS.

TAKE HOME MESSAGE:

MetS and associated pathologies are major worldwide healthcare problems. In the US, obesity and MetS are thought to occur in 65% and 30% of the population, respectively. Comparable numbers are observed world-wide, and the numbers are increasing at an alarming rate (5). As outlined in the following sections, preclinical and clinical studies support consumption of phenolic-rich Oligen as part of the Mediterranean diet to reduce the impact of MetS (6-10) and reduce the risk of developing CVD and diabetes.

SUPPORTIVE CLINICAL DATA:

- Ingestion of EVOO, high in OC and OLC concentration, had beneficial effects on metabolic parameters, inflammatory cytokines, and abdominal fat distribution in subjects with nonalcoholic hepatic steatosis (NASH, associated with NAFLD) (6).
- Consumption of high OC/OLC EVOO reduced the prevalence of NASH in older subjects at risk for CVD (7).
- A clinical trial (<https://clinicaltrials.gov/ct2/show/NCT05282316>) examining the therapeutic benefits of high OC EVOO has been opened and findings should be available in 2023.

SUPPORTIVE PRECLINICAL DATA:

- Liver fibrosis is a pathologic state driving NASH and OC has been demonstrated in mice to reduce this abnormality (8).
- OLC fed to mice consuming a high fat diet largely prevented abdominal fat accumulation, weight gain, and liver steatosis. In addition, OLC improved insulin sensitivity and lipid metabolism (9). An additional study demonstrated that OLC inhibited adipocyte differentiation and prevented lipid accumulation (10).
- A recent review concluded that phenolic rich EVOO prevented or resolved NASH induced liver damage by stimulating the antioxidant response, preventing the cellular inflammation response, and preventing the lipogenic response (11).

CONCLUSIONS:

Oligen, extracted from EVOO (a major staple of the Mediterranean diet), is enriched with OC and OLC and is now available in a stable powder form with no calories as a new dietary ingredient in a powder form.

REFERENCES:

1. <https://www.mayoclinic.org/diseases-conditions/metabolic-syndrome/symptoms-causes/syc-20351916>
2. <https://www.nhlbi.nih.gov/health/metabolic-syndrome>
3. <https://pubmed.ncbi.nlm.nih.gov/28585193/>
4. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7923275/>
5. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5866840/>
6. <https://pubmed.ncbi.nlm.nih.gov/31334554>
7. <https://pubmed.ncbi.nlm.nih.gov/34671630/>
8. <https://pubmed.ncbi.nlm.nih.gov/29615982/>
9. <https://pubmed.ncbi.nlm.nih.gov/21945192/>
10. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6723526/>
11. <https://pubmed.ncbi.nlm.nih.gov/29141573/>

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.