

## Resources-Doctor-DE-Smith Study

<b>Study Title:</b> Penetration of rTG Omega-3 into the Meibomian Glands after Oral Administration
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<b>Journal:</b> Abstract investigational study, March 2011 (Presented at Cornea Society Education Conference 2011)
<b>Sponsor:</b> None
<b>Study Objective:</b> To investigate the potential effect of the oral supplementation of rTG omega-3 fatty acids on lipid composition of meibum, Tear Breakup Time (TBUT), Tear Osmolarity and Corneal Staining in patients with symptoms of dry eye. <ul style="list-style-type: none"><li>• <b>Design and Participants:</b> Twenty patients with blepharitis were recruited from the clinic to participate in the study. Baseline studies were performed at the initial visit. These included:<ul style="list-style-type: none"><li>• completion of the ocular surface disease index (OSDI) to score subjective symptoms,</li><li>• slit lamp examination,</li><li>• tear breakup time,</li><li>• evaluation of corneal staining,</li><li>• tear osmolarity using the TearLab system,</li><li>• EPA and DHA red blood cell saturation using the omega 3 index by OmegaQuant,</li><li>• expression of meibum and meibum content analysis. This was performed by probing the meibomian glands with a Maskin probe by Rhein medical. The meibum was then placed on a slide and allowed to dry. It was then evaluated by Sherlock system by Microbial ID.</li></ul></li></ul> <p>The patients were then started on 4000 mg of rTG Omega 3 daily (Physician Recommended Nutraceuticals, Plymouth Meeting, PA) . four 1000 mg capsules contained 1680 mg of eicosapentaenoic acid, 560 mg of docosahexaenoic acid, and 1000 mg of Vitamin D3.</p> <p>The patients were reevaluated at 4 weeks with all the above testing except for the OmegaQuant and the meibum analysis. At 8 weeks all the testing was repeated with one variation. The Mastroda paddle was used to collect meibomian gland secretions.</p>
<b>Primary Outcome:</b> The administration of rTG Omega-3s (EPA/DHA) shows a positive clinical outcome in meibum composition in 4-8 weeks.
<b>Results:</b> <ul style="list-style-type: none"><li>• Patients EPA levels increased significantly in the RBCs from baseline and 8 weeks,</li><li>• DHA increased in the RBCs from baseline and 8 weeks,</li><li>• Arachidonic acid (Omega-6) a direct precursor to pro-inflammatory eicosanoid derivatives, decreased significantly from baseline and 8 weeks.</li><li>• The overall Omega-3 index increased significantly in the RBCs from baseline to 8 weeks.</li></ul>

**Conclusions:**

Dry Eye Omega Benefits changes the composition of the oil in the meibum, which contributes to the lipid layer of the tear.