

Are all fish oil supplements safe during pregnancy?

To the Editor: Few consumers are aware of the ethyl ester (EE) content of South African (SA) omega-3 fatty acid supplements.

We wish to draw the attention of *SAMJ* readers to the findings of a recent survey on the omega-3 fatty acid content of fish oil supplements available on the SA market. This survey revealed that 20 of the 63 supplements analysed (31.7%) contained omega-3 fatty acids in EE form, or a combination of EEs and triglycerides (TGs).^[1] In pure fish oils the omega-3 fatty acids are almost exclusively in the form of TGs. EEs are esterified products of fatty acids and ethanol. During the esterification process the glycerol backbone of TGs is removed by substituting it with ethanol. Omega-3 EEs are then separated from other EEs by molecular distillation. This process enables selective concentration of eicosapentaenoic acid and docosahexaenoic acid,

in excess of levels in natural fish oil. These preparations are typically marketed as fish oil concentrates.

Pregnant women are advised not to use EEs, since their safety during pregnancy has not been established.^[2] Importantly, none of the labels of the supplements surveyed declared the presence of EEs, and none of the labels warned against using EEs during pregnancy and lactation – there was even one supplement containing EEs that was specifically recommended during pregnancy. During digestion, EEs are converted back to TGs and ethanol is released. Even though the quantity of ethanol released after taking a typical dose of fish oil for supplementation is small, at-risk groups such as pregnant and lactating women, as well as young children, should avoid using omega-3 fatty acid supplements that contain EEs.

In some countries (although not in SA), fatty acid EEs are used as prescription medications to reduce very high blood TG levels (≥ 5.65 mmol/l). However, these preparations provide pharmacological amounts of omega-3 fatty acid EEs and are used under strict supervision by a physician. It is unfortunate that the same procedures are not applied to ensure the safety of omega-3 fatty acid supplements.

We suggest that all manufacturers should indicate on the labels the forms in which omega-3 fatty acids are present in the fish oil/omega-3 supplements they produce, and that the labels should also warn pregnant women about the use of supplements containing EEs. Doctors should familiarise themselves with the contents of the various fish oil supplements.

This information can be accessed on the website of the Cancer Association of South Africa.^[3]

**Maretha Opperman
Spinnler Benade**

*Functional Foods Research Unit, Faculty of Applied Science, Cape Peninsula
University of Technology, Cape Town, South Africa
oppermann@cput.ac.za*

1. Opperman M, Benade AJS. Analysis of the omega-3 fatty acid content of South African fish oil supplements – a follow-up study. *Cardiovasc J Afr* 2013;24(8):323-328. [<http://dx.doi.org/10.5830/CVJA-2013-074>]
2. Bays H. Clinical overview of Omacor: A concentrated formulation of omega-3 polyunsaturated fatty acids. *Am J Cardiol* 2006;98(Suppl. 1):71-76. [<http://dx.doi.org/10.1016/j.amjcard.2005.12.029>]
3. Cancer Association of South Africa. <http://www.cansa.org.za/files/2013/02/Fish-oil-Analyses-26-2-2013.pdf> (accessed 5 May 2014).

S Afr Med J 2014;104(6):389-390. DOI:10.7196/SAMJ.8242