

# Omega-3 status test for prematurity risk

## SA Maternal Serum Antenatal Screening (SAMSAS) Program



Information for **health professionals**



**SAHMRI**  
South Australian Health &  
Medical Research Institute

# SA Pathology, through the SA Maternal Serum Antenatal Screening (SAMSAS) program, and the South Australian Health and Medical Research Institute (SAHMRI) are evaluating serum omega-3 testing for women with singleton pregnancies in South Australia from 2021.

## Why do omega-3 status testing?

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Women with a singleton pregnancy and low omega-3 status (concentration) in their blood are at higher risk of early preterm birth and most likely to benefit from omega-3 supplementation. Screening before 20 weeks' gestation will identify women who require omega-3 supplementation.

The latest National Health and Medical Research Council and Department of Health National Pregnancy Care guidelines recommend assessing omega-3 fatty acid status and supplementing pregnant women with low omega-3 intakes.

## There is high quality evidence for omega-3 status testing

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- A Cochrane systematic review of 70 randomised controlled trials of almost 20,000 women with mainly singleton pregnancies indicated that omega-3 supplementation from early-mid pregnancy until

birth reduces the risk of early preterm birth by 42% (from 46 per 1000 to 27 per 1000 births) and preterm birth by 11% (from 134 per 1000 to 119 per 1000 births)<sup>1</sup>.

- As the Cochrane review included many studies that were conducted before prenatal supplements with low dose omega-3 were commonly taken by women, a large randomised trial, with 5540 women, was undertaken to test if a universal supplementation strategy would be successful with contemporary practice. Overall this trial showed that supplementation of all women would not be effective<sup>2</sup>, but secondary analyses revealed that reductions in early preterm birth are best achieved by a targeted approach to omega-3 supplementation based on omega-3 status before 20 weeks<sup>3</sup>. Women with low omega-3 status are at higher risk of early birth and more likely to benefit from supplementation<sup>2,3</sup>.

1 Middleton P, Gomersall JC, Gould JF, Shepherd E, Olsen SF, Makrides M. Omega-3 fatty acid addition during pregnancy. *Cochrane Database Syst Rev.* 2018;11:CD003402.

2 Makrides M, Best K, Yelland L, McPhee A, Zhou SJ, Quinlan J, et al. A randomized trial of prenatal omega-3 fatty acid supplementation and preterm delivery (ORIP trial). *New England Journal of Medicine.* 2019;381:1035-45. <https://doi.org/10.1056/nejmoa1816832>

3 Simmonds LA, Sullivan TR, Skubisz M, Middleton PF, Best KP, Yelland LN, et al. Omega-3 fatty acid supplementation in pregnancy – baseline omega-3 status and early preterm birth: exploratory analysis of a randomised controlled trial (ORIP). *BJOG.* 2020;27(8):975-981. <https://doi.org/10.1111/1471-0528.16168>.

4 Percentage of total omega-3 fatty acid status in serum

## Omega-3 status test results: how to advise women

Omega-3 test result <sup>3,4</sup>	Recommendation
Less than 3.7%	<p>For a low status, <b>take omega-3 fatty acid supplements</b> after receiving the omega-3 results until 37 weeks to reduce the risk of early preterm birth.</p> <p>Suggested dose: 800 mg DHA and 100 mg EPA per day</p> <p>Typical suitable supplements include Infantem* (Pharmamark) and Omega Brain (Blackmores)</p>
Between 3.7 and 4.3%	<p>For a moderate omega-3 status, <b>no action required.</b></p> <p>If already taking omega-3 fatty acids as part of a multivitamin and mineral supplement or a standalone supplement, this may continue.</p>
Above 4.3%	<p>For a sufficient status, <b>stop any omega-3 fatty acid supplements.</b></p> <p>Risk of early preterm birth is low and additional omega-3 supplementation may increase this risk.</p>

\*Algal oil supplement of DHA and EPA.

### Contraindications to omega-3 fatty acid supplements

- Omega-3 fatty acid supplements should be avoided for women requiring heparin because of possible additive anti-coagulant effects.
- Low dose aspirin can be taken with omega-3 fatty acid supplements. Recent randomised trials of omega-3 fatty acid interventions have included women on low dose aspirin without increase in adverse events.

## Omega-3 blood sample and cost

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No additional blood sample is required as omega-3 analysis will be performed on serum collected as a part of the established SAMSAS program. The omega-3 fatty acid analyses will be performed at no cost to the patient or health service.

## How to order the Omega-3 status test

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- 1 Discuss the omega-3 status test and refer woman to the *Information for Families* sheet.
- 2 Order using the updated SAMSAS request form.
- 3 Tick the omega-3 status test on the SAMSAS request form.
- 4 Refer woman to the Privacy Disclosure on the SAMSAS request form.
- 5 The omega-3 status test results will be reported to the requesting provider as a standalone report and will be available on OACIS.

## Evaluation of Omega-3 status testing program

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This SA Pathology SAHMRI collaboration will assess the feasibility and reach of identifying women with low omega-3 status, providing appropriate advice and ultimately assessing success in reducing the rates of early preterm birth. This will be done by deidentified linkage of the omega-3 status test results with relevant pregnancy outcome data. Women who do not want their data linked will need to contact (08) 8128 4444 or email [omega3@sahmri.com](mailto:omega3@sahmri.com).

The evaluation has been approved by the Women's and Children's Health Network Human Research Ethics Committee (HREC/20/WCHN/138). Should you wish to discuss the study with someone not directly involved, you may contact the executive secretary of the Human Research Ethics Committee, Mr Luke Fraser, WCHN (08) 8161 6521.

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## Further Information

For further information regarding omega-3 status testing or results interpretation:

 Visit [sahmri.org/omega3](https://sahmri.org/omega3)

 Call the omega-3 status test hotline  
**0438 273 155**

For request forms:

 Call the SAMSAS Program  
**(08) 8161 7285**