Omega-3 Testing in Pregnancy

Fact sheet for health professionals

Clinical summary

- Omega-3 status testing identifies pregnant women with low omega 3 levels, who are at increased risk of early preterm birth (<34 weeks' gestation).
- Targeted supplementation, commenced before 20 weeks' gestation in women with low omega-3 status, can reduce the risk of early preterm birth.

Why test omega-3 status in pregnancy?

- Omega-3 fats are nutrients commonly found in fish and algae.
- Many women do not get enough omega-3 from diet alone.
- A blood test is required to accurately determine omega-3 levels and inform supplementation advice.

Evidence informing this recommendation

- A Cochrane systematic review of 70 randomised controlled trials involving around 20,000 women found that omega 3 supplementation from early-mid pregnancy reduced the risk of:
  - Early preterm birth (<34 weeks gestation) by 42%, and
  - Preterm birth (<37 weeks gestation) by 11%.[1]
- Contemporary large, randomised trials suggest the greatest reduction in early preterm birth is achieved by targeting women with low omega 3 status, who are most likely to benefit.[2-4]
- In the worlds largest clinical trial conducted in Australia, omega-3 supplementation in women with low early pregnancy omega-3 levels reduced the risk of early preterm birth by 77%.[4]

How to order the omega-3 status test

In South Australia, omega-3 status testing is provided by SA Pathology (serum fatty acid analysis).

The test can be ordered with first or second trimester SA Maternal Serum Antenatal Screening (SAMSAS) Program testing, or as a standalone test before 20 weeks' gestation.

Request form	Action
Any standard pathology request form	Write *'omega-3 status test (SA Pathology)'* and include gestational age.
SAMSAS request form	Tick the '*omega-3' box*
SA Health EMR	Select '*omega-3*' from Maternal Antenatal Investigations order set.

Interpreting results and advising women

**Results are reported as a % of total fatty acids in serum*

Low omega-3

BELOW **3.7%**

Advise high-dose omega-3 supplementation until 37 weeks' gestation to reduce the risk of early preterm birth.

- Suggested dose:
  - Around 1000mg/day DHA+EPA combined (with at least 600mg DHA) **OR**
  - Around 1000mg/day of DHA alone
- Vegan supplements are available.

A list of suitable supplements is available at **sahmri.au/omega3**

Moderate omega-3

3.7% TO **4.3%**

No action required

- If already taking omega-3 as part of a multivitamin and mineral supplement or as a standalone supplement, this may continue.

Sufficient omega-3

ABOVE **4.3%**

Do not recommend high dose omega-3 supplementation.

- In women with sufficient levels, high-dose supplementation has not shown benefit and may be associated with an increased risk of early preterm birth.

Clinical considerations and contraindications to supplementation

- Omega-3 supplements should be avoided in women requiring Clexane, due to potential additive anticoagulant effects.
- Low-dose aspirin may be used with omega-3 supplements; trials have not shown increased adverse events.
- Evidence for benefit in multiple pregnancies is limited; clinical judgement should be applied.

More information

Government of South Australia SA Health | SA PATHOLOGY | SAHMRI South Australian Health & Medical Research Institute

SA Health
Preterm and Early Term Birth
sahealth.sa.gov.au/pretermbirth

SA Pathology
Pregnancy and Newborn Screening
sapathology.sa.gov.au/patients/women-and-children-health/newborn-screening-program
1800 188 077

SAHMRI
Omega-3 Test-and-Treat Program
sahmri.au/omega3
08 8222 3000

References

[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. https://doi.org/10.1002/14651858.CD003402.pub3*

[2] *Makrides M, Best K, Yelland L, McPhee A, Zhou SJ, Quinlivan 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] *Carlson SE, Gajewski BJ, Valentine CJ, Kerling EH, et al. Higher dose docosahexaenoic acid supplementation during pregnancy and early preterm birth: A randomised, double-blind, adaptive-design superiority trial. EClinicalMedicine. 2021;36:100905. https://doi.org/10.1016/j.eclinm.2021.100905*

[4] *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*

The Omega-3 Test and Treat Program is delivered by SA Pathology in partnership with SAHMRI