

Health Fact Sheets

Omega-3 fatty acid levels of adults, 2012 and 2013



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- . not available for any reference period
- .. not available for a specific reference period
- ... not applicable
- 0 true zero or a value rounded to zero
- 0^s value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
- ^P preliminary
- ^r revised
- X suppressed to meet the confidentiality requirements of the *Statistics Act*
- ^E use with caution
- F too unreliable to be published
- * significantly different from reference category ($p < 0.05$)

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Omega-3 fatty acid levels of adults, 2012 and 2013

There are three major omega-3 fatty acids, also known as n-3 polyunsaturated fatty acids (n-3 PUFAs). These are eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA) and alpha-linolenic acid (ALA). The most widely available dietary source of EPA and DHA is fatty fish which includes salmon, herring, mackerel and sardines. ALA, on the other hand, is found in plant-based foods such as green leafy vegetables, nuts, flaxseeds and vegetable oils. When consumed, the body converts ALA to EPA and DHA. Increased consumption of omega-3-containing foods, fish in particular, has been shown to reduce the risk of cardiovascular disease.¹



The Omega-3 Index is the sum of EPA and DHA in red blood cell fatty acids. This index is considered to be a good indicator of the potential risk for coronary heart disease mortality since the blood concentration of these two omega-3 fatty acids is a strong reflection of dietary intake.² Omega-3 Index risk zones are (in percentages by weight of total red blood cell fatty acids):

- high risk (of coronary heart disease); less than 4% of total red blood cell fatty acids;
- intermediate risk; 4% to 8%;
- low risk; greater than 8%.^{3, 4, 5}

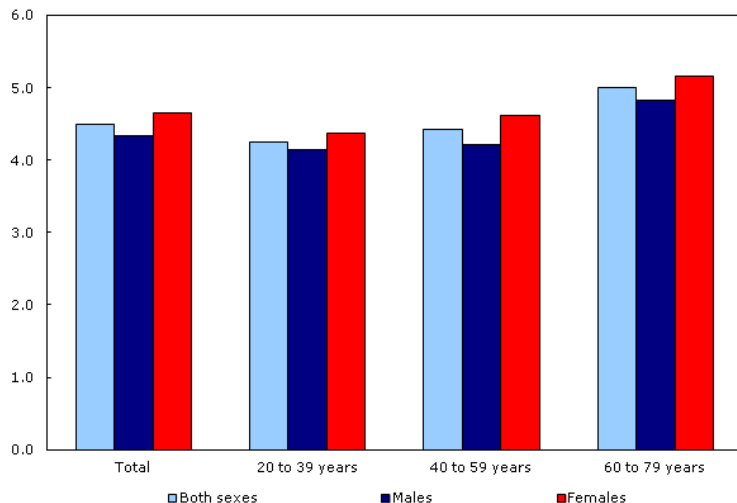
The Canadian Health Measures Survey (CHMS) measured red blood cell fatty acid levels, including omega-3 fatty acids and the Omega-3 Index. The levels are reported as a percentage by weight of total fatty acids.

Omega-3 Index by sex and age group

Results on Omega-3 Index levels (data not shown) from the 2012 and 2013 CHMS indicate that 2.6% of the population were considered at low risk for coronary heart disease, while 54.6% were at intermediate risk and 42.7% were at high risk. The average Omega-3 Index for Canadian adults was 4.5% (Chart 1). The average Omega-3 Index for males was 4.3%, which was significantly lower than females at 4.7% (Chart 1). The oldest age group, 60-to-79-year olds, had a significantly higher Omega-3 Index (5.0%), compared with 20-to-39-year olds (4.3%) and 40-to-59-year olds (4.4%) (Chart 1).

Chart 1
Omega-3 Index of adults aged 20 to 79, by sex and age group, household population, Canada, 2012 and 2013

percentage by weight of total fatty acids



Source: Canadian Health Measures Survey, 2012 and 2013.

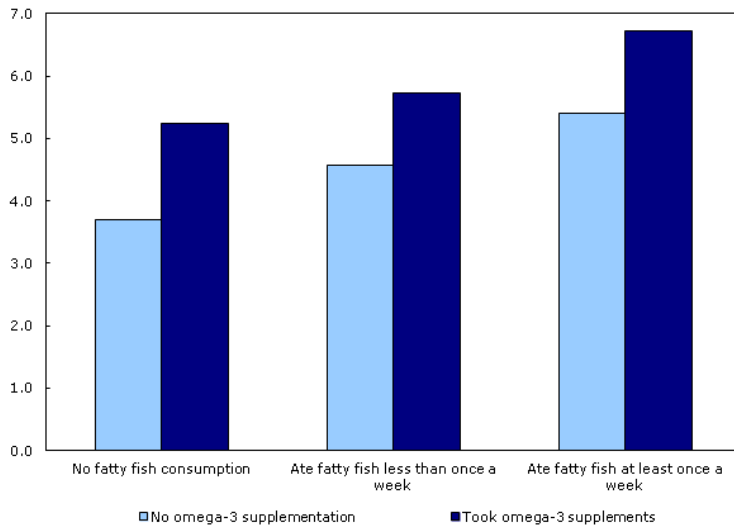
Omega-3 Index by fish consumption and omega-3 supplementation

Among 20-to-79 year old Canadians, 54.7% reported consuming fatty fish⁶ within the last month (data not shown). These Canadians had a significantly higher Omega-3 Index at 5.0%, compared with those who reported that they had not consumed any fatty fish, 3.8% (data not shown).

Significant differences were found between the Omega-3 Index of people who took omega-3 supplements and those who did not, regardless of how often they ate fatty fish (Chart 2). Canadians who consumed fatty fish more than once a week and took omega-3 supplements had the highest Omega-3 Index, 6.7% (Chart 2).

Chart 2
Omega-3 Index of adults aged 20 to 79, by fatty fish consumption and omega-3 supplementation, household population, Canada, 2012 and 2013

percentage by weight of total fatty acids



Source: Canadian Health Measures Survey, 2012 and 2013.

About the omega-3 fatty acids

Omega-3 fatty acids are an integral part of cell membranes throughout the body. The way in which high levels of omega-3 fatty acids protect against cardiovascular disease is not clear, but it has been suggested that they help reduce the formation of plaque within the arteries, reduce inflammation and cause a mild hypotensive response (lower blood pressure).³

The omega-3 fatty acids were measured in red blood cells and the means are expressed as a percentage by weight of total fatty acids. Respondents were asked about their fish consumption, including type of fish and the frequency of consumption. Medication and supplement use was also collected.

Data

Additional Canadian Health Measures Survey information is available at www.statcan.gc.ca/chms.

For more information on the Canadian Health Measures Survey, please contact Statistics Canada's Statistical Information Service (toll-free 1-800-263-1136; 514-283-8300; infostats@statcan.gc.ca).

Notes

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- ¹ de Oliveira Otto, M.C., Wu, J.H.Y., Baylin, A., Vaidya, D., Rich, S.S., Tsai, M.Y., Jacobs, D.R., and D. Mozaffarian. 2013. "[Circulation and Dietary Omega-3 and Omega-6 Polyunsaturated Fatty Acids and Incidence of CVD in the Multi-Ethnic Study of Atherosclerosis](#)." *The Journal of the American Heart Association*; 2(6):e000506. doi: 10.1161/JAHA.113.000506. (accessed October 22, 2015).
 - ² W.S. Harris. 2008. "The Omega-3 Index as a risk factor for coronary heart disease." *The American Journal of Clinical Nutrition*; 87(suppl):1997S–2002S.
 - ³ Kris-Etherton, P.M., Harris, W.S., and L.J. Appel. 2002. "Fish consumption, fish oil, omega-3 fatty acids, and cardiovascular disease." *Circulation*; 106: 2747-2757
 - ⁴ Harris, W.S., and C. von Schacky. 2004. "The Omega-3 Index: a new risk factor for death from coronary heart disease?" *Preventative Medicine*; 39:1, 212-220.
 - ⁵ Langlois, K., W.M.N. Ratnayake. 2015. "Omega-3 Index of Canadian adults." *Health Reports*. Vol. 26, no. 11.
 - ⁶ Fatty fish includes salmon (fresh, frozen, smoked and canned), herring, mackerel, white tuna and sardines. ³, ⁵
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