

OMEGA-7: WHAT'S OLD IS NEW AGAIN®



INTRODUCTION

As long as we've been eating fish, we've been consuming omega-7 fat. That's because in addition to EPA and DHA omega-3s, fish and fish oil also contain omega-7 fat. In fish that contain EPA and DHA omega-3s, such as salmon and pollock, the amount of omega-7 is about equal to the amount of DHA. Omega-7 is an unsaturated fat with its own unique story.

UNTIL THIS CENTURY, VERY LITTLE WAS KNOWN ABOUT OMEGA-7, BUT IT'S BEEN ON OUR PLATES AND IN TRADITIONAL FISH OILS SINCE WE BEGAN EATING FOODS FROM THE SEA.

WHAT IS OMEGA-7?

Omega-7, also known as palmitoleic acid (POA), is a monounsaturated fatty acid that circulates in the blood, is stored in the body, and is a component of skin and cell membranes. People are more familiar with omega-9, the monounsaturated fat found in olive oil, meats, and vegetable oils. Omega-7 and omega-9 have similar chemistry but different functions in human health.

Small amounts of omega-7 occur in vegetable oils and animal fats, but the best sources in our diet are fish and macadamia nuts. It is also found in the oil of sea buckthorn berries, a shrub native to Europe and Asia. In fact, sea buckthorn has a long history of use in traditional Chinese,

Indian, and Tibetan societies, used both internally and topically to restore healthy skin, regenerate and hydrate tissue, balance inflammatory pathways, and support heart and intestinal health.^{1,2,3} Of course, fish has also been a staple in the diet of many traditional cultures.

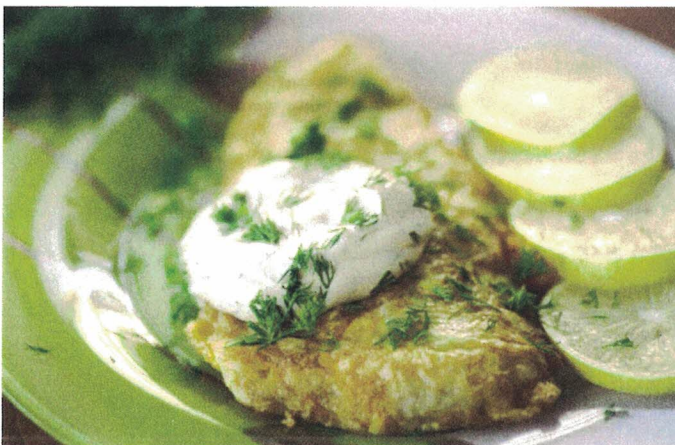
WHAT THE RESEARCH IS SHOWING

Until recently, much of what we knew about omega-7 fat came from holistic practice, but in the last 20 years, hundreds of research papers have been published on omega-7.^{4,5,6}

Omega-7 appears to support eye health. Research with plant-based omega-7 suggests healthier tear production and maintenance and greater eye comfort.^{7,8,9,10}

Preliminary research in middle-aged women suggests that consuming omega-7 from fish increases skin hydration and acts as a tissue lubricant.¹¹ Post-menopausal women consistently report benefits in sexual health from taking omega-7.

Animal studies have reported a decrease in appetite (increased satiety) when the animals were fed omega-7 from fish.^{12,13,14}



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Omega-7 has been shown to improve heart health.^{15,16,17,18,19} A randomized, placebo-controlled trial reported improvements in LDL-cholesterol, triglyceride levels, and inflammatory markers in men and women when they consumed 220 mg of omega-7 per day from fish.¹⁶ Improvements in blood sugar management have also been reported.^{12,20,21,22}

MORE INFORMATION IS ON THE WAY

Researchers around the world are investigating how omega-7 from fish may help improve glucose and insulin function, support healthy body weight, improve immune² response, reduce and/or balance hormone production and inflammatory pathways, and promote smooth, glowing skin.^{15,23,24,25}



Q: What makes palmitoleic [pronounced palm-it-O-lay-ic] acid an omega-7 fat?

A: Chemistry. In Omega-7, the double bond is at the 7th carbon from the omega end of the fatty acid chain. This is also how Omega-3s are named. In Omega-3s, the first double bond is at the 3rd carbon from the omega end.

GETTING THE NUMBERS STRAIGHT

	FOOD SOURCES	INTAKE
Omega-3 EPA and DHA	Some food sources: fish, seafood, and fish oils	Most of us don't get enough
Omega-6	Many food sources: vegetable oils, soy, meat, dairy foods, processed foods	Most of us get more than enough
Omega-7	Few food sources: macadamia nuts, some fish, sea buckthorn berries	Most of us don't get much
Omega-9	Many food sources: olive oil, meats	The most prevalent fat in the American diet ²⁶

A NOTE ABOUT OMEGA-7 IN FISH OIL SUPPLEMENTS

Not all fish oil supplements contain omega-7. It's important to read the label. Traditional fish oils usually contain some naturally occurring omega-7 and the amount will appear on the label. However, fish oils that have been concentrated to provide more EPA and DHA per serving do not contain omega-7. Omega-7 from fish oil is becoming available as a supplement or blended with other nutrients.

REFERENCES

- Li TSC, Schroeder WR. *Hort Tech* 1996;6:370-380.
- Zeb A. *J Biol Sci* 2004;4:687-693.
- Guillev VB, Gul M, et al. *J Chromatogr Analyt Technol Biomed Life Sci* 2004;812:291-307.
- Souza C, Vannice G, et al. *Mol Nutr & Food Res* 2018;62:1-12.
- Pinnick KE, Neville MJ, et al. *Diab* 2012;61(6):1399-1403.
- Cao H, Gerhold K, et al. *Cell* 2008;134:933-944.
- Larmo PS, Järvinen, et al. *J Nutr* 2010;140:1462-1468.
- Järvinen RL, Larmo PS, et al. *Cornea* 2011;30:1013-1019.
- Nakamura S, Kimura Y, Mori D, et al. *Nutrients* 2017; 9:364.
- Acar N, Berdeaus O, Gregoire S, et al. *PLOS* 2012;7(4):e35102
- Proprietary information. AlaskOmega® 2016.
- Yang ZH, Takeo J, Katayama M. *Appetite* 2013;65:1-7.
- Duckett SK. *ISSFAL 13th Congress 2016*; 0723-000224.
- Duckett SK, Volpi-Lagrega G, Alende M, Long NM. *Diab Metab Syn Obes* 2014;7:553-563.
- Yang Z-H, Pryor M, et al. *Mol Nutr & Food Res* 2019;1900120.
- Bernstein AM, Roizen MF, et al. *J Clin Lipid* 2014;8:612-617.
- Griell AE, Cao Y, et al. *J Nutr April* 2008;138:761-767.
- Curb JD, Wergowske G, et al. *Arch Intern Med* 2000; 160:1154-1158.
- Hiraoka-Yamamoto J, Ikeda K, et al. *Clin Exp Pharmacol Physiol* 2004;31 Suppl 2:S37-S38.
- Stefan N, Kantartzis K, et al. *Diabetes Care* 2010;33:405-407.
- Yang Z-H, Miyahara H, Hatanaka A. *Lipids Health Dis* 2011;10:120-128.
- Fabbrini E, Magkos F, et al. *J Lipid Res. Apr* 2011; 52(4): 808-812.
- Frigolet ME, Gutierrez-Aguilar R. *Adv Nutr* 2017;8:173S-181S.
- Bolsoni-Lopes A, Festuccia WT, et al. *Am J Phys Endo Metab* 2013;305:E1093-1102.
- Nunes EA, Rafacho A. *Current D Targets* 2016;17:1-10.
- Vannice G, Rasmussen H. *J Am Diet Assoc* 2014;114:136-153

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