ZINZINO BALANCE TEST REPORT

Your id:	L22ZMNBL6
Date:	10.02.2020
Country:	Czech Republic
Sex:	Female
Age:	56
BalanceOil:	No
Other omega 3:	No
BalanceOil AquaX:	No
BalanceOil Vegan:	No

Indicators	Target	Your score
Your Protection (11 Fatty Acids Profile Value)	above 90 %	12.0
Omega-3 (EPA+DHA) Level	above 8 %	3.9
Omega-6 (AA)/Omega-3 (EPA) Balance	below 3:1	7.4:1
Arachidonic Acid (AA) Formation Efficiency	above 30 %	51.6
Cell Membrane Fluidity = Saturated fat/Omega-3 (EPA+DHA)	below 4:1	10.1:1
Mental Strength = Omega-6 (AA)/Omega-3 (EPA+DHA)	below 1:1	2.5:1

Panel of fatty acids measured

	Chemical nam	Type of fat	Target value %	Your value %	Deviation
Palmitic acid (PA) %	C16:0	Saturated	23.9	26.4	2.5
Stearic acid (SA) %	C18:0	Saturated	13.1	13.2	0.1
Oleic acid (OA) %	C18:1	omega-9	21.9	23.7	1.8
Linoleic acid (LA) %	C18:2	omega-6	20.1	19.2	-0.9
Alpha Linolenic acid (ALA) %	C18:3	omega-3	0.6	0.3	-0.3
Gamma linoleic acid (GLA) %	C18:3	omega-6	0.2	0.5	0.3
Dihomo Gamma linoleic acid (DHGLA) %	C20:3	omega-6	1.1	1.5	0.4
Arachidonic acid (AA) %	C20:4	omega-6	8.3	9.9	1.6
Eicosapentaenoic acid (EPA) %	C20:5	omega-3	4.1	1.3	-2.8
Docosapentaenoic acid (DPA) %	C22:5	omega-3	2.1	1.4	-0.7
Docosahexaenoic acid (DHA) %	C22:6	omega-3	4.8	2.6	-2.2

Distribution of fat groups

	Target value	Your value*	Deviation
Saturated fat, %	37.0	39.6	2.6
Monounsaturated fat, %	21.9	23.7	1.8
Polyunsaturated vegetable fat, %	30.3	31.5	1.2
Polyunsaturated fish fat, %	11.0	5.3	-5.7

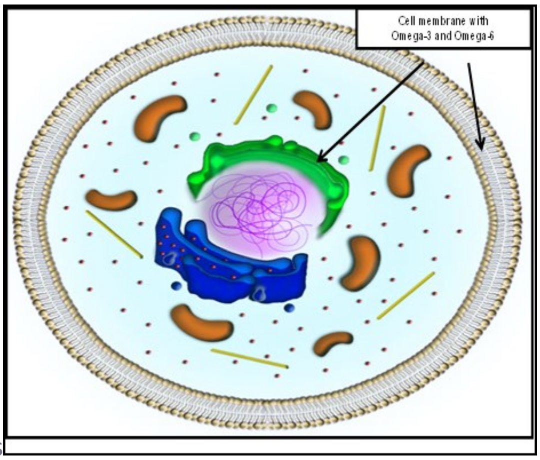
Dietary Indicators	Intake of Omega3 (EPA &DHA)	Intake of BalanceOil
Fatty Acid Profile Value	↑	Highly recommended
Omega-3 (EPA+DHA) Level	↑	Highly recommended
Omega-6 (AA)/Omega-3 (EPA) Balance	↑	Highly recommended
Arachidonic Acid (AA) Formation Efficiency	↓	Highly recommended
Cell Membrane Fluidity Index (Below 4:1)	↑	Highly recommended
Mental Strength Index	↑	Highly recommended

Fat type	Intake
Saturated fat, %	↓
Polyunsaturated vegetable fat, %	↓
Monounsaturated fat, %	↓
Polyunsaturated fish fat, %	↑

Human Evolution - Diet and Health

Rapid dietary changes over short period of time that have occurred over the past 100-150 years are a totally new phenomenon in the history of human evolution. This is especially true in regard to the intake of omega-6 and omega-3 essential fatty acids and antioxidants from vegetarian sources [3]. Ready meals and processed food have turned our calorie consumption towards vegetable oils, meat, sugar and starch, and away from complex carbohydrates and fibre and fresh vegetables [4, 5]. These unhealthy trends have been exacerbated by a 50 % decrease in physical activity. In brief, our diet during the last 100-150 years has turned from balanced and antiinflammatory to unbalanced and pro-inflammatory. Such dietary changes and reduction in physical activity have had a profound impact on our health.

Fatty acids carry out many functions that are necessary for normal physiological health. The contribution of fat to our energy supply is both qualitatively and quantitatively important. In addition to being mere storehouse of energy they are critical for cell membrane structure and function and for local“ hormonal” signaling. Imbalances in fatty acid level are known to affect the clinical course of several life-style related disorders, [6, 7, 8, 9, 10].

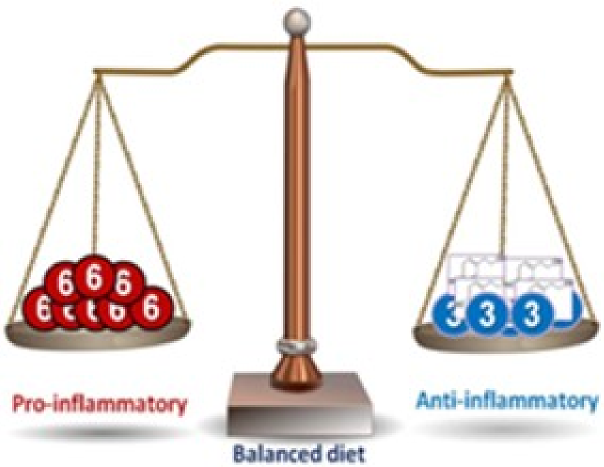


Omega-6 and Omega 3 Fatty Acids

The increased consumption of soya oil in the US has increased the intake of the essential omega-6 linoleic acid (LA) from an average of 0.01 kg/year in 1909 to the present level of 12 kg/year [11]. The dietary omega-6 linoleic acid (LA) gets converted to omega-6 arachidonic acid (AA) in the body, which is stored in our cell membranes. Bioactive components made from omega-6 arachidonic acid (AA) are responsible for both initiating acute inflammation and continuation of chronic inflammation in the body, which may lead to several life-style related health problems [6, 12].

Compared to the diet on which humans evolved, todays western diets are generally deficient in omega-3. The alternative to the marine essential omega-3 fatty acids EPA and DHA that the body need as building blocks, is the vegetarian omega-3 fatty acid alpha-linolenic acid (ALA). However, vegetable ALA is not sufficiently converted to EPA and DHA in the body to be able to act as a substitute to the marine omega-3 sources. Hence, they must be supplied by direct intake of EPA and DHA from marine sources. From isotope-labelled ALA, the range of conversion of ALA to EPA has been estimated to be up to 8 % in men and up to 21 % in women of reproductive stage [13, 14]. The overall efficiency of conversion from ALA is 0.2 % to EPA, 0.13 % to DPA and 0.05 % to DHA [15]. An ALA rich vegetarian diet is generally providing less than 4 % Omega-3 (EPA+DHA) level in the fatty acids profile in whole blood (BioActive Foods, in house results).

The key message is that a balanced omega-6 and omega-3 fatty acids ratio is an essential part of a balanced diet aimed to promote good health.



Polyunsaturated Essential Fatty Acids

Omega-3 and omega-6 are polyunsaturated fatty acids (PUFA), which means that the fatty acid have more than one double bond. In the omega-3 fatty acids the first bond is located between the third and fourth carbon from the methyl end (CH3) on the carbon chain. Omega-6 fatty acids have the first double bound between the sixth and the seventh carbon from the methyl end. In the human body saturated and unsaturated fats can be synthesized from carbon groups in carbohydrates and proteins, but we lack necessary enzymes to produce the essential polyunsaturated fatty acids such as omega-3 and omega-6. Essential fatty acids (EFA) are fatty acids that the body cannot produce itself and therefore must be provided through the diet. The most important of these fatty acids are linoleic acid (LA, C 18:2, omega-6) and α-linolenic acid (ALA, C 18:3, omega-3). From LA and ALA the body can synthesize, under optimal conditions, arachidonic acid (AA, C 20:4,n-6), gamma-linoleic acid (GLA, C18:3, omega-6), dihomogamma- linoleic acid (DGLA, C20:3, omega-6), eicosapentaenoic acid (EPA, C20:5, omega-3) and docosahexaenoic acid (DHA, C22:6, omega-3), as shown in the figure.

The synthesis is performed through a number of desaturation (addition of double bonds) and elongation (addition of two carbon atoms) steps. LA and ALA compete about the same desaturation and elongation enzymes in the synthesis of the long chained fatty acids AA, EPA and DHA, meaning that even though ALA is a preferred substrate in the process, a higher production of AA will occur due to our high dietary intake of omega-6 fatty acids compared to omega-3 fatty acids.

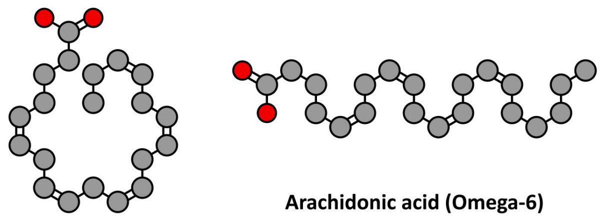
Prostaglandin Synthesis

Further on in the process, locally functioning hormones and signaling molecules (eicosanoids) will be produced from AA and EPA in a process called prostaglandin synthesis. The eicosanoids are formed after an enzyme, cyclooxygenase are released, and the prostaglandin synthesis are initiated by oxidation of the fatty acids AA and EPA. When these fatty acids are oxidized, the initial structure changes into the type of prostaglandin which is needed in the body at that certain time. COX1 is the enzyme responsible to maintain the body’s normal levels of prostaglandins, while COX2 are initiated when a tissue damage or infection occurs. The prostaglandin synthesis take place in almost all of the cells in the body. They belong to the group "eicosanoids" because they consist of 20 carbon atoms. The prostaglandins have from 1 to 5 double bonds, given by the number behind the PG E: PG E1 have one double bond, PG E2 have two, and so on.

PG E2 is produced from the omega-6 fatty acids AA, via LA, or directly from AA which we find for instance in grain fed animal meat. PG E2 is prothrombotic, meaning that it is responsible for stopping bleeding and for wound healing, but in the same time PG E2 can cause thrombosis, affects blood pressure and contraction of involuntary muscles. PG E2 is involved in all inflammatory and pain processes in the body, hence it is important that PG E2 is balanced by among other PG E3, to avoid chronic inflammatory situations in the body as a result of a high LA and AA intake.

PG E3 is produced from the omega-3 fatty acids EPA, via ALA, or directly from EPA through a diet rich in fatty fish. PG E3 has an anti-coagulation effect on the blood and anti-inflammatory function in the body [16]. Omega-6/omega-3 Fatty Acid Balance and the Prostaglandin Balance in the Body.

Omega-6/omega-3 Fatty Acid Balance and the Prostaglandin Balance in the Body



Arachidonic acid (Omega-6)

Eicosapentaenoic acid (Omega-3)

The production of some prostaglandins is strongly affected by our diet, but also by the body's hormone balance, health status, medication and so on. Many people have, due to a high intake of vegetable oils and meats, too much of the omega-6 fatty acid AA in their body, resulting in high PG E2 production. If the diet is not balanced with an adequate intake of the omega-3 fatty acids EPA and DHA, an unbalance between PG E2 and PG E3 can occur, resulting in the increased risk of having a chronic inflammatory status in the body. The prostaglandin synthesis may be balanced by a diet rich in omega-3 fatty acids, promoting the production of more of the health beneficial prostaglandin PG E3.

Oxidative Stress and Health

All cells produce free radicals and reactive oxygen that can turn polyunsaturated fatty acids such as omega-3 and omega-6 in cell membranes rancid. The body has therefore developed its own defence against rancidity. Oxidative stress is a condition that arises when there is an imbalance between the production of rancidity products (free radicals) in the body and the body’s defence against rancidity (antioxidants). This often occurs after prolonged physical activity and is exacerbated by a diet that is unbalanced and pro-inflammatory. The imbalances that create oxidative stress in the body can be corrected by changing diet. Good protection requires an intake of antioxidants containing foods such as 5 - 9 portions of fruit, green vegetables or extra virgin olive oil every day [17, 18]. However, most people’s intake of the recommended amount is less than half of what it should be. People who exercise regularly, and do not have a balanced diet, may have a level of oxidative stress that is too high. This suggests that active individuals with genetic susceptibility to disease are especially vulnerable if their daily diet is unbalanced and pro-inflammatory.

Commercially Available Oils

Before modern technology was introduced to food processing organically sourced and unprocessed oils for dietary consumption were the only options available. Nowadays most of the commercially available oils have been processed or refined. The refining process eliminates all flavours, odours and contaminating agents that might be harmful or spoil the smell, taste or look of the product. However, the process also removes natural antioxidants, vitamins and other minor components such as polyphenols that have beneficial anti-inflammatory properties. The removal of nutrients and important anti-inflammatory components is only partly compensated by the addition of antioxidants for stabilization purposes. The removal of these important nutritional components from the oil we consume enhances the pro-inflammatory profile of our present diet. A very recent example is olive oil. During the refining process of olive oil, the polyphenols are removed. In October 2011 the European Food Safety Authority (EFSA) approved a heart health claim for olive oil polyphenol: “Olive oil polyphenols contribute to the protection of blood lipids from oxidative stress”. Thus, removal of minor components during refining can affect the bioactivity of oils. A similar example is the removal of vitamin A and vitamin D during the refining of fish oil.

Zinzino Balance Products

To compensate the loss of important nutritional components during refining of fish oil, the unique Zinzino Balance products contains a combination of biologically active antioxidants from cold pressed olives (polyphenols), vitamin D and an adequate dose of marine omega-3 EPA and DHA from fish.

These components work together in a synergetic good way. Omega-3 EPA and DHA from fish that circulate in the blood are activated rapidly when inflammation occurs locally. They are converted into biologically active substances (resolvins and protectins) that ensure a balanced immune response. Polyphenols are also powerful antiinflammatory agents blocking inflammatory and tissue-damaging enzymes [19, 20]. Polyphenols such as those from olives (tyrosol, hydroxytyrosol and more) also possess antioxidant properties protecting the cells and the blood lipids from oxidative stress proportionally to intake [21, 22]. Vitamin D contributes to the normal function of the immune system.

How to change your diet - guide

Longer term dietary advice is based on the fact that main dietary sources have different Fatty Acids Groups Profile.

Fat groups with main sources in your diet

Saturated fat

- Fatty dairy products: milk, butter, cream cheese
- Meat
- Cakes and pastries
- Biscuits and crackers
- Sauces
- Fast food, hamburgers, pizza
- Surplus carbohydrates: sugar, starch, white bread, potatoes, rice and pasta

Monounsaturated fat (Omega-9)

- Olives and oliveoil
- Rapeseed oil
- Almonds
- Avocado
- Peanuts
- Brazil nuts
- Cashew nuts
- Hazelnuts
- Pistachio nuts

Polyunsaturated vegetable fat (Omega-6)

- Vegetable margarine, vegetable oils, mayonnaise, mayonnaise-covered salads
- Meat
- Sunflower oil
- Corn oil
- Soybean oil
- Grapeseed
- Sesame seeds

Polyunsaturated fish fat (Omega-3)

- Fatty fish: salmon, trout, herring, mackarel, tuna fish, sardines, wolf-fish, flounder
- Zinzino BalanceOil
  To restore and maintain the balance.

All diets, including a balanced diet, will show deviation from an average balanced diet. If your 'Fatty Acid Profile Value' is above 90 % you do not need to balance your diet. The advice given should not be followed to increase energy intake if your body mass index is above 25 (BMI = your weight in kg/(length in meter x length in meter)).

Special Arachidonic Acid Dietary Advice

Individuals with Arachidonic Acid (AA) Formation Efficiency below 30 % are advised to consume foods that contain omega-6 arachidonic acid (AA) like egg yolks, bone marrow and meats from grain-fed birds and animals on a daily basis.

Saturated fat (non-essential)

If you need to reduce intake of saturated fat to improve 'Fatty Acid Profile Value' and 'Cell Membrane Fluidity Index' you should avoid intake of products listed under the heading "Saturated fat" in Figure 1, or you may shift to low fat version of the same products. Note that excess sugar in your diet will be converted and stored as saturated fatty acids both in cell membranes and in adipose tissues. Thus, reducing your sugar and starch intake will also reduce the level of saturated fat in the body.

Increased consumption of pure meat combined with limited intake of cheese and other dairy products is advised, in case your saturated fat intake needs to be increased. In general, we do not recommend increased intake of any other product groups listed under the heading "Saturated fat".

Monounsaturated fat (non-essential)

If you need to reduce your intake of monounsaturated fat to improve 'Fatty Acid Profile Value' and 'Cell Membrane Fluidity Index', avoid intake of products listed under the heading "Monounsaturated fat (omega-9)" in Figure 1.

Monounsaturated fats are generally considered to be healthier than saturated fats, although the body is able to produce both fatty acids groups from various raw materials like proteins and carbohydrates. In the traditional low calorie Mediterranean diet the dietary ratio between monounsaturated- and saturated fatty acids groups is close to 2:1 In Zinzino Balance products the ratio between monounsaturated- and saturated fatty acids is 2:1, as in the

Mediterranean diet.

Polyunsaturated vegetable fat (essential)

If you need to reduce your intake of polyunsaturated vegetable fat to improve ‘Fatty Acid Profile Value’ and ‘Omega-6 (AA)/Omega-3 (EPA) Balance’, avoid intake of products listed in Figure 1 under the heading "Polyunsaturated vegetable fat (omega-6)", or you may shift to low fat version of the same products.

Try to avoid products that are formulated on high omega-6 vegetable oils such as sunflower oil, corn oil and soya oil. You can reduce intake of omega-6 just by shifting to products that are formulated on low omega-6 vegetable oil sources, such as olive oil and rapeseed oil. If your results indicate that the intake should be increased then you may increase intake of the same products.

Polyunsaturated fish fat (essential)

Todays western diets are generally deficient in omega-3 compared with the diet on which humans evolved, and which helped establish our genetic patterns. Thus, most people need to increase their dietary intake of polyunsaturated fish fat. Since the vegetable omega-3 (ALA) is not sufficiently converted to EPA and DHA in the body, the only food sources available to increase intake of polyunsaturated fish fat are the various fatty fish species, such as those listed under the heading "Polyunsaturated fish fat (omega-3)" in Figure 1.

Intake of "Polyunsaturated fish fat (omega-3)" improves the following Dietary indicators:

- Fatty acid profile value
- Omega-3 (EPA +DHA) level (%)
- Omega-6 (AA)/Omega-3 (EPA) Balance
- Saturated fat/Omega-3 (EPA+DHA) Balance ("Cell Membrane Fluidity Index")
- Omega-6 (AA)/Omega-3 (EPA+DHA) Balance ("Mood related Wellness Index")

Daily requirement of marine omega-3 EPA and DHA is dependent on body weight. Adult persons of 80 kg body weight need to consume approximately 3 grams of omega-3 (EPA + DHA) daily to get the Omega-3 (EPA+DHA) level above 8 %. The minimum of 4 % Omega-3 (EPA+DHA) level in the fatty acids profile requires at least 0.5 gram omega-3 (EPA+DHA) daily. Most omega-3 supplements in the market recommend daily dosages of marine omega-3 in the range of 150 mg to 1.5 gram. This is far too little to reach the dietary target of above 8 % Omega-3 (EPA+DHA) level, if such omega-3 supplements are not combined with daily intake of fatty fish. Daily intake of 0.15 ml/kg body weight of BalanceOil will provide you with the required amount of marine omega-3.

Sources of fatty acids in your diet

Your diet is reflected in the fatty acids profile of your blood. Your personal fatty acids profile is presented in your home test, and forms the basis for our suggestions on how you may change your diet. The fatty acids profile provides an overview of the 11 most important fatty acids in your blood (98 % of total fatty acids). To be able to change your diet efficiently, you need to know the fatty acids content of normal foods.

Almost all foods contain many different fatty acids, including saturated-, monounsaturated- and polyunsaturated omega-6 and omega-3 fatty acids. However, the amout of the various fatty acids varies from one food to another, making it possible to change the intake of fatty acids by changing foods.

The following is only a guideline providing examples of food sources for the 11 different fatty acids measured in our home test:

Palmitic acid, C16:0, saturated
Stearic acid, C18:0, saturated
Oleic acid, C18:1, Omega-9
Linolic acid, C18:2, Omega-6
Alpha-linoleic acid, C18:3, Omega-3
Gamma linoleic acid, C18:3, Omega-6
DihomoGamma linoleic acid, C20:3, Omega-6
Arachidonic acid (AA), C20:4, Omega-6
Eicosapentaenoic acid (EPA), C20:5, Omega-3
Docosapentaenoic acid (DPA), C22:5, Omega-3
Docosahexaenoic acid (DHA), C22:6, Omega-3

Palmitic acid, C16:0, saturated

- Milk and milk products; such as butter, cream, ice cream, sour cream, yoghurt, cheese and more
- Red meat and products made from red meat
- Palm oil and products that contains palm oil, such as pastry, crackers, fried potatoes, potato chips, etc.
- Coconut and coconut oil
- Avocado and products made from avocado
- Meat from poultry and products made from meat from poultry
- Egg and egg products
- Various nuts such as almonds, peanuts and brazil nuts
- Wheat and products made from wheat

Stearic acid, C18:0, saturated

- Milk and milk products; such as butter, cream, ice cream, sour cream, yoghurt, cheese and more
- Red meat and products made from red meat
- Palm oil and products that contains palm oil, such as pastry, crackers, fried potatoes, potato chips, etc.
- Coconut and coconut oil
- Avocado and products made from avocado
- Meat from poultry and products made from meat from poultry
- Egg and egg products
- Various nuts such as almonds, peanuts and brazil nuts
- Wheat and products made from wheat

Oleic acid, C18:1, Omega-9

- Vegetable oils such as olive oil, rapeseed oil and sesame oil
- Avocado and products made from avocado
- Various nuts such as almonds, peanuts, walnuts, hazelnuts, brazil nuts
- Zinzino Balance products

Linolic acid, C18:2, Omega-6

- Vegetable oils such as corn oil, sunflower oil, soy bean oil
- Pork meat and fat and products made from pork meat
- Palm oil and products that contains palm oil, such as pastry, crackers, fried potatoes, potato chips, etc.
- Avocado and products made from avocado
- Meat from poultry and products made from poultry
- Egg and egg products
- Wheat and products made from wheat

Alpha-linoleic acid, C18:3, Omega-3

- Vegetable oils such as rapeseed oil and linseed oil
- Found in spinach and brussels sprout
- Found in berries like blueberries, lingonberry
- Found in walnuts

Gamma linoleic acid, C18:3, omega-6

- Found in minor amounts in vegetable oils and meat

DihomoGamma linoleic acid, C20:3, Omega-6

- Found in minor amounts in evening primrose oil and blackcurrant seeds

Arachidonic acid (AA), C20:4, Omega-6

- Red meat and products made from red meat
- Pork meat, fat and products made from pork meat
- Meat from lamb and products made from lamb meat
- Meat from poultry and products made from poultry
- Egg and egg products

Eicosapentaenoic acid (EPA), C20:5, Omega-3

- Fatty fish and products made from fatty fish
- Liver of white fish

- Seafood and algae
- Zinzino Balance products

Docosapentaenoic acid (DPA), C22:5, Omega-3

- Fatty fish and products made from fatty fish
- Liver of white fish
- Seal oil
- Seafood and algae
- Zinzino Balance products

Docosahexaenoic acid (DHA), C22:6, Omega-3

- Fatty fish and products made from fatty fish
- Liver of white fish
- Seafood and algae
- Zinzino Balance products

Literature references

1. Eaten and Konner,1985. N Engl J Med; 312: 283-289.
2. Leaf and Weber, 1987. Am J Clin Nutr; 45: 1048-1053.
3. Simopoulos, 2004. Food Rev Int; 20 (1): 77–90.
4. Clayton P, Rowbotham J. J R Soc Med 2008; 101(9): 454-462.
5. Drewnowski and Popkin, 1997. Nutr Rev; 55 (2): 31-43.
6. Simopoulos, 1991. Am J Clin Nutr 1991; 54(3): 438-463.
7. Simopoulos, 2002. Biomed Pharmacother; 56(8): 365-79.
8. Ruxton et al. 2004. J Hum Nutr Dietet, 17: 449–459.
9. McCusker and Grant-Kels, 2010. Clin Dermatol; 28: 440–445.
10. Bazan et al., 2011. Annu Rev Nutr; 21; 31: 321–351.
11. Blasbalg, 2011. Am J Clin Nutr; 93 (5): 950-962.
12. Simopoulos, A.P., 2011. Mol Neurobiol, 44(2): 203-215.
13. Burdge, 2004. Curr Opin Clin Nutr Metab Care; 7: 137–144.
14. Stark et al., 2008. Nutr Rev; 66 (6): 326–332.
15. Burdge and Calder, 2005. Reprod Nutr Dev; 45: 581–589.
16. Simopoulos, 2010. OCL; 17 (5): 267-275.
17. World Health Organization, 2003. WHO Technical Report Series 916. Geneva.
18. Crowe et al., 2011. Eur Heart J; 32(10): 1235-1243.
19. Covas, 2007. Pharmacol Res; 55: 175-186.
20. Lopez-Miranda et al., 2010. Nutr Metab Cardiovasc Dis; 20 (4): 284-294
21. Covas, 2006, Free Rad Biol Med, 40: 608-616
22. Covas et al., 2006, Annals of Internal Medicine, 145: 333-34
23. Marangoni et al., 2004. Analytical Biochemistry; 326: 267-272.
24. Harris and Schacky, 2004. Prev Med; 39: 212-220.
25. Harris, 2007. Pharmacological Research; 55: 217-223.
26. Lands, 2008. Progress in Lipid Research; 47: 77-106
27. Bailey-Hall et al., 2008 Lipids; 43: 181-186
28. Bang and Dyerberg, 1972. Acta Med Scand; 192: 85-94
29. Kromhout et al., 1985. New Engl J Med; 312: 1205-1209.
30. Daviglus et al., 1997. New Engl J Med; 336(15): 1046-1053.
31. Albert, 2002. N Engl J Med; 15: 1113–1118.
32. Swanson et al., 2012. Adv. Nutr; 3: 1–7.
33. Horrocks and Yeo, 1999. Pharmacol Res; 40 (3): 211-225.
34. Bazan, 2005. Brain Pathol, 15: 159-166.
35. Birch et al., 2007. Early Hum Dev; 83: 279-284.
36. Innis and Friesen, 2008. Am J Clin Nutr; 87: 548-557.
37. Fan et al., 2012. J Lipid Res; 53 (7): 1287-1295.
38. Monk et al., 2014. Med Inflamm; 2014, Article ID 917149: 1-14
39. Fontani et al., 2005. Eur. J. Clin. Invest. 35 (11): 691-699.
40. Adams et al., 1996. Lipids 31; 5167-5176.
41. Maes et al., 1999. Psych Res; 85: 275-291.
42. Young and Martin, 2003 Rev Bras Psiquiatr; 25 (3): 184-7
43. Parker et al., 2006 Am J Psychiatry; 163: 969–978
44. Buydens-Branchey and Branchey, 2006. J Clin Psychopharmacol; 26: 661–665.
45. Richardson and Basant 2002. Prog Neuro-Psychopharmacol Biol Psychiatry; 26(2): 233-239.

46. Germano et al., 2007. Nutr Neurosci; 10(1-2): 1-9
47. Nilsson et al., 2012. Nutr J;11: 99
48. Hong et al., 2003. J Biol Chem; 278: 14677-14687.
49. Kodas et al., 2004. J Neurochem; 89: 695-702.
50. Sinclair et al., 2007. Asia Pac J Clin Nutr; 16 (Suppl 1): 391-397.