

Omega Fatty Acids

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Omega Fatty Acids Definition

- Carboxyl group with carbon chain
- Double bonds
- ALA, DHA, EPA
- Placement of first double bond
- AA, LA

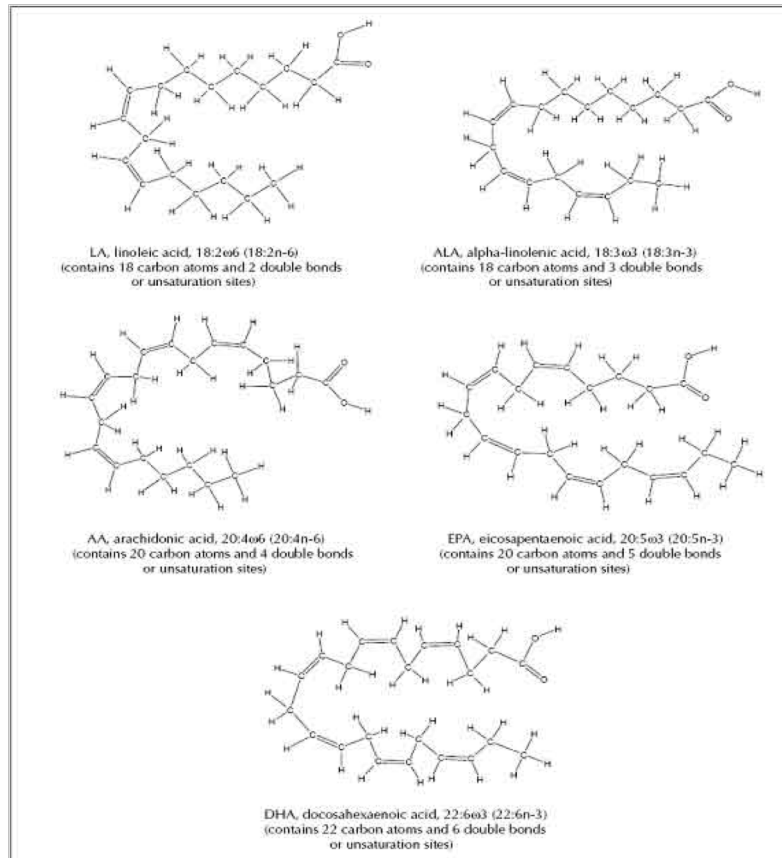


Fig. 1: Chemical structures of linoleic acid (LA), alpha-linolenic acid (ALA), arachidonic acid (AA), eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA).

History

- Burr and Burr 1929
 - University of Minnesota
 - Observed fat free diet fed to rats
 - Determined the essentiality of linoleic acid

Benefits

- Reduce inflammation
- Improved cardiac health
- Lower blood pressure

USDA Recommendations

Omega 3:

- Between 0.5 and 1.6 grams
- Roughly 2% total daily energy

Omega 6:

- Between 4.4 and 17 grams
- Roughly 6% total daily energy

Sources of Omega 3 Fatty Acids

- Seafood
- Nuts and Seeds
- Fortified Foods



Sources of Omega 6 Fatty Acids

- Most plant oils
- Poultry and Eggs
- Corn and Soybean Products

Do you think Americans are meeting or exceeding the recommended intake of either fatty acids?

Results of deficiency and overconsumption of n-3

Deficiencies:

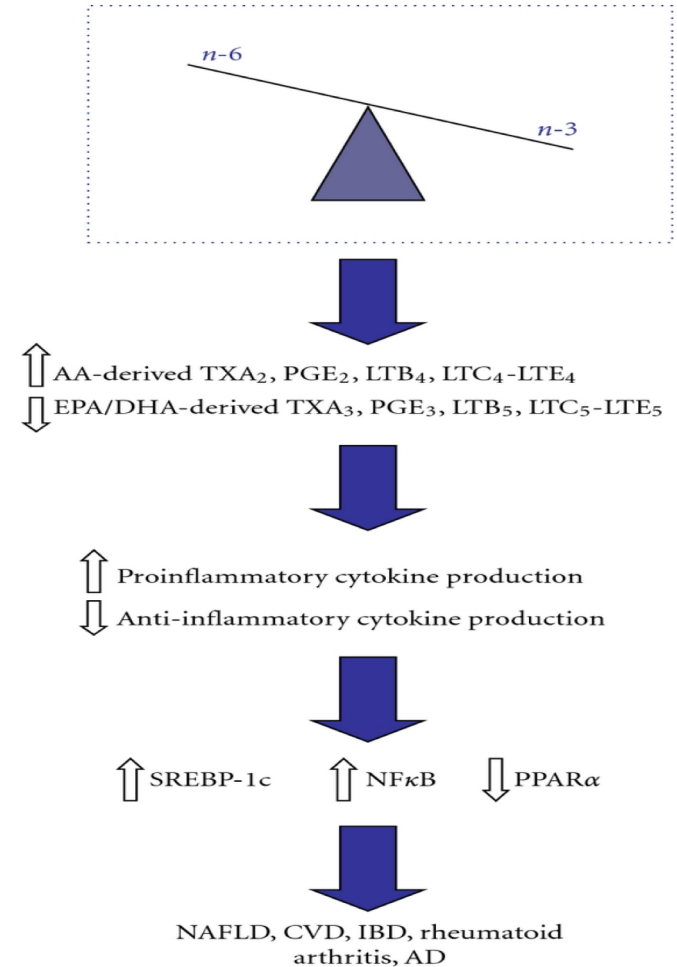
- elevated LDL levels
- coronary heart disease
- scaly skin, rash
- rheumatoid arthritis
- possible cancer and macular degeneration
- Schizophrenia

Overconsumption:

- nausea
- smelly sweat
- heartburn
- diarrhea
- headache
- bleeding problems

Overconsumption of Omega-6

- 15:1-16.7:1 ratio
- Proinflammatory effect
- May increase risks of
 - Atherosclerosis/CVD
 - Inflammatory Bowel Disease
 - Rheumatoid Arthritis
 - Alzheimer's Disease
- May decrease cognitive functions



Recommendations for Meal Managers

- Limit excess amounts of Omega-6 Fatty Acids
- Eat a handful of walnuts once in a while
- Have seafood as your main protein source in 3 meals a week



Conclusions

References

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