



Fatty acids

Omega 3 & Omega 6

**By The Nude Horse
(Equine Epidemiologist)**

Trending in the equine nutrition world are the words 'Essential Fatty Acids' so what are they? Do I need to add these to my horse's diet?

We hear a lot about the three Omega 3 fatty acids Alpha Linolenic (ALA), Docosahexaenoic acid (DHA) and Eicosapentaenoic acid (EPA). But did you know there are many more?

Mammals are unable to synthesize omega-3 fatty acids. Supplement feeding has taken popularity with the plant based omega 3 ALA found in Flaxseed, but only a small amount as low as 5% is actually converted into the necessary EPA and DHA. **Fish oil** (Cod Liver Oil) & **Hemp Seed Oil** on the other hand provides pre-formed **ready to be utilised EPA and DHA Omega 3s in the right ratio.**

<http://www.bodyandsoul.com.au/health/natural-health/flaxseed-vs-fish-oil/news-story/3bed1de7cd8aea60c2ca34a8b3982366>
<http://www.health.harvard.edu/staying-healthy/why-not-flaxseed-oil>

Surprisingly for some, **Pasture grass naturally offers a ratio of 1:4 (Omega6:Omega3) it simply can't be beaten as the best source for your horse.** When pasture is unavailable, then it is recommended by Kentucky Equine Research to supplement 60 ml/day of fish oil. (Pagan, Lawrence, Lennox)

Omega 3 Fatty Acids:

Alpha linolenic acid - ALA
Eicosapentaenoic acid - EPA
Docosahexaenoic acid - DHA
Hexadecatrienoic acid- HTA
Stearidonic acid - SDA
Eicosatrienoic acid - ETE
Eicosatetraenoic acid - ETA
Heneicosapentaenoic acid - HPA
Docosapentaenoic acid - DPA
Tetracosapentaenoic acid
Tetracosahexaenoic acid

We hear about the excesses of omega 6 fatty acids in the diet. High proportions of Omega 6 to Omega 3 fat in the diet shifts the physiological state in the tissues toward pathogenesis of many diseases. Omega 6 increase inflammation.

Animal feeds high in Omega 6 throw the correct dietary ratio out of balance. Feeds that are proportionately **too high in Omega 6 to Omega 3** are vegetable oils

(soybean, cotton seed, sunflower seed, corn, grapeseed, rice bran, peanut, sesame oils) **Corn oil** for example has an omega 6 to omega 3 ratio of about **45:1!** Caution too with seeds like sunflower, sesame & pumpkin along with grains including corn, oats, wheat, quinoa and rice, not to be missed are legumes like soybean and peanuts that are very high in the Omega 6 fatty acids.

<http://nutritiondata.self.com/foods-00014100000000000000-1w.html?>

Omega 6 Fatty Acids:

Linoleic acid (LA)
Gamma-linolenic acid (GLA)
Calendic acid
Eicosadienoic acid
Dihomo-gamma-linolenic acid (DGLA)
Arachidonic acid (AA)
Docosadienoic acid
Adrenic acid
Docosapentaenoic acid
Tetracosatetraenoic acid
Tetracosapentaenoic acid

Fortifying your horse's diet with an omega 3 of at least 2-5 to 1 of omega 6 provides key health benefits. A healthy diet low in Omega 6 and high in Omega 3 (being naturally anti-inflammatory) can help reduce allergy symptoms. Research indicates these additional health benefits of increased Omega 3 uptake:

- Improved skin and hair coat quality
- Decreased joint pain
- Improved bone formation
- Reproductive benefits
- Prevention of gastric ulcers
- Anti-inflammatory
- Alleviate allergic hyperactivity
- Support horses in heavy work
- Reduce exercise-induced bronchiole constriction

References of interest:

Semen motility:

<http://www.sciencedirect.com/science/article/pii/S0093691X0400247X>

Heart disease and ovulation rate:

<http://www.sciencedirect.com/science/article/pii/S0952327899901011>

Hair growth, quality and shine:

<http://www.hairsentinel.com/omega-fatty-acids-and-hair-loss.html>

Pain and ulcers:

<http://www.sciencedirect.com/science/article/pii/S0090301905007743>

Anti Inflammatory:

<http://cardiovascres.oxfordjournals.org/content/81/2/319.short>

Bone/joint disease:

<http://ebm.sagepub.com/content/226/6/485.short>