

EFAs – “The Fats of Life”

The Essential Fatty Acids Omega-6 LA, Omega-3 ALA + all their derivatives

EFAs → Health

EFA deficiencies cause many health problems

EFAs → Health

THE EFA FATTY ACIDS OF SPECIAL INTEREST

Omega-3 fat family - Eicosapentaenoic acid (EPA) and Docosahexenoic Acid (DHA) (directly available in marine oil, or converted by enzymes in the body from Alpha-Linolenic Acid (ALA) in such as walnuts or flax, hemp or chia seed oils)

Omega-6 fat family - Dihomo Gamma-Linolenic Acid (DGLA) (directly available in breast milk, or converted by enzymes in the body from Gamma-linolenic Acid (GLA) in evening primrose, borage or blackcurrant seed oils, or Linoleic Acid (LA) in nuts, seeds and vegetable oils)

CHART OF EFA CONVERSIONS

(ALSO SHOWS CONVERSIONS TO PROSTAGLANDINS AND LEUKOTRIENES)

OMEGA-6 FAMILY

LA (Linoleic Acid
- 18:2w6)
In Nut & Seed oils,
Spirulina,
wheatgerm and
Legumes

OMEGA-3 FAMILY

ALA (α-Linolenic
Acid -
18:2w3)
In Flaxseed,
Chia seed,
Walnut & Hemp
Oil

Converted by and competing for $\Delta 6D$ enzyme



(Requires B6, Magnesium, Zinc)

GLA (Gamma-linolenic Acid – 18:3w6)
In **Blackcurrant** and **Evening Primrose Oil**

SDA (18:4w3)
In **Blackcurrant** and other **wild seed oils**

Elongase

DGLA (20:3w6):
In **Mothers Milk**

(Preferred Pathway)

Eicosatetraenoic Acid

($\Delta 5D$ Prefers this Pathway)

Converted by and Competing for $\Delta 5D$ enzyme

COX 1

1 :

(Requires **Vitamin C, Niacin (B3), Zinc**)

POSITIVE Series 1

Prostaglandins

(PG-1)AA (Arachidonic Acid - 20:4w6)

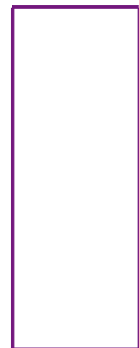
In **Meat, Dairy,**

Eggs

EPA (20:5w3)

EPA (and DHA) found in:

Fish Oil. Grass-fed animals/poultry, land



animals' brains, testes, adrenals, eyeballs.
Brown/redalgae

LOX
▼ **COX**
▼ **COX**
▼ **LOX**
▼ ▲ Elongase
▼ **Δ4DLOX - Lipoxygenase** enzyme
COX - Cyclooxygenase
enzyme **INFLAMMATORY**
Series 4
Leukotrienes
(LK-4) NEGATIVE
Series 2
Prostaglandins
(PG-2) POSITIVE
Series 3
Prostaglandins
(PG-3) ANTI-INFLAMMATORY
Series 5
Leukotrienes
(LK-5) DHA (22:6w3)
Most
important for brain and nerve function

WHAT'S THE BIG DEAL ABOUT EFAS?

- ◆ Rather than list all that EFAs do, it may have been easier to mention what they don't do! - However, to give an idea, here's just a few of the many functions of EFAs . . .
 - √ **Keep cells slippery so they don't stick together (i.e. clot)**
 - √ **Control inflammation**
 - √ **Activate bile flow for fat digestion**
 - √ **Raw materials for estrogen, testosterone, other hormones**
 - √ **Precursor for mood hormone serotonin**

- √ Carry fat-soluble vitamins (A, D, E and K) in bloodstream
- √ Slow carbohydrate absorption (balancing blood sugar levels)
- √ Keep cell walls fluid (controls traffic in and out of cells)

◆ EFAs reduce the risk of:

- | | | |
|-----------|-----------------|--------------|
| √ Cancer | √ Heart Disease | √ Allergies |
| √ Eczema | √ Arthritis | √ Depression |
| √ Fatigue | √ Infections | √ PMS |

“Research says if you increase omega-3’s in the diet, you improve every major degenerative condition of our time.”

- Udo Erasmus PhD

(Dr. Udo Erasmus wrote *the* book on fats: “Fats that heal, Fats that kill”)

SOME HEALTH BENEFITS OF CONSUMING OMEGA-3 FATS

- √ Lowers cardiovascular risk factors
- √ Inhibits cancer growth and metastasis
- √ Increases insulin sensitivity
- √ Decreases inflammation/joint pain
- √ Improves bone mineral metabolism
- √ Raises energy levels, stamina performance
- √ Improves concentration, learning, calmness, behavior and IQ
- √ Speeds wound healing from injury, physical exertion, surgery
- √ Dampens symptoms of auto-immune diseases
- √ Aids weight management - Increasing fat burning, decreasing fat production, and increasing fat burn-off as heat (thermogenesis)

EFA Deficiencies Cause Many Health Problems

Here are just a few examples:

PROBLEMS ASSOCIATED WITH OMEGA-3 EPA/DHA

DEFICIENCY

- Fatigue
- Rheumatoid Arthritis
- Migraine
- Depression
- Learning disorders
- Growth retardation
- Skin problems
- Sterility
- Gastro-Intestinal Disorders
- Schizophrenia
- Vision impairment
- Behavioral changes
- Weak immune system
- Asthma
- Heart and Circulatory problems
- ADHD
- Motor in-coordination

PROBLEMS ASSOCIATED WITH OMEGA-6 DGLA DEFICIENCY

GLA /DGLA Decreases During Illness

- Skin problems
- PMS
- M.S.
- Excessive thirst
- Miscarriage
- Impotence
- Cradle Cap
- CFS
- Weak Nails
- Rheumatoid Arthritis
- Diabetes
- Weak Immune System
- Viral Infection
- Poor circulation
- Allergies
- Hair loss
- Behavioral changes
- Sjogren's Syndrome (Dry eyes/mouth)
- Impaired glandular function
- Kidney/liver Degeneration
- Slow growth/wound healing
- Reduced sperm motility

For specific symptoms of [EFA](#) deficiency, see chart at: