

# MEGATOP® PowerFlex



Highly Bioavailable Natural Omega-3 Supplement Rich in DHA/EPA and Vitamins A - D<sub>3</sub>, Formulated to Optimize the Musculoskeletal System, Cardiovascular Function and Athletic Performance

## Data Sheet

### Active Ingredients (per ml)\*:

Omega-3	283.2 mg
DHA (21-23%)	190.8 mg
EPA (5-7%)	51.0 mg
Other Omega-3	41.4 mg
Vitamin A	1,737 IU
Vitamin D <sub>3</sub>	34 IU

\*Variable quantity because of being a natural product



**Composition:** Cold extracted fish oil rich in Omega 3, vitamins A and D<sub>3</sub>.

**Analytical Constituents:** Crude oils and fats 99.54%.

### Mechanism of Action:

- Both fats as well as oils are made up of a mixture of fatty acids. Polyunsaturated fatty acids are also known as Essential Fatty Acids (EFA) because they cannot be synthesized by the body and must, therefore, be supplied through the diet.
- There are two types of EFAs: Omega-3 (ALA, DHA, EPA...) and Omega-6 (LA, AA...). Cold-water fish are the richest natural source of Omega-3, particularly DHA and EPA. There are sources from plants such as linseed oil, but these are rich in ALA. Dietary ALA must be transformed by the body into biologically active Omega-3 DHA and EPA, however, this bioconversion is very inefficient: in people ALA conversion to DHA and EPA is below 0.10% and 10% respectively (Williams and Burdge, 2006). It has been shown that in dogs supplemented with equivalent quantities of Omega-3 from linseed or fish oil, the Omega-3 plasma content was increased only in dogs supplemented with fish oil (Siciliano et al., 2003). Other studies in dogs have proven that fish oil significantly increased the concentration of DHA and EPA in plasma (Hall et al., 2004b; O'Connor et al., 2007; King et al., 2008).
- Omega-6 has been called "bad Omega" because the eicosanoids (prostaglandins, thromboxanes and leukotrienes) derived therein show pro-inflammatory activity, while the activity of Omega-3 is anti-inflammatory. This does not imply that Omega-6 should be eliminated from the diet, but there should be an appropriate ratio between the two. In modern human and animal diets this proportion is very biased towards Omega-6 and this imbalance may favour certain pathologies such as osteoarthritis, atherosclerosis, asthma, cancer, neurological and behavioural disorders. On increasing Omega-3 intake, EPA competes as a substrate for enzymes in the arachidonic acid cascade (AA, an Omega-6 precursor of the destructive eicosanoids) and this abundance of Omega-3 can replace the destructive subtype AA products in favour of the protective subtypes (Robinson and Stone, 2006).

### DHA/EPA in the Musculoskeletal System:

- Omega-3 reduces inflammation of the joints and helps heal and restore connective tissues damaged by stress from exercise.
- *In vitro* studies have proven that DHA and EPA increase collagen synthesis and decrease PGE2 inflammation mediators.
- Another study has shown that diet supplementation with 3.4-3.5% fish oil improved osteoarthritis clinical symptoms in dogs, even decreasing the needed dose of NSAIDs such as carprofen for pain treatment (DA Fritsch et al, 2010).
- Clinical benefits of fish oil supplementation in rheumatoid arthritis have been observed in at least 11 double blind -placebo-control studies (MJ James, 2000). DHA and EPA have been tested with considerable success (especially in early stages of the disease) in the treatment of rheumatoid arthritis



### Features

Reduces pain and inflammation in joints, tendons and muscles.

Improves cardiovascular function - Optimises athletic performance.

Fast and safe energy source - Improves response to prolonged exertion and delays the onset of fatigue.

Very safe - Ideal for extended treatment.

Does not contain doping substances.

Patented Omega-3 cold extraction method - Maximum bioactivity.

Environmentally friendly.



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symptoms in humans. Although they probably do not delay the progression of the disease, they do satisfactorily moderate symptoms. A recent study in people has shown that the combined use of DHA/EPA and glucosamine greatly improves the comfort of patients with osteoarthritis of the knee and hip.

### DHA/EPA and Athletic Performance:

- Different trials show that Omega-3 reduces blood viscosity. This decreases the heart rate and increases oxygen flow to the muscles, thus improving performance and response to stress. This feature of Omega-3 is particularly valuable for endurance dogs.
- In a study in horses, heart rate after a stress test was lower in the group supplemented with DHA/EPA than in the control group while the lactate values were similar in the two groups, suggesting that horses supplemented DHA/EPA will take longer to become fatigued. This cardioprotective effect has been shown extensively in humans.
- Studies in rodents suggest that EPA prevents muscular damage by inhibiting the cyclooxygenase pathway (Jackson et al., 1988; Tisdale, 1996).
- Competition Animal largely depend on anaerobic glycolysis for energy, while fatigue is more likely to be associated with the accumulation of lactic acid. DHA/EPA reduce this accumulation and at the same time balance the increase in production of enzymes and hormones related to the competition, thus increasing speed and endurance. Omega-3 increases tissue elasticity and may help reduce the incidence of EIPH (Exercise Induced Pulmonary Haemorrhage).

### DHA/EPA as a Source of Energy:

- Carbohydrate reserves (as glycogen in the liver and muscles) are used only to maintain short-term exertion (e.g. sprinting), but they do not supply enough energy alone for long-term exertion (e.g. endurance); when they are depleted premature fatigue arises.
- Omega-3 is a healthy source of highly concentrated, digestible and easy to metabolise fat energy, and therefore, it is a very safe alternative to carbohydrates. In the body, dietary fat is directly used as energy or stored in adipose tissue, under the skin or around the organs, improving body condition. A smaller quantity of fat is stored in the muscle to be used as energy for muscular work, improving athletic performance.

### DHA/EPA in Reproduction and Breeding:

- In stallions with low fertility, DHA improves the characteristics of the spermatozoa, the concentration in the seminal fluid and the daily spermatozoa production.
- DHA is vital for the cerebral, cognitive and visual development of the foetus and the puppy. Administration of Omega-3 during pregnancy contributes to optimal development of the foetus, preventing defects.
- It has been proven in dogs that the offspring of mothers with high levels of DHA are more intelligent and easier to train (Heinemann and Bauer, 2006; Zicker et col., K.M., 2012).
- There is testimonial evidence which suggests that Omega-3 improves the regeneration of reproductive organs in pregnant females after birth, thus facilitating future conception. It has also been shown that DHA/EPA give rise to faster and more consistent cycles. Other findings suggest that females with a history of abortion may benefit from nutritional support with Omega-3.

### Other Benefits of DHA/EPA:

- Skin/Coat: EFAs are useful for managing allergic dermatological conditions and they improve the external appearance of the dog.
- Renal: Various studies have proven that EFAs reduce the progression of chronic renal disease, particularly at the glomerular level, reducing the proteinuria.
- In other animal species, Omega-3 has beneficial effects such as reducing blood triglycerides and increasing membrane fluidity and insulin sensitivity (Mueller and Talbert, 1988; Simopoulos, 1991).
- Nervous System: Research trials for Alzheimer's disease in rodents have proven that DHA has anti-inflammatory properties and reduces amyloid levels and plaque formation (Horrocks and Yeo,



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1999; Lim et al., 2003) suggesting that Omega-3 can contribute to preserving the physical, mental and sensory activity of older dogs.

### Benefits of Vitamins A and D<sub>3</sub>:

- Vitamin A contributes to normal iron metabolism, maintaining natural protective barriers such as the skin and mucous membranes, the normal functioning of the immune system and, together with DHA, proper maintenance of vision.
- Vitamin D<sub>3</sub> is essential for the normal use and absorption of calcium and phosphorus, it contributes to bone, dental and muscular health and to the optimal functioning of the immune system.

**Indications:** Recommended by veterinarians to optimise the functionality of the musculoskeletal system (joints, tendons and muscles), and to improve the cardiovascular function and athletic performance of dogs under joint/muscular stress due to intense exercise or competition. In older dogs with age-related joint degeneration, MEGATOP® PowerFlex helps restore mobility and quality of life for the animal.

Also recommended for dogs that require a high-energy diet (sport dogs or those with poor body condition) as a source of digestible, easy to metabolise and very safe concentrated energy, in order to avoid metabolic disorders associated with poor diets.

Supports pregnancy and lactation in females and facilitates the cerebral and visual development of the foetus and nursing puppy.

**Target Species:** Dogs.

**Dosage and Administration:** Shake before use. Administer mixed with feed or orally through a syringe.

Daily dose: Initial (7days), 1ml per kg body weight.

- Maintenance: 2ml every 5kg (0.4ml/kg).

- Long-Term Maintenance (from 4th month). 1ml every 5kg (0.2ml/kg).

The effects of MEGATOP® PowerFlex start to be seen after 3-4 weeks of application.

**Safety:** MEGATOP® PowerFlex has no contraindications and can be taken long-term or for life.

### **Manufacture and Environment:**

- The Omega-3 in the MEGATOP® PowerFlex formula is obtained through an exclusive patented method; 100% natural cold extraction which keeps the DHA and EPA molecular structures intact, thus ensuring their maximum bioavailability and bioactivity. Other products use boiling processes at high temperatures or chemical solvents for extracting fish oil.
- MEGATOP® PowerFlex is 100% environmentally friendly as it does not generate waste, making good use of all the raw material used.
- MEGATOP® PowerFlex is manufactured in a pharmaceutical grade plant in Galicia, Spain.

**Warnings:** This product does not contain any substances which are banned in competition. Keep the container tightly closed in a cool, dry place, away from direct sunlight and out of reach of children and animals. Liquid at room temperature, it may form precipitates if refrigerated. Due to being an oily product it may experience minor expansions and/or contractions during transport, causing minor losses or deformations of the container. Raw material for feed.

**Presentation:** Container with measuring cap. 50 maintenance doses for a 25kg dog.



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