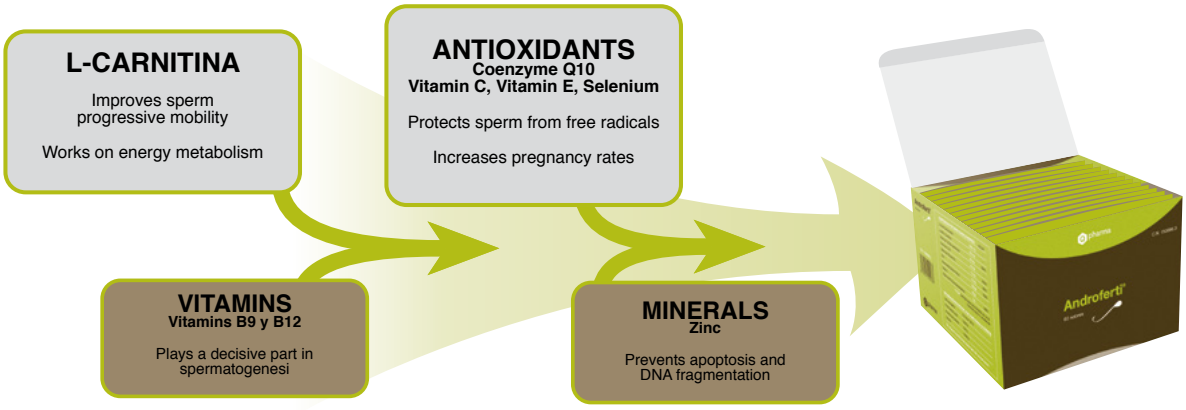

Improves
Sperm Quality
Parameters*
Androferti®

COMPOSITION OF ANDROFERTI®

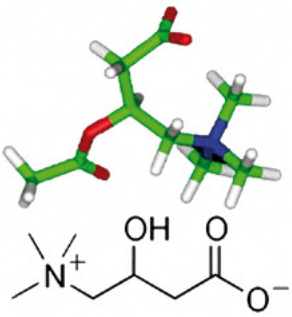
Androferti® is based on a patented and balanced formula based on Carnitines, antioxidants, vitamins and trace elements that optimizes seminal and spermatic values improving reproduction and male fertility. Androferti® activites has been published in 6 clinical trials.



L-Carnitine is one of the most importants components of Androferti®. The ingestion of **L-Carnitine** can improve male fertility, providing cellular energy to the sperm, facilitating mobility, improving the formation process, maturation, formation of the membrane and increasing seminal quality, while aiding in the metabolism that follows to ejaculation [1,2]. Most studies suggest that **L-Carnitine** supplementation may have a preventive and therapeutic nature, also acting as a complement to infertility treatments, especially in patients suffering from idiopathic male infertility.

1. L-CARNITINE

L-Carnitine or 3-hidroxi-4-trimethylaminebutirate, also known as levocarnitine, is a quaternary amine, which was discovered in 1905 [3,4]. Its chemical structure was established in 1927 (C7 H15 NO3). L-Carnitine may have two isomeric forms: the L-form and the D-form [5,6]. Only L-Carnitine is biologically active and appears in natural sources [7], forming part of the animal protein and our body can synthesize it in the liver, kidneys and brain [4]. For its synthesis it is necessary a contribution of essential amino acids from the diet, mainly lysine and methionine, as well as ascorbic acid, niacin, pyridoxine and iron [4,6].

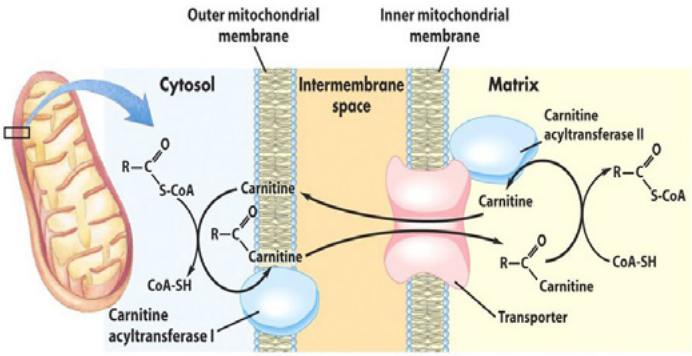


L-Carnitine

2. MECHANISM OF ACTION

The system of Carnitine, consisting of L-Carnitine, its derivatives and the proteins involved in transformation and transport, is indispensable for the metabolism of glucose and lipids in cells (8). Two main functions have been identified for the Carnitine system:

2.1.- Facilitate the entry of long chain free fatty acids into mitochondria for use in energy generation processes [3,9,10,11].



1. The acyl group of a cytosolic acyl-CoA is transferred to the Carnitine releasing CoA to the cytosolic pool.
2. The acyl-Carnitine is transported into the mitochondrial matrix by a conveyor system.
3. The acyl group is transferred to a CoA molecule from the mitochondrial pool.
4 . The product Carnitine is returned to the cytosol.

For this reason L-Carnitine is concentrated in tissues with a high energetic demand such as skeletal and cardiac muscle, as well as in the epididymis, a specialized organ of the male reproductive tract. (12)

In 1973 Casillas (13) showed that mammalian sperm accumulate Carnitine when they are in the epididymis, which is closely related to the development of fertilizing capacity of spermatozoa. The concentration of L-Carnitine in epididymal plasma and spermatozoa is, on average, 2,000 times greater than circulating levels. In the epididymis L-Carnitine is obtained from the blood plasma into the epididymis fluid. It then diffuses passively to the sperm where it accumulates. Initiation of sperm motility occurs in parallel with the increase in the concentration of L-Carnitine in the lumen of the epididymis (14).

THE L-CARNITINE INTERVENES IN THE ENERGY ROLE OF SPERMATOZOID BEING FUNDAMENTAL IN ITS DEVELOPMENT AND MOBILITY [13,14]

2.2.- Facilitate the elimination of short chain and medium chain acids that accumulate as a result of normal and abnormal metabolism in mitochondria [11].

L-Carnitine has antioxidant properties because of its ability to remove short chain and medium chain acids accumulated in the cell cytoplasm as a result of normal and abnormal metabolism. In addition, L-Carnitine decreases reactive oxygen species (ROS) by eliminating toxic extracellular acetyl-CoA responsible for mitochondrial ROS [10].

L-CARNITINE HAS ANTIOXIDANT PROPERTIES AVOIDING THE NEGATIVE EFFECTS OF OXIDATIVE STRESS [10,11]

3. FACTORS CAUSING L-CARNITINE DECREASE

We distinguish two types of deficiencies of Carnitine:

3.1.- Primary deficiencies

A primary deficiency of Carnitine suggests a defect in its metabolism, either in synthesis, transport to tissues or in the excretion by the kidneys of free Carnitine or its esters. Within these primary deficiencies we distinguish:

- Muscle deficiency of Carnitine.
- Systemic deficiency of Carnitine

3.2.- Secondary deficiencies

Multiple pathological or physiological situations can secondarily trigger a deficiency in Carnitine. Between them:

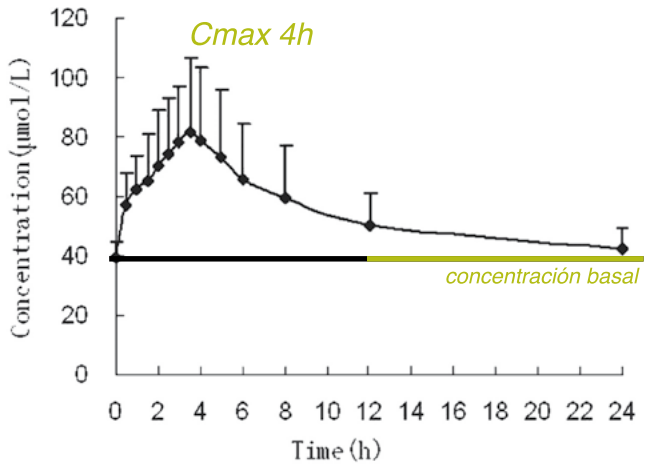
- Hepatic and / or renal pathologies.
- Physiological situations such as pregnancy.
- Administration of drugs such as Ac. Valproico, antibiotics containing Ac. Pivalic in its molecule.
- Deficiencies of Lysine and / or Methionine or other precursor factors (iron, vitamin C, B3 or B6).
- Increased requirement due to lipid-rich diets.
- Mitochondrial diseases have decreased free Carnitine in the blood and an increase in esters of Carnitine in urine.
- Infectious processes such as prostato-vesiculo-epididimitis. The increase of reactive oxygen species (ROS) causes that more L-Carnitine is needed to avoid oxidative stress.

L-Carnitine deficiency is related to "male Infertility" since the Carnitine content of the seminal fluid is directly related to the quantity and motile sperm (15,16), suggesting that the compound could be of importance in the Treatment of male infertility.

4. JUSTIFICATION OF POSOLOGY AND DOSES OF L-CARNITINE IN ANDROFERTI®

4.1.-POSOLOGY

L-Carnitine, due to its rapid absorption and half-life, makes the plasma concentrations, after an oral dose, initially high, although at 12 hours they remain scarcely above the basal concentration (17,18). This fact makes that the dosage of L-carnitine and the compounds containing it should be scheduled every 12 hours to ensure optimum concentrations of L-Carnitine in 24 hours.



Between 12-24 hour period, the L-Carnitine concentration remains slightly above the basal. [17-18]

POSOLOGY EVERY 12 HOURS ENSURES CONCENTRATIONS 24-HOUR L-CARNITINE OPTIMIZES [17,18]

4.2.- DOSE

Several studies have shown that the absorption of L-Carnitine through the mucous membranes is saturable, so the administration of high doses would reduce its absorption and increase its elimination (19).

A study was conducted where doses of 2 and 6 g respectively were administered. In this study, there were no significant differences between AUCs after oral doses of 2 and 6 g, suggesting that Carnitine absorption was already saturated at the dose of 2 g.

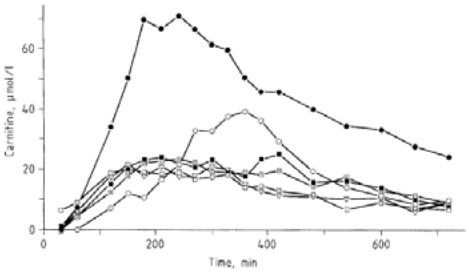


Fig. 2. Plasma carnitine concentration-time curves after oral administration of 2-g L-carnitine

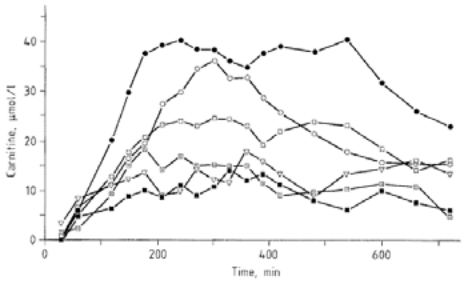
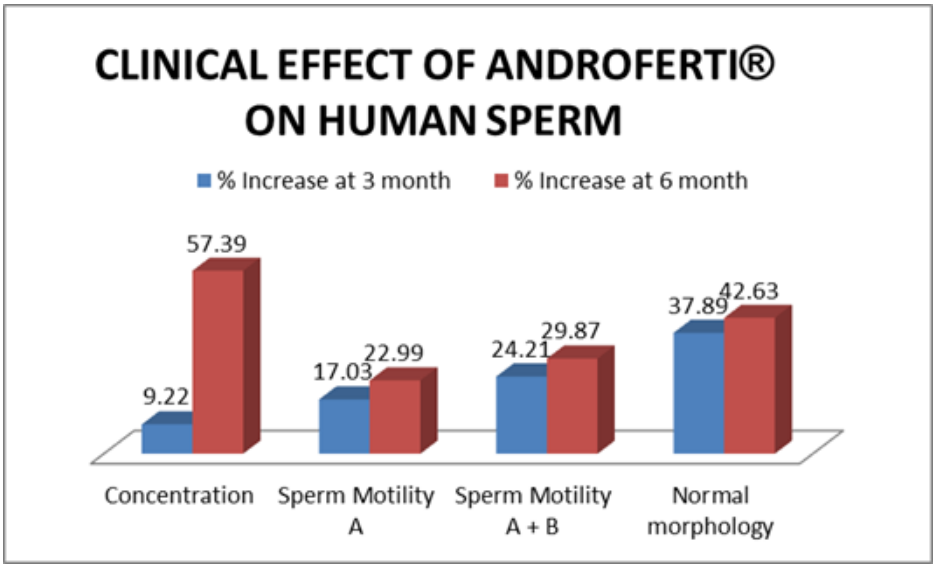


Fig. 3. Plasma carnitine concentration-time curves after oral administration of 6-g L-carnitine

ANDROFERTI® PROVIDES 1.5 G OF L-CARNITIN A DAY, AVOIDING SATURATION AND IMPROVING L-CARNITINE ABSORPTION [19]

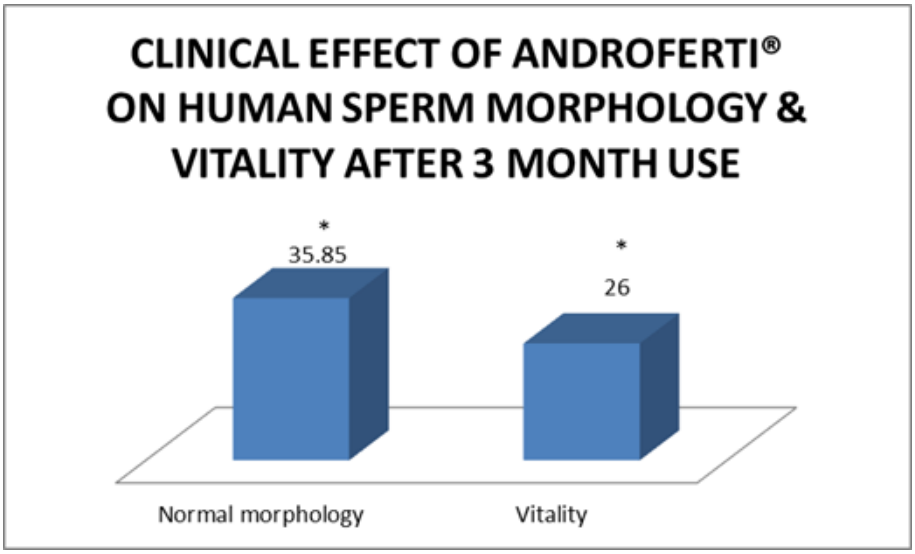
5. CLINICAL EFFECTS OF ANDROFERTI® ON HUMAN SPERM

A NEW and ONLY Clinically Active and Proven Product in 6 Published Clinical Trials in 199 Patients to Improve Sperm Quality Parameters



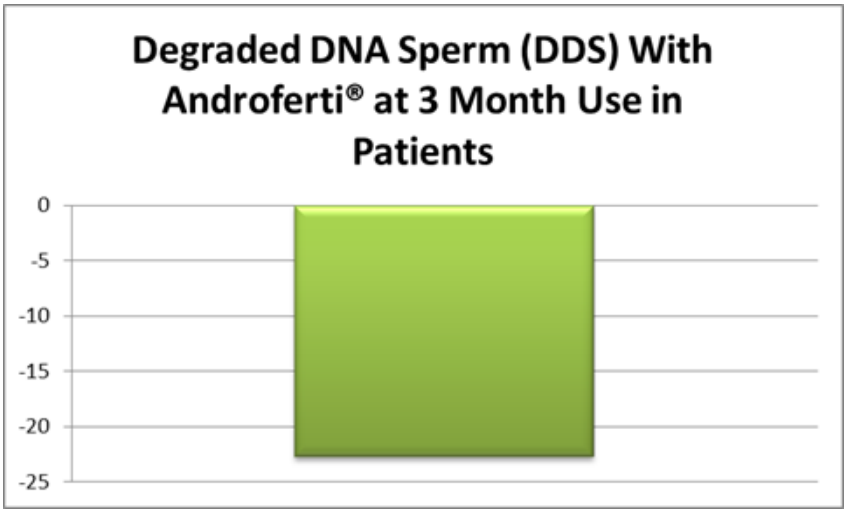
Androferti® Successfully increases in a statistically significant manner:

1. Sperm Concentration by over 57%
2. Sperm Motility by ~30%
3. Sperm Morphology by ~43%

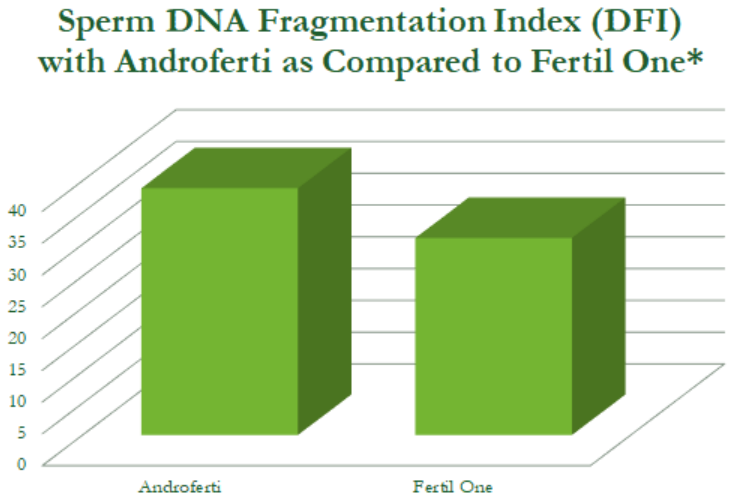


Androferti® Successfully increases in a statistically significant manner:

1. Sperm Normal Morphology by over 35%
2. Sperm Motility by ~30%
3. Sperm Vitality by ~26%



Androferti® Successfully decreases in a statistically significant manner:
Sperm DNA Degradation by over 23%



Androferti® Successfully decreases in a statistically significant manner:
Sperm DNA Fragmentation Index by close to 40%

6. ANDROFERTI® PUBLISHED CLINICAL STUDIES

Androferti® Clinical Publications:

1. Josep Gaul-Frau, Carlos Abad, Maria Amengual J., Naim Hannaoui, Miguel Checa A., Jordi Ribas-Maynou, Iris Lozano, Alexandros Nikolaou, Jordi Benet, Agustin Garcia-Peiro, Juan Prats "Oral antioxidant treatment partly improves integrity of human sperm DNA in infertile grade I varicocele patients". Human Fertility. 2015; 1-5
2. Balmori Boticario C., Areces Viña C., Pacheco Castro A., San Celestino Carchenilla M., Garcia Velasco J.A. "Impact of an antioxidant complex supplementation on sperm DNA fragmentation in infertile men" Rev Int Androl. 2010;8(3):107-13
3. Mateos Blanco J, Cabo González J.A. "Evaluation of an antioxidant compound on seminal parameters of sperm concentration, mobility and morphology in patients with idiopatics oligoastenoteratozoospermia". Rev Int Androl. 2011;9(3):109-115
4. Lopez Granollers G, Lafuente Varea R, Checa Vizcaíno M.A., Monqau A., Brassesco Macazzaga M. "Effect of a treatment with vitamins, L-carnitine and coenzyme Q10 on sperm head vacuolization and DNA fragmentation on in vitro fertilization patients" Rev Int Androl. 2011;9(4):154-159
5. Ballesca JL, Oliva R, Espinosa N, Corral JM. "Effect of the administration of an antioxidant complex (Androferti) in patients with idiopathic asthenoteratozoospermia" Rev Int Androl. 2012;10(2):51-56.
6. C. Abad, M. J. Amengual, J. Gosalvez, K. Coward, N. Hannaoui, J. Benet, A. Garcıa-Peiro. "Effects of oral antioxidant treatment upon the dynamics of human sperm DNA fragmentation and subpopulations of sperm with highly degraded DNA". Andrologia. 2013 Jun;45(3):211-6. doi: 10.1111/and.12003. Epub 2012 Sep 3.

Androferti®

"creating families"

www.myandroferti.com

Innovus Pharmaceuticals, Inc.
San Diego, CA 92121
Tel.: (858) 964-5123 • Fax: (858) 249-7879
info@innovuspharma.com • www.innovuspharma.com

Exclusive professional sanitary use.

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*These statements have not been evaluated by the FDA. This product is not intended to diagnose, treat, cure or prevent any disease.