

Astaxanthin

In a randomized placebo study, 21 subjects took 4 mg of astaxanthin daily of 28 days. They underwent two hours of constant-load cycling. Each rider then performed a 20 km stretch. Earnest CP et al. *Int. J Sports Med.* 2011; 32:882-88; Pavlovic P. Improved endurance by use of antioxidants. *European Bulletin od Drug Research*, 7(2): 26-29, 1999.

L-Arginin

Literatur: Bode-Boger, S.M., et al., Oral L-arginine improves endothelial function in healthy individuals older than 70 years. *Vasc Med*, 2003. 8(2): P. 77-81. Menzel, D., H. Haller, M. Wilhelm and H. Robenek, L-Arginine and B vitamins improve endothelial function in subjects with mild to moderate blood pressure elevation. *European Journal of Nutrition* 2016, DOI 10.1007/s00394-016-1342-6. Chen, J. et al.: Effect of administration of high-dose nitric oxide donor L-arginine in men with organic erectile dysfunction results of a double-blind, randomized, placebo-controlled BJU International 83, 269-273, 1999. Jobgen WS, Fred SK, Fu WJ et al. Regulatory role for the arginine-nitric oxide pathway in metabolism of energy substrates. *J Nutr Biochem* 2006; 17: 571-588; Nisoli E, Clementi E, Paolucci C et al. Mitochondrial biogenesis in mammals: the role of endogenous nitric oxide. *Science* 299: 896-899R.

Treatment of Erectile Dysfunction by Pycnogenol and L-Arginine.

The study included 40 men. aged 25-45 years. without confirmed organic erectile dysfunction. During the 3-month duration of the trial, patients received 3 ampoules of Sargenor a day, a drinkable solution of dipeptide arginyl aspartate equivalent to 1.7 g L-arginine per day. During the second month patients were additionally supplemented with 40 mg. Pycnogenol two times. per day. During the third month, the dose was increased to 40 mg three times a day. Sexual History questionnaire and a sexual activity diary from each patient.

After one month of treatment with L-arginine. only 2 (5%) of patients experienced a normal erectile function. The treatment by the combination during the second month and the increase of dose the third, increased the number of patients with normalized erectile function to 80% and 92.5 respectively. Conclusion: oral administration of L-arginine in combination with pycnogenol is highly effective, restoring normal erection in men with ED. with no side effects reported. *J Sex Marital Ther* 2003 Mu-Jun:29(3)207-13.

OPC Pinienrinden-Extrakt (Pinus pinaster)

Literatur: Maimoona, Alya & Naeem, Ismat & Saddiqe, Zeb & Jameel, Khalid. (2010). A review on biological, nutraceutical and clinical aspects of French maritime pine bark extract. *Journal of ethnopharmacology*. 133. 261-77. 10.1016/j.jep.2010.10.041. An examination of the effects of the antioxidant Pycnogenol® on cognitive performance, serum lipid profile, endocrinological and oxidative stress biomarkers in an elderly population. *J Psychopharmacol* 22(5): 553-562, 2008.

Literatur: Endothelium-dependent vascular effects of Pycnogenol® *J Cardiovas Pharmacol* 32: 509-515, 1998; Belcaro G et al. Venous ulcers: microcirculatory improvement and faster healing with local use of Pycnogenol®. *Angiology* 56: 699-705, 2005 19. Yasumuro Metal. Inhibition of melanogenesis by pine (*Pinus pinaster*) bark extract containing procyanidins. Ryan J, Croft K, Mori 1, et al. An examination of the effects of the antioxidant Pycnogenol® on cognitive performance, serum lipid profile, endocrinological and oxidative stress biomarkers in an elderly population. *J Psychopharmacol* 22(5): 553-562, 2008.

Coenzym Q₁₀

Literatur: HP Friederichsen; Prävention durch Mikronährstoffe OM-Zs.f. *Orthomol Med.* 2017;15:14-19 Gröber Uwe; Mikronährstoffe: Beratungsempfehlungen für die Praxis. Wissenschaftliche Verlags-gesellschaft GmbH. ISBN 13: 978-3-8047-22705; Uwe Gröber: Metabolic Tuning statt Doping; ISBN 978-3-7776-1608-7. Gröber Uwe; Mikronährstoffe: FOOD Style»; Effect of Coenzyme Q₁₀ as a Supplement on Wrinkle Reduction; Yutaka Ashida, et al; 2004; Schmelzer C et al; Functions of coenzyme Q₁₀. in inflammation and gene expression; *Bio factors*. 2008;32(1-4):179-83. Ravaglia G et al; Effect of micronutrient status on natural killer cell immune function in healthy free-living subjects aged >1=90 y.; *Am J Clin Nutr.* 2000 Feb;71(2):590-8. Mizuno K et al.; Antifatigue effects of coenzyme Q₁₀. during physical fatigue.; *Nutrition.* 2008 Apr;24(4):293-9.