Pomegranate (Punica granatum L.) - a (further) source of health and beauty?





Even though the Christmas period is now behind us, it is well worth taking a look at the pomegranate in detail. This fruit is not only used for interior decoration or as an ingredient in Advent baking or dishes, evidently it also has health-promoting properties.

There is also the fact that it is often associated with human concepts of beauty – for example, like those described in the Bible (e.g. Song of songs 4.3, 13). Manufacturers of natural skin products also extol the virtues of pomegranate as an "anti-ageing" substance. You only need to take a look at the relevant shelf in a drugstore to see how popular pomegranate products are.

Background

The pomegranate is the apple-sized, yellowy-brown to dark-red fruit of the pomegranate tree, which can grow 5 – 8m in height. The skin is approximately 5mm thick and surrounds jelly-like flesh, in which the c. 5mm seeds are embedded [1]. The fruit juice from pomegranates is used in drinks and as a dietary supplement.

Several studies have shown that pomegranate exhibits antioxidative and antiatherosclerotic ("prevention against vascular calcification") effects. These properties are due to so-called polyphenols such as tannins, flavonoids and anthocyanins [2, 3, 4].

Pomegranate in disease prevention and therapy

A positive health benefit has been recorded in patients with carotid artery stenosis (4), high blood pressure [5], high cholesterol [6], light to moderate erectile dysfunction [7] and in patients with coronary heart disease [8].

Pomegranate has no effect in patients with chronic obstructive pulmonary disease [9] or post-menopausal women with hot flushes [10].

Pomegranate in cancer prevention

In the specialist area of complementary medicine in oncology, pomegranate virtually always features in adjunctive treatment offered for men with prostate cancer. This is because it has been shown that pomegranate juice suppresses the growth of prostate tumours [11] and lowers serum PSA levels [12]. The latter has also been observed in a more recent study using a mixture of green tea, pomegranate, broccoli and curcumin [13].

It is likely that women with breast cancer could also benefit from pomegranate due to the suppression of aromatase activity, endogenous oestrogen production and direct breast cancer cell division [14, 15]. These findings are only based on lab tests in the first instance, which means they cannot yet be applied to humans.

In animal tests, pomegranate extract reduces the side effect of liver damage caused by Cisplatin, a chemotherapy medication, which is used for ovarian cancer, for example [16].

Our recommendations and hints when using pomegranate juice for cancer

- It is worth finding out about the benefits of pomegranates at the latest if you are diagnosed with prostate cancer.
- For this and other types of cancers it is also recommended to seek advice from a qualified complementary medicine practitioner.
- A discussion held in this connection should involve an explanation of which form (juice, extract/elixir) and which dose of pomegranate is suitable or, as the case may be, unsuitable. Potential interactions with medications also need to be ruled out. Pomegranate juice can, for example, increase the risk of a dangerous decomposition of skeletal muscle (rhabdomyolysis) when consumed at the same time as undergoing statin therapy [17] and can interact with warfarin [18].

Before taking a pomegranate preparation we recommend seeking professional advice and subsequently having a review at least once a year with a specialist practitioner to clarify whether continued consumption is still appropriate in accordance with medical criteria. Munich Tumour Centre offers such <u>advice</u> free of charge.

- [1] Heinrich-Heine-Universität, Düsseldorf: Der Granatapfel –Botanik/Verbreitung, http://www3.hhu.de/biodidaktik/Exoten/Granatapfel/dateien/botanik.html, eingesehen am 11.1.2018 [2] Adams LS, Seeram NP, Aggarwal BB, Takada Y, Sand D, Heber D. Pomegranate juice, total pomegranate ellagitannins, and punicalagin suppress inflammatory cell signaling in colon cancer cells. J Agric Food Chem. Feb 8 2006;54(3):980-985.
- [3] Adams LS, Seeram NP, Aggarwal BB, Takada Y, Sand D, Heber D. Pomegranate juice, total pomegranate ellagitannins, and punicalagin suppress inflammatory cell signaling in colon cancer cells. J Agric Food Chem. Feb 8 2006;54(3):980-985.
- [4] Aviram M, Rosenblat M, Gaitini D, et al. Pomegranate juice consumption for 3 years by patients with carotid artery stenosis reduces common carotid intima-media thickness, blood pressure and LDL oxidation. Clin Nutr. Jun 2004;23(3):423-433.
- [5] Aviram M, Dornfeld L. Pomegranate juice consumption inhibits serum angiotensin converting enzyme activity and reduces systolic blood pressure. Atherosclerosis. Sep 2001;158(1):195-198. [6] Mirmiran P, Fazeli MR, Asghari G, Shafiee A, Azizi F. Effect of pomegranate seed oil on hyperlipidaemic subjects: a double-blind placebo-controlled clinical trial. Br J Nutr. 2010 Aug;104(3):402-6.

- [7] Forest CP, Padma-Nathan H, Liker HR. Efficacy and safety of pomegranate juice on improvement of erectile dysfunction in male patients with mild to moderate erectile dysfunction: a randomized, placebocontrolled, double-blind, crossover study. Int J Impot Res. 2007 Nov-Dec;19(6):564-7.
- [8] Sumner MD, Elliott-Eller M, Weidner G, et al. Effects of pomegranate juice consumption on myocardial perfusion in patients with coronary heart disease. Am J Cardiol. Sep 15 2005;96(6):810-814.
- [9] Cerda B, Soto C, Albaladejo MD, et al. Pomegranate juice supplementation in chronic obstructive pulmonary disease: a 5-week randomized, double-blind, placebo-controlled trial. Eur J Clin Nutr. Feb 2006;60(2):245-253.
- [10] Auerbach L, Rakus J, Bauer C, et al. Pomegranate seed oil in women with menopausal symptoms: a prospective randomized, placebo-controlled, double-blinded trial. Menopause. 2012 Apr;19(4):426-32.
- [11] Lansky EP, Jiang W, Mo H, et al. Possible synergistic prostate cancer suppression by anatomically discrete pomegranate fractions. Invest New Drugs. Jan 2005;23(1):11-20.
- [12] Malik A, Afaq F, Sarfaraz S, Adhami VM, Syed DN, Mukhtar H. Pomegranate fruit juice for chemoprevention and chemotherapy of prostate cancer. Proc Natl Acad Sci U S A. Oct 11 2005;102(41):14813-14818.
- [13] Thomas R, Williams M, Sharma H, Chaudry A, Bellamy P. A double-blind, placebo-controlled randomised trial evaluating the effect of a polyphenol-rich whole food supplement on PSAprogression in men with prostate cancer—the U.K. NCRN Pomi-T study. Prostate Cancer Prostatic Dis.2014 Jun;17(2):180-6.
- [14] Kim ND, Mehta R, Yu W, et al. Chemopreventive and adjuvant therapeutic potential of pomegranate (Punica granatum) for human breast cancer. Breast Cancer Res Treat. Feb 2002;71(3):203-217.
- [15] Nallanthighal S, Elmaliki KM, Reliene R, Pomegranate Extract Alters Breast Cancer Stem Cell Properties in Association with Inhibition of Epithelial-to-Mesenchymal Transition. Nutr Cancer. 2017 Oct;69(7):1088-1098. doi: 10.1080/01635581.2017.1359318. Epub 2017 Oct 4.
- [16] Yildirim NC, Kandemir FM, Ceribasi S, Ozkaraca M, Benzer F. Pomegranate seed extract attenuates chemotherapy-induced liver damage in an experimental model of rabbits. Cell Mol Biol (Noisy-le-grand). 2013 Feb 2;59 Suppl:OL1842-7.
- [17] Sorokin AV, Duncan B, Panetta R, Thompson PD. Rhabdomyolysis associated with pomegranate juice consumption. Am J Cardiol. Sep 1 2006;98(5):705-706.
- [18] Komperda KE. Potential interaction between pomegranate juice and warfarin. Pharmacotherapy.2009 Aug;29(8):1002-6.

4/4