Benign Prostatic Hyperplasia

Benign Prostatic Hyperplasia (BPH) is a term used for a non-malignant enlargement of the prostate gland. This is an extremely common condition that affects over 50% of men during their lifetime. The frequency increases with advancing age from approximately 5 - 10% at age 30 to over 90% in men over 85 years of age.

At birth, the prostate is pea-sized and growth of the gland is gradual until puberty. Then, there is a period of rapid development that continues until around the age of 30 – 35 years when the prostate reaches adult size. At this age the gland reaches the size of a walnut which lies below the bladder and surrounds the urethra. It secretes a thin, milky alkaline fluid that increases sperm motility and lubricates the urethra to prevent infection. Prostate secretions are extremely important to successful fertilization of the egg.

BPH can create symptoms such as bladder obstruction, increased urinary frequency, nocturnal urination and reduced speed of flow. BPH begins in the peri urethral glands, which are the inner glands or layers of the prostate. The prostate enlarges as nodules form and grow (nodular hyperplasia) and glandular cells enlarge (hypertrophy).

It is usually recommended that men over the age of 40 have yearly prostate exams. If the prostate is tender this could mean it is prostatitis rather than BPH. A blood test is usually performed (PSA test) to determine if there is any cancerous tissue involved. However, it must be kept in mind that even though elevated levels of PSA indicate cancer in about 90% of cases, mild to mid-range elevations can also occur in BPH. This problem is predominantly the result of hormonal changes associated with aging. Levels of testosterone decrease with advancing age, however, oestrogen, prolactin, luteinising hormone and follicle stimulating hormone are all increased. The effect of these changes are an increased concentration of testosterone within the prostate gland and an increased conversion of this testosterone to and even more potent form known as dihydrotestosterone (DHT). This is created by a decreased level of removal of hormones from the body combined with an increase in the activity of the enzyme 5-alpha-reductase which is responsible for converting testosterone to DHT. It is the elevated oestrogen that is thought to be the key factor inhibiting the elimination of DHT from the prostate.

When BHP is diagnosed, steps should be taken to correct the problem as the enlargement could eventually completely obstruct the flow of urine, causing possible kidney damage. This can then become a life-threatening situation.

From a dietary perspective, minimising sugars, caffeine and alcohol is important because these all have a negative effect on the immune system and also create inflammation. Virtually all 21st Century illnesses have inflammation in common. Without the inflammation being continually created, it is difficult for these illnesses to take hold. It is wise to minimise or remove all of the factors in our lives that contribute to these inflammation levels. The article below discusses the relevance of inflammation on prostate health.
Chronic inflammation in benign prostatic hyperplasia: Implications for therapy
*Medical Hypotheses*, Volume 70, Issue 5, Pages 1021-1023
L. Wang, J. Yang, L. Yang, Z. Liu

**Abstract**

Benign prostatic hyperplasia (BPH) is a common age related proliferative abnormality of the human prostate. Histological features demonstrate that the typical nodules of BPH are composed of stromal and epithelial cells that are proportionally different between nodules. BPH nodules frequently occur concurrently with chronic inflammatory infiltrates, mainly composed of chronically activated T cells and macrophages. Recent studies suggest that these inflammatory cells, immunity responses and their precursors play important roles in the pathogenesis of BPH. Clinical evidences also indicate that chronic inflammation correlates with clinical progression of BPH. Therefore, we hypothesize that BPH is an inflammatory disease. Reducing inflammation may play a crucial role in the treatment of BPH and finally lead to a better clinical outcome. If our hypotheses can be further supported with clinical trials it may change the approach of the medical management for BPH.

It is important that we do everything we can to minimise our inflammation levels to prevent ALL types of illness.

It is essential to avoid pesticides and other farming contaminants as some of these (such as dioxins) have been shown to increase 5-alpha-reductase levels therefore increase the rate of DHT conversion.

Alcohol intake has shown a definite correlation between the amount of alcohol units consumed per month and the increased rate of BPH. This was most significant with beer, wine and sake and less significant with distilled spirits.

Cadmium is a major antagonist to zinc and also increases the activity of 5-alpha-reductase creating an increase in DHT levels. The most common source of cadmium is found in cigarette smoke. Cadmium is also released from the burning of plastics and tyres and is found in some fertilisers.

Raised cholesterol levels are shown to have some correlation with increased rates of BPH> The LDL levels in particular seem to play a role in stimulating cell formation in BPH. For this reason it is a good idea to supplement with a good antioxidant formula to lower the LDL levels and to take B vitamins and vitamin C to keep the blood vessels strong and healthy, preventing the need for cholesterol levels to rise. Good antioxidant levels can also improve liver function preventing excess from being manufactured. By liver cleansing once to twice per year, this can keep the liver pathways clear allowing the body to maintain optimum health.

By increasing certain nutrients in the diet and via supplementation we can seek to treat or prevent the onset of BPH. Essential fatty acids (EFA’s) are particularly good for reducing inflammation levels which can help to reduce the risk factors for many different illnesses. It is interesting to note however, in some uncontrolled studies done on BPH, essential fatty acid supplementation showed excellent results leading the researchers to hypothesise that BPH may be due to an underlying EFA deficiency.

The article below shows a study done on the effects of Omega 3 oils on the prostate;
Dietary Omega-3 Fatty Acids, Cyclooxygenase-2 Genetic Variation, and Aggressive Prostate Cancer Risk

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2. Abstract

3. Purpose: Dietary intake of long-chain ω-3 (LC n–3) polyunsaturated fatty acids may reduce inflammation and in turn decrease risk of prostate cancer development and progression. This potential effect may be modified by genetic variation in cyclooxygenase–2 (COX–2), a key enzyme in fatty acid metabolism and inflammation.

4. Experimental Design: We used a case–control study of 466 men diagnosed with aggressive prostate cancer and 478 age– and ethnicity–matched controls. Diet was assessed with a semiquantitative food frequency questionnaire, and nine COX–2 tag single nucleotide polymorphisms (SNP) were genotyped. We used logistic regression models to estimate odds ratios (OR) for association and interaction.

5. Results: Increasing intake of LC n–3 was strongly associated with a decreased risk of aggressive prostate cancer ($P_{\text{trend}} \leq 0.0001$). The OR (95% confidence interval) for prostate cancer comparing the highest with the lowest quartile of n–3 intake was of 0.37 (0.25–0.54). The LC n–3 association was modified by SNP rs4648310 (+8897 A/G), flanking the 3′ region of COX–2 ($P_{\text{interaction}} = 0.02$). In particular, the inverse association was even stronger among men with this variant SNP. This reflected the observation that men with low LC n–3 intake and the variant rs4648310 SNP had an increased risk of disease (OR, 5.49; 95% confidence interval, 1.80–16.7), which was reversed by increasing intake of LC n–3.

6. Conclusions: Dietary LC n–3 polyunsaturated fatty acids appear protective for aggressive prostate cancer, and this effect is modified by the COX–2 SNP rs4648310. Our findings support the hypothesis that LC n–3 may impact prostate inflammation and carcinogenesis through the COX–2 enzymatic pathway.

Consuming walnuts, fish and flaxseed meal can provide additional EFA’s to the diet.

Trans Fats on the other hand have shown a correlation in the development of BPH and further studies are being done now to establish more information on this. Processed and packaged foods are the biggest source of Trans Fats, along with Margarines.

Zinc plays a critical role in the prevention and treatment of a range of prostate problems. Since zinc absorption is impaired by oestrogen and enhanced by androgens, it stands to reason that men with
BPH would have low zinc levels as their oestrogen is high. Or is it that the low zinc levels have allowed the increased oestrogen? It really could go either way.

When testosterone is converted to DHT, that process is irreversible so it is important to do all we can to prevent the conversion in the first place. Zinc supplementation is one of the best ways that we can do this as zinc directly inhibits the activity of 5-alpha-reductase. Zinc also inhibits prolactin secretion by the pituitary, reducing the amount of testosterone taken up by the pituitary, reducing the amount of testosterone taken up by the prostate. Oysters, sunflower seeds and pumpkin seeds are high in zinc.

Lycopene is a nutrient found in red fruits and vegetables – highest in tomatoes – that appears to have some terrific benefits in treating and preventing many kinds of prostate problems.

Note below these 2 studies published on the benefits derived from supplementing with Lycopene;

**Lower Prostate Cancer Risk in Men with Elevated Plasma Lycopene Levels**

**Results of a Prospective Analysis**

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**ABSTRACT**

Dietary consumption of the carotenoid lycopene (mostly from tomato products) has been associated with a lower risk of prostate cancer. Evidence relating other carotenoids, tocopherols, and retinol to prostate cancer risk has been equivocal. This prospective study was designed to examine the relationship between plasma concentrations of several major antioxidants and risk of prostate cancer.

We conducted a nested case-control study using plasma samples obtained in 1982 from healthy men enrolled in the Physicians’ Health Study, a randomized, placebo-controlled trial of aspirin and β-carotene. Subjects included 578 men who developed prostate cancer within 13 years of follow-up and 1294 age- and smoking status-matched controls. We quantified the five major plasma carotenoid peaks (α-carotene, β-carotene, β-cryptoxanthin, lutein, and lycopene) plus α- and γ-tocopherol and retinol using high-performance liquid chromatography. Results for plasma β-carotene are reported separately. Odds ratios (ORs), 95% confidence intervals (CIs), and Ps for trend were calculated for each quintile of plasma antioxidant using logistic regression models that allowed for adjustment of potential confounders and estimation of effect modification by assignment to either active β-carotene or placebo in the trial.
Lycopene was the only antioxidant found at significantly lower mean levels in cases than in matched controls ($P = 0.04$ for all cases). The ORs for all prostate cancers declined slightly with increasing quintile of plasma lycopene (5th quintile OR = 0.75, 95% CI = 0.54–1.06; $P$, trend = 0.12); there was a stronger inverse association for aggressive prostate cancers (5th quintile OR = 0.56, 95% CI = 0.34–0.91; $P$, trend = 0.05). In the placebo group, plasma lycopene was very strongly related to lower prostate cancer risk (5th quintile OR = 0.75, 95% CI = 0.54–1.06; $P$, trend = 0.12); there was no evidence for a trend among those assigned to β-carotene supplements. However, in the β-carotene group, prostate cancer risk was reduced in each lycopene quintile relative to men with low lycopene and placebo. The only other notable association was a reduced risk of aggressive cancer with higher α-tocopherol levels that was not statistically significant. None of the associations for lycopene were confounded by age, smoking, body mass index, exercise, alcohol, multivitamin use, or plasma total cholesterol level.

These results concur with a recent prospective dietary analysis, which identified lycopene as the carotenoid with the clearest inverse relation to the development of prostate cancer. The inverse association was particularly apparent for aggressive cancer and for men not consuming β-carotene supplements. For men with low lycopene, β-carotene supplements were associated with risk reductions comparable to those observed with high lycopene. These data provide further evidence that increased consumption of tomato products and other lycopene-containing foods might reduce the occurrence or progression of prostate cancer.

**Lycopene, and Prostate Cancer Risk**

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**Background:** Some data, including our findings from the Health Professionals Follow-Up Study (HPFS) from 1986 through January 31, 1992, suggest that frequent intake of tomato products or lycopene, a carotenoid from tomatoes, is associated with reduced risk of prostate cancer. Overall, however, the data are inconclusive. We evaluated additional data from the HPFS to determine if the association would persist. **Methods:** We ascertained prostate cancer cases from 1986 through January 31, 1998, among 47 365 HPFS participants who completed dietary questionnaires in 1986, 1990, and 1994. We used pooled logistic regression to compute multivariate relative risks (RR) and 95% confidence intervals (CIs). All statistical tests were two-sided. **Results:** From 1986 through January 31, 1998, 2481 men in the study developed prostate cancer. Results for the period from 1992 through 1998 confirmed our previous findings—that frequent tomato or lycopene intake was associated with a reduced risk of prostate cancer. Similarly, for the entire period of 1986 through 1998, using the cumulative average of the three dietary questionnaires, lycopene intake was associated with reduced risk of prostate cancer (RR for high versus low quintiles = 0.84; 95% CI = 0.73 to 0.96; $P_{\text{trend}} = .003$); intake of tomato sauce, the primary source of bioavailable lycopene, was
associated with an even greater reduction in prostate cancer risk (RR for 2+ servings/week versus <1 serving/month = 0.77; 95% CI = 0.66 to 0.90; $P_{\text{trend}}<.001$), especially for extraprostatic cancers (RR = 0.65; 95% CI = 0.42 to 0.99). These associations persisted in analyses controlling for fruit and vegetable consumption and for olive oil use (a marker for Mediterranean diet) and were observed separately in men of Southern European or other Caucasian ancestry. **Conclusion:** Frequent consumption of tomato products is associated with a lower risk of prostate cancer.

Nettles are another herb with tremendous benefit for the prostate.

The studies cited below are all taken from Kerry Bone’s 2003 book ‘A Clinical guide to Blending Liquid Herbs’.

*Morphologic studies of BPH cell were conducted in 31 patients treated with nettle root extract (equivalent to 6g/day of root) for 20 weeks. The observed changes in the nucleus and cytoplasm of prostate cells may have been the result of inhibition of the binding capacity of SHBG (sex hormone binding globulin). In a randomized, double-blind, placebo-controlled trial, 3 months treatment with nettle root produced a significant improvement of International Prostate Symptom Score (IPSS) and a moderate reduction of residual urine volume.*

* Sixty seven patients experienced a reduction of nocturnal micturition frequency after 6 months of treatment with nettle root tincture (equivalent to 1g/day of root). In patients with a mild condition, symptoms were relieved within approximately 3 weeks.

* In a placebo-controlled, clinical trial, 40 patients with BPH were treated with combined nettle root and saw palmetto extract or placebo over 24 weeks. Significant improvement in symptoms was observed in the herbal treatment group compared with placebo. The daily dose was equivalent to 2.4 g per day of nettle root and 2.9 g per day of saw palmetto berries.

* In Germany, the Commission E supports using nettle root for treating difficult urination in BPH stages 1 and 2.

Chaste Tree herb is often given to women with hormonal imbalances; however, many reports show great benefit for men suffering various prostate problems. By increasing the progesterone levels, this can create a relative lowering of the effects of oestrogen in men and women. The summary of the article below shows 2 of these benefits.

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A *Vitex agnus-castus* extract inhibits cell growth and induces apoptosis in prostate epithelial cell lines.


Institute of Pharmaceutical Biology, University of Basel, Schönbeinstrasse 40, 4003 Basel, Switzerland.

The final summary of the above study on chaste tree extract and BPH, states;
These data suggest that VACF contains components that inhibit proliferation and induce apoptosis in human prostate epithelial cell lines. The extract may be useful for the prevention and/or treatment not only of benign prostatic hyperplasia but also of human prostate cancer.

Saw palmetto is another great herb for helping with BPH.

The studies cited below are all taken from Kerry Bone’s 2003 book ‘A Clinical guide to Blending Liquid Herbs’.

- Results from several uncontrolled clinical trials demonstrated significant therapeutic effects for saw palmetto in patients with BPH over the long term (3 years in one study), with good to excellent tolerability.
- Double-blind, controlled trials of combination therapy with Saw Palmetto and other phytotherapeutic agents have been undertaken. Urinary flow, micturition time, residual urine, frequency of micturition and a subjective assessment of the effect of treatment were all significantly improved over placebo for Saw Palmetto and pumpkin seed extract combination therapy. When saw palmetto was combined with Nettle Root and compared with placebo over 24 weeks, significant improvements were seen in IPPS and peak flow but not post void residual.
- In Germany, the Commission E supports using saw palmetto to treat urination problems in stages 1 and 2.

In short, there seems to be alot that we can do from a natural dietary and herbal perspective to prevent and treat BPH and allow men to lead a life free from the problems associated with the prostate. The information above acts as a good place to begin making some adjustments.