In a nutshell

Plant sterols are natural substances that offer an apparently safe and effective mode of treatment for patients with BPH. They can be taken in the normal diet, in some specially enriched food products and as direct supplements.

There is some epidemiological, animal and laboratory evidence that they may be protective against prostate cancer, but as yet no clinical trials.

### NUTRITION RESEARCH REVIEW

#### Study 1: Meta-analysis

A meta-analysis carried out under the Cochrane Collaboration protocol showed that the use of β-sitosterol for BPH is effective both subjectively and objectively.

**Subjects and methods**: The authors combined results from 4 trials involving 519 men with BPH, with interventions lasting from 4 to 26 weeks.

**Results**: There were significant improvements in symptoms and urine flow dynamics in all trials. See Table. There was no reduction in prostate size.


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<tr>
<th>Weighted mean differences after sitosterol intervention: meta-analysis</th>
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<td>Weighted mean diff.</td>
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<td>IPSS    *</td>
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<td>Peak urine flow</td>
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<td>Residual volume</td>
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* International prostate symptom score

#### Study 2: Clinical trial

The benefits of using the plant sterol β-sitosterol as treatment for BPH are ongoing over at least 18 months, according to German research.

**Subjects**: 200 patients with symptomatic BPH were recruited originally. 117 of these patients were available for follow-up at 18 months after original enrollment.

**Method**: In the original randomised, placebo-controlled clinical trial, patients were treated with either β-sitosterol (60 mg/day) or placebo for 6 months. Thereafter, blinding was stopped and subjects invited to continue the therapy on an ongoing basis.

**Results**: In the original trial, patients on active treatment had a significant decreases in symptoms, mean residual urine volume and increase in peak urine flow 

After 18 months, those who were on active treatment and had continued had no deterioration in their symptoms of urodynamics. Those who had been on active treatment but subsequently ceased active treatment had slightly worse symptoms and mean residual urine volume but maintained their previous peak urine flow.
Those who had been on placebo and not taken up active treatment had no improvement in their symptoms or urodynamics. Those who had been on placebo but taken up active treatment had improvements similar in degree to the originally active group.b.

References:

Comments
In an earlier issue (#132 on plant sterols and cholesterol) we explained that plant or phyto-sterols are substances (such as β-sitosterol and its glycoside, β-sitosterol) which are found in the normal diet and which have a chemical structure similar to cholesterol. Food manufacturers have specially enriched some processed foods with them.

As the meta-analysis makes clear, a small number of trials have produced consistent results showing that these compounds can be successfully used to treat the symptoms and urodynamic changes of BPH. Side-effects have not been a problem.

The mechanism for this effect is not clear, but there are several feasible possibilities. In animals, plant sterols have shown anti-inflammatory, anti-neoplastic, anti-pyretic, and immune-modulating properties1. Of these, the anti-inflammatory actions are the most likely to be relevant to BPH. In a human trial, plant sterols counteracted the inflammatory post-exertion response to marathon running2.

More specific to the prostate, β-sitosterol had a modulating effect in vitro on prostatic growth factor (beta 1) and the activity of a protein kinase (C α) in primary prostate stromal cell cultures3.

There is little evidence as yet as to whether this positive influence of plant sterols will extend to protective or therapeutic benefits for prostate cancer. There is some epidemiological and animal evidence to support this notion, although the epidemiology is complicated by the fact that plant sterols are just one type of phytoestrogen, a class of nutrient with known protective association against prostate cancer4.

Possible mechanisms of any specific phytosterol effect include membrane modulation and stimulation of apoptosis of prostatic cancer cells and immune stimulation5,6. There is also some evidence that phytoestrogens may help in the prevention of other forms of cancer as well, such as breast cancer7.

References:

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