



# Clinical use of saw palmetto

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**INTRODUCTION** — Extracts of the fruit from saw palmetto (*Serenoa repens*), the American dwarf palm tree ([picture 1](#)), are commonly ingested to treat benign prostatic hypertrophy (BPH). The first evidence of saw palmetto use for urinary symptoms in men is from Egypt in the 15th century BC [\[1\]](#). In the early 1700s, Native Americans in what is now Florida utilized saw palmetto to treat prostate gland swelling and inflammation, testicular atrophy, and erectile dysfunction [\[2,3\]](#).

In the 1870s, eclectic medical practitioners used the plant for urologic conditions. Saw palmetto berries were officially listed in the United States Pharmacopoeia in the first half of the 20<sup>th</sup> century [\[4\]](#). Saw palmetto use is common in Europe and somewhat less popular in the United States [\[5\]](#).

A number of studies and meta-analyses have evaluated extracts of the saw palmetto berry for its safety and efficacy in the treatment of BPH; these are reviewed here. Detailed discussions of the treatment of BPH and the use of saw palmetto in the combination herbal product PC-SPES for the treatment of prostate cancer are discussed separately. (See "[Alternative endocrine therapies for castration-resistant prostate cancer](#)".)

**PROPOSED MECHANISMS OF ACTION** — The saw palmetto berry contains over 100 known compounds. The potential active ingredients in saw palmetto appear to be contained in the purified lipid soluble extract of the saw palmetto berry. This has been found to contain 85 to 95 percent fatty acids (predominantly lauric, caprylic, and caproic), long-chain alcohols, and sterols (including beta-sitosterol, stigmasterol, cycloartenol, lupeol, lupenone, and methylcycloartenol) [\[6\]](#).

The exact mechanisms of action of saw palmetto are unknown [\[6\]](#). Proposed mechanisms include antiandrogenic effects [\[6,7\]](#); inhibition of type 1 and type 2 isoenzymes of 5-alpha-reductase [\[8-10\]](#); inhibition of growth factors such as the insulin-like growth factor-I [\[11\]](#); relaxation of lower urinary tract smooth muscle through antagonism of muscarinic receptors [\[12\]](#); antiinflammatory effects through inhibition of lipoxygenase, cyclooxygenase [\[13\]](#), and leukotrienes [\[14\]](#); alteration of cholesterol metabolism; antiestrogenic effects; and a decrease in available sex hormone-binding globulin [\[6,15-18\]](#).

In clinical trials, while there is no evidence supporting a single mechanism of action, prostatic cellular changes are evident after treatment with saw palmetto. As examples:

- In a trial including 35 males with benign prostatic hypertrophy, treatment with saw palmetto for three months prior to prostatectomy decreased nuclear receptors for estrogen, progesterone, and androgen compared with placebo [6].
- In another trial of 40 males with benign prostatic hypertrophy, six months of saw palmetto treatment altered nuclear chromatin in prostatic epithelial cells to a greater degree than placebo [19].

## CLINICAL TRIALS/INDICATIONS

**Benign prostatic hypertrophy** — Saw palmetto is widely used for treatment of benign prostatic hypertrophy (BPH), but there are few data to support its efficacy and we do not recommend its use. (See "[Medical treatment of benign prostatic hyperplasia](#)".)

A 1998 systematic review including 18 mostly European randomized controlled trials concluded there was promising evidence for efficacy of saw palmetto compared with placebo for decreasing nocturia, residual urine volume, and urinary tract symptom score [1]. However, a 2012 systematic review including 32 randomized trials did not find any differences in urinary symptom scores, measures of urinary flow, or prostate size [20]. A subsequent 2021 meta-analysis including 27 randomized controlled trials concluded with high certainty that use of saw palmetto resulted in little or no short- or long-term benefit in lower urinary tract symptoms or quality of life [21]. In addition, in trials of combination preparations (including saw palmetto and other botanical products), there was very low certainty that there was slight short-term improvement in urinary symptoms.

**Prostatitis** — There are no data supporting saw palmetto use in the treatment of chronic prostatitis [22]. In a small one-year randomized controlled trial comparing saw palmetto with [finasteride](#) for chronic prostatitis/chronic pelvic pain syndrome, patients taking saw palmetto showed no improvement as measured by the National Institutes of Health (NIH) Chronic Prostatitis Symptom Index score [23]. (See "[Chronic prostatitis and chronic pelvic pain syndrome](#)".)

**Prostate cancer** — In a random mail survey of males diagnosed with prostate cancer in Ontario, Canada, 11.8 percent reported use of saw palmetto [24]. Although over half of those using saw palmetto reported using it to treat or cure their prostate cancer, there is no substantive evidence that saw palmetto influences the course of prostate cancer or changes prostate-specific antigen (PSA).

## SAFETY

**Adverse reactions** — Infrequent, mild side effects, including headache, nausea, and dizziness, have been noted with the use of saw palmetto [1], although adverse effects have generally been reported to be comparable to placebo. For example, in a 2021 meta-analysis, there was no difference in the frequency of adverse events between saw palmetto and placebo [21].

Rare adverse effects have been reported in individual studies. As examples, one study reported hypertension in 3.1 percent of patients receiving saw palmetto [25], there is one case report of cholestatic hepatitis reported with a combination product containing multiple ingredients including saw palmetto [26], two cases of acute pancreatitis have been linked to use of saw palmetto [27,28], and one episode of intraoperative bleeding associated with an elevated bleeding time presumably related to saw palmetto has been reported [29]; the authors speculate that this may have resulted from platelet dysfunction caused by cyclooxygenase inhibition.

Several studies have demonstrated that saw palmetto does not significantly affect the prostate-specific antigen (PSA) concentration [25,30-32].

**Contraindications** — Given the lack of safety data and its documented hormonal activity, use of saw palmetto is contraindicated in pregnancy and lactation [33]. Due to concerns over possible increased bleeding risk, saw palmetto should be discontinued two weeks prior to surgery [34].

**HERB-DRUG INTERACTIONS** — The hormonal activity of saw palmetto could theoretically interfere with oral contraceptives and hormone therapy [33]. Saw palmetto does not appear to interact significantly with the different cytochrome P450 isoforms [35,36]. There is a theoretical risk of increased bleeding if combined with antiplatelet drugs or anticoagulants. Further details about drug interactions can be found in [Lexicomp drug interactions](#).

## ADMINISTRATION

**Dosage** — The most common dosage of saw palmetto used in clinical trials is 160 mg twice daily of a dried lipophilic extract containing 80 to 90 percent fatty acids.

**Standardization issues** — Many different preparations of saw palmetto are available. One study analyzing six different brands of saw palmetto purchased from retail and specialty stores measured the actual saw palmetto content [37]. Measured amounts of saw palmetto extract varied from 3 to 140 percent of the stated dosages on the labels. Three products contained less than 20 percent of the stated dosages. One brand showed statistical differences in measured dosage between lots. Similarly, a study of 14 brands of saw palmetto extract found significantly different amounts of free fatty acid content [38]. An in vitro comparison of the inhibition of 5 alpha-reductase by different saw palmetto brands showed wide variation [39].

Patients who choose to use saw palmetto can use products that have passed specified quality criteria by independent commercial laboratories. (See ["Overview of herbal medicine and dietary supplements"](#).)

## SUMMARY AND RECOMMENDATIONS

- **Not recommended for treatment of BPH or other prostate conditions** – We recommend not treating patients with benign prostatic hypertrophy (BPH) symptoms with saw palmetto ([Grade 1A](#)). Large high-quality trials have not shown saw palmetto to be effective for the treatment of BPH. Additionally, there is no evidence of efficacy of

saw palmetto for the treatment of prostatitis or prostate cancer. (See 'Benign prostatic hypertrophy' above.)

●**Adverse effects rare** – Saw palmetto appears to be well-tolerated; serious adverse effects appear to be rare. (See 'Safety' above.)

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17 : Growing use of medicinal botanicals forces assessment by drug regulators.

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24 : Use of complementary/alternative medicine by men diagnosed with prostate cancer: prevalence and characteristics.

25 : Comparison of phytotherapy (Permixon) with finasteride in the treatment of benign prostate hyperplasia: a randomized international study of 1,098 patients.

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