**Antioxidant Activity**

Research suggests that such balance can be supported by (1) offering the body “weak” estrogens in the form of phytoestrogens that support estrogenic activity when it is low or replace potend endogenous or exogenous estrogens and (2) reducing abundant estrogenic activity, such as through influencing aromatase.[11] Research suggests that the ingredients in Estro Harmony fulfill both approaches.

8-prenylflavonoid 8-PN, which is obtained from the lupulin glands of hops cones, has been identified as one of the most potent phytoestrogens.[3] This is because it provides greater phytoestrogen activity than other commonly used isoflavone phytoestrogens, such as daidzein and genistein.[21] While 8-PN can exert proestrogenic effects (e.g., through estrogen receptors), it also has antiestrogenic effects (e.g., through aromatase) and therefore acts as an estrogen modulator.[5,6] Aromatase is a cytochrome P450 isoenzyme responsible for converting circulating androgens into estrogens. Aromatase is expressed in several tissues, for example breast tissue, where estrogens exert physiological activity.[11] New research suggests that prenylflavonoids such as 8-PN interact with aromatase in a manner that downregulates endogenous estradiol biosynthesis[5,6] and therefore affects the relative balance of other hormones.[8] Of the flavonoids studied, 8-PN demonstrated the greatest impact on estrogen biosynthesis during in vitro experimentation.[5,6]

**HMRlignan™ and Enterolactone** Plant lignans are phytonutrients commonly found in small amounts in many foods. The friendly bacteria in our intestines convert plant lignans into the “human” lignans called enterodiol and enterolactone. In humans, 7-hydroxymatairesinol is a direct metabolic precursor of enterolactone. Pharmacokinetic and dose comparison studies using HMRlignan indicate marked elevations in serum enterolactone with a dose as low as 10 mg/d.[5,6] Enterolactone is a phytoestrogen that binds to estrogen receptors and has both weak estrogenic and weak antiestrogenic effects. The latter accounts for much of its cell-protective capacity.[11] Additionally, in vitro work has demonstrated that enterolactone affects the biosynthesis of estrogen[8] and has strong free radical scavenging and antioxidant properties.[5,6]

**DISCUSSION**

As scientific knowledge advances, it is becoming more evident that a balance of estrogenic and antiestrogenic activities within the body is normal and optimal. Research suggests that such balance can be supported by (1) offering the body “weak” estrogens in the form of phytoestrogens that support estrogenic activity when it is low or replace potent endogenous or exogenous estrogens and (2) reducing abundant estrogenic activity, such as through influencing aromatase.[11] Research suggests that the ingredients in Estro Harmony fulfill both approaches.

**CLINICAL APPLICATIONS**

- Helps Protect Breast Cells by Influencing Aromatase Activity and Cell Signaling Pathways*
- Relieves Normal Menopausal Hot Flashes*
- Supports Bone Remodeling and a Healthy Cardiovascular Status Through Estrogen-Related Pathways*

*Estro Harmony™ is for women who want relief from menopausal hot flashes and support for breast health. In addition, research suggests that the ingredients in this formula can also benefit cardiovascular status and bone remodeling. This all-natural formula delivers a proprietary blend of plant lignan extract and 8-prenylflavonoid (8-PN) from hops, at clinically relevant levels, to support the body’s natural process of healthy aromatase activity and exert phytoestrogen (e.g., enterolactone) and antioxidant activity.*

**Hot Flashes** In vitro and in vivo studies conducted in recent years have indicated a potential role for 8-PN in relieving common menopausal concerns, including hot flashes.[7,12,13] In a pilot and prospective randomized and placebo-controlled studies, postmenopausal women who took 100 mcg/day of 8-PN experienced reductions in hot flashes and other common menopausal discomforts.[11,13,14] The estrogenicity of HMRlignan and enterolactone, although milder than estradiol, also offers promising applications for women with menopausal concerns. For instance, in a randomized, single-blind, parallel group pilot study, 20 menopausal women taking 50 mg/d of 7-hydroxymatairesinol for eight weeks experienced half as many hot flashes as they did prior to supplementation.[14]

**Breast Health** In vitro studies show promising effects of 8-PN for application in breast health.[8,16,22] Brunelli et al.[22] investigated the influences of 8-PN on epidermal growth factor (EGF)-elicited pathways in certain breast cells and demonstrated that 8-PN interferes with EGF-induced cell proliferation in estrogen-receptor positive cells. In another breast-cell–line study, 8-PN administration led to a decrease in reactive oxygen species production along with an increase of oxidative phosphorylation system and sirtuin expression.[17] Hemachandra et al concluded that the protective action of hops on mammary cell transformation resulted from attenuation of estrogen metabolism mediated by 8-PN.[24] The protective effect of lignans and enterolactone on breast health is also encouraging. In fact, high serum enterolactone is associated with an increased likelihood of breast health in postmenopausal women.[16]

**Cardiovascular and Bone Health** It is well-known that the normal menopausal decline in estrogen negatively impacts bone health. Phytoestrogens, because of their estrogen mimetic effect, have been shown to have a protective effect on bone density in postmenopausal women,[7,18] and animal and in vitro work show promising effects of 8-PN, specifically, on bone metabolism.[22,23] In a study of ovariectomized rats, the effect of 8-PN on bone biomechanical strength and bone mineral density was much larger than that of genistein or resveratrol.[24] In addition, a strong correlation between phytoestrogen intake and cardiovascular health has been reported; and animal and in vitro work studying the effects of 8-PN on lipid metabolism and platelet aggregation are encouraging.[20,22] Furthermore, human data show that high serum enterolactone is associated with reduced risk to cardiovascular health.[20,22]

**Available in 60 vegetable capsules**

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

XYMOGEN® Exclusive Professional Formulas

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**Estro Harmony™ Supplement Facts**

**Serving Size:** 2 Capsules

**Amount Per Serving %Daily Value**

**Estro Harmony™ Proprietary Blend**
- Norway spruce lignan extract (Picea abies) (knot-wood) (90% hydroxymatairesinol potassium acetate) and 8-prenylnaringenin (from hops extract) / *Humulus lupulus* (cones)

**Daily Value not established.**

**Other Ingredients:** Microcrystalline cellulose, HPMC (capsule), stearic acid, magnesium stearate, and silica.

**DIRECTIONS:** Take one to two capsules daily, or as directed by your healthcare practitioner.

Consult your healthcare practitioner prior to use. Do not use if tamper seal is damaged.

**DOES NOT CONTAIN:** Wheat, gluten, corn, soy, animal or dairy products, fish, shellfish, peanuts, tree nuts, egg, ingredients derived from genetically modified organisms (GMOs), artificial colors, artificial sweeteners, or preservatives.

**STORAGE:** Keep tightly closed in a cool, dry place out of reach of children.

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**REFERENCES**


**Additional references available upon request**