



Horse Chestnut Seed Extract and Venous Insufficiency



Mel Borins, MD, CCFP, FCFP



Horse chestnut, or *Aesculus hippocastanum*, has been used in Europe for many years as a treatment for venous diseases. This crude drug is made from the

dried seeds of the horse chestnut tree. There are no data to suggest that horse chestnut flowers, raw seeds, branch bark, or leaves are effective for any indication. It is recommended that these products not be used, as they are known to be toxic when ingested.

Usually, when we treat patients for venous insufficiency, compression bandages or stockings are used. I find patients are often non-compliant with this treatment because of the difficulty in putting them on and their unsightly appearance.

What are the active ingredients?

Two principle ingredients identified in horse chestnut are aesculin (a coumarin derivative) and aescin (a saponin). In addition, there are apparently a number of flavones. Aescin is believed to affect capillary permeability and improve the tone of the walls of veins. It is also believed to have anti-oxidative properties. Preparations are not only used orally but also externally, in the form of ointment and gels.

In Germany, Commission E, which is the equivalent of the US Food and Drug Administration (FDA),

approved standardized powdered extract of horse chestnut seeds—adjusted to a triterpene glycoside content of 16% to 20% (calculated as anhydrous aescin)—as an appropriate treatment of lower-limb vascular conditions, such as:

- pain and feelings of heaviness,
- nocturnal calf muscle spasm,
- itching and
- swelling of the legs.

This applies to products that supply a daily dose of 100 mg of aescin, corresponding to about 300 mg of extract in controlled release form.

What do the randomly-assigned reviews show?

A Cochrane review concluded that there was an improvement in chronic venous insufficiency with the short-term use of horse chestnut seed extract. Leg pain was assessed in seven placebo-controlled trials. Six reported a significant reduction in leg pain in the horse chestnut seed extract groups, compared with the placebo groups, while another group reported a statistically significant improvement compared with baseline.

Leg volume was assessed in seven placebo-controlled trials. A meta-analysis of six trials (n = 502) suggested a decrease in leg volume when horse chestnut seed extract was compared with placebo. One trial indicated that horse chestnut seed extract may be as effective as treatment with compression stockings.

Horse chestnut, or Aesculus hippocastanum, has been used in Europe for many years in the treatment of venous diseases.

Leg circumference and pruritus was also shown to be significantly improved with horse chestnut seed extract. Adverse events were usually mild and infrequent. The authors concluded that more rigorous randomized controlled trials (RCTs) are required to confirm the efficacy of this treatment option.


One trial indicated that horse chestnut seed extract maybe as effective as treatment with compression stockings.

Another review of 14 RCTs found seven to be methodologically of high quality, but limited by small sample sizes and short durations. These studies supported the superiority of horse chestnut seed extract over placebo and suggest equivalence to compression stockings and to oral oxerutins. The authors also suggested a longer and adequately powered randomized trial comparing horse chestnut seed extract to standard of care and to further assess safety and long-term efficacy.

Another review identified 13 RCTs of chronic venous insufficiency (1,051 patients) and three observational studies (10,725 patients). They reported that compared to placebo, horse chestnut seed extract reduced leg volume and increased the likelihood of improvement in leg pain four-fold. There was improvement in edema and itching. Although observational studies showed significant effectiveness regarding pain, edema and leg fatigue/heaviness, there was insufficient RCT evidence to

demonstrate horse chestnut seed extract's effect on leg fatigue/heaviness or calf cramps. No severe adverse events were reported and horse chestnut seed extract did not significantly increase mild adverse events.

Final thoughts

Although there are many anecdotal observations for the use of topical preparations applied to varicose veins and hemorrhoids, there is a paucity of clinical trials to support topical use. Horse chestnut has not been evaluated by the FDA for safety, effectiveness, or purity. All potential risks and/or advantages of horse chestnut may not be known. 

Dr. Borins would like to thank Barbara Iwasiuk, librarian, St. Joseph's Health Centre, Toronto, Ontario, for her help with the literature search.

References

1. Pittler MH, Ernst E: Horse chestnut seed extract for chronic venous insufficiency. *Cochrane Database Syst Rev* 2006; (1):CD003230.
2. Tiffany N, Boon H, Ulbricht C, et al: Horse chestnut: A multidisciplinary clinical review. *J Herb Pharmacother* 2002; 2(1):71-85.
3. Siebert U, Brach M, Sroczynski G, et al: Efficacy, routine effectiveness, and safety of horse chestnut seed extract in the treatment of chronic venous insufficiency. A meta-analysis of randomized controlled trials and large observational studies. *Int Angiol* 2002; 21(4):305-15.

Dr. Borins is an Associate Professor, Faculty of Medicine, University of Toronto and a Staff Member, St. Joseph's Health Centre, Toronto, Ontario. www.melborins.com.