

Peppermint (*Mentha piperita*)

History

- Peppermint oil is one of the world's oldest medicinal herbs, with use documented in ancient Egypt, Greece, and Rome.
- Peppermint oil extract is the most studied form. Whether fresh or dried peppermint leaf might also have medicinal value has not been studied.
- Menthol, one of the main constituents of peppermint, is a key ingredient in many OTC commercial remedies.

Most studied uses

Irritable bowel syndrome.

Other common uses

Decongestant, antitussive, dyspepsia, headache.

Summary of the evidence

- There is some evidence that peppermint oil capsules may reduce the symptoms of irritable bowel syndrome, especially diarrhea, flatulence, and abdominal discomfort.
- There are concerns that giving infants or young children peppermint oil under the nose could cause apnea.

Pharmacology

- The principle components of peppermint oil are menthol (30%), menthone (20-30%), and menthyl acetate (3-10%).
- Other components include terpenoids, flavenoids, polymerized polyphenols, carotenes, tocopherols, betaine, and choline.

Mechanism of action

- Peppermint oil appears to directly relax gastrointestinal smooth muscle.
- Menthol has a vasodilatory effect on the skin and blood vessels.

Clinical studies

- One double-blind RCT (Kline 2001) tested enteric-coated peppermint oil capsules or placebo in 42 children with irritable bowel syndrome. After 2 weeks, 75% of those receiving peppermint oil had a reduced severity of pain associated with IBS.
- Another double-blind RCT study (Liu 1997) of 110 adult patients with irritable bowel syndrome found that more than twice as many patients given peppermint experienced a reduction in symptoms of abdominal pain, diarrhea, and flatulence compared to those given placebo (70% vs. 30%, $p < 0.05$).
- A meta-analysis by Pittler in 1998 found 5 RCT's of peppermint oil for the treatment of irritable bowel syndrome which were of sufficiently high quality for inclusion. Overall, these studies suggested a significant positive effect for peppermint oil ($p < 0.001$), although the studies with the highest quality were negative, whereas the lower quality studies were positive.

Adverse effects

- Adverse reactions to enteric coated peppermint oil capsules are rare but include hypersensitivity reaction, contact dermatitis, abdominal pain, and muscle tremor.
- In some people, peppermint oil may worsen symptoms of esophageal reflux.

Contraindications/cautions

- Should not be applied under the nose in infants and small children as it may cause apnea.
- Contraindicated for those with obstructed bile ducts, gallbladder inflammation and severe liver damage.

Important drug/herb interactions

- Antacids and other drugs which reduce gastric acid, such as proton pump inhibitors, may cause premature dissolution of enteric coated peppermint oil tablets.

Formulation and dosage

- The most frequently studied dose for irritable bowel syndrome in adults is 0.2 – 0.4 ml of peppermint oil packaged into enteric-coated capsules given tid.
- For children 8 years and older the recommended dose is 0.1 – 0.2 ml given tid.
- For the enteric coating to work properly, these preparations should be taken between meals only.

Key Peppermint References

1. Kline RM, et al. Enteric-coated, pH-dependent peppermint oil capsules for the treatment of irritable bowel syndrome in children. *J Pediatr*. 2001 Jan;138(1):125-8.
2. Liu JH, et al. Enteric-coated peppermint-oil capsules in the treatment of irritable bowel syndrome: a prospective, randomized trial. *J Gastroenterol*. 1997 Dec;32(6):765-8.
3. Pittler MH, et al. Peppermint oil for irritable bowel syndrome: a critical review and metaanalysis. *Am J Gastroenterol*. 1998 Jul;93(7):1131-5.

For Additional Information

1. Natural Medicines Comprehensive Database. Available through UW Healthlinks.
2. About Herbs. <http://www.fammed.washington.edu/predoctoral/CAM/sites.html>.
3. Herbmed.org for more general background.
4. For information about the quality of specific brands, check Consumerlabs.com.

