Health Bits & Pieces, Spring 2014
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Grape Seed Extract

In the last *Bits & Pieces* column, I reported on how men who used grape-seed extract reduced their risk of developing prostate cancer by 41% according to epidemiological research in Washington. New research shows that in addition to its preventive properties, grape-seed extract can improve outcomes in colon cancer and relieve mucositis, a severe side effect of certain types of chemotherapy. Mucositis is a serious disorder of the gastrointestinal tract that results from cancer chemotherapy. Mucositis in the digestive tract is a possible cause of some of the hypersensitivity that causes discomfort from nausea, constipation, and diarrhea during chemotherapy. Researchers in Australia investigated the effects of administering grape-seed extract and its effect on the severity of chemotherapy in a rat model and its coincident impact on chemotherapeutic effectiveness in colon cancer cells. They found that grape-seed extract was effective at ameliorating 5-Fluorouracil (5FU)-induced intestinal injury.

Cheah K, Howarth G, Bastian S, "Grape seed extract dose-responsively decreases disease severity in a rat model of mucositis; concomitantly enhancing chemotherapeutic effectiveness in colon cancer cells," PLoS One *2014 Jan 21;9(1):e85184. doi: 10.1371/journal.pone.0085184. eCollection 2014.*

Vitamin D for Breast Cancer

A meta-analysis was performed on the relationship between a type of Vitamin D (25(OH)D) and mortality from breast cancer based on five studies. Higher serum concentrations of Vitamin D were associated with a lower rate of fatality on patients with a diagnosis of breast cancer. Patients in the highest 20% of Vitamin D had approximately half the death rate from breast cancer as those in the lowest. The researchers concluded that Vitamin D should be restored to the normal range (30-80 ng/ml) in all patients with breast cancer, and have appropriate monitoring.

Mohr S, Gorham E, Kim J, Hofflich H, Garland C, "Meta-analysis of vitamin D sufficiency for improving survival of patients with breast cancer," Anticancer Research *2014 Mar;34(3):1163-6.*

Vitamin D for Prostate Cancer

Other research on Vitamin D and prostate cancer shows that Vitamin D can slow the progression of prostate cancer and decrease the invasiveness of cancer cells in the prostate. Calcitriol, the active form of Vitamin D, is produced by the body and provides numerous benefits against cancers. This form of Vitamin D encourages cells to either adapt to their organ or commit apoptosis (cell suicide). Calcitriol also limits blood supply to the tumor and reduces the spread of cancer. These may be the roles that Vitamin D plays in prostate cancer, near the beginning and end stages.

Bauer J, Thompson T, et al., "Growth inhibition and differentiation in human prostate carcinoma cells induced by the vitamin D analog 1alpha,24-dihydroxyvitamin D2," Prostate *55(3): 159-67 (2003); Schwartz G, Wang M, et al., "1 alpha, 25-Dihydroxyvitamin D (calcitriol) inhibits the invasiveness of human prostate cancer cells,"* Cancer Epidemiology, Biomarkers and Prevention *6(9): 727-32 (1997).*

Sunshine for Depression?

Vitamin D has long been known as the sunshine vitamin. It is synthesized in the skin from cholesterol in the presence of sunlight. Research in the U.K. suggests that those study participants with blood levels of Vitamin D (as 25(OH)D) between 50 and 85 nmol/l were at lower risk for depression, anxiety, panic, and phobias at mid-life (age 45), compared to subjects with lower or higher concentrations of the vitamin.

Maddock J, Berry D, Geoffroy M, Power C, Hyppönen E, "Vitamin D and common mental disorders in mid-life: cross-sectional and prospective findings," Clinical Nutrition *2013 Oct;32(5):758-64. doi: 10.1016/j.clnu.2013.01.006. Epub 2013 Jan 21.*

Aromatherapy for the Digestive System

Aromatherapy is the use of aromatic essential oils taken not only by inhalation but by massage, in baths, and also orally. There is ample research supporting the oral use of essential oils for various digestive system disorders. Diarrhea attributed to microbial infection, infectious colitis, is estimated at around 99 million episodes per year among adults, one of the most common diagnoses. There are many potential causes, which is one reason for its prevalence. Compared with inflammatory bowel disease (IBD), such as ulcerative colitis, infectious colitis is usually more acute in onset.

Oil of thyme was found to kill the pathogenic microbes *Staphylococcus aureus, Enterococcus faecalis, Pseudomonas aeruginosa, Escherichia coli*, two strains of *Klebsiella pneumonia*, and two strains of *Candida albicans* in vitro. Another study showed that oil of thyme is also antimicrobial against *Listeria monocytogenes*.

Maksimović Z, Milenković M, Vučićević D, Ristić M, "Chemical composition and antimicrobial activity of Thymus pannonicus All. (Lamiaceae)," Central European Journal of Biology *(3)2: 149-154, 2008; Rasooli I, Rezaei MB, Allameh A, "Ultrastructural studies on antimicrobial efficacy of thyme essential oils on Listeria monocytogenes,"* International Journal of Infectious Diseases *2006;10(3):236-41.*

Stomach and duodenal ulcers are attributed to the common microbe *Helicobacter pylori*. Stress, spicy foods, alcohol, tobacco, and some prescription drugs can play a significant role in the occurrence of the condition, but the bacterium *Helicobacter pylori* is now considered to be the primary cause in most cases. Complications include severe symptoms such as vomiting blood, with the color of blood ranging from reddish to blackish in appearance. Another sign of complications is occult bleeding causing stools that are black and tarry. Changes in appetite and weight loss can also occur. Other complications are perforation, with the risk of peritonitis, and scar tissue, which can obstruct movement of food through the digestive tract, causing a sensation of fullness, weight loss, and severe nausea.

Several essential oils have been found to be effective for treating *H. pylori* according to several studies. These include German chamomile (*Matricaria recutita*), sage (*Salvia officinalis*), lemon grass (*Cymbopogon citratus*), lemon verbena (*Lippia citriodora*), caraway (Carum carvi), cumin (*Cumin cymenum*), peppermint (*Mentha piperata*), spearmint (*Mentha spicata*), and clove (*Syzygium aromatica*).

Shikov A, Pozharitskaya O, Makarov V, Kvetnaya A, "Antibacterial activity of Chamomilla recutita oil extract against Helicobacter pylori," Phytotherapy Research *Vol. 22, Issue 2, pages 252-253, Published Online: 28 Aug 2007; Cwikla C, Schmidt K, Matthias A, Bone K, Lehmann R, Tiralongo E, "Investigations into the antibacterial activities of phytotherapeutics against Helicobacter pylori and Campylobacter jejuni," Published Online: 3 Aug 2009; Ohno T, Kita M, Yamaoka Y, Imamura S, Yamamoto T, Mitsufuji S, Kodama T, Kashima K, Imanishi J, "Antimicrobial activity of essential oils against Helicobacter pylori,"* Helicobacter *2003 Jun;8(3):207-15; O'Mahony R, Al-Khtheeri H, Weerasekera D, Fernando N,Vaira D, Holton J, Basset C, "Bactericidal and anti-adhesive properties of culinary and medicinal plants against Helicobacter pylori,"* World Journal of Gastroenterology *2005 Dec 21;11(47):7499-507; Lacobellis N, Lo Cantore P, Capasso F, Senatore F, "Antibacterial activity of Cuminum cyminum L. and Carum carvi L. essential oils,"* Journal of Agricultural and Food Chemistry*, 2005 Jan 12;53(1):57-61; Imai H, Osawa K, Yasuda H, Hamashima H, Arai T, Sasatsu M, "Inhibition by the essential oils of peppermint and spearmint of the growth of pathogenic bacteria,"* Microbio *2001;106 Suppl 1:31-9; Bae E, Han M, Kim N, Kim D, "Anti-Helicobacter pylori activity of herbal medicines,"* Biological and Pharmaceutical Bulletin*, 21(9): 990-992. 1998.*

Ulcerative Colitis

Ulcerative colitis (UC) is a disease in which the lining of the large intestine becomes inflamed. This inflammation leads to the formation of raw sores or ulcers causing pain and bloody diarrhea. UC can begin at any age but most people who get it are in their early twenties. For most, UC comes and goes for the rest of their lives. Most people can control attacks by taking medicine and adjusting their diet. This consists of decreasing refined foods, sugars, and saturated fats and eliminating all food allergens from the diet. Common allergenic foods are dairy, soy, citrus, peanuts, wheat, fish, eggs, corn, and tomatoes. A rotation diet in which the same food is not eaten more than once every four days may help reduce symptoms. Dairy products, Brassica vegetables (cabbage, Brussels sprouts, broccoli, cauliflower and kale), and gluten-containing grains (wheat, oats, barley, triticale and rye) may make ulcerative colitis worse. Fiber supplementation can help reduce abdominal pain cramping and gas: psyllium flax meal, slippery elm powder, and marshmallow root powder can soothe irritated mucous membranes. Probiotic supplements should be taken two to three times a day. Essential fatty acids may also protect intestinal lining. Fish oil (3 to 4 g up to 18 g per day) and proteolytic enzymes like Bromelain (250 to 500 mg between meals) can also help with inflammation.

Peppermint oil in capsules is the most-researched solution to this problem, although other essential oils including thyme and caraway have been used for treatment.

Hills J, Aaronson P, "The mechanism of action of peppermint oil on gastrointestinal smooth muscle; An analysis using patch clamp electrophysiology and isolated tissue pharmacology in rabbit and guinea pig," Gastroenterology *1991;101:55-65; Pittler M, "Peppermint Oil for Irritable Bowel Syndrome: A Critical Review and Meta-analysis,"* American Journal of Gastroenterology*, Jul1998;93(7):1131-1135; Liu J, et al., "Enteric-coated Peppermint-oil Capsules in the Treatment of Irritable Bowel Syndrome: A Prospective, Randomized Trial,"* Journal of Gastroenterology*, Dec1997;32(6):765-768; P. C. Braga, M. Dal Sasso, M. Culici, T. Bianchi, L. Bordoni, and L. Marabini, "Anti-inflammatory activity of thymol: inhibitory effect on the release of human neutrophil elastase,"* Pharmacology*, Vol. 77, No. 3, pp. 130-136, 2006; Adam B, Liebregts T, Best J, et al., "A combination of peppermint oil and caraway oil attenuates the post-inflammatory visceral hyperalgesia in a rat model,"* Scandinavian Journal of Gastroenterology*, Vol. 41, No. 2, pp. 155-160, 2006.*

Anxiety

The role of psychological and emotional stress in digestive disorders is too conspicuous to ignore. Lavender, an herb beloved for its pleasing fragrance, has also proved to be an effective remedy for both anxiety and depression. Taken orally, lavender extract can be as effective as low-dose benzodiazepines for attenuating anxiety. Subjects in the lavender group took 80 mg per

day of the standardized extract in capsules; those in the lorazepam group took 0.5 mg, also in capsule form. The lavender oil, a steam distillate of *Lavandula angustifolia*, decreased mean Hamilton anxiety (HAMA-total) scores by 45%, versus 46% in the lorazepam group. At the conclusion of the trial, 40% of the lavender group and 27% of the lorazepam group met criteria for remission; the lavender group had a response rate of 52.5% compared to 40.5% of those on the pharmaceutical drug.

Woelk H, Schlafke S, "A multi-center, double-blind, randomised study of the Lavender oil preparation Silexan in comparison to Lorazepam for generalized anxiety disorder," Phytomedicine *(2010); 17:2: 94-99.*

Gall Stones and Peppermint Oil

Dissolving gall stones with essential oils could offer a safe alternative to surgery. There is substantial evidence that essential oils can be used to dissolve gallstones, especially oils rich in terpenes. All essential oils have some terpene content and terpenes such as d-limonene have tested properties. Peppermint oil has also been used for softening gall-stone formations.

Research indicates that peppermint exhibits antibacterial activity against *Salmonella enteritidis*, *Escherichia coli*, *Staphylococcus aureus*, and *Helicobacter pylori*. Peppermint has also been found to kill the amoeba Giardia. Use of peppermint oil may increase levels of the drug cyclosporine in the body thus enhancing conventional treatment of certain microbes.

Bell GD, Doran J., "Gall stone dissolution in man using an essential oil preparation," British Medical Journal. 1979 Jan 6;1(6155):24–24; Ellis WR, Bell GD, "Treatment of biliary duct stones with a terpene preparation," British Medical Journal (Clinical Research Edition) *1981. 282(6264):611. doi: 10.1136/bmj.282.6264.611; Hordinsky BZ, "Terpenes in the treatment of gallstones,"* Minnesota Medicine *1971 54(8):649-652; Igimi H, Hisatsugu T, Nishimura M, "The use of d-limonene preparation as a dissolving agent of gallstones,"* American Journal of Digestive Disorders *1976 21(11):926–939; Somerville KW, Ellis WR, Whitten BH, et al., "Stones in the common bile duct: experience with medical dissolution therapy,"* Postgraduate Medical Journal *1985;61:313-6; Imai H, Osawa K, Yasuda H, Hamashima H, Arai T, Sasatsu M, "Inhibition by the essential oils of peppermint and spearmint of the growth of pathogenic bacteria,"* Microbios *2001, 106 Suppl 1:31-9; Vidal F, Vidal J, Gadelha A, Lopes C, Coelho M, Monteiro Leal L, "Giardia lamblia: The effects of extracts and fractions from Mentha piperita Lin. (Lamiaceae) on trophozoites,"* Experimental Parasitology *2007; 115(1): 25-31; Wacher V, Wong S, Wong H, "Peppermint oil enhances cyclosporine oral bioavailability in rats: comparison with D-alpha-tocopheryl poly(ethylene glycol 1000) succinate (TPGS) and ketoconazole,"* Journal of Pharmaceutical Science *2002;91:77-90.*