



## The Clinician's Handbook of Natural Medicine, 3rd Edition

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### CLASS: G550 - C Test Questions Part Three

1. **True or False:** Leukoplakia is caused by a combination of excessive carcinogenic irritation and marginal or low levels of vitamin A.
2. Lichen planus (LP) is an inflammatory, pruritic disease of the skin and mucous membranes and can be generalized or localized. **Which statement is true?**
  - (A) Characteristic features include distinctive yellowish, flat-topped papules (discrete or coalescent into plaques) on the trunk and flexor surfaces..
  - (B) Oral LP is the most common cause of oral white lesions, occurring in 25% to 50% of dental patients.
  - (C) Dental amalgams are linked to oral LP. Replacing mercury amalgam fillings with alternative substances dramatically improves chronic lichenoid reactions.

**Possibility:** "Oral Lichen planus (OLP) is a chronic T-cell mediated inflammatory disease. ...Collectively, our data implicate a novel role of bacteria in the pathogenesis of OLP in which bacteria damage the epithelial barriers, are internalized into epithelial cells and T cells, and induce T cell chemokines." - <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4935860/>

3. Macular Degeneration: The macula is the area of the retina where most images focus and the portion of the retina responsible for fine vision. The macula (and central portion, the fovea) owes its yellow color to high concentrations of \_\_\_\_\_, which prevent oxidative damage to the retina and protect against MD.
  - (A) Lutein and Zeaxanthin
  - (B) Bilberry and Ginkgo
  - (C) Copper and Zinc
4. **True or False:** Flavonoids and non-provitamin A carotenes lutein, zeaxanthin, and lycopene are more protective against age related macular degeneration than traditional nutritional antioxidants.
5. **True or False:** Degeneration results from free radical damage. *Vaccinium myrtillus* (bilberry), *Ginkgo biloba*, and *Vitis vinifera* (grapeseed) are beneficial in preventing and treating age related macular degeneration.

Researchers examined eight herbs for bioavailable carotenoids. The content of individual carotenoids varied significantly among Basil (*Ocimum basilicum*), Coriander (*Coriandrum sativum*), Dill (*Anethum graveolens*), Mint (*Metha L.*), Parsley (*Petroselinum crispum*), Rosemary (*Rosmarinus officinalis*), Sage (*Salvia officinalis*), and Tarragon (*Artemisia dracunculus L.*). "**Basil and coriander contained the highest levels of beta-carotene, beta-cryptoxanthin, and lutein + zeaxanthin.**" - [Plant Foods Hum Nutr.](#) 2010 Jun;65(2):164-9. doi: 10.1007/s11130-010-0167-3.

6. **True or False:** Most people use antacids to relieve reflux esophagitis. This is a safe and effective way to continue eating chocolate, fried foods, carbonated beverages, alcohol, and coffee while countering the main cause of reflux, an overproduction of stomach acid.

7. **True or False:** Low levels of vitamins C and E and other antioxidants in gastric juice lead to progression of *H. pylori* colonization and contribute to ulcer formation., The mechanism by which *H. pylori* damages stomach and intestinal mucosa is oxidative. Most people (adequate antioxidants) infected with *H. pylori* do not develop peptic ulcers or gastric cancer.
8. Common symptoms of exocrine pancreatic insufficiency (EPI): abdominal bloating and discomfort, gas, indigestion, and passing undigested food in stool. **Porcine pancreatin supplements**
  - (A) should be used immediately before meals when used as digestive aid and 10 to 20 minutes before meals or on empty stomach when anti-inflammatory effects are desired
  - (B) that are enteric coated outperform the non-enteric-coated products if given before a meal (for digestive purposes) or on empty stomach (for anti-inflammatory effects).
9. **True of False?** Plant enzymes (e.g., bromelain, papain) and enzymes extracted from microbes or yeast are effective alternatives to porcine pancreatin. When compared to porcine pancreatin, these enzymes are more resistant to digestive secretions and have a broader range of activity, including pH range.

## Menopause

10. **True or False?** Progesterone is a natural hormone that can cause water retention, affect brain chemistry, and alter other steroid pathways. Progestin, the synthetic version of progesterone, is a safe alternative.
11. Herbal phytoestrogens have no side effects and inhibit mammary tumors. Phytoestrogens in medicinal herbs, compared with estrogen, are at most only 2% as strong. **What describes the modulating effect of phytoestrogens?**
  - (A) If estrogens are low, they decrease estrogen effect; if estrogens are high, binding of phytoestrogens to receptors increases estrogens' effects
  - (B) If estrogens are low, they increase estrogen effect; if estrogens are high, binding of phytoestrogens to receptors decreases estrogens' effects

**The book states:** "Menopause as social construct: social and cultural factors contribute greatly to how women react to menopause... In a study of **rural Mayan Indians**, no women had hot flashes or any other symptoms, and no women showed evidence of osteoporosis despite hormonal patterns identical to postmenopausal women in the United States. Mayan women saw menopause as a positive event, providing acceptance as a respected elder as well as relief from childbearing." While a woman's view of her body and life absolutely influence her health, did the study of the rural Mayan Indians examine and compare life-long diet, use of pharmaceuticals like birth control drugs, mineral and vitamin levels, level of physical activity, chemical exposure like xenoestrogens, etc.?

First, menopause is a natural progression for women. The hormonal patterns should be the same for women all around the world. Women who enter menopause in a balanced healthy state should have mild "symptoms", gradually noticing that changes are occurring but, not something that is uncomfortable. Noticing that changes are occurring is simply being aware of your own body - it is not a "symptom".

Instead of treating a woman for menopause, look at their lifestyle as a whole and recommend proper diet and exercise changes, supply minerals, vitamins, and antioxidants as needed, clean up the bowels, support and clean up the liver, use adaptogenic and specific herbs for symptoms of endocrine imbalances, correct underlying conditions and deficiencies. Estrogen suppositories, used for a limited time, may be needed for those with severe vaginal dryness while working with underlying causes.

**Note:** "Traditional soy foods include tofu, which is produced by puréeing cooked soybeans and precipitating the solids, and miso and tempeh, which are made by **fermenting** soybeans with grains. "Second generation" soy products involve **chemical extractions and other processing**, and include soy protein isolate and soy flour. These products become primary ingredients in items such as meatless burgers, dietary protein supplements, and infant formula, and are also used as nonnutritive additives to improve the characteristics of processed foods".  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1480510/>

12. **True or False:** Premature, surgical, or medication-induced menopause is easily managed with herbs and supplements. There is no need for a tailored therapy.
13. **Menorrhagia**, excessive menstrual bleeding occurring at regular cyclic intervals, may be caused by dysfunctional uterine bleeding (DUB; no organic cause) or local lesions (e.g., uterine fibroids, endometrial polyps, hyperplasia, or cancer, adenomyosis, and endometritis). Other causes include bleeding disorders and hypothyroidism. **Which of the following therapeutic considerations are true?**
- (A) Psychological stress directly affects bleeding patterns by influencing the hypothalamic-pituitary-ovarian axis. This causes anovulation and subsequent lack of progesterone. Endometrium is in estrogen-dominant state with plump thickening without opposing, stabilizing progesterone, causing heavy bleeding at next menses.
- (B) Chronic iron deficiency can cause menorrhagia. Seventy-five percent of patients on iron supplements improve compared with 32.5% on placebo. In addition to iron, vitamin A: serum retinol is significantly lower in women with menorrhagia than healthy control subjects. **[Note:** low iron from excessive bleeding or bleeding because of low iron? Vegetarian? Malabsorption issues?]
- (C) Menorrhagia is associated with increased omega-6 AA in uterine tissues. Omega 6 fatty acids should be reduced and omega 3 fatty acids should be increased. Menorrhagia may correlate with B-vitamin deficiency. The liver loses its ability to inactivate estrogen in B-complex deficiency. Some cases of menorrhagia are caused by an excessive estrogen effect on endometrium. Supplementing B vitamins may normalize estrogen metabolism.
- (D) All statements above are true
14. **True or False:** *Vitex agnus-castus* (chaste tree): best-known herb in Europe for hormonal imbalances and abnormal bleeding in women; most important herb to normalize menstrual flow, but not a fast acting herb. **[Note:** “not a fast acting herb” likely depends on dose]

“Preparations of *Vitex agnus castus* L. (VAC) have been shown to be effective to treat **irregular menstrual cycles, cyclical mastalgia and symptoms of the premenstrual syndrome (PMS)**. However, the dose-effect relationship for the treatment of PMS has not yet been established. This study aimed to investigate the clinical effects of three different doses of the VAC extract Ze 440 in comparison to placebo in patients suffering from PMS. ...Each of the treatments was well tolerated. Improvement in the total symptom score (TSS) in the **20mg group** was significantly higher than in the placebo and 8 mg treatment group. The higher dose of 30 mg, on the other hand, did not significantly decrease symptom severity compared to the 20mg treatment, providing a rationale for the usage of 20mg..” - <https://www.ncbi.nlm.nih.gov/pubmed/23022391>

“In a clinical survey conducted by German gynecologists, the effect of a chaste tree preparation (Agnolyt) at a dose of **40 drops daily** for 166 days was evaluated on 1542 women diagnosed with premenstrual syndrome, of which 90% reported complete relief of symptoms after an average treatment of 25.3 days. This herb may inhibit secretion of prolactin by the pituitary gland and thus may have a role in correcting some types of amenorrhea and hyperprolactinemia, and in increasing milk production in lactating women. ... The German Commission E allows use of chasteberry preparations for PMS, mastalgia, menopausal symptoms, and inadequate lactation. ... **Preparations include alcoholic extracts (tinctures) of the pulverized fruits, formulated to provide an average daily dose equivalent to 20 mg of the crude fruit, or 30–40 mg of the fruits in decoction.**” - Michelle P. Warren, Russalind H. Ramos, in *Menopause*, 2000

15. Traditionally and empirically, if the uterus is hypotonic, heavy bleeding may be occurring. Improving uterine tone may normalize or regulate menstrual bleeding. **The best uterine tonics and/or amphoterics that regulate tone and potentially reduce bleeding include the following herbs:**
- (A) Blue cohosh, Nettles, Ginkgo, Raspberry leaves, and Helonia
- (B) Blue cohosh, Helonia, Squaw vine, Raspberry leaves, and Life root
- (C) Blue cohosh, Squaw vine, Helonia, Raspberries, and Thyme

**Note:** Life root. Like many plant species belonging to the genus *Senecio* (ragworts and groundsels), common ragwort contains potentially toxic pyrrolizidine alkaloids (seneciphylline, senecionine, jacobin, jaconine, jacobine, jacozone, otosenine and retrorsine). As with many herbs the toxicity is dose dependent; do not use if there are any liver issues.

**Note:** *Mitchella repens* is commonly referred to as Partridgeberry but the older books use the common name of Squaw vine/Squawvine.

**Note:** Lady's mantle (*Alchemilla vulgaris*) is a "smart" herb. It has the ability to either promote menstrual bleeding or reduce excessive bleeding. The reduction of bleeding is likely due to the astringency of the herb. Lady's mantle is also an excellent addition in herbal combinations for hot flashes and night sweats. **Did you notice goldenseal on the list of astringents?** Goldenseal should not be used longterm because it is a strong astringent that could dry out and damage mucous membranes. Save the wonderful herb for mucous producing health issues.

## Migraines

16. **True or False:** The sequence of events producing migraine is unclear, but migraine is no longer considered a primary vascular event.
17. Positive clinical results are seen with serotonin precursor \_\_\_\_\_. Link between low serotonin and headache is the basis of many migraine prescription drugs. Monoamine oxidase inhibitors (which increase serotonin) prevent headaches. Increasing serotonin relieves chronic migraines. 5-hydroxytryptophan (5-HTP)
- (A) Magnesium    (B) 5-hydroxytryptophan (5-HTP)    (C) Ergotamine
18. **True or False:** 5-HTP is an excellent supplement when taken with selective serotonin reuptake inhibitors (SSRIs). Using triptans, ergotamine-based drugs, and selective serotonin reuptake SSRIs concurrently is recommended.
19. **True or False:** Detection and removal of allergens or foods to which patient is intolerant eliminate or greatly reduce symptoms in the majority of migraine patients (success ranges from 30% to 93%). Incidences of food allergy are similar for the three major types of migraine. Migraine is not just food intolerance; digestive and detoxification aberrations complicate matters. Metabolic waste of pathogenic organisms may produce headache.
- Note:** This quoted passage from your book is very important! "*Tanacetum parthenium* (feverfew): most popular antimigraine botanical. Seventy percent of surveyed migraine sufferers **eating feverfew leaves** q.d. for prolonged periods claimed decreased frequency and/or intensity of attacks (many of these patients were unresponsive to orthodox medicines)." **Fresh leaves and freshly dried leaves have both been used successfully.** Tinctures do not usually work to reduce migraines..
20. **True or False:** Low tissue magnesium is common in migraine patients but is unnoticed because serum Mg is normal. Serum Mg is an unreliable indicator because most body Mg stores are intracellular. Low serum Mg is an end-stage deficiency.

"Inorganic bound magnesium (e.g. oxide and chloride), is the cheapest and most widely available magnesium supplement on the market. Unfortunately, with a bioavailability of only 4%, very little is absorbed, and this causes rapid diarrhea, making it a more effective laxative than nutritional supplement. Second, amino acid bound magnesium (taurate, glycinate) has an upper to mid-range bioavailability, but is best tolerated, and therefore recommended for people with sensitive bowels. Finally, **magnesium bound to Krebs cycle intermediates (citrate, fumarate, malate, and succinate) has the highest bioavailability of 90%, and has the advantage of feeding directly in to the Krebs cycle to produce ATP, which has been shown to improve energy and combat fatigue.**" - Dr. Michael Long, ND, Optimum Integrative Health Centre

## Multiple sclerosis (MS)

### 21. Which statement is FALSE?

- (A) MS is the most common disabling neurologic disease of young and middle-aged adults in North America and Europe.
- (B) MS is a **chronic inflammatory disorder** of multifocal destruction of myelin sheaths (demyelination) and axons within the brain, spinal cord, and optic nerves.
- (C) Neurologic problems depend on location and severity of plaques.
- (D) Symptomatic new lesions appear within the brain five to 10 times more commonly than asymptomatic lesions (no symptoms).
- (E) An average of one relapse occurs every 2 years.

22. **True or False?** In the United States, Canada, and Northern Europe, one person per 1,000 develops Multiple sclerosis. MS rates are highest in the higher latitudes of northern and southern hemispheres in persons who lived their first two decades of life there.

23. **True or False?** Environmental exposure in first two decades of life influences risk of MS.

**Note:** Studies in the U.S. generally only list genetic susceptibility, smoking, low vitamin D, and the very very common EBV infection as risk factors for MS. A study in Saudi Arabia ([www.ncbi.nlm.nih.gov/pmc/articles/PMC6006694](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC6006694)) found that there is a **genetic susceptibility** but the first child was more likely to be diagnosed (likely "germ" exposure is greater for the second...born), MS patients ate **fast food** 2 times more often than healthy controls, **a diet high in salt increases** the stimulation of the Th17 lymphocyte (Th17 cells produced by a high salt diet seem to be extremely pathogenic and connected to pro-inflammatory cytokines), consumption of fruit has a protective role against MS, and **sun exposure in primary school** was associated with reduced risk of MS."

### Viruses and MS: Herpesviruses

"According to estimates, as many as 80 percent of all children are infected with the HHV-6 virus before 2 years of age, and many also carry protection in the form of antibodies against this particular virus for the rest of their lives. ...In this study, however, the researchers were able to distinguish between the A and B virus..."This is a big breakthrough for both the MS and herpes virus research," ..."For one, it supports the theory that **HHV-6A** could be a contributing factor to the development of MS... Antibodies toward Epstein-Barr virus (**EBV**), another herpes virus that is also associated with MS, were analyzed with the same method and the researchers were able to show that individuals affected with both viruses had an even greater risk of MS. **This indicates that several virus infections could be acting jointly to increase the risk of MS.** Karolinska Institutet. "MS linked to variant of common herpes virus." ScienceDaily. ScienceDaily, 26 November 2019.

"Herpesviruses represent a group of large DNA viruses that are capable of establishing **latency with potential for reactivation** after primary infection, which typically occurs in childhood...The mutual coexistence of human herpesviruses whether of the alpha [herpes simplex virus (HSV) types 1 and 2, varicella-zoster virus], beta [cytomegalovirus (CMV) and human herpesviruses 6 and 7], or gamma [Epstein-Barr virus (EBV) and Kaposi's sarcoma-associated herpesvirus (KSHV)] subfamilies with their host depends on its ability to mount an appropriate virus-specific immune response, since **most herpesvirus-associated diseases involve situations in which host responses either have been seriously compromised or have been unusually hyperactivated by the viral challenge.** Infection with VZV, HHV-6, and EBV has particularly been associated with MS...Therefore, the role of VZV (varicella-zoster virus) in MS remains controversial, and further studies with more rigorous methodologies are required to support the environmental role of VZV as a trigger of MS." - <https://www.sciencedirect.com/science/article/pii/S0925443910001225>

24. Both oxygen and nitrogen free radicals may damage the myelin and axons, and upregulate proinflammatory tumor necrosis factor-alpha, inducible nitric oxide, and nuclear transcription factor kappa B. Which supplements listed below are recommended for MS? \*Supplements are listed in two places, one in discussion and one as a list

- (A) Omega-3s as EPA and DHA (fish oils), linoleic acid/gamma-linoleic acid (GLA), vitamins C, D, E, alpha-lipoic acid (ALA) or dihydrolipoic acid (DHLA), *Ginkgo biloba*, and cannabis (THC & CBD)
- (B) Omega-3s as EPA and DHA (fish oils), Evening primrose oil (EPO), vitamin D, alpha-lipoic acid (ALA), *Ginkgo biloba*, and CBD but not THC from cannabis

**\*A very good article, A review on potential roles of vitamins in incidence, progression, and improvement of multiple sclerosis, is downloadable as a PDF at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5934114/>**

“Systemic peroxidation status has been reported as a pathogenic factor for multiple sclerosis (MS). Systemically elevated oxidation levels are associated with serum lipid peroxidation and somatic telomere length (TL) shortening. We investigated whether **vitamin E** (VE) administration suppresses peroxidation and improves clinical symptoms in 34 MS patients. We analyzed serum lipid peroxidation and degree of TL in circulating leukocytes of MS patients before and after VE treatment. **The oxidation level was enhanced and TL was shortened in MS.** The MS population treated with VE **400 mg/day for 3 months showed significantly reduced serum lipid oxidation level with maintenance of TL.** These findings showed that systemic peroxidation is associated with the development of MS. Antioxidants such as vitamin E can be candidates for supplementary therapeutic agents for MS.” - *Canadian Journal of Physiology and Pharmacology*, 2018, 96(11): 1181-1183, <https://doi.org/10.1139/cjpp-2018-0246>

Tumor necrosis factor alpha (TNF- $\alpha$ ) is a proinflammatory cytokine involved in the innate immune response. Chronic oxidative stress and inflammatory responses cause many diseases and TNF- $\alpha$  plays a key role in the pathogenesis of chronic and autoimmune diseases. “In this study, we found that TNF- $\alpha$  can cause DNA damages through reactive oxygen species. **The mutagenic effect of TNF- $\alpha$  is comparable with that of ionizing radiation.** TNF- $\alpha$  treatment in cultured cells resulted in increased gene mutations, gene amplification, micronuclei formation, and chromosomal instability. **Antioxidants significantly reduced TNF- $\alpha$ -induced genetic damage.**” (www.cancerres.aacrjournals.org/content/66/24/11565)

**MS (and other diseases) following vaccination:** <https://link.springer.com/article/10.1007/s13167-017-0101-y>

**Obesity CDC.gov:** The prevalence of obesity was 42.4% in 2017~2018. The prevalence of obesity was 40.0% among young adults aged 20 to 39 years, 44.8% among middle-aged adults aged 40 to 59 years, and 42.8% among older adults aged 60 and older. Body mass index (BMI) was calculated as weight in kilograms divided by height in meters squared, rounded to one decimal place. **Obesity** in adults was defined as a BMI of **greater than or equal to 30** and **severe obesity** as a BMI of greater than or equal to 40.

25. Endomorphs are at greatest risk for obesity; mesomorphs are at moderate risk, and ectomorphs are extremely unlikely to develop obesity. Which statement describes an endomorph body type?
- (A) large muscular chest that dominates abdomen, prominent bony joints
  - (B) relatively small frame (slender, delicate bone structure), long arms and legs
  - (C) relatively large body, short arms and legs
26. Categories, types of obesity, are based on size and number of fat cells and how fat is distributed in the body (e.g., abdomen versus hips). **Which statement best describes Hyperplastic Obesity?**
- (A) Obesity where in males the fat is distributed around the waist but female-patterned or gynecoid obesity, the hips are larger. There is an increase in the size of fat cells.
  - (B) Obesity from excess calories that begins in the womb or as an infant may increase the number of fat cells for life.
  - (C) Obesity that results in an increase in the number and size of fat cells

Although toxicity of high dose POPs is well-known, the recent concern is the possibility of adverse effects of **low dose POPs, similar to the current environmental exposure levels.** Among many diseases suspected to be linked to low dose POPs, type 2 diabetes (T2D) is the most convincing, given substantial evidence from both epidemiological and experimental studies. ... **Adipose tissue is not only a reservoir of chronic internal POPs exposure, but also a possible tissue pathologic target of POPs.** *In-vivo* and *in-vitro* experimental studies reported that low dose POPs can induce pro-inflammatory change in adipose tissue. Importantly, **POPs-induced inflammation is possible regardless of obesity.** ... “Routine application of health behaviors such as exercise, calorie restriction, and high intake of phytochemicals have been suggested as **practical ways to increase the continuous elimination of POPs from human bodies or mitigate harmful effects of POPs at the cellular level based on physiology of metabolism of xenobiotics and mitochondrial function.**” <https://www.frontiersin.org/articles/10.3389/fendo.2018.00712/full>

**Note:** In addition to exercise, reduced calories, and increased vitamins and minerals to support all of the cell types in the body, natural health professionals need to focus on the support and cleansing of all systems as part of a weight reduction protocol. Start with bowels, liver, and kidneys to prepare them for the second phase of cleansing. The second phase is lymph, blood, and brain with continued support for the liver, and high antioxidant supplements (especially A, C, D, E, and CoQ10). Remember to pair herbs with homeopathics for best systemic results. There are people who are unable to lose weight because of toxicity in their cells.

27. Recent research has shown that both individual persistent organic pollutants (POPs) and total chemical toxin load increase the risk of obesity. The primary mechanism of action appears to be the \_\_\_\_\_.
- (A) blocking of adrenal receptor sites
  - (B) blocking of liver receptor sites
  - (C) blocking of insulin receptor sites
28. **True or False?** Health professionals should stress adequate protein intake. Recommendation: 2.0 g of protein per 2 pounds (kg) body weight unless there are signs of renal or liver failure.
29. **True or False?** Recommending the use of medium chain triglycerides (MCT's) is not advised for weight loss because they are found in the saturated fat of coconut oil.
30. **Osteoarthritis** includes the following characteristics and symptoms:
- (A) Joint degeneration, loss of cartilage, and alterations of subchondral bone, morning joint stiffness is the first symptom, then pain on joint motion worsened by prolonged activity and relieved by rest. No signs of inflammation are present. Disease process is arrestable and sometimes reversible. Medical intervention may promote disease progression.
  - (B) Joint degeneration, loss of cartilage, and alterations of subchondral bone, morning joint stiffness is the first symptom, then pain on joint motion worsened by prolonged activity and relieved by rest. Inflammation is severe and the disease process is unstoppable. Medical intervention is needed to stop disease progression.
31. **True or False?** The recommended doses of vitamin A, B6, C, D, and E for osteoarthritis are equivalent to the RDA (recommended daily dose) - you will need to look this up on the internet, in a book, or look at a supplement label.
32. Osteoporosis (OP) is the most common bone disease in human beings and is a serious health threat for post-menopausal women. The more risk factors present, the greater the potential for lower bone mass and risk of fracture. **Secondary risk factors include?**
- (A) Lack of exercise, hormonal factors, inadequate calcium, magnesium, and many other vitamins and minerals, including vitamins D & K, age of menarche, menstrual regularity, alcohol and tobacco use, genetics, and high animal protein intake
  - (B) Aromatase inhibitors, cytotoxic agents, excessive thyroid therapy cortisol excess, hyperthyroid, hyperparathyroid, gall bladder disease, and total gastrectomy, gastric bypass
33. **True or False?** Soft drink intake in children is a major risk factor for impaired calcification of growing bones. Serum Ca levels are inversely correlated with number of bottles of soft drinks consumed each week. After refined sugar intake, urinary excretion of Ca increases...
34. **True or False?** Most children with acute otitis media (70% to 90%) need antibiotics immediately. Waiting to see if the ear inflammation resolves on its own is dangerous.

35. Food allergy as a primary cause of chronic otitis (OM) media has been firmly established in research literature. The middle and inner ear are immunologically responsive, including responsiveness to food hypersensitivities. **Which statements are true?**
- (A) Prolonged breastfeeding may prevent OM by avoiding food allergens, particularly if mother avoids sensitizing foods during pregnancy and lactation.
  - (B) The child's digestive tract is permeable to antigens, especially during the first 3 months. Control eating patterns (infrequent repetition of any food, avoid common allergenic foods, and introduce foods in controlled manner—one food at a time, carefully watching for reaction)
  - (C) Excluding or limiting foods to which children are commonly allergic (wheat, egg, fowl, dairy), particularly during the first 9 months, also is of value. Elimination diet ameliorates chronic OM in 86% of patients. Most common food allergens (in order of frequency): cow's milk, wheat, egg white, peanut, soy, corn, tomato, chicken, apple.
  - (D) All of the above
36. **True or False?** There may be a link between otitis media and gastroesophageal reflux disease in infants and young children. Disease burden from OM and hearing loss decreases with acid-blocking pharmaceuticals. From the naturopathic perspective, the role of digestive function is important for OM and health in general. Drugs mentioned earlier are not recommended because they will impair digestive function and increase risk of food allergies as well as unhealthy gut flora.

### Parkinson's Disease (PD)

37. **True or False?** Motor symptoms (tremors, rigid movement as the muscles changes, joint stiffness, difficulty walking) are primary symptoms with Parkinson's disease. Loss of brain neurons is a pathologic feature of Parkinson's, Alzheimer's, and Huntington's diseases as well as amyotrophic lateral sclerosis (Lou Gehrig's disease). Cognitive disturbances with Parkinson's disease will either occur early on during the disease process or not at all.
38. **True or False?** The primary contributors to brain cell death include oxidative and nitric oxide stress, inflammation, and mitochondrial dysfunction. Decreased glutathione (GSH), the brain's primary antioxidant, is an early biochemical event in the substantia nigra. GSH deficiency may be a common denominator in all PD conditions associated with nigral damage (as well as all neurodegeneration).

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Ways to Increase Intracellular Glutathione by Pizzorno, Joseph. "Glutathione!." *Integrative medicine* (Encinitas, Calif.) vol. 13,1 (2014): 8-12 - FULL ARTICLE: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4684116/>

"Considering how important glutathione is to health, many researchers have looked for ways to increase intracellular and intramitochondrial levels. The good news is that there are several effective strategies. The first, of course, is to decrease the need for glutathione, which means decreasing toxic load. The most obvious is limiting alcohol consumption. Less obvious is decreasing exposure to POPs (persistent organic pollutants), the primary source of which are conventionally grown foods. Another strategy is to provide other antioxidants to decrease oxidative stress. A good example is  $\alpha$ -lipoic acid, supplementation of which increases mitochondrial glutathione levels even though ALA is not used in the synthesis or recycling of glutathione.

The obvious strategy is to directly administer glutathione. This can be done orally, topically, intravenously, intranasally, or in nebulized form. Glutathione administered intravenously, inhaled, and ingested intranasally increases systemic levels. IV glutathione has a short half-life but has shown at least short-term efficacy in several diseases. **Oral administration is controversial; while most research shows that oral glutathione does not increase RBC glutathione, there are a few studies that show efficacy. My opinion is that unmodified oral glutathione is unlikely to consistently elevate cellular levels.** Oral and transdermal liposomal glutathione show promise, but research is early.

Finally, we can provide specific nutrients to promote glutathione production. As noted above, cysteine availability is the rate-limiting step in the de novo production of glutathione. While oral cysteine does not make it through the digestive track, supplemental cysteine in the form of whey or *N*-acetylcysteine (NAC) is effective at raising levels. While there is substantial variation, **1000 mg/d of NAC will substantially increase glutathione in virtually all**

**patients.** For the rare patient who reacts to NAC, SAME can be used. Do not use methionine as it will increase homocysteine. Interestingly, supplementing with NAC (600 mg/d for 4 wk) decreases GGT 25%, suggesting that increasing de novo synthesis decreases the need for GGT recycling.

For those looking for a nonsupplemental solution, 500 mL of *alcohol-free* beer per day raises RBC glutathione 29%! There are many other examples of foods that increase glutathione. For example, 83 g/d of almonds increases glutathione in smokers by 16% and decreases their DNA damage by 29%. Finally, there is meditation—practitioners have 20% higher levels of glutathione.”

39. Which statement is FALSE for *Ginkgo biloba* extract?

- (A) *Ginkgo biloba* stabilizes membranes and is an antioxidant (scavenges free radicals).
- (B) *Ginkgo biloba* enhances the use of oxygen and glucose, It is also an extremely effective inhibitor of lipid peroxidation of cellular membranes.
- (C) *Ginkgo biloba*, in clinical studies, was proven beneficial in Parkinson’s disease, likely because of it’s antioxidation and antiapoptosis actions.

40. Pelvic inflammatory disease (PID) is a categoric name for a range of pelvic infections and inflammations. PID carries a 13% risk of infertility after one infection and a 70% risk after three. **Which organisms listed are the most common cause of PID?** Chlamydia trachomatis (CT) most common, followed by Ureaplasma urealyticum, Mycoplasma hominis, Streptococcus species, Escherichia coli, Haemophilus influenzae, Peptostreptococcus, and Peptococcus.

- (A) *Escherichia coli* and *Peptostreptococcus*
- (B) *Chlamydia trachomatis* and *Neisseria gonorrhoeae*
- (C) *Mycoplasma hominis* and *Ureaplasma urealyticum*

Bacterial vaginosis (BV) is a common form of infectious vaginitis caused by the polymicrobial proliferation of Gardnerella vaginalis, Mycoplasma hominis, and other anaerobes. **It is associated with loss of normal lactobacilli.** - Aviva Romm, ... Roy Upton, in Botanical Medicine for Women's Health, 2010

Bacterial vaginosis (BV) is a common cause of genital discomfort in women in reproductive ages, which causes many complications. Bacterial vaginosis is usually treated by metronidazole and clindamycin. However, this protocol does not prevent its recurrence, which is a main complaint of the patients. **The number of lactobacilli in the vagina of women with BV is significantly lower than that in healthy women.** Hence, efforts have been made to normalize vaginal flora by **oral or vaginal** administration of lactobacilli. ...Orally consumed probiotics are believed to ascend to the vaginal tract after they are excreted from the rectum; **vaginal administration** allows for direct replacement of the probiotics for unhealthy vaginal microbiota and occupation of specific adhesion sites at the epithelial surface of the urinary tract, which consequently results in maintenance of a low pH and production of antimicrobial substances like acids and hydrogen peroxide. **Receiving Lactobacillus acidophilus, Lactobacillus rhamnosus GR-1, and Lactobacillus fermentum RC-14 at a dose of at least 10 CFU/day for 2 months has been shown to present the patients with better results.** ...Although the results of different studies are controversial, most studies have been in favor of the probiotics in the **prevention or treatment of BV**, and no adverse effects have been reported. Therefore, it may be helpful to recommend daily consumption of probiotic products to improve public health among women. - <https://www.ncbi.nlm.nih.gov/pubmed/24299970>

41. **True or False?** Peptic ulcers occur in the stomach (gastric) and first portion of the small intestine (duodenal). Food allergy is the prime causative factor. Milk should be avoided; the higher the milk consumption, the greater the likelihood of ulcer. A diet rich in fiber is linked to a reduced rate of duodenal ulcers compared with a low-fiber diet. A high-fiber diet in patients with recently healed duodenal ulcers reduced recurrence rate by half.

42. **True or False?** *H. pylori* risk factors include nonsteroidal anti-inflammatory drugs (NSAIDs), alcohol, nutrient deficiency, and stress. *H. pylori* and NSAID use are most significant. About 80% of *H. pylori*-infected people never develop ulcers. When a client does not have an ulcer there is no need to eliminate *H. pylori*.

43. **True or False?** Periodontal disease is best treated with combined expertise of a dentist or periodontist. Oral hygiene is the most important aspect of the disease and the only cure.
44. **True or False?** Many patients with porphyrias have been misdiagnosed with schizophrenia and confined to mental institutions. Toxins that may cause or exacerbate porphyria include: hexachlorobenzene, polyhalogenated biphenyls, dioxins, vinyl chloride, carbon tetrachloride, benzene, and chloroform. There are over 60 pharmaceutical drugs listed that can cause or exacerbate this disease. Liver and colon detoxification eliminates toxins that may exacerbate the condition.

“Because carbon tetrachloride evaporates easily, most of the compound released to the environment during its production and use reaches the air, where it is found mainly as a gas. It can remain in air for several years before it is broken down to other chemicals. Small amounts of carbon tetrachloride are found in surface water. Because it evaporates easily, much of it will move from surface water to the air within a few days or weeks. However, it may be trapped in groundwater for longer periods. Carbon tetrachloride is not expected to stick to soil particles. If spilled onto the ground, much of it will evaporate to the air. Some of it may also go into groundwater, where it can remain for months before it is broken down to other chemicals. It is not expected to build up in fish. We do not know if it builds up in plants. ...**The liver is especially sensitive to carbon tetrachloride** since it contains a large amount of the enzymes that change the form of the chemical. Some of the breakdown products may attack cell proteins, interfering with the functions of the liver cells. Products that attack cell membranes may result in the death of the cells. In mild cases, the liver becomes swollen and tender, and fat builds up inside the organ. In severe cases, liver cells may be damaged or destroyed, leading to a decrease in liver function. Such effects are usually reversible if exposure is not too high or too long.” - <https://www.atsdr.cdc.gov/phs/phs.asp?id=194&tid=35>

#### **Pregnancy Health and Primary Prevention of Adult Disease:**

45. Babies of mothers who ate a greater number of \_\_\_\_\_ products during pregnancy were more likely to test positive for peanut allergies. All sensitized infants also tended to have either milk or egg allergy and/or \_\_\_\_\_.
- (A) soy and eczema  
(B) peanut and eczema  
(C) peanut and seasonal allergies
46. **True or False?** There is still no precedent that any level of alcohol consumption is safe, because the long-term effects are unknown.
47. Maternal anxiety or depression during pregnancy is linked with HPA axis \_\_\_\_\_ and higher cortisol in infants and children. Impaired HPA axis is associated with metabolic syndrome, fibromyalgia, depression, and posttraumatic stress disorder and likely increases susceptibility of offspring to stress-related disorders.
- (A) overreactivity  
(B) sensitivity  
(C) failure
48. **True or False?** Women in the top quintile of body load of persistent organic pollutants give birth to children with a 7-point higher IQ with a lower incidence of attention-deficit/hyperactivity disorder (ADHD).

**Note:** When a client is planning on having a baby, you may want to recommend a 3 to 6-month health preparation period to include: bowel (bacteria/yeast/parasite) cleanse, liver and cell cleansing (herbs and homeopathics), adaptogen formula, antioxidant and nutrient supplements to increase storage and for corrections (all B vitamins with **natural folate**, fat soluble vitamins **A (not beta carotene)**, D, E, and K, vitamin C, CoQ10, calcium and magnesium, iodine, zinc, and iron if she has a history of anemia or a vegetarian). Men should also prepare the same way, including calcium at 30% RDA for a few months. The health of the sperm is important! Both the man and woman should greatly limit or eliminate alcohol. **\*\*Cleansing and building all systems, starting with the bowels and liver, is something that is needed for almost every client - including the ladies experiencing PMS.**

49. **True or False?** Beta-carotene is not metabolized or stored in the same way as vitamin A and has not been associated with vitamin A toxicity in animals or humans, but may not have the ability to prevent deficiency issues because of differences in absorption and metabolism.

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From: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3250974/>

...About 40% to 60% of the population has genetic polymorphisms that impair the conversion of supplemental folic acid to its active form, l-methylfolate....In vivo, the body converts dietary folic acid to l-methylfolate through a series of enzymatic processes. The final stage is done with the **enzyme methyltetrahydrofolate reductase (MTHFR)**. Those with certain polymorphisms have inadequate MTHFR activity. Based on the high prevalence of these genetic polymorphisms and the importance of assuring that pregnant women get adequate folic acid, supplementation with l-methylfolate may be the best option to avoid blood folate deficiencies.

...Bentley and colleagues<sup>2</sup> conducted a retrospective, comparison study of different forms of folic acid in pregnant women. The women either used a prenatal supplement containing l-methylfolate or one with folic acid. Women were followed during pregnancy until term. In contrast with women who used a prenatal product that contained folic acid, those who had l-methylfolate in their prenatal supplement had significantly higher hemoglobin levels at the end of the second trimester ( $P < .011$ ) and at delivery ( $P < .001$ ). **Based on this study, it appeared that women benefitted from l-methylfolate in their prenatal vitamin in terms of having a lower incidence of anemia.**

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50. **True or False?** Nutritional deficiency is common among women with PMS and a broad spectrum nutritional supplement is recommended. Patients with PMS given a multivitamin-mineral supplement with high doses of magnesium and B6 have reductions (70% or more reduction) in both premenopausal and postmenstrual symptoms. Some women cannot convert B6 to its active form, pyridoxal-5-phosphate (P5P), because of a deficiency in another nutrient(e.g., vitamin B2 or magnesium [Mg]).

51. **True or False?** *Vitex agnus-castus* (Chaste tree) and St. Johns wort (*Hypericum perforatum*) are contraindicated for women experiencing PMS. They are not recommended.

**Note:** Using an adaptogen formula that matches your clients overall health and emotional state would enhance the effectiveness of St. Johns wort. The PDF, "Rhodiola rosea" by Sharlene Peterson includes information about the HPA-axis, additional adaptogen herbs, and formulation ideas.

52. Hemorrhoids are painful and usually preventable. Treatment and prevention should include the flavonoids rutin and hydroxyethylrutinosides (HERs). Which statement is true for pregnant women?

(A) hemorrhoids are common during pregnancy however, the use of flavonoids may lower birth weight and affect infant growth.

(B) using a flavonoid combination (diosmin 90% and hesperidin 10%) for 8 weeks before delivery and 4 weeks after delivery also helps pregnant women

(C) Both A & B are true

53. **True or False?** Psoriasis was once considered a disorder of keratinocytes; now it is seen as primarily an immune-mediated disorder. Psoriasis is linked to celiac disease and Crohn's disease. Bowel mucosa of psoriatics **without bowel symptoms** has microscopic lesions and increased permeability. Factors leading to poor intestinal function encourage increased intestinal permeability and inflammation, **allowing antigenic and endotoxic compounds to exit intestines, travel in bloodstream, and initiate activated immune cascades in susceptible tissues.**

54. **True or False?** If the liver is overwhelmed by excess bowel toxins or if the liver's detoxification ability is decreased, systemic toxin level increases and psoriasis worsens. Alcohol helps psoriasis and lessens toxicity.

55. **True or False?** Thirty-nine percent of psoriatics report specific stressful event within 1 month before initial episode. Psychotherapy is essential for patients with persistent unresolved psychological issues (e.g., anxiety, depression, and emotional stress of skin disease).

“Psoriasis can be a psychosocial skin disease. Psychosocial stress can maintain and exacerbate it. The etiopathogenesis of the psoriasis-psychological stress relationship includes peripheral nervous system pathways, **hypothalamic-pituitary-adrenal axis (HPA)**, and the sympathetic-adrenal-medullary (SAM) system as well as immune-mediated pathways.<sup>1</sup> However, these mechanisms are still under research....**Anxiety may trigger or worsen psoriasis**. Stress disturbs the epidermal barrier.<sup>3</sup> In psoriasis there is an altered sympathetic nervous system (SAM) activation with increased levels of epinephrine and norepinephrine and decreased levels of cortisol with dysregulation of both central and cutaneous equivalent (peripheral) hypothalamus-pituitary-adrenal (HPA) axes. This **dysregulation of HPA axes upregulates pro-inflammatory cytokines** and explains the stress-induced exacerbation of psoriasis.”- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4928455/>

56. Rheumatoid arthritis (RA) is the most common form of polyarthritis and is a chronic inflammatory condition affecting the entire body but especially synovial membranes of joints. Joints involved include the hands, feet, wrists, ankles, and knees. **Which statement below is false?**

- (A) RA risk is highest in people with the lowest levels of nutrient antioxidants.
- (B) Many pathogens (e.g., Epstein-Barr virus, cytomegalovirus, parvovirus, rubella virus, Mycoplasma, amebic organisms, Escherichia coli, influenza AH2N2, Porphyromonas, and Proteus) are associated with RA. RA patients have increased intestinal permeability to dietary and bacterial antigens plus alterations in bowel flora.
- (C) There is a negative correlation between RA and food allergies. Food allergies seldom occur in RA patients, only 2% to 4%.
- (D) Other microbes inducing collagen cross-reactive antibodies are Campylobacter, Salmonella, and Shigella. Microbes inducing antibodies cross-reactive to other joint tissues are Klebsiella pneumoniae, Proteus vulgaris, and Yersinia enterocolitica.

**Note:** *Klebsiella pneumoniae* and *Proteus vulgaris* are bacteria that normally live in your intestines in low numbers. *Campylobacter* infection is a common foodborne illness that often produces no symptoms and Yersiniosis is an infection caused most often by eating raw or undercooked pork. Bacterial overgrowth and parasites in the intestines need to be addressed before tackling systemic organisms.

57. **True or False?** Bottom line of rosacea etiology: because many implicated triggers are experienced by healthy persons who never develop symptoms or signs of rosacea, rosacea-prone individuals must have inherent sensitivity to these triggers. There is a high incidence of gastric H. pylori is found in rosacea patients.

58. Seborrheic dermatitis (SD) is a common papulosquamous condition with an appearance similar to psoriasis. It may be associated with excessive oiliness (seborrhea) and dandruff. Scale is yellowish and either dry or greasy. **Which statement(s) is false?**

- (A) SD begins as cradle cap. It is not primarily an allergic disease, but it is linked to food allergy (67% of SD patients have some form of allergy by age 10 years).
- (B) An underlying factor in infants is biotin deficiency. B6 deficiency in human beings and rats causes lesions indistinguishable from SD.
- (C) Check patient for exposure to B6 antimetabolites: hydrazine dyes ([FD&C] yellow No. 5) and drugs (isoniazid and hydralazine), dopamine, penicillamine, oral contraceptives, and excessive protein intake.
- (D) Malassezia yeast and Candida species are the most common causes of SD. Elimination of yeast clears SD in 90-95 percent of children and adults

59. **True or False?** Senile/Age-related Cataracts are the leading cause of impaired vision and blindness in the United States. People with higher intake of vitamins C and E, Se, and carotenes have a much lower risk for cataracts. Lutein is a yellow-orange carotene that injures the eye and causes macular degeneration and cataract formation.
60. **True or False?** Streptococcal pharyngitis (“strep throat”) resembles viral pharyngitis. Even if cultures are positive for Streptococcus, antibiotics may not be necessary; strep throat usually is self-limiting. Clinical recovery is similar in cases treated with antibiotics and those that were not.

**Note:** “Trichomoniasis (“trich”) is common cause of vaginal irritation in women and the **most common nonviral** sexually transmitted disease. It is present in **3% to 15% of asymptomatic** women treated at obstetric and gynecologic clinics and 20% to 50% of women treated at sexually transmitted disease clinics” **Do not rule out this issue just because a person is over 65!** I had a woman client who went for a few years without knowing the little flagelle was the root of her recurrent UTI infections and inflammation. The medical doctor who decided to check for an STD was surprised and so was the woman. Turns out her husband had an affair.

61. **True or False?** Urticaria is named for the stinging nettle plant (*Urtica dioica*), which contains histaminic acid. Drug induced urticaria is the common form in children. In adults, urticaria is attributable to foods, food additives, or infections.
62. **True or False?** 19% to 81% of patients with chronic urticaria react positively to immediate skin test with *Candida* antigens. Sensitivity to *Candida* is an important factor in 25% of patients with chronic urticaria. Seventy percent of patients with a positive skin reaction also react to oral provocation with foods prepared with yeasts.
63. Uterine fibroids consist of smooth muscle cells and connective tissue. Growth is stimulated by \_\_\_\_\_. Fibroids arise during reproductive years, grow during pregnancy, and regress after menopause. The Liver metabolizes estradiol for elimination by converting it to estrone, then to estriol, a weaker estrogen with little influence on the uterus.  
 (A) Progesterone      (B) Estrogen      (C) Androgens
64. There are several types of vaginitis but, 90 percent of vaginitis in reproductive-aged women is caused by bacteria (most common), candidiasis, or trichomoniasis. In addition to using herbs to reduce bacteria and yeast overgrowths, optimizing vitamin and mineral reserves, and eliminating irritants, probiotics are very useful. **Which set(s) of lactobacillus organisms are beneficial for vaginitis?**  
 (A) Lactobacillus rhamnosus, L. acidophilus, and Lactobacillus casei  
 (B) L. reuteri, L. casei, L. rhamnosus, and Lactobacillus fermentum (now called L. reuteri),  
 (C) L. plantarum, Lactobacillus salivarius, Lactobacillus johnsonii, L. plantarum, and L. crispatus  
 (D) All of the above
65. **True or False?** Iodine, used as douche, is effective for nonspecific vaginitis and it is effective against many organisms including: *Trichomonas*, *Candida*, and *Chlamydia*. Povidone-iodine (Betadine) does not sting or stain. It is effective in treating 100% of cases of candidal vaginitis, 80% of *Trichomonas*, and 93% of combination infections. One study used a douching solution diluted to 1 part iodine to 100 parts water (1½ to 3 tsp povidone-iodine to 1 quart water) b.i.d. for 14 days.
66. Veins are frail structures. Defects in the venous wall allow dilation of vein and damage to valves. Valve damage increases static pressure, causing bulging known as varicose veins. A venotonic substance improves venous tone by increasing contractile potential of elastic fibers in the vein wall. HCSE’s venotonic activity is confirmed in the treatment of varicose veins and thrombophlebitis. HCSE is referring to the herbal extract from which plant:  
 (A) *Centella asiatica*      (B) *Aesculus hippocastanum*      (C) *Ruscus aculeatus*

—END OF TEST 3/3