

The Facts and Myths of Detoxification

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Why Detoxify?

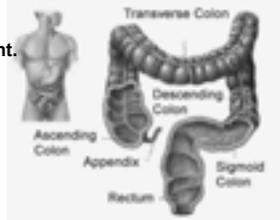
- Worldwide companies manufacture 6.5 trillion pounds of 9,000 different chemicals each year. That's enough to fill an ocean supertanker.
- The same companies release over 7 billion pounds of 650+ different pollutants into the atmosphere and water.
- A recent study by the Environmental Working Group found the average person has over 91 toxic chemicals in their body including toxins known to damage the brain and nervous system and cause cancer.
- They also found an average of 200 industrial compounds, pollutants, and other chemicals in the umbilical cord blood of 10 newborn babies.

The Colon

- The human body is made up of about 100 trillion cells. Yet the average person carries about ten times as many microorganisms in the intestines!
- These friendly bacteria help us break down undigested foods by fermentation, produce vitamins including biotin and vitamin K and produce hormones that help regulate fat storage.

The Colon

- When we are born our gut is sterile.
- We receive our first inoculation of bacteria from the vaginal canal of our mother.
- We continue to add bacteria to our gut through contact with our environment.



Myths About Detoxification

- ❖ Your colon is encrusted with fecal matter!
- ❖ You have 10-20 pounds of fecal matter in your colon rotting as we speak!
- ❖ You should do frequent cleanses to stay healthy
- ❖ Cleansing will solve all your health problems
- ❖ If you stimulate elimination, you're detoxifying

Facts About Detoxification

- ❖ While this scare tactic make for good sales, its just not accurate.
- ❖ Some of the steps involved in colon cleansing like increasing fiber are good for you. Some things like laxatives are not.
- ❖ Real detoxification is primarily about HEALING the organs of elimination
- ❖ Real detoxification requires good nutrition
- ❖ Excessively stimulating elimination can drain your energy and make you weaker and ultimately sicker

Where Do These Myths Come From?

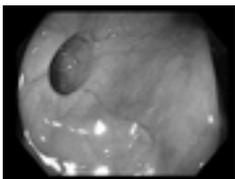


In Reality

- One of the important things the colon does is allow water and nutrients to absorb into our blood stream.
- If our colons were lined with encrusted fecal matter we would die.



The Closest We Get



A Healthy Colon



Diverticulosis

Gut Inflammation

- The real problem is damage to the intestinal mucosa due to drugs, chemicals, stress or damage to the gut microflora.
- "...the gut epithelium acts as the gatekeeper of mucosal immunity, forming a link between the innate and the adaptive immune systems..."
- "Keeping the gut microflora at bay" (J. Science 2004;303:1624)

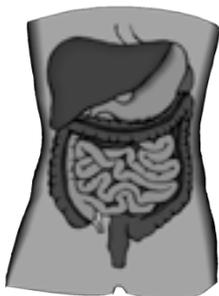
Colon Cleansing

- Should really be called colon healing
- Is not about stimulating bowel movements, but rather about restoring health to gastrointestinal function



Gut Inflammation

- How do you know if you have gut inflammation?
- You are alive in America.
- You have taken any antibiotics, NSAID's or steroids, within the last year.
- You don't eat fermented foods regularly.



Indications for Colon Healing

- Heavily coated tongue (especially at back)
- Inflammatory bowel disorders
- Vaginal yeast infections or thrush.
- Bloating after meals.
- Food Allergies
- Chronic sinus and respiratory congestion



Medical Test for Gut Inflammation

- Intestinal Permeability Test - This test works by the person consuming a concoction of 2 non-digestible sugars (Lactulose and Mannitol). A urine sample is then collected and examined to determine the content of the two sugars
- CDSA – uses microscopes and antibody testing to determine the presence of parasites, levels of beneficial flora, imbalanced flora, pathogenic bacteria, yeast and common food allergies.

Having a Healthy Gut – Step 1

- Hydration
 - Many laxatives work by hydrating the stool
 - Dehydration is the first suspect when people aren't eliminating regularly
 - Purified water is best



Indications of Dehydration

- Ask client how much water they drink per day (soda pop doesn't count!)
- Regularly feel thirsty
- Hard, dry stools
- Straining to pass stools
- Infrequent bowel eliminations
- Skin lacks flexibility



Having a Healthy Gut – Step 2

- **Fiber**
 - Reduces colon transit time
 - Bulks and lubricates the stool
 - Absorbs toxins from colon and bile from liver



Indications of Lack of Fiber

- SAD diet
- Intestinal inflammation and irritation
- Slow colon transit time
- Fiber is especially good for elderly, weak and feeble persons with gut problems
- If fiber causes gas and bloating use with enzymes or aromatic herbs like ginger.

Having a Healthy Gut – Step 3

- **Probiotics**
 - Break down undigested foodstuffs in the intestines
 - Improve intestinal absorption of nutrients
 - Have a mild laxative action
 - Found in fermented foods, which also contain beneficial enzymes



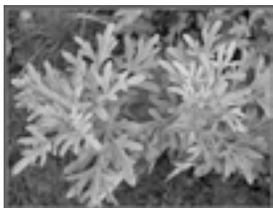
Fermented Foods

- **Unpasteurized yogurt, sour cream, buttermilk, kefir, sauerkraut, kimchee, kvass, apple cider vinegar, some beers and wine, sour pickles, miso, tempeh, dosas, cultured cheeses, sourdough bread.**



Other Strategies for Gut Health

- **Bitter herbs**
 - Stimulate digestive secretions
 - Improve bile flow
 - Support liver detoxification
 - Clear lymphatic stagnation



Indications for Bitters

- Respiratory congestion and lymphatic stagnation
- Heavily coated and/or swollen tongue
- Acid indigestion about one hour after eating
- Foul belching, sour regurgitation
- Indigestion from eating fats and proteins



Contraindications for Bitters

- Bitters can be cooling or warming.
- All are a little drying and can exacerbate dry conditions.
- Should not be used on weakened individuals, especially those in a state of atrophy - they need sweet nourishing tonics.



Examples of Bitters

- Dandelion root and leaves (*Taraxacum officinale*)
- Milk Thistle (*Silybum marianum*)
- Artichoke leaf (*Cynara cardunculus*)
- Calamus (*Acorus calamus*)
- Goldenseal (*Hydrastis canadensis*)
- Yellow Dock (*Rumex crispus*)
- Gentian (*Gentiana lutea*)

Last Resort - Herbal Laxatives

- Decrease colon transit time
- Ideal transit time 16-18 hours
- Only useful for people that have regular but infrequent bowel movements
- Short term use only



Anthraquinone Glycosides

- Yellow-brown dyes found in herbs with stimulant laxative action
- They increase peristalsis and inhibit water and electrolyte absorption in the intestines
- Do not directly irritate mucus membranes, but are overused in herbal cleansing programs
- Anthraquinone's stain the colon, which upsets doctors doing colonoscopies

Major Herbs with Anthraquinones

- Cascara sagrada
- Buckthorn
- Turkey rhubarb
- Aloes (green part, not the gel)
- Senna
- Yellow dock



Problems with Herbal Laxatives

- Tend to aggravate spastic bowel conditions and inflammatory bowel disorders
- May cause problems in pregnancy and nursing
- Tend to “drain” energy and cause the colon to become habituated to them
- Aggravate dehydration



Weaning People off Laxatives

- Increase water intake (hydrate the body)
- Use magnesium supplements in high doses (magnesium citrate) 800-1000 mg. per day
- Use high doses of vitamin C with citrus bioflavonoids
- Increase probiotics and fermented foods
- Slowly increase fiber
- Take enzyme supplement on an empty stomach

You Make Me Sick to My Stomach

- Antispasmodics are wonderful for people who hold stress and tension in their stomach
- Relax intestinal cramps and relieve intestinal irritation
- Helpful for constipation or diarrhea due to stress



Indications for Antispasmodics

- Erratic bowel movements, spastic bowel conditions
- Cramping pains in the abdomen
- Constipation associated with nervous tension and stress
- Sharp pains in abdomen that come and go
- Alternating diarrhea and constipation

Antispasmodic Remedies

- Magnesium supplements
- Lobelia (*Lobelia inflata*)
- Wild Yam (*Dioscorea villosa*)
- Catnip (*Nepeta cataria*)
- Chamomile (*Matricaria recutita*)



Tone That Flabby Gut Up

- Astringents tone intestinal membranes to reduce intestinal permeability
- Should be used for short periods only, not for long term use



Indications for Astringents

- Leaky gut
- Bleeding in intestines
- Hemorrhoids or fistula
- Diarrhea
- Mucus in stools



Astringent Remedies

- White oak bark (*Quercus alba*)
- Bayberry rootbark (*Myrica cerifera*)
- Kudzu (*Pueraria lobata*)
- Cat's Claw (*Uncaria tomentosa*)



Put the Fire Out



- **Anti-inflammatory:**
 - Reduce intestinal inflammation and irritation
 - Soothe intestinal membranes
 - Useful for inflammatory bowel disorders
 - Are widely needed to restore gut health

Indications for Anti-Inflammatory Remedies

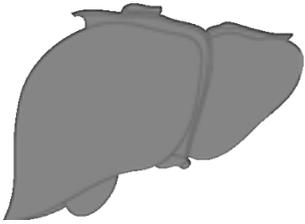
- Occasional diarrhea, tendency to loose stools
- Overly rapid colon transit time
- Blood in stool
- Inflammatory bowel diseases (Chron's, colitis, irritable bowel syndrome, Celiac's, acute diverticulitis, etc.)
- Red tongue with yellow coating
- Sores or bumps at back of tongue

Anti-inflammatory Remedies

- Peach (*Prunus persica*)
- Aloe vera juice (*Aloe vera*)
- Chamomile flowering herb (*Chamomilla recutita*)
- Licorice root (*Glycyrrhiza glabra*)
- Yellow Dock root (*Rumex crispus*)
- Plantain (*Plantago major*)
- Marigold (*Calendula officinalis*)
- Turmeric rhizome (*Curcuma longa*)

Don't Forget the Liver!

- Every drug, pesticide, hormone and artificial chemical is broken down by enzyme pathways in the liver.



Basic Symptoms of Sluggish Liver Function

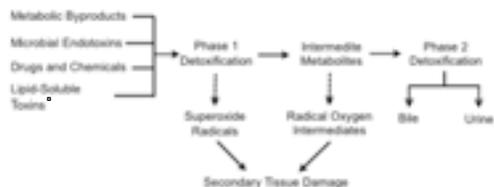
- Bloating or stuffy feeling under right rib cage
- Nervous energy in the evening
- Grogginess in the morning
- Frequent headaches, especially over the eyes.
- Skin problems (blemishes, etc.)



Medical Test for Liver Function

- Clearance tests using saliva, urine, and/or blood after chemical challenge by caffeine, aspirin, and acetaminophen can be useful in detecting Phase I and II imbalances.
- A urine organic acid test can help determine detox issues. Organic acids are metabolic intermediates produced during detoxification. High levels of specific organic acids in the urine can signal the potential accumulation in the body of particular toxins.
- AST
- ALT
- ALP

Liver Detoxification



Phase 1 Detoxification

- 50 different enzymes which electrically charge toxins (adding or eliminating electrons) in preparation for phase 2 detoxification
- Know as the cytochrome P450 superfamily
- Symptoms of Sluggish Phase 1 Detox Include:
 - Caffeine, alcohol and other chemical substances have long lasting effects
 - General symptoms of liver congestion

Nutrients for Phase 1 Detoxification

- Beta-carotene
- Vitamin B1, C, E
- Minerals:
 - Copper
 - Iron
 - Magnesium
 - Manganese
- Molybdenum
- Sulfur
- Zinc
- Choline
- Fatty Acids
- Lecithin
- Methionine

Enhancing Phase 1 Detox

- Cruciferous vegetables
- Most bitter "liver" herbs
- Milk Thistle
- B-Complex Vitamins
- Vitamin C
- Amino Acids



Free Radicals

- Phase 1 Detoxification Produces Free Radicals
 - Superoxide radicals
 - Intermediate metabolites (which can be more toxic than the original compounds)
- These free radicals must be neutralized by antioxidants
- This makes the liver one of the biggest users of antioxidants
- The other organ that needs large quantities of antioxidants is your eyes
- This may be why eye problems are linked with the liver in TCM

Antioxidants

- Blueberries, raspberries, blackberries
- Lycium and other sour herbs
- Chaga and other medicinal mushrooms
- Glutathione
- Superoxide dismutase
- Alpha Lipoic Acid
- Vitamins C, E
- Selenium



Phase 2 Detoxification

- Enzymes which add chemical groups to toxins (a process called conjugation) to make them water soluble
- Think of phase 1 like bagging the trash and phase 2 like taking to trash out.
- Symptoms of sluggish phase 2 include
 - Taking supplements for Phase I detox makes you feel sick
 - Get very sick when detoxifying (healing crisis)
 - Toxemia during pregnancy
 - Reactions to specific toxins
 - Environmental illness

Nutrients for Phase 2 Detoxification

- **Vitamins:** Folic Acid, B1, B2, B3, B5, B6, B12, C
- **Minerals:**
 - Germanium
 - Magnesium
 - Manganese
 - Molybdenum
- **Amino Acids:** Cysteine, Glycine, L-glutathione, Taurine
- **N-acetyl-cysteine**
- Selenium
- Sulfur
- Zinc

Phase 2 Conjugates

- Amino acids (acylation)
- Sugars (glucuronidation)
- Glutathione (glutathione conjugation)
- Methionine (methylation)
- Sulfur (sulfation)
- Acetyl Co-A (acetylation)

Acylation

- Amino acid conjugation
- Helps the body to rid itself of many toxic chemicals or xenobiotics
- Specific toxins:
 - Benzoate (widely used as a food preservative)
 - Aspirin
 - Toluene (popular industrial solvent)
- Disturbed acylation by toxic overload decreases bile in the gastrointestinal tract, resulting in poor assimilation of fats and fat-soluble vitamins, and disturbed cholesterol metabolism

Poor Acylation is Often Found in People with

- Hepatitis
- Alcoholic Liver Disorders
- Carcinomas
- Chronic Arthritis
- Hypothyroidism
- Toxemia in pregnancy
- Excessive Chemical Exposure

Acylation Supplements

- Uses amino acids: glycine, taurine, glutamine, arginine, and ornithine
- Taurine and glycine reactions require alkaline pH
- Supplements to consider:
 - Free Amino Acids
 - Algae supplements
 - Spirulina
 - Blue-green algae
 - Chlorella

Glucuronidation

- Glucuronic acid is a metabolite of glucose
- For most individuals glucuronidation is a supplementary detoxification pathway, a secondary, slower process than sulfation or glycation
- Detoxifies
 - Chemical and bacterial toxins
 - Steroidal hormones
 - Some fungal toxins
 - Alcohols
 - Phenols
 - And others...

Nutrients for Glucuronidation

- L-glutamine
- Aspartic acid
- Magnesium
- B-Vitamins (B3 & B6)

Glutathione Conjugation

- Helps to detoxify and eliminate poisons in the liver, lungs, intestines, and kidneys
- Glutathione is one of the most important antioxidants in the body
- Heavy metals inhibit the replenishment of glutathione
- Specific toxins:
 - Aromatic disulphides
 - Naphthalene
 - Anthracene
 - Phenanthracin compounds
 - Aliphatic disulphines

Nutrients for Glutathione Conjugation

- Synthesis requires adequate amounts of the amino acids cysteine, glutamic acid, and glycine
- Nutrients that help to raise glutathione levels include vitamin C, alpha-lipoic acid, raw whey protein, and the amino acids glutamine and methionine
- Cruciferous vegetables (cauliflower, broccoli, brussel sprouts, etc.)
- N-Acetyl-Cysteine

Methylation

- **Methylation occurs in every cell of the body**
- **Helps break down excess hormones (estrogen, etc.)**
- **Specific toxins:**
 - Steroid hormones, including estrogen
 - Adrenaline and noradrenaline
 - Dopamine
 - Melatonin
 - Histamine
 - Serotonin
 - Homocysteine
- **Poor methylation may be a contributing factor in heart disease, cancer, arthritis and PMS**

Nutrients for Methylation

- **Amino acid: methionine**
- **B-Vitamins: B6, B12, Folic acid**
- **Choline**
- **Sam-e**
- **Betaine (from beets)**
- **The activity of the methyltransferase enzyme is dependent on magnesium**

Sulfation

- **Principle pathway for eliminating excess neurotransmitters**
- **Reduced sulfation may be involved in Parkinson's disease, Alzheimer's disease and other nervous system disorders**
- **Environmental illness may also involve reduced sulfation**
- **Specific toxins:**
 - Many body chemicals including neurotransmitters, steroidal and thyroid hormones
 - Several drugs (acetaminophen, etc.)
 - Some food additives
 - Toxins from intestinal bacteria
 - Many environmental toxins

Nutrients for Sulfation

- Amino Acids: methionine and cysteine, taurine, glutathione
- Minerals: zinc, copper, selenium, magnesium, molybdenum
- Vitamin B1, B2, B12 and Folic Acid
- MSM
- Garlic and onions
- Cruciferous vegetables
- N-Acetyl-Cysteine
- Impaired by excess B6 or molybdenum

Acetylation

- Attaches acetyl co-A to toxins
- Many people are slow acetylators, especially those who are chemically sensitive
- N-acetyltransferase activity in these people is thought to be reduced, which prolongs the life span of drugs and other toxic chemicals in the body, thus enhancing their toxicity
- Specific toxins:
 - Histamine
 - Serotonin
 - PABA
 - P-amino salicylic acid
 - Sulfa drugs

Nutrients for Acetylation

- Pantothenic acid
- Vitamin C
- Thiamine

Excretion

- **Conjugated Toxins are Excreted Via the Kidneys or Liver**
 - Smaller molecules are excreted via the kidneys
 - Large molecules are excreted via the bile (and colon)
- **Water and fiber are the two main things needed to finish the elimination of toxins**
 - Fiber binds toxins released in bile (which may be what causes all the nasty stuff that is passed on cleanses)
 - Water dilutes toxins for excretion through the kidneys and helps move toxins out from the colon

Factors Inhibiting Liver Detoxification

- **Nutritional Deficiencies**
- **Certain Drugs**
- **Low Thyroid**
- **Liver Disorders**
- **Insulin Resistance**



How to Survive A Toxic World



A Few Unpleasant Facts

- According to the American Cancer Society, prior to the 20th century, only 1 out of 8,000 Americans got cancer
- Since World War II, we have developed more than 80,000 chemicals
- Now, 1 out of 3 people get cancer; cancer is also the leading cause of death between 45 and 75.
- 80% of people's exposure to chemicals occurs in the home
- EPA reports that cleaning products commonly found in the home are 3 times more likely to cause cancer than outdoor air pollution

Causes of Death by Age

| Age Range | 25-34 | 35-44 | 45-54 | 55-64 | 65-74 | 75-84 | 85+ |
|-----------|----------------------|---------------|-----------------|-----------------|-----------------|-------------------------|-------------------------|
| 1 | Injury | Injury | Cancer | Cancer | Cancer | Heart Disease | Heart Disease |
| 2 | Suicide | Cancer | Heart disease | Heart disease | Heart disease | Cancer | Cancer |
| 3 | Homicide | Heart disease | Injury | Respiratory | Respiratory | Respiratory | Cerebrovascular |
| 4 | Cancer | Suicide | Liver disease | Injury | Cerebrovascular | Cerebrovascular | Alzheimers |
| 5 | Heart disease | HIV | Suicide | Diabetes | Diabetes | Alzheimers | Respiratory |
| 6 | Congenital Anomalies | Homicide | Cerebrovascular | Cerebrovascular | Injury | Diabetes | Influenza and Pneumonia |
| 7 | Diabetes | Liver Disease | Diabetes | Liver Disease | Nephritis | Influenza and Pneumonia | Nephritis |

1999-2007 Source: Center for Disease Control
webappa.cdc.gov/sasweb/ncipc/leadcaus10.html

The Most Important Part

- The biggest part of detoxification isn't to just get toxins out of the body, it's to get them out of your life!
- Identify and remove as many toxins from your life as possible.

Toxins from Food

- Natural Allergens
- Agricultural Chemicals
- Chemical additives (preservatives, etc.)
- Processing Methods ("white" food)
- Cooking Methods (microwaves, high heat)



Indoor Pollution

- Fabrics (carpets, upholstery, clothing, etc.)
- Building Materials (formaldehyde, solvents, glue, paint, etc.)
- Studies show that even in smog filled cities there are less toxins outside than inside.



Household Cleaners

- Disinfectants
- Detergents
- Bleach
- Spot removers
- Kitchen and bathroom cleaning products
- Dryer sheets



Personal Care Products

- Cosmetics
- Deodorants
- Lotions
- Shampoo
- Conditioners
- Toothpaste



Yard Care – Insect Controls

- Pesticides
- Herbicides



Air and Water Pollution

- Industrial pollution
- Automotive pollution
- Water Treatment chemicals (chlorine, fluoride, bromides, etc.)
- Prescription drugs in the water



**Radiation and
Electromagnetic Pollution**

- Nuclear power plants
- Electrical substations
- Microwave ovens
- Radar
- Computers
- Cell phones



Don't Get Paranoid

- Don't avoid toxins out of fear, avoid them out of a desire for high level wellness
- The body can handle a certain amount of toxins naturally, especially if we have good nutrition
- However, the more we reduce our exposure to toxins, the less stress we put on our body and the higher our health and energy will be

Module 5: Herbs for Detoxification

- Advanced Herbal Training Program, Module 5: Herbs for Detoxification
- Class Dates: Nov 1, 15, 22 and Dec 6, 13
- Times: 8:30 Eastern, 7:30 Central, 6:30 Mountain and 5:30 Pacific
- All classes are recorded and posted to the class page
- Cost: \$157 for 10 hours of instruction \$30 discount for pre-registration (\$127 if by registered by Oct 24) Additional \$30 per month discount for Members (\$19.95 per month)
- Register at: www.treelite.com or 800-416-2887

Question and Answer Time