

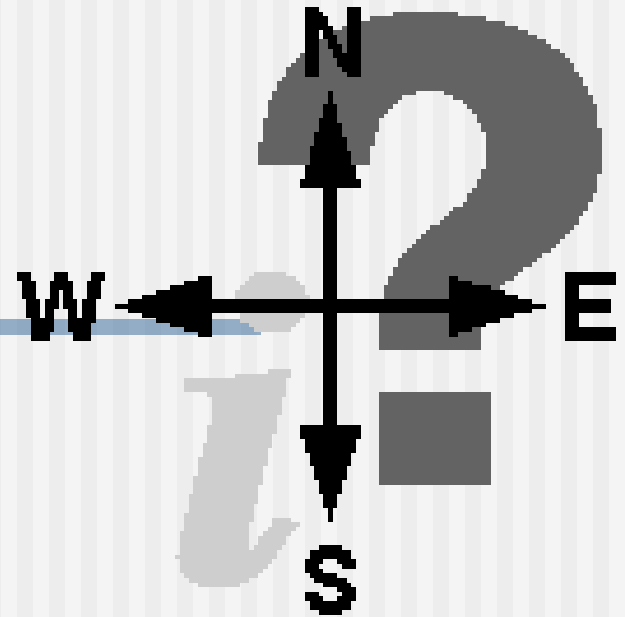
Detoxification

*Is toxicity robbing you
of vibrant health?*



Clinical Direction

- Why is it necessary Detoxify ?
- When to Detoxify?
- Typical Patient Profile.
- Physiology of Detoxification.
- Supporting Detox Pathways
- Program Outline



We live in a toxic environment

- Pollution and pollutants are a serious problem.
- Pollution and its effects can be found in virtually every place on earth.



Some of it we can see...

- **Air** pollution is a visible stain covering our major cities.
- **Water** pollution fouls our beaches, rivers and streams.



Environmental Toxins

(US EPA 1989 Toxics Release Inventory National Report)



- 550,000,000 lbs of industrial chemicals were dumped into public sewage storage.
- 1,000,000,000 lbs of chemical released into the ground.
- 188,000,000 lbs of chemicals discharged into surface waters.
- 2,400,000,000 lbs of air emissions.
- **5,705,670,380 lbs of chemicals in 1 year.**

But some of it we can't.

- **Invisible CFC's from aerosol sprays put a hole in the protective ozone layer.**
- **Out gassing from chemicals used in paints, cleaners, solvents and fuels may contribute to health problems in some people.**

We are drowning in it.

- **The chemicals pumped into our environment in the US in one year alone (1989) would fill a line of semi-trucks stretching from Los Angeles, California to Des Moines, Iowa.**

Toxic Release in Dallas in 2000

<http://d1.rtk.net/tri/area.php>

■	Reporting Year: 2000
■	Facility NameCityStateTotal Releases (lbs)Total Waste (lbs) AC MOLDING COMPOUNDS DALLASTX147,390.00149,638.00 AIR LIQUIDE AMERICA CORP. DALLASTX6,456.0094,003.00 AIRGAS SOUTHWEST INC. DALLASTX5,0010.00 AMERICANA FOODS INC. DALLASTX10,900.0040,090.00 APAC TEXAS INC. DALLASTX683,741,214.75 AQUABLEND INC. DALLASTX0.000.00 ASHLAND SPECIALTY CHEMICAL CO. DALLASTX1,711.00118,169.00 BRAKE PARTS INC. DALLASTX18,694.00128,642.00 BRENNTAG SOUTHWEST INC. DALLASDALLASTX9,102.0021,883.00 BUCKLEY OIL CO. DALLASTX9,202.806,799.00 BUILDING MATERIALS CORP. OF AMERICA(DBA GAF MATERIALS CORP.) DALLASTX0.53879.12 BWAY CORP. DALLASTX7,280.00329,521.00 CERPROBE CORP. DALLASTX1,250.0046,670.00 CHEMCENTRAL/DALLAS DALLASTX8,425.0020,041.00 COMET STEEL INC. DALLASTX0.000.00 CONNECTOR SERVICE CORP. DALLASTX50,0050.00 CRANE PLUMBING DALLASTX10,000.0010,000.00 DAL CHROME CO. DALLASTX0.0023,653.00 DAL-TILE CORP. DALLAS MFG. DALLASTX121,304.00263,441.00 DALLAS SEMICONDUCTOR CORP. DALLASTX9,932.00162,869.00 DALLAS WOODCRAFT INC. DALLASTX48,910.0049,600.00 DAP INC. DALLASTX0.001,196.00 DARLING INTL. INC. DALLASTX0.0017,000.00 DRS INFRARED TECHS. L.P. DALLASTX7,531.0051,493.25 EAGLE CIRCUITS INC. DALLASTX10,009,315.00 EMF CO. INC. DALLASTX1,708.0054,678.00 FOAMEX CARPET CUSHION INC. DALLASTX3.003.00 GE ENGINE SERVICES DALLAS L.P. DALLASTX30,0026,920.00 GO/DAN INDS. DALLASTX0.000.00 H. C. IND. INC. (DBA RMAX) DALLASTX82,094.0082,094.00 HARCROS CHEMICALS INC. DALLASTX250.0079.00 HEAT TREATMENT SERVICES INC. DALLASTX9,646.0013,325.072.00 HENSLEY INDS. INC. DALLASTX0.000.00 HOUSTON SOLVENTS & CHEMICALS CO. INC. DBA SS&C - DAN MORTON DALLASTX7,002.006,991.00 INX INTL. INK CO. DALLASTX0.000.00 JONES BLAIR CO. DALLASTX9,704.00219,057.00 KOCH GLITSCH INC. DALLASTX510.00127,546.00 MARLOW IND. INC. DALLASTX25,318.0086,678.00 MARTIN SPROCKET & GEAR INC. DALLASTX446.00446.00 MASTER-HALCO INC. DALLASTX500.003,951.00 MOTIVA DALLAS TERMINAL DALLASTX15,182.00534,595.00 MURMUR CORP. DALLASTX0.000.00 OAK FARMS DAIRY DALLASTX0.000.00 OCEANIC SYS. INC. DALLASTX12,139.0012,139.00 OLIVER RUBBER CO. DALLASTX515.0026,785.00 OLIVER SALES CO. DALLASTX0.000.00 PECORA CORP. DALLASTX0.000.00 PETRA CHEMICAL CO. DALLASTX750.00500.00 PIERCE CHEMICALS ROYAL BOND CO. DALLASTX1,000.005,936.00 PILGRIM'S PRIDE CORP. DALLAS PROCESSING PLANT DALLASTX5,000.0080,000.00 RAYTHEON CO. LEMMON AVENUE DALLASTX500.0045,869.00 REDDY ICE DALLAS DALLASTX67,000.0067,000.00 REICHOLD INC. DALLASTX500.000.00 ROCK-TENN CO. MILL DIV. DALLASTX13,053.0013,053.00 ROCORE SOUTHWEST INC. DALLASTX27.0025,814.00 ROYAL CHEMICAL CO. DALLASTX0.000.00 SCHEPPS DAIRY DALLASTX0.000.00 SECURITY DBS DALLASTX3,940.0066,108.00 SEEGOTT INC. CROND DALLASTX1,847.001,846.00 SUN CHEMICAL CORP. U.S. INK DIV. DALLASTX0.000.00 SUNBELT CHEMICALS DALLASTX54,946.0054,946.00 TAMKO ROOFING PRODS. INC. DALLASTX13.00141.00 TEXAS FIBERS DALLASTX7,017.0017,012.13 TEXAS INSTRUMENTS INC. DALLASTX11,773.001,466,976.00 TRINITY INDS. INC. PLANT # 74 DALLASTX0.000.00 TRIQUINT SEMICONDUCTOR TEXAS INC. DALLASTX21,702.00132,864.00 UNITED ELICHEM IND. INC. DALLASTX8,800.008,800.00 US PLATING L.P. DALLASTX0.004,096.00 VALSPAR INC. DALLASTX800.0051,057.00 VALVOLINE CO. DIRECT MARKET DALLAS DALLASTX0.000.00 VAN WATERS & ROGERS INC. DALLASTX1,910.001,910.00 VIRGINIA KMP CORP. DALLASTX484.0015,624.00 VOUGHT AIRCRAFT INDS. INC. DALLASTX52,915.00467,775.00 WELLMARK INTL. DALLASTX10.00495.00

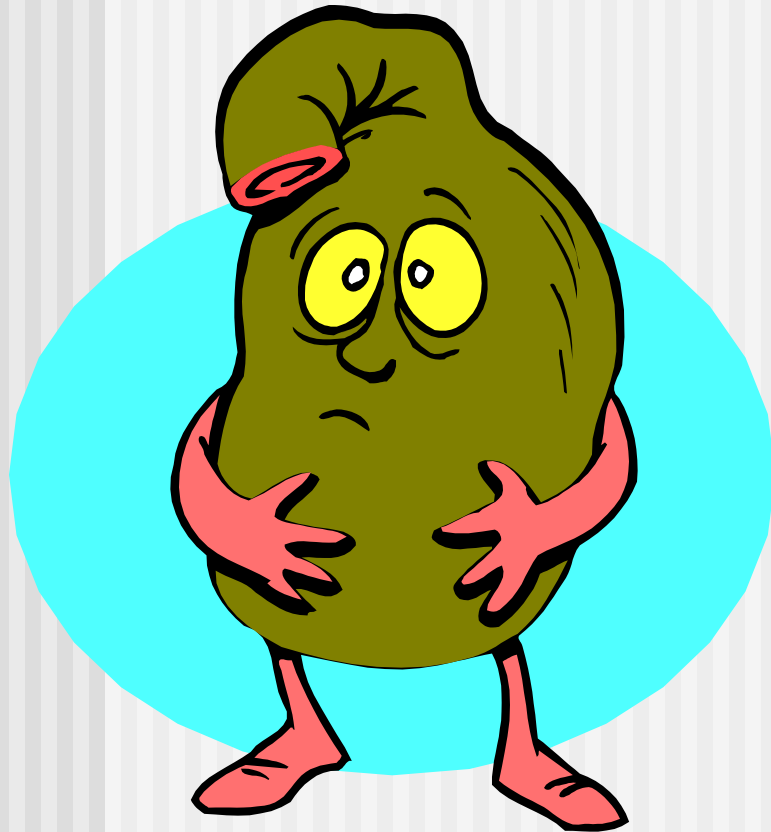
- **Total Releases** **847,871.00 (lbs)**
- **Total Waste** **18,581,033.00 (lbs)**

Some we even choose.

- **Cigarettes, excessive alcohol, even poor diet add their weight to the toxic burden we already carry.**
- **These are lifestyle choices we make for ourselves, and can thus exercise control over.**



Ingested Toxins



In the U.S. we allow over
10,000 chemical additives in
our food supply.

The average American
consumes:

14 lbs of additives per
year.

120 pounds of sugar.

8 pounds of salt.

Ref: "Do You Know What Your Patients Eat?"
Monograph, E. Cheraskin, W. Ringsdorf,
Dept. Oral Med., U. Alabama (1976).

Coca Cola

- 1. The active ingredient in Coke is phosphoric acid.

Its pH is 2.8. It will dissolve a nail in about 4 days. Phosphoric acid also leaches calcium from bones and is a major contributor to the rising increase in osteoporosis.



Sugar-Immune Suppression

- Sugar can cost you more than your teeth. At an average consumption rate of 130 lbs. per person per year, sugar takes the cake, **cell mediated immunity is depressed by 50%** for 120 minutes after sugar ingestion (75 grams).

Refined Sugar

- A 100g portion of sugar can significantly reduce the capacity of white blood cells to engulf bacteria. Maximum immune suppression occurs one to two hours after ingestion and remains suppressed for up to five hours after feeding.
- *Mechanism of action: Glucose competes with absorption of Vitamin C into the cell.*

Bernstein, J., et al, Depression of lymphocyte transformation following oral glucose ingestion, Am. J. Clin. Nutr., 30:613, 1977.

We pay the price in our health.

- **These substances (toxins) may cause changes in the way your body functions.**
- **Pollutants and their effects have been linked to problems ranging from increased respiratory problems to increased risk to a variety of cancers.**

PHYSICAL

- Injury
- Inflammation
- Eccentric exercise

NUTRITIONAL

- Preservatives
- Additives
- Alcohol
- Trans-fatty acids

TOTAL TOXIC
EXPOSURE

INFECTION

(Endo- & Exo-toxins)

- Bacterial
- Fungal
- Parasitic

CHEMICAL

- Xenobiotics
- Organics
- Toxic elements

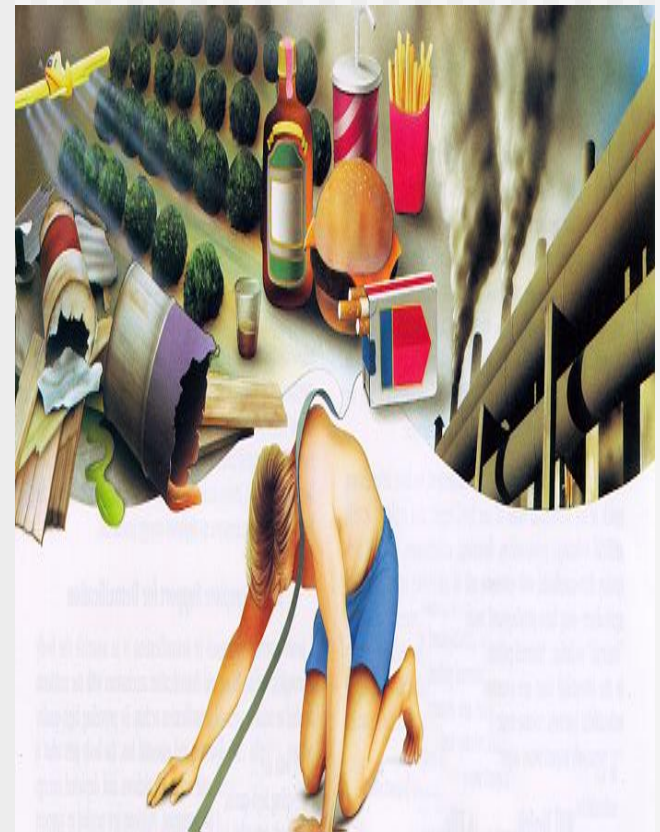
The good news is...

- **Our system is designed to cleanse itself of many of these harmful agents and protect against the damage caused by them.**
- **This detoxification system is wonderfully adaptable and capable of handling a great many toxins.**



Unfortunately

- **This system may become overwhelmed by overexposure to these agents.**
- **The symptoms of fatigue, frequent headaches, lack of mental clarity, etc. etc. that many people feel may be the result.**



Typical Patient profile...

- 1.) Poly-systemic complaints
- 2.) Generalized fatigue
- 3.) Poor circulation, edema
- 4.) Poor diet
- 5.) Poor Lifestyle choices
- 6.) Recurrent infections

“Classic” cases requiring Detox

- Industrial or occupational exposure
- Chemical sensitivity
- Bizarre symptoms / history
- Autism, ADHD, cognitive difficulties
- Chronic Allergies

Symptom Picture of General Toxicity

- General Malaise
 - fatigue, headache, joint & muscle pain
- Chronic Mucous Production
- Poor Exercise Tolerance
- Skin Rashes, Peri-orbital edema
- Immune Weakness
- Environmental and Chemical Sensitivities
- Mental Status Changes
 - inability to concentrate, depression, mood changes, memory loss, sleep disturbances, anxiety, PMS, etc.

Detoxification assessment

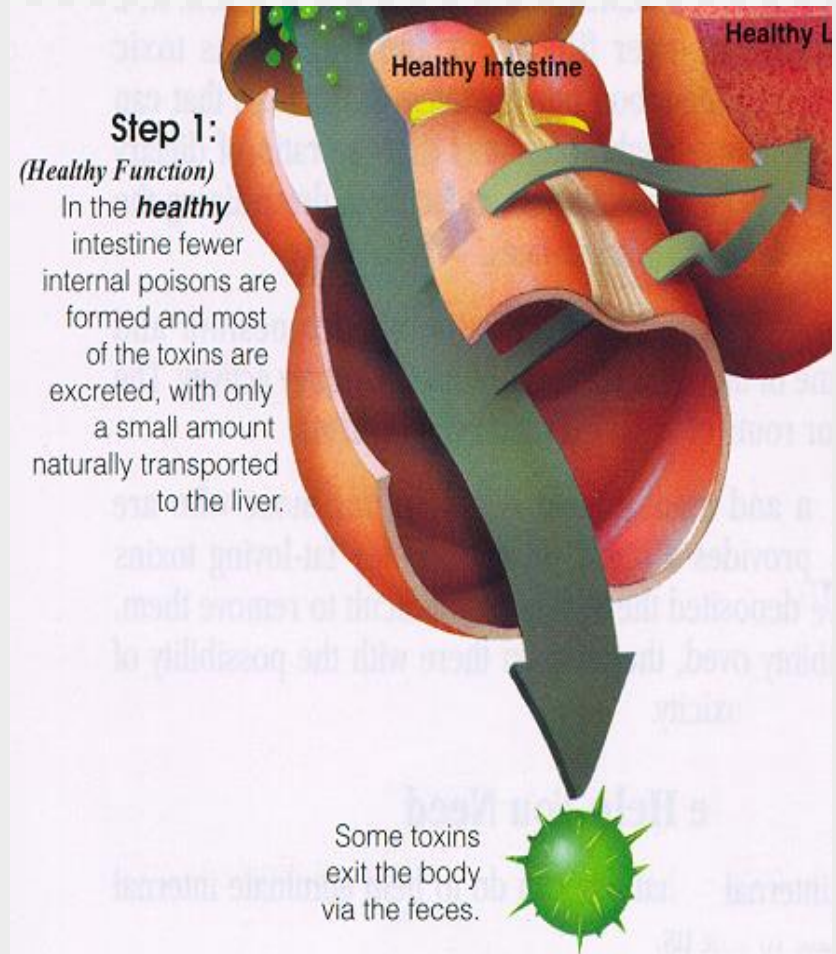
- Symptomatology
 - Detox questionnaire,
 - Fibromyalgia,
 - Long term chronic problem
- Bio-Impedance analysis
 - ICW / ECW Fluid shift
- BCA readings
 - PH variables, rh2 imbalances

The mechanics of Detoxification

- The gut
- The liver
- The gut / liver connection

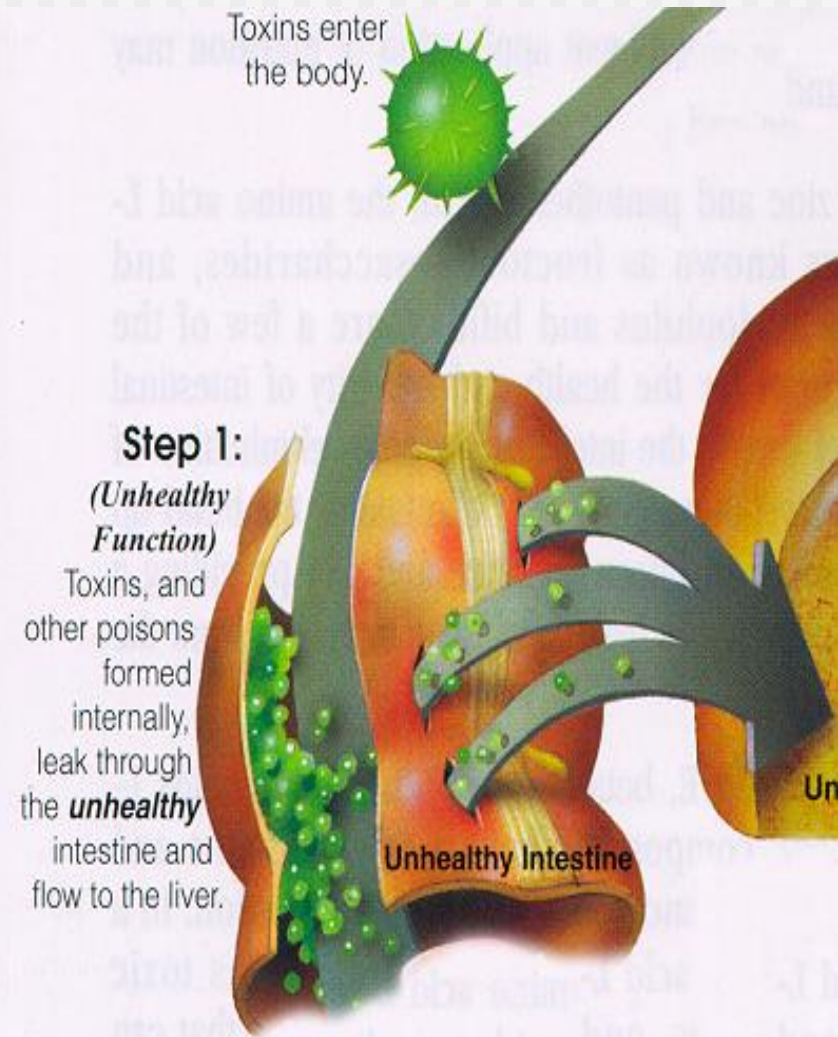
Much of the problem begins in the digestive tract.

- The food we eat must be digested properly.
- Poor digestion may cause greater problems than not getting adequate macro and micronutrients to the cells that need them.

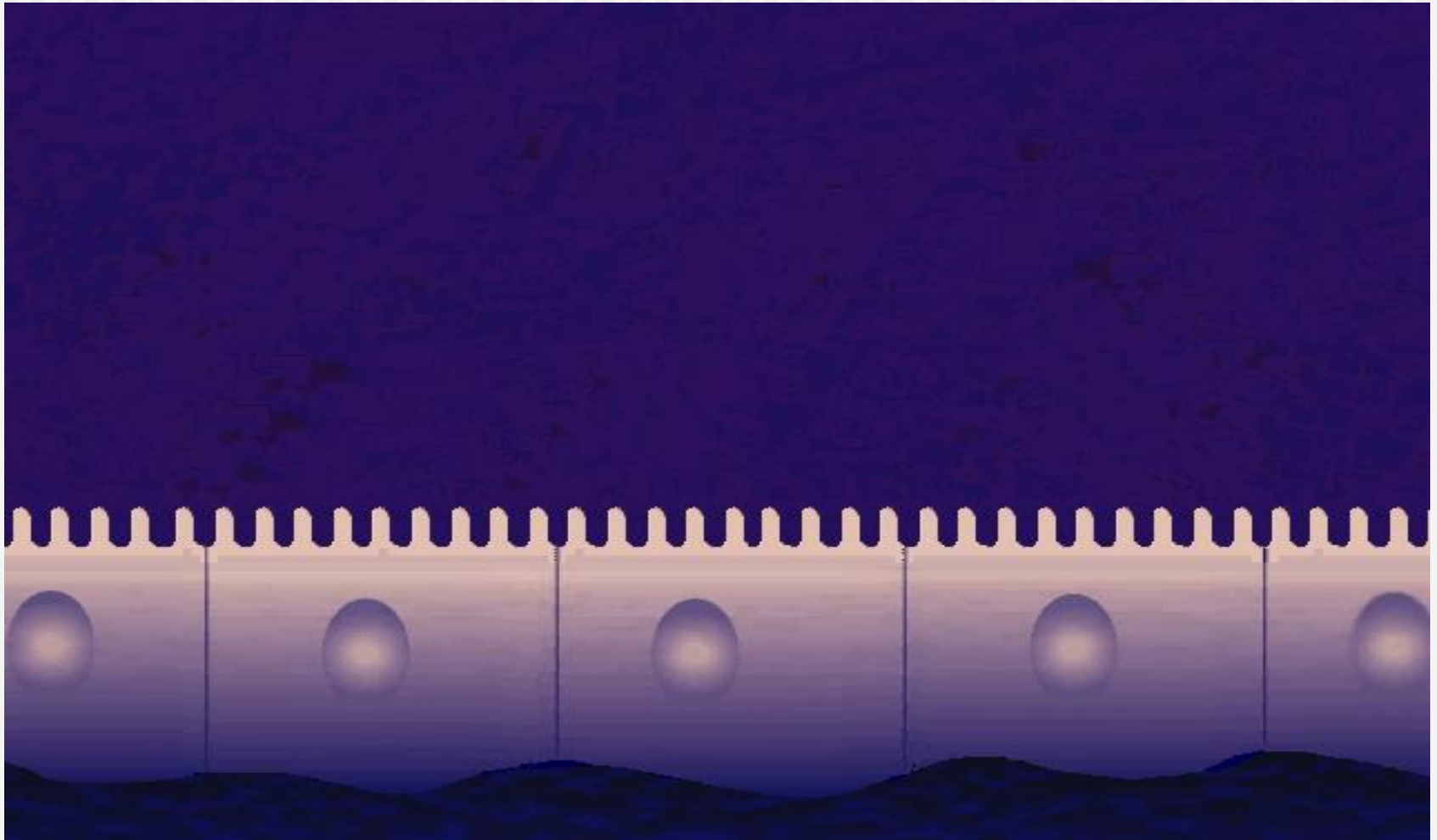


The bowel is also important.

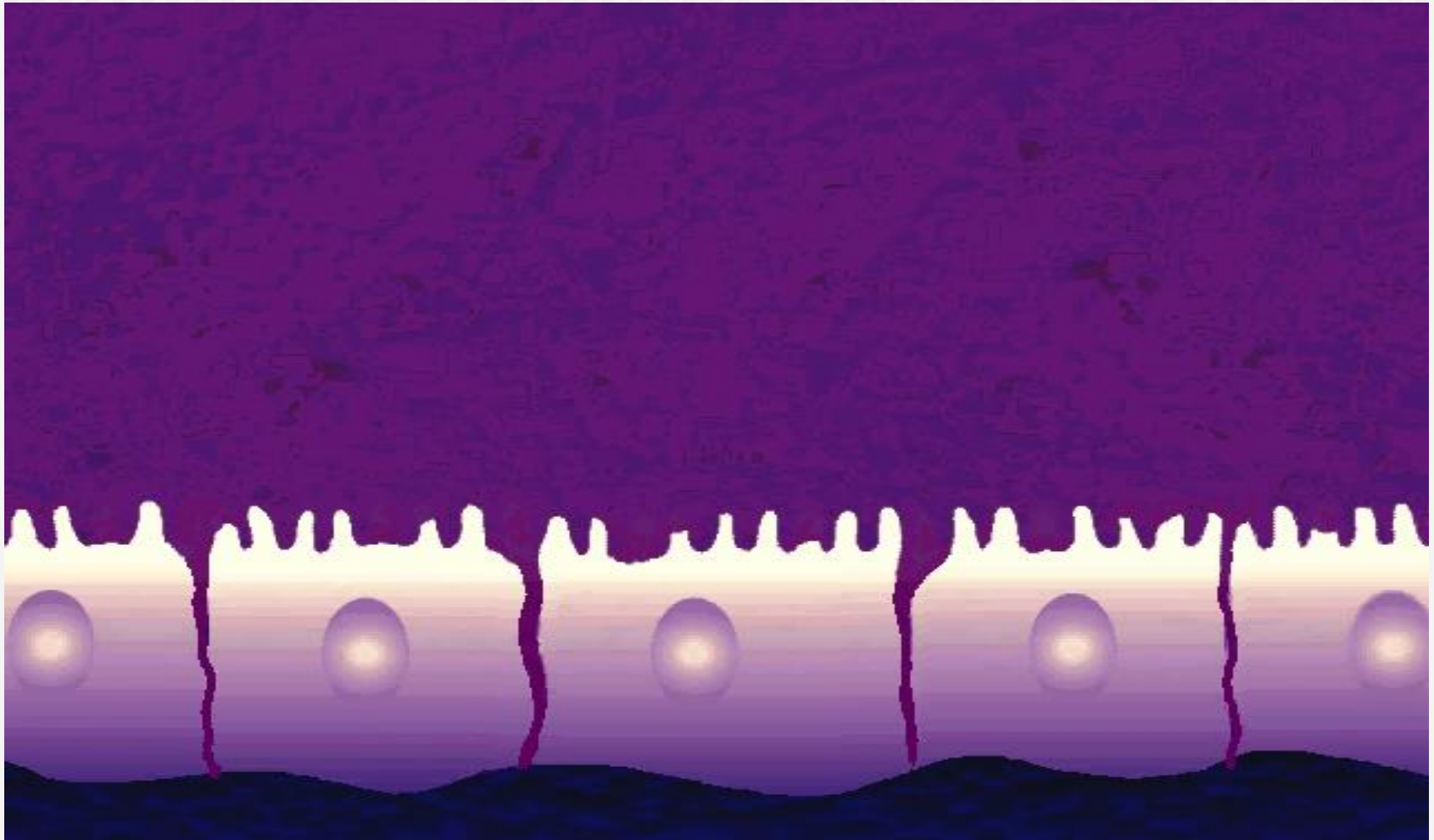
- One major line of defense is an effective intact digestive tract.
- If this is compromised through intestinal permeability and/or constipation, higher amounts of harmful agents may be absorbed.



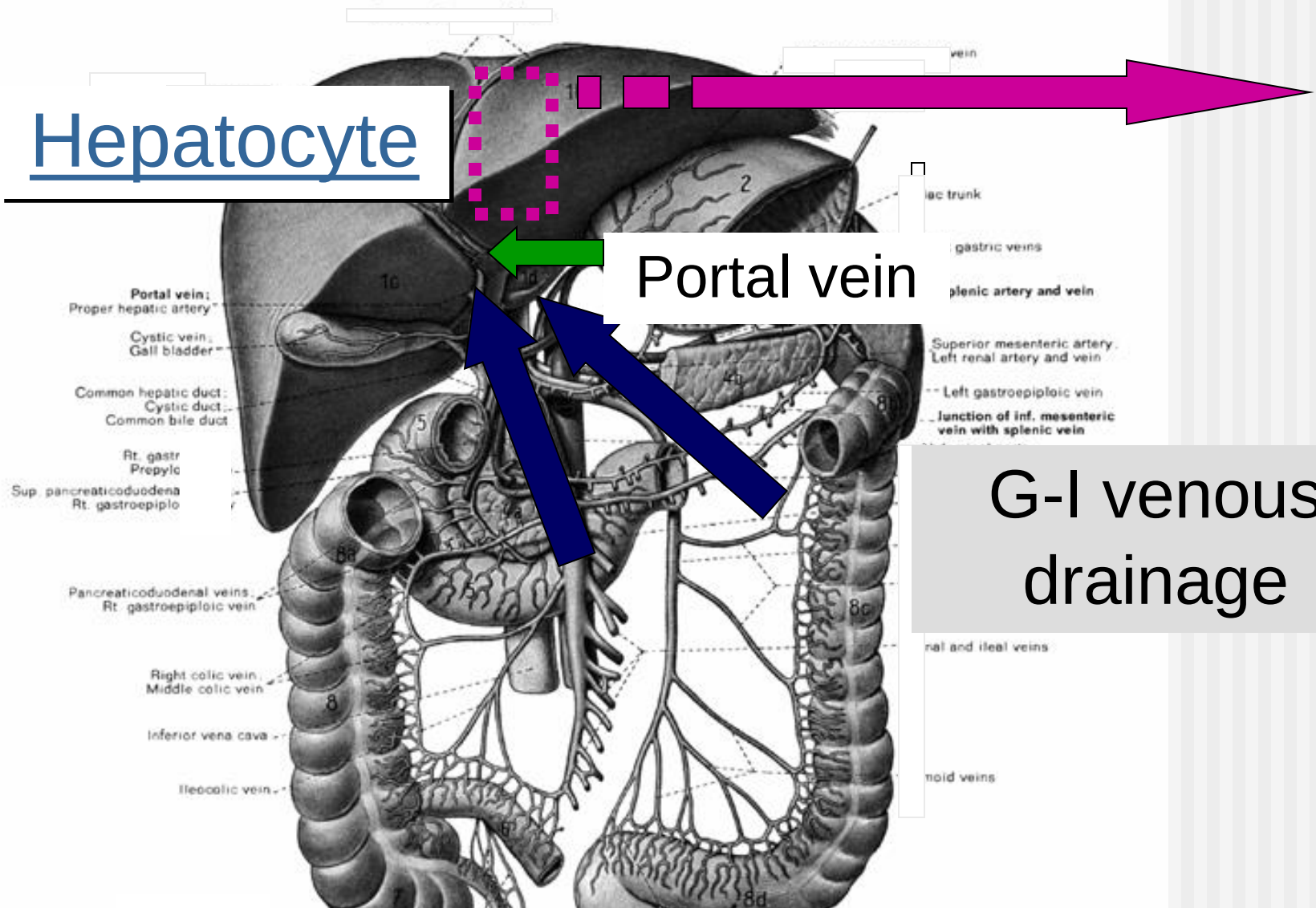
Healthy Gut



“Leaky Gut”



Hepatocyte



Portal vein

G-I venous
drainage

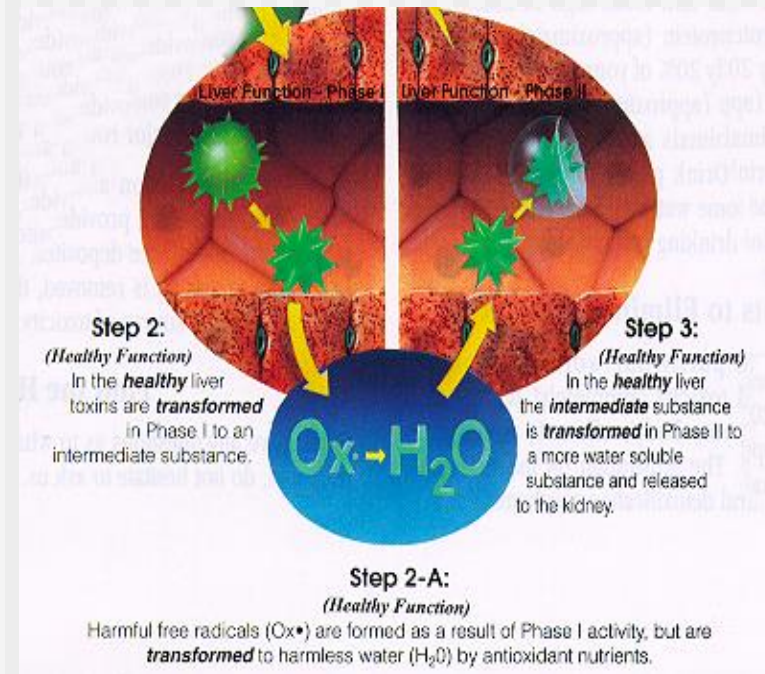
Hepatic circulation

The Gut-Liver Connection in Detoxification

- “First Pass Clearance”: Everything absorbed by the gut must first pass through the liver before going on to the general circulation and the rest of the body
- The liver is the primary organ of detoxification, eliminating xenobiotics as well as endogenous waste products of metabolism

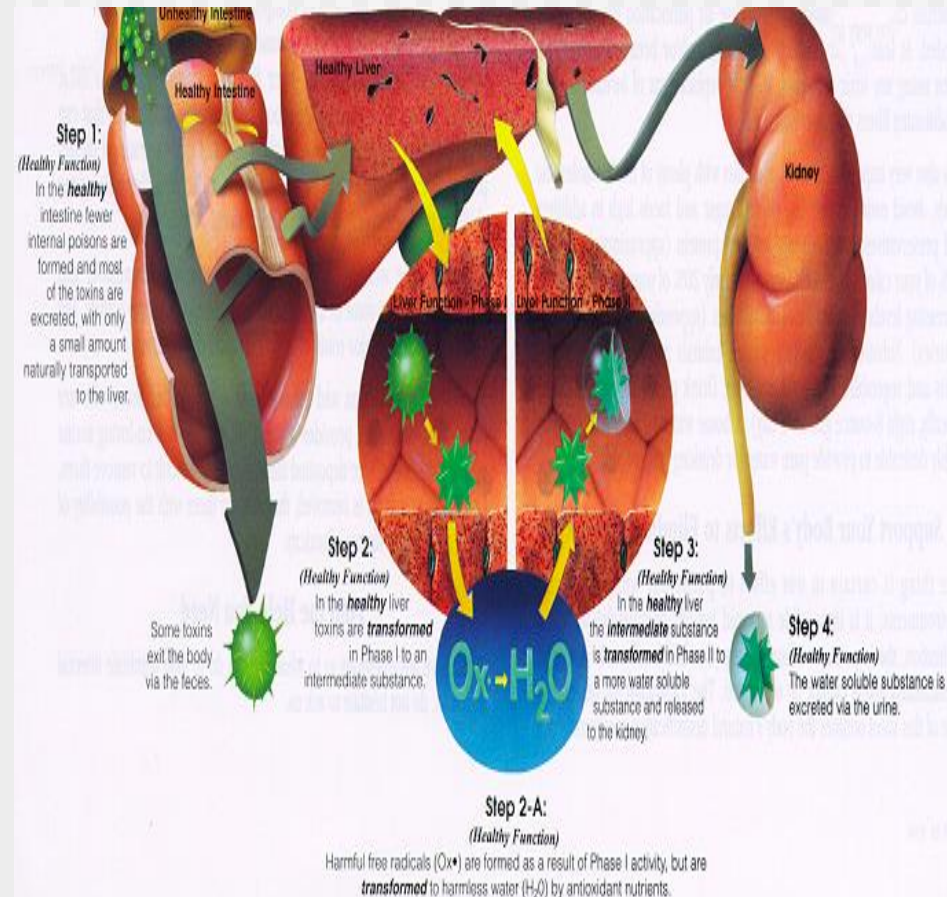
Proper liver function is the key.

- The liver is the organ primarily responsible for modifying these toxins so they can be eliminated from the body.
- It occurs in a two-step process, called "Phase I" and "Phase II."



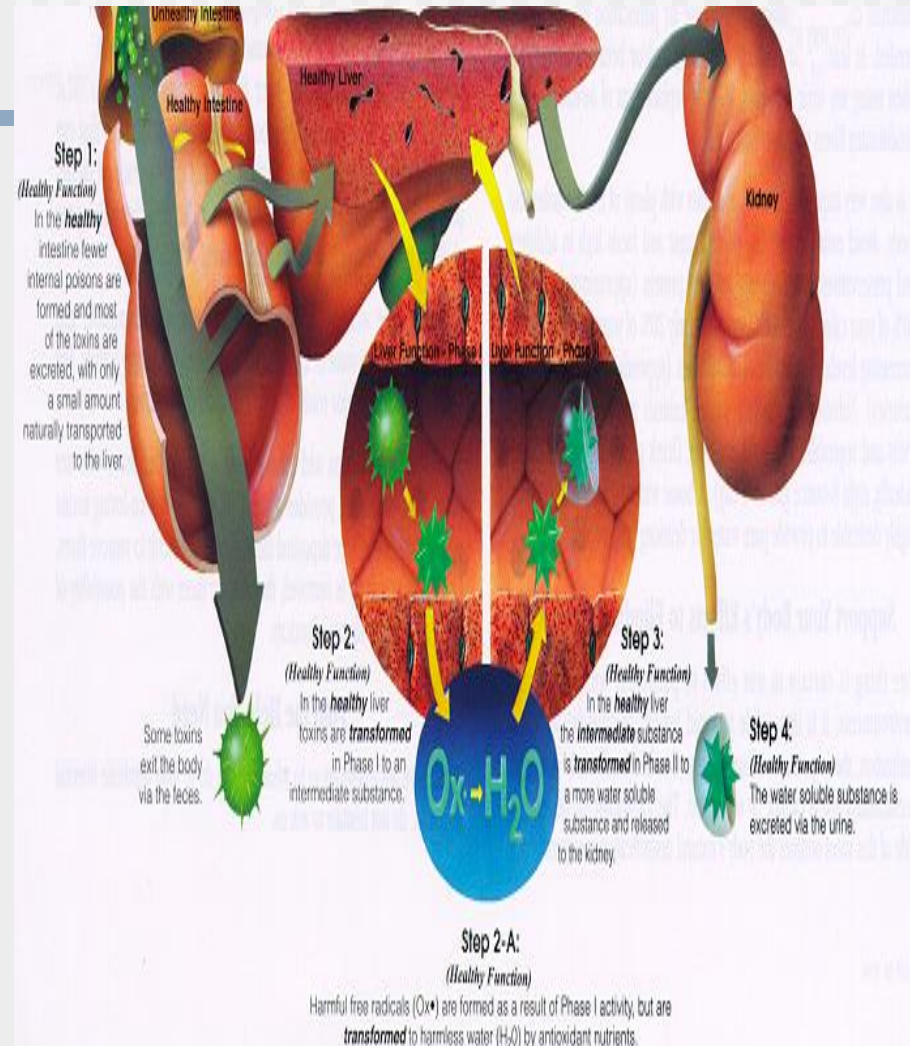
Phase I

- Harmful, fat-soluble chemicals, hormones etc. are modified in such a way that they can be dissolved in water, which makes it possible for the body to then eliminate them in the urine.



Phase II

- **The resulting polar, water soluble toxins are further processed so they may be excreted through the bile and feces**



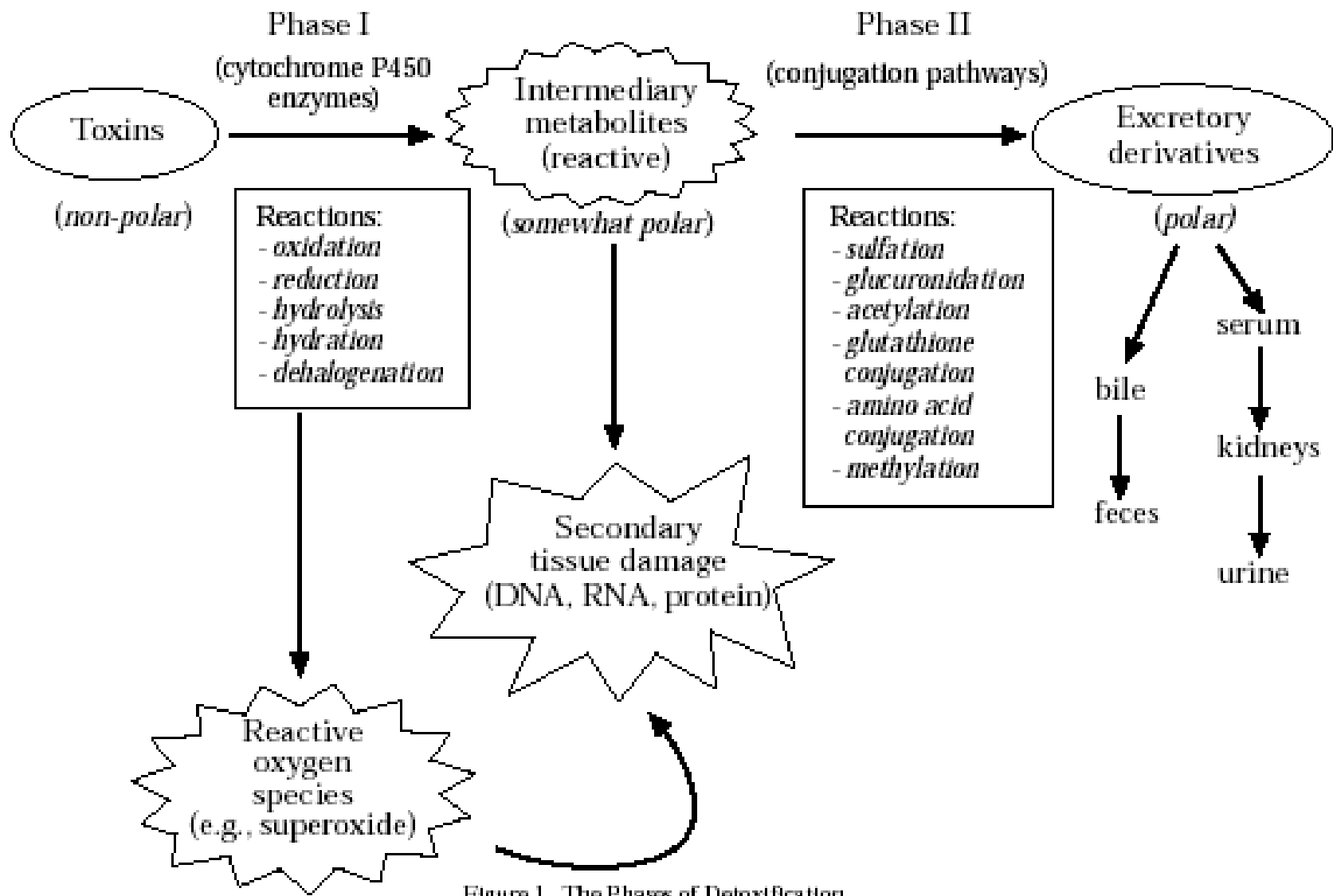


Figure 1. The Phases of Detoxification

LIVER DETOXIFICATION

TOXINS (non-polar)

Endotoxins

Xenobiotics

PHASE I

cytochrome P-450 enzymes
hydroxylation via
redox reactions

Critical Co-factors:
NADH, NADPH, B6, Mg

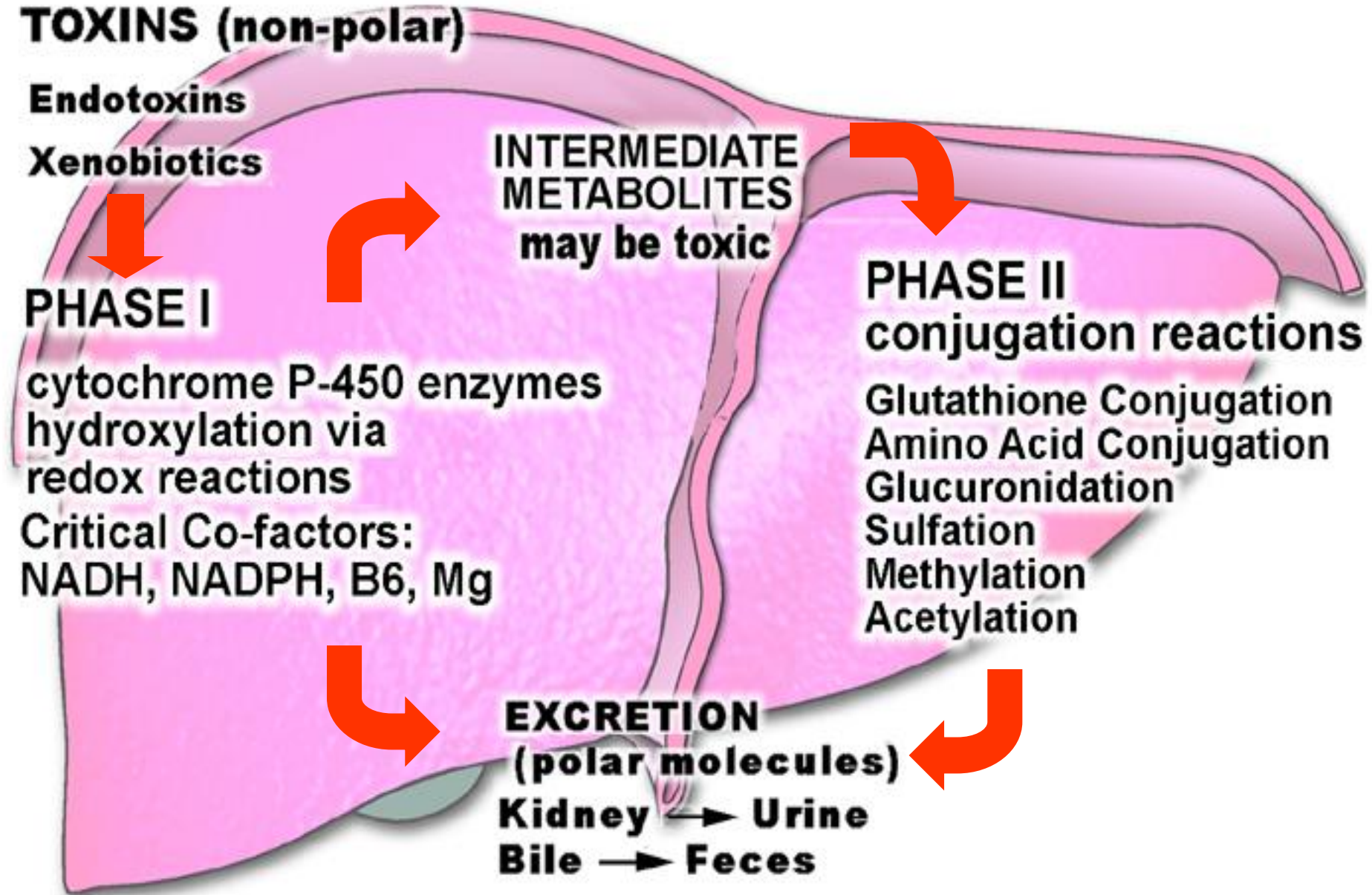
**INTERMEDIATE
METABOLITES**
may be toxic

PHASE II
conjugation reactions

Glutathione Conjugation
Amino Acid Conjugation
Glucuronidation
Sulfation
Methylation
Acetylation

EXCRETION
(polar molecules)

Kidney → Urine
Bile → Feces



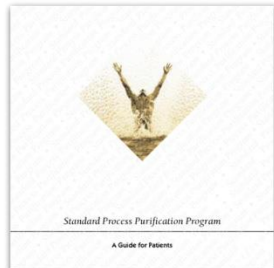
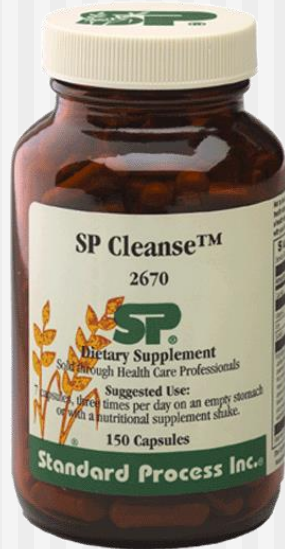
Supporting detoxification

- Diet
 - Reduce antigenic load, establish HEALTHY elimination
- Reduced caloric intake
- Water water water
- Up-regulation of liver function
 - C-450, phase 1 &2, bile
- Exercise, ie. sweating

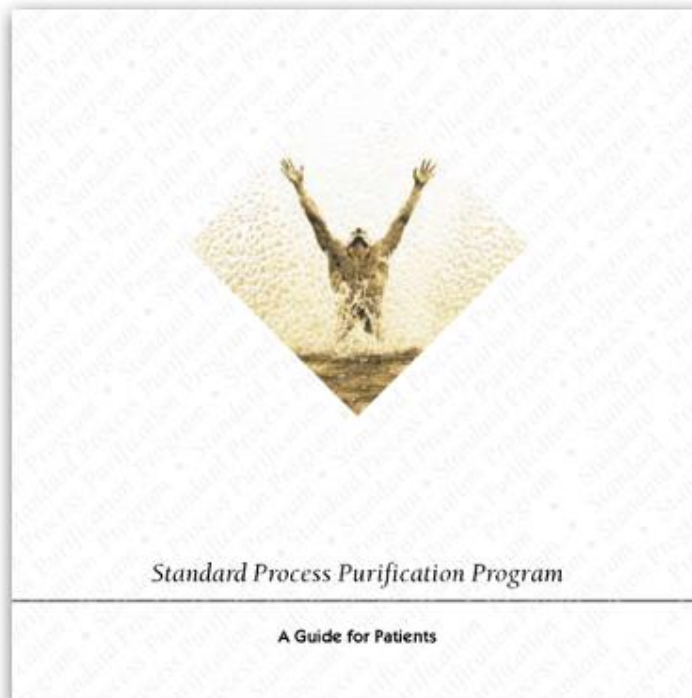
Detoxification and Nutrition

- Nutritional strategies may provide a method for supporting the natural detoxification processes.
- The “Four-R” systemic detoxification program may be useful in supporting your system.

The Detox Program



Patient Booklet



Shake Recipes



SP COMPLETE™ SUPPLEMENT SHAKE RECIPES

Need a supplemental energy boost? SP Complete is a powdered supplement shake mix that provides essential vitamins and minerals to the body by supporting a healthy cardiovascular system, encouraging healthy nervous system function, delivering strong antioxidant protection to promote cellular health, and supporting healthy digestive system function.

SP Complete can be utilized in a variety of shake recipes. For the best results, use only unsweetened, all natural, organic ingredients and thoroughly blend each shake prior to consumption. In addition, if you are participating in a purification program, it is not recommended to consume large quantities of juice – use juice sparingly.

THE ORIGINAL SP COMPLETE RECIPE

- 2 rounded Tbs. (scoops) of SP Complete
- 1-2 cups of water
- 1/2 cup of your favorite fresh or frozen fruit (examples include berries, bananas, peaches, apples, or cherries)
- 2 tsp. high quality oil (flaxseed oil)

Directions: Blend all ingredients together. Wait a few minutes and then add additional water and/or fruit until you achieve the desired consistency and flavor. You may make a large enough batch to last you 1-2 days, but make sure to keep it refrigerated, and remix it as needed before pouring.

This recipe may be varied according to personal taste. It can be modified by joining various combinations of apples, celery, onions, parsley, and carrots.

ADDITIONAL SP COMPLETE SHAKE RECIPES

The following recipes have been developed by patients who have completed the purification programs. If you have a recipe that you would like to share with us, please e-mail marketing@standardprocess.com.

VEGGIES IN AN INSTANT

- 2 rounded Tbs. (scoops) of SP Complete
- 1 - 2 cups tomato or vegetable juice
- Dash of Tabasco sauce (or more depending on your taste) or 1 capsule Standard Process Cayenne Pepper (for heat)
- Handful of ice cubes

TROPICAL PARADISE

- 2 rounded Tbs. (scoops) of SP Complete
- 1/2 cup water or 1/2 cup soy or rice milk
- 1/2 cup pineapple-orange or pineapple-coconut juice
- 1/2 cup fresh or frozen pineapple
- 1/2 banana (may be frozen)
- Handful of ice cubes

Recipe can be modified by using Vanilla Rice Dream with ripe bananas, or your favorite fresh or frozen berries of all kinds.

APPLE-CINNAMON SURPRISE

- 2 rounded Tbs. (scoops) of SP Complete
- 1 cup water
- 2 Tbs. frozen apple juice concentrate
- 1/2 banana (frozen)
- 1/2 tsp. cinnamon
- Handful of ice cubes

CHOCOLATE-BANANA MILKSHAKE

- 2 rounded Tbs. (scoops) of SP Complete
- 1/2 - 1 cup almond, rice, or soy milk
- 1-2 Tbs. carb powder to taste
- 1/2 banana (frozen)
- Handful of ice cubes

You can substitute chocolate rice milk for the almond, rice, or soy milk and the carb powder.

RAW SOUP

- 2 scoops of SP Complete
- 1 pear (cored and peeled)
- 1 apple (cored and peeled)
- 2 Tbs. of your favorite oil
- 1 cucumber (peeled)
- 1 head of parsley chopped
- 1 lemon (juiced)
- 2 cups of water

HOT, HEALTHY, MORNING DRINK

- 1/2 cup tomato or V8 juice
 - 1 Tbs. of Worcestershire sauce
 - 2 tsp. of regular or toasted sesame oil
 - 2 heaping Tbs. of SP Complete
- Add 1 1/2 cups of hot water after the mixture is blended.

CARROT SHAKE

- 1 cup freshly juiced carrots
- 1 cup ice cubes
- 1 tsp. roasted sesame oil
- 2 Tbs. SP Complete

SP Complete is available in a 28-ounce container or single serving packets.

The convenient packets allow you to make delicious shakes without having to measure and are easily portable for all occasions.

They are packaged in a display box containing 80 packets (Product Number 2830).

Call the Standard Process Customer Service Department at 1-800-558-8740 or visit our website to order SP Complete. If you would like additional information, request a Purification Information Kit (L1875), which includes a free single serving packet of SP Complete.



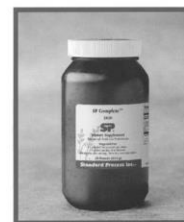
The Cleanse Program

SP Complete™ No. 2820

Feel free to make copies for your patients.

SP Complete Is A Whole Food And Botanical Supplement Designed To Offer Essential Macro- and Micronutrients In The Form Of An Easy-To-Drink Shake

You can't pick up a magazine, turn on the television, or engage in conversation these days without encountering some reference to the subject of eating, weight, or their relationship to certain conditions or diseases. A growing body of research suggests that our society as a whole, eats too much, eats too much of the wrong kinds of foods, and fails to get adequate exercise. All of these poor eating-related habits have led to a greater number of Americans suffering from obesity and all of the many health problems that are often associated with carrying more weight than we should. All of this weight-related scrutiny has led to a plethora of dieting fads, weight-reduction regimens, and "diet foods." Eating a well-balanced diet in moderate portions, drinking plenty of water, and getting regular exercise are the best ways to give our bodies the nutrition they need to support healthy body functioning and maintain a healthy weight. SP Complete provides a nutritious vegetarian way for people to complement their diets with a well-balanced, nutritious supplement.*



Introduced in 2002

Bottle Size: 28 Ounces

How SP Complete Keeps You Healthy

Offers nutrients in a highly bioavailable form

Whey is a high quality source of protein and contains a significant amount of important minerals and other nutrients.*

Supports a healthy cardiovascular system

Flaxseed provides omega-3 essential fatty acids, well recognized for their heart-health properties. Rutin, an important bioflavonoid in buckwheat, helps support vascular walls. Chlorophyll found in barley grass assists in the natural cleansing of impurities from the blood and saponins from alfalfa also support healthy blood.*

Encourages healthy nervous system function

Brown rice contains a concentrated amount of B-complex vitamins to support healthy nerves and proper brain function. *Ginkgo biloba* enhances memory and cognition.*

Provides strong antioxidant protection to promote cellular health

Grape seed and red wine extracts contain oligomeric proanthocyanidins (OPCs) – bioavailable sources of antioxidants that cross the blood-brain barrier. Kale and Brussels sprouts are cruciferous vegetables that are high in fiber and contain indoles, minerals, and a high percentage of vitamins A, C, and E. These nutrients provide strong antioxidant protection to help protect cells from oxidative damage that can lead to many different health problems. Inositol assists in the production of lecithin, an important constituent of cellular membranes.*

Supports healthy digestive function

Barley grass helps cleanse the digestive system by providing enzymes to help dissolve the substances in foods.*



* These statements have not been evaluated by the Food & Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

Where to Start?

- While severe toxicity and Poly-Systemic Complaints can require greater experience with Clinical Detoxification, a simple and logical approach can restore a great level of health and wellness in patients who dedicate themselves to at least 21 day in a purification program.

Toxicity Questionnaire

Toxicity Questionnaire

The Toxicity Questionnaire is designed to aid the practitioner in assessing a patient or client's potential need for a Clinical Purification™ program.

Section I: Symptoms

Rate each of the following based upon your health profile for the past 90 days.

Circle the corresponding number.	
0	Rarely or Never Experience the Symptom
1	Occasionally Experience the Symptom, Effect is Not Severe
2	Occasionally Experience the Symptom, Effect is Severe
3	Frequently Experience the Symptom, Effect is Not Severe
4	Frequently Experience the Symptom, Effect is Severe

1. DIGESTIVE

a. Nausea and/or vomiting	0 1 2 3 4
b. Diarrhea	0 1 2 3 4
c. Constipation	0 1 2 3 4
d. Bloating feeling	0 1 2 3 4
e. Belching and/or passing gas	0 1 2 3 4
f. Heartburn	0 1 2 3 4
Total:	

2. EARS

a. Itchy ears	0 1 2 3 4
b. Earaches, ear infections	0 1 2 3 4
c. Drainage from ear	0 1 2 3 4
d. Ringing in ears, hearing loss	0 1 2 3 4
Total:	

3. EMOTIONS

a. Mood swings	0 1 2 3 4
b. Anxiety, fear, nervousness	0 1 2 3 4
c. Anger, irritability	0 1 2 3 4
d. Depression	0 1 2 3 4
e. Sense of despair	0 1 2 3 4
f. Apathy / lethargy	0 1 2 3 4
Total:	

4. ENERGY / ACTIVITY

a. Fatigue / sluggishness	0 1 2 3 4
b. Hyperactivity	0 1 2 3 4
c. Restlessness	0 1 2 3 4
d. Insomnia	0 1 2 3 4
e. Startled awake at night	0 1 2 3 4
Total:	

5. EYES

a. Watery, itchy eyes	0 1 2 3 4
b. Swollen, redness or sticky eyelids	0 1 2 3 4
c. Dark circles under eyes	0 1 2 3 4
d. Blurred / tunnel vision	0 1 2 3 4
Total:	

6. HEAD

a. Headaches	0 1 2 3 4
b. Faintness	0 1 2 3 4
c. Dizziness	0 1 2 3 4
d. Pressure	0 1 2 3 4
Total:	

7. LUNGS

a. Chest congestion	0 1 2 3 4
b. Asthma, Bronchitis	0 1 2 3 4
c. Shortness of breath	0 1 2 3 4
d. Difficulty breathing	0 1 2 3 4
Total:	

8. MIND

a. Poor memory	0 1 2 3 4
b. Confusion	0 1 2 3 4
c. Poor concentration	0 1 2 3 4
d. Poor coordination	0 1 2 3 4
e. Difficulty making decisions	0 1 2 3 4
f. Stuttering, stammering	0 1 2 3 4
g. Slurred speech	0 1 2 3 4
h. Learning disabilities	0 1 2 3 4
Total:	

9. MOUTH / THROAT

a. Chronic coughing	0 1 2 3 4
b. Grogginess, frequent need to clear throat	0 1 2 3 4
c. Swollen or discolored tongue, gums, lips	0 1 2 3 4
d. Canker sores	0 1 2 3 4
Total:	

10. NOSE

a. Stuffy Nose	0 1 2 3 4
b. Sinus problems	0 1 2 3 4
c. Hay fever	0 1 2 3 4
d. Sneezing attacks	0 1 2 3 4
e. Excessive mucous	0 1 2 3 4
Total:	

11. SKIN

a. Hives, rashes, dry skin	0 1 2 3
c. Hair loss	0 1 2 3
d. Flushing	0 1 2 3
e. Excessive sweating	0 1 2 3
Total:	

12. HEART

	0 1 2 3
Total:	

13. JOINTS / MUSCLES

a. Pain or aches in joints	0 1 2 3
b. Rheumatoid arthritis	0 1 2 3
c. Osteoarthritis	0 1 2 3
d. Stiffness, limited movement	0 1 2 3
e. Pain, aches in muscles	
f. Recurrent back aches	
g. Feeling of weakness or tiredness	0
Total:	

14. WEIGHT

a. Binge eating / drinking	0 1 2 3
b. Craving certain foods	0 1 2 3
c. Excessive weight	0 1 2 3
d. Compulsive eating	0 1 2 3
e. Water retention	0 1 2 3
f. Underweight	0 1 2 3
Total:	

15. OTHER

	0 1 2 3
Total:	

Section I Total:

Section II: Risk of Exposure

Rate each of the following situations based upon your environmental profile for the past 120 days.

Circle the corresponding number for questions 16a - 16f below.	
0	Never
1	Rarely
2	Monthly
3	Weekly
4	Daily

a. How often are strong chemicals used in your home? (disinfectants, bleaches, oven and drain cleaners, furniture polish, floor wax, window cleaners, etc.)	0 1 2 3 4
b. How often are pesticides used in your home?	0 1 2 3 4
c. How often do you have your home treated for insects?	0 1 2 3 4
d. How often are you exposed to dust, overstuffed furniture, tobacco smoke, mothballs, incense, or varnish in your home or office?	0 1 2 3 4
e. How often are you exposed to nail polish, perfume, hair spray, and other cosmetics?	0 1 2 3 4
f. How often are you exposed to diesel fumes, exhaust fumes, or gasoline fumes?	0 1 2 3 4
Total:	

Circle the corresponding number for questions 17a - 17b below.	
0	No
1	Mild Change
2	Moderate Change
3	Drastic Change

a. Have you noticed any negative change in your health since you moved into your home or apartment?	0 2
b. Have you noticed any negative change in your health since you started your new job?	0 2 3
Total:	

Answer yes or no and circle the corresponding number for questions 18a - 18d below.	
a. Do you have a water purification system in your home?	No 2 Yes 0
b. Do you have any indoor pets?	0 2
c. Do you have an air purification system in your home?	2 0
d. Are you a dentist, painter, farm worker, or construction worker?	0 2
Total:	

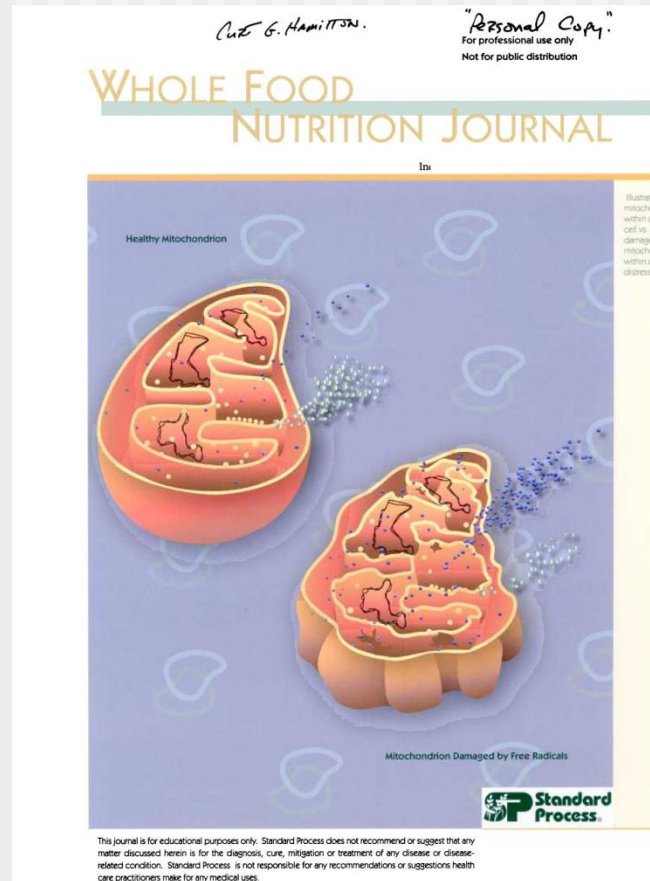
Section II Total:

GRAND TOTAL (Section I + Section II)

Add up the numbers to arrive at a total for each section, and then add the totals for each section to arrive at the grand total. If any individual section total is 6 or more, or the grand total is 40 or more, you may benefit from a Clinical Purification™ program.

Adapted with permission from the author of *Clinical Purification™: A Complete Treatment and Reference Manual*, Dr. Gina L. Nick. Health care professionals may obtain complete copies of this book at a professional discount from Standard Process Order Department at 1-800-558-8740. Patients may purchase the book through retail outlets.

Case Study Impaired Liver Detoxification - by David Minzel, Ph.D., C.N.C.



Case Study Male JA Age 49

- The following case study tracks a client with **multiple presenting symptoms** and no apparent lab pathologies, *typical of toxic overload and liver function impairment.* fiberglass, diesel fuel from old fuel tanks, leaded paint chips, lead solder used in plumbing, cleaning solvents, paint fumes, and more. He rarely used protection against this exposure. When he came to see me for the first time, he had been experiencing deep fatigue (often bedridden for several days at a time), lack of physical endurance, headaches, insomnia, loss of appetite, coldness with the sense he could never get warm, mental foggiess, irritability and memory loss for over a year. He sought care from five separate health professionals in the previous year with no positive outcome. In fact, following a "Detoxification Program" recommended by the last of these practitioners, he had been bedridden for nearly two months. Whole foods or whole food complexes were not a part of that program.

Complete blood count (CBC)/Chem 26 Screen/Differential Highlights

These results show moderate to low liver function and the development of functional dehydration, consistent with other findings of his exam.

Parameter	Exam 1	Norm Max
Total Cholesterol	289	200
LDL	198	130
HDL	66	90
Triglycerides	138	160
5-hour Fasting Glucose	105	125
SGPT (ALT)	43	45
SGOT (AST)	23	45
LDH	111	223
Albumin	4.4	5.2
Globulin	2.2	3.5
GGT	6.0	45
Alkaline Phosphatase	89	105
Bilirubin, total	0.30	1.3
Bilirubin, direct	0.1	0.4
BUN	24	23
Sodium	140	146

Standard Detoxification Profile/Caffeine, Acetaminophen, Aspirin Challenge

- J's **high caffeine clearance** (2.9 mUmin/kg) indicated induced Phase I (cytochrome P450) activity, resulting in excess production of free radicals and biotransformed intermediate compounds, both of which can exert toxic effects.
- This overactive state generally occurs as a result of exposure to endogenous or exogenous toxins, consistent with his exam findings and history. In addition, all Phase II pathways were operating at higher than optimal levels, suggesting that the excess exposure to toxins was overloading his Phase II . This implied imbalanced detoxification in his body I believed the activated toxic compounds coming out of Phase I were accumulating leading to illness.

Elemental/Toxic Elements

Hair Analysis

- Hair analysis revealed elevated lead levels, which correlate in studies with body tissue deposition (bone, aorta, liver, kidney), as well as blood levels (when exposure is periodic or chronic).
- The hair also showed borderline elevations in mercury, aluminum, arsenic, and copper, which can contribute to J.A.'s symptoms of fatigue, headaches, loss of appetite, irritability, insomnia, and lack of physical endurance.

Symptom Survey Evaluation #1

- Using Nutritec Symptom Survey evaluation software, JA reported 33 symptoms and scored high in areas related to **blood sugar handling, biliary/liver function, and adrenal hypofunction, congruent with his fatigue.**
- His low liver function was suggested in his blood chemistry. This may have been contributing to an inability to convert liver glycogen into glucose, driving his blood glucose up and down and causing over stimulation of sympathetic activity and adrenal fatigue over time.

Food Diary Evaluation

- J's food diary revealed no remarkable patterns with a protein/carbohydrate/fat ratio of 28%/46%/26%.
- This also suggests his ability to utilize **blood sugar may be less than optimal** since he has no dietary excess of carbohydrates or sugars.

Palpation Exam

- A positive Murphy's Sign with inspiratory arrest and tender liver and gallbladder meridian points supported the previous indications of **hepatobiliary stress**.

Murphy's Sign

- A Murphy's sign is an indicator of significant inflammation in the abdomen, most often due to gallbladder or liver disease. In order for doctors to check for this sign, a patient must lie on his or her back. Then, the doctor places a hand just under the patient's lower ribs on the right side of the abdomen and asks the patient to take a deep breath. If the patient suddenly stops inhaling because of intense pain, it is termed a "positive" Murphy's sign. The pain occurs because as the patient inhales, the diaphragm descends, and the liver and gallbladder are brought down toward the lower ribs and the examiner's hand. The pressure of the hand will cause pain if the liver or gallbladder is inflamed.

Blood Pressure Exams

- Seated: 98/62
- Lying: 98/62
- Standing/postural Hypotension Test: 86
- Systolic Low blood pressure and the 12 point drop when standing are **positive indicators of adrenal hypo function** as indicated by the preliminary Symptom Survey

Body Weight & Height/Body Fat/Total Body Water and Hydration

- Body weight and height: 163 pounds, 5'9" tall
- Body fat: 19.8%
- Total body water and hydration: 95.8 pounds total water; 58.8% hydration
- JA's body fat was within healthy guidelines for a male in his age group. The dialysis guidelines for males in good health is 60%- 70% hydration.
- JA's lower value supports the findings of the blood work **showing developing dehydration.**

Salivary pH/Oral temperature

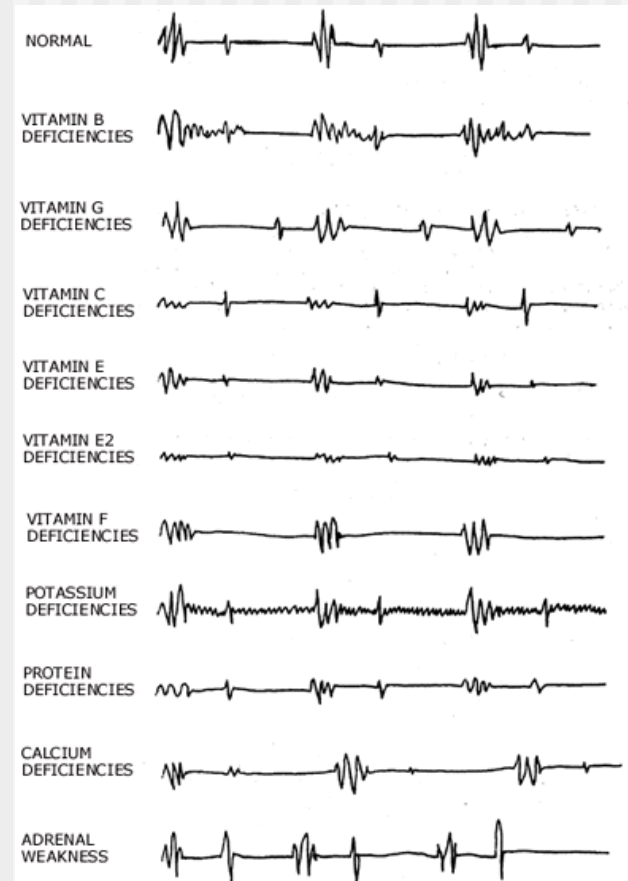
- Salivary pH: 6.2
- Oral temperature: 98.4°F
-]A's salivary **pH** suggests underlying acidosis.
- **(The optimal pH for saliva is between 6.4 to 6.8. A reading lower than 6.4 means that there is not enough alkaline reserves. After meals, the saliva pH should rise to 7.8 or higher.)**

Pupillary Response Test

-]A's pupils responded poorly to a penlight with slow pupillary contraction and returned to a near fully dilated state, an indication of poor adaptability.
- This also may correlate to his adrenal hypo function.

Acoustic Cardiograph Analysis

- Sharp agitation throughout all graph positions and a pulse rate of 92 beats per minute, suggested hypersensitivity to endogenous/exogenous substances. An elevated second heart sound in all four positions indicated chronic adrenal dysfunction/hypo function. Reduced amplitude with rolling agitation in both the mitral and tricuspid graphs supported findings of liver/hepatobiliary stress or congestion.



TREATMENT

- I felt the best way to address JA's health issues was to suggest a whole food and herb purification/detoxification program for a 30 day period with the goal of supporting his Phase I and Phase II liver detoxification pathways on their way back to more optimal function. I asked that he protect himself against airborne and contact occupational toxin exposure by wearing a ventilator-mask, protective gloves and eyewear.
- Bringing his liver function to a more optimal level should also bring his blood sugar handling issues to an improved level taking the stress off his adrenal system for more optimal function and recovery:
- The purification program consisted of an initial 10 day calorically restricted diet with no animal protein, grains, alcohol, or caffeine. JA was given whole food-based meal replacement shakes and three pre-clinical purification formulas provided by Standard Process Inc. (one each for the systemic, gastrointestinal, and liver systems). Lifestyle enhancements like light exercise, constitutional hydrotherapy, home enemas, and extra rest were encouraged.

Treatment

- During days 11-30, a slow reintroduction of animal proteins, denser root vegetables, and nuts/seeds were employed until his dietary intake was slowly brought to a balanced and continuing plan. He continued to drink at least one meal replacement shake each day and performed lifestyle enhancements as appropriate.

Second Consultation (10 Days)

- On JA's initial symptom survey, he reported 33 total symptoms with a high severity rating. A second Symptom Survey and Standard Detoxification Profile were performed after the initial 10 days.
- The second Symptom Survey revealed a 60% decrease from 33 to 14 symptoms, with reduced severity on self-reporting. JA reported increased energy, working without fatigue, and feeling strong.

Standard Detoxification Profile

- JA's extremely high caffeine clearance from profile #1 slowed down to 1.6 ml/min/kg, (was 2.9 ml/min/kg) an indication of more appropriate Phase I activity and clearance of toxins. His Phase II enzyme pathways increased in function, indicating enhanced detoxification and increased removal of the toxins from his system.

Third Consultation (30 days)

At 30 days, blood work, Chem 26 Screen and all other initial examinations were repeated and those results are described below:

These results suggest an increase in liver function developing and are consistent with other findings of his exam.

Parameter	Exam 1	Exam 2	Change	Norm Max
Total Cholesterol	289	172	-117	200
LDL	198	84	-114	130
HDL	66	41	-25	90
Triglycerides	138	81	-57	160
5-hour Fasting Glucose	105	89	-16	125
SGPT (ALT)	43	50	+7	45
SGOT (AST)	23	23	0	45
LDH	111	133	+22	223
Albumin	4.4	4.3	-0.1	5.2
Globulin	2.2	2.1	-0.1	3.5
GGT	6.0	5.0	-1.0	45
Alkaline Phosphatase	89	72	-17	105
Bilirubin, total	0.30	0.60	+0.3	1.3
Bilirubin, direct	0.1	0.30	+0.2	0.4
BUN	24	18	-6	23
Sodium	140	141	+1	146

Palpation Exam

- JA exhibited a negative Murphy's Sign and the lack of tenderness on liver and gallbladder meridian points supported other indications of underlying hepatobiliary strengthening.

Blood Pressure Exams

- **Seated: 118/68** (Before 98/62)
- **Lying: 114/68** (Before 98/62)
- **Standing/postural Hypotension Test: 116 Systolic** (Before 86)
- **The increase in blood pressure to near optimal and the negligible change in systolic pressure on standing position is a positive indicator of improvement in JA's adrenal hypo function.**

Body Weight & Height/Body Fat/Total Body Water and Hydration

- Body weight and height: 162.2 pounds, 5'9" tall
- Body fat: 18.2%
- Total body water and hydration: 97.2 pounds total water; 59.9% hydration
- JA's body fat was within healthy guidelines for a male in his age group. His fat loss with no significant weight loss is a positive sign of increased body lean mass. His body water essentially was within the dialysis guidelines for properly hydrated males (60%-70%).

Salivary pH/ Oral Temp

- **Salivary pH:** 7.0 (Before 6.2)
- **Oral temperature:** **98.2°F** (Before 98.4)
- JA's salivary pH increased significantly toward neutral. Despite no significant change in his oral temperature he reported feeling warm for the first time in almost 2 years.

Pupillary Response Test

- Pupils responded to penlight with quick responsive contraction of his pupils and held that state easily for over **10** seconds, an indication of good adaptability to this challenge that may correlate with improved adrenal function.

Acoustic Cardiograph Analysis

- JA's ACG showed significant baseline calming relative to the previous sharp agitation throughout all graph positions and his pulse rate had dropped to 80 bpm, both indications of toxic clearance.
- Elevated second sounds in only the aortic and pulmonary positions indicated adrenal strengthening. Increased amplitude with less rolling agitation on both the mitral and tricuspid graphs suggests increased blood flow through the liver and improved hepatobiliary performance.
- There were still indications of hepatobiliary congestion, but the significant improvement was congruent with all other findings.

Final thoughts

- Of course, JA is excited about his outcome. He continues to improve daily and is protecting himself from his occupational exposure to toxins.
- A recent office visit found him incapable of finding more than 5 symptoms in the Symptom Survey that applied to him. He commented that he could not remember feeling this well for at least a couple of years, and perhaps ever in his adult life.
- He is free of any symptoms that were preventing him from working or participating fully in his life, and has returned to working full time.

Final Thoughts

- This case illustrates that each of us sees many cases with multiple presenting symptoms, often without direct evidence of serious pathology that may simply be an indication of underlying toxicity overload.
- The use of specific whole foods and herbs is necessary to provide the building blocks for enzymes utilized in normal detoxification.
- Certainly, protecting oneself from toxic exposure is always a necessity, but regular intake of the foods our bodies need to function properly cannot be forgotten. We live in a toxically overloaded world, and our bodies need all the help we can give them to help us remain disease free.

“THE DETOXIFICATION PROGRAMWORKS!!!”

- “I am 55 years old and have been trying to lose weight along with feeling better for years. I found myself sliding toward bad health, overweight, borderline Diabetic, with a bad case of the blahs.
- Here’s my story. While sitting and eating three different desserts at a Church pot luck dinner, I questioned another member as to why wasn’t she eating some of the great desserts. She proceeded to tell me about this marvelous detox program she was on. “I don’t want sweets anymore” she said. Well, I got Dr. Moore’s name and number that night and called her the next day and I can say this has truly changed my life.

“THE DETOXIFICATION PROGRAMWORKS!!!”

- Let me tell you, losing weight was a blessing but it is nothing compared to how terrific I feel, my energy level is sky high, no more afternoon naps, trust me I tried to nap and couldn't. My hair is thicker, for the first time in twenty years I had a manicure because my nails quit splitting and started to grow. My complexion is no longer shallow, dull, and blotchy. I have lost almost twenty pounds and that is a miracle, with a thyroid problem. I no longer want or care for anything sweet and I was a true sugar addict, heck, I even have to remind myself to eat, and THAT, my friends has never been the case. I have started working out again after a one year hiatus. Last summer I worked out with a trainer, three days a week for six weeks (horribly expensive), walked five miles in 60 minutes, twice a day and lost five pounds. I gave up, it was hopeless, to work that hard and not see any results. Course as soon as I gave up, I started putting on the weight and going down hill. This program changed ALL that and more.....

“THE DETOXIFICATION PROGRAMWORKS!!!”

- This is my promise to myself, I will eat this way the rest of my life, I will reach my idea weight and I will stay healthy. Thank you Dr. Moore, for getting me back on the right path and thank you Standard Process for your remarkable products. “

■ -Brenda Jones

Overview of SP Purification

- Foods are high in Sulphur and other Phase II Liver Detoxification nutrients include...
- Cruciferous Vegetables...Broccoli, Cabbage, Garlic, Brussel Sprouts, Kale. Etc.

Overview of SP Purification

- If the bowels are not moving during a detox program, you can get very sick due to **Reabsorbing the toxins from the gut back into circulation.**
- The inclusion of Beets, Cayenne, Spanish Black Radish, Collinsonia Root, etc...

Overview of SP Purification

- 2 of the mechanisms of Red Clover, Burdock Root and Oregon Grape
- Help to Purify the blood, and Lymph System.

Overview of SP Purification

- An extremely beneficial food for Pahse II Detoxification is Beets. It improves Methylation, and thins the bile.
- Black Spanish Radish is choleric and increases intestinal motility.
- Mustard Oil

Overview of SP Purification

- Cayenne is a powerful natural antioxidant and also improves intestinal transit time.
- Foods that naturally increase beneficial Flora in the gut include...
- Psyllium Husks, Fenugreek Seed Powder, Apple Pectin and Aloe Vera.

Review Questions

- **Brown Rice** contains a concentrated amount of B-Vitamins to support a healthy brain and nervous system.
- OPC containing foods such as Grape Seed and Red Wine Extracts pass the blood brain barrier to support healthy brain and nervous system function.

Review Questions

- Why do Whole Foods make sense in Clinical Detoxification?
- Complete with Synergistic Co-Factors.
- Let's look at what's in a simple apple.

A detailed, realistic illustration of a single red apple. The apple is a deep, vibrant red with subtle variations in tone, suggesting a glossy but slightly textured skin. A single, bright green leaf with prominent veins is attached to the top of the apple's stem. The apple is positioned slightly off-center, casting a soft, light shadow on the white surface beneath it. The background is a clean, solid white.

(FROM "Handbook of Phytochemical Constituents of Generally Regarded as Safe (GRAS) Herbs")

ACETIC-ACID-AC-PR NAP
 CIS-8-TRANS-4-ABSISIC-ACID BK NAP
 TRANS-ABSISIC-ACID-PR NAP
 ACETIC-ACID-AC-PR NAP
 ACETIC-ACID-AMYL-ESTER
 ACETALDEHYDE
 ACETONE-1,3,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109,110,111,112,113,114,115,116,117,118,119,120,121,122,123,124,125,126,127,128,129,130,131,132,133,134,135,136,137,138,139,140,141,142,143,144,145,146,147,148,149,150,151,152,153,154,155,156,157,158,159,160,161,162,163,164,165,166,167,168,169,170,171,172,173,174,175,176,177,178,179,180,181,182,183,184,185,186,187,188,189,190,191,192,193,194,195,196,197,198,199,200,201,202,203,204,205,206,207,208,209,210,211,212,213,214,215,216,217,218,219,220,221,222,223,224,225,226,227,228,229,230,231,232,233,234,235,236,237,238,239,240,241,242,243,244,245,246,247,248,249,250,251,252,253,254,255,256,257,258,259,260,261,262,263,264,265,266,267,268,269,270,271,272,273,274,275,276,277,278,279,280,281,282,283,284,285,286,287,288,289,290,291,292,293,294,295,296,297,298,299,300,301,302,303,304,305,306,307,308,309,310,311,312,313,314,315,316,317,318,319,320,321,322,323,324,325,326,327,328,329,330,331,332,333,334,335,336,337,338,339,340,341,342,343,344,345,346,347,348,349,350,351,352,353,354,355,356,357,358,359,360,361,362,363,364,365,366,367,368,369,370,371,372,373,374,375,376,377,378,379,380,381,382,383,384,385,386,387,388,389,390,391,392,393,394,395,396,397,398,399,400,401,402,403,404,405,406,407,408,409,410,411,412,413,414,415,416,417,418,419,420,421,422,423,424,425,426,427,428,429,430,431,432,433,434,435,436,437,438,439,440,441,442,443,444,445,446,447,448,449,450,451,452,453,454,455,456,457,458,459,460,461,462,463,464,465,466,467,468,469,470,471,472,473,474,475,476,477,478,479,480,481,482,483,484,485,486,487,488,489,490,491,492,493,494,495,496,497,498,499,500,501,502,503,504,505,506,507,508,509,510,511,512,513,514,515,516,517,518,519,520,521,522,523,524,525,526,527,528,529,530,531,532,533,534,535,536,537,538,539,540,541,542,543,544,545,546,547,548,549,550,551,552,553,554,555,556,557,558,559,560,561,562,563,564,565,566,567,568,569,570,571,572,573,574,575,576,577,578,579,580,581,582,583,584,585,586,587,588,589,590,591,592,593,594,595,596,597,598,599,600,601,602,603,604,605,606,607,608,609,610,611,612,613,614,615,616,617,618,619,620,621,622,623,624,625,626,627,628,629,630,631,632,633,634,635,636,637,638,639,640,641,642,643,644,645,646,647,648,649,650,651,652,653,654,655,656,657,658,659,660,661,662,663,664,665,666,667,668,669,670,671,672,673,674,675,676,677,678,679,680,681,682,683,684,685,686,687,688,689,690,691,692,693,694,695,696,697,698,699,700,701,702,703,704,705,706,707,708,709,710,711,712,713,714,715,716,717,718,719,720,721,722,723,724,725,726,727,728,729,730,731,732,733,734,735,736,737,738,739,740,741,742,743,744,745,746,747,748,749,750,751,752,753,754,755,756,757,758,759,760,761,762,763,764,765,766,767,768,769,770,771,772,773,774,775,776,777,778,779,780,781,782,783,784,785,786,787,788,789,790,791,792,793,794,795,796,797,798,799,800,801,802,803,804,805,806,807,808,809,810,811,812,813,814,815,816,817,818,819,820,821,822,823,824,825,826,827,828,829,830,831,832,833,834,835,836,837,838,839,840,841,842,843,844,845,846,847,848,849,850,851,852,853,854,855,856,857,858,859,860,861,862,863,864,865,866,867,868,869,870,871,872,873,874,875,876,877,878,879,880,881,882,883,884,885,886,887,888,889,890,891,892,893,894,895,896,897,898,899,900,901,902,903,904,905,906,907,908,909,910,911,912,913,914,915,916,917,918,919,920,921,922,923,924,925,926,927,928,929,930,931,932,933,934,935,936,937,938,939,940,941,942,943,944,945,946,947,948,949,950,951,952,953,954,955,956,957,958,959,960,961,962,963,964,965,966,967,968,969,970,971,972,973,974,975,976,977,978,979,980,981,982,983,984,985,986,987,988,989,990,991,992,993,994,995,996,997,998,999,1000,1001,1002,1003,1004,1005,1006,1007,1008,1009,1010,1011,1012,1013,1014,1015,1016,1017,1018,1019,1020,1021,102

ETVYL-BECNATE
 ETVYL-DIBECNATE
 ETVYL-HXONATE
 ETVYL-ISOBUTYRATE
 ETVYL-METHYLBUTYRATE
 ETVYL-NONANOATE
 ETVYL-OCTANOATE
 ETVYL-PENTANOATE
 ETVYL-PHENACETATE
 ETVYL-PIRACETATE
 ETVYL-VALERIANATE
 FARNESYL-ETHYL NAP
 FARNESYL-3,10-DI-PH PND PED
 FAT 180,000-230,000 SD
 FERULIC-ACID 4-95 FR CROCPIN
 FERR 13,500-30,000 FR
 FIBRIL-2,200-40,500 FR
 FLUORINE -0.1-2.1 FR AAS
 FOLICIN 0.00-0.13 FR AAS
 FORMIC-ACID
 FRUCTOSE 50,100-80,000 FR
 FURFURIC-ACID
 GALACTARIC-ACID
 GALACTARIC-ACID 13-54
 GERANOL
 D-GLUCITOL
 GLUCONIC-ACID 34-49
 D-GLUCONIC-ACID
 GLUCOSE 1,120-18,000 FR
 D-GLUCURONIC-ACID 12-124 FR
 GLUTAMINE 30
 GLYCERIC-ACID
 GLYCINE 80-97
 GLYCOLIC-ACID
 GLYXYLIC-ACID
 GUANIDINE SH NAP
 GAMMA-GUANDINOBUTYRACIC-SD SH NAP
 GAMMA-GUANDINOPYRIMIDIC-SD SH NAP
 GAMMA-GUANDINOPROPIONIC-ACID SH NAP
 GUANIDINOSUCINIC-ACID SH NAP
 HEMICELLULOSE
 HEPTACONIC-ACID
 HEXANEOIC-ACID
 HEXYL-ACETATE
 HEXYL-ACID
 2-HEPTANOL
 3-HEPTANOL
 TRANS-H-HEX-2-EN-1-OL
 TRANS-H-HEX-3-EN-1-OL
 TRANS-H-HEX-5-EN-1-OL
 ACACOSABOL
 N-HEXANOL
 7-HEXANOIC-ACID
 1-HEXANOIC-ACID
 HEXANOL
 2-HEXENOL
 TRANS-3-HEXENOIC-ACID
 HEXYL-ACETATE
 HEXYL-BUTYRATE
 HEXYL-FORMATE
 N-HEXYL-N-HEXANOATE
 N-HEXYL-OXALONATE
 N-HEXYL-PROPIONATE
 2-HEXYNE 36-37 FR
 P-HYDROXYBENZONIC-ACID FR NAP
 HYDROXYCINNAMIC-ACID 1,3-40 FR
 HYDROXYMETHYL-PROLINE
 3-HYDROXY-OCTYL-BETA-D-GLUCOSE
 1-HYDROXY-OCTYL-BETA-D-GLUCOSE
 19-HYDROXYURSIC-ACID FL, JSG
 19-HYDROXYURSIC-ACID FL, JSG
 19-HYDROXYURSIC-ACID FL, JSG
 HYPERIDINE
 HYPERSIDINE FL NAP
 IAKIN
 1,3-ACETIC-ACID FL PAS
 INOSITOL
 IODINE
 1,1-123 FR AAS USG
 ISOAMYL-BUTYRATE
 ISOAMYL-PROPIONATE
 ISOBUTYL-ACETATE
 ISOBUTYL-BUTYRATE
 ISOBUTYL-FORMATE
 ISOCLORETHYL-ACID FL PAS
 ISOSTERIC-ACID
 ISOLEUCINE 30-97 FR
 ISOBUTYRYL-BUTYRATE
 ISOQUERCETRIN FR NAP
 JASMONIC-ACID FR NAP
 JASMONIC-ACID 3,400 FR PED
 LACTIC-ACID
 LAURIC-ACID 10-63 FR
 LAURIC-ACID 0.002-4 FR AAS USG
 LECITHIN
 LEUCINE 120-340 FR
 LEUCONIC-ACID FRP-611 FR
 ALPHA-LINOLIC-ACID 100-1120 FR
 LITHRUM 0.044-173 FR USG
 LITHRUM 0.4-3 FR JANT-67
 LUTOXANTHIN FR NAP
 LYSINE 26-34 FR
 LYSINE 26-34 FR
 LYSINE 26-34 FR (-360) FR AAS USG
 L-MALIC-ACID
 MALYDIN-MONOGLUCOSIDE
 MANNUCIN 0.2-3 FR AAS USG
 MANNOSE
 MERCURY 0.0011-0.02 FR AAS USG

METHIONINE 20-124
METHYL-ACETATE
METHYL-2-ACETOXY-20-BETA-
FURONOL-13-GLUCONATE EP70
METHYLLAMINE 45 EP70 NAP
2-METHYLBUT-2-EN-1-AL FR NAP
2-METHYLBUT-3-EN-1-AL FR NAP
D-3-METHYLBUTAN-1-OL
2-METHYLBUTAN-2-OL
METHYL-BUTYRATE
METHYL-CAPRATE
2-METHYL-1,3-EPOXY-PENTANE FR
NAP
24-METHYLENE-CHOLESTEROL, 70
NAP
METHYL-FORMATE
METHYL-GUANIDINE SH NAP
6-METHYL-HEPTEN-5-EN-2-ONE FR
NAP
METHYL-HEXANOATE
N-METHYL-BETA-
PHENETHYLAMINE 1.3 FR NAP
N-METHYL-PRONATE
METHYL-2-METHYL-BUTYRATE
METHYL-PENTANOATE
METHYL-PENTANOL
N-METHYL-PHENETHYLAMINE 1.3
EXPR NAP
N-METHYL-PHENETHYLAMINE 1.2
FR NAP
GAMMA-METHYL-PROLINE
N-METHYL-PROPYL-1-AL FR NAP
METHYL-VINYL-KETONE FR NAP
MEVALONIC ACID 30-36 FR
METHYLOLEFIN A07-64 FR USG
MONOALACETOYL-1-BG-LYCERIDE 13-
15
1-MONO-LINOLEIN SD FR NAP
MUFA 150-935 FR NAP
MYO-INOSITOL 4,506 FR NAP
N-ACETYL-ACID 20-35 FR NAP
NEOCHLORogenic ACID 10 FR
NITROETHYL-EP70 NAP
NMACI 1-7 FR
NICKEL 0.904-0.405 FR AAS
NITROGEN 198-1496 FR AAS
NONANOL
D-NONACONANOL
N-NONANONANOL
NONENONIC ACID
N-NONYL-ACETATE
N-NONYL-ALCOHOL
OCTA-CB-3-3-5-DIEN-1-OL EX
NAP
OCTA-CB-TRANS-3-3-DIEN-1-OL EX
NAP
OCTA-CB-3-3-5-DIEN-1-OL
OCTA-CB-3-3-5-DIEN-1-OL
OCTA-TRANS-3-3-DIEN-1-OL
ACETATE EX NAP
O-CTANTON
N-OCTANOL-2-OCTANOL
OCTANOL-ACID
1-OCTYL-ACETATE
OLEIC ACID 140-871 FR
OXALIC-ACID
OXALACETIC-ACID
ALPHA-OXOGULTARIC-ACID
PALMITIC-ACID 486-2,986 FR
PANTOTHENIC-ACID 10 FR
PANTOTHENIC-ACID 1-4 FR USA
PECTASE
PENT-1,4-00-6,585 FR NAP
PECTIN-DEMETHOXYXYLASE
PENTAMETHOIC-ACID
PENTANOL
PENTANOL-ACID
PENTANOL-AL
PENTANOL-AMINE 6.3 FR NAP
PENTYL-BUTYRATE
PENTYL-BECANOATE
PENTYL-FORMATE
PENTYL-FORMATE
PENTYL-HEXANOATE
PENTYL-2-METHYL-BUTYRATE
PENTYL-3-PENTANOATE
N-PENTYL-OCTANOATE
PEROXIDE
1-PHENETHYLBUTYL-ACID
PHENOLICS 1,106-3,400
PHENOLANALINE SD 16 FR
PHILORETIN-AL FR NAP
PHILORETIN-1,5 AD
PHILORETIN-2-BETA-D-
GLUCOPYRANOSIDE 6,486 FR NAP
PHILORETIN-XYLOGLUCONIDE FR
NAP
PHILORIZIN GLYCOSURIC
PHOSPHATIDYL-ACID 3-4 FR
PHOSPHATIDYL-CHOLINE 108-214
FR
PHOSPHATIDYL-ETHANOLAMINE
101-124 FR
PHOSPHATIDYL-GLYCEROL 8-27 FR
PHOSPHATIDYL-INOSITOL 53-59 FR
PHOSPHATIDYL-LEUCINE 478
PHOSPHATIDYL-GL-25 (1-540) FR
AAS
PHYTOSTEROLS 126-745 FR AAS

PALMITOLIC-ACID
POLYGLACTOXYL-DIGLYCERIDE
POLYGALACTURONASE
POLYPHENOLASE
POMOLIC-ACID FL ZSG
POLMONIC-ACID FL ZSG
POLYMERIZATION OF 1-(7-AZIRINO)-1,7-ADIC-1,7(4,30) FR AAS USG
PROCYANDINS FL ZSG
PROLINE 28-45
PROPANAL
2-PROPANOL
N-PROPANOL
1-PROPANOL
PROPYL-ACETATE
PROPYL-BUTYRATE
PROPYL-FORMATE
PROPYL-1-METHYLETHYLTRATE
PROPYL-PENTANOATE
PROPYL-PROPIONATE
PROPYL-2-HYDRO-1,2-PROP DIOL
PROPYL-2-HEXANOIC ACID FR NAP
PUFA 1,650-4,335 FR USA
PYRROLIDINE LYS EPR/NF NAP
PYRIDINE
PYRUVIC-ACID
QUERCETIN N-3,6,36 PC PAM
QUERCETIN-3-O-ARABINOSIDE
QUERCETIN-3-O- α -ALPHA-L-RHAMNOSE
QUERCETIN-3-O- β -D-GALACTOSE FL ZSG
QUERCETIN-3-O- β -D-GALACTOSIDE EPR/NF NAP
QUERCETIN-3-O-ALPHA-D-GLUCOSIDE FL ZSG
QUERCETIN-3-O- β -D-GLUCOSIDE FL ZSG
QUERCETIN-3-O- γ -HIMANNOSIDE FL ZSG
QUERCETIN-3-O- γ -HYDROXYMETHYL GLUCOSIDE FL ZSG
QUERCETIN-3-O-XYLOSIDE EPR/NF NAP
QUERCETIN FR NAP
L-QUENIC-ACID
KETONYUTRON FR NAP
RIBOFLAVIN 1 FR
SILICON 0.25-10 FR AAS
ROUTIN FR NAP
SELENIUM 0.00055-0.00044 FR USP
SERINE 86-97 FR USA
SFA 580-3410 FR USA
SHIKIMIC-ACID
SILICON 1-170 FR USA
SILVER 0.011-0.086 FR USG
SILVER-ACETATE FR NAP
SORBITOL 6-133 FR USP
SOBIFOL FL ZSG
STEARIC-ACID 70-445 FR USP
STRONTIUM 0.145-66 FR USP
SUCCINIC-ACID
SUCCINIC-ANhydride 100-300 FR USP
SUGAR 60-116,000-360000
SULPHUR 1.6-52 FR USP
TETRACYCLIC-ACETATE FL NAP
TETRACYCLIC-ACETATE FL NAP
THEAMIN 1-2 FR USP
THIOUREA 1-2 FR USP
TITANIUM 0.025-3 FR USP
ALPHA-TOCOPHEROL 2-47 FR TOT USA
TRIACETONAL
TRICYCLIC-ACID 46-50
1,3,5-TRIMETHYL-2-OXA-7,8-BICYCLO (3,3,1)
TRYPTOPHAN D-10,14 FR USP
TYROSINE 40-49 FR USP
UROIC-ACID 7-1400 FR USP
URSOLIC-ACID EPR/NF NAP
VALINE 95-98 FR USP
VITAMIN C
VITAMINOL (1,1-O-BETA-D-XYLOPYRANOSYL-6-L-
BIOTIN)
D-GLUCOPYRANOSIDE FR USP
WATER 8000-496,000 FR USP
XANTHINE
ZINC 0-35 FR AAS
ZINCUM 0.23-0.86 FR USA

Many entries derived from Supplement
AACTA AGRIC SCAND SUPPL
1975-1976; THE IUPAC 1975.

Many entries derived from Hulme
AAS=ACTA AGRIC SCAND SUPPL.
22:1980 H2O=86%; ZMR=7.14 X APR

Apple Bit

One Medium Apple (154 grams):

- 80 Calories.
- No Cholesterol.
- No Sodium.
- Excellent Source of Fiber (4 grams).

Nutrition: Antioxidant activity of fresh apples

- Vitamin C is used as a dietary supplement because of its antioxidant activity, although a high dose (500 mg) may act as a pro-oxidant in the body. Here we show that 100 g of fresh apples has an antioxidant activity equivalent to 1,500 mg of vitamin C, and that whole-apple extracts inhibit the growth of colon- and liver- cancer cells *in vitro* in a dose-dependent manner. Our results indicate that natural antioxidants from fresh fruit could be more effective than a dietary supplement.

The story behind Ascorbic Acid Content

- A small apple contains only 5.1 mg of Vitamin C. But the same contains polyphenols and flavanoids- beneficial food compounds that equal the effect of 1,500 mg of vitamin C.
- *Nature, volume 405, page 903*

What is in Brussel Sprouts?

- [1-O-FERULOYL-BETA-D-GLUCOSE](#) Leaf:
- [1-O-P-COUMAROYL-BETA-D-GLUCOSE](#) Leaf:
- [1-O-P-SINAPOYL-BETA-D-GLUCOSE](#) Leaf:
- [2-HYDROXY-BUT-3-ENYL-GLUCOSINOLATE](#) Leaf:
- [4-METHOXY-INDOL-3-YL-METHYL-GLUCOSINOLATE](#) Leaf:
- [ALLYL-ISOTHIOCYANATE](#) Seed:
- [ALPHA-LINOLENIC-ACID](#) Leaf 990 - 7,069 ppm
- * [ALPHA-TOCOPHEROL](#) Leaf 4 - 63 ppm
- [ANTEISO-HEPTACOSAN-1-OL](#) Flower:
- [ANTEISO-MONTANYL-ALCOHOL](#) Leaf:
- [ANTEPENTACOSAN-1-OL](#) Leaf:
- [ARACHIDONIC-ACID](#) Leaf 10 - 71 ppm
- [ARGININE](#) Leaf 2,030 - 14,494 ppm
- * [ASCORBIC-ACID](#) Leaf 720 - 6,069 ppm
- [ASH](#) Leaf 13,700 - 97,818 ppm
- [BETA-CAROTENE](#) Leaf 5 - 41 ppm
- [BORON](#) Leaf 57 ppm; Stem 21 ppm;
- [CAFFEIC-ACID](#) Leaf 34 ppm;
- * [CALCIUM](#) Leaf 395 - 3,177 ppm
- [CARBOHYDRATES](#) Leaf 89,600 - 639,744 ppm
- [CITRIC-ACID](#) Leaf:
- [COPPER](#) Leaf 1 - 5 ppm
- [COUMESTROL](#) Shoot 400 ppm;
- * [CYSTINE](#) Leaf 220 - 1,571 ppm
- [FAT](#) Leaf 2,000 - 28,560 ppm
- [FERULIC-ACID](#) Leaf 10 ppm;
- [FIBER](#) Leaf 15,100 - 107,814 ppm
- [FOLACIN](#) Leaf 0.56 - 4 ppm
- [FUMARIC-ACID](#) Leaf:
- [HEPTACOSAN-1-OL](#) Flower:
- [HEXACOSAN-1-OL](#) Leaf:
- [HISTIDINE](#) Leaf 760 - 5,426 ppm
- [INDOLE-3-ACETONITRILE](#) Shoot:
- * [INDOLE-3-CARBINOL](#) Shoot:
- [INDOLE-3-CARBOXYALDEHYDE](#) Shoot:
- [INDOLE-3-CARBOXYLIC-ACID](#) Shoot:
- [INDOYL-3,3'-DIMETHANE-CARBOXYLIC-ACID](#) Shoot:
- [IRON](#) Leaf 9 - 136 ppm
- [ISOHEXACOSAN-1-OL](#) Leaf:
- [ISOLEUCINE](#) Leaf 1,320 - 9,425 ppm
- [ISOOCTACOSAN-1-OL](#) Leaf:
- [KILOCALORIES](#) Leaf 430 - 3,070 /kg
- [LEUCINE](#) Leaf 1,520 - 10,853 ppm
- [LINOLEIC-ACID](#) Leaf 450 - 3,213 ppm
- [LYSINE](#) Leaf 1,540 - 10,996 ppm



- * [MAGNESIUM](#) Leaf 230 - 1,642 ppm
- [MALIC-ACID](#) Leaf:
- * [MANGANESE](#) Leaf 3 - 24 ppm
- * [METHIONINE](#) Leaf 320 - 2,285 ppm
- * [MOLYBDENUM](#) Leaf 0.9 ppm; Stem 0.36 ppm;
- [MONTANYL-ALCOHOL](#) Leaf:
- Brussel Sprouts
- * [NIACIN](#) Leaf 6 - 64 ppm
- [OCTACOSAN-1-OL](#) Leaf:
- [OLEIC-ACID](#) Leaf 190 - 1,357 ppm
- [OXALATE](#) Leaf 3,600 - 25,704 ppm
- [P-COUMARIC-ACID](#) Leaf 12 ppm;
- [PALMITIC-ACID](#) Leaf 530 - 3,784 ppm
- [PALMITOLEIC-ACID](#) Leaf 20 - 142 ppm
- [PANTOTHENIC-ACID](#) Leaf 3.1 - 22 ppm
- [PENTACOSAN-1-OL](#) Leaf:
- [PHENYLALANINE](#) Leaf 980 - 6,997 ppm
- [PHOSPHORUS](#) Leaf 690 - 4,927 ppm
- [PHYTOSTEROLS](#) Leaf 240 - 1,710 ppm
- * [POTASSIUM](#) Leaf 3,670 - 29,343 ppm
- [PROP-2-ENYL-GLUCOSINOLATE](#) Leaf:
- [PROTEIN](#) Leaf 32,580 - 250,000 ppm
- [QUERCETIN](#) Sprout Seedling 25 ppm;
- [QUINIC-ACID](#) Leaf:
- [RIBOFLAVIN](#) Leaf 0.4 - 10 ppm
- [ROUTIN](#) Shoot 20 ppm;
- [SEC-BUTYL-ISOTHIOCYANATE](#) Seed:
- * [SELENIUM](#) Leaf 0.024 ppm; Stem 0.012 ppm;
- [SINAPIC-ACID](#) Leaf 107 ppm;
- [SODIUM](#) Leaf 221 - 1,990 ppm
- [STEARIC-ACID](#) Leaf 30 - 214 ppm
- [SUCCINIC-ACID](#) Leaf:
- [TETRACOSAN-1-OL](#) Leaf:
- [THIAMIN](#) Leaf 1.3 - 11 ppm
- [THREONINE](#) Leaf 1,200 - 8,568 ppm
- [TRIACONTAN-1-OL](#) Leaf:
- [TRYPTOPHAN](#) Leaf 370 - 2,642 ppm
- [VALINE](#) Leaf 1,550 - 11,067 ppm
- [VIT-B-6](#) Leaf 2.2 - 16 ppm
- [WATER](#) Leaf 846,000 - 945,500 ppm
- [ZINC](#) Leaf 10 - 157 ppm

Clinical purification

- Diet and Exercise
- Manual Lymphatic Drainage
- Sauna Therapy
- Deep Breathing
- Sleep 7-8 hours
- Constitutional Hydrotherapy
- Colonic Therapy
- Dry Skin Brushing