DETOX FOOD PLAN

Comprehensive Guide

THE INSTITUTE FOR FUNCTIONAL MEDICINE®

Version 8

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What is Detox?

The word "detox" has two common meanings: (1) to withdraw from the use of drugs or alcohol to which one has developed an addiction, and (2) to describe the body's physiologic process of rendering chemicals, compounds, hormones, and toxicants less harmful. The second definition is the one we use in Functional Medicine. This process is often referred to as "metabolic detoxification." The organs of detoxification work efficiently as a whole to reduce the body burden or toxic load of chemicals. They include the liver, kidneys, large intestine, lymphatic system, and sweat glands.

Scientists estimate that the average adult has at least 700 toxins in their body and that a newborn may have over 200 toxins.

In other words, there are well-defined metabolic pathways in the body that are responsible for converting toxins into chemical compounds, making it easy for the body to eliminate them (primarily through the urine or stool).

Studies on how drugs are metabolized and cleared from the body have established a good understanding of these detoxification processes. Of course, metabolic detoxification is an ongoing process. Every day, the organs are working to eliminate environmental contaminants that come in from toxic bacteria, pollutants, plasticizers, and heavy metals, to name a few. One of the most common exposures is toxic chemicals from agricultural production (pesticides, herbicides, and fertilizers). These exposures commonly occur through ingestion or inhalation of water, foods, and air and from time spent in the home or work environment. Sources of toxicants which can increase the body burden include materials used in new construction, carpet chemicals which off-gas into the air, paint, household cleaners, metals used in dental restorations and personal hygiene products applied to the face, skin, teeth, and hair. Air pollutants are found in industrial exposures, primary or second-hand smoke exposure, and auto exhaust. In other words, everyone is continually living amidst chemicals and toxicants in an increasingly toxic society, resulting in an ever-increasing body burden or toxic load of chemicals.

A person's toxic body burden is a result of three main factors. First, there is the toxicant exposure we each may have received from both internal and external sources, as previously discussed. Second, each person's genetic predisposition to effectively produce detoxification enzymes for processing these compounds or substrates is unique and depends on familial influence. Lastly, the integration of proper nutrition and ongoing dietary ingestion of helpful detoxification nutrients or phytonutrients can impact the body's capacity to appropriately reduce the presence of toxicants and lower the body burden.

What is Detox?

Toxic symptoms may occur when we get to our personal limit of accumulated toxins and are not able to clear them quickly or efficiently enough. Medical researchers are recognizing more symptoms related to the buildup of toxins, including obesity, type 2 diabetes, metabolic syndrome, cancer, fatigue, infertility, allergies, behavior and mood disorders, and neurological conditions such as tremors, headaches, and cognitive difficulties, along with several other diseases like Parkinson's and Alzheimer's.

The process of detoxification involves many steps. There may be reasons why the body isn't particularly efficient about clearing toxins. These reasons can be situational, such as having an increased exposure to toxins, being constipated and thus unable to excrete toxins in the stool, being deficient in specific nutrients, eating a nutrient-poor diet, being under stress, having a chronic disease, experiencing excessive inflammation, and not getting enough physical activity or restorative sleep. There may also be genetic reasons, such as having particularly slow enzymes that aren't efficient in converting toxins into compounds that can be excreted.

The goal of a clinically-directed metabolic detoxification protocol is to provide nutritional support for facilitating the pathways involved in the processing and excretion of toxins. A detox program results in improved symptoms and an increased sense of wellbeing for most individuals. Specifically, many who participate in a personalized detoxification program describe improvement in pain and fatigue levels, enhanced cognitive function and moods, more effective and satisfying sleep cycles, and weight loss. The Detox Food Plan Comprehensive Guide provides specific food and nutrition suggestions to optimize the metabolic detoxification experience and lower the body burden. The guide offers directions in how to structure a healthy detox and wellness plan by providing tips on how to get started, what to eat, what to watch for, and how to provide the body with the right nutrients for longstanding, improved elimination and detoxification.

Why Detox?

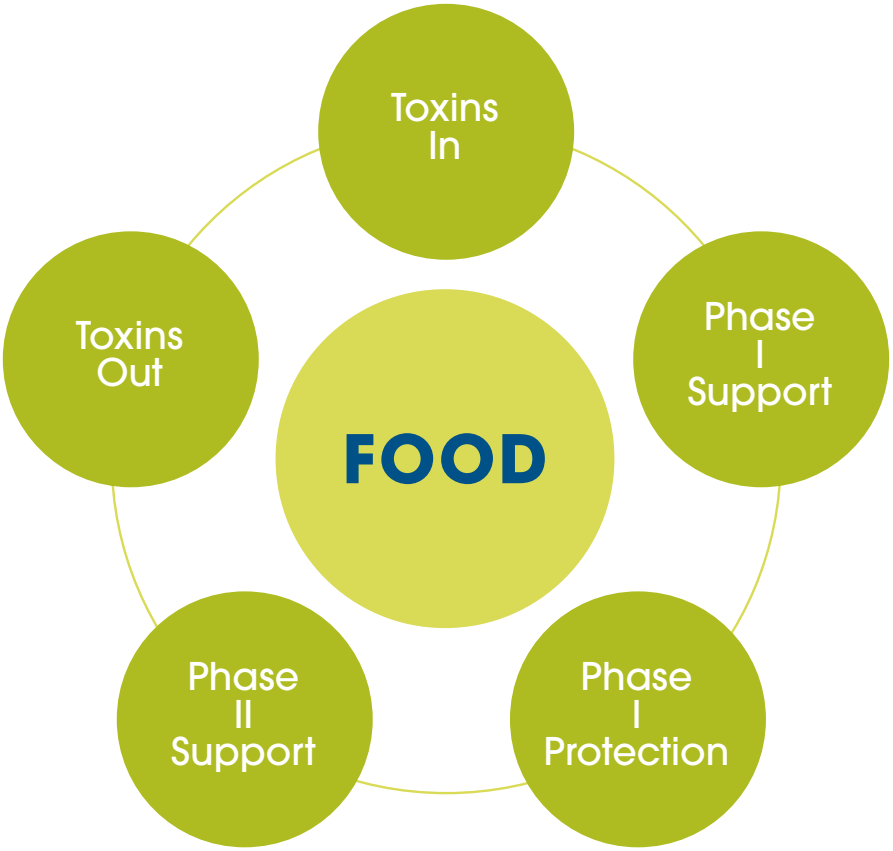
Before a metabolic detox program is recommended, symptoms and health complaints are typically assessed using a Medical Symptoms Questionnaire (MSQ). The MSQ helps to identify health concerns related to major body systems. If the MSQ score is high, or certain clinical patterns become evident to the Functional Medicine practitioner, a metabolic detoxification program may be recommended. The practitioner may prescribe specific protocols and sequences of food plans based on the clinical results desired.

This guide outlines how the Detox Food Plan is generally implemented. One of the most common reasons a detoxification program is recommended is for a patient's a lack of energy. Fatigue is one of the primary reasons people make changes to their lifestyle. Other reasons practitioners and patients might desire a metabolic detox program include overall poor health, weight loss resistance, or to reduce symptoms from certain diseases associated with toxicity.

Recent studies indicate that obesity may be more complicated than originally thought. No matter what the diet may be, when toxins are injected into animals, they have a greater chance of gaining weight. Many people are unaware of the weight connection with toxins, food triggers, and metabolic dysfunction.

Food plays a role in all phases of detoxification (see graphic). The first step is to identify the toxins which may be ingested via food and beverages. By becoming aware of ingested toxins and eating "clean," the degree of body burden can be reduced significantly. The remaining steps have to do with how the body metabolizes toxins, with the bulk of those processes occurring in the liver (phase I, phase II). Once the liver has transformed these toxins into water-soluble compounds, they can be eliminated from the body through the kidneys, intestines, and skin.

Food Plays a Role in *All Phases* of Detoxification



Sequencing a Detoxification Program

When many Functional Medicine practitioners think about detox, they think in terms of an elimination diet: having their patients temporarily eliminate from their diets major food triggers and allergens, such as gluten-containing foods, dairy, eggs, shellfish, soy, corn, and peanuts. Such an elimination diet is a short-term food plan, typically followed for around 3-4 weeks, as a first-step strategy to identify food triggers and develop better awareness of the body's reactions to particular foods while reducing the immune response to food. Often such a food plan is used along with a gut restoration or healing program in patients who may present with the consequences of intestinal permeability, sometimes referred to as a "leaky gut." When used in this stage of healing, an assessment of digestive function is often also done through testing to identify sources of gut bacteria or pathogens that could contribute to the internal body burden (endotoxicity).

While the Detox Food Plan reduces intake of common food triggers, making it similar to the Elimination Diet, it focuses on long-term nutritional support of the major body systems involved with detoxification, such as the gut and liver. It places a stronger emphasis on eating clean foods for life, reducing food contact with plastics or other potential contaminating elements, and eating organic foods when possible. Additionally, a metabolic detox plan may involve more rigorous nutritional intervention with medical food powders and dietary supplements, and even fasting from food or eating only specific foods on certain days to further drive or amplify the effectiveness of the detoxification system.

One of the most important aspects in either a short-term elimination diet or the long-term Detox Food Plan is the emphasis on consistent intake of foods that help optimize function of the primary organs of elimination and reduce unhealthy stimulation of the immune system. The gut needs to work efficiently so that it can provide one to two healthy, well-formed bowel movements daily. Without movement of the bowels, excretion of toxins is limited (as most of them exit in stool). Additionally, many of the toxins processed by the liver are released through the bile and get excreted in the stool. Some of these converted toxins can be eliminated through urine, too, which is why proper hydration goes hand-in-hand with optimal detoxification. Adequate consumption of dietary fiber—which means consuming more than 35 grams of fiber daily—will aid elimination of stool and endotoxins.

The Detox Food Plan, more than any other food plan within the IFM Food Plan Suites, is designed to support not just the gut but the liver. The liver is the hub of detoxification processes. When the liver is neglected or overburdened through increased toxic load or lack of nutrients, it can become congested and sluggish, resulting in greater toxicity and increased symptom frequency and severity. The goal of the Detox Food Plan is to create a gut–liver axis of support while lowering the burden on the immune system and providing adequate nourishment through foods and liquids.

The Detox Food Plan:

- **Reduces food triggers:** The Detox Food Plan reduces exposure to trigger foods that may be connected to health concerns. Many people with food sensitivities don't realize how bad they feel, or that particular foods are the culprit, until the foods that trigger a reaction are removed from the diet. Food reactions are frequently overlooked as a contributor to chronic health issues. Some reactions are considered to be food **allergies**, meaning they cause severe symptoms immediately after a trigger food is eaten. Some reactions may be delayed by hours or even days; this type of adverse food reaction is referred to as a food sensitivity. Food **sensitivities** are usually the result of an imbalance in the gastrointestinal system that affects the immune system. Food **intolerances** are reactions to certain food chemicals (e.g., lactose, MSG, histamines, etc.) that occur when a person is lacking an enzyme or nutrient, resulting in an inability to properly metabolize certain foods.

  Removing the specific foods that cause adverse food reactions will allow the gut to heal, while simultaneously supporting detoxification pathways. Common food triggers are minimized or eliminated on the Detox Food Plan, while nutrient-dense foods are included to support detoxification and gut health.

  After completion of an initial removal phase, a practitioner may suggest a personalized food reintroduction process for some patients. The goal is to expand the variety of healthy foods available to an individual for daily intake, not to maintain a long-term restrictive diet. Reintroduction involves adding back one food at a time and observing whether that food is associated with symptoms. Foods that continue to provoke symptoms (physical, mental, and emotional) are avoided until they no longer cause symptoms. Once the gut is healed, many foods that initially caused sensitivities may be reintroduced into a meal plan without symptoms. In the later stage of food reintroduction, the goal is to diversify the diet for optimal gut health. Eating the same handful of foods day after day does not provide the body with an array of phytonutrients, which is important for overall health and is especially important for those who have gut permeability issues.

- **Supports liver function.** Protein is a key nutrient that enables the liver to effectively process toxins within the body. Specific amino acids (building blocks of protein) are required for certain types of toxin clearance. Therefore, this food plan suggests high-quality protein as an essential cornerstone to ensure that detoxification processes are efficient and effective.
- **Requires clean and organic foods.** The Detox Food Plan emphasizes stringent measures to

reduce the intake of toxins of all kinds by encouraging the intake of organically grown, non-genetically modified foods; lean, grass-fed animal meats or wild-caught fish; minimally refined, cold-pressed oils; and by reducing exposure to canned or plastic-containing foods and liquids.

- **Reduces toxic burden:** Toxins are everywhere: in food, air, water, and even in personal care products. It is best to start a metabolic detoxification program by first removing toxicants from one's food and drink supply as much as possible. Buying organically grown food helps to ensure a minimal intake of pesticides, herbicides, and insecticides. Limiting ingestion of genetically modified organisms (GMOs) and heavy metals, all of which have been associated with disruption to the endocrine system resulting in obesity and metabolic disturbances like diabetes, is also recommended.

Tips for minimizing intake of harmful substances include:

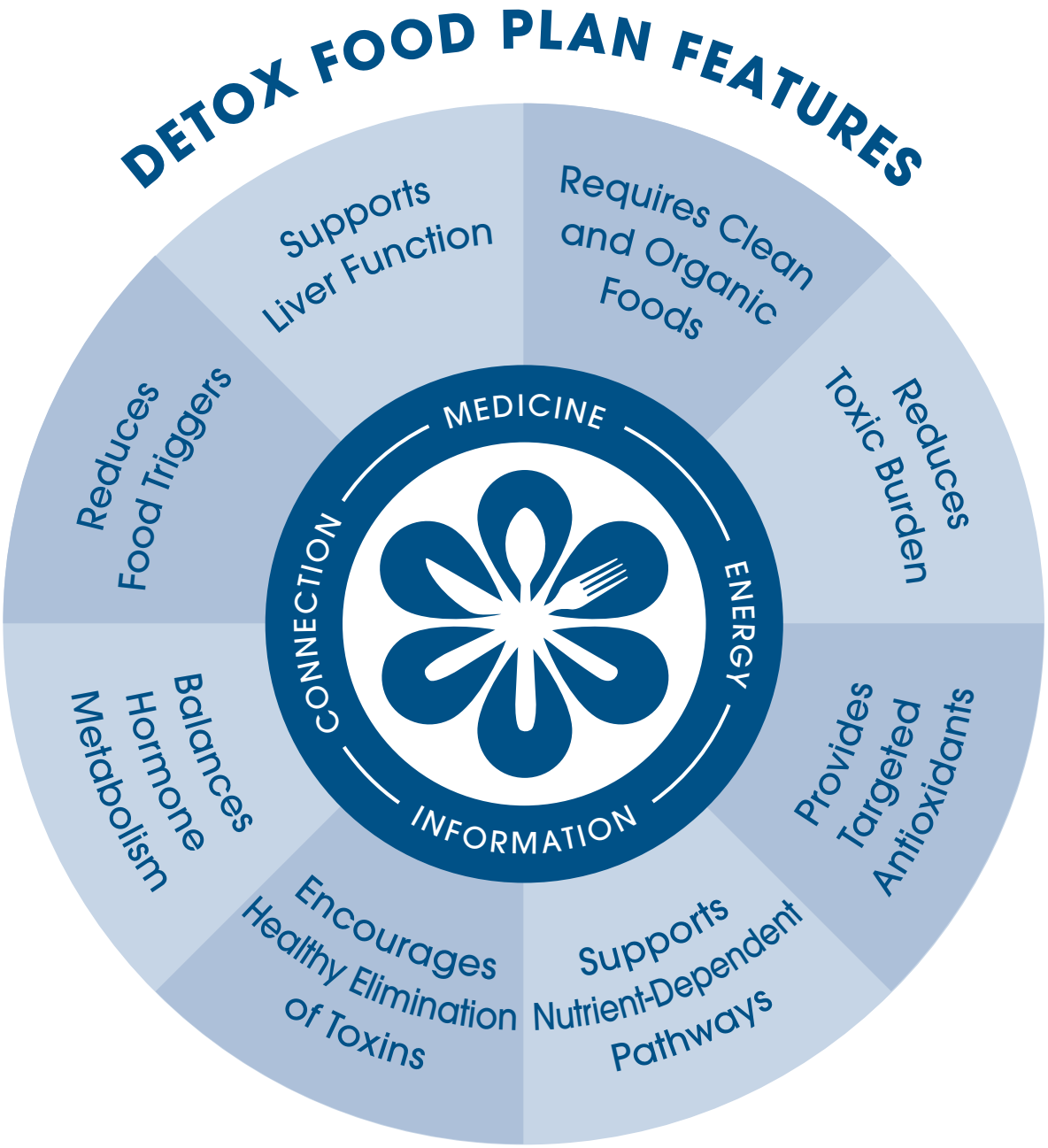
  - Choosing lean meats over fatty animal foods, as pesticides concentrate in fat
  - Buying organically-grown animal products (e.g., meats and dairy)
  - Peeling off the skin or remove the outer layer of leaves of some produce (e.g., lettuce, cabbage)
  - Removing surface pesticide residues, waxes, fungicides, and fertilizers by soaking the food in a mild solution of additive-free soap (pure castile soap or biodegradable cleanser)
  - Cutting away any damaged or bruised areas before preparing or eating food
  - Washing produce before peeling it so dirt and contaminants aren't transferred from the knife onto the fruit or vegetable
  - Consulting the current versions of the Environmental Working Group's "Dirty Dozen" (foods that are high in pesticide residues) and "Clean 15" (foods that are typically low in pesticide residues) lists
  - Avoiding foods that contain preservatives such as BHT, BHA, benzoate, and sulfites; food colorings such as FD&C yellow #5, #6, etc.; or artificial sweeteners such as sucralose and aspartame
  - Limiting exposure to canned foods (e.g., meat, fish) and plastic bottles/containers of water and high-acid foods due to the presence of toxins like bisphenol-A and other plasticizers that have been shown to disrupt the endocrine gland function
  - Cooking with non-toxic pans, skillets, and pots that aren't worn or scuffed so as to minimize any release of problematic compounds while cooking
  - Ensuring that drinking and cooking water is filtered

- **Provides targeted antioxidants:** Enzymes involved in detoxification (phase I, phase II) within the

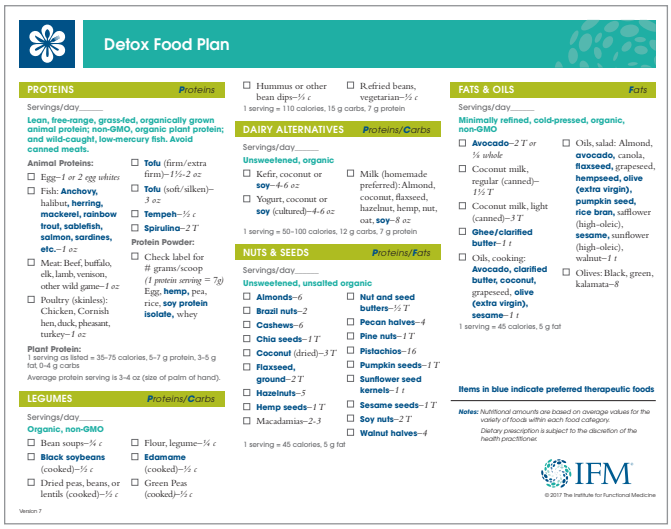
liver are well recognized. Once enzyme imbalances are assessed, food and/or nutritional supplements can be tailored to support, modulate, induce, or inhibit these enzymes to optimize detoxification in the body. Imbalances between phase I and phase II detoxification can cause accumulation or overproduction of toxic intermediate metabolites.

Supports nutrient-dependent pathways: This food plan is rich in plant foods that are essential in all stages of detoxification, especially those involved in processes occurring in the gut, liver, and kidneys. Phytonutrients are important for cell functions relating to reduction of toxins. Phytonutrients also play an active role in improving the stress response and reducing inflammation. Plant foods tend to reduce net dietary acid load and enhance greater body alkalinization, which is helpful for kidney excretion of toxins. Key antioxidants help protect the body and support biotransformation of these metabolites. Whether or not the specific genetic variability of these enzymes is known, the food plan is designed to include foods that support the processes involved in liver biotransformation of toxins.

- **Encourages healthy elimination of toxins:** After the liver converts toxins into intermediate metabolites, key antioxidants are required to protect the body from these processed compounds. Effective excretion through the stool and urine is a focus for this plan and is assured through integrating high-fiber foods and adequate liquids to ensure healthy elimination of transformed toxins.
- **Balances hormone metabolism:** When the toxin load is reduced and whole foods that support the liver and gut are increased, hormones can come into proper balance. Targeted hormone-balancing foods are featured in this plan for those who require such support. Endocrine-disrupting compounds can also interfere with proper hormone signaling; foods that improve detoxification have an impact on hormone receptivity.



The Detox Food Plan is an advanced dietary application of specific foods used to improve detoxification function, provided in a list divided into several categories representing macronutrient levels (protein, fats, and carbohydrates) and smaller categories to guide you toward balanced diversity. The Detox Food Plan lists preferred foods to incorporate within a balanced daily diet to improve detox function. Certain foods are highlighted because they are considered to be Therapeutic Foods (explained below). The healthcare provider may give alternate suggestions that are personalized to specific medical needs and may include a calorie target or guidance on the specific amount of food to consume.



Detox Food Plan

PROTEINS — Proteins

Servings/day_____

Lean, free-range, grass-fed, organically grown animal protein; non-GMO, organic plant protein; and wild-caught, low-mercury fish. Avoid canned meats.

Animal Proteins:
- ☐ Egg–1 or 2 egg whites
- ☐ Fish: Anchovy, halibut, herring, mackerel, rainbow trout, sablefish, salmon, sardines, etc.–1 oz
- ☐ Meat: Beef, buffalo, elk, lamb, venison, other wild game–1 oz
- ☐ Poultry (skinless): Chicken, Cornish hen, duck, pheasant, turkey–1 oz
- ☐ Tofu (firm/extra firm)–1½-2 oz
- ☐ Tofu (soft/silken)–3 oz
- ☐ Tempeh–½ c
- ☐ Spirulina–2 T

Protein Powder:
- ☐ Check label for # grams/scoop (1 protein serving = 7g) Egg, hemp, pea, rice, soy protein isolate, whey

Plant Protein:
1 serving as listed = 35-75 calories, 5-7 g protein, 3-5 g fat, 0-4 g carbs
Average protein serving is 3-4 oz (size of palm of hand).

LEGUMES — Proteins/Carbs

Servings/day_____

Organic, non-GMO
- ☐ Bean soups–¾ c
- ☐ Black soybeans (cooked)–½ c
- ☐ Dried peas, beans, or lentils (cooked)–½ c
- ☐ Flour, legume–¼ c
- ☐ Edamame (cooked)–½ c
- ☐ Green Peas (cooked)–½ c
- ☐ Hummus or other bean dips–½ c
- ☐ Refried beans, vegetarian–½ c

1 serving = 110 calories, 15 g carbs, 7 g protein

DAIRY ALTERNATIVES — Proteins/Carbs

Servings/day_____

Unsweetened, organic
- ☐ Kefir, coconut or soy–4-6 oz
- ☐ Yogurt, coconut or soy (cultured)–4-6 oz
- ☐ Milk (homemade preferred): Almond, coconut, flaxseed, hazelnut, hemp, nut, oat, soy–8 oz

1 serving = 50-100 calories, 12 g carbs, 7 g protein

NUTS & SEEDS — Proteins/Fats

Servings/day_____

Unsweetened, unsalted organic
- ☐ Almonds–6
- ☐ Brazil nuts–2
- ☐ Cashews–6
- ☐ Chia seeds–1 T
- ☐ Coconut (dried)–3 T
- ☐ Flaxseed, ground–2 T
- ☐ Hazelnuts–5
- ☐ Hemp seeds–1 T
- ☐ Macadamias–2-3
- ☐ Nut and seed butters–½ T
- ☐ Pecan halves–4
- ☐ Pine nuts–1 T
- ☐ Pistachios–16
- ☐ Pumpkin seeds–1 T
- ☐ Sunflower seed kernels–1 t
- ☐ Sesame seeds–1 T
- ☐ Soy nuts–2 T
- ☐ Walnut halves–4

1 serving = 45 calories, 5 g fat

FATS & OILS — Fats

Servings/day_____

Minimally refined, cold-pressed, organic, non-GMO
- ☐ Avocado–2 T or ⅛ whole
- ☐ Coconut milk, regular (canned)–1½ T
- ☐ Coconut milk, light (canned)–3 T
- ☐ Ghee/clarified butter–1 t
- ☐ Oils, cooking: Avocado, clarified butter, coconut, grapeseed, olive (extra virgin), sesame–1 t
- ☐ Oils, salad: Almond, avocado, canola, flaxseed, grapeseed, hempseed, olive (extra virgin), pumpkin seed, rice bran, safflower (high-oleic), sesame, sunflower (high-oleic), walnut–1 t
- ☐ Olives: Black, green, kalamata–8

1 serving = 45 calories, 5 g fat

Items in blue indicate preferred therapeutic foods

Notes: Nutritional amounts are based on average values for the variety of foods within each food category.
Dietary prescription is subject to the discretion of the health practitioner.

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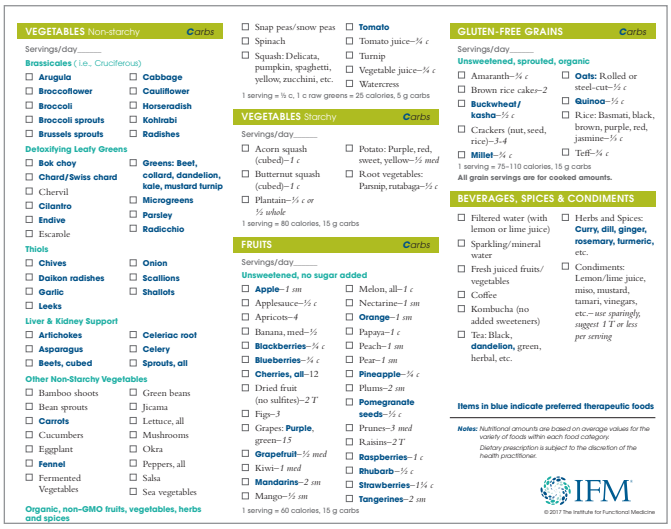

VEGETABLES Non-starchy — Carbs

Servings/day_____

Brassicales (i.e., Cruciferous)
- ☐ Arugula
- ☐ Broccoflower
- ☐ Broccoli
- ☐ Broccoli sprouts
- ☐ Brussels sprouts
- ☐ Cabbage
- ☐ Cauliflower
- ☐ Horseradish
- ☐ Kohlrabi
- ☐ Radishes

Detoxifying Leafy Greens
- ☐ Bok choy
- ☐ Chard/Swiss chard
- ☐ Chervil
- ☐ Cilantro
- ☐ Endive
- ☐ Escarole
- ☐ Greens: Beet, collard, dandelion, kale, mustard turnip
- ☐ Microgreens
- ☐ Parsley
- ☐ Radicchio

Thiols
- ☐ Chives
- ☐ Daikon radishes
- ☐ Garlic
- ☐ Leeks
- ☐ Onion
- ☐ Scallions
- ☐ Shallots

Liver & Kidney Support
- ☐ Artichokes
- ☐ Asparagus
- ☐ Beets, cubed
- ☐ Celeriac root
- ☐ Celery
- ☐ Sprouts, all

Other Non-Starchy Vegetables
- ☐ Bamboo shoots
- ☐ Bean sprouts
- ☐ Carrots
- ☐ Cucumbers
- ☐ Eggplant
- ☐ Fennel
- ☐ Fermented Vegetables
- ☐ Green beans
- ☐ Jicama
- ☐ Lettuce, all
- ☐ Mushrooms
- ☐ Okra
- ☐ Peppers, all
- ☐ Salsa
- ☐ Sea vegetables
- ☐ Snap peas/snow peas
- ☐ Spinach
- ☐ Squash: Delicata, pumpkin, spaghetti, yellow, zucchini, etc.
- ☐ Tomato
- ☐ Tomato juice–¾ c
- ☐ Turnip
- ☐ Vegetable juice–¾ c
- ☐ Watercress

1 serving = ½ c, 1 c raw greens = 25 calories, 5 g carbs

VEGETABLES Starchy — Carbs

Servings/day_____
- ☐ Acorn squash (cubed)–1 c
- ☐ Butternut squash (cubed)–1 c
- ☐ Plantain–⅓ c or ½ whole
- ☐ Potato: Purple, red, sweet, yellow–½ med
- ☐ Root vegetables: Parsnip, rutabaga–½ c

1 serving = 80 calories, 15 g carbs

FRUITS — Carbs

Servings/day_____

Unsweetened, no sugar added
- ☐ Apple–1 sm
- ☐ Applesauce–½ c
- ☐ Apricots–4
- ☐ Banana, med–½
- ☐ Blackberries–¾ c
- ☐ Blueberries–¾ c
- ☐ Cherries, all–12
- ☐ Dried fruit (no sulfites)–2 T
- ☐ Figs–3
- ☐ Grapes: Purple, green–15
- ☐ Grapefruit–½ med
- ☐ Kiwi–1 med
- ☐ Mandarins–2 sm
- ☐ Mango–½ sm
- ☐ Melon, all–1 c
- ☐ Nectarine–1 sm
- ☐ Orange–1 sm
- ☐ Papaya–1 c
- ☐ Peach–1 sm
- ☐ Pear–1 sm
- ☐ Pineapple–¾ c
- ☐ Plums–2 sm
- ☐ Pomegranate seeds–½ c
- ☐ Prunes–3 med
- ☐ Raisins–2 T
- ☐ Raspberries–1 c
- ☐ Rhubarb–½ c
- ☐ Strawberries–1¼ c
- ☐ Tangerines–2 sm

1 serving = 60 calories, 15 g carbs

Organic, non-GMO fruits, vegetables, herbs and spices

GLUTEN-FREE GRAINS — Carbs

Servings/day_____

Unsweetened, sprouted, organic
- ☐ Amaranth–¾ c
- ☐ Brown rice cakes–2
- ☐ Buckwheat/kasha–½ c
- ☐ Crackers (nut, seed, rice)–3-4
- ☐ Millet–¾ c
- ☐ Oats: Rolled or steel-cut–½ c
- ☐ Quinoa–½ c
- ☐ Rice: Basmati, black, brown, purple, red, jasmine–½ c
- ☐ Teff–¾ c

1 serving = 75-110 calories, 15 g carbs
All grain servings are for cooked amounts.

BEVERAGES, SPICES & CONDIMENTS
- ☐ Filtered water (with lemon or lime juice)
- ☐ Sparkling/mineral water
- ☐ Fresh juiced fruits/vegetables
- ☐ Coffee
- ☐ Kombucha (no added sweeteners)
- ☐ Tea: Black, dandelion, green, herbal, etc.
- ☐ Herbs and Spices: Curry, dill, ginger, rosemary, turmeric, etc.
- ☐ Condiments: Lemon/lime juice, miso, mustard, tamari, vinegars, etc.–use sparingly, suggest 1 T or less per serving

Items in blue indicate preferred therapeutic foods

Notes: Nutritional amounts are based on average values for the variety of foods within each food category.
Dietary prescription is subject to the discretion of the health practitioner.

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Protein

Protein is an essential nutritional cornerstone of detoxification. One cannot effectively detoxify without having the amino acids (building blocks of protein) to bind the transformed toxins in the liver so they can be carried out of the body. Additionally, regular protein helps stabilize blood sugar, which in turn minimizes hunger and cravings. When possible, it is ideal to include some protein in every meal for ongoing support of liver detox. There are different sources of animal and vegetable protein to choose from on this food plan. Vegetarians can choose miso, natto, tofu, tempeh, rice/hemp/pea protein powders, and plant-based burger alternatives, while omnivores may add animal proteins such as eggs, fish, meat, poultry, and a vast array of protein powders. Shellfish are omitted from the Detox Food Plan as they are often contaminated with high levels of toxic metals like mercury.

Fish eaters should select from sources with the lowest amounts of mercury according to the National Research Defense Council: anchovies, butterfish, catfish, croaker (Atlantic), flounder, haddock (Atlantic), hake, herring, mackerel (North Atlantic, chub), mullet, perch (ocean), pollock, salmon (fresh, wild), sardines, sole (Pacific), squid, tilapia, trout (freshwater), whitefish, and whiting. Fish associated with the highest mercury content include bluefish, grouper, Halibut (Atlantic, Pacific), mackerel (Spanish, Gulf, King), marlin, orange roughy, sea bass (Chilean), shark, swordfish, tilefish, and tuna (canned albacore, yellowfin, bigeye, ahi).

As with the other food categories, quality is of utmost importance. High-quality proteins of any kind are the best choice, including lean, grass-fed, organic, non-GMO sources. Remember to choose wild-caught fish, as farmed varieties may contain hormones and toxic chemicals called polychlorinated biphenyls (PCBs).

All proteins are essential for detoxification; however some contain specific compounds that play an important role in the detoxification process.

Therapeutic foods: Fish and soy

Spotlight on Soy Foods for Detox

Soy Foods	■ High methionine-containing food, making it important for methylation ■ Isoflavones from soy influence phase I and phase II liver detoxification ■ Isoflavones help to modify estrogen metabolites toward the more protective estrogen metabolites (2-hydroxyestrogens) and away from the reactive, carcinogenic forms of estrogen (16-alpha-hydroxyestrogens) ■ Choose non-GMO, organically-grown varieties of soy food products to prevent intake of contaminants

Legumes

Legumes are a perfect way to get quality dietary protein and fiber, both of which help with detox in the liver and elimination from the body through the gut. Eat at least one serving of legumes every day in the form of soup, cooked beans, dips, or hummus. Legumes make a wonderful complement to brown rice or quinoa, or to a non-starchy vegetable. Try black (soy) beans in soup, add garbanzo beans (also called chickpeas) or kidney beans to a salad, or make a salad of 2–3 different beans with chopped onion and pepper. While high-protein foods are especially therapeutic for detoxification, black soybeans and edamame are highlighted in this category for their protein, fiber, and isoflavone content.

Therapeutic foods: Black soybeans and edamame

Dairy Alternatives

Dairy is not listed on this plan, because most commercially available dairy foods contain toxins and hormones. Additionally, dairy is a food trigger for many and a culprit in gastrointestinal symptoms related to leaky gut. There are several dairy alternatives on this food plan, mostly in the form of nut and grain milks. When buying dairy substitutes like coconut, almond, hemp, oat, or rice milk, read the label carefully to ensure they contain no added sweeteners. Note that coconut milk listed here refers to the boxed variety rather than to its canned form because of the bisphenol A (toxic) lining that is found in most cans. For soy, it is essential to select only organic soymilks to minimize toxin intake and avoid GMOs.

Soy products are highlighted as therapeutic foods for their high methionine and isoflavone content, as described above.

Therapeutic foods: Organic soy milk, soy yogurt, and soy kefir

Nuts & Seeds

The nuts and seeds category provides a variety of options for snack choices throughout the day. Nuts and seeds may also be sprinkled on top of salads, cereals, or vegetables. Compelling data support eating a handful of nuts each day to reduce chronic disease risk. While not required, it is recommended that at least 1 to 2 servings of nuts be eaten daily. Aim for a mixed blend of raw unsalted nuts (not peanuts) that aren't heavily roasted in oil. Try adding hemp seeds or ground flaxseed meal to a salad or a smoothie, and don't forget about the ease of using nut butters like tahini (sesame seed butter) drizzled over vegetables, almond butter on an apple slice, or cashew nut butter on a sliver of pear.

All nuts, seeds, and their respective butters or pastes are considered to be therapeutic foods for detoxification as they provide anti-inflammatory oils, quality protein, and phytonutrient compounds like lignans, which support ongoing detoxification. Lignans in flaxseeds and sesame seeds are especially important in hormone metabolism.

Therapeutic foods: All of the nuts and seeds and their respective butters or pastes, especially sesame seeds and flaxseeds

Fats & Oils

A vast selection of fats and liquid oils can be used for salad dressings and cooking. Preferred choices are minimally refined, cold-pressed, organic, non-GMO fats and liquid oils whenever possible, as these are of the best quality and least toxic. Fats and liquid oils break down in heat, light, and oxygen, so the quality of these oils is important to consider. Rancid oils are toxic and may generate oxidative stress when ingested. Keep oils in dark glass (not plastic) containers and throw them out if they smell rancid. Use a variety of oils in order to benefit from the individual phytonutrients in each. There are no specific recommended servings of these oils during a detoxification plan. A recommended amount may be set by the Functional Medicine practitioner. The important thing is to get consistent, good quality fats on a daily basis to help keep inflammatory processes in balance.

Fats and oils from avocados, coconut, flaxseed, olives, rice bran, and sesame seeds are therapeutic for detoxification for different reasons. Avocados are full of healthy dietary fiber, monounsaturated fat, and phytosterols that help with healthy function of the intestines and immune system. Additionally, an avocado has more potassium than a banana! Coconut oil contains medium-chain triglycerides that can provide energy sources to the gut and liver, particularly when undergoing a metabolic detoxification. Rice bran and sesame oils are particularly medicinal for liver function as they assist in the healthy processing of fats and reduce inflammation.

Therapeutic Foods: Avocado (fruit and oil), clarified butter (ghee), coconut oil, extra virgin olive oil, flaxseed oil, hempseed oil, pumpkin seed oil, rice bran oil, and sesame oil

Non-Starchy Vegetables

The greatest variety of foods for detoxification is found in the non-starchy vegetables category. Vegetables are an important complement to protein as they provide necessary phytonutrients for detoxification. The goal is to consume at least 8 to 10 servings every day to aid in liver detoxification and the elimination of toxins from the gut. To optimize dietary fiber intake, 10 or more servings per day would be best.

The non-starchy vegetables are divided into five categories on the Detox Food Plan: Brassicales (the cruciferous vegetables), Detoxifying Leafy Greens, Thiols, Liver & Kidney Support, and Other Non-Starchy Vegetables. Of the five categories, the first four are essential. These four categories are composed of therapeutic foods. It is advised to eat foods from each of these categories daily to get as much variety as possible.

Brassicales (commonly known as cruciferous vegetables) provide healthy compounds to metabolize hormones in a balanced way. Detoxifying Leafy Greens include a number of anti-inflammatory, bitter, therapeutic greens that can be used in stir-fries, salads, or smoothies. Thiols are vegetables in the Allium family that provide nutrients like sulfur that help the liver detoxify better. The Liver & Kidney Support category includes vegetables that help the liver make healthy bile and the kidneys excrete toxins more efficiently through the urine. Finally, Other Non-Starchy Vegetables provide fiber and foundational nutrition, but are not necessarily therapeutic for detoxification.

In addition to the vegetables that aid detoxification, eating more phytonutrient-dense and diverse food aids the detoxification process. The bottom line is that while green non-starchy vegetables are essential for detoxification, it is important to eat a rainbow of colors every day. In addition to healthy greens, red beets, peppers, and radishes; orange carrots, yams, sweet potatoes, peppers and winter squash; yellow summer squash and peppers; and white onions and garlic should be consumed regularly. The best way to eat lots of vegetables daily is to include them every meal. For example, have some leftover broccoli or stir-fried vegetables with a morning meal, then a hearty vegetable soup or a salad for lunch that contains several servings of both raw and cooked vegetables. Include fruit and be sure to add olive oil, avocado, or nuts to salads. Routinely integrating a small dinner salad plus including more cooked vegetables with dinner can help you include enough servings each day. Choose seasonal ingredients. For example, try a cabbage salad in the winter, when highly nutritious cabbage is abundant. Those who prefer to make a juice from these vegetables should use a blender or extractor that keeps the fiber and particulates in rather than just squeezing out the liquid. Ensure that store-bought tomato juice doesn't contain added sugar and is low-sodium by reading the ingredient label. Do not store fresh juices too long as they will oxidize and turn color, a sign that their nutrient levels are less than when originally extracted. Canned vegetables are not advised on a Detox Food Plan; however, both fresh and frozen vegetables are recommended.

All non-starchy vegetables in the Brassicales, Detoxifying Leafy Greens, Thiols, and Liver & Kidney Support categories are important additions to an ongoing metabolic detoxification program because they fortify the function of the gut (through dietary fiber and bitter properties), liver (by supplying important compounds that favorably direct metabolism), and kidneys (through enhanced urine flow and alkalinization).

Therapeutic foods: Most non-starchy vegetables in the Brassicales, Detoxifying Leafy Greens, Thiols, and Liver & Kidney Support categories

Starchy Vegetables

Starchy vegetables are also included on the Detox Food Plan. It is best to eat these vegetables with a protein- and/or fat-containing meal to prevent blood sugar spikes that can occur from eating a starchy vegetable alone. While starchy vegetables are a valuable source of phytonutrients, none are highlighted as therapeutic foods for detoxification.

Fruits

Phytonutrient-dense fruits can be helpful for detoxification because of the antioxidant protection they offer. Some specific fruits provide targeted nutrients for liver detoxification. In general, fruits can be helpful when the need for something sweet arises. It's typically better to eat fruit with a little bit of protein to offset any potential blood sugar spikes.

Apple, blackberries, blueberries, cherries, grapes (purple), grapefruit, mandarins, oranges, pineapple, pomegranate seeds, raspberries, rhubarb, strawberries, and tangerines are highlighted as therapeutic foods due to their role in supporting the enzymatic detoxification process. Mandarins, oranges, and pomegranate seeds are specially recommended because of their well-known roles in detoxification. Some fruits, like grapefruit, may be contraindicated while taking certain drugs as they contain compounds that may either inhibit or accelerate enzymes that metabolize these drugs.

Therapeutic foods: Apples, blackberries, blueberries, cherries, grapes (purple), grapefruit, mandarins, oranges, pineapple, pomegranate seeds, raspberries, rhubarb, strawberries, and tangerines

Grains

As with dairy, gluten is not included on this food plan. Certified gluten-free (GF) whole grains, or those with an intact bran outer coat, provide an excellent source of dietary fiber to assist with detoxification. When purchasing oats, look for "certified gluten-free."

Buckwheat, millet, certified gluten-free oats, and quinoa are highlighted as foods that add dietary fiber (and in the case of quinoa, a bit of extra protein) for enhanced gut elimination and detoxification. Gluten-containing grains should be avoided unless the healthcare provider determines that a person is able to include gluten in the diet.

Therapeutic foods: Buckwheat, millet, certified gluten-free oats, and quinoa

Beverages

Hydration helps rid the body of toxins, builds resilience to stress, enhances metabolism, and promotes satiety. It is important to drink plenty of clean, filtered water throughout the day. Individual recommendations for fluid intake will depend upon a number of factors, including body weight.

To determine an individual's hydration needs, measure body weight in pounds and divide in half. The resulting figure is the number of ounces of water to consume each day. For example, an individual who weighs 128 pounds should consume at least 64 ounces (or eight 8-ounce cups) of water each day (128 ÷ 2 = 64).

In addition to filtered water, broths (bone, vegetable), meat stocks, and other decaffeinated beverages like fresh, raw, cold-pressed vegetable juices are also good choices. Teas (Black, green, herbal, etc.) are also recommended on the Detox Food Plan. The nutrients present in dandelion tea, in particular, have been shown to aid in the detoxification process. Kombucha, a fermented tea, offers a variety of health benefits and can be made at home. However, if purchasing store-bought brands, take care to read labels, as some brands contain added sweeteners and artificial flavors.

Therapeutic foods: Dandelion tea

Condiments

Most condiments available on store shelves are not permitted on the Detox Food Plan, as they contain added sweeteners and preservatives. However, homemade versions of many condiments—including mayonnaise, ketchup, and barbeque sauce—can be easily made with only a few approved ingredients.

Store-bought mustards (Dijon, stone-ground, etc.) made without added sugars are permitted, as are vinegars (raw apple cider vinegar, balsamic vinegar, white, etc.). Also permitted are coconut aminos, fresh lemon and lime juice, miso, and tamari.

Herbs and Spices

All herbs and spices are included in the Detox Food Plan, but some offer targeted health benefits related to detoxification. The compounds found in curry leaves are powerful antioxidants shown to reduce the toxicity of known carcinogens. The active components of dill promote drug detoxification and increase detoxification enzyme activity in the liver, stomach, and intestinal mucosa. Ginger stimulates digestion, circulation, and sweating—processes that help cleanse the colon, liver, and other organs. Rosemary enhances bile flow, which helps with fat metabolism and detoxification, and promotes proper peristaltic activity. This increases nutrient absorption and helps reduce the body's toxic load. Rosemary also contains carnosol, an antioxidant with anti-cancer and anti-inflammatory properties. Turmeric is known for its liver-detoxifying properties, as well as its anti-inflammatory and cancer-fighting characteristics. Absorption of curcumin (the powerful phytonutrient that gives turmeric its bright yellow color) is increased by piperine, the active compound in black pepper, so turmeric and black pepper should be consumed together.

Therapeutic foods: Curry leaves, dill, ginger, rosemary, and turmeric

The Detox Food Plan focuses on incorporating natural and whole foods to support, modulate, induce, or inhibit various processes related to optimal detoxification and elimination. When making dietary choices to support detoxification, it is best to choose the Therapeutic Foods within each food group to maximize the medicinal effects.

General Nutrients to Support Metabolic Detoxification

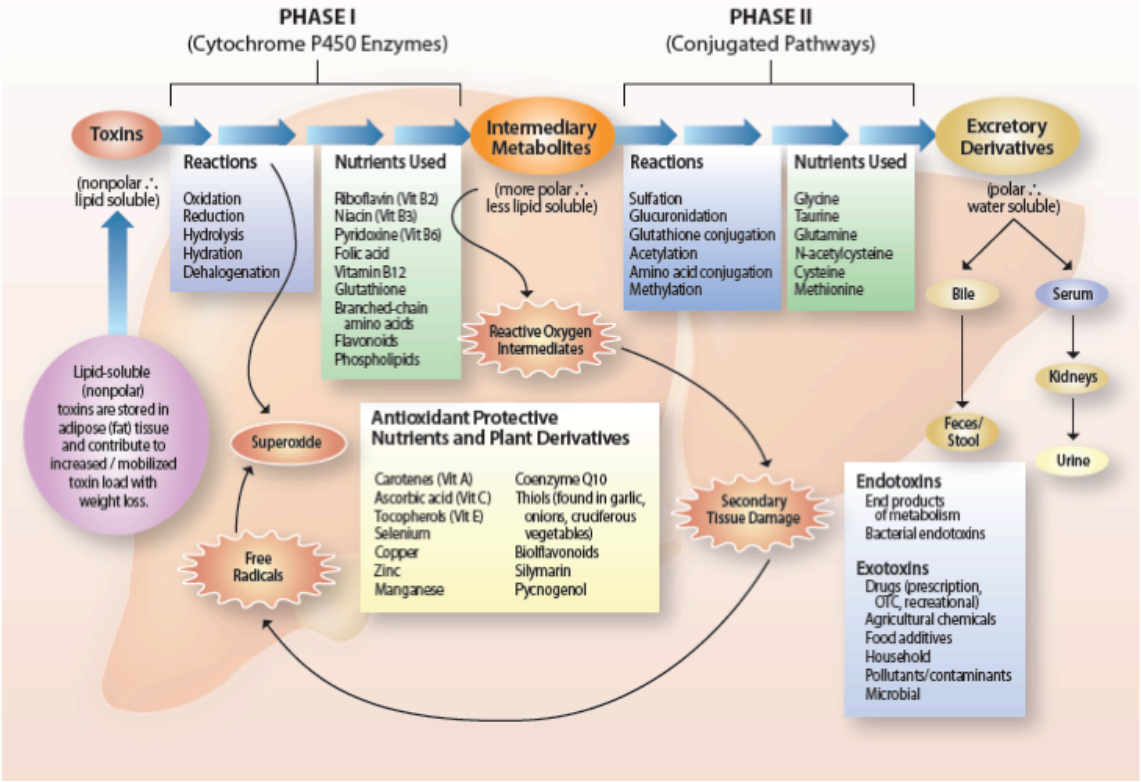
Various nutrients are required to fuel the process of detoxification. A shortage or deficiency of any one of them could mean an increased body burden of toxins.

Phase I and Phase II Detoxification in the Liver

There are two phases of detoxification in the liver – phase I and phase II. For individuals with genetic variants in phase I, this includes single nucleotide polymorphisms (SNPs) in cytochrome P450, which is the first line of defense against toxins in the liver. Foods that improve phase I metabolism and phase II conjugation are recommended. Such foods are referred to as "bifunctional modulators of detoxification," meaning they have the ability to address both phases of detoxification.

Plant foods, such as most vegetables and fruits, have this important characteristic, especially cruciferous vegetables (broccoli, Brussels sprouts, cabbage, cauliflower, and watercress—see the Brassicales on the Food List), garlic, onions, soy, pomegranate, artichoke hearts, citrus fruits, berries, green tea, and herbs and spices (e.g., turmeric). High-quality, lean protein is essential for facilitating phase II conjugation.

Liver Detoxification Pathways



Jones DS, ed. Textbook of Functional Medicine. Gig Harbor, WA: Institute for Functional Medicine; 2010: p. 278.

Phase I Nutrients and Food Sources on the Detox Food Plan

Nutrient	Food Sources
Riboflavin (vitamin B2)	Soybeans, spinach, tempeh, crimini mushrooms, eggs, asparagus, almonds, turkey
Niacin (vitamin B3)	Tuna, chicken, turkey, salmon, lamb, beef, sardines, brown rice
Pyridoxine (vitamin B6)	Tuna, turkey, beef, chicken, salmon, sweet potato, potato, sunflower seeds, spinach, banana
Folic acid	Lentils, pinto beans, garbanzo beans, black beans, navy beans, turnip greens, broccoli
Vitamin B12	Choose methylcobalamin for supplemental source, sardines, salmon, tuna, cod, lamb, beef
Glutathione	Undenatured whey protein, asparagus, curcumin, broccoli, avocado, spinach, garlic, foods high in vitamin C (e.g., citrus fruits) and selenium (e.g., Brazil nuts)
Branched-chain amino acids	Whey protein, chicken, fish, eggs
Flavonoids	Virtually all plant foods, including apples, apricots, blueberries, pears, raspberries, strawberries, black beans, cabbage, onions, parsley, pinto beans, tomatoes
Phospholipids	Soy, sunflower seeds, eggs

Antioxidant Nutrients and Phytonutrients That Protect Against Overproduction of Phase I Metabolites

Nutrient	Food Sources
Carotenes (vitamin A)	Essentially all red, orange, yellow, and green plant foods
Ascorbic acid (vitamin C)	All will be higher in vitamin C if uncooked: Bell peppers, papaya, citrus fruits, broccoli, Brussels sprouts, strawberries, kiwi
Tocopherols (vitamin E)	Sunflower seeds, almonds, spinach, Swiss chard, avocados, turnip greens, asparagus, mustard greens
Selenium	Brazil nuts, tuna, sardines, salmon, turkey, cod, chicken, lamb, beef
Copper	Sesame seeds, cashews, soybeans, mushrooms (shiitake), sunflower seeds, tempeh, garbanzo beans, lentils, walnuts, lima beans
Zinc	Beef, lamb, sesame seeds, pumpkin seeds, lentils, garbanzo beans, cashews, quinoa, turkey
Manganese	Cloves, gluten-free oats, brown rice, garbanzo beans, spinach, pineapple, pumpkin seeds, tempeh, soybeans
Coenzyme Q10	Meat, poultry, fish
Thiols	Chives, daikon radishes, garlic, leeks, onions, scallions, shallots
Flavonoids	Virtually all plant foods, including apples, apricots, blueberries, pears, raspberries, strawberries, black beans, cabbage, onions, parsley, pinto beans, tomatoes
Silymarin	Milk thistle (herb), artichokes
Pycnogenol	Small amounts found in the peels, skins, or seeds of grapes, blueberries, cherries, plums

Nutrients for Phase II Conjugation Pathways

Nutrient	Food Sources
Glycine	Beef, chicken, lamb
Taurine	Fish, meat
Glutamine	Beef, chicken, fish, eggs, cabbage, beets, beans, spinach, parsley
N-acetylcysteine	Most high-protein foods (e.g., chicken), garlic, cruciferous vegetables
Cysteine	Beef, chicken, lamb, fish
Methionine	Egg white/whole eggs, sesame seeds, Brazil nuts, soy protein, chicken, tuna, beef, chickpeas, almonds, pinto beans, lentils, brown rice

Factors That Can Affect Detoxification Enzyme Activity

Activity	Nutritional Relevance
Induction of CYP1A1	High caffeine- and alcohol-containing beverages, cruciferous vegetables, carotenoids (astaxanthin, beta-cryptoxanthin), garlic oil, fish oil, methionine deficiency, compounds from charbroiled meats (heterocyclic amines, polycyclic aromatic hydrocarbons), starvation
Inhibition of CYP1A1	Black raspberries, blueberries, ellagic acid (from raspberries, pomegranate), curcumin, apple juice, soy isoflavones, chrysin (bee pollen is source), choline deficiency
Induction of CYP1A2	Cruciferous vegetables, protein, pan-fried meat, medium chain triglycerides, tea, polycyclic aromatic hydrocarbons
Inhibition of CYP1A2	Carrot, celery, parsley, chamomile tea, peppermint tea, dandelion tea, thyme, curcumin, orange/tangerine peel, ginger root, chrysin (bee pollen is source), starvation
Induction of CYP3A4	Garlic, licorice (possible/animal study), green tea, hops, oregano, quercetin
Inhibition of CYP3A4	Grapefruit and grapefruit juice (naringenin), gallic acid in wine and herbal teas (inhibition reduced by addition of ascorbic acid), noni juice, lime juice, red wine; herbs such as goldenseal, chamomile, echinacea, licorice, milk thistle, peppermint oil, rosemary, thyme, chamomile; Seville orange, pomelo, grapefruit, solanaceous plants (e.g., tomatoes)
Balanced activation of detox systems	Cruciferous vegetables, berries, spices, diets adequate in protein (meat, fish, eggs, and plant-based foods that provide complementary essential amino acids)

Foods That Affect Phase II Detoxification in the Liver

Activity	Nutritional Relevance
Glucuronidation	*Alpha- and beta-carotene-rich foods:* (highest to lowest) Pumpkins, carrots, squash, sweet potatoes, collards, red peppers, spinach, mustard greens, chard, dandelion greens, cantaloupe, romaine lettuce *Quercetin-rich foods:* Apples, onion, kale, cherries, red wine, extra virgin olive oil, beans, broccoli, tea *High chrysin- and luteolin-rich foods:* Broccoli, chili peppers, celery, rosemary, honey *High D-glucaric-acid rich foods:* (highest to lowest) Apples, grapefruit, alfalfa sprouts, broccoli, Brussels sprouts, adzuki beans, tomatoes, cauliflower, mung beans, cherries, apricots, spinach, oranges *Citrus foods:* Grapefruit, oranges, tangerines *Magnesium-rich foods:* (highest to lowest) Halibut, almonds, cashews, soybeans, spinach, oatmeal, potatoes, black-eyed peas, brown rice, lentils, avocados, pinto beans *Watercress and turmeric (curcumin)* *Dietary plant fibers*
Sulfation	*Sulfur-rich foods:* (highest to lowest) Chicken, Brazil nuts, haddock, sardine, cod, beef, dried peaches, egg, turkey, almonds, spinach, onion, cabbage, Brussels sprouts, chickpeas, figs, beans/peas, leeks, endive, potatoes
Methylation	*Folic acid-rich foods:* Liver, chicken giblets, egg yolk, dried beans, lentils, split peas, soybeans, almonds, potatoes, sweet potatoes, spinach, beet root, Brussels sprouts, broccoli, cauliflower, kale, cabbage, bok choy, asparagus, bananas, oranges, peaches *Vitamin B12-rich foods:* Liver, beef, chicken, fish, eggs, rainbow trout, salmon, haddock, tuna *Vitamin B6-rich foods*: Tuna, turkey, beef, chicken, salmon, sweet potatoes, potatoes, sunflower seeds, spinach, bananas *Foods rich in methionine:* Egg white/whole eggs, sesame seeds, Brazil nuts, soy protein, chicken, tuna, beef, chickpea, almonds, pinto beans, lentils, brown rice
Glutathione Support	*Cysteine-rich foods:* Duck, egg yolk, whey protein, red pepper, garlic, onion, broccoli, Brussels sprouts, gluten-free oats, sprouted lentils

Detoxification may be helpful for individuals who have imbalanced levels of sex hormones such as estrogen, testosterone, and progesterone. In fact, some symptoms and conditions such as premenstrual syndrome (PMS), perimenopausal symptoms such as hot flashes and night sweats, and even estrogen-responsive cancers like breast, ovarian, and prostate cancer might be related to the body's ability to adequately metabolize, or convert, these hormones into other forms that prepare them to be excreted from the body. Few people realize that sex hormones such as estrogen are like toxins in that they must go through the same liver pathways as toxins do before being excreted from the body. When estrogen metabolism is unhealthy, resulting in body levels of high or low levels of certain estrogen metabolites, the symptoms described above may occur. There are ways for healthcare practitioners to determine how their patients are metabolizing estrogen.

Here are the six main steps for keeping the body healthy through proper estrogen metabolism:

Step	Food/Nutrition
Reduce estrogen input	■ Decrease conversion of testosterone to estrogen (aromatization) with phytonutrients (isoflavones, tea catechins, pomegranate, licorice flavonoids, resveratrol, hops flavonoids, flax lignans, grapeseed extract) ■ Reduce exposure to xenoestrogens in the environment ■ Reduce body weight
Enhance phase I detoxification	■ Increase consumption of cruciferous vegetables, flax lignans, soy isoflavones, omega-3 fatty acids from fish and plant sources
Protect against phase I metabolites	■ Increase levels of antioxidants by eating colorful, nutrient-dense plant foods
Promote methylation	■ *Eat foods rich in folic acid:* Liver, chicken giblets, egg yolk, dried beans, lentils, split peas, soybeans, almonds, potatoes, sweet potatoes, spinach, beet root, Brussels sprouts, broccoli, cauliflower, kale, cabbage, bok choy, asparagus, bananas, oranges, peaches ■ *Eat B12-rich foods:* Liver, beef, chicken, fish, eggs, rainbow trout, salmon, haddock, tuna ■ *Eat B6-rich foods:* Tuna, turkey, beef, chicken, salmon, sweet potatoes, potatoes, sunflower seeds, spinach, bananas ■ *Eat foods rich in methionine:* Egg white/whole eggs, sesame seeds, Brazil nuts, soy protein, chicken, tuna, beef, chickpea, almonds, pinto beans, lentils, brown rice
Encourage excretion and elimination in the stool	■ *To stimulate bile:* Dandelions, bitter greens, dark leafy greens, celery, daikon radish, garlic, horseradish, lemons, limes, watercress, artichoke leaf ■ *To enhance bowel movements:* Dietary fiber (35+ grams daily), fermented foods and/or probiotics to prevent reabsorption of estrogen into the blood from the intestine
Reduce availability to tissues	■ Phytoestrogen-containing foods: Soybeans and soy products, tempeh, flaxseed, sesame seeds, fenugreek, gluten-free oats, beans, lentils, yams, rice, alfalfa, mung beans, apples, carrots, pomegranates, rice bran, kudzu, coffee, licorice root, mint, ginseng, hops, fennel, anise

Are organically grown foods really that important to buy? They are expensive.

Minimizing exposure to pesticides, insecticides, herbicides, and GMOs is the reason to buy organically grown food, especially when it comes to animal-based foods. They may be more expensive; however, the health effects from these toxins can be far more costly. Buy foods in season and from local farmers to keep the costs down. Making purchase decisions according to the annual "Dirty Dozen" and "Clean 15" lists from the Environmental Working Group (www.ewg.org) can also help people make informed and cost-effective grocery purchases.

What if a person's genetics haven't been tested? Can a detox program still be done?

A genetics test is not required to do undergo a detox program under the supervision of a healthcare practitioner. There are a number of steps that can be taken with food and lifestyle to support general detox processes in the body. However, the tests for genetic variations in detoxification enzymes are potentially a worthwhile investment. They only have to be done once, and they will help direct the healthcare practitioner more effectively in designing a dietary approach for the patient.

Is fasting beneficial for detox?

When it comes to detox, many forms of fasting have been tried—juice fasting, abstaining from solid food and only having smoothies and nutritional shakes, intermittent fasting where less food is eaten every other day, daily or nighttime fasting, caloric restriction, and food restriction. Each person should discuss this topic with their healthcare practitioner to see whether fasting in any form would be helpful. As protein is key for healthy detoxification, most healthcare providers will continue to include quality protein during a break from ingesting food.

Which macronutrient ratios and caloric ranges are appropriate for detox?

Detoxification requires energy. Calories are needed to fuel the pathways to move toxins through the system. Therefore, this food plan is not limited in calories. However, a specific calorie level may be prescribed if there are other aspects that are being addressed, such as blood sugar concerns, guided weight loss, or an improved body composition. Furthermore, there may be times during a detox when nutritional supplements or powdered formulas may be used by a healthcare provider to improve and balance the organs of elimination and detoxification, if this cannot be achieved with food alone. Therefore, fasting from food or limiting food intake to specific foods and amounts may be required for certain periods of time. This is done under the guidance of a healthcare provider or nutrition professional.

What sweeteners can be eaten on a detox program?

Ideally, it is best to reduce the intake of added sugars as they tend to stress the body systems and create more inflammation, making it more difficult for the body to effectively clear toxins. Sweeteners that are included on an elimination diet can be incorporated while following the Detox Food Plan. Modest amounts of brown rice syrup, stevia, honey, maple syrup, fruit concentrates, and ripe fruit can be used.

Is food packaging important?

Food packaging is an essential aspect to consider in a detox program. Nowadays, many foods are packaged in cans, cellophane, foil, boxes, cardboard, metal, and plastic, all of which can impart chemicals to what we eat and drink. Aim for whole foods with minimal packaging or in higher-quality materials (e.g., non-BPA lined cans). Special attention should be placed on keeping plastic water bottles out of the heat.

Are there certain foods that assist the body in better detoxification and metabolism of testosterone?

The type of foods that help with testosterone levels will depend on what the body needs to assist with testosterone metabolism. A skilled health practitioner can provide more guidance based on symptoms and/or laboratory assessment. Here are some general guidelines:

If estrogen levels are high and testosterone levels are low, a health practitioner may choose to have the patient include foods that are known to decrease the conversion of testosterone to estrogen (aromatization):

- Phytonutrients: soy isoflavones, tea catechins such as epigallocatechin gallate, pomegranate, licorice flavonoids, resveratrol, hops flavonoids, flax lignans, grapeseed extract, mangosteen, red clover
- Chrysin from bee pollen
- Medicinal mushrooms (stuffing mushroom, shiitake, white button, crimini, baby button)

If testosterone levels are low and estrogen levels in the normal range, testosterone production can be enhanced with:

- Olive oil, coconut oil, soy isoflavones

If testosterone levels are too high and estrogen levels in the normal range, these food strategies and foods may be helpful:

- Calorie restriction
- Soy isoflavones, flaxseed, licorice, spearmint tea, omega-3 fatty acids, tomato, red reishi mushrooms, green tea, naringin (from wild mushrooms), cruciferous vegetables

Can bread be eaten?

Bread is not included on the Food List, but it would be acceptable to make bread from gluten-free flours (especially legume flours) with added protein (e.g., egg white, nut meal, flaxseeds, sesame seeds) and fiber (e.g., using whole grains like brown rice flour) as part of the Detox Food Plan. Gluten-containing grains should only be included as permitted by a healthcare provider.

What would an ideal detox meal look like?

An ideal detox meal would have a small bowl of miso soup as the appetizer. Next, the entrée would be presented as half a plate of steamed green leafy greens of various kinds, with some cruciferous vegetables tossed in, together with a serving of protein, such as wild-caught salmon lightly pan-fried in sesame oil with crushed garlic and minced ginger. A small serving of a high-protein grain like cooked quinoa could accompany the meal. Afterwards, enjoy a bowl of fresh raspberries and blueberries with a cup of green tea (with a squeeze of a lemon).

Is there a certain way to cook cruciferous vegetables to maximize their impact on detoxification?

Raw cruciferous vegetables are difficult for some people to digest. Additionally, active goitrogens (thyroid-inhibiting substances) are found in raw cruciferous vegetables, but are inactivated by cooking. Steaming cruciferous vegetables like broccoli for about 90 seconds (to the point they become bright green) is best for digestion and for liberating active compounds in the broccoli, yet does not cook the vegetables to the point where compounds are destroyed (within 10 minutes, the enzyme myrosinase that converts broccoli compounds to anti-cancer substances is destroyed).

Are cruciferous vegetables harmful for thyroid function?

There is a perception that cruciferous vegetables are problematic for thyroid function. This is a relatively minor issue and affects a small segment of the population. It is more important to get enough cruciferous vegetables. The raw forms of these vegetables and some other plant foods like soybeans contain compounds called goitrogens thought to impact thyroid function. Steaming or cooking these foods inactivates goitrogens. Thyroid concerns should be discussed with a healthcare provider to see if certain dietary nutrients are lacking, such as iodine and selenium. Thyroid lab tests can help determine whether consuming raw plant foods is a good idea.

Foods That Promote Healthy Thyroid Function	Foods That May Decrease Thyroid Function if Susceptibilities Exist as Determined by the Healthcare Practitioner
Iodine-rich foods: Seaweed, sea vegetables, eggs **Tyrosine-containing foods:** Tuna, cod, sea kelp, bananas, avocados **Selenium-rich foods:** Tuna, sardines, salmon, turkey, cod, chicken, lamb, beef, Brazil nuts **Zinc-rich foods:** Beef, lamb, sesame seeds, pumpkin seeds, lentils, garbanzo beans, cashews, quinoa, turkey **Consider copper-rich foods to balance zinc foods:** Sesame seeds, cashews, soybeans, mushrooms (shiitake), sunflower seeds, tempeh, garbanzo beans, lentils, walnuts, lima beans	**Goitrogenic foods (note that goitrogens are inactivated by heat):** Cruciferous vegetables, soy, cassava, spinach, kale, sweet potatoes, strawberries, pears, peaches

How much fish should be eaten per week?

The following guidelines for fish consumption are based on the Environmental Protection Agency recommendations:

- Do not eat shark, swordfish, king mackerel, or tilefish because they contain high levels of mercury.
- Eat up to 12 ounces (2 average meals) a week of a variety of fish and shellfish that are lower in mercury.
- Some of the most commonly eaten fish that are low in mercury are cod, sardines, salmon, pollock, and catfish.
- Another commonly eaten fish, albacore ("white") tuna has more mercury than canned light tuna. Eat up to 6 ounces (one average meal) of albacore tuna per week.
- Check local advisories about the safety of fish caught by family and friends in local lakes, rivers, and coastal areas. If no advice is available, eat up to 6 ounces (one average meal) per week of fish caught from local waters, but don't consume any other fish during that week.

How can vegans allergic to soy get quality protein?

As previously mentioned, protein is an essential component of detoxification processes. If an individual does not eat animal protein and does not eat soy protein for personal or health reasons, they can choose nuts, seeds, and other legumes, all of which provide quality protein for detoxification.

Why is canola oil on this food list?

Although there is debate about canola oil because of the chance of genetic modification, the organic form contains a relatively high amount of anti-inflammatory omega-3 fats.

Why isn't this a low-allergy food plan?

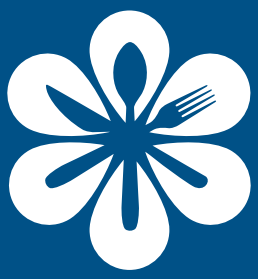
In essence, the two biggest sources of food allergies or intolerances—gluten and dairy—have been omitted from this food plan. Most people will complete an elimination diet to determine food triggers before transitioning into this longer-term Detox Food Plan. This food plan can be tailored to meet any needs related to food allergies or sensitivities.

Resources and Tools for Success

The Detox Food Plan is intended as a long-term approach that enables the body to more efficiently process toxins. It works best when personalized for the patient by the healthcare practitioner. To make the transition seamless, there are a number of other tools to help in the process.

The following handouts are available from Functional Medicine healthcare practitioners to assist patients in implementing the IFM Detox Food Plan:

- Detox Food Plan – Bibliography
- Detox Food Plan – Food List
- Detox Food Plan – Weekly Planner and Recipes
- Diet, Nutrition, and Lifestyle Journal – 1 Day, 3 Day, 7 Day
- Phytonutrient Spectrum Foods
- Phytonutrient Spectrum Comprehensive Guide



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