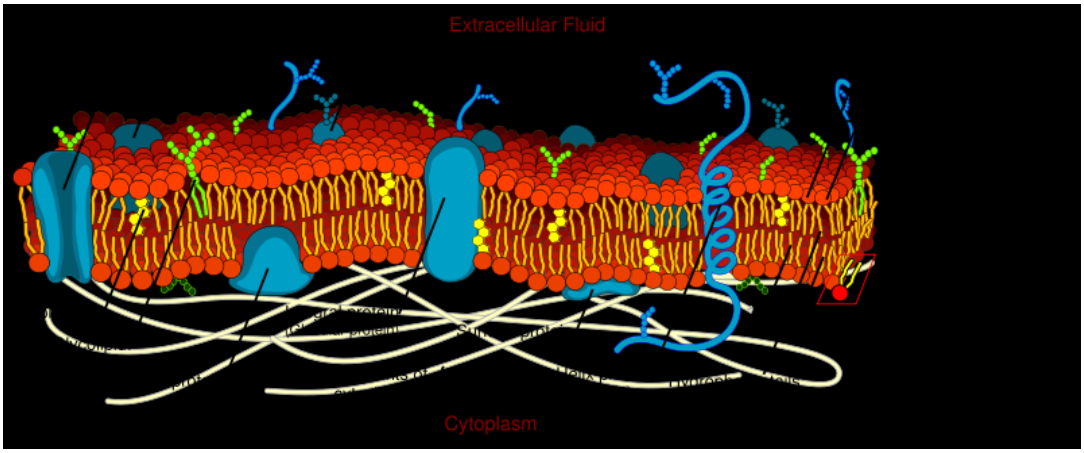
Integrated Healing System



Cell Owners Manual

An integrated program to restore & maintain cellular health.

Version 6.0
June 8, 2009

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1 Table of Contents

2 Introduction

This Cell Owners Manual describes a method to improve cell membrane performance. Compromised cell membrane performance is a cause or cofactor in many diseases and syndromes.

> The cell membrane is the most physiologically active component of the cell. It is critical to nearly all cellular functions.

The cell membrane is virtually disregarded in medical therapy.

The method uses a combination of foods, supplements and non-medical devices, which may be used with or without physician supervision to provide and stimulate regeneration of cell membranes.

2.1 Quick Start

We've designed this document to enable you to get started. Here are links to the program phases, which graphically present program flow.

	Description	Typical results
Phase 1	Assess lipid & membrane health status	Ability to measure progress
Phase 2	Restore digestion, basic detox, pathogen suppression & support hormone regulation	Reversal of most toxin & hormone syndromes, Type-2 diabetes, yeast and fungus related symptoms. Restored sleep quality & restored daytime energy.
Phase 3	Rebuild cell membranes	Feeling and looking younger & stabilization of good health.
Phase 4	Maintain progress	Detect & correct problems before they become severe.

2.2 Poison & Potion

In modern living with an industrial food supply where bio-toxins accumulate at every stage from plant to plate, food is a tenuous balance of poison and potion.

> The shift from nutrition to institutional convenience is sorely evidenced in continental degenerate physical health.

Civilizations quest for convenience has resulted in a degenerate food supply and an ongoing a tenuous pursuit of survival.

2.3 Durable Response

This program is designed to create a *durable response*. A *durable response* lasts longer than the program because it addresses the cause, and returns the body to a where it can take care of itself.

Durable response requires concurrent competency with the liver, digestive system and immune system to enable repair of cellular lipid-structures.

2.4 Barriers to Durable Response

To many, this program may seem overkill. To more, it will seem like a common sense solution to years of frustrating trial and error, where the pieces finally fit together.

If think this program is overkill, just wait.
Time will set you straight.

This program reflects a mountain of research data, observation, and experience into a coherent program which overcomes as many as possible of the reasons why individuals with chronic and degenerative conditions fail to recover.

Many caring and very bright people have laid the groundwork to enable this publication. We profusely thank them all for their insightful contributions to the health science.

The program is substantial because there are many factors which tend to prevent or halt progress.

There are perennial barriers to restoration of cellular metabolic performance:

- Synthetic toxins like DDT, Dioxin, and Agent Orange, defy natural detoxification. They have chemical structures which do not convert from lipid to water soluble forms with normal metabolism, and defy normal detoxification;
- Macro and micro pathogens continuously produce toxins which inhibit cellular metabolism by producing substances that inhibit cell membrane function. When an approach "starts to work" the extra toxins from breakdown of the pathogens challenge and often overwhelm the detoxification pathways, and the program stops because the individual can't tolerate the challenge of healing.
- Most conditions are self-reinforcing loops, where one problem supports the existence of another, which in turn supports the original. This is called a disease-lock loop. Action on one mechanism doesn't fix the others, so singular interventions trend back to the dysfunctional state.

2.5 Program versus Protocol

This **program** is large because it is complete. A **program** instructs the use of two or more protocols. A program combines multiple protocols, tests, steps into stages. Tests are used to control flow, and measure progress.

This program provides more results faster with considerably less risk than ad-hoc protocol usage.

A *protocol* is a therapeutic step in the program, and seeks to create a physiological shift, by using *some combination of nutrient, mechanical, electrical or stimulus*.

Protocols are ordered, and mixed with tests, to improve likelihood of success of the steps that follow. Whenever possible we explain why one protocol should precede or follow another.

Modern health literature tends to express the mechanics and mechanisms of a protocol explaining the protocol, often in great detail, with gory photos, without much attention to

> Detect and correct problems before they get out of hand.

whether the protocol makes sense to the user.

A protocol without a plan frequently leads to a long process of trial, error, and frustration, especially with complex and interlocked health dysfunction patterns.

2.6 Durable is often Not Permanent

This program is structured resolve many causes of many diseases. It in no way prevents the user from behaviors which cause the same or different problems to recur.

We included a maintenance phase, with inexpensive, often free, methods to evaluate often subtle declines in physiology. We strongly recommend self-evaluation at a reasonable interval.

Save money, time and discomfort.

2.7 Breaking the trial and error pattern

We created this guide to serve those people stuck in trial-and-error search for health who:

1. Develop a health condition;
2. Search for a protocol that appears to address the problem by targeting the symptoms;
3. Implement the protocol;
4. Experience, temporary, limited or no success;
5. And go back to try something else;
6. Again and again;
7. Exhausting years and lots of money searching for answers;
8. Until they finally end up sick, or broke or both.

Both allopathic and alternative health care share this pattern.

2.8 Not Cheap

The first time through the full program can cost two or three thousand dollars in supplements.

While this may seem like a chunk of money, but its cheap compared to an ongoing string of doctor visits and downright trivial compared to the cost of a hospital stay, and unnecessary surgery.

2.9 Free Publication

We provide this publication as a public service, free to anyone who will take the time to read it.

2.10 Sponsor Disclosure

DSHEDU.com is supported by sponsors. We urge you to use sponsor products whenever possible:

- Sponsor product assure maximum performance and they were used to design and evaluation of the protocols and tests;

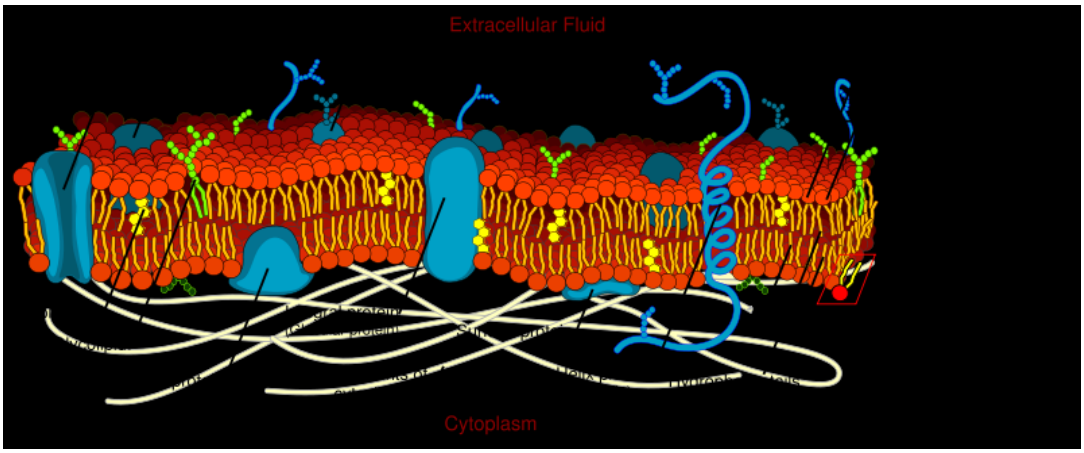
- Sponsors work with us to improve their products in harmony with these protocols to assure ongoing superior results;
- We derive limited revenue from sponsor relationships to enable us to provide useful information to you;
- We know that sponsor products contain what they say they contain because we verified their performance and get results;
- Sponsor products are usually less expensive than other products and have lower performance risk than ad-hoc or non-sponsor products.

The sponsor link takes you to a sponsor's web site, and when possible to product listings which apply to a specific protocol, product or service which may be useful if you choose to implement the protocol.

We do not mention either sponsor names or product names in this document. This publication is not intended as an advertisement, or as a promotion for any specific products.

3 The Cell Membrane

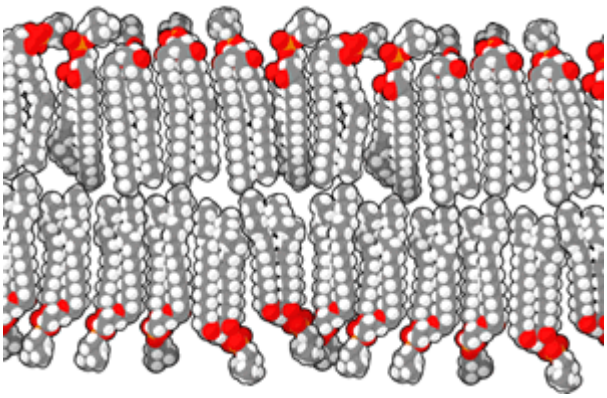
The cell membrane is the outside shell of the cell. It is very thin, ranging from 3-8 nanometers. It hosts millions or billions of chemical structures that implement the cell's role in the body.



The substrate is made of special lipids or fats, which separate the inside of the cell from the outside of the cell in a bilayer membrane. The membrane is a special because it is chemical and electrical.

Membranes are structural components of cells, a fatty skeleton separating water compartments. The exterior membrane encapsulates the exterior of the cell, and interfaces to cell-to-body functions.

The external membrane encapsulates the cell, which in turn houses many other structures, which many are encased in cell membrane material.



Phospholipid structures provide the structure of the mitochondria, which produce energy. In other words, cell membrane material is a functional structure, providing both form and function to exterior and interior cellular functions, including multiple energy production processes.

Here is a link to a truly excellent compilation of mitochondrial function sponsored by Dr's Clark and Cargile. This is a 22,000 article compilation of about 120,000 references. It IS the place to start learning about cellular energy production.

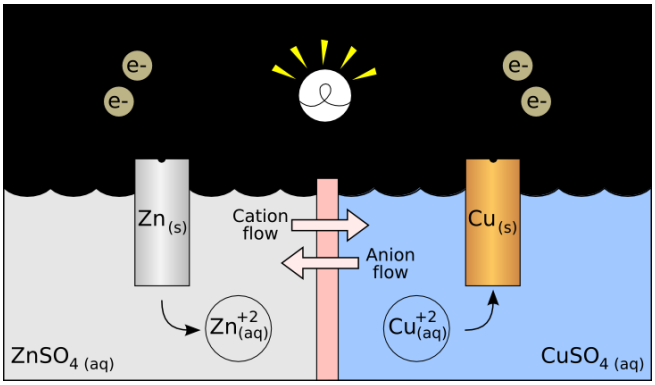
As an electrical element, it is a semiconductor, a capacitor, a resistor and a battery. As a chemical entity, it is simply indescribable.

3.1 The Basis of Power

The cell membrane is a chemical and electrical insulator. The inside and outside of the membrane hosts a pH differential. The pH differential creates a voltage, or electricity. This electricity is the power source for many essential functions in the cell membrane.

Anything that compromises the cell membrane power is a probable cause or cofactor in cellular malfunction.

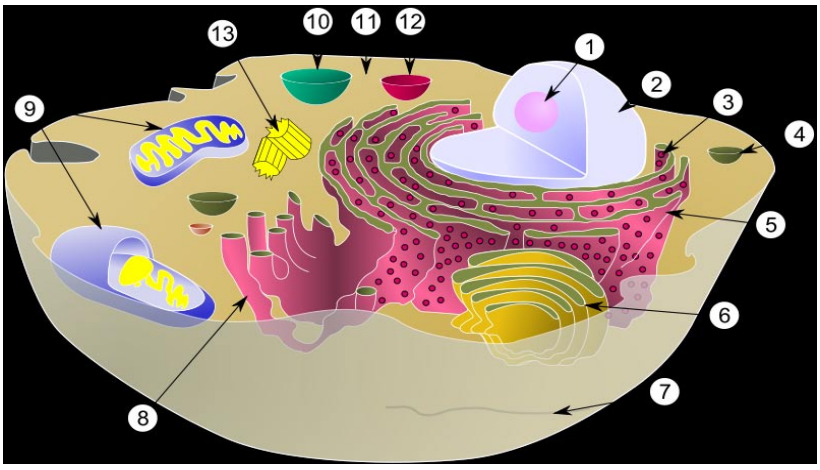
Compromise of either the cell membrane quality or the transmembrane pH differential inhibits the electrical functions of the cell, and prevents optimal cell function.



The intra cellular and extra cellular pH differential creates a voltage which provides chemical potential or battery for cell membrane functions. This power supply is the essential basis for hormone regulation, anabolic energy production, and ionic cellular respiration.

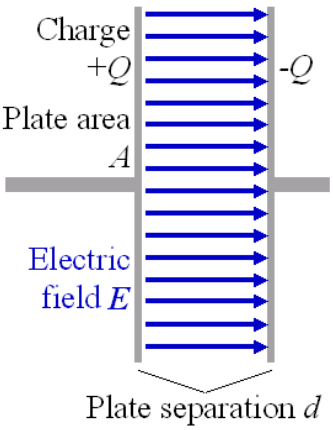
Anything that causes the cell membrane to leak electricity drains power. Either issue, inadequate pH differential, or power leaks, interfere with all cellular functions that require power.

When cell membrane power is down due to lipid toxins, or pH imbalances cell just don't work. When cells don't work, the body doesn't work.



There are three main aspects of cell-membrane power production:

1. The lipid substrate – must insulate the inside and outside and not leak power;
2. The pH differential – must be balanced to enable electricity, just like a car battery;
3. Raw Materials -- must be present to create chemical and electrical structures needed for the cell to work.



This program is designed to optimize these three aspects for cell membrane performance.

3.2 pH Culture

pH is utterly important because it enables the cell to produce electrical power to drive membrane functions.

$$\mathrm{pH} = -\log_{10} \alpha_{\mathrm{H}+}$$

There is a tendency in health care to focus on pH without considering the membrane integrity. Singular focus on water chemistry tends to leave a big part of many people's health problems temporarily improved, but unresolved.

pH and water chemistry is relatively easy to shift because the body water compartments tend to quickly exchange. Water related protocols produce beneficial, but short term, results because they temporarily compensate for other more structural, or lipid dysfunctions.

In other words, they increase cell voltage, which is leaked by toxins lodged in the cell membrane. Clearing both the membrane toxins, and the sources, and restoring the cellular process of automatic cleansing is critical to durable restoration of cellular health.

3.3 Toxin Culture

There is a similar tendency to concentrate on "toxins" as a topic, without tying them to how they disrupt cellular health.

Detoxification is a popular topic, and most people recognize that toxins are bad, and that they have something to do with the liver.

Detoxification is usually described as an act instead of a natural body process, where one or more actions result in removal of toxins from the body.

This view generally misses the point of both:

- How the toxins got there in the first place;
- And why the body was unable to get rid of them by itself;
- How to restore performance in natural detoxification systems.

The alert reader will recognize the wisdom restoration of the automatic detoxification where the body maintains itself without strong external intervention, whenever possible.

3.4 Membrane Degeneration Stages

Cell power weakness is a cause or cofactor in many disease syndromes. There are non-disease specific telltales, which usually accompany compromised cell performance, which usually precede and always accompany disease.

1. Cell Membrane Pathology Staging
2. Any Chronic Disease, Membrane Power: Chapter 6 & Chapter 7
3. Decreased visual contrast acuity;
4. Hormone Imbalances;
5. Decline in bio-impedance phase angle;
6. Liver toxicity;
7. Autoimmune Disease, Membrane Power
8. Decreased healing capability

3.5 Cell Membrane Pathology

Cell membrane causes literally hundreds of diseases.

As cell membrane performance deteriorates, there is a generally predictable series of telltales.

Staging enables general prediction of the “next” thing likely to go wrong, and a gross estimate of the effort required to return to normal metabolism.

This table presents a generalized model for the process of cell membrane degeneration, as well as physiological tendencies which accumulate as aggregate membrane integrity degenerates.

Stage	Description	Phase Angle Range	Telltales	Metabolic Bias	Typical Duration Yr
1	Membrane performance slightly below normal indicates tendency for further decline. Mild symptoms	PA < normal	▪ Cold Extremities – reflect early decline in anabolic heat production; ▪ Excess nervous energy – telltales mitochondrial compensation for anabolic deficiency; ▪ Difficulty going to sleep more than once weekly; ▪ Low daytime temperature; ▪ Wake up tired and can't go back to sleep; ▪ Absence of high volume urination at night and morning; ▪ Acid reflux, flatulence ▪ Fasting Glucose > 90 ▪ Men tend to lesser sleep dysfunction because of higher testosterone, an anabolic hormone, levels ▪ Women sleep pattern deteriorates earlier because of lower testosterone levels	Catabolic	1-5 years
2	Moderate membrane decline. Symptoms moderate. Tendency for accelerated progression.	5% < PA < 10%	▪ 3 or more Stage 1 Telltales ▪ Migraines ▪ Absence of dreams – indicates a decline in deep sleep, REM deprivation starts to affect thought clarity; ▪ Have to get up for small urination at night ▪ Frequent Insomnia – from a shortened sleep pattern; ▪ Elevated cholesterol – indicate the liver is trying to produce building materials for better cell membranes; ▪ Low waking temperature – cold in the morning; ▪ Elevated Fasting Glucose, above 90, insulin receptors are not working due to acidosis or inadequate membrane power; ▪ Glassy Eyes – from lymphatic toxicity reduce liver function; ▪ Loose Stools – indicates absence of bile to quench stomach acid; ▪ Consistent trouble concentrating; ▪ Continuous nervous energy – telltale for mitochondrial overwork. ▪ One long term prescription ▪ Sub-clinical signs of autoimmune or chronic diseases ▪ 90 < Fasting Glucose < 100 ▪ 1 long term prescription	Catabolic Beta Para-	2-5 years
3	Pathological	10% < PA	▪ 6 or more Stage 1-2 telltales	Catabolic or	3-10

	membrane degeneration. Usually involves one serious diseases or symptoms which noticeably compromise quality of life.	< 15%	▪ Accelerated Aging – absence of sleep healing; ▪ Tinnitus ▪ Hair loss. ▪ Slowed healing from the absence of anabolic cycle; ▪ Thin skin – indicates cholesterol deficiency; ▪ Rapidly pruning hands and feet – indicate dermal sterol deficiency; ▪ Any autoimmune disease malfunction ▪ Liver disease, atherosclerosis ▪ Chronic Insomnia ▪ Gall stones – indicate long term absence of potassium to thin bile; ▪ Candidiasis and Toe Fungus – indicate long term glucose elevation; ▪ Transition from loose stools to constipation; ▪ Saliva Nitrates above 10 ▪ Food Allergies ▪ Two long term prescriptions ▪ Cellular Sleep Apnea ▪ Early Autoimmune Symptoms ▪ Chronic Toxicity ▪ Fasting Glucose > 110	Anabolic Beta Para-	years
4	Homeostasis Breakdown & debilitating pathology. Depression. Usually involves breakdown of multiple metabolic systems, escalating disability and rapid deterioration in quality of life, cancer, multiple diseases	15% < PA < 25%	▪ 8 or more Stage 1-3 telltales ▪ Fat indigestion – indicates the inability to release bile for digestion, fatty consumption make you feel ill because bile back flows into the bloodstream; ▪ Saliva Nitrates over 16 ▪ Disability from chronic disease ▪ Any two or more of chronic diseases ▪ Feel ill most of the time because of toxic accumulation ▪ Angina, medical treatment for vascular disease ▪ Liver enzymes out of range ▪ Autoimmune diagnosis, Lupus, RA, MS ▪ 3+ long-term prescriptions ▪ Catabolic Cancers	Anabolic+ Catabolic- Para+ to ++ Beta or Tricarb	4-7 years
5	Severe pathology. Life quality defunct, severe depression. Severe metabolic dysfunction.	25% < PA	▪ Mitochondrial shutdown ▪ Anabolic Cancer ▪ Immune system failure ▪ 4+ long term prescriptions ▪ Death	Anabolic Tricarb	5+ years

4 Hormonal Dysregulation

Hormonal regulation dysfunction is a typical mid-stage telltale for compromised membrane performance.

Hormone receptors are cell membrane structures. When the cell membrane performance declines, hormone sensitivity decreases.

Visit these links for more information regarding hormonal, endocrine disorders, Thyroid Disease, Endocrine Diseases, Nutritional and Metabolic diseases.

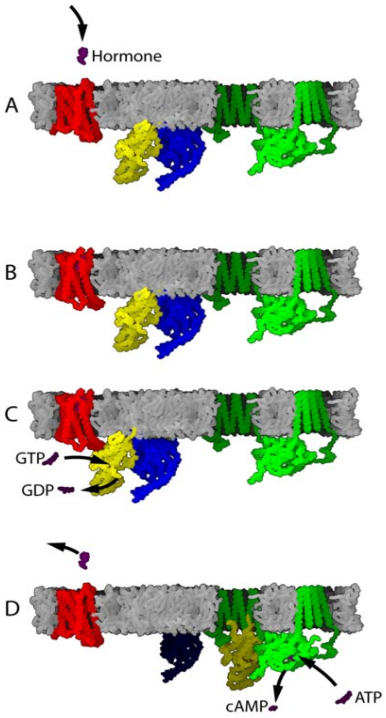


Figure 1 - Hormone Receptor in Cell Membrane

4.1 The Hyper to Hypo Pattern

Cell membrane performance degeneration causes a hyper to hypo dysfunction pattern of circulating hormone.

The symptoms of the pattern vary with the hormone. For example, excess insulin damages the vascular endothelium, and contributes to the accumulation of arterial plaque. So, vascular disease tends to be a symptom of hyper insulin, which is in turn a symptom of cellular insulin insensitivity.

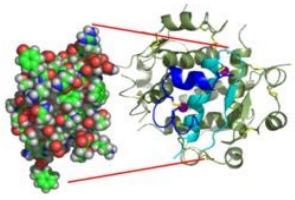
When cells become very unable to respond to insulin, the body loses the ability to control blood sugar, resulting in Type-2 diabetes.

Under production is the inevitable result of burn out. Between these times, there is an ongoing struggle to regulate metabolism. In the meantime wide swings in hormone levels produce a systemic instability, and often collateral damage resulting from chronic excess of multiply active hormones.

The period of hormone over-production creates stress for the organ, which often causes a breakdown. Breakdown may take many forms including burn-out, resulting in the hypo, or non-production, hormone conditions. Many hormone organ diseases result after long periods of overproduction stress, including tumors, and other organ related diseases.

Fortunately, many organs have the ability to recover once the stress condition is relieved. If the stress condition is not relieved, as with most treatment methods, then the organs cannot recover.

The thyroid hormone goes through a similar process, usually driven by systemic decline in cellular response to thyroid hormones. Hormone imbalances generally indicate a decrease in cellular hormone sensitivity, and provide an indicator that cell membrane is declining toward illness.



Hormone regulation dysfunction affects much of the endocrine system:

- Thyroid relates to fatigue syndromes;
- Insulin relates to glucose management syndromes;

- Leptin relates to weight management syndromes;
- This is a very long list.

The accompanying pathology becomes bound to the production gland instead of the cellular cause.

4.2 Lab Test Results

Hormone testing in individuals with compromised cell membrane performance often shows elevated, or highly variable, circulating hormones.

Lab results which indicate over production are the natural response to the absence of cellular sensitivity. The absence of cellular sensitivity results from the cell membranes inability to sense, or respond to a hormonal signal, which is in turn caused by toxin defects, or pH imbalances, which prevent cell membrane receptors from working properly.

Figure 2 - Thyroid Hormone

While the under or over production tends to indicate a hormone problem, the blaming and treating source gland is either "shooting the messenger" or "beating a dead horse.

The source gland is usually a victim instead of a cause. The over then under pattern is more important because it indicates whether the underlying cellular hormone sensitivity has been going on long enough to exhaust the source gland.

In either case, always consider cellular sensitivity when addressing hormone issues. Over production means the gland is still working; under production means it is exhausted. Either means that the cells don't respond to the hormone.

It's always essential to re-establish the cellular sensitivity.

4.3 Interpreting Lab Results

Hormone tests, like thyroid, test for a circulating hormone concentration. When the circulating hormone is either high or low, the producing gland is labeled hyper or hypo active, indicating that the source gland is either under or over active.

Lab results, while technically correct are misleading. They shift focus to a gland who is talking to cells who cannot hear, and that cannot respond.

Hormone glands talk louder when cells aren't listening.

Restoring systemic cellular performance is essential to reestablishing hormone sensitivity.

In other words, treating glands, by irradiation, or supplementing hormones like insulin, in the absence of repairing the cellular response does not correct the underlying problem.

5 Autoimmune Dysregulation

The autoimmune system protects the body from invasion, and keeps friendly organisms under control.

The autoimmune system uses library of invader sensing capabilities. It responds to invading pathogens or overgrowth of symbiotic organisms, cells, bacteria, yeast, and fungi, using many different, and often barely understood sensing mechanisms.

Various forms of white blood cells, lymphocytes, patrol the body continuously looking for imbalanced cells or organisms. Immune patrol lymphocytes, B-Cells & T-Cells, and Natural Killer Cells maintain constant guard for invading or overgrown errant organisms.

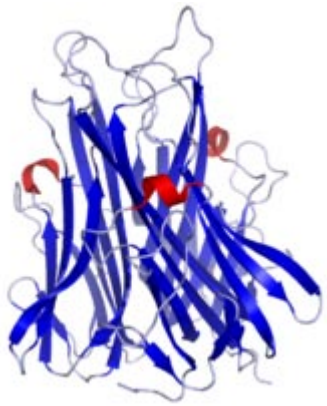


Figure 3 – TNF-alpha

Tumor Necrosis Factor Alpha is a member of the TNF family of cytokines. This family of cytokines tag cells for destruction by the immune system. They are created by macrophages and other immune system cells.

TNF-Alpha are a special class of proteins called transmembrane proteins. Transmembrane proteins span the width of the cell membrane. The transmembrane protein and transmembrane potential share the membrane dimension.

This author suggests that the TNF triggers apoptosis, cell death, when a cell membrane voltage drops below a trigger threshold. TNF is therefore a defense mechanism against diseases which result from cells which cannot maintain membrane power.

When non-pathogenic cells fall below the

5.1 Electrically Mediated TNF Cancer Response

Healthy cells exist with a transmembrane potential of about 70 mV. Cancer cells have a membrane potential from 15-30 mV. Since cancer cells exist below the apoptosis trigger voltage, TNF is a front line defense for cancer.

TNF was named after its main role, triggering death of cancer cells because of low cell membrane voltage.

5.2 TNF and Autoimmune Dysfunction

When cells membrane integrity deteriorates to a level near or below the TNF activation, the autoimmune targeting of seemingly healthy cells occur, resulting in various autoimmune diseases.

Tissues targeted by autoimmune diseases tend to share relatively low levels of oxygenation. This phenomenon explains why high oxygen therapies tend to provide short term relief in many autoimmune syndromes.

Diseases and the miss-targeted cells:

- Multiple Sclerosis – Attacks the cell membrane of nerves causing degeneration in the myelin sheath. Click here to review 1000+ NIH articles linking TNF and MS.

- Rheumatoid Arthritis – Attacks joints, typically the synovium, appearing like the immune system has gone awry. Click here to review 5000+ NIH articles linking TNF and RA.
- Lupus – seemingly attacks cells at random around the body. Click here to review 700+ NIH articles linking TNF and RA.
- Ankylosing Spondylitis – Attacks the spine causing degeneration. Click here to review 435+ NIH articles linking TNF and AS.

Each of these autoimmune disorders shares several curious attributes:

- Individuals with autoimmune diagnosis tend to have exhibit potassium deficiency; Click here to review 208+ NIH articles linking autoimmune diseases and potassium deficiency.
- Tests show elevations in Tumor Necrosis Factor;
- Symptoms respond to drugs which suppress TNF;
- Symptoms are eased by factors that suppress TNF, curcumin;
- Symptoms respond to drugs that inhibit B-Cell responses;

5.3 Therapeutic Response Model

The approach suggested in this essay seeks to improve the cell membrane voltage by correcting systemic and nutritional factors which compromise cell membrane power.

TNF autoimmune triggering targets electrically weak cells. Electrically weak cells result from deficiency in cellular power. Restoration of normal cellular energy is broadly effective at restoring autoimmune miss-targeting.

Generally, protocols that restore cellular power production reduce the tendency for immune miss-targeting.

Cell power restoration is broadly effective at treating autoimmune disorders.

6 Detoxification

While detoxification is a fervent topic in health care, this essay views detoxification as a natural, automatic and continuous process. Toxin accumulation is a result of stress which inhibits the detoxification process. Toxin accumulation is a side effect of an inability to eliminate toxins.

A toxin is any substance which disrupts cellular function. There are to general classifications:

- Lipophilic – or lipid soluble toxins which pollute fats, including toxic metals, organophosphates, parasitic excretions, and more. Lipophilic toxins damage the structure and therefore performance of cellular fatty structures, like cell membranes, resulting in a wide range of dysfunctions and diseases.
- Hydrophilic – or water soluble toxins tend to accumulate in the water areas of the body. Because water is easier to clean than fat, water toxins present less challenge than lipophilic toxins.

Detoxification is a process by which toxins are carried out of the body. Lipophilic toxins are generally converted into water soluble form, and then removed. This tends to be a complicated process requiring dietary conditions which tend to be rare in modern lifestyles.

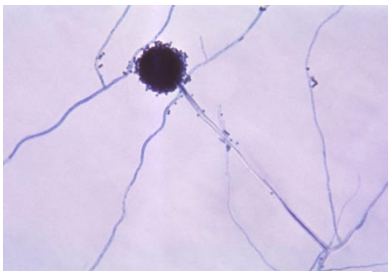


Figure 4 - Aspergillum Niger

6.1 The Pathogen Factor

Pathogens create toxins. This program targets the known spectrum of pathogens from parasites including:

- Sub-microscopic Mycoplasma;
- Yeast, fungus and bacteria;
- Parasites, tapeworms, liver flukes.

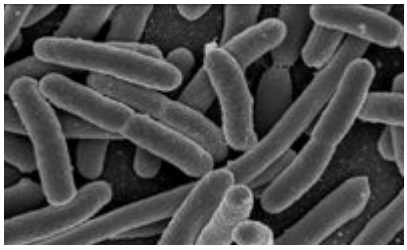


Figure 5 - Bacterial Image

The primary strategy is to enable the body to mount an effective natural response. Sometimes however it requires a hand. Anti-pathogen programs are temporary, and are generally used to prevent a pathogen population from preventing progress in the program as a whole.

> Pathogens exist mostly because the host immune system is unable to eliminate them.

The durable response to pathogen management is to restore immunological competence. This usually means lightening the load enough so that the immune system can catch up and keep up.

This program treats detoxification is a side effect of repairing natural detoxification systems. It's like the parable, give a man a fish, feed him for a day, or teach him to fish and feed him for a lifetime. Unfortunately, stresses which disrupt the natural systems tend to recur, so nothing lasts a lifetime.

6.2 Pathogens and Cell Membranes

Pathogens are any biological entity which creates toxins that interfere with cell membrane performance.

Figure 7 - EM reconstruction of Pneumolsyin from Tilley et al

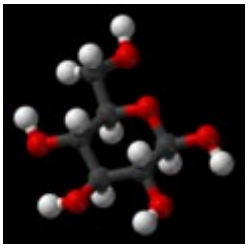


Figure 6 - Glucose Molecule

This is a long list which includes many organisms, bacteria, viruses, and yeast, including the newly recognized ultra-small forms, like nano-bacteria and mycoplasma.

Most of these organisms have one thing in common. ***Sugar is food***. In the case of yeast, mold fungi, the organism directly consumes sugar. In the case of viruses, sugar is food for hijacked cells converted into virus factories.

6.3 Membrane Toxins

Lipophilic toxins disrupt the structure of the cell membrane. They create electrical and chemical weaknesses, or holes which disrupt many cellular functions.

These images show renderings of the structures created by pathogens which generate toxins which damage cell membrane structure.

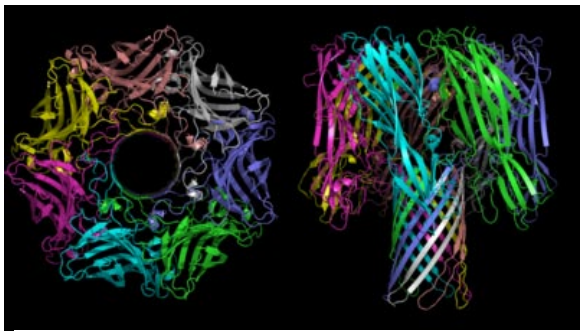


Figure 8 - Pore forming toxin from Alpha-Haemolysin from S. aureus

6.4 Pathogen Strategies

There are several mechanisms by which pathogens manipulate systemic metabolism to enhance their survival, enabling reproduction and growth.

- Most pathogens produce toxins which damage cell membranes, inhibiting membrane power, and indirectly disrupting cellular glucose regulation by decreasing insulin receptor sensitivity;
- Some pathogens create hormonal imbalances which cause a stress response which increases serum glucose, converting progesterone into pregnenolone, indirectly causing release of adrenaline, which triggers over-conversion of glucagon to glucose by the liver.

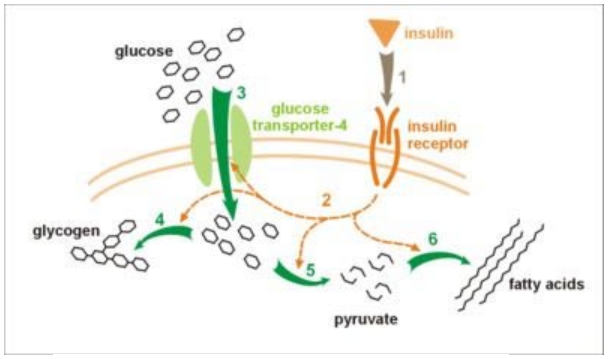


Figure 9 - Insulin Receptor

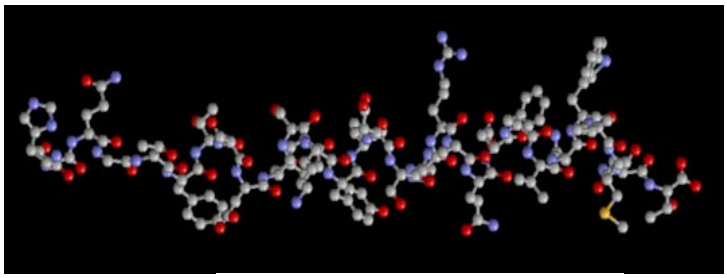


Figure 10 - Glucagon Molecule

6.5 Viral Strategy

Viruses are very small entities which enter the cell membrane to take over the cell machinery, and convert the cell into a virus factory.

Viruses are encased in a capsid. The capsid structure enables a virus to enter a cell by mimicking a normal metabolite.

- Viruses exploit a weakened cell membrane to hijack the cellular machinery to convert cells into viral reproduction factories;
- Once inside the cell, the cell converts into anaerobic metabolism which closes the cell membrane and helps to conceal the hijacked cell from the immune system, and shifts cellular energy production from oxygen using to glucose;
- The cell rapidly loses it's transmembrane potential, signaling the immune system that the cell is a pathogenic entity, resulting in an immune response including but not limited to TNF targeting, and an inflammatory response.

In this scenario, the virus converts the cell to a glucose consumer.

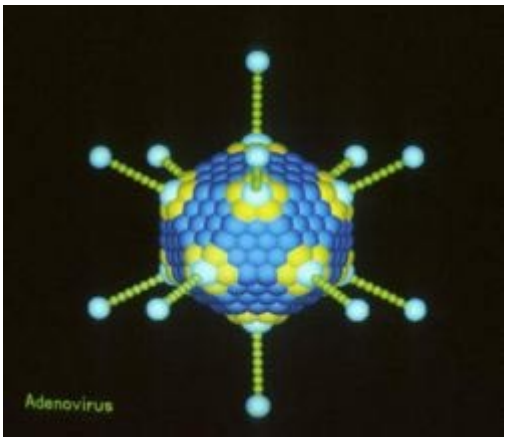


Figure 11 - Icosahedral capsid of an Adenovirus

6.6 Viral Symptoms

When the immune system destroys an infected cell, the polluted contents spill into the body. This spillage releases large quantities of free radicals. The free-radical overload causes "sick" feeling that accompanies viral infection.

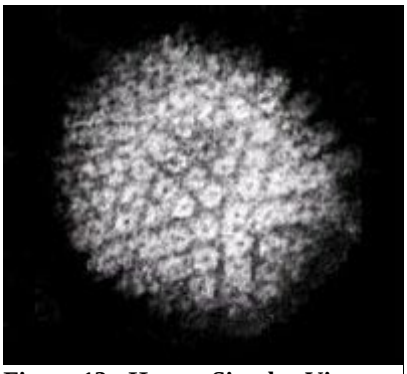


Figure 12 - Herpes Simplex Virus

Antioxidants, like vitamin C, buffer and aid with disposal of the toxins. This buffering explains symptomatic relief that antioxidants provide during infections.

More importantly, is what causes symptoms. Symptoms are caused by the immune response. A happy virus prefers to go unnoticed by the immune system, taking over cells, and reproducing.

Only when the immune system responds do we get "sick-symptoms". The symptoms indicate the redirection of resources, and toxic overload, that result from an effective immune response to a pathogen. The sick feeling you get when you have a cold or flu means that your body is working. This is good, although unpleasant.

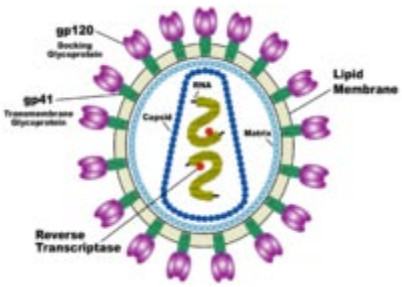


Figure 13 - Enveloped Virus Mimicking Cell Membrane

Many people with cell membrane pathogens defer autoimmune responses because of other overwhelming metabolic priorities.

There are two prevalent reasons why you may develop a

cold, flu, or other "sick" conditions during this protocol:

- As the body increases autoimmune competence it may trigger a full response to pathogens in preference to a management or limiting response;
- Viruses often reside inside bacteria and other organisms. When the body unsheathes a virus by overcoming a bacteria or other encasing organism, a "viral" infection may result.
- In other words, getting sick is an unavoidable part of recovery.

6.7 Virus Stealth

Viruses like to hide:

- Did you ever notice that you got a viral infection with no apparent exposure to others who were ill, and seemingly without any reason at all?
- Did you ever notice that you got a viral outbreak when you were doing a health program that was supposed to make you healthier?
- Did you ever notice that when you become weaker, certain viruses, like herpes, flare up?

Many viruses have the ability to remain dormant. They generally do this by encapsulating themselves inside either your body's cells or inside bacteria, effectively hiding from the immune system.

When a virus activates:

- It takes over the cell's DNA and hijacks the cells machinery;
- Converting the cell into a virus factory;
- Usually when the cell becomes weak enough, or when a conditions trigger the virus to activate within the cell.

If a cell with a hitchhiker virus dies without activation:

- The virus is released into the body;
- To seek a new host;
- When the new host has conditions that activate the virus;
- Active infection results.

6.8 Four Viral Activation Models

So according to this model, there are four conditions which result in an active viral state:

1. ***Active Transmission*** - Exposure to an active virus which attacks all weakened cells and propagates itself;
2. ***Stress Activation*** – Occurs when the body enters a weakened state and cells with hitchhiker viruses become active;

3. ***Cell Release Activation*** – Occurs when a cell with a hitchhiker virus dies and the released seeks new host cell which is in a weakened state and subsequently enables the virus to enter an active state;
4. ***Pathogen Release Activation*** – Occurs when a hitchhiker virus resides in a pathogen entity. When the pathogen is destroyed, the virus escapes to seek a new home, preferably in weak cell suitable for active viral infection.

When a virus enters a host cell which is reasonably stable, the virus may go dormant until future opportunity presents.

This four state model explains the stealth observations. Viral activation depends on multiple conditions that shift with both health and stress. Many viruses can enter an active state anytime, during both health upturns, health downturns, and in steady-state.

6.9 Viral Anaerobic Metabolism

Active virus causes the cell membrane to close and shift toward predominantly anaerobic metabolism. Anaerobic metabolism differs from healthy anabolic metabolism.

6.10 Anaerobic metabolism is fermentation

Most cells are capable of fermenting sugar to produce metabolic energy when under stress. Anaerobic metabolism does not require a healthy cell membrane voltage, or oxygen to perform.

It is Anaerobic metabolism produces lactic acid and alcohol. The lactic acid explains the tendency for muscle soreness and discomfort during colds and flu. The sensation is similar to that achieved by burst training or over-exertion.

Anaerobic metabolism is a critical back-up energy supply for cells. For example anaerobic athletic performance enables short bursts of energy for fight or flight stress responses. Cells produce more energy than the oxygen supply can provide to enable survival responses.

Sugar (glucose, fructose, or sucrose) → Alcohol (ethanol) + Carbon Dioxide + Energy (ATP)

Viral infections cause muscle soreness because they cause a buildup of lactic acid in tissues. Viral infections put infected cells into anaerobic fermentation:

- To close cell walls and help conceal cells from the immune system;
- Under Construction – Research active – Revici Model.

6.11 Anaerobic metabolism tends toward anabolic imbalance

There is a strong tendency for anabolic leaning individuals to harbor viruses. If you have anabolic telltales, then you may activate a viral infection as part of your healing process.

Cells revert to anabolic metabolism for any of three reasons with viruses. Cellular anabolism reflects closed cell membranes with reduced respiration, and decreased oxygen utilization. There are three possible explanations for cell membrane closure:

- To keep viruses out;
- To keep viruses in;

- To keep the immune system out to protect the virus from the immune system.

As a rule, it's always best to balance the anabolic metabolism by restoring cellular energy production. Restoration enables normalized immune response, and although sometimes unpleasant, always a step toward better health.

6.12 Pathogen Stress

It is very important to reduce pathogen load during cellular renovation.

Active pathogens will continue to produce toxins which damage cell membranes and overload the immune system. The combination of systemic stresses driven by pathogens, and overloaded immune system often block progress returning cells to optimal function.

Pathogens provide ongoing stress on many body systems:

- Immune
- Detoxification / Liver
- Endocrine / Hormonal, pancreas, thyroid, pituitary, and just about all glands.

7 Pulsed Magnetic Fields

Pulsed magnetic fields are a powerful catalyst in healing cell membranes. Pulsed fields in the range of 50,000 gauss, or 5 Tesla produce immediate and durable therapeutic responses. The characteristics of these responses are most likely attributable to improvements in cell membrane performance.

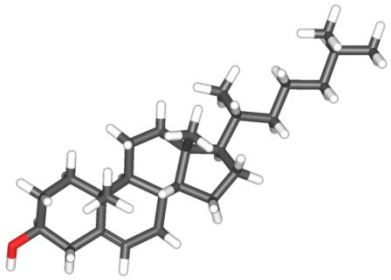
7.1 Mode of Action

Cell membranes are stacked polar lipids. High intensity pulsed magnetic fields insert molecular energy to polar lipids that constitute the cell membranes. Polar lipids have molecular an electron imbalance which causes them to respond, or wiggle, when exposed to strong brief intense electromagnetic forces.

Lipids or fats are polar. They have two ends, one is fat soluble, or lipophilic, and the other is water soluble or hydrophilic. Fatty molecules self organize in water. The polar structure occurs because there is a net electron deficiency at one part of the molecule and an excess at the other.

Powerful electric fields, caused by the impulse creation and destruction of magnetic fields, transversely push and pull on the "polar" regions of polar molecules, exciting them on a molecular scale without significantly adding to entropy.

More importantly fat, like the cholesterol molecule at the left, both polar and long. When exposed to a magnetic field, there is spin moment where the field pulls on one end and pushes on the other. This enables a tug/nudge effect which gently shakes the polar lipids. Cell membranes often have toxins which prevent tight stacking, or create chemically or electrically leaky cell membranes by disrupting organization of polar lipids, typically caused by toxins or other molecules.



This disorganization decreases the cell membrane's ability to maintain electricity and enables power leakage across the cell membrane creating a cellular power deficiency which underlies may diseases and syndromes.

Shaking the lipids with pulsed magnetic fields tends to improve organization in the cell membrane, which in turn often creates an improvement in the electrical integrity, and hence membrane's power production performance.

Moreover the improving the organization of the lipids also decreases the tendency for structured synthetic toxins to fit within the lipid matrix, producing a mild detoxification effect.

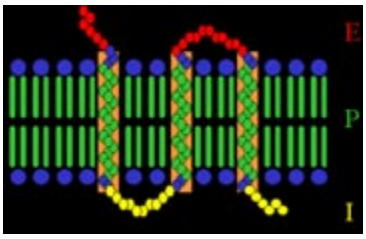
Powerful Pulsed magnetic fields also cause temporary electroporation of the cell membrane. Electroporation accelerates the cellular metabolism and causes cells to dump toxins and absorb nutrients at an accelerated rate. Both phenomenon's tend to be therapeutic and further

enhance cellular metabolism. The electroporation effect of pulsed magnetic fields lasts from one to four hours.

7.2 Enhance Anabolic Metabolism

Anabolic Metabolism is the portion of the cellular cycle that supports healing and regeneration. This author asserts that anabolic metabolism is driven by anabolic energy production when sodium and oxygen merge in the cell membrane producing cellular energy and potassium.

Successful anabolic metabolism requires an adequate transmembrane potential because anabolic energy production requires strong electrostatic forces, in the range of 23 Million Volts/Meter to drive the quantum reactions which support anabolic metabolism. An adequate transmembrane potential is also required to drive many cell membrane receptor functions.



This author further asserts that deficiency in transmembrane potential is the cause of autoimmune and hormone related dysfunctions that manifest as chronic diseases.

Repairing anabolic metabolism is therefore the essential element in restoring health in individuals subject to a wide range of degenerative, hormonal and autoimmune diseases.

Anabolic performance is critical to healing. Individuals with suppressed anabolic metabolism tend to sleep poorly, age rapidly, and lack the ability to recover from injuries. They also exhibit a wide range of pathologies usually associated with systemic potassium deficiency.

7.3 Enhance Catabolic Metabolism

Pulsed magnetic fields tend to balance catabolic metabolism. The US army documented the effect where two ATP, Adenosine Triphosphate, molecules wrap around a magnesium molecule producing a quantum reactor which produces a large amount of energy, and calcium.

Pulsed magnetic fields, combined with oxygen, magnesium, and sulfur, tend to improve energy in individuals with anabolic imbalance. Most likely by supporting complementary cellular energy production.

The specific methods of actions remain undocumented in public scientific literature, but the author suggests:

- Electroporation elevates the intracellular magnesium, sulfur and oxygen concentrations;
- Pulsed magnetic fields catalyze the performance of ATP structures, and cofactors, that produce metabolic energy;
- Supporting the easily observable tendency to normalize oxidative catabolic performance in catabolic suppressed individuals.

Catabolic inhibited individuals exhibit an absence of daytime energy, or lethargy. They also tend to exhibit calcium metabolism dysfunctions.

7.4 Clinical and Research Support

The assertions above are supported by a huge body of scientific literature.

Curiously, there is little material that articulates the cause and effect relationships of pathologies, magnetic fields, energy production, and the cell membrane. The real story remains beyond "enhanced ion transport" remains untold. A few references cite enhanced ion transport, but the methods do not account for persistent atomic concentration imbalances.

Membrane Power Video Presentation

It is unlikely that this publication represents original discovery. It seems likely that this information has not been publicly promoted to avoid both political and social consequences, endured by the individuals who originally presented and verified the science supporting these models 50 years ago.

A clear example of the cellular effects of pulsed magnetic fields is in non-union joint fractures. Click here to review 110 NIH research articles discussion non-union fractures and magnetic fields. Cellular regeneration capability is illustrated in the non-union clinical examples but is NOT limited to bone tissue.

Most tissue including nerves, organs, and even brain, respond favorably to pulsed electromagnetic stimulation. Click here to review 424 NIH research articles discussion non-union fractures and magnetic fields.

7.5 Sensitivity to magnetic fields

Many individuals are sensitive to magnetic fields. They become disturbed near power lines, cell phones, and near electromagnetic sources.

Power companies, cell phone vendors, and the industries which move power and information strongly prefer to avoid publication of information which shows negative health effects from commercial EMF industries to preserve their economic well being.

Individuals who experience these disturbances strongly disbelieve popular assertion that electromagnetic influences are biologically neutral. A large body of scientific and popular data supports the assertion that electromagnetic fields are very biologically active.

On one hand, many electromagnetic devices are documented to provide significant health effects; while on the other; commercial sources of electromagnetic pollution fervently claim that their emissions have any effect on biological systems whatsoever.

If you want to prove that electromagnetic emissions have an effect on living systems, put a mouse in a microwave oven.

7.6 Separating Sensitive from Insensitive

There is a strong tendency for people with poor cell membrane integrity to be significantly more sensitive to electromagnetic radiation than individuals with high cell membrane integrity and optimal membrane power.

Weaker cells naturally absorb energy from wherever they can, including from stray electromagnetic sources. Electrically weak individuals are more sensitive than electrically strong individuals.

7.7 Knowing Good from Bad

The difference between beneficial and detrimental exposure boils down to the tendency for an exposure to impose an unnatural resonance pattern on the cell or on the body. The unnatural resonance disrupts the natural biological processes which require the natural harmonics to operate optimally.

In other words, electromagnetic influences which draw tissues away from their natural harmonics induce disturbances which may to disrupt cellular or systemic function.

This is why cell phones (MHz), and power lines (60 Hz) tend to produce discomfort in certain individuals. These individuals generally lack the ability to resist stray harmonics, and the stray harmonics draw them into an unnatural resonance.

7.8 Resonant Therapies

Certain frequency devices tend to reinforce potentially weak biological functions. Royal Rife, Fritz Popp, and many others have spent a lifetime studying biological resonance phenomenon, and developing ways to use varying forms of energy to beneficially influence biological systems.

These strategies tend use resonant strategies to enhance biological performance of a host entity, or to disrupt the biological performance for pathogens.

7.9 Pulsed Therapies

Pulsed magnetic fields supply raw energy to cells.

An example is like striking a bell. The bell rings at its own tone, as long as the strikes are timed far enough apart. Striking the bell at closer intervals increases the average volume of the ringing, but does not damage the bell.

7.10 Pulses and Ringing

The resonance of the bell, ringing, tends to cause dirt, and rust, to fall off because the non-bell particles to vibrate at a different frequency at the bell. This resonance differential causes the bell and the dirt to try to move in different directions and stresses the bonds that hold them together. The net effect is that loose dirt will fall off of a ringing bell.

7.11 Ringing and Pathogens

Biological tissues stimulated with raw pulse energy resonate at their natural frequency.

Reinforcing the natural resonance strengthens the dominant organism. Similarly, strong master resonance creates an often debilitating strong energetic disadvantage for pathogenic organisms, by disrupting non-harmonic, pathogenic elements.

PEMF exposure also provides anti-pathogenic effects most clearly documented in the ability to use PEMF as a sterilization and pasteurization technique, NIH References Here. It's very handy to be able to do in-vivo sterilization, and to strengthen the host organism.

7.12 Pulsed Magnetic Fields and Biology

The situation in biological organisms is similar. The pulse is the ringer, causing the body to ring strong at its natural frequency. Anything which doesn't ring along, like pathogens, experience stress, and encounter an environmental disadvantage.

7.13 Electromagnetic Sensitivity Explained

Electrically weak individuals will ring loudly. This potent ringing creates strong sensations.

Individuals with electrically weak cells tend to be more sensitive to pulsed fields because their cells respond more readily to both beneficial and harmful radiation.

They tend to gain energy rapidly from pulsed fields which supports cellular metabolism. Likewise they tend to resonate with harmful radiations. Use of pulsed magnetic fields tends to decrease sensitivity to detrimental electromagnetic radiation by strengthening the native bio-field.

7.14 Typical Biological Responses

In terms of therapeutic response, pulsed therapies substantially accelerate healing, usually reducing recovery time to about 1/3 of the normal time. There is a frequent tendency to provoke pathogenic die-off, and hydrophilic detoxification.

In conditions where the body lacks the ability to recover from injury or effects of chronic stressors, energetic intervention with pulsed devices frequently enables healing in conditions which would not heal.

Enhanced healing responses are consistent with a wide range of physical conditions. Click the links in the list below to review NIH articles that document therapeutic effects of pulsed fields:

- Recovery from non-union bone fractures and degenerative bone conditions;
- Traumatic injury, burns, broken bones, sprains, and pain;
- Chronic injury, back, neck, sciatica, osteoarthritis;
- Autoimmune Disorders, rheumatoid arthritis, multiple sclerosis, Lupus
- Metabolic dysfunction, liver recovery, digestive dysfunction,
- Ischemic injury, stroke and heart attack;
- Neurological injury, spinal.

The alert reader will recognize a high correlation between cellular regenerative properties of pulsed magnetic fields, and the theme of this publication.

The alert reader should also note the prevalence of data indicating tendency for beneficial effects with “incurable” and “chronic” conditions.

Pulsed magnetic fields clearly benefit cellular metabolism. Benefits spanning such a wide range of conditions strong suggest pulsed fields help cells heal better and faster, and often enable healing beyond natural metabolism, or other known modalities.

7.15 Why PEMF Works

Here is a summary of documented benefits from pulsed magnetic fields which suggest why electromagnetic fields create a spectral beneficial response:

- Enhance or balance cellular metabolism, often enabling cells in acute distress to return to biological competency.
- Decrease in-vivo viability of pathogenic microorganisms in a host without harming the host or beneficial symbiotic organisms;
- Decrease inflammation by improving lymphatic flow;
- Aid detoxification by stimulating elevated cellular respiration, or electroporation;
- Facilitate structural reorganization of cell-membrane lipids resulting in better cell membrane integrity.

8 High Oxygen Therapy

Oxygen availability decreases with age, usually well before there is any detectable decrease in red blood cell oxygenation.

Curiously, a high concentration of oxygen in red blood cells can reflect either:

- Good Health – where oxygenation capacity remains above demands or
- Cellular oxygen delivery failure.

The second case is probably a surprise. Think a red blood cell like a delivery vehicle. When the delivery vehicle cannot deliver a load, of course it will be full. There are two sides to the process – loading and unloading.

Tissue oxygen delivery is utterly critical.

Use of modern pulse oxymeter devices, which measure the oxygen levels in the blood, create an dangerous misperception that all is well with cellular oxygen delivery.

8.1 The Hidden Oxygen Unloading Function

The oxygen unloading process is generally hidden with low cost instruments, like the pulse oxymeter. They are accurate and useful to indicate the amount of oxygen in the blood, but don't assume that the oxygen in the tissues is equivalent to oxygen in the blood.

Vapor Pressure of oxygen in the fluids surround the cells is the key. Vapor pressure reflects the amount of gas dissolved in a liquid. A carbonated soft drink has a high vapor pressure because it is kept in a closed container.

The body is similar, especially in the fluids surrounding the cells. Cells produce carbon dioxide, CO2, which red blood cells prefer over oxygen. When blood cells enter an area with a high CO2 concentration, they dump oxygen and absorb CO2. This phenomenon is called the Bohr Effect, named after the physicist Christian Bohr.

Usually the red blood cells return to the lungs, and exchange CO2 for oxygen.

At the tissue site, and on the way, several things can go wrong:

1. Red blood cells can become sticky because of an absence of electrical charge, and clump together, resulting in poor microcirculation;
2. The tissue fluids can be excessively acidic, inhibiting the conversion of CO2 into carbonic acid, resulting in decreased oxygen exchange with red blood cells;
3. The cell membranes can be damaged inhibiting the ability to absorb oxygen.

It is very important to recognize that oxygen in the blood is not oxygen to the cells.

Oxygen partial pressure is a much better indication of cellular oxygen availability because it measures the amount of oxygen dissolved in the body fluids.

8.2 Cellular Hypoxia

Cellular hypoxia reflects the absence of oxygen availability to cells.

Hypoxic cells are a lot like poor person who lives next to a bank. The money in the bank is meaningless unless there is a way for the person to access the money. Cellular hypoxia usually due to gradual decline in oxygen delivery performance puts cells in to "survival" mode, which over time aggregates to disease.

8.3 High Oxygen Therapy - Reversing Cellular Hypoxia

High oxygen therapy combines pressure with oxygen to increase the plasma, or fluid, oxygen concentration. Increasing the oxygen partial pressure is highly effective because it provides two complementary functions:

1. It increases the real oxygen available to the cell;
2. It displaces carbon dioxide shifting the balance.

Pressure is the key. Shifting the vapor pressure at the cellular locations is the key to improving cellular oxygen delivery.

Simple oxygen therapy does little to help cellular hypoxia because it does not change the vapor pressure of oxygen at the cell. As a result breathing extra oxygen has little or no effect on cellular hypoxia at the unloading portion of the oxygen delivery system.

Oxygen only therapy increases the hemoglobin oxygen levels, but has a weak effect increasing the plasma partial pressure sufficiently to improve the real oxygen available to cells. Passive oxygen use only increases oxygen availability in the lungs. It doesn't drive oxygen into the plasma with increased pressure.

8.4 Durable Results

Manfred von Ardenne discovered that the mechanisms which deliver oxygen are often repaired by oxygen. This very useful observation enabled individuals to durably reverse many age and disease related physiological declines.

Ardenne demonstrated that "therapy" restored oxygen saturation for an extended period of time, and that over time, therapy restored the body's natural ability to maintain optimal youthful oxygen saturation levels.

Ardenne's Oxygen Therapy created benefits which in turn helped to restore long-term oxygen delivery to cells:

- Regeneration in peripheral vascular tissues;
- Restoration of normal vibrant energy levels & tolerance to exercise;
- Restoration of healing capacity;
- Improvements in cognition;
- Improvements in a wide range of chronic health conditions.

Most often, cellular oxygen delivery fails because the partial pressure of oxygen in the tissues served by tiny ends of the capillaries is insufficiently to drive cellular oxygen metabolism.

High Oxygen Therapy uses one or more methods to increase the vapor pressure

8.5 High Oxygen Therapy

Ardenne's therapy was simple. The individual would exercise for fifteen minutes daily while breathing at least ten liters per minute of oxygen. The supplemental oxygen increased the oxygen percentage for each breath from about 20% to about 25-50% during the exercise.

8.5.1 Civilized Hypoxia

This situation is aggravated in populated areas, like cities, with large amounts of carbon combustion, often reduces oxygen availability well below optimal levels.

Mass suffocation is more significant than global warming. Aging individuals often lose pulmonary capacity. When this happens, chronic hypoxia or oxygen deficiency begins to compromise metabolism.

Over the past 100 years, and burning billions of tons of carbon fuels has converted vast quantities of the atmospheric oxygen into CO2.

While the global oxygen supply is holding, localized depletion is common. Decreased oxygen density is a probable co-culprit in the accelerated disease vectors with aging population.

While the cause isn't clear, the effect is. It is well known that older people have reduced plasma oxygen concentrations, (as opposed to blood saturation levels), which contributes to weakened health. Click here for an explanation of the difference in plasma saturation and blood saturation.

8.5.2 Self Regulating

With exercise, oxygen delivery is self regulating. At the 10 liter per minute levels, the respiratory capacity, and oxygen supplementation is self limiting. Individuals with reduced respiratory capacity breathe less air, and hence receive more oxygen in each breath. Individuals with stronger respiratory capacity breathe more air, and dilute the oxygen. In other words, oxygen toxicity with oxygen supplemented exercise is impossible.

While elevated oxygen is a requirement, reduced oxygen is the norm. Widespread attention to global warming –misses the point. Carbon fuel combustion consumes twice as much oxygen as carbon. This binding depletes the atmospheric oxygen, and reduces the oxygen concentration.

8.6 Oxygen Review

Oxygen is the master antioxidant. Oxygen is the master metabolite for healthy metabolism.

The age-related and cumulative tendency for cellular dysfunctions is largely driven by degenerate oxygen metabolism. Declining oxygen levels cause as a slow decline in cellular metabolism. These cumulative effects of this slow decline are strongly related to physiological aging.

Much of the age related deterioration in oxygen delivery performance is reversible.

High oxygen therapy durably increases the body oxygen levels by restoring the metabolic infrastructure which delivers oxygen.

Oxygen restoration provides strong benefits:

- Oxygen is toxic to anaerobic pathogens, bacteria, yeast and fungus;
- Oxygen supports optimal healing and exertion metabolism for the body's cells;
- High oxygen therapies increase oxygen delivery to cells which normally receive little, often enabling healing of tissues with poor circulation;
- The combined effect of these explains the beneficial effects of hyperbaric and high oxygen therapy.

Manfred von Ardenne observed and documented a threshold effect with patients who exercised while breathing purified oxygen. Elevated cellular respiration in the presence of elevated oxygen supplies significantly increased plasma oxygen availability.

Perhaps more importantly these conditions triggered a threshold which caused durable shift in cellular oxygen performance, which lasted well beyond the therapy.

8.7 Restorable Oxygen Performance

Ardenne documented that individuals aged over 70 years were consistently able to restore and maintain optimal oxygen levels of a 20 year old, with a significant improvements in healing and restoration of young metabolism with as little of 15 minutes of light exercise while breathing 10+ liters per minute of oxygen.

Performance improvement was effective for the brain and the heart. Therapy produced visible changes in cellular structure including mitochondria. Many tissue impairments, associated with ischemic trauma to the brain and the heart were reversible using this method.

8.8 Power Matrix

Cells make energy different ways using different fuels. Many of these depend on the cell membrane power as a primer, while some don't. Some use oxygen while others do not.

Aerobic metabolic processes use oxygen. Optimally we use oxygen for most normal metabolic functions. Only a few body processes continuously "run" using anaerobic oxygen metabolism.

$$C_6H_{12}O_{6\,(aq)} + 6O_{2\,(g)} \rightarrow 6CO_{2\,(g)} + 6H_2O_{\,(l)}\ \Delta H_c + 2880KJ$$

During anaerobic metabolism cells use fermentation-like energy production which does not require external oxygen. Anaerobic energy supports emergency and stress conditions, when the body lacks the time, or ability to supply oxygen to tissues, often supporting fight or flight survival, or tissues which are so critical to life that the overhead of capillary circulation would interfere with function.

$$C_6H_{12}O_6 \rightarrow 2C_2H_5OH + 2CO_2 + 2\ ATP$$ (Energy Released:118 kJ/mol)

Note the ***20x*** difference in energy produced by using oxygen. Aerobic metabolism produces 2880 KJ of energy per unit of fuel while anaerobic metabolism produces 118 KJ of energy. The theoretical yield of aerobic units of ATP is 36, while anaerobic metabolism is only 2.

Anabolic energy is a fortunate and necessary backup power supply, the prolonged dependence on anaerobic energy production, is a cornerstone of many diseases.

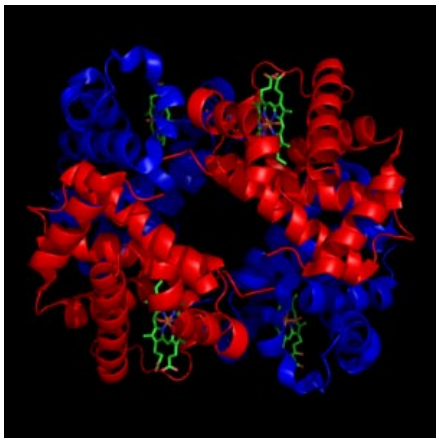
	Energy Production	***Fuel***	***Output***	***Efficiency***
Aerobic – with oxygen	Aerobic Respiration	glucose	CO_2, H_2O, ATP	medium
	Beta Oxidation	fats	CO_2, H_2O, ATP	High
	Anabolic Fusion	sodium	Potassium, ATP, Heat	Very High
	Catabolic Fusion	magnesium	Ca, ATP	Very High
Anaerobic – without oxygen	Glycolysis	glucose	Lactic Acid, CO_2, Alcohol ***FAST***	Low

The diseases vary widely depending on:

- Which cells are stuck in energetic malfunction;
- Which energy malfunction they are stuck in;
- How other cells interact with the cells with energetic malfunction.

8.9 Vapor Pressure and plasma saturation

Vapor Pressure reflects the availability of oxygen to tissues. There are several ways to increase the oxygen vapor pressure in the body.



It is important to recognize that blood oxygen saturation only represents the saturation level in the hemoglobin, which may or may not be available to cells. Plasma Vapor Pressure is a much more accurate measure of cellular oxygen availability because it reflects the oxygen content of fluids in direct contact with cell membranes.

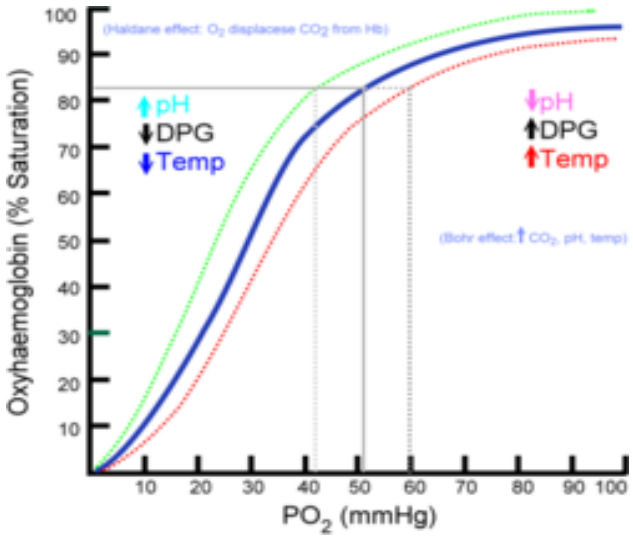
The real efficacy of high oxygen therapies relates to the actual mobility of oxygen from the red blood cells to the tissues that they support. This phenomenon is governed by the Bohr Effect.

In other words an individual may have fully saturated hemoglobin, as measured by a pulse oxymeter, but if the body conditions fail to move the oxygen from the blood to tissues, then a situation of cellular suffocation results, even though there is plenty of "oxygen in the blood".

This issue reflects the frequent inadequacy of simply measuring the "oxygen levels". A truer measure of tissue oxygen availability is the amount of oxygen in the blood plasma.

Plasma is the fluid that dilutes blood, and serves as the conduit for oxygen to reach the cells.

Therapies that increase the plasma saturation levels increase the oxygen level available to the cells.



8.10 Plasma Oxygen Therapy

Research suggests that plasma oxygen therapy is of significant benefit in all conditions discussed in this publication. Increased plasma oxygen is real oxygen available to cells. It is not bound to hemoglobin. This oxygen facilitates cellular metabolism, and often enables the health-critical shift from anaerobic to aerobic metabolism.

High oxygen therapy often enables the shift from stress-related anaerobic/fermentative cellular energy production back to normal oxygen metabolism.

8.11 High Oxygen Therapy

There are two techniques which substantially increase plasma oxygen levels.

- Oxygen Multistep Therapy developed by Manfred von Ardenne.
- Hyperbaric Chambers – are chambers which increase atmospheric pressure, which increases the partial pressure of oxygen throughout the body.
- We assert that Oxygen Multistep Therapy, or Exercise with Oxygen Therapy, is functionally superior and safer than to Hyperbaric because it increases Oxygen concentration without disrupting CO2 balance.

8.12 Pressure Drives Plasma Saturation

Pressure to drive up oxygen saturation in body fluids is necessary. This pressure can come from two different sources:

- A hyperbaric chamber – external pressure enables more oxygen to go into solution in blood plasma;
- The heart during exercise – each heartbeat briefly elevates pressure higher than normal levels enabling more oxygen to enter plasma.

Either way, more oxygen is available to cells to use, and the oxygen is in the plasma which touches the cells.

The big difference between Oxygen Multistep and Hyperbaric approaches is cost and convenience. They both work very well:

- Oxygen Multistep can be setup with at-home convenience for about $3000 using a large oxygen concentrator or two small ones combined with almost any exercise equipment;
- A portable hyperbaric system runs about $12,000, or more.

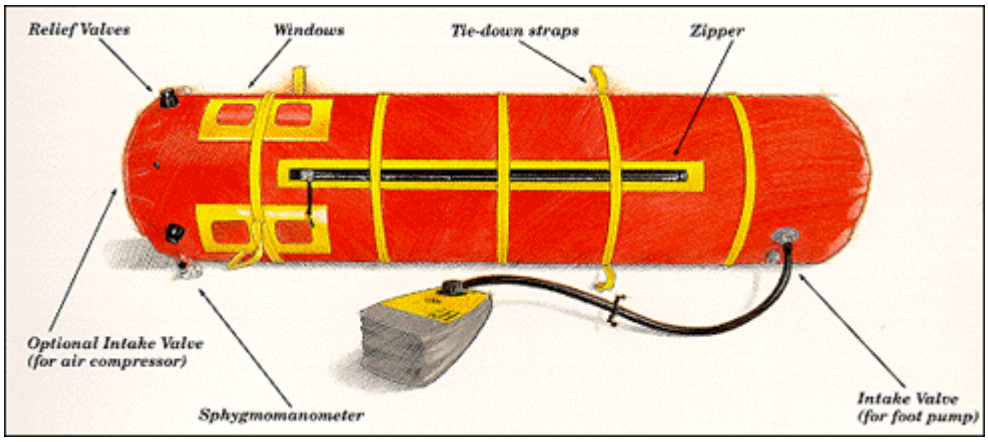
8.13 Hyperbaric Chamber

The gold standard for high oxygen therapy is the use of a hyperbaric chamber. A hyperbaric chamber is an air-tight chamber. Pumped-in air increases the density of the atmosphere inside the chamber.

This increase in air pressure is combined with concentrated oxygen. The combination increases by several-fold the amount of oxygen available to the lungs, and hence blood and finally body tissues.

Hyperbaric therapy is approved by the FDA for a small number of conditions, even though research and clinical data show it is of real benefit in many conditions.

The spectral responses to hyperbaric therapy likely result from restoration of oxygen metabolism. The "condition related" view sells oxygen very short because it completely misses the point that the vast majority of the cells in our bodies require oxygen.



8.14 The Oxygen Bottom Line

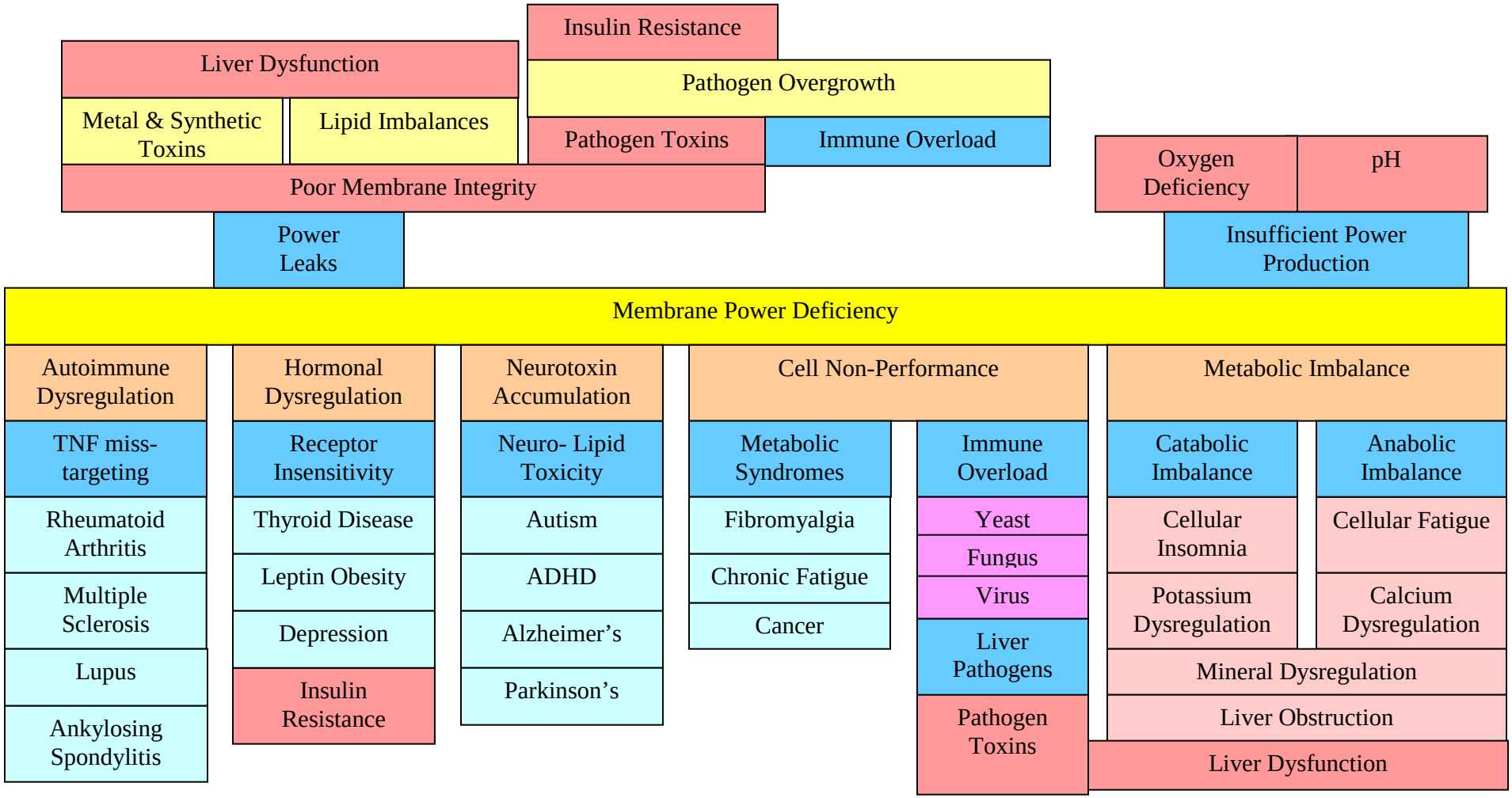
Cells that require oxygen cannot perform without it. This means that oxygen deficiency is a probable cofactor in almost any disease.

Oxygen is likely to benefit recovery from any disease because every disease results from cellular non-performance.

9 Disease Etiology

Etiology is the Greek word that describes cause. This chapter presents diseases in the context of cell membrane performance showing diseases by major system dysfunction. Note the how some cause/effect elements tend to appear as both cause and effect. These are kingpin elements.

In this chart cause sits on top of effect. Everything above Membrane Power Deficiency is a causal target in the protocols that follow. Restoration of Membrane Power generally disables the symptom patterns below the line.



9.1 Connecting Cause and Effect

This paper is suggests that Membrane Power is the mysterious link that connects cause and effect in many chronic disease syndromes.

Dysfunction permutations often define specific diseases. Some dysfunction patterns, like insulin resistance, may not be a specific disease, but over time combine with others, to create symptom patterns which are.

Several of the elements below the line, in are causes which appear above the line, are essential therapy targets.

It is simply essential to remove these cyclic and self reinforcing effects to achieve curative response.

10 Hormone Syndromes

10.1 Insulin Resistance & Type-2 Diabetes

Insulin dysregulation occurs when the body requires more insulin than the pancreas can produce, because the cells cannot respond to insulin. The primary inhibitor for insulin response is the absence of cellular response. The absence of cellular response results from insufficient transmembrane potential, which prevents insulin receptors from working.

Insulin resistance is a symptom of the inability to maintain transmembrane potential across the cell membrane.

10.2 Telltales

A typical telltale for pancreatic overload is flatulence. Pancreas insulin over-production leaves inadequate energy and resources to produce digestive enzymes. Insufficient digestive enzymes result in overgrowth of gas-producing organisms in the gut. Gas production in the gut results in flatulence or gas.

10.3 Regulation Breakdown

The loss of insulin regulation typically requires an external influence to enter a state of long-term dysregulation:

- A food supply which dysregulates glucose metabolism enough to enable pathogens which produce membrane toxins gain a foot-hold so they can create long-term deregulation;
- An external supply of toxins that undermine the cell membrane integrity enough to overwhelm the insulin supply.

10.4 Energy Drains

There are three factors drain cell membrane energy and inhibit insulin receptor function.

- Pathogen Toxins damage cell membranes and weaken the cell membrane to leak power;
- Synthetic toxins, DDT, Agent Orange etc., weaken the cell membrane to leak power;
- Chronic systemic acidosis inhibits the pH balance across the membrane prevents the generation of electricity to power insulin receptors.

10.5 Pathogenic Diabetes Sequence

The sequence of pathogenic insulin resistance goes like this:

1. Glucose control is temporarily disrupted;
2. Pathogens gain a foothold;
3. Pathogens produce membrane toxins which continue to disrupt insulin sensitivity;
4. Dietary shifts which tend toward insulin control cause pathogen stress;
5. Pathogen stress causes pathogens to further disrupt metabolism causing host system stress, converting progesterone to pregnenolone;

6. Hormonal imbalance triggers a stress response and adrenaline release;
7. Adrenaline release triggers glucagon conversion go glucose;
8. Which elevates increases serum glucose levels;
9. Elevated serum glucose feeds the pathogens.
10. Creating a very hard to break Video Description disease-lock-loop.

10.6 Toxic Diabetes Sequence

The sequence of external toxin insulin resistance goes like this:

1. Exposure to high levels of toxins;
2. Over time toxins relocate to the cell membrane;
3. Cell membranes leak power;
4. Lowered membrane voltage inhibits insulin receptor function;
5. Glucose control disrupted;
6. Pathogens gain foothold in weakened host;
7. Same sequence as pathogenic insulin resistance.

10.7 Hyper Thyroid Disorders – Graves Disease

Thyroid dysfunction is similar to insulin dysfunction. The mechanism is almost identical. Some people are more genetically susceptible to thyroid dysfunction than insulin dysfunction. Some are susceptible to both.

Hyper-Thyroid reflecting disorders of too much thyroid hormone:

1. Cell membrane performance deteriorates;
2. Body cells develop a reduced response to thyroid hormones;
3. The thyroid increases production to compensate for an absence of response;
4. Some body cells remain more sensitive to thyroid hormones;
5. Cells with normal sensitivity over-respond to excess thyroid hormone;
6. Resulting in localized dysfunctions from hyper-thyroid, typically called Grave's Disease.

10.8 Hypo-Thyroid Disorder

Hypo-thyroid disorder results after the thyroid gives out in hyper-thyroid disorder.

7. Cell membrane performance deteriorates;
8. Body cells develop a reduced response to thyroid hormones;
9. The thyroid increases production to compensate for an absence of response;
10. Elevated thyroid output enables normal metabolism for an extended period of time;
11. Then the thyroid becomes exhausted;
12. Thyroid mediated body functions deteriorate.

11 Autoimmune Syndromes

The pattern in autoimmune syndromes is generally the same:

1. Toxins or other factors cause compromised cell membrane performance;
2. Resulting in low cell membrane voltage (low membrane voltage is common to most cancer cells);
3. Low cell membrane voltage creates vulnerability to Tumor Necrosis Factor, TNF, autoimmune response;
4. TNF activation causes inflammatory and immune response.

Neurological autoimmune syndromes usually have symptoms from neural potassium deficiency, resulting from compromised anabolism. Neural potassium deficiency causes degenerate impulse transmission through nerves.

11.1 Rheumatoid Arthritis / Ankylosing Spondylitis:

1. Synovial cells surrounding joints become weakened due age, stress or other environmental factors;
2. Resulting in a disrupted anabolic energy production;
3. Resulting in cell membrane potential falling below the trigger threshold for TNF triggering;
4. B-cells initiate immune response on tagged cells causing destruction of these cells;
5. The body deposits calcium in to isolate the rest of the body from the diseased cells.

11.2 Multiple Sclerosis

5. Nerve cell sheaths become weakened due to pathogenic or systemic toxin accumulation;
6. Resulting in a disrupted anabolic energy production;
7. Which causes a decline in intra-neural potassium;
8. Which causes a decrease in the ability of the nerve to carry impulses;
9. As the condition worsens due to systemic degeneration and toxin accumulating in the nerve sheath (cell membrane), intracellular potassium deficiency accumulates;
10. Resulting in a continuous deterioration of neural function.
11. Also, resulting in cell membrane potential falling below the trigger threshold for TNF activation;
12. B-cells initiate immune response on tagged cells causing destruction of these cells
13. Accelerating neural destruction in advanced disease stages.

11.3 Lupus Erythematosus

1. A group of cells become weakened due age, stress or other environmental factors;
2. Resulting in a disrupted anabolic energy production;

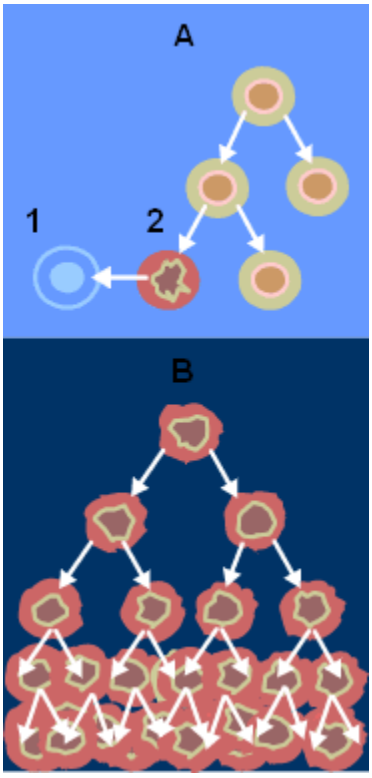
3. Resulting in cell membrane potential falling below the trigger threshold for TNF triggering;
4. B-cells initiate immune response on tagged cells causing destruction of these cells.

11.4 Metabolic Syndromes

Here is a partial list of other conditions directly, or indirectly result from cell power deficiency:

- Cellular Insomnia
- Chronic Fatigue Syndrome
- Osteoarthritis
- Eczema
- Migraines
- Neurological Syndromes
- Parkinson's disease
- Alzheimer's Disease
- Toxin Syndromes
- Fatty Liver Disease
- Hepatitis

12 Cancer



Cancer is unregulated growth of cells. It is caused by a combination of cellular conditions:

- Apoptosis mechanism broken, enabling un-repairable cells to reproduce out of control;
- Degenerate cell membrane which swells, expanding the cell surface area, and distribute the cellular energy over a large area, resulting in a reduced Trans Membrane Potential.

12.1 Cellular Survival Mode

Cells and even organisms under stress reproduce. Reproduction is a mechanism to "preserve the species".

Cell membrane is a huge actor in cancer. When cellular viability diminishes, the surface area expands. Under normal conditions the result is programmed cell death.

In cancer, errant cells reproduce resulting in overgrowth of undesirable cells.

12.2 Anaerobic Tendencies

In the majority of cancer cell lines, cancer cells shift to anaerobic metabolism. Anaerobic metabolism runs on sugar without oxygen. About 85% of cancers present with systemic anabolic metabolic dysfunction, for more information see: Warburg Nobel Lecture and Warburg Wikipedia.

Anaerobic systemic dysfunction means that the individual usually complains of being tired all the time and is constipated. The exhaustion is a telltale of mitochondrial under performance. The constipation usually reflects collateral dysfunction of the stomach, pancreas and liver. The stomach lacks chlorine to make hydrochloric acid, lymphatic congestion inhibits the liver's ability to make bile, and insulin stress often taxes the pancreas enough to inhibit digestive enzyme production.

Warburg asserted that anabolic dysfunction is a general failure of the mitochondrial energy production. Mitochondrial dysfunction is accompanied by collateral dysfunctions in apoptosis, immunological communication and metabolism generally out of harmony with the body. This collection of malfunctions presents as a semi-consistent patterns in cellular and systemic metabolism.

About 85% of individuals with cancer present with moderate to severe anabolic imbalance, and complain of continuous extreme fatigue, and lethargy. This group reflects systemic tendency for metabolic energy failure.

12.3 Viral anabolic Response

The viral anabolic response.

The relationship of virus to cancer. Cancer cells act viral infected. Viral vectors as well as others…

The remaining 15% of individuals with present with either normal or catabolic metabolic imbalance and appear to have generally normal energy patterns.

12.4 Cancer and pathogens (Under Construction)

Earlier in this paper we discussed how "pathogens poke holes" in the cell membrane. This hole poking is consistent with consistent with expansion and reproduction.

But wouldn't poking holes weaken anabolic energy production? Wouldn't it close the cells?

Anaerobic versus anabolic explanation required – fermentation versus fusion. Oxygen versus non oxygen – hence why high oxygen therapies work.

How about the viral connection? Anabolic favors viral hosts because viruses hide in anabolic cells to protect itself.

12.5 Cancer cell life-cycle (Under Construction)

Starts with pathogens that assault the cell membrane. Mid term cell expand, TMP drops and finally reproduces. Reproduction driven by TMP low.

TNF is supposed to remove cancer, but doesn't. Probably because immune system overload due to other pathogens at work.

12.6 Resolving the Membrane Paradox (Under Construction)

The pathogenic evolution – requires life-cycle assessment (Anabolic leaning):

- Pathogens weaken cell membranes during early stages
- Cell becomes weak – shifts to anaerobic (not healthy anabolic energy production)
- Produces acid and hence pain
- Renegade lipids disrupt (more research required) – See Revici model
- Need to break-up lipid counter response to anabolic/catabolic imbalance
- Butyrate / Sulfate / lipolized sulphur oils / selenium oils

13 Lipids are Fats

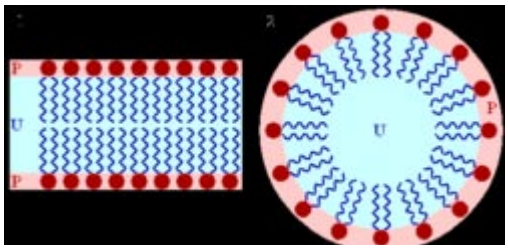


Figure 14 – Lipid Bilayer Membrane

Back in the 1920's vegetable oil replaced lard as the main dietary fat. Since then, vascular disease, diabetes and cancer have reached epidemic proportions directly affecting about 8 out of ten Americans over 50. There was only ONE heart attack prior to 1900.

Americans who replaced butter and animal fat with vegetable oils and trans-fats suffer significantly higher rates of chronic disease that their ancestors.

The reasons are several:

- Vegetable fats are largely un-saturated, and lack electrical integrity and contribute to membrane weakness when not proper proportion with saturated fats;

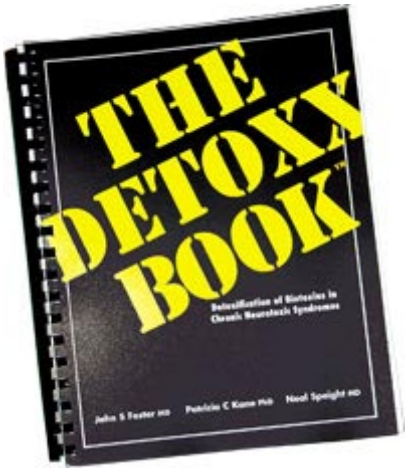
Figure 15 - Unsaturated Fatty Acid

Figure 16 - Cholesterol Molecule

- Low fat diets prevent bile release and accelerate lipid-toxin accumulation by inhibiting lipid turnover;
- Many essential nutrients are fat soluble, including vitamin E, and others. The switch to fat-nutrient free vegetable oils decreased dietary availability of fat-soluble nutrients.

Cell membranes are made of lipids, or fats. Bad fats make bad cell membranes. Bad cell membranes make sick people.

14 The PK Protocol Program

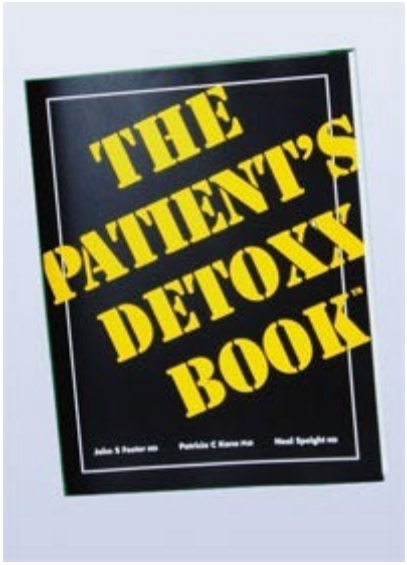


Dr. Patricia Kane and Ed Kane pioneered clinical use of phospholipids, along with many other complementary modalities achieving extraordinary results with many serious, conditions. The Detoxx book contains case histories and therapies used for ALS, MS and many other conditions.

Phospholipid therapy is a very safe technique of supplying the body with structural lipid building materials which replace damaged or polluted lipids which damage cell function. The Detoxx therapies concentrate on restoration of normal membrane function by restoring healthy lipid structures to cells throughout the body.

The PK program is the leading how-to book regarding cellular detoxification using phospholipids therapy. Click the image to the right to purchase the book online.

They have also created a patient reference, with very useful recipes and eating guidelines, to complement the physician reference above. Click the Patient Detoxx Book to obtain this reference.



They have kindly allowed reproduction of their diet as a basic guide for you later in this document.

We strongly recommend the www.bodybio.com as the best, and perhaps only, system which understands therapy for cell membrane physiology.

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15 What to Expect

In most cases, over a period of three to fifteen weeks, this program will likely cause a decrease the conventional markers for heart disease risk, particularly serum cholesterol. This occurs even though it is made foods we've been taught to avoid due to their association with vascular disease risk.

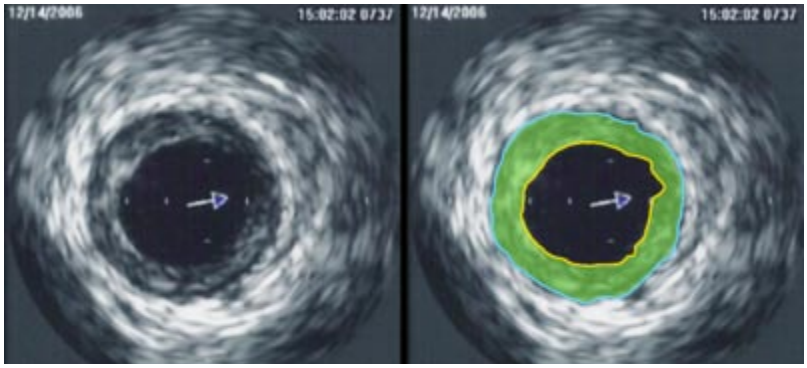


Figure 17 - Arterial Plaque

Most will lose weight also. Body fat, or adipose tissue, is the body's buffer for toxins. Toxic weight, gained to protect the liver from overload, may be released. .

Hunger is unlikely due to the high number of calories. Detoxification usually enables weight loss. Skin tone usually improves.

16 The Liver Connection

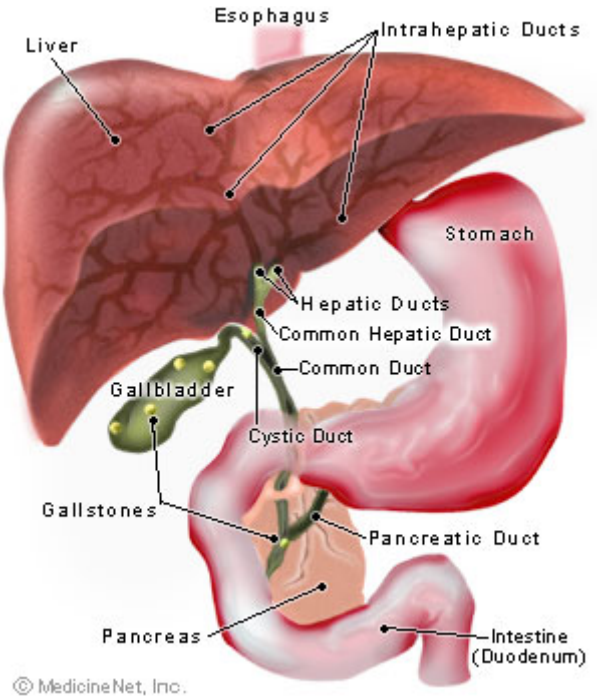
The liver is the main metabolic control organ. It is the hub for detoxification, lipid management, and controls cell membrane healing.

Most of program components are designed to improve liver health and performance, which in turn propagates to the body's cells. Don't be surprised to see that the majority of the system components facilitate liver function, or detoxification, or healing.

The liver is the master control for the makeup of the body's cells. And since everything that reaches the liver must pass the digestive system, liver and digestion are the operative gateway to every cell in the body.

16.1 Liver Basics

The liver produces bile made of recycled fats, bilirubin, and recycled caustic minerals from cellular bilirubin. The gall-bladder stores bile below the liver. Fat consumption triggers the liver and gall bladder to spasm, pushing bile into the duodenum, to neutralize acidified food exiting the stomach. Healthy bile is strongly alkali, or a base, which neutralizes acid produced by the stomach.



- Healthy digestion requires very strong stomach acid;
- Healthy digestion requires very strong bile;
- The combined strong acid and strong base neutralize each other in the duodenum;
- Food is ripped into elemental components;
- And re-assembled as necessary into needed forms after digestion.
-

16.2 Bilary Tree Obstruction

Bile is the main exit path for cell membrane toxins. Membranes are made of lipids, or fat.

Toxins that damage membrane performance tend to accumulate in fat. Damaged membrane materials, fats, return to the liver, and are turned into bile.

If you cannot tolerate a fatty meal, then you will need to start a stone dissolving protocol.

Your liver and gall bladder are probably clogged with liver and gall stones. If they're totally clogged, then the bilary back-pressure triggered by the high fat meal will push bile into your blood stream and lymphatic system. It will make you feel toxic, and probably sick.

16.3 Gall Stones

Gallstones and liver stones are nodules that develop in the liver and gall-bladder.

This image of a surgically removed gall bladder from curezone.com clearly illustrates the character of gall stones.

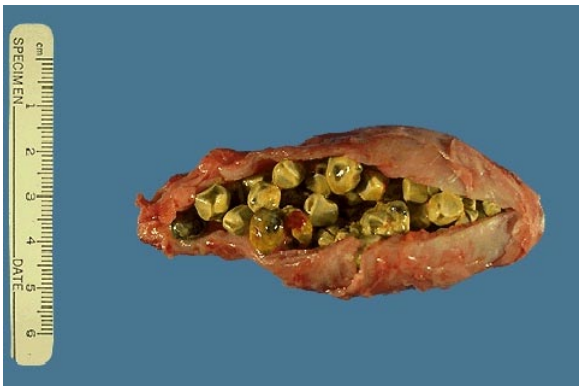


Figure 18 - Gall bladder with no room for bile

They inhibit health two ways:

- In the liver ducts they inhibit bile flow which prevents drainage of bile. The absence of bile drainage bathes the liver in toxic sludge;
- In the gallbladder they take up space to store bile and prevent bile storage. The absence of bile storage prevents effective digestion of fat and contributes to further degeneration of cell membrane integrity.

16.4 Liver or Gall Stones

The big difference between liver and gall stones is how they affect the physiological response to dietary fats:

- You probably have gallstones if after you consume fats:
  - Experience digestive upset after consuming fats;
  - This occurs because bile flows from the liver only;
  - Bile supply is restricted by the absence of storage;
  - So you can only properly digest a small amount of fat.
- You probably have liver stones if after you consume fats:
  - You feel toxic or nauseated – your liver spasms forcing bile into your blood stream forcing your kidneys & skin to dispose of toxins;
  - Your tongue turns green, your skin turns yellow, liver spasms force bile backwards into the lymphatic system, resulting in bile-colors appearing in lymphatic taps (saliva glands, tear ducts) and skin;
  - You test positive for urinary

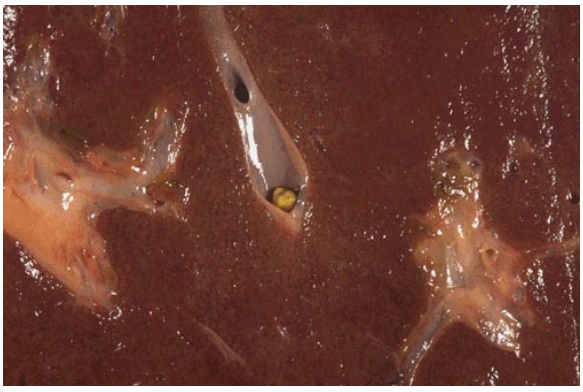


Figure 19 - Stones block liver bile release, backpressure forces bile into blood or back into lymphatic system.

bilirubin – bile forced into blood so the kidneys dump bile components into the urine.

- You probably have gall stones too.

Note – bile in the blood creates, indicated by urinary or serum bilirubin, tends to dissolve cell membranes throughout the body compounding an already severe condition catabolic condition.

16.5 What Causes Stones

Medical literature cites an excess of cholesterol as the probable cause of solidified clumps that develop in the liver and gall bladder.

The converse, a deficiency of solvents, which enables lipids to condense into plastic balls, is a more plausible explanation.

Stones form in the liver and gall-bladder because of an insufficient amount of solvents to assure that fatty components remain fluid. Modern medical texts present a paradoxical view that there is an excess of cholesterol, instead of a deficiency of liquefying solvents.

The key elements for producing alkali solvents are mineral salts, potassium and calcium, which are a byproduct of cellular metabolism.

Figure 20 - Hydroxide Ion

Cellular potassium and calcium provide mineral cations which pair with the hydroxide ion . The paired cation and hydroxide component create a alkali salts, which when combined with spent lipids, form soap.

Inadequate quantities of alkalizing mineral enables excess recycled fats to congeal into masses. In other words, liver and gall stones form because there is more recycled fat coming to the liver, than mineral solvents.

16.6 Different Stones for Different Folks

Catabolic metabolism produces calcium. Anabolic metabolism produces potassium.

Figure 21 - Cholesterol Gallstones

Catabolic biased individuals tend to produce cholesterol gallstones, which are yellow or green in color.

Potassium deficiency is typical for catabolic leaning metabolism. Catabolic individuals have weakened cell membranes with reduced ability for anabolic metabolism. Diminished anabolic metabolism results in decreased cellular and subsequently systemic potassium levels.

A medium term effect of catabolic-leaning individuals is formation of cholesterol stones, and deficiency in cellular sleep. Catabolic leaning individuals tend to acquire diseases associated with potassium deficiency, Multiple Sclerosis, Rheumatoid Arthritis, Lupus.

Catabolic leaning individuals tend to have good daytime energy and fair to poor sleep.

Anabolic leaning individuals tend to produce bilirubin gallstones. Anabolic biased individuals tend not to produce calcium, typically because of a deficiency in cellular magnesium.

As a result, they tend toward calcium deficiency, osteoporosis, and other conditions where calcium is lacking. Likewise, anabolic leaning individuals tend to produce bilirubin stones because CaOH is primary solvent for bilirubin.

Anabolic leaning individuals tend to have good sleep, and are tired all day.

Figure 22 - Bilirubin Gallstones

Dually compromised anabolic and catabolic metabolism, tends to produce a mix of stones. Mixed stone types indicate either parallel metabolic imbalance, or oscillation between metabolic imbalances.

These individuals tend to exhibit intermittent or continuous both poor waking energy, and poor sleep.

Individuals with collateral dysfunctions in cellular anabolism and cellular catabolism usually describe themselves as miserable.

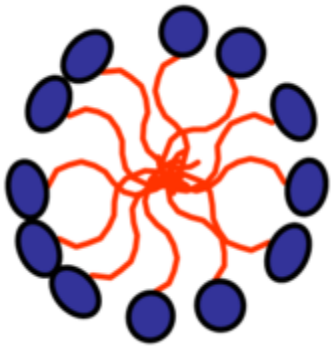
16.7 Digestion & Elimination

When we eat food it goes to the stomach. Afterwards, it enters the top of the intestines, mixes with bile. Bile is soap made by the liver. Bile serves at least two essential roles:

- As a soap it dissolves incoming fats for digestion;
- Second it carries toxins for elimination in stool.

The body tends to recycle fat in the digestive system. As a result fat-bound toxins are usually reabsorbed in the gut. Fat re-absorption creates a closed-loop which makes it difficult to release fats, and fat-bound toxins in the stool.

Our bodies retain because they are essential building materials, mostly because fats make up the cell membrane. Fungal, viral and bacterial pathogens attack the cell membrane, and damage cell membranes, and hence fats.



Toxin elimination is complicated because the bile that dissolves consumed fat also carries toxins for disposal. Enabling the body to dump these toxins requires dietary and digestive conditions which rarely occur in the modern diet:

1. High in bio-compatible lipids, or fats;
2. During periods of digestive competence;
3. With frequent successful elimination.

As simple as these prerequisites seem, conditions that enable release of lipid toxins are rare in the modern diet.

17 A Healing Protocol

The cell membrane is the leading role in immunology and healing.

Injury and disease is generally limited by the rate at which cell membranes regenerate. Since this protocol supports cell membranes, the material in this essay provides almost universally applicable tools to improve healing and disease resistance.

It's not that the inside of the cell doesn't matter, it's just that everything that goes on inside, results in some artifact or action on the cell membrane surface. Most often healing is rate limited by resources necessary to generate cell membrane components.

This paper describes multiple different detoxification strategies. The main benefits of this program are:

1. Self administered;
2. Track and document progress with self administered tests;
3. Creates durable results;
4. Releases both toxic metals and synthetic toxins;
5. Improves cell performance & promotes healing for the entire body;
6. Results are superior to independent protocols with lower risk;
7. Applicable to improve health of individuals with a wide range of health syndromes, autoimmune disorders, metabolic disorders, neurological syndromes and hormonal disorders;
8. Performance is comparable to high quality physician administered programs at lower cost;
9. **Cellular therapy accelerants**, high oxygen and magnetic pulses, PEMF, generate faster results in healthy individuals, and enable results in health compromised individuals who would not normally respond.

17.1 Immunological Fortification

The cell membrane bears the front line attack in bacterial, viral and fungal pathogens. Healthy cell membranes resist attack better than weak ones.

17.2 Membrane Assault & Repair

Radiation exposure, sunburn, chemical burns, fungal, bacterial, and viral pathogens injuries damage cell membranes. The methods suggested here normally accelerate recovery to rates which are inappropriate for public discussion.

This protocol is beneficial for recovery from cellular injury caused by any agent or incident which causes membrane damage.

Cells that survive trauma normally have damaged membranes lipids and structure. Most methods in this protocol used topically, or injected locally accelerate recovery from cell

membrane damage by increasing annealment and providing raw material for cellular repair, and optimal cellular replacement.

In other words, the protocols are of likely benefit to individuals who have experienced either illness or injury.

Generally, the protocol is a pro-anabolic for damaged tissues either local or systemic lipid structures.

17.3 Deciphering Detoxification

There are several excellent detoxification protocols in popular use today.

There are four issues in using a detoxification protocol, or when assembling a strategy using multiple protocols:

- Does the detox apply to you? Knowing if the detox strategy applies to your particular metabolic challenge and when does it make sense to use a strategy.
- Avoiding detox traps. Many detox programs have undocumented risks. Most authors present their programs without much discovery or discussion of when a particular protocol is likely to be ineffective, inappropriate or cause an undesirable response.
- Many protocols ***stress*** other organ systems in an attempt to strengthen. Stressing a weak organ system, like the kidneys in a diabetic, is downright dangerous. Knowing which detox programs you can tolerate, and avoiding unnecessary stress is essential information.
- Know how to evaluate the results.

We created this strategy index for three reasons:

- To compare protocol features relative to each other;
- To illustrate both effects and risk;
- To assure Membrane Optimization protocol assures efficacy with minimum risk, and that it covers all of the probable metabolic objectives.

Click on the link for more information about the topic	***Clark***	***PK Protocol***	***Shoemaker***	***Silymarin***	***EDTA***	***Fasting***	***Bile Flush***	***Membrane Optimization***
Self Administer	√			√		√	√	√
Hydrophilic Detox						√		√
Immune Modulators								√
Pass Stones	√							√
Dissolve Stones		√	√				√	√
Rebuild Liver		√						√
Avoid Kidney Stress		√	√	√		√		√

Metal Detox		√	√					√
Dilute Synthetic Toxins							√	√
Retain Mineral Balance	√	√	√	√	↓		√	√
Balance Catabolic Metabolism								√
Balance Anabolic Metabolism								√
Supports Mineral Synthesis		√						√
Measurable Results		√	√					√
Restores Digestion		√				√		√
Inhibit Stone Formation								√
Repairs cell membranes		√						√
Repairs Detox Pathways		√						√
Cellular Detox		√	√	√		√	√	√
Mineral Cofactor Support		√	√					√
Breakdown Renegade Lipids		√						√

18 Phased Approach

This program has several steps or phases which generally categorize and list goals. The steps combine protocols, assessments and accelerants toward a maximum result in a minimum time.

1. Phase 1 - Preliminary Assessment
2. Phase 2 - Clearing Road Blocks
3. Phase 3 – Reconstruction & Detoxification
4. Phase 4 – Maintenance

Most individuals will find one or more parts of the program difficult. The good news is that the program aligns with natural urges for natural food consumption, so there is a minimum of discomfort.

There is a tendency for "health issues" to dissipate as the program progresses. Often rewards are rapid, sometimes not.

18.1 Program Support

Researching technologies and finding products that provide optimal benefit is quite a challenge.

This publication provides an orderly program to improve cell function by integrating several modalities in a flow of tests and protocols.

Cell membrane optimization is a new area. Only a few physicians have ventured far enough from mainstream protocols to build protocols. Those protocols are supported by proprietary products, and require physical presence for evaluation and treatment.

In the absence of medical support, many have contributed generously to the pool of public knowledge. Much of the public knowledge is colored in light of positive personal experience, and lacks important guidance.

Three key areas are:

- When not to use a protocol;
- Why makes products better than others;
- How to know if it worked.

		Supplement	Breakfast	Lunch	Dinner	Evening	Bedtime
Step 2 – Normalize Bowel Function Continuous as Needed	Anti-Catabolic (poor sleep) or	nButyl alcohol			30	30	30
		Anabolic Cofactors			4		
		Eggnog	4 eggs				
	Anti-Anabolic (poor day energy)	Magnesium Thiosulfate	30	30			
		Catabolic Cofactors	2	2			
		Vitamin A	20				
Step 3 Liver Flush Monthly	Soft Liver Flush	Amazing Berry	1 ounce daily				
		Apple Cider	1 quart daily until successful Fat Tolerance Test				
		Ammonium Phosphate	Take 4 Ammonium Phosphate tablets with meals.				
	Cellular Liver Cleanse	Silymarin	3	3	3		
		Alpha Keto Glutarate	2	2	2		
		Lipoic+	3	3	3		
		Hetero-Polysaccharides	2	2	2		
	Visual Contrast Sensitivity Test	University of South Dakota web page and run the computer version of the visual contrast sensitivity test. It is free and gives you a score of your visual contrast sensitivity which indicates your performance. Click Here					
Step 4 Build & Detox Food	High Fat Diet with Butyrate	Eggnog	Eggnog, raw foods, high consumption of high quality lipids. Cream/butter is required because it provides butyrate to break-down renegade lipids.				
	Support Proteins	Inositol	Co-construction molecule for neural sheaths & cell membranes.				
	Accelerate Lipid Toxin elimination	Amazing Berry	10 min after Eggnog				

Step 6 - Pulsed Magnetic Fields – 30 minutes to 60 minutes daily to optimize cellular lipid structure

Liver, heavy metal, and lipid toxin clearing	Liposomal C	4 tsp				
	Liposomal Glutathione	2 tsp				
	Liposomal Myers Cocktail	2 ounces every third day				
	Oak Bark Extract	Zinc donor to accelerate heavy metal detoxification				

18.2 The Program

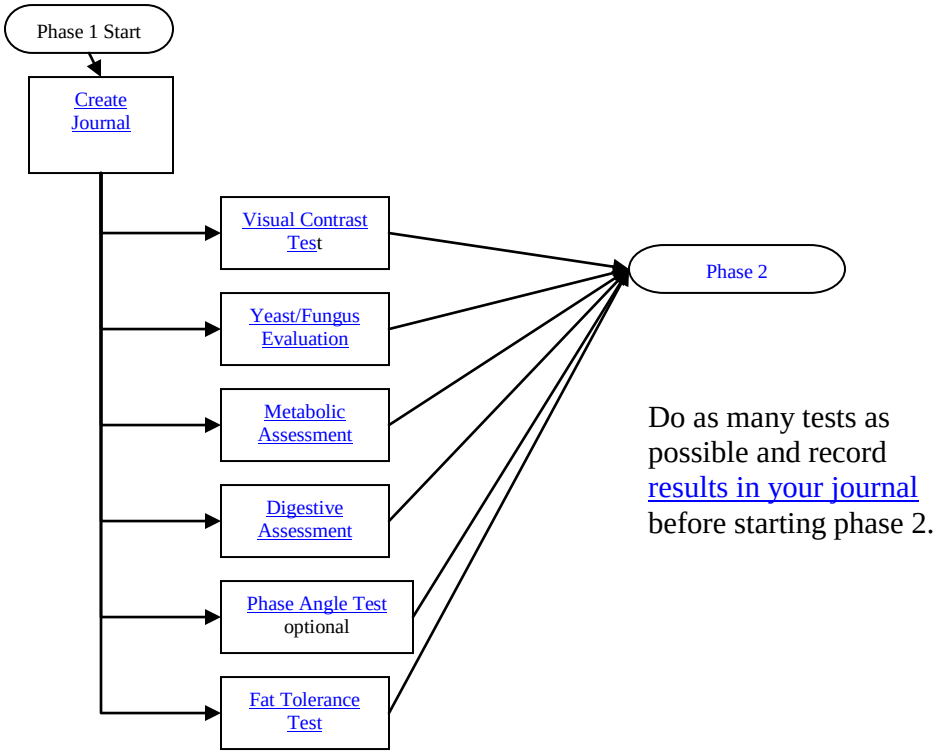
This program model is presented as a flow chart. Electronic versions of this document have active flow charts which enable you to click and obtain more information about the recommended activity.

Parallel paths from start to finish mean that the items in each path are generally independent. Complete as many of the paths as possible to increase the probability of success, and for fastest progress.

18.3 Phase 1 – Preliminary Assessment

Phase-1 prepares for the rest of the process by recording an initial data which indicates the starting point during the program. This data will aid in documenting progress, or the absence thereof, and will help objectify the effects of the program.

Record the results of all of these tests in your journal. Click the items in the flow chart to get more information. Complete all of the assessments before proceeding to Phase 2. The initial assessment enables progress tracking.



18.4 Phase 2 - Clearing Road Blocks

The goal of phase two is to assure that the metabolic systems are working well enough to enable cellular regeneration.

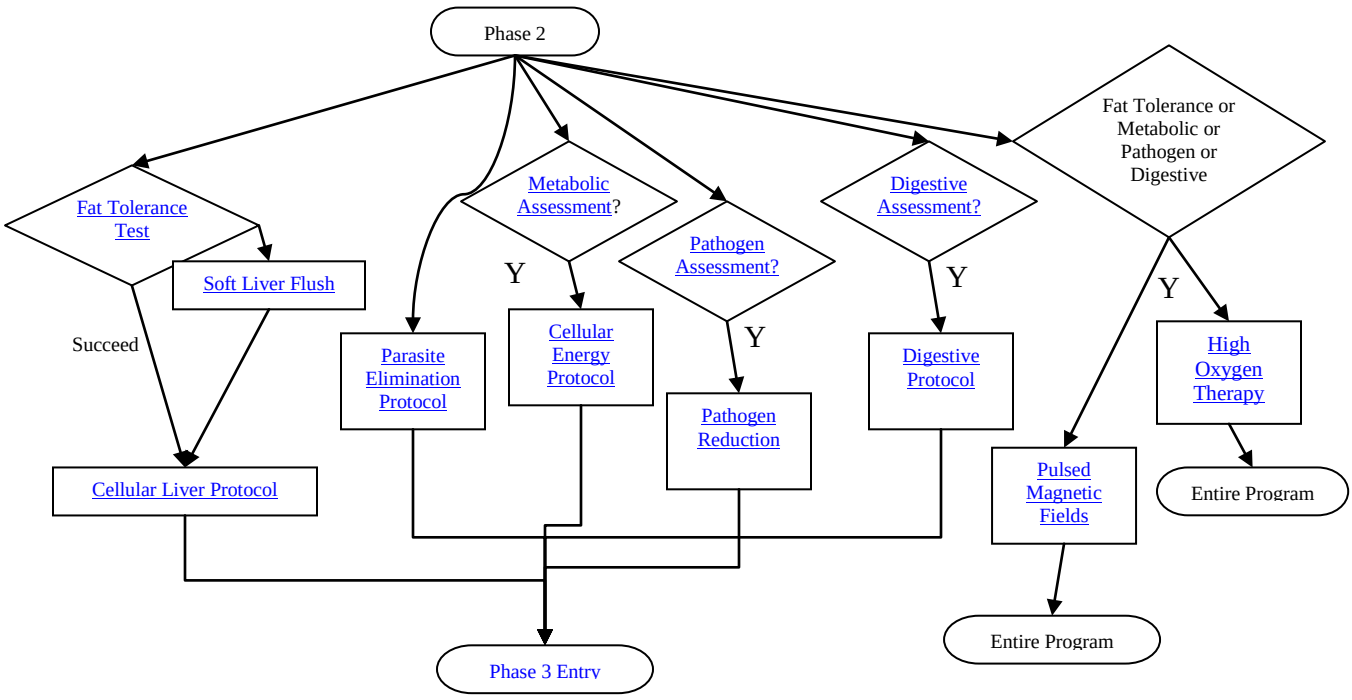
This phase clears the road for progress. There are four major systems necessary for system cellular recovery. They are:

- Detoxification Pathways – Liver & Gut;

- Pathogen Reduction – Immune System;
- Nutrient Absorption – Digestive System
- Cellular Energy– Anabolic & Catabolic (water chemistry)

This program presents a flow diagram for this part of the program. If you are using an electronic version of this document, click on the graphic and you to get more information on the protocol step.

Complete as many paths as possible before continuing to Phase 2. The more paths you complete the better the chances of a successful outcome, and the faster you will obtain your health goal(s).

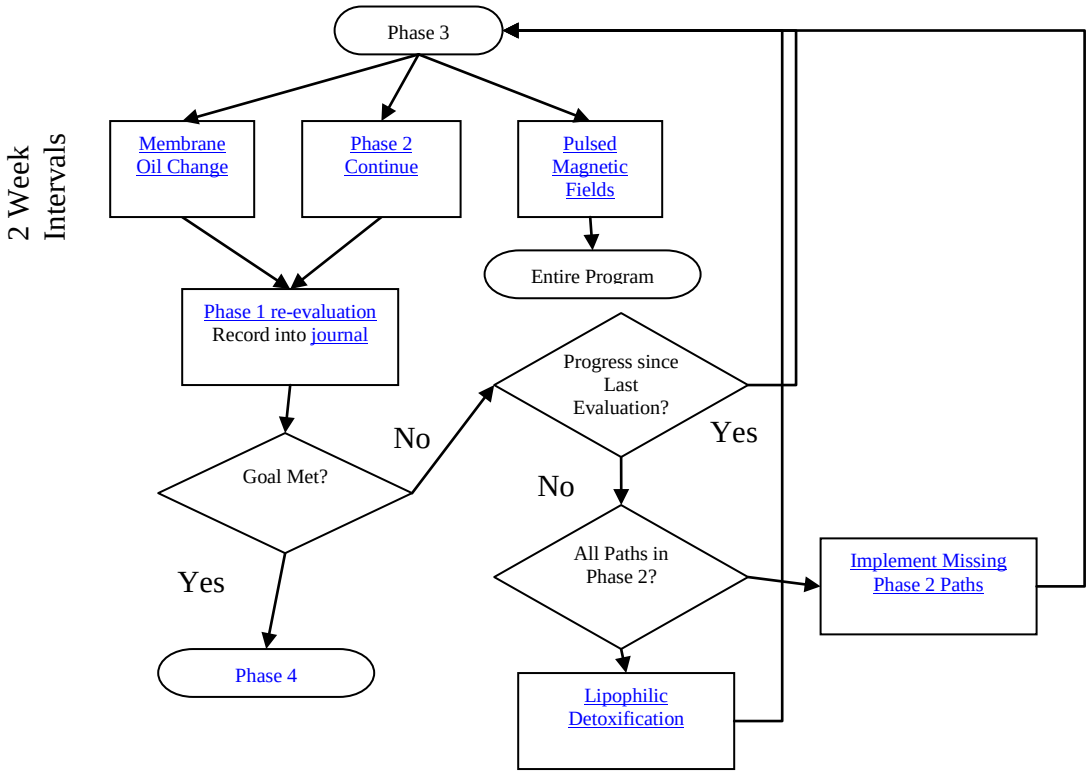


The metabolic protocols, of High Oxygen Therapy and Pulsed Magnetic Fields strongly influence performance of the entire protocol.

18.5 Phase 3 – Reconstruction & Detoxification

There are four basic goals in phase two:

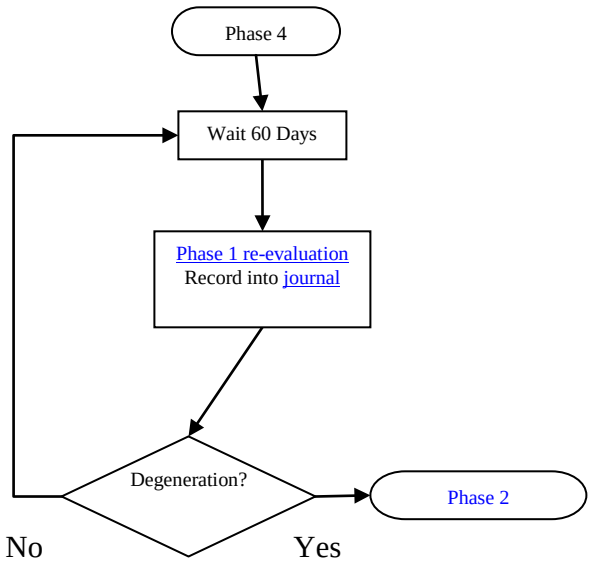
- Cell Membrane Restoration
- Liver Recovery
- Toxin Elimination
- Progress management



18.6 Phase 4 – Maintenance

This part of the program involves regular evaluation to retain regained health. This is a common sense approach to catch and repair degeneration every two months so that the return to health remains a short journey.

- Health survey every 2 months
- Respond to issues by restarting program



19 Testing Strategies

Testing methods serve multiple purposes:

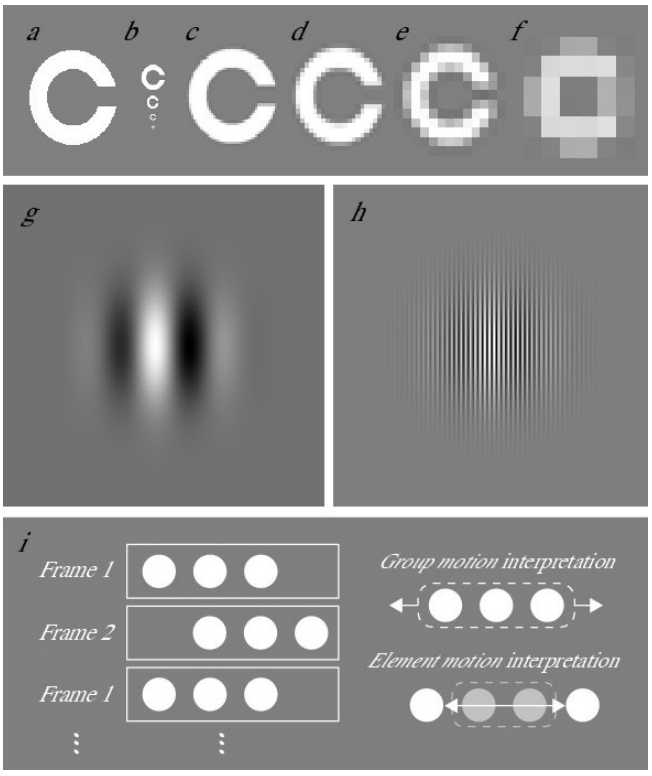
- Assure that protocols objectively show progress;
- Detect situations which indicate a protocol may be harmful or unproductive;
- Enable strategy adjustments when protocols indicate inadequate progress;
- To know when the job is done.

We discuss two different methods of monitoring progress:

- Visual Contrast Sensitivity Testing – evaluates visual performance indicating the quality of the photoreceptors in the eye which is highly indicative of systemic lipid integrity;
- Bio-Impedance phase angle – directly evaluates cell membrane integrity by electrically testing capacitance in the body;
- Fat Tolerance Test
- Bile Capacitance Test

19.1 Visual Contrast Test

The cells in the retina are very sensitive to lipid quality and fat sensitivity. Retinal cells are replaced at 6% per day. This means you get a new retina every 16 days. Visual contrast sensitivity varies by the quality of retina cells, which in turn vary with the amount of toxins in your system. Measuring visual contrast sensitivity provides a fast and free method of tracking detoxification performance.



If you have a computer, this test will provide free feedback for how you are responding to the protocol. Your visual contrast sensitivity will improve as you progress.

This link describes the visual contrasts sensitivity testing in extreme scientific detail. In summary, forced choice contrast sensitivity testing is a highly reliable method of tracking neuron-optical performance.

Here is a link to the University of South Dakota which provides a forced choice sensitivity test, which is the most reliable form. The test will take about 20 minutes, and will provide a baseline evaluation of visual contrast sensitivity.

1. Click Here to take the Visual Contrast Sensitivity Test at the University of South Dakota System – Login: ***dshedu***
2. Select "Run Visual Contrast Sensitivity Experiment" and then page down and click the "Run Contrast Sensitivity Experiment" button.
3. Your computer will present two images fast.
    a. If you see contrast in the first image, click the "***1st Interval***" button.
    b. If you see lines in the second image click the "***2nd Interval***" button.
    c. If you didn't see it, press the "***Present Stimuli***" button to show the image again.
    d. You will be forced to choose.
    e. If you can't tell, just press the "***1st Interval***" button.
4. If you have problems with the test click here to adjust your browser settings.

The first time you take the test it will take about ½ hour. Repeated tests will take about 10 minutes. It's easy after you get the hang of it, but the forced test forces you to make decisions when you just can't see the contrast.

It's free and a good way to measure progress. Be sure to print out your report so you can review your results.

When you finish the Visual Contrast Test, you will get a report that looks like this:

User Name: dshedu

University of South Dakota
Department of Psychology
Internet Psychology Laboratory

Date: Tue Jul 10 04:54:42 MDT 2007

Contrast Sensitivity Function

Spatial Frequency (cycles/image)	Contrast Sensitivity
4	237.38
8	296.10
16	389.39
32	265.00
64	345.90

End of report

The Contrast Sensitivity numbers in the right hand column are important because they indicate how well your eyes detect shade differences. As your detoxification system improves, your vision will improve. This improvement in vision will generally reflect the improvement in quality in the cell membranes throughout your body.

It's wise to add the contrast sensitivity test results to your journal so you can track your progress.

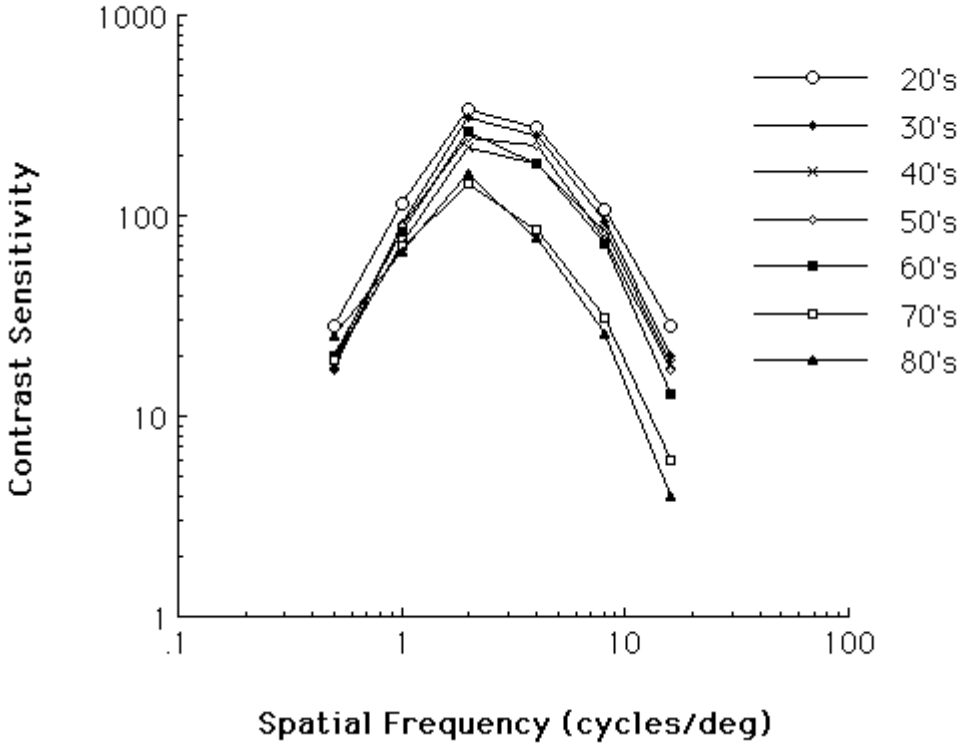


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Figure 1.
Contrast sensitivity functions of seven age groups
(after Schieber, 1992)

19.2 Phase Angle

Phase angle is an electronic test designed for electrical circuits.

The body is an electrical, and has electrical parameters. There are three major electrical parameters which determine how electrical circuits behave:

- Resistance – is the tendency to oppose electricity;
- Capacitance – is the tendency to store potential, like holding a stone in the air;
- Inductance – is the tendency to moving electricity, like momentum.

Electricity is well beyond the scope of this document. Please review this article for a fuller discussion http://www.rjlsystems.com/docs/phase_angle/.

Phase angle measures cell membrane integrity because the outside of the cell insulates the inside from the outside. This creates a capacitor.

When cellular capacitors leak energy because of poor cell membrane integrity, there is a measurable decrease in phase angle.

Conversely, when a therapy improves cell membrane integrity, there is a measurable increase in phase angle.

Phase angle is a method to measure the short and long term effects of therapy on cell membranes.

19.3 Bile Capacitance Test

It is plausible to measure bilary capacitance by consuming phosphoric acid bearing compounds. Mono-basic ammonium phosphate, $NH_4H_2PO_4$, is a phosphoric acid source which releases phosphoric acid upon ingestion, or ortho-phosphoric acid both bind to bile in the gut and remove it from circulation.

Eventually phosphoric acid will overload the alkali buffering capability of the liver and will cause diarrhea due to intestinal acidification, or more likely will cause systemic acidosis, resulting in lactic acid overload, and other hyper acidic telltales.

The amount of acid that can be successfully neutralized before diarrhea indicates potency and reserve bile capacity.

Caution is advised because this test causes systemic acidosis.

Systemic acidosis is widespread due to the widespread consumption of dietary phosphoric acid, mostly in soft drink products like cola.

19.4 Fat Tolerance Test

The easy way to determine bilary obstruction is to eat a high fat meal. A good candidate is a baked potato (carbohydrate), mashed and saturated with butter, and laden with sour cream. Use ¼ to ½ stick of butter and 2+ Tablespoons of sour cream, salted & seasoned to taste.

It is very important to load the potato with as much butter and sour cream as possible. The goal of the test is to consume over ¼ cup of fat in a single meal. The fat reduces the glycemic index dramatically.

For most, this is a simple and easy test of the ability to release bile. If you are unable to release bile, the fatty meal will cause you to feel nausea, and severe indigestion, and may make you sick.

If looking at this picture, or thinking about eating a high fat meal makes you feel ill, then assume you won't pass the fat tolerance test. If you decide to do this test, and can't eat the

potato, then don't force it. The potato test isn't a therapy. It's just a way to see if you can release enough bile to see if you can successfully digest ½ cup of fat.

If you can't release bile, the potato won't help.

This is different from not liking sour cream and butter. It's okay to substitute any meal with about 1/2 cup of cold pressed oil for the potato, sour cream and butter.

Knowing whether you can tolerate fat consumption determines the requirement to a soft liver flush.

There are two different failure modes:

- Bile quantity failure -- results in digestive symptoms, bloating, flatulence or indigestion;
- Bile flow failure – which results in bile back-flow into the blood and lymph causing systemic sickness, toxicity, and general illness.

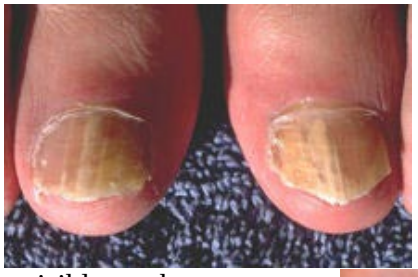
If you have a bile quantity failure, you can proceed to a hard flush. If you have a bile flow failure, it is dangerous for you to do a hard flush. You must do a soft flush process until you can successfully release bile without becoming ill.

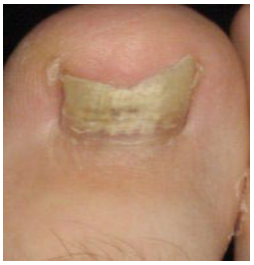
19.5 Yeast/Fungus Evaluation

Pathogens are organisms that disrupt metabolism and burden the immune system. Evaluating pathogen load is simple and fast. Look at your toenails and your tongue.

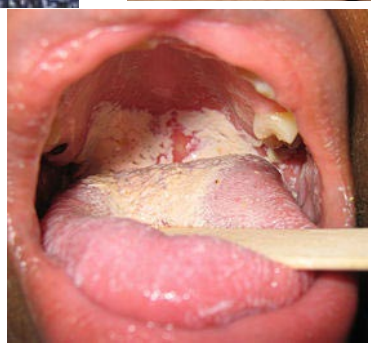
19.6 Physical Telltales

Individuals with pathogen loads will have a tendency for thickened or yellowish toenails.





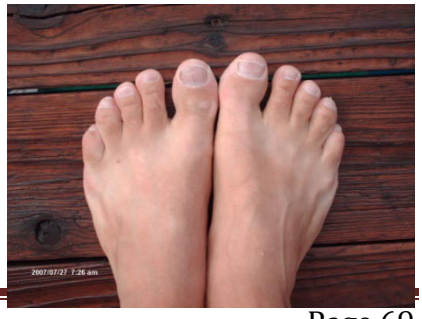
Likewise yeast overloads presents visibly on the tongue. Candida is one of many endogenic, from within, yeast forms that shift from symbiotic to pathogenic with metabolic imbalance.



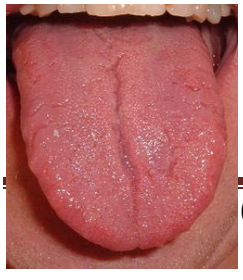
If you have either of these telltales, include pathogenic protocols in your program.

These organisms are probably producing toxins which adversely influence your metabolism and which contribute to your health issues.

This is a picture of toenails without fungus. Note the absence of yellowish discoloration in all toenails, and the absence of thickening, and uniform nail thickness on all nails, including the small toe.



This is an image of a tongue without signs of fungus. Note the uniform



flesh color, and absence of discoloration.

19.7 The Glucose Telltale

Pathogens manipulate insulin metabolism to increase glucose availability. They do this in at least two ways:

- The produce toxins which poke holes in cell membranes to reduce insulin sensitivity; reduced insulin sensitivity means that the body's cells are slow absorb glucose, leaving more for pathogen feeding;
- They directly influence hormone systems, converting progesterone into pregnenolone, which triggers and adrenal response, and elevated glucagon conversion in the liver.

If you have:

- Fasting Glucose above 90;
- Elevated HbA1C levels indicating glycated hemoglobin, a telltale for long-term glucose elevation;
- Elevated post-prandial glucose levels.
- Diabetes.

Then presume that you have yeast/fungus, even if the tongue and toenails indicators may not be visible.

19.8 Yeast to Catabolic tendency

Catabolic leaning individuals will tend to show positive for yeast. Anabolic individuals will tend to show negative for yeast. Both tend to show positive for fungus, with catabolics tending to have more visible signs.

Figure 23 - Tapeworm

19.9 Parasite Assessment

Parasites are organisms which inhabit our bodies and feed on fluids. They include many different organisms which interfere with health:

Figure 24 - 2 Pinworms

- Intestinal parasites, tapeworms, pinworms;
- Liver Flukes;

Figure 26 - Capsule in liver to contain a liver fluke

Figure 25 - Sheep Liver Fluke

Parasites tend to cause mild symptoms and are often undetectable.

They survive by existing without detection and without triggering an effective immune response. They provide stealth burden, often contributing to disease.

Parasites survive by avoiding the host's immune system. This strategy usually involves creation of chemicals which suppress the immune system.

Suppression reduces the body's ability to defend itself from other organisms. Suppression agents are toxins which inhibit the immune system's ability to respond to a invading organisms. In simple terms they exist by making the sure the host organism remains too weak to mount an effective immune response. Parasites are bad news for the host.

Telltales for parasite infection:

- Rectal itching;
- Abdominal pain, typically on the right side just above the hip and below the ribcage;
- Nausea, Weakness, Loss of appetite, Diarrhea, Weight loss
- Periodic mild rectal bleeding occurs when the parasite releases to migrate to the anus to lay eggs leaving an open lesion on the intestine wall;
- Tapeworm segments in stool;
- Anemia (liver parasites), jaundice (decreased liver function);

The good news is that parasites are generally and inexpensive to get rid of. Modern nutritional protocols are inexpensive and effective at parasite elimination in egg, larval, and mature forms.

19.10 Metabolic Assessment

This assessment helps to determine metabolic bias, imbalances in cellular energy production, and bowel clearance capability.

Anabolic Tendency	***Y/n***	***Catabolic Tendency***	***Y/n***
Do you have to get up at night to urinate?		Do you feel you are a "morning person"?	
More than once per night?		Do you tend toward insufficient urination, perhaps often but small amounts?	
Do you tend toward constipation?		Do you tend toward diarrhea?	
Do you tend toward overly frequent urination, with volume?		Do you tend to have difficulty falling asleep or staying asleep?	
Do you tend to have difficulty awakening in the morning?		Do you get up easily in the morning but find yourself tired in two + hours?	
Count the Yes above		**Count the Yes above**	

The column with the highest score indicates whether you tend more toward anabolic or catabolic.

Anabolic leaning individuals tend to require supplementation to improve mitochondrial performance. Catabolic individuals tend to require supplementation to improve cell membrane energy production.

Individuals who exhibit high scores in both categories may require both.

19.11 Digestive Assessment

This assessment helps to determine metabolic bias, imbalances in cellular energy production, and bowel clearance capability.

Stomach	***Y/n***	***Pancreas***	***Y/n***	***Liver***	***Y/n***
Do you get heartburn?		Do you have gas?		Do have difficulty digesting fatty food?	
Do you belch after meals?		Is there yellow on your toenails?		Is your tongue greenish?	
Do you have problems digesting meat?		Are your toenails thickened?		Do you have dark areas under your eyes?	
Do you feel bloating high in your gut after meals?		Do you feel bloating in the lower gut after meals?		Are your eyes yellowish?	
Count the Yes above		**Count the Yes above**		**Count the Yes above**	

20 Protocol Integration

1. Pulsed magnetic fields groom cellular lipid structures improving production of alkali minerals, and facilitating mitochondrial energy production. PEMF exposures are widely documented to accelerate recovery in a wide range of clinical conditions. PEMF exposure optimizes cellular metabolism and stimulates both anabolic and catabolic metabolism and balance. Click here to review over 2000 NIH research references.

2. High Oxygen Therapy increases plasma oxygen concentration increasing oxygen availability to tissues which are normally oxygen poor. Elevated systemic oxygen levels inhibit anaerobic pathogens and accelerate both healing and cellular metabolism. Click here to review over 23868 NIH research references.

3. Liposomal Glutathione. Glutathione is the body's major natural chelating agent. It is the master antioxidant produced and used naturally within cells. When the body's detoxification pathways break down, glutathione is depleted. This program uses large amounts of natural chelation, and hence avoids collateral demineralization liability of synthetic chelation agents, like EDTA. Click here to review over 400 NIH research References.

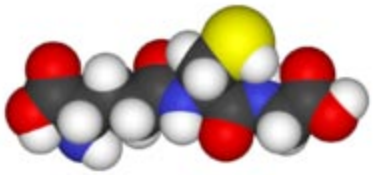


Figure 27 - Glutathione Molecule

4. Restoration of glutathione driven detoxification, using reduction and conjugation. The program rebuilds natural liver function using potpourri of well known antioxidants, and immune supporting supplements. Restoring optimal liver function and metabolic detoxification pathways is the core focus of this protocol. Toxin release is a side-effect of repairing the natural detoxification process. Click here to review over 290 NIH research References.

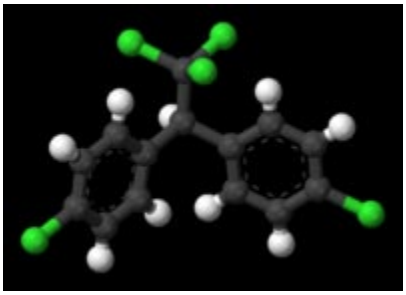


Figure 28 - DDT Molecule

5. Lipid Dilution Cleansing releases synthetic toxins; like Dioxin, Agent Orange, and DDT are severe poisons are nearly impossible for the body to naturally dump. This program uses a lipid-dilution strategy to enable detoxification of bi-symmetric and ion-stable molecular structures. Cell membrane lipid turnover improves the body's ability to dilute toxins which do not exit by normal detox pathways. Click here to review 989 NIH research references on Dioxin, DDT and Agent Orange.

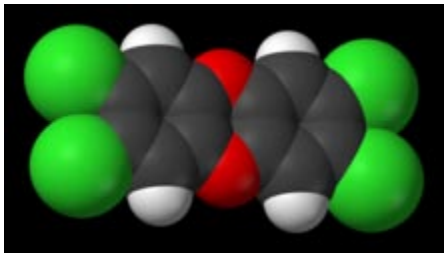


Figure 29 - Dioxin Molecule

6. Electromagnetic stimulation is critical to success of this strategy because bile-turnover depletes alkali minerals which are best replaced by stimulating natural cellular production. Most alkali minerals like potassium and calcium are poorly absorbed during digestion and are virtually never enter cells. Click here to review US army research confirming production of calcium inside cells.

21 Protocol Reference

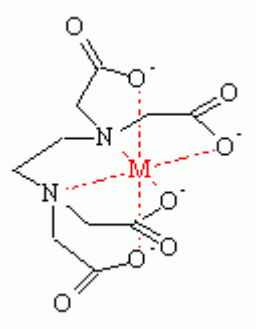
Many individuals have developed techniques for cleansing. This table describes several of the most popular approaches in general and provides links to obtain more detailed information.

Protocol Name	***Principle***	***Benefits***	***Cautions & Issues***	***Cost***
Clark / **Kelley**	***We discourage use of this protocol*.** It causes a high level of systemic stress and electrolyte imbalances and in some cases acute gall bladder distress resulting in emergency surgery & removal. Individuals with complete bile path obstruction can force large amounts of liver toxins into the blood and create a metabolic crisis.		Individuals should use the fat tolerance test before to avoid bile backflow because of stones which are too big to dump. Uses Epsom salts to relax digestive system, then a large amount of fat to trigger bile release which pushes liver & gallstones into the intestines for elimination in stool.	**$20**
PK Protocol	Uses dietary fats, intravenous phospholipids, and other agents to supply fresh cell membrane materials, and stimulate detoxification.	A safe and sane physician supported protocol which helps to re-establish cell membrane integrity and rebuild natural detoxification systems.	No Cautions. Only available through a small number of affiliates of the Haverford Wellness Center	**$5K - 10K**
Shoemaker	Uses prescription bile binding agents to bind bile and carry toxins out the stool. Shoemaker pioneered the use of visual contrast sensitivity testing to assess lipid detoxifications.	This is a quality assured detoxification strategy administered by a competent physician.	Only available from Dr. Shoemaker at ChronicNeuroToxins.com in Pocomoke City, MD.	**$2-6K**
EDTA Chelation	Uses chemicals to extract excess minerals from tissues and carry them to the kidneys for elimination.	Tends to reduce vascular plaque accumulation, and reduce cellular concentrations of toxic metals.	Removes all metals and can create mineral deficiency. Intravenous administration strongly preferred because EDTA is degraded significantly by digestion. Liposomal forms are available which pass digestion.	**$1-3K**

Silymarin	Uses milk thistle, dandelion, Lipoic acid, and other cellular anti-oxidants to protect and regenerate liver cells.	Tends to improve liver cellular health and liver function.	No cautions. Strongly advisable to establish bile flow in advance of, or in conjunction with cellular protocols.	**$100/ month**
Fasting	Reduces dietary intake, hence reducing incoming toxins. Pause in toxin ingestion enables clearance of accumulated toxins.	Tends to enable detoxification in individuals with functional detoxification.	Does not enable detoxification in individuals without functional detox capability. Loss of body-mass reserves by fasting decreases life expectancy in high toxin individuals.	**$0**
Bile Flush	Uses ortho-phosphoric acid, H_2PO_4 as a bile binding agent to prevent bile recycling.	Cause bile, containing recycled fats and lipid bound toxins, to exit in stool.	Phosphoric acid neutralizes alkali reserves creating risk of metabolic acidosis. Use only when monitoring acidosis with breath-hold time and urine & saliva pH Ortho-phosphoric acid dissolves teeth. Always brush your teeth with baking soda after oral administration.	**$100/month**
Coffee Enema	Pushes coffee into the lower digestive system causing bile production, relaxing of bile ducts and triggering elimination. Nearly complete detoxification: • Stimulates bile production mobilizing toxins collected in the liver; • Stimulates bile release discharging toxins; • Enema stimulates exit of bile from digestive system.	Useful for: • Cellular detoxification • Liver Stones • Gall Stones Inexpensive. Non-traumatic. Fast results. Individuals with high toxicity feel better in about 30 minutes	Limit to 3 per day. .	
Cider Flush	Uses malic acid and pectin to dissolve stones in the liver and gall bladder. Drink 1 quart of apple cider daily to soften and dissolve liver and gall stones.	Reduces stone sizes gradually to enable passage later. Gentle. Inexpensive.	Protocol inadvisable for individuals with insulin resistance. Apples have lots of sugar. Do not use if you have strong	

			indication of fungus or yeast.	
Amazing Berry Flush	Same as Cider Flush	Reduces stone size and stimulates bile release. Very small amount of sugar.	None. Okay for individuals with yeast or fungus.	
Lipophilic Detox	Liposomals supplements are followed by a fatty meal in 2 hours followed by a large dose of fiber. Liposomals support lipid turnover and toxin mobilization. Fatty meals trigger bile release. Fiber chasers absorb bile to pass digestion for elimination. Can be combined with phosphoric acid when urine pH remains above 5.5 to accelerate bile turnover.	Works like an oil change in your car to dilute toxins and eliminate toxins with overflow elimination.	Low risk protocol. The only published protocol designed to eliminate synthetic toxins. Synthetic toxins are very difficult to eliminate because their chemical structures inhibit elimination by natural metabolic pathways. pathways	**$400 /month**
Membrane Optimization	Translates physician protocols, PK Protocol & Shoemaker, into oral forms using liposomal encapsulated agents. Integrates other protocols as needed for optimal results.	Self administered – physician access not required Best possible results. Less expensive than physician protocols.	Avoids risks of other protocols.	**$1-3 K over 1-3 months**

21.1 Footnotes & Cautions:



21.2 Chelation

The standard detoxification approach treats toxins independently from the process that allowed them to accumulate. Conventional chelation therapy uses agents like EDTA, to grab or claw metals like mercury, lead and others for elimination, usually in urine.

21.3 Bile Flush

There is a strong tendency to cause metabolic acidosis. Only use this strategy when urine pH remains above about 5.5, and preferably in conjunction with support protocols which re-supply alkali minerals like pulsed magnetic fields.

21.4 Fasting

Inadvisable for individuals with synthetic toxin loads, Dioxin, DDT, etc. Fasting causes activates of fat burning. Fat burning mobilizes toxins and moves them to the mitochondria where they do more damage than in the cell membrane. This explains why individuals with Agent Orange become deathly ill when they attempt standard detoxification strategies.

21.5 Attribute Reference

This chart helps to decipher the attributes of various cleanses.

Attribute	*Explanation*	*Plus*	*Minus*
Self Administer	Individual can obtain the materials and instructions for the protocol without a prescription or physician support	Affordable & location independent	Most protocols lack adequate information about when to use, risks, and how to correlate. Caution strongly advised regarding undocumented risks of self administered protocols.
Hydrophilic Detox	Cleanses water based chemistry	Inexpensive,	Short term results, inconsistent results with lipid chemistry. Strong adverse reactions with synthetic toxins, Agent Orange, DDT, etc. because hyper-activation of fat metabolism routes lipids with toxins to mitochondria, damaging mitochondrial performance. Can makes bad problems worse, by damaging mitochondrial function
Immune Modulators	Use of glyconutrients and hetero-polysaccharides to optimize immune functions	Enhanced Immune function reduces disruptive influence parasites; fungus & yeast have on hormone and metabolic systems. Good for conditions with inflammatory liver conditions & hyperlipidemia. Complex saccharides provide materials for advanced cell membrane immune & hormone receptors.	Very narrow strategy. Rarely provides compelling results by itself beyond cholesterol & triglyceride reduction.
Pass Stones	Use of protocols that trigger ejection of stones from liver and gall bladder.	Fast response. Inexpensive.	Dangerous for individuals with so many liver stones that toxins overflow into blood, or back-flow into lymphatic system.

			Can cause severe kidney stress because the kidneys must dump bile. ***Always*** use the Fat Tolerance Test to confirm that enough bile flows to avoid a systemic toxin backup crisis.
Dissolve Stones	Use of protocols which use agents which dissolve stones in the liver and gall bladder	Works for liver stones and gall stones. Gentle. Generally will not cause system toxicity crisis.	Slow response. Low risk of adverse side effects.
Balance Catabolic Metabolism	Use of protocols which enhance the cell membrane integrity using hydrophilic supplements to enhance cell membrane energy production and activate cellular potassium production.	Temporarily repairs catabolic metabolism. Improves sleep. Improves healing capability. Long term use improves alkali mineral availability. Improves bile quality and quantity to quench stomach acid and curb diarrhea. Reduces kidney stress in heavily catabolic individuals enabling use of stone flush protocols.	Transient results. A critical part of the whole program for individuals with catabolic tendencies.
Balance Anabolic Metabolism	Protocols which activate mitochondrial energy production.	Temporarily repairs anabolic metabolism. Improves daytime energy. Improves digestion by increasing stomach acid strength and routing fluid to intestines to naturally reduce constipation.	Transient results. A critical part of the whole program for individuals with anabolic tendencies.
Rebuild Liver	Protocols which provide liver with cellular building materials, or cellular protection.	Enables durable reconstruction of liver and long term improvement in natural detoxification capability.	Does not work well alone. Requires bile flow, stone clearing, normalized fat digestion, and usually immune modulation.
Avoid Kidney Stress	Some protocols overload the kidneys and trigger a crisis.		
Metal Detox	Mercury, lead, arsenic, aluminum and other metals are lipophilic and pollute cell membranes throughout	Improves system-wide cell performance, and reduces causal factors in a wide variety of diseases.	Temporary. Absent repair of natural detoxification systems, metals continue to accumulate causing repeating need detoxify metals.

	the body. They create weaknesses in the cell membrane and contribute cell membrane power loss.		Chelation strategies using EDTA are indiscriminate in their grabbing metals, often depleting bio-essential minerals, and causing subsequent imbalances.
Dilute Synthetic Toxins	Causes lipid turnover where bile is neutralized in the intestines and excreted in stool.	Causes fat release and usually weight loss without burning calories.	Depletes bile salts and minerals. Always monitor urine pH to prevent acidosis. Advisable to use juicing, minerals, and pulsed magnetic fields to maintain optimal cellular mineral metabolism.
Retain Mineral Balance	Some protocols deplete minerals. Protocols which use natural detoxification pathways tend to avoid collateral imbalances		
Supports Mineral Synthesis	Cells produce potassium and calcium during metabolism. Repairing the cell membrane is essential to durable metabolic repair.	Creates durable response. Repairs anabolic and catabolic metabolism. Restarts supply for minerals required to maintain liver-stone formation and optimal digestion.	Generally possible without lipid refactoring. Requires metal detox. Requires synthetic detox. Requires liver performance optimization. Success requires elimination of active membrane degradation including fungus, viral, bacterial pathogens & bilary back-flow.
Measurable Results	Use of an quantitative method to assess protocol performance relative to health goal.	Provides feedback & confidence. Enables strategy shifts if protocols not working. Justifies effort and expense of protocol toward beneficial end.	No Downside
Restores Digestion	Digestion is essential.		No Downside
Inhibit Stone Formation	Shifts metabolism so that bilary blockage is less likely to occur in the future. Mineral synthesis at the cellular level, and avoidance of over-dumping bile tend to avoid stone formation.		No Downside
Repairs cell membranes	Cell membrane health is the basis of health.	Cell membranes enable optimal cell function. Requires energy, absence of toxins, and high quality building	No downside Absent cell membrane quality illness will persist.

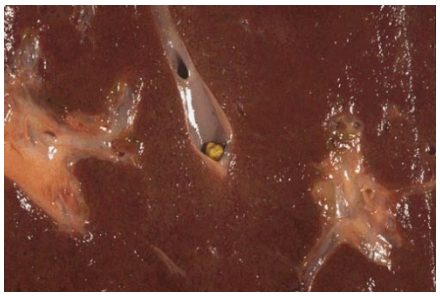
		materials.	
Repairs Detox Pathways	Dumping toxins is not near as useful as fixing the system which is supposed to do it automatically.	Durable detoxification gets rid of toxins and keeps getting rid of toxins.	No downside
Cellular Detox	Removes metals and other toxins from cells.	Improves short term cell performance until toxins re-accumulate.	Temporary without repairing natural detoxification pathways.
Mineral Cofactor Support	Provides catalysts that participate in cellular metabolism	Many cellular processes are poorly understood. It's better to provide a wide spectrum of chemical/mineral resources to facilitate recovery. Observed to help with detoxification and recovery	No Downside
Breakdown Renegade Lipids	Lipid Peroxidation creates rancid fats which form functionally disruptive fats in the cell membrane. Butter, cream provide butyrate which aids in breaking renegade lipids into detox-capable units.	Required to re-establish optimal cell performance.	No Downside

22 Protocol Library

22.1 Soft Liver Flush Techniques

If you failed the Fat Tolerance Test by experiencing nausea or felt sick in your whole body, then you need to start with the soft liver flush.

You probably have liver stones blocking bile passage, so a hard flush may or may not enable you to clear the stones.



You can try a hard flush, but be aware that you will either succeed passing the stones, or it will make you quite sick for a day or two.

These recommendations help to dissolve liver stones.

Remember a clogged bile path is ***the*** reason you can't eat fat. It's also a strong contributor to a lot of serious health problems we promise you ***really*** want to avoid.

22.1.1 Amazing Berry Flush

This is easiest method to do a soft liver flush:

- Small amount of supplements daily
- Very small amount of carbohydrate
- Convenient

Amazing is a tart berry high in anti-oxidants. It contains high concentrations of acids which help dissolve liver and gall stones. The acidity also triggers bile release. It contains a very small amount of sugar so is okay for insulin resistant individuals.

Take 1 ounce of amazing berry juice per day. Click Here to find Products.

22.1.2 Coffee Enemas

If you're so clogged you can't tolerate fat, and ten gallons of cider didn't get you cleaned out -- your situation is serious. Forget modesty. Spend $10 on an enema bag and start daily coffee enemas until you can eat fat.

Here are simple instructions: Coffee Enema Simple

We can help you obtain highly effective natural products which will help soften liver and gallstones and improve bile flow.

22.1.3 Apple Cider Flush

Drink one quart of fresh apple cider every day. Do not use pasteurized grocery-store apple juice. Buy fresh apple cider or better yet, buy tart apples and juice them.

If you don't have a juicer, you can buy an inexpensive one at Wal-Mart for about $25 that will work fine for apples.

Unripe little green apples ideal. They contain very little sugar, and are very high in malic acid and pectin.

Ripe apples have too much sugar which provides food both yeast and fungus in insulin resistant individuals.

22.2 Hard Liver Flush

If you passed the Fat Tolerance Test, then prepare for a Hard Liver flush every two weeks for two months and then once every three months during the maintenance phase.

Each hard liver flush washes a portion of gall and liver stones into the digestive system for elimination. Repeated flushes keep bile path clear so that bile can flow.

If you were passed the fat tolerance test with only digestive upset, it probably means that you have gallstones, as in the photograph. You experienced digestive upset because you lacked bile storage which limits your ability to digest fat.

If you passed the fat tolerance test with no discomfort, you still probably have some stones, and this flush will be of likely benefit.

Here is a link to instructions for Hulda Clark's liver flush.

The entire flush takes about 24 hours. The main issue during the flush is to remain within close proximity to a toilet. The first four to six hours are usually okay, but thereafter little separates urge and requirement.

Hard Flush Kit:

- Mixer Vessel
- Lemon Juice & Stevia
- Olive Oil
- Epsom Salts
- Alka-Seltzer Gold
- L-Ornithine
- Probiotics

Visit our sponsors for pre-assembled hard flush kits.

22.3 Cellular Liver Protocol

The liver is made of cells. With bile-flow restriction, these cells live in a toxic soup. Continuous toxin exposure stresses the cells and hinders performance. It also guarantees of cellular under-performance, and increases the chances for other liver problems, Hepatitis, fatty liver disease, liver cancer and other liver issues are more likely when bile flow is restricted.

Cellular support helps to maintain cellular health when there is bile congestion. We feel it is fully inadvisable to lose sight of the swamp analogy. Liver tonics that optimize liver cellular

health operate at a severe disadvantage in a swamp environment. After the sludge clears, liver cells have a much better chance for health.

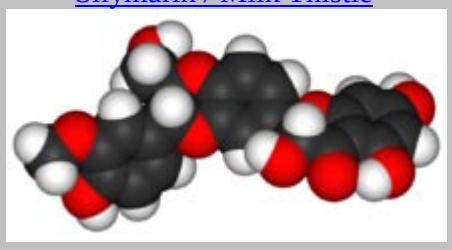
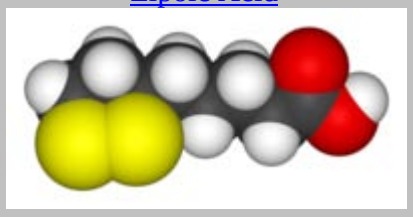
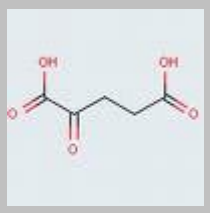
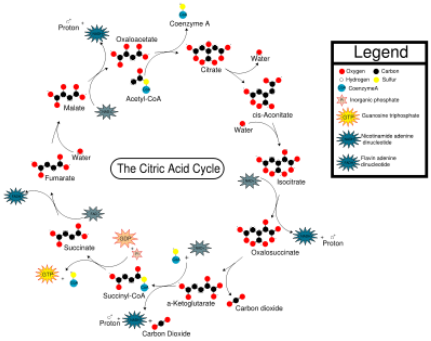
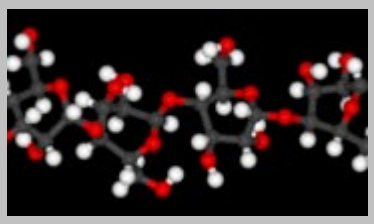
The liver has remarkable in ability to recover. Some studies show liver regeneration after 80% destruction. So it is very likely that your liver can recover with the proper support.

The Cellular Liver Cleanse focuses on strategies which nourish and maintain liver cells.

There are several well documented and highly effective supplements that support liver cellular health. The below table suggests a cellular liver support strategy using these supplements.

The cellular liver support program combines all of the supplements in the table.

Supplement	***Breakfast***	***Lunch***	***Dinner***
Silymarin / Milk Thistle	600 mg	600 mg	600 mg
Lipoic Acid	600 mg	600 mg	
Alpha-ketoglutaric Acid	600 mg	600 mg	600 mg
Mushroom Polysaccharides (alcohol stress / viral stress)	600 mg	600 mg	600 mg

Supplement	*Effect*
Silymarin / Milk Thistle 	Protects liver cells from toxins. Binds to toxins. Improves liver cell resilience. This liver tonic is so powerful that it is the only known treatment for poisoning from the deadly amanita family of mushrooms death cap. It is simply indispensable for restoring cellular liver health.
Lipoic Acid 	Lipoic acid is a lipophilic and hydrophilic antioxidant. It works in both lipids and water. It helps to recycle other antioxidants, Vitamin C, and Vitamin E. It also helps to transport glucose through the cell membrane, and is very helpful restoring glucose control. The diphilic nature enables it to cross the blood-brain barrier, and cell membranes.
Alpha-ketoglutaric Acid 	Alpha-ketoglutaric Acid is a key intermediary in the Krebs Cycle. It is a key element nitrogen transportation to the liver enabling the liver to function in the urea cycle. These combined effects often make alpha Ketoglutarate an important for cellular therapies. 
Mushroom Heteropolysaccharides 	Complex carbohydrates provide essential cellular communication structures forming glycol-lipids and glycol-proteins which enable immune cells to determine the health status of body cells. Immunomodulators enable the immune system to work effectively. Clinical data shows normalization of cellular liver function in pathogenic and alcohol toxin exposure and strong tendency for cholesterol normalization. Study 1, Study 2, Study 3, Mycology Research Portal.

22.4 Membrane Oil Change

Membrane renovation is a supplement strategy which provides large quantities of phospholipids.

Phospholipids are the lipid substrate, or major building block, of the cell membrane. The majority of phospholipids supplements are virtually guaranteed to become new cell membrane material.

The model is simple. Think about the oil in your car's engine. When the oil is dirty, you change it, replacing dirty oil with fresh. The old dirty oil is drained and discarded. If you put a cup of dioxin in your car's engine, and changed the oil, very little dioxin would remain after even a single oil change.

The human body is different. You can't drain the oil. Membrane Renovation slowly replaces the cellular-membrane lipids by continuously over-supplying ideal lipids. It is like adding a little fresh oil to your car every day, and letting the over-flow escape to dispose of the dirty oil. The oil gets cleaner, just not all at once.

In other words, if we add ¼ pounds of unpolluted lipids to the body in a day, in a form guaranteed to integrate into the cell membranes, we will dilute the toxins. The overflow lipids will be discarded by the liver as bile. The systemic result will be a decreased concentration of lipophilic toxins in the cell membranes.

Presuming that detoxification systems are working, the body will discard the polluted and damaged lipids. Functional detoxification is critical. Functional liver is the key to functional detoxification. This is why optimal liver function is a key.

Structured phospholipids supplements are relatively expensive by nutritional supplement standards. They are not expensive by drug-therapy standards.

	Percentage of Cell membrane material replaced	
Weight	2.5 lbs/month	5 lbs/month
90 lbs	68%	136%
120 lbs	52%	104%
150 lbs	41%	82%
180 lbs	34%	68%
210 lbs	30%	60%
240 lbs	26%	52%

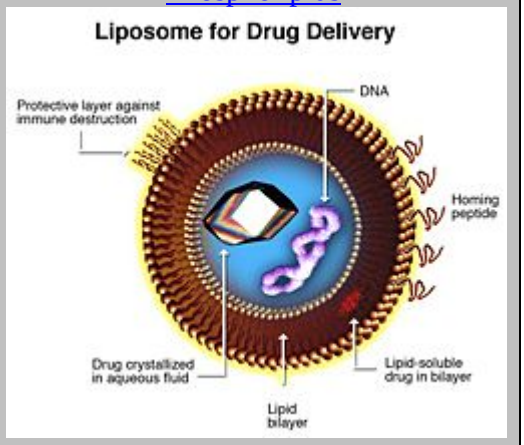
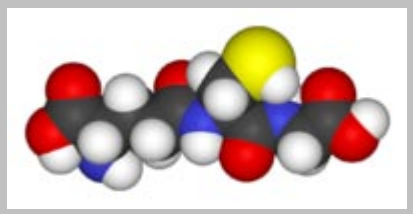
Notes:

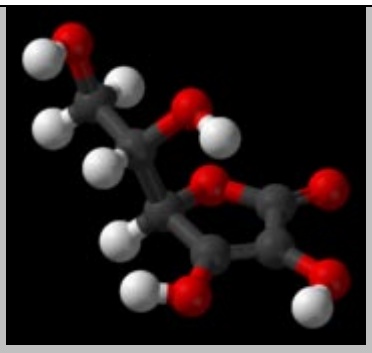
- Phospholipids, vitamin C and glutathione are non-toxic in any amount;
- The replacement percentage roughly equates to dilution of synthetic lipophilic toxins, Agent Orange, DDT, and etc.

- Higher dosages over shorter time produce a greater dilution effect than low doses over longer time.

We suggest using them in conjunction with, or immediately following the Cellular Liver Protocol. This is the dosage schedule suggests 2.5 pounds per month.

Supplement	*Breakfast*	*Lunch*	*Dinner*	*Every four Days*
Liposomal Vitamin C	2 teaspoons		2 teaspoons	
Liposomal Glutathione	1 teaspoon		1 teaspoon	
Liposomal Myers Cocktail				2 ounces

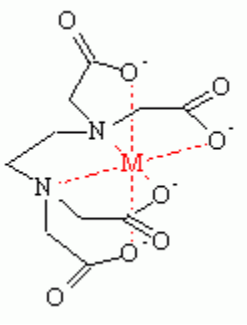
Supplement	*Effect*
Phospholipids 	Liposomals pass the gut and enter the liver via the portal vein without digestion. Liposomals merge with liver cell membranes: • Cleanse liver cells by dilution of lipid-bound toxins lodged in liver-cell membranes; • Accelerate liver cell regeneration by providing raw material for new liver cells delivered directly to liver cells. • Accelerate body cell regeneration by providing raw materials for cells throughout the body enabling replacement of damaged or polluted cell membrane substrate.
Liposomal Glutathione 	Glutathione is a master antioxidant. Non-liposomal Glutathione breaks down during digestion. Many people have sub-optimal glutathione levels because of compromised cellular function, or because glutathione is lost in natural detoxification. Liposomal glutathione delivers extra glutathione directly to cells lifting performance of natural detoxification pathways.
Liposomal Vitamin C	Vitamin C is a well known antioxidant. Liposomal administration provides to advantages: • Delivers phospholipids to the liver • Avoids bowel tolerance for large dose vitamin C

	
Liposomal Myer's Cocktail	The Myers' cocktail is a high dose broad spectrum antioxidant mixture with easily observable benefits for a wide range of health issues. Liposomal forms enable oral administration. Liposomal encapsulation also helps with cellular absorption and provides extra cell membrane substrate material.

22.5 Lipophilic Dilution Protocol

There are two classes of lipid toxins, those we can naturally detoxify, and those we can't.

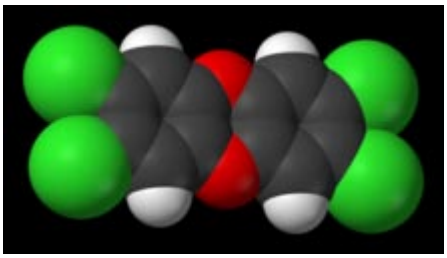
The atomic difference between these reflects a combination of size and grab-capability. Naturally detox relies on the ability to wrap toxins in a chelating molecule and carry it out of the body.



Under appropriate circumstances, our bodies can naturally detoxify heavy metals, and other small molecules.

The trouble comes with larger molecules with structures which do not fit into natural chelation structures like glutathione. Synthetic toxins, with larger structures, that dissolve in fat, that lack loose electrons, present a far greater detoxification challenge because they do not fit within our natural detoxification pathways.

Agent Orange, AO, exposure loads the body with toxins for a lifetime because our bodies are poorly equipped to grab and excrete many synthetic toxins. The unfortunate result is a tendency to accumulate these toxins for a lifetime, until disease results.



Lipophilic detoxification is a protocol designed to help the body remove these toxins by brute-force dilution. Click here to download the free eBook on Lipophilic Detoxification.

22.6 Pathogen Reduction

Pathogens present a roadblock to cellular recovery. Pathogens produce toxins which pollute brand new cellular material.

The alert reader will likely recognize it the wisdom of reducing the source of cellular toxins early in the program. Pathogen management removes

roadblocks, increases the response speed, and increases durability of the results.

22.6.1 Pathogen Elimination Side-Effects

Pathogen Reduction challenges:

- Protocols which overcome pathogen load destroy pathogens, often challenging an already stressed detoxification system.
- It is often necessary to supplement the collateral systems, immune, liver, and endocrine to enable the body to tolerate pathogen reduction.

A dual strategy for pathogen reduction:

- Use of broad spectrum anti-pathogenic agents. These products combine various plants into a highly effective combination which rapidly reduces endogenic pathogen back to symbiotic forms;
- High doses of supplemental pancreatic enzymes load the body with natural enzymes which digest pathogens, reducing population and converting pathogen mass into usable nutrients. This approach reduces the tendency for hyper-toxicity.

These approaches work best when used together, restoring glucose regulation, and serum insulin concentrations within one week to about three months. The actual time depends on:

- How well the body can get rid of the toxins;
- How much pathogens distort systemic metabolism;
- How much resource and energy the body has to work with during this period.

We recommend use of sponsor products to reduce pathogens. Please visit the sponsor links for more information. There is only one product that has clinical results consistent with these requirements. Click Here to Review Phase-3 Clinical Trial results from the World Health Organization.

This clinical trial shows that this product rapidly resolves insulin dysregulation in Type-2 diabetes. We believe that result stem from strong anti-pathogenic effects which rapidly eliminate pathogen-driven hormone imbalances. It is likely that this supplement also helps to restore cell membrane power.

We apologize for not naming products, but the goal of this document is education, and to comply with DSHEA regulations we omitted trademark information for specific products. Click Here to access this product from our sponsor links.

22.7 Parasite Elimination Protocol

Figure 30 - Black Walnuts

This parasite protocol is highly effective, inexpensive and safe. It uses common botanicals available naturally and from the grocery store. Even if you feel that you don't show positive for the Parasite Assessment, it's a good idea to consider this protocol because most parasites survive by hiding, and don't cause symptoms. The cost of this protocol is in the range of $50.

Figure 31 - Clove

It requires three plant sourced components:

- Black Walnut Extract ;
- Ground Cloves ;
- Wormwood or Artemisia – mature parasites.

Figure 32 - Wormwood

Click Here to view Dr. Clark's Web page on this anti-parasite strategy. There are thousands of testimonials to the effectiveness of the program.

22.7.1 Usage Schedule

This schedule gradually increases because initial high doses can cause rapid die-off. The program ramps to keep pace with detoxification requirements driven by decomposing parasites.

Day Number	***Black Walnut Tincture Drops 4x/day***	***Cloves 500 mg Capsules 3x/day***	***Wormwood 300 mg Capsules before supper***
1	1	1	2
2	2	2	4
3	3	3	6
4	4	3	8
5	5	3	10
6	2 tsp	3	12
7	***Weekly*** 2 tsp	3	14
8		3 Until Gone	14 until gone

Weekly means to take this dosage once per week as indicated after this day:

- Cloves – take three capsules once/week;
- Black Walnut Tincture – take 2 teaspoons once per week after this day;
- Wormwood – Take 14 capsules before a meal once weekly after this day.

Dr. Clark recommends weekly dosages are designed to prevent re-infection. Since this is part of a big program, we recognize that you may end up with a lot to keep up with.

We recommend that you finish the course and complete the bottles, and then stop. Few people are able or willing to continue "forever" protocols.

Phase 4 of the program involves bi-monthly re-evaluation. If pathology returns, you will return to Phase 2, which restarts the parasite cleanse program.

22.8 Digestive Protocol

Digestion is a complex process which tends to break-down due to other stresses. There are four main functions which usually improve digestive competence enough to regain health:

- Hydrochloric Acid supplementation. HCl is marketed as Betaine in most vitamin stores. It is inexpensive.
- Digestive Enzymes with heavy emphasis on Protease and Lipase. Beware that most vitamin store enzymes lack the potency to produce results. Please visit our sponsor links to obtain pure enzymes with therapeutic potency.

- Bile Flow Enhancers. Beet top products or raw beet top juice triggers the liver to thin and release bile. Beet top products are only available from our sponsors, and Standard Process. Standard process is known for highly effective supplements.
- Probiotics. Probiotics restore the intestinal flora which helps with converting food into bio-usable forms. There is a huge variance in the quality of probiotics. Choose a good brand with at least 2 Billion organisms per dose. Our sponsors carry the most potent probiotics.

These protocols vary by individual. The following table suggests when and how much of various supplements to use:

Supplement	Roles	Indication	Don't Use When
HCl / Betaine	Increase stomach acid to kill food bacteria to prevent fermentation in the stomach. Weakens chemical bonds in food.	Belching, heartburn, Stagnant stomach	Hernia, Ulcers
Digestive Enzymes	Helps to breakdown fats, carbohydrates and proteins into biologically usable parts.	Flatulence,	
Bile Flow Enhancers	Triggers bile thinning and release from liver and gall bladder	Diarrhea, Constipation, Heavy Gut	
Probiotics	Support digestion and absorption converting food parts into usable forms.	Flatulence, Diarrhea	

22.9 Cellular Energy Protocol

This protocol speaks to how water chemistry influences cellular chemistry. The master program is designed to optimize cellular energy production. The master program targets structural cellular lipids while this program targets water chemistry.

Optimizing water chemistry provides a short term lift in cellular energy, improving the ability to return to normal.

Individuals tend to either have constipation, or diarrhea. Both are symptoms of underlying metabolic dysfunction.

There is usually cellular mutually reinforced cellular dysfunction tied to digestive issues.

The results of the metabolic questionnaire usually indicate the specific supplements required to optimize cellular energy.

In short, there is no one size fits all solution. The appropriate protocols come from the results of the preliminary assessment you filled out in Phase 1.

Assessment Result	**Nutrition Strategy**	Result

Anabolic	Anabolic Balance	Normal bowel clearance; Improves daytime energy.
Catabolic	Catabolic Balance	Improves sleep, Improves potassium cycle performance. Normalizes bowel clearance.

The supplement programs required to implement these programs also tend to be available from licensed health care professionals. Look for individuals who practice clinical nutrition, Nutrispec, or contact our sponsors.

22.9.1 If you have constipation

The typical approach for constipation is to take a laxative, or to overload fiber. From a holistic point of view, this is useful to manage the symptoms but not the underlying problem.

First, it's important to recognize that the body is smart, and that when we're healthy, our bodies use water to keep things moving through us regularly. When metabolism drifts anabolic, mostly because cellular mitochondria are under-performing, we end up constipated, and lethargic.

The most likely cause of constipation is the body's inability to route water to the bowel. Correction of the underlying imbalance will cause your body to route water to the bowel, and usually re-establishes regular daily elimination. The main components of this protocol are emulsified vitamin A, magnesium Thiosulfate, and anti-anabolic cofactors.

22.9.2 If you have diarrhea

Loose stools usually result of unquenched stomach acid entering the intestines.

During normal digestion, highly acidic stomach contents neutralize with alkali bile in the duodenum, resulting in a pH neutral mix traversing the gut, resulting in optimal nutrient absorption.

Diarrhea is the natural result when there is insufficient bile to neutralize the acidified stomach contents. The gut fast-tracks stomach contents to avoid burning the intestines. The result is diarrhea.

An optimal approach to treat diarrhea is to optimize bile quality and flow, using beet tops, or concentrated beet top product. A beet top product alkalize and thin bile to enable quenching of stomach acid contents, and helps to normalize digestion.

In some cases, the bile path may be physically plugged, resulting in other forms of food distress, particularly nausea, or illness after consuming a high fat meal.

Diarrhea is usually accompanied by long-term insomnia. The main focus of treating metabolic diarrhea is to reestablish systemic potassium cycle.

An anti-catabolic protocol, like Revici's protocol, normally enables normal sleep, and improved potassium cycle. When the potassium production returns, the body's ability to quench stomach acid returns and diarrhea goes away. The main part of a Revici catabolic protocol includes small amounts n-Butyl alcohol, normally produced by the pancreas, and other anti-Catabolic cofactors.

Large quantities of dietary sterols including cream, butter, coconut oils, are very helpful normalizing catabolic metabolism.

22.10 Lipid Replacement Diet

A high fat diet serves two essential purposes:

- It maintains bile flow. Each fat meal triggers the liver to release bile for digestion of fats.
- It provides lipid building materials and fat soluble nutrients which tend to be lacking in traditional diets.

The liver flush protocols were designed to re-establish the ability to consume lipids. After completing these protocols, lipid or fat digestions should have recovered enough to enable consumption of fats in therapeutic quantities.

Lipophilic Detoxification Resource Page

Lipids in this case are heavily biased toward counter-cultural cholesterol rich foods. It's important to use the cleanest and least processed products available.

The bio-compatibility of most lipid sources is generally reflected by taste. Natural fats that taste good are good. Taste good is the result of very sophisticated bio-identification system involving complex receptors in the tongue, and in the nose, which are designed above all else to guide consumptive behavior toward needed materials.

Quite simply, if it tastes good and is natural, it is good. Sadly, this simple logic is obscured by a mountain of modern dietary and medical dogma, generally geared to bias behavior toward profit.

Moreover the natural aspect is often obscured by processing discipline. Products that start out natural become biologically dysfunctional during packaging and delivery. Heat processing often destroys important enzymes and nutrients. Chemicals used in processing and packaging often contribute toxins.

Good lipid sources:

- Butter / Cream / Ghee / Whole Milk
- Natural Coconut Products
- Natural Cold Pressed Nut Oils
- Organic meat

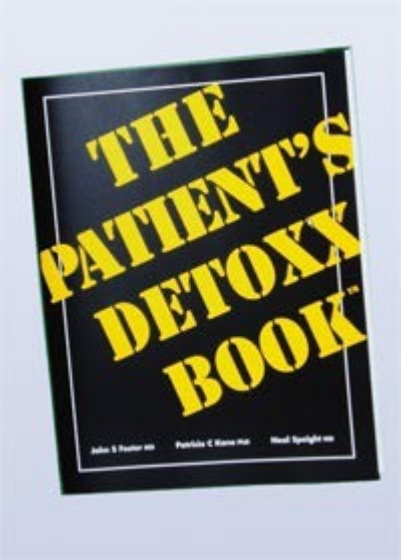
Now that you can tolerate dietary fat, shift to at least one high fat meal daily.

Eggnog is excellent. It tastes good, has a good shelf life, and is a convenience food. It contains high quality lipids and proteins and is high in cell membrane substrates.

Recipe for one to five days:

- 1 dozen eggs
- 1 cup heavy cream or half & half
- 1/2 teaspoon stevia 1 teaspoon nutmeg
- Shake or blend until fully mixed
- Use berries as desired

Use as a meal once or twice daily. This recipe makes it easier to avoid bad foods because if you're not hungry you won't eat. The raw ingredients are inexpensive and available. Basically if you use this as a daily meal, then eat a big bowl of berries, or a salad, or a steak, as a main course, then the eating program is pretty easy. Color is a good indicator. Stick with foods that have a lot of color, and a minimum carbohydrate.



The food lists below are designed to minimize insulin production. Avoiding these foods dramatically reduces insulin production and release and enables healing. They reduce cytokine production, and enable the body to recover.

To obtain a complete reference with recipes and eating program please consider the Detoxx program by Dr. Patricia Kane. Click here to obtain the patient Detoxx Book which contains a proper discussion of membrane-health oriented diet and recipes.

Avoid Foods: (The Detoxx diet – www.bodybio.com, courtesy of Dr. Patricia Kane)

- All Grains, barley, wheat, rice oats & corn
- All Pasta
- Starchy Vegetables (potato, sweet potato, parsnip, beet, rutabaga, peas, corn)
- No Fruits except berries
- No high carbohydrate beans
- No sugars, glucose, dextrose, high fructose corns syrup, honey, maltodextrin
- NO ARTIFICAL SWEETENERS – use stevia only
- NO VEGETABLE OILS – NO MARGARINE OR CRISCO
- No peanut oil, mustard, or commercial mayonnaise or salad dressing
- No Bananas

Okay Foods:

- Protein, organic meat, poultry, eggs, fish, salmon & sardines
- Raw organic seeds, nuts, cashews, almonds
- Organic Oils, 4:1, omega 6 to omega 3 oils – 2-6 tablespoons
- Free range organic eggs 4+ daily
- Organic butter, cream, kefir with lactic acid bacteria
- Cold pressed oils, sunflower, safflower, grape seed oil mayonnaise, hempseed oil
- Cooking Oils: butter, extra virgin olive oil, coconut butter
- Soft organic cheeses, cottage cheese, ricotta, goat, feta, mozzarella
- Fresh Vegetables
- Green leafy vegetables every day, (except spinach)
- Salads
- Fresh herbs
- Decaf coffee, lemonade sweetened with stevia,
- Fresh or frozen berries

23 The Journal

Our memories are quite subjective. We are designed to forget discomfort, pain and the like, so writing things down is very important, because you will not remember if you don't. When you can't remember it becomes very hard to know if you're getting anywhere.

Otherwise we've included two tabular entry areas to record your progress:

- Visual Contrast Sensitivity Table
- Life Quality Journal

Otherwise, a simple notebook will do. Here is a suggested format that allows you to quickly enter numbers from 0-10 indicating a quality score, or an event count. The journal discipline helps a lot in terms of keeping track of how your body changes over time.

23.1 Visual Contrast Entries

It is also very useful to track visual contrast scores over time. These scores indicate the lipid quality of the cells in your retina. Your contrast vision reflects the quality of fats, and conversely the amount of lipid toxins in your body. These cells regenerate every 16 days, so changes in lipid quality are quickly reflected in visual contrast. We recommend performing this test, and recording results once weekly while you are on the program.

Testing monthly gives early degenerative indication, enabling preemptive response.

Here is a suggested format for visual contrast tracking. Record the date and contrast sensitivity scores in columns below each spatial frequency. This will enable you to quickly track shifts in your visual performance by shifts your ability to perceive contrast.

Here is a link to the University of South Dakota which provides a forced choice sensitivity test, which is the most reliable form. The test will take about 20 minutes, and will provide a baseline evaluation of visual contrast sensitivity.

1. Click Here to take the Visual Contrast Sensitivity Test at the University of South Dakota System – Login: ***dshedu***
2. Select "Run Visual Contrast Sensitivity Experiment" and then page down and click the "Run Contrast Sensitivity Experiment" button.
3. Your computer will present two images fast.
    a. If you see contrast in the first image, click the "***1st Interval***" button.
    b. If you see lines in the second image click the "***2nd Interval***" button.
    c. If you didn't see it, press the "***Present Stimuli***" button to show the image again.
    d. You will be forced to choose.
    e. If you can't tell, just press the "***1st Interval***" button.
4. If you have problems with the test click here to adjust your browser settings.

The first time you take the test it will take about ½ hour. Repeated tests will take about 10 minutes. It's easy after you get the hang of it, but the forced test forces you to make decisions when you just can't see the contrast.

It's free and a good way to measure progress. Be sure to print out your report so you can review your results.

When you finish the Visual Contrast Test, you will get a report that looks like this:

User Name: dshedu

University of South Dakota
Department of Psychology
Internet Psychology Laboratory

Date: Tue Jul 10 04:54:42 MDT 2007

Contrast Sensitivity Function

Spatial Frequency (cycles/image)	Contrast Sensitivity
4	237.38
8	296.10
16	389.39
32	265.00
64	345.90

Record the Contrast Sensitivity numbers in the table below.

Add the total of all contrast sensitivity numbers together, The total here is 1532. This total number aggregates performance across the various panels and indicates the overall visual acuity performance.

23.2 Metabolic & Digestive Assessment Entries

Record the score of your metabolic assessment in the table to track the shifts in your metabolic and digestive performance.

- Click Here to for Metabolic Assessment questions;
- Click Here for Digestive Assessment questions.

23.3 Yeast/Fungus Assessment Scores

The yeast fungus pictures are a 10, indicating a fungus and yeast score about as bad as it gets. If your tongue and toenails look like this record a 10. If your nails are pink and look okay, like the healthy nails section, then record a 0, otherwise record something in-between. Click here to review pictures.

	Lipid Quality Assessment						***Metabolic Assessment***		***Digestive Assessment***			***Pathogen Assessment***	
Date	**4**	**8**	**16**	**32**	**64**	**Acuity Sum**	**Anabolic Score**	**Catabolic Score**	**Stomach Score**	**Pancreas Score**	**Liver Score**	**Toe Fungus Score**	**Tongue Yeast Score**

23.4 Life Quality Journal

This journal reflects how you feel over time. It forces you to use numbers to express quality of life, and physiological indicators.

The numbers provide a basis to notice trends. Beware that it often takes time for long term conditions to recover. The journal helps a memory. Fortunately, we forget pain and discomfort, so as you improve there will be a tendency not to remember the former level of discomfort.

Suggested Numeric Grading:

- Pain Scale – 0 is no pain at all; 10 is maximum tolerable;
- Sleep Quality – 0 is no sleep at all; 10 slept like a log feel totally rested in morning;
- Energy Level – 0 is exhausted, can't move; 10 feel great get a lot done;
- Well Being Feeling – 0 feel like crap; 10 feel great
- Sleep Hours – number of hours of sleep
- Stomach/Burps – 0 none; 10 A lot;
- Flatulence – 0 none; 10 terrible;
- Eating Pleasure – 0 poor food response; 10 Pleasure to eat
- Stools – the number complete bowel movements;
- Gut Discomfort – 0 none; 10 lots of abdominal pain
- Quality of Life – 0 lousy day; 10 felt great all day.

	Pain					Metabolic				Digestion					
Date	Joint Pain	Neck Pain	Low Back Pain	Mid Back Pain	Upper Back Pain	Sleep Quality	Sleep Hours	Afternoon Energy	Morning Energy	Stomach Burps	Flatulence	Eating Pleasure	Stools	Gut Discomfort	Quality of Life
	Pain					Metabolic				Digestion					

Date	Joint Pain	Neck Pain	Low Back Pain	Mid Back Pain	Upper Back Pain	Sleep Quality	Sleep Hours	Afternoon Energy	Morning Energy	Stomach Burps	Flatulence	Eating Pleasure	Stools	Gut Discomfort	Quality of Life
	Pain					Metabolic				Digestion					

Date	Joint Pain	Neck Pain	Low Back Pain	Mid Back Pain	Upper Back Pain	Sleep Quality	Sleep Hours	Afternoon Energy	Morning Energy	Stomach Burps	Flatulence	Eating Pleasure	Stools	Gut Discomfort	Quality of Life

24 Accounting

You're probably wondering how much this will cost.

You should plan on spending about $500 a month for one to three months for phase two, and about $1000 per month for one to three months for phase three. The entire program will range in cost from $1000 to about $3000, and take between two and four months.

It is unlikely that you will be able to significantly enhance membrane performance with a lower cost approach.

Here's why. By the time you've degenerated to the point where your fat metabolism is weak enough to accumulate toxins to the point of illness, there is quite a bit of ground to make up. The toxin load makes it quite hard, or even impossible, to "naturally" reverse the tide.

In other words, you probably don't have the ability to utilize regular food, or vitamin-store supplements or you'd have recovered already. If your body was working well, you'd have healed already.

It's going to take more than a "multi-vitamin" to get you back on track. More importantly, you probably lack the ability to utilize food, particularly fats and lipid soluble nutrients efficiently, and auto-detoxify, you would have done so already.

24.1 A Reason for Expense

So… Yes, it's probably going to take high-end supplements to get the job done.

The supplement programs we recommend don't require much metabolic competence, or good digestion, or functional lipid metabolism to work. They are in cell-ready forms. They aren't affected by digestion, and don't require biological transformation to work.

They bypass digestion and integrate directly into the cell.

Moreover, the majorities of the supplements goes directly to the liver and integrate into liver cells, or cell membranes throughout the body.

24.2 Liposomal Antioxidants

Liposomal antioxidants, vitamin C and glutathione are protected from digestion and deliver directly to the cells.

- Plain Vitamin C causes most people diarrhea
- Dietary glutathione digests into L-Cystine which may not produce cellular glutathione.

The liposomal forms *guarantee* cellular delivery. With no guesswork. That's why we recommend the high dollar liposomal supplements.

Equally important is the fact that the liposome packets are exactly the same material that cell membranes are made of. This is why the program targets cell membranes. The program uses pounds of material which are guaranteed to become new cell membrane material.

24.3 Liposomals to the Cell Membrane

The cost conscious reader will know that dry lecithin is made mostly of phospholipids. It's inexpensive and readily available. Research data shows that it rarely works.

We'd prefer to recommend the inexpensive lecithin, because it would save a lot of money.

Unfortunately, lecithin digests into elemental fats, which usually provide more of what's usually already available. Lipid compromised individuals lack the ability to breakdown and reassemble phospholipids into usable form. As a result they tend to recycle toxins which end up re-integrating into the cell membranes.

Since the goal is to replace membrane lipids with fresh non-toxic forms, liposomal phospholipids are just the ticket.

Liposomals:

- Bypass digestion because the form a bi-lipid membrane structure which the digestive system passes unaltered;
- Circulate in the bloodstream until they absorb into cell membranes;
- Directly contribute phospholipids to the cell membrane;
- Dilute any toxins that are already in the cell membrane.

This is why we strongly urge use of liposomal phospholipids which go straight to the cell and do exactly what needs done.

The liposomal forms pass the gut because they are in an ideal absorption form. They look like cells to the digestive system. They pass the gut unchanged.

When they reach a cell, the package adsorbs directly into the cell membrane, providing a fresh package of ideal cell membrane material. In other words liposomal supplements require no digestion.

A very high percentage of liposomal supplements become part of a cell membrane somewhere in the body. Since this is exactly what we want, we feel it's worth the extra money to get the job done.