With the help of G-d and for the sake of His great Name,

Version 2.1 updated 02/07/2023

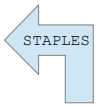
CONCUSSION

&

TBI

A REPORT FOR BRAVE PATIENTS, FAMILY MEMBERS, and DOCTORS

"Only science which has lost faith in itself must use power instead of reason to convince others."
—Nicholas Von Hoffman, KNX Radio, March 3, 1977



Readers: Please quickly print this booklet out double-sided and use three staples for the spine. Give the booklet to any family and friends who need this information! In Adobe Reader, use: File → Print → Pages to Print → More Options → Odd or Even Pages. Print odd ones (select Reverse Pages for this) then flip them over (don't select Reverse Pages) and print the even ones.

A project of **Insulting Consulting™**

For more information or to find this report for free in PDF format
(or to read the book, which ~~is a prerequisite and~~ is also free in PDF format),
[Note: The book is not a prerequisite in emergencies such as this one]
please visit www.InsultingConsulting.net

Hyperlinks in the PDF format versions of **Insulting Consulting™** *reports make reference-checking fast!*

CONTENTS:

INTRODUCTION

Every hour counts after a concussion or a TBI.
If urgent help is needed and the reader already believes the information here is good,
he can jump to the section **Action Summary.**

The solution before the problem:

A simple concept in Orthodox Judaism is that before G-d creates the problem He creates the solution. This might ruffle feathers, but I would suggest to the reader that concept is very much in favor of and well exemplified by natural medicine. The mere potential that a laboratory could be built is not the actual solution being created before the actual problem and seems to defy the plain meaning of this simple concept that is known to all. I would say the solution is actually created in nature before the problem is created, at least when we're talking about a physical health problem. But there is also a deeper cause of health problems as we'll see at the very end of this report.

Herbal medicines are not essential nutrients:

There is no substitute for proper nutrition. Herbal medicines are useful and they are better than pharmaceutical drugs, but the reader should keep in mind that they are not essential nutrients. Pharmaceutical drugs and, I suspect, some herbs may deplete essential nutrients (magnesium being a prime example). Herbal medicines are mentioned in this report but they are not intended to be construed as a priority over the right nutrition; for instance, everyone needs magnesium and selenium and all 58 other essential minerals every day but not everyone will need to take motherwort every day. I have seen that many people have been confused by the government nutrition advice and by the various schools of thought which are separate from the government advice. I recommend that the reader should thoroughly familiarize himself with the nutritional principles of the Weston A. Price Foundation to know them forwards and backwards.

This report assumes that the reader has already done that and therefore knows that there is a set of dietary guidelines which doesn't compromise one parameter of health for another and doesn't even compromise good flavor.

This report also assumes that the reader has already read the WAPF article “Understanding the Concussion Epidemic.” [1] Please stop reading this report and read that article now if you haven't already.

This report also assumes that the reader has thoroughly familiarized himself/herself with my free book. Readers might suffer from a great deal of confusion (and miss enormous benefits) by not reading that book, which I believe will begin to turn the world right side up, with G-d's help. However, it should be obvious that those who need immediate relief do not need to read the book first. If there is anything time sensitive going on, that can be skipped for now. Note: the book is currently offline right now for some copyright-related repairs and should be restored to the website in PDF format when that is resolved.

Chapter 1: **WAPF NUTRITIONAL SUPPORT**

General brain support through the WAPF diet:

The WAPF diet of course includes a number of factors which support the health of the brain. Among them are cod liver oil, whole raw dairy from grass-fed animals, bone marrow and other organs and glands, butter, egg yolks, liver, lactofermented foods, gelatinous broth, and coconut. All of these will help greatly to support a person who has been suffering from concussion or TBI. It is assumed that the reader is already very familiar with and studiously following a WAPF diet and consuming all of these foods and more. The reader will see that WAPF nutritional support is a theme throughout the report and that there are some other excellent, WAPF-compatible nutritional schools of thought drawn on here.

Chapter 2: **ABOUT STANDARD ENTERAL NUTRITION**

The ingredients of standard enteral nutrition formulas for tube-feeding are extremely damaging and would go a long way to entirely defeating the purpose of the WAPF article [1] which the reader has, by this time, read and digested, that purpose being to show the following:

> These secondary effects turn out to be far more influential in determining the severity and outcome of concussion injury than the original mechanical forces involved in the concussion. [1]

This will be the theme of our examination of the standard formulations. It is as simple as the idea of throwing gasoline on the fire. It is my view that if people use a standard enteral nutrition formula for tube-feeding of a TBI patient they are certainly giving the patient a pseudo-food that is almost a TBI in and of itself with no head impact required. Let's take a look at the ingredients.

Enteral nutrition ingredents:

Fats. These are usually corn, soy, or canola oils. [3] One need only view the outstanding presentation (originally on DVD but now generously made available for free by WAPF on the YouTube under the channel B.S.R.) called *The Oiling of America* [2] to know that the primary cause of coronary artery disease is the consumption of vegetable oils/deadly industrial seed oils. There has been a battle over this between those who know the truth about it and those who oppose the truth about it for close to 100 years. These oils are rancid in the bottle without any heating required. Heating them makes matters worse. I see that sunflower and safflower oils are sometimes used. These are not typically going to be expeller-pressed oils and they are not typically going to be prepared with enough caution to keep them from going rancid, aside from the fact they are not very nutritious and they have a lot of polyunsaturated fatty acids in them. One thing some of the formulas are getting right, however, is the use of coconut. Coconut oil is a great idea for use in an enteral nutrition formula. It's not going to have the fat-soluble vitamins of animal fats or butter or cream but at least it is the most saturated fat known on the planet and it is very healthy and considered stable/not very prone to rapid oxidation. It can even provide another type of fuel supply to the brain if glucose metabolism is impaired; coconut will be able to induce the formation of ketone bodies without the stressful act of massive carbohydrate restriction. For those new to the Weston A. Price Foundation, the very first step in beginning a WAPF diet is to "get your fats right." Dr. Catherine Shanahan, MD, author of *Deep Nutrition*, a book with similar guidelines, has explained that rancid vegetable oils (industrial seed oils) are probably even more harmful than all of the agricultural chemicals to which we are exposed to today. As bad as Roundup is and as much as it is really true that we all need to eat 100 percent of our food beyond organic, the industrial seed oils are the most poisonous of anything in the food supply. I say this knowing that Professor Don Huber said in an interview with a prominent alternative doctor that the half-life of glyphosate (from Roundup) in the soil is 22 years and also knowing about some of the details of Dr. Seneff's work on the dangers of glyphosate.

Carbohydrates. These are generally corn syrup and related products, sucrose, or fructose. [3] This means we're almost certainly talking about Roundup-ready genetically engineered corn, something

that was shown by Dr. Árpád Pusztai to cause sterility in rodents and tumors roughly the size of the rodents in his experiments. So that's GE corn plus plenty of Roundup residue, we can reasonably expect. We'll see later how that Roundup residue is especially harmful to TBI patients by causing DBR (decreased brain resilience).

Protein. These are usually whey and casein or soy protein. [3] Hospitals in the United States today are sadly not aware of the profound health benefits and greater safety of raw milk over Pasteurized milk and not aware of the fact that milk becomes a very allergenic food when heated. Most of the health benefits of dairy are destroyed by heat. Any WAPF person knows that well. If powdered, the problem is even worse. WAPF has received large numbers of letters from people saying they got cancer or an autoimmune disease after consuming protein powders.

Soy is an extremely estrogenic food and damages the thyroid. WAPF was involved for years in the soy prison lawsuit and has done a great job educating the public about the dangers of soy to the reproductive system, the gut, the thyroid, and more. There are extensive resources available on their website for anyone who wants to get started, but it should suffice to say that an infant on soy formula receives the estrogenic equivalent of 5 birth control pills per day. I also know two people who have small testicles as adults as a result of exposure to soy formula in infancy. Soy is used extensively in prisons and jail, with the result that a number of prisoners became sterile from eating the huge amounts of soy. I went to high school with someone who wanted to bulk up while doing strength training activities shortly after high school. He took soy protein with the hope that it would do the job. Instead, it caused him to grow breasts. These went away when he discontinued the soy. There is more about the dangers of soy in my book and far more available through the many soy-related educational materials available through and recommended by the Weston A. Price Foundation. Just as an example, soy is good at causing seizures and seizures are known to happen in 53 percent of TBI patients. [3a] Thanks, WAPF!

Carrageenan. This is another very common ingredient in enteral nutrition formula today. When neurosurgeon Russell Blaylock MD wrote his outstanding book *Excitotoxins: The Taste that Kills* on the dangers of MSG and aspartame and other related food additives—complete with pictures of brain lesions caused by excitotoxicity—he may not have known that the list of what are essentially MSG pseudonyms would grow to include 60 or 70 different names. But carrageenan is one such ingredient that was known from the early days. Anything that provides lots of free (unbound) glutamate is going to excite brain neurons to death when consumed in large enough amounts. With the great rise in glutamate after a TBI, it is very clear that carrageenan is a perfect ingredient for increasing the brain damage, especially when consumed with the deadly industrial seed oils ("vegetable" oils). It is not necessary for someone to get migraine headaches from eating MSG for brain cells to die from eating it. And though there may be some other problematic substances in enteral nutrition formulations, let's hit just the big points and look more at the vegetable oils now.

Dr. Mercola has stressed that intake of the omega-6 polyunsatured fatty acid called linoleic acid is the primary determinant of whether someone will get a sunburn easily or not easily. Those who already know about the dangers of deadly industrial seed oils ("vegetable" oils) will see the significance of this and will understand it in the context of the school of thought presented by the WAPF article "Understanding the Concussion Epidemic" in this way (repeated here for emphasis):

> "These secondary effects turn out to be far more influential in determining the severity and outcome of concussion injury than the original mechanical forces involved in the concussion."

And of course, those who are married to the idea that corn, soy, and canola oils are healthy and plan to stick to that regardless of the evidence might have some trouble seeing that getting a sunburn easily could be related at all to whether or not brain trauma will have a severe effect. Without exception, all body systems are harmed by vegetable oils.

"Brain Killer" is the name of a chapter in one of Catherine Shanahan, MD's books called *Deep Nutrition*, now a second edition. Guess what that chapter is about? It's about deadly industrial seed oils/"vegetable" oils. And to make the connection for the reader, that means there is an entire chapter in a book by an MD about how vegetable oils kill the brain. For those who for one reason or another do not wish to give any credence to the Weston A. Price Foundation, e.g. if their beliefs are so entrenched that no amount of ordinary scientific truth will wash away the idea that everything that compliant, mainstream MDs do is safe and effective and that the 54% rate of childhood chronic illness is in spite of, not because of American children having the "best" and most expensive medical care in the world, then I really think Dr. Shanahan's book would be a great choice because of its tone. And this is not at all to suggest there is nothing unique in the book. It highlights some things I simply have not heard Ol' Reliable, the Weston A. Price Foundation, talk about while presenting a diet that is very similar to/generally pretty consistent with the WAPF diet.

Here are a few small examples (I picked some relevant to our discussion here of TBI):

1. The inflammatory response from one dose of vegetable oil lasts for months, meaning it is not acceptable to consume them even occasionally;
2. The oxidized polyunsaturated fats we all know to be so dangerous in vegetable oils (even in the bottle on the shelf <u>before</u> cooking) actually have the capacity to reproduce themselves once in the body and for this reason the author coins a new colloquial name for the oxidized polyunsaturates: "MegaTrans";
3. Canola oil, the new favorite of the government-approved nutritionist, has a surprisingly large amount of actual trans fat (not the useful colloquial term "MegaTrans" but actual trans fat) in the bottle on the shelf, aside from being extremely harmful even if there were some way to prevent this.

Of course, the book does talk at length about the WAPF-emphasized concept of proper formation of skeletal and dental structure due to a healthy traditional diet in preconception, pregnancy, and breastfeeding (one rich in certain special animal foods and one that completely avoids vegetable oils). This need not be limited to a discussion of proper formation of children, however; Dr. Shanahan gained an inch in height at age 30 due to implementing the diet in the book. Her nutrition work is now being used by professional sports teams such as the L.A. Lakers. While the book is not perfect today, it does have a track record of changing people's lives significantly and people do have a tendency to read the whole thing (even though it is of moderate length and contains a good amount of detail) and implement it right away. It would be just the kind of resource that would easily get a skeptical doctor on board if he or she thinks vegetable oils couldn't possibly be harmful. "The age of technological solutions is coming to an end," proclaims the book.

And just in case the reader has been consuming some vegetable oils and needs to revisit the name of the chapter in the book *Deep Nutrition*, that chapter about vegetable oils is called "Brain Killer." So what does this tell us about enteral nutrition given to TBI patients who are being fed through a

tube? I'd say it tells us that in the USA we've been piling one brain killer (TBI) on top of another: standard enteral nutrition formulations. This is from pages 143-145 of *Deep Nutrition*:

> In 1999, a team of lipid scientists in New Zealand wanted to see what eating deep-fried food does to our arteries in the short term. They planned to feed subjects french friends and then test them to see if their blood vessels were still able to regulate blood flow normally (this ability is called *endothelial function*). The test is performed by slipping the patient's arm into a blood pressure cuff, then squeezing it to cut off the blood flow for a few minutes. Normally, on releasing the cuff again, the oxygen-starved arteries open wider so blood can come rushing back in, just like you would suck in more air after holding your breath for a while...
>
> The scientists in New Zealand acquired week-old frying oil (rich in MegaTrans) from a typical restaurant and made a batch of fries. Four hours after study subjects ate the fries, they slipped their arms into blood pressure cuffs to test their endothelial function. Before the fries, the subjects' arteries had dilated normally, opening 7 percent wider. Afterward, there was almost no dilation—barely 1 percent...
>
> ...After reading this study, I started asking patients admitted to the hospital for heart attacks what they'd eaten last. So far, *everyone* has told me they ate something friend in vegetable oil. One Japanese man had eaten fried fish, which goes to show you: the use of vegetable oil can turn an otherwise healthy meal into a 911 emergency... [4]

As we'll see later, protein misfolding in the brain of TBI patients is common. I learned in the original, classic WAPF book *Nourishing Traditions: The Cookbook that Challenges Politically Correct Nutrition and the Diet Dictocrats* that:

> Atherosclerosis isn't the only disease the polyunsaturated oils can give you. Cancer can be induced in experimental animals with corn oil. Hypertension will occur in rats and chickens by feeding unsaturated oils whereas animal fats (lard, milk, butter) do not cause high blood pressure. Amyloidosis, a disease of protein degeneration, can also be induced by poly-unsaturates.
>
> —William Campbell Douglass, MD, *The Milk Book* [56 words][4a]

Certainly, nothing that can contribute to protein misfolding is something one would have a desire to give to a TBI patient.

It's been over 10 years that I have been railing against vegetable oils and many were there long before me. These are just a few selected bits of information to begin to educate the reader. In summary, standard enteral nutrition formulas are actually the perfect way to kill or maim the TBI patient.

Before we move on to the next chapter, I'll mention that people who have a TBI must not eat methanol, a dangerous alcohol found abundantly in the food supply today. A list of methanol foods is available. [4b] It is able to cause blindness, color blindness, and multiple sclerosis and to accelerate Alzheimer's disease by modifying proteins. This protein-modification feature of the metabolites of wood alcohol/methanol must be considered seriously and not laughed at by TBI patients, their relatives, and their doctors. After all, there is known to be a risk of a variety of protein misfolding illnesses following TBI. People without a TBI shouldn't eat it, either.

Especially when used in combination with oxygen therapies, the patients and family members and doctors are encouraged to look into the use of hydrogen (given in water or other forms) as something to further support rapid recovery of TBI patients. Though hydrogen seems at first to be a bit too technological for my liking, it is produced by the gut and up to 50 percent of the gas there may be hydrogen. [5] It is a new topic to me and I was surprised to find out that there actually is a good amount of early evidence on hydrogen water being used to help TBI!

Here's what I mean:

H2 Information With Specific Relevance to TBI: (my emphasis in bold)

> "**H2 has protective effects against a variety of diseases, particularly nervous system disorders,** which include ischemia/reperfusion injury, **traumatic injury,** subarachnoid hemorrhage, neuropathic pain, neurodegenerative diseases, cognitive dysfunction induced by surgery and anesthesia, anxiety, and depression."
>
> —"Neuroprotective Effects of Molecular Hydrogen: A Critical Review,"
> *Neuroscience Bulletin* 2021 [6]

> "Due to its excellent antioxidant and anti-inflammatory properties, hydrogen therapy via different routes of administration exhibits great therapeutic potential for a wide range of brain disorders, including Alzheimer's disease, neonatal hypoxic-ischemic encephalopathy, depression, anxiety, **traumatic brain injury,** ischemic stroke, Parkinson's disease, and multiple sclerosis."
>
> —"Molecular Hydrogen: an Emerging
> Therapeutic Medical Gas for Brain Disorders,"
> *Mol. Neurobiol.* (2022) [7]

> "Recently, molecular hydrogen given in drinking water (mHW) was shown to relieve the acute alterations and neurodegenerative changes after TBI in a controlled cortical impact (CCI) model. The mHW alleviated brain edema, BBB disruption, and maintained normal brain interstitial fluid circulation."
>
> —"The Role of Gaseous Molecules in
> Traumatic Brain Injury: An Updated Review"
> *Front. Neurosci.* 08 June 2018 [8]

> "The present study, for the first time to the best of our knowledge, revealed that hydrogen-rich saline induced modulation of necroptosis and neuroinflammation via the ROS/HO-1 pathway, and also provided a novel insight into evaluating the biological impacts as well as the mechanisms that underly neuroprotection and inhibition of inflammation and necroptosis by hydrogen-rich saline."
>
> —"Hydrogen-rich saline alleviates early brain injury through inhibition of necroptosis and neuroinflammation via the ROS/HO-1 signaling pathway after traumatic brain injury"
> *Experimental and Therapeutic Medicine* (2021) [9]

> "...we found that H2 treatment conferred a better neurological outcome after TBI by improving neurological dysfunction, alleviating brain edema as well as decreasing lesion volume and blood–brain barrier permeability, which were significantly prevented by miR-21 antagomir."
>
> —"Hydrogen Gas Treatment Improves the Neurological Outcome After Traumatic Brain Injury Via Increasing miR-21 Expression"
> *SHOCK®: Injury, Inflammation, and Sepsis: Laboratory and Clinical Approaches* (2018) [10]

For the next one, please note: molecular hydrogen water = mHW; controlled cortical impact = CCI.

> "We found that **mHW reversed CCI-induced edema by about half, completely blocked pathological tau expression,** accentuated an early increase seen in several cytokines but attenuated that increase by day 7, reversed changes seen in the protein levels of aquaporin-4, HIF-1, MMP-2, and MMP-9, but not for amyloid beta peptide 1–40 or 1–42…
>
> These results show that **molecular hydrogen given in drinking water reverses many of the sequelae of CCI and suggests that it could be an easily administered, highly effective treatment for TBI...**
>
> **Overall, these studies provide proof of principle that mHW can potently reverse, block, or attenuate many of the effects of CCI. These include effects on edema formation, tau pathology, regulators of fluid and BBB functions, neuroinflammation, and gene expression.** These studies were limited in that they did not evaluate mHW treatment without a pretreatment phase, but suggest that **mHW could be an important, nontoxic treatment for acute TBI. Because of its nontoxicity and ease of administration, mHW could be readily adapted for clinical, emergency, and even first responder use."**
>
> —"Molecular Hydrogen in Drinking Water Protects against Neurodegenerative Changes Induced by Traumatic Brain Injury"
> *PLoS One* (2014) [11]

> "Unfortunately, up to now, there is no efficacious treatment for TBI patients in clinical practice...
>
> To sum up, **the neuroprotective effect of hydrogen after TBI has been confirmed by many experiments...Because hydrogen is non-toxic and easy to diffuse and reductive, it is a promising gas in the treatment of TBI..."**
>
> —"Role of hydrogen in traumatic brain injury: a narrative review"
> *Med. Gas. Res.* 2021 [12]

A study using a rat model and the abbreviations early brain injury (EBI) and delayed brain injury (DBI) found:

> "EBI, reactive astrogliosis, and DBI were ameliorated in the H2 group compared with the control group."
>
> —"Hydrogen gas inhalation improves delayed brain injury by alleviating early brain injury after experimental subarachnoid hemorrhage"
> —*Scientific Reports* (2020) [13]

A 2014 review paper "Multiple Effects of Molecular Hydrogen and its Distinct Mechanism" in *J Neurol Disord* commented positively on studies of H2 for TBI. [14]

A nitric oxide-producing, molecular hydrogen-infused combination product called Hydro Shot was investigated by Tyler LeBaron et al and found:

> "There is currently no recognized effective medical treatment or intervention for TBIs, which may in part be **due to the difficulty of drug delivery through the blood-brain barrier. Molecular hydrogen has recently emerged as a neuroprotective medical gas against cerebral infarction and neurodegenerative diseases including TBIs. Its small molecular size and nonpolar nature allow it to easily diffuse through the blood-brain barrier, cell membranes and subcellular compartments...**
>
> **Hydrogen regulates nitric oxide production and metabolism, which enhances its benefits while reducing its harms.** A novel H2-infused, nitric oxide producing beverage, Hydro Shot, may have important neuroprotective benefits for TBIs. We report preliminary indications that Hydro Shot may be a meaningful adjuvant treatment for TBIs...
>
> Molecular hydrogen has emerged as an important medical gas with favorable physicochemical properties that make it ideal for the treatment of secondary TBIs. This is supported by pre-clinical studies and relevant human clinical studies. **Similarly, nitric oxide has essential biological effects to treat TBIs but not without undesirable side effects. The novel approach of combining molecular hydrogen with nitric oxide may significantly improve the prognosis of TBIs by exerting individual and potential synergistic therapeutic effects with hydrogen mitigating nitric oxide toxicity.**
>
> The preliminary results obtained with the novel H2/NO· functional beverage, Hydro Shot, indicate that **such an intervention may offer improvements in not only physical exercise, but also exert neuroprotection against a variety of traumatic brain injuries.** However, well-designed, placebo-controlled clinical studies are strongly warranted to further investigate the potential use of the novel and simple approach of using these two medical gases (H2 and NO·) administered via this unique beverage formulation."
>
> —"An H2-infused, nitric oxide-producing functional beverage as a neuroprotective agent for TBIs and concussions" *J. Integr. Neurosci.* (2021) [15]

I do not know if the above paper by LeBaron et al actually is recommending increasing nitric oxide (NO) production immediately after a severe TBI or just stating that the beverage gives evidence to back up the concept that H2 reduces bad effects of nitric oxide. For what it's worth, a 2014 paper by Journal of the American Heart Association says that "TBI causes profound cerebral artery vasodilation resulting from a 60-fold elevation of NO production..." [16] I ordinarily disagree with most things the AHA says , but I think it's reasonable to guess this study showing a 60-fold elevation in nitric oxide production is likely correct. If NO is elevated by a factor of 60 after TBI, then I would have concerns about adding more nitric oxide but would think adding H2 to the picture might help with any problems related to such high levels of NO after a TBI in the context of the malnourished and heavily poisoned world we're presently living in.

Journal of Pediatric Surgery has a 2022 article called "A potential clinical application of hydrogen-rich saline in patients with traumatic brain injury." [17] I don't have access to the full text.

After their previous work found that H2 improves TBI, a team of researchers released a 2022 study in *Eur J Pharmacol* concluding that **acute lung injury induced by TBI was also improved by H2.** [18]

A recent case report by LeBaron and some others, albeit in the context of a different type of breathing illness, did suggest that oxygen saturation was improved in a patient when H2 was given in water. [19]

Since I'm shying away from ozone at this point when it comes to treating TBI, I wondered whether the use of molecular hydrogen would enhance the action of supplemental oxygen in its various forms (oxygenated water, HBOT, etc.). It turns out this is not a new idea but, rather, an idea others have had before me. The chiropractor Dr. Jason Sonners, author of Oxygen Under Pressure, explains in an informative video and article [20] that exposure to hydrogen before going into a hyperbaric chamber provides redox balancing. This means that the reducing properties of hydrogen balance the oxidizing properties of oxygen and prevent free radical damage that could happen in a hyperbaric chamber. I did not understand how H2 supplementation would improve the action of the mitochondrial gradient. Nevertheless, Dr. Sonners helpfully recommends in that article and video another portable hydrogen generating water bottle product that is a different brand than the one in Reference 2 below and recommends some special magnesium tablets that release H2 into the water, both of which could potentially make delivery of H2-rich water to the TBI patient relatively easy.

General H2 Information: Dr. Mark Sircus has put out an article called Hydrogen for Surgery and ICU which I consider very relevant to the matter of TBI; [21] it certainly is a good introduction to the current and emerging uses of hydrogen including the current use for deep sea divers. I think this article [22] by someone called Mr. Water Geek is a good overview of hydrogen water. Molecular Hydrogen Institute also gives a good overview of the topic, [23] and they say:

"H_2 research is still in its infancy with only 1,000+ scientific publications."

Chapter 4: **UNRELIABILITY of the MEDICAL JOURNALS**

"Only science which has lost faith in itself must use power instead of reason to convince others."
—Nicholas Von Hoffman, KNX Radio, March 3, 1977 [24]

We've barely started the report, but already the reader is likely running up against roadblocks. So I have included this shortened chapter from another report for the benefit of the reader. There are such outrageous conflicts of interest in medicine today and the literature is full of false statements. It is not enough for something to be peer reviewed. It has to actually be true. We also should not let "the cult of experts" and "the cult of scarcity," as Rabbi Yitzchok Dovid Smith calls it, dictate our lives but should instead focus on the abundant provision the Creator is always giving us whether that abundance comes in the form of good information or the means to act on it. So please take studies with a grain of salt (which is good for you, especially if it's unrefined sea salt) and don't think they are impervious to errors or the influence of corruption. And please don't check your common sense or your honesty at the door. After all, honesty and common sense, according to Rabbi Smith again, are the "only two credentials" today.

Just take the words of Marcia Angell, Richard Horton, and John Ioannidis which show that the peer-reviewed medical literature is simply untrustworthy. I argue that untrustworthy research cannot possibly be the foundation of any sound decision-making. An October 2015 article [25] in the *Canadian Veterinary Journal* ex-plained the positions of Drs. Angell and Horton, respectively, as follows:

> "It is simply no longer possible to believe much of the clinical research that is published, or to rely on the judgment of trusted physicians or authoritative medical guidelines. I take no pleasure in this conclusion, which I reached slowly and reluctantly over my two decades as editor of *The New England Journal of Medicine.*" [26]

> More recently, Richard Horton, editor of *The Lancet*, wrote that "The case against science is straightforward: much of the scientific literature, perhaps half, may simply be untrue. Afflicted by studies with small sample sizes, tiny effects, invalid exploratory analyses, and flagrant conflicts of interest, together with an obsession for pursuing fashionable trends of dubious importance, science has taken a turn towards darkness." [27]

The *Canadian Veterinary Journal* concludes:

> The take home message is that readers must exercise caution in interpreting the published literature, regardless of the reputation of the journal in which an article is found. [25]

Richard Horton also wrote the following in his piece in *The Lancet*:

> "A lot of what is published is incorrect." I'm not allowed to say who made this remark because we were asked to observe Chatham House rules. We were also asked not to take photographs of slides. Those who worked for government agencies pleaded that their comments especially remain unquoted, since the forthcoming UK election meant they were living in "purdah"—a chilling state where severe restrictions on freedom of speech are placed on anyone on the government's payroll. Why the paranoid concern for secrecy and

> non-attribution? Because this symposium—on the reproducibility and reliability of biomedical research, held at the Wellcome Trust in London last week—touched on one of the most sensitive issues in science today: the idea that something has gone fundamentally wrong with one of our greatest human creations. [27]

Later, when you read the Children's Health Defense letter [28], you will learn that John Ioannidis stated in his legendary 2005 paper that:

> There is increasing concern that in modern research, false findings may be the majority or even the vast majority of published research claims. [29,30,31] However, this should not be surprising. It can be proven that most claimed research findings are false.

I hold that nobody should be forced to participate in medical experimentation or forced medication of any kind. And how much more reasonable is this opinion of mine in the light of what these editors of prestigious journals (*The New England Journal of Medicine* and *The Lancet*) and the very well-respected John Ioannidis have said about the medical literature—that it is extremely untrustworthy?

Those who do not yet know about the long-standing policy of defrauding the public with fake medical research papers in the scientific journals are again advised to watch *The Oiling of America*, which is a terrific DVD made by the Weston A. Price Foundation. It's available at New Trends Publishing but also can be viewed for free by the public on the YouTube. [2] Explicit permission of the WAPF President for the free viewing of this presentation has already been obtained. In that DVD, President Sally Fallon Morell shows that lipid chemist Mary Enig PhD of the University of Maryland was blackballed for showing the great dangers of trans fats. The industries were heavily involved with the lipids department there. Dr. Enig was able to publish one study on the dangers of trans fats, and when she did so it caused journal editors to become enraged that they hadn't been able to keep her study from being published. This was many years before trans fats were well-known in this country to be extremely harmful to the human body, as Dr. Enig was a pioneer in this area.

As explained in *The Oiling of America*, the editor reportedly told Dr. Enig (I'm paraphrasing):

> ...I thought my colleague was watching his journal and I was watching mine, but we left the barn door open and a horse got out. This will not happen again... [2]

And Dr. Enig never received "another penny" of funding for her research. It is made very clear in *The Oiling of America* that heart disease, coronary artery disease, is primarily the result of the introduction of the deadly industrial seed oils (so-called "vegetable oils") into our food supply. There are also plenty of other factors involved, including but not limited to a large variety of nutritional deficiencies. But the message is clear: "vegetable oils" (deadly industrial seed oils) are the primary cause of heart disease.

So, doctors and nurses and other health care workers: how is that statin drug and low-fat diet strategy working for the patients? We can see how it's working. Heart disease rates have continued to climb for many decades now—it's really getting close to 100 years already since it came on the stage in America. We have all kinds of elderly Americans that are suffering from statin-induced Alz-

heimer's disease, erectile dysfunction, cancer, type II diabetes, extreme muscle wasting and muscle pain and collapsing backs due to the damage to the small muscles in the back, heart failure (i.e. since the heart muscle requires a lot of coenzyme Q10), mood problems and rage, peripheral neuropathies and mitochondrial DNA damage from the statin drugs. Years ago I became concerned about statin drugs, having seen many people who were severely damaged by them, and I then bought five books on the topic. Among those books were:

(1) *How Statin Drugs Really Lower Cholesterol: And Kill You One Cell at a Time*—James B. Yoseph and Hannah Yoseph MD
(2) *Poisoned!: Recovery From Statin "Side Effects"*—James B. Yoseph and Hannah Yoseph MD
(3) *Lipitor: Thief of Memory* by former NASA flight surgeon Duane Graveline MD
(4) *The Statin Damage Crisis* by former NASA flight surgeon Duane Graveline MD

The statin drugs are truly a bestseller today, and they were brought to market (as shown by these books) through fraud. My conclusion is: the medical literature is untrustworthy; those setting the "standard of care" are untrustworthy; there are very many individual doctors and nurses who are well-meaning but who are causing enormous damage to patients simply by believing what is published in the medical literature and by believing that the "standard of care" they have been instructed in is a good idea. In my book there is some more discussion about "standard of care" and how it prevents innovation.

Some might think the discussion of statin drugs here is irrelevant. But as it turns out, there are people that have recommended these extremely harmful drugs (which are infamous for causing neurological damage) to TBI patients!

Chapter 5: **MEDICAL OXYGEN for TBI**

It is assumed the reader knows oxygen can be good for TBI so I won't try to prove that here. The concept of redox balancing is critical, though, and it should help to explain why mixed results have been obtained with the use of hyperoxia for TBI; we all know oxygen can be a double-edged sword. Rather than going into any long introduction, here I'll only quickly go over what I think many MDs (and therefore their patients) might <u>not</u> have heard of in this area.

Hydrogen gas given in water or by another means for redox balancing is not a new idea. Suppose that the patient is being given water that has significant amounts of hydrogen gas in it. A hospital would be able to give oxygen by mask or cannula at the same time and there would be an effect of redox balancing with this combination; this would work even with an unconscious patient whether he is unconscious because of the head injury or because of the drugs. Hyperbaric oxgen therapy (HBOT) could also be used in combination with hydrogen water by mouth and hospitals clearly are familiar with HBOT and hopefully with the efficacy of various oxygen therapies for TBI. Alternatively, oxygenated water could be given to the patient and hydrogen gas administered through breathing; or both oxygenated water and water containing dissolved hydrogen gas could be given to the patient. Giving the oxygen in the drinking water does appear to have a distinct advantage as we'll see.

This quotation is a relevant testimonial from Ed McCabe's book *Flood Your Body With Oxygen*:

> "On July 20, 1998, my 16-year-old daughter Abby was injured severely in a car wreck. She sustained major head injuries and had emergency brain surgery. I insisted to the nursing staff that Abby be allowed to drink only the oxygenated water that she had been drinking for the past two months. They agreed that it may be beneficial for her brain condition while in the intensive care facility. They were amazed when Abby would take just a couple sips and the monitor for blood saturation levels would increase from 90 to 98 to 99 percent in seconds and stay that way for 5 to 6 minutes. We feel that the water contributed to her quick recovery and release from the hospital. She was up and walking in 24 hours and released from the hospital in 4 days. As of this day, September 1st, '98, she is still drinking the water and the neurosurgeon predicts that, at her present rate of recovery, she should be back to 98 percent normal in a year."
>
> —J.H.N. [32]

And this comes from the front matter of the book:

> "Take note. The interest this book will unleash is noteworthy. Both lay or professional persons who secretly will not admit their ignorance in this emerging field of study will use it as a guide."
>
> —Mona Harrison, MD,
> Former Assistant Dean,
> Boston University School of Medicine [33]

I do believe that the claim made anecdotally in Mr. McCabe's book among many other anecdotal claims, the one about the 16-year-old girl recovering so quickly after a severe head injury from a car accident, is plausible because of some related citations and supporting statements made in WAPF's most recent book by Dr. Cowan and Sally Fallon-Morell. Chapter 8, for instance, shows some interesting things in citations 6 through 12, most relevantly that soaking in a bathtub of

highly oxygenated water makes the blood oxygen levels rise [34] and that drinking oxygenated water makes wounds heal better [35], helps clearance of lactic acid from athletes [36], helps immunity [37], and helps muscle fatigue [38]. I'm aware there are naysayers who believe oxygenated water is a scam, but I don't think that idea is as reasonable given the existence of the references in this paragraph.

But more important is the statement made on page 146 of WAPF's most recent book about their preference for water produced by the Ophora brand (their website is not modest so men and boys should not go there) of filtration systems (my emphasis in bold):

> **"...oxygenated to forty parts per million with a proprietary technology. This is by far the highest oxygen content of any water tested...**
>
> **Studies of people who soak in this oxygenated water and drink one-half gallon per day show some amazing results. First, the oxygen saturation of the tissues immediately goes up and stays at the highest levels for up to twelve hours. This is a more robust oxygen saturation response than one gets with hyperbaric oxygen therapy, a strategy known to produce many therapeutic effects."** [39]

It is not that I'm displaying partiality to any specific brand of water system; I'm only saying that I have not heard of any that achieves a level of oxygenation higher than what Ophora has been able to do with theirs. Two highly trusted health experts (in my view) are saying this is the highest oxygen level in any oxygenated water known. After all, it is no small thing that G-d blessed me with the opportunity to use WAPF nutrition on the roughly 30 cavities I got suddenly around 4 years ago. Thank G-d, I have not had a single filling and many of them have visibly remineralized with the rest going inactive. So, yes, I do believe WAPF knows what they are talking about when it comes to health. Ophora does offer their water in bottled form for those who do not have their water system to make it. There are other brands of oxygenated water available. I have heard that some do not consistently hold the oxygen in storage. Hospitals already have some level of oxygen facilities so that might be the easiest thing to use in the meantime while allopathic medicine works to catch up, assuming that oxygenated water does prove to be a big leap forward as the authors contend.

An earlier version of this report included the following section between the dotted lines which comes from the work of Dr. Bruce Rind MD. Relox is the relevant oxygen-based therapy.

-----BEGIN QUOTED SECTION FROM EARLIER REPORT-----

NOTES FROM DR. RIND

Notes from a 10/13/2018 phone call to Dr. Rind, in which he graciously provided free advice for stroke/TBI/mild concussion patients.

Introduction:

Dr. Rind has 43 years of experience in this area. He is closely associated with the Weston A. Price Foundation.

Notes:

Osteopathic cranial therapy:
→ The bottom line is that a huge part of his focus with TBI patients has been osteopathic cranial therapy. (This can be done be a craniosacral practitioner. He has to teach the practitioner a special technique he developed. This technique can be successfully described over the phone.)
→ Since the cranial bone might get compressed in a head injury, traction would be necessary. Compression techniques would not help with a compression injury.
→ Dr. Rind has developed about 20 special techniques in this field

Relox:
→ Relox intravenous nutrient infusion helps to wake up the brain
→ Relox is proprietary and as part of a contractual agreement cannot be taught to the public. Dr. Rind tried to give away this process to the military but they were more focused on pharmaceuticals and didn't want it; it sounds like more of an orthomolecular approach.
→ Includes vitamins, magnesium, and oxygen by mask
→ Within ten minutes many patients have shown very obvious signs that they started to regain brain function

Natural oils combination:
→ Unspecified combination of natural oils. Special training would be needed to administer this combination.

Nutrition is the foundation:
→ People need the raw materials to be available in order for brain repair to happen
→ Dr. Rind is in alignment with the dietary guidelines of the Weston A. Price Foundation
→ Dr. Rind has seen many people with cognitive problems caused be low cholesterol, and he has seen many people improve when he helped them to raise their cholesterol levels. Obviously the cholesterol-lowering drugs, including but not limited to statin drugs, have been extremely harmful.

Other points:

→ In whiplash from rear-end collision, the occiput has sustained a compressive injury agaisnt back seat of car
→ Jarring has caused lots of muscle tension—Dr. Rind recommends prolotherapy to strengthen ligaments so that muscles don't have to work so hard to support the structure
→ The brain is floating in cerebrospinal fluid. It is bathed and infused by this fluid which must be pumped. The cranium itself moves slowly and pumps like the heart—only extremely gently.

Problem: The problem has been that when the pump has been damaged or impeded because of occiput injury. Very tense muscles also could impede this pump.
→ Because of their training, MDs have generally regarded the resultant memory problems and brain fog from the above problem as normal part of mild TBI. Also, the cranial mechanism (this pumping action) has not been part of their standard training.

→ How to fix this problem:
1. Restrengthen damaged ligaments with prolotherapy

2. Restore cranial mechanism (this is what he would describe to craniosacral practitioner)

→ No matter how light the impact, the mechanism could be damaged.
→ Finally, Dr. Rind maintains that the easiest way for a patient to get help in the way he recommends is to travel to his clinic. He has tried to make everything very accessible to the general public for free—he even tried to give away Relox—but this hasn't always worked out as he planned.

-----END QUOTED SECTION FROM EARLIER REPORT-----

*****Any practitioner wanting to know more about the techniques Dr. Rind uses should reach out to him for more information. Maybe he will be able to help over the phone.*****

What about "10-Pass" ozone treatment for TBI?

As I understand it from a paper [47a] by Tim Marsall PhD, HBOT itself is a hormetic therapy; it creates a stressful stimulus that leads to adaptation by the body. HBOT actually creates oxygen radicals. Then the body upregulates enzyme systems that protect from these radicals but also lowers its own production of oxygen radicals. A question comes to mind: Why would constantly drinking the highly-oxygenated water mentioned above be beneficial if it is better at oxygenating the body than HBOT and if creation of oxygen radicals is the result of HBOT? HBOT is only an intermittent stimulus. But if hormesis is the only reason for the benefits, then why would being exposed constantly to the negative stimulus actually turn out to be healthy? Now there are those who believe that the atmospheric pressure of the earth used to be higher and that would certainly help to explain some of the enormous fossilized creatures that have been found such as dragonflies that are over a foot long. Many other creatures were also much larger than the ones we know today.

So ozone treatment also appears to be a hormetic treatment and my guess is that it is more severe/more irritating than HBOT. That doesn't mean that it's certainly the wrong thing to do. But I'll point out that if HBOT is slightly unnatural then 10-Pass ozone treatment seems a little more unnatural than that, unless someone can point me to information about how the blood of mankind was exposed in the Garden of Eden to large amounts of ozone. My foundational starting point is knowing that we can't improve on G-d's designs in nature. In any event, 10-Pass ozone treatment was recommended strongly to me by a friend of mine who is an MD in Germany. The recommendation was strong and convincing and comes from someone who is trustworthy. So I'll summarize.

He said that a hemoglobin level of 8 or higher is required to undergo the treatment so the blood loss from the TBI patient can't be too severe before doing this treatment which is also called OHT, ozone high-dose therapy. He says that 10-Pass stimulates the body to replicate its own stem cells. He said that if he lived nearby he would pack up his machine and bring it to the patient for which this report has been written (but he lives in Germany and the patient lives in the USA).

After a question I asked about redox balancing, he replied by saying that hydrogen water can be used for that purpose and it would be given before doing 10-Pass treatment. He mentioned a product that makes hydrogen water just as an example of what is on the market. [39a] He said that reverse osmosis or similar filtered water would be necessary to use in the product that generates hydrogen-infused water. He also commented that the 10-Pass equipment is expected to lead to a breakdown of the regular stem cell therapy market. He said that any therapy could be risky after a severe TBI but said that if the

regular doctors are at their wits' end then it would be the first thing he would recommend to try on the patient.

He did say that the effects on stem cells of 10-Pass/OHT have not yet been proven directly; only the effects have been proven. By this he means that the effects of autologous stem cell therapy after 48 hours are the same as those seen with OHT/10-Pass. However, he did say that the effect on OHT on human mitochondria is proven by this paper [39b] by a Professor König, someone who is researching OHT/10-Pass with its inventor, Dr. Lahodny.

Having no experience with or any significant prior knowledge of medical use of ozone, a treatment completely separate and apart from plain old oxygenated water, I have decided to not recommend it myself for TBI at this time. So now you know that my German friend, an MD, recommended it strongly for TBI. I have passed that along, but I don't feel I can recommend something like this that can have possible side effects without knowing a lot more.

However, it was certainly not an unproductive vein. You'll see what I mean when I get to the next paragraph. First, he told me that it could be beneficial to give the patient molecular hydrogen (H2) before administering ozone as a means of balancing the oxidative effects of ozone. He recommended getting something like that portable hydrogen generator for making it from reverse osmosis water or similar filtered water. Next I learned that a chemistry expert named Tyler LeBaron, respected in his area of interest of researching and promoting hydrogen-infused water, has spoken on what he considers the possible benefits of using molecular hydrogen to prevent "pernicious" effects of ozone therapies. [39c]

My friend from Germany has some compelling information to share about why he believes ozone would be a great thing for TBI, but since I have no previous knowledge of that therapy, in the meantime, I'm not going to personally recommend it because I don't have any prior real knowledge of medical use of ozone. Sure, I may be able to see a lot of nice things at Ozone Without Borders and might think it might be a good idea, but I also know that particular treatment is not completely without possible side effects and it is clearly not something that is, by any means, reasonable to consider relatively inert. Out of an abundance of caution, I'm not personally recommending it at this time. However, I do know that there are doctors in many parts of the country who are doing 10-Pass.

Another factor to consider is that HBOT has a longer track record of use. But still another factor that may be even more important is that certain minerals, especially lithium, as we will see in the chapter on minerals, are good at stimulating neural stem cell proliferation and stimulating growth factors. There are also plant medicines that seem able to do this, as well, though those will be expected to be less important than the essential nutrients. It is my sense that the combination of treatments recommended in this report will be sufficient for very serious forms of TBI and that 10-Pass will not be needed just because of the abundance of other options that seem to be more gentle and do not seem to be less effective when used in a combination approach.

The chapter "Hyperbaric Oxygen Therapy in Traumatic Brain Injury: Cellular and Molecular Mechanisms" [39c] from the book *Hyperbaric Oxygen Treatment in Research and Clinical Practice* (Sanja Pekovic et al, 2017) concludes:

> "HBOT has been used as a primary or adjunctive therapy over the last 50 years, both in experimental and clinical studies. However, despite the decades of extensive research the entire

> spectrum of HBOT action is still not completely understood, although many mechanisms of its action have been proposed. Therefore, in this systematic review we elaborate the cellular and molecular mechanisms of HBOT actions. Based on the presented data it may be concluded that improved tissue oxygenation and cellular metabolism, anti-inflammation, anti-apoptosis, as well as intensifying of neuroplastic responses, promoting of synaptogenesis, neurogenesis and angiogenesis may constitute the multiple and complementary mechanisms underlying HBOT-induced neuroprotection. In addition, reduction of lipid peroxidation and up-regulation of antioxidant enzymes are among the mechanisms involved in the action of HBO. In that way, HBOT diminishes imbalance between oxidants and anti-oxidants that occurs after brain injury, and contributes to the maintenance of pro−/antioxidant homeostasis. Furthermore, HBOT effectively attenuates reactive astrogliosis and microgliosis, prevents tissue-damaging effects of neutrophils and suppresses formation of glial scar. Accordingly, by alleviating glia-mediated inflammatory response and limiting production of inflammatory mediators HBOT fosters formation of more permissive environment for tissue repair, allowing the recovery of impaired brain functions. **Overall, although results clearly suggest the validity of HBO therapy for the treatment of TBI, the underlying mechanism still needs to be studied in depth.**" [39c]

Even if HBOT is not desired, normobaric hyperoxia given for short periods has been shown to be safe and might be used in TBI. [39d]

Magnesium:

I was most shocked to find that there were many reports of mixed results in the literature on TBI in human beings and magnesium. Magnesium, without question, is one of the most important minerals for proper neurological functioning and this is especially true in our world of wireless devices that greatly interfere with calcium flux in the cells. Though an older article from 2008 [40] from Cochrane downplays the use of magnesium for TBI, it also says some reasonable things:

> ...It is believed that excessive calcium entry into the cells is the biggest threat to brain damage, in which the calcium excess ultimately leads to increased free radicals, proteolysis, initiation of apoptosis, and inflammation. As one of the most important ions in the central nervous system, magnesium is important in various physiological effects, such as ischemia, cellular energy metabolism, and protein synthesis. Magnesium is also a potent calcium channel blocker, and helps to control intracellular calcium activity. Magnesium increases cardiac output and cerebral blood flow. Low levels of magnesium can lead to an increase of intracellular calcium levels. Hypomagnesaemia is a risk to head injuries, and this has been associated with poor neurological outcome and increased mortality. Restoring the levels of magnesium may reduce edema, improve neurological and cognitive outcomes, and help with problems associated with ischemia. [40]

A review intended to improve the outcomes in military personnel [41] suggests that magnesium should be given within a 1-, 2- or 3-hour window to best help the TBI patient. A paper in *Neurotherapeutics* [42] suggests that combination approaches rather than "treatment with a single agent" would be the way to use magnesium.

A University of Adelaide Press book explains:

> ...It has been observed that a traumatic insult to the CNS results in a decrease in the intracellular free Mg2+ concentration of between 40-60%, while the total tissue Mg2+ falls by between 10-15%. This Mg2+ decline is confined to the site of injury and the decrease is associated with the development of neurological dysfunction... [43]

At the very least we should be aware of the emphasis made in that required WAPF article "Understanding the Concussion Epidemic" (which the reader of this report has surely already read) on deficiency magnesium when it comes to causing low seizure thresholds. That would be an outcome anyone treating TBI patients would want to prevent. I would suggest that the mixed results with use of magnesium for TBI are not fully explained. Anyone doing an internet browser search for magnesium and TBI will be hammered with results right away saying that it's not effective. Yet there is utterly universal agreement in the world of natural medicine and so-called complementary and alternative medicine that magnesium supplementation is an extremely effective treatment for many health problems, and neurological problems are among the very first that come to mind whenever magnesium is brought up. Excitotoxicity expert Russell Blaylock MD would say that magnesium threonate is the most effective form of oral supplementation for reaching the brain and it is abundantly clear that excitotoxicity/excess glutamate is a large part of the chemical process involved in TBI. If I woke up tomorrow and heard that Dr. Blaylock was saying

that magnesium shouldn't be given for TBI patients, I would probably think the world had flipped upside down overnight and that down was now and up was now down.

As we have seen in a previous chapter, there are reasons to believe the quality of the medical literature is highly suspect to put it mildly. And we should not assume that bias or even foul play is not possible is this arena, that there are no conflicts of interest involved when studies are done to evaluate one of the most powerful minerals for its health properties. Billions of dollars of drug revenue may be at stake.

Further, we should be aware that a number of the severe TBI patients are already taking a most harmful enteric formulation that is expected, primarily through its almost-inevitable vegetable oil content and likely also through carrageenan, to cause great damage to brain cells that are already greatly inflamed due to the mechanical trauma of head injury. Those not eating enteric formula are expected to be eating a similar range of brain toxins in the hospital food or in their food cooked at home, since deadly industrial seed oils and MSG (or other sources of free glutamate going by one of 60 or 70 names) are ubiquitous in foods today. So we should not think that just because someone did not have to use a feeding tube he or she was not exposed to the same brain poisons at the time the magnesium trials were done.

We should also be aware that magnesium's calcium channel blocking properties might be challenged or outpaced by the combination of ubiquitous microwave irradiation in our world today caused by the wireless sector of the telecommunications industry with, again, the chemical changes resulting from the actual mechanical trauma of the head injury. (Note: My next book, G-d willing, should be called *The Big Boycott: End of the Wireless Age*). In the meantime, Cell Phone Task Force (and its ECHOEarth pledge) and the encyclopedic book *The Invisible Rainbow* are good resources on the topic of EMR health dangers.

Another possibility would be issues relating to the doses and the forms of supplementation. Every good natural health expert knows that it's the intracellular magnesium, not the blood level, which betrays how deficient a human body is; and each such expert also knows that magnesium supplementation over the course of a very long time, many months at least, is frequently necessary when it comes to gradually restoring low levels of magnesium in the human patient. Regular intramuscular magnesium sulfate injections, though they can feel like a muscle cramp, can be a good way of speeding this along but shouldn't be seen as fast. It begs the question of whether giving, for a very short time, a little IV magnesium sulfate to a TBI patient that was dreadfully low in it at the time of the head injury might be a little like trying to get one end of a dry sponge wet by using a micropipette at the opposite end. Even if this approach might give best results when the magnesium is given as early as possible, no natural medicine expert would say, “Okay, you gave one dose of magnesium; now let's wait a few months and see if they do any better than the their compatriots.” No, he would be aware that most Americans are absolutely starving for the stuff and would insist on giving large amounts each day and gradually building up the intracellular levels. After all, he is thinking ahead: “What if the patient goes home, gets a little clumsy one day a few weeks from now, trips over something while the brain is still inflamed and a small bump on the head puts him right back in the hospital?” That would be acting on the concept of diminished brain resilience from the WAPF article “Understanding the Concuslsion Epidemic.” Again, the threonate form is recommended by Dr. Blaylock as the oral form that gives best results in reaching the brain. Intramuscular magnesium sulfate injections are good and they have better results in natural

medicine practice than magnesium given by IV, (though for a TBI I would assume it would have to be given by IV). There are also topical forms of magnesium called magnesium oil that are essentially solutions of magnesium chloride.

A 2010 paper [44] gives another clue as to why it might be that magnesium has worked well in animal TBI studies but has given mixed results for human beings:

> "...inducing hypermagnesemia in humans did not concomitantly increase magnesium levels in the CSF. We hypothesize that the neuroprotective effects of magnesium in TBI patients could be observed by increasing its brain bioavailability with mannitol." [44]

This means making blood magnesium levels high with supplementation did not cause Mg to really reach the cerebrospinal fluid and the brain. I don't know much about the safety of mannitol. But the point is that we probably do need some way of enabling the magnesium to reach the brain efficiently. I certainly wouldn't recommend the use of the very harmful polyethylene glycol (PEG) as is recommended in this study [45] which also believes the blood-brain barrier is an obstacle to magnesium's beneficial impact on the TBI patient.

However, a 2007 study found that of the people they studied, "Patients with low serum magnesium and high CSF magnesium are most likely to have poor outcome after severe TBI." [46] Another 2007 study [47] also found high magnesium levels in the CSF of patients with severe head injury. Ca levels were elevated in their CSF, also. So there is a conflict here. Some researchers have said that high CSF Mg (when the serum Mg is low) lead to the worst outcomes. Others have said that if we could only find a way of getting the Mg into the CSF it would help more, the same way it did for rodents. This problem is more than a little baffling. From my reading it is clear that pre-existing Mg deficiency in the patient makes the TBI much worse, but I do not know the answer to the puzzle we're looking at in this chapter.

Perhaps some of the above factors could begin to account for the reporting of mixed results in the use of magnesium for TBI. I suspect there are other factors also leading to those results. Experience with magnesium doesn't make the mixed results seem plausible at all. The great but gentle power of magnesium to calm down neurological problems is known very well to everyone in natural medicine and experience simply is not consistent with the reports of weak response. Magnesium is simply a favorite for reducing excitotoxicity because it works so well and is so safe. Though standard medical training would push us into ignoring our gut feelings and rejecting common sense and honesty, it is with G-d's help that I don't live that way. My gut is screaming at me that I would have to find exactly the right book in which someone else has already compiled a list of studies showing that various CNS traumas or TBIs are greatly helped by magnesium and even has an explanation as to why some studies (the ones that appear to be preferred and trumpeted by search engines) appear to show weak response to magnesium supplementation. How are the clinical trials being run, exactly? Maybe such a compiler would also have found out something the trials with poor response all have in common. Magnesium is a superstar of the world of nutrition and makes huge differences in brain health. There is every reason to expect it would be especially useful for the excitotoxicity of the chemical changes that have been known to happen after TBI. Perhaps Dr. Russell Blaylock will have some ideas to offer as to why the human studies have been inconsistent. Not having the power to recommend magnesium for TBI because this is currently unresolved means a huge part of my toolkit is missing! These are muddy, muddy waters!

UPDATE 2/3/2023: Thank G-d, I was able to find something today that changes the game entirely. There is someone who is an expert in use of minerals for TBI; that's the main thing he does. He also uses HBOT and some other things. Of course, I'm talking about Mr. Tim Marshall, PhD. Learning today about his work has been such a huge blessing and it is clear that G-d arranged for me to find Dr. Marshall's work. Dr. Marshall consults with MDs in treatment of TBI and other illnesses for the purpose of developing protocols for brain recovery. While he does not directly treat patients himself, he reports that his consultations have had outstanding results not limited to the area of TBI; he has even seen recovery from stroke and from Parkinson's disease. While it is not yet clear exactly what his answer might be to the question "Why are the waters so muddy when it comes to magnesium and TBI?" it is now 100 percent clear that the right person has been found; minerals for TBI are his specialty, period. As I would expect, he does recommend magnesium for TBI. [47a] Perhaps I can soon get some more detailed information from him about what he would recommend in the acute phase of TBI when it comes to magnesium supplementation as well as supplementation with other minerals. Dr. Marshall's recommendations for TBI do revolve primarily around use of Mg, Zn, and Li supplementation. My recommendation at this time is just to have a consultation between the family of the patient, the patient (if able), and the doctor, and Dr. Marshall and see what mineral recommendations he makes in a given circumstance. If I get to audit a Dr. Marshall consultation on minerals for TBI in the near future, I'll take notes and give some basic general guidelines in an update of this report. For now I'll just give, in the next section, some overview of general concepts he covers in some of his work in the context of the lithium topic.

Lithium:

For years I have been aware of Dr. Joel Wallach's steady recommendation of lithium as an essential nutrient for all people in all stages of life. He has recommended it steadily for a long time and has consistently told us that it is critical especially for children in preventing and reversing behavior problems and neurological problems, especially ADD, ADHD, and autism. However, Dr. Marshall's work puts Li into a different light than I was previously aware of. I simply did not know the powerful neuroregeneration effects of lithium.

Dr. Marshall highlights the fact that lithium and magnesium share a diagonal relationship with each other on the Periodic Table, meaning they share more similarities than elements in the same column. It's fair to say that lithium is, in health terms, 'the magnesium most people don't know about today.' The form of lithium Dr. Marshall recommends for healing of neurological problems is lithium orotate. He says this is available at Natural Grocers. My understanding is that for TBI patients he recommends starting with 5 mg at first and then moving it up to 10 mg. Again, Dr. Marshall's recommendations for TBI revolve primarily around use of Mg, Zn, and Li supplementation, but he also uses Se at 200mcg for stimulating growth factors (certainly 400 mcg/day is safe and that was the dose used by the highly respected Gerhard Schrauzer PhD). Li is especially good at stimulating growth factors including BDNF. For this reason I think it will be much more foundational than the plant medicines for BDNF that we'll see later in this report. Dr. Marshall prefers the magnesium glycinate form and believes that the threonate form, while absorbable, is probably over-hyped. He says the one study supporting the use of the threonate form comes from the company that makes it.

Dr. Marshall says lithium is the best anti-suicide agent he's aware of even in very tiny doses of 200

to 500 mcg of lithium orotate. Dr. Marshall explains that the use of lithium carbonate as a drug is a harmful mistake because it is a crude, brute force method of delivery that relies on a strong concentration gradient to reach tissues. Normal people can take 20 mg of the orotate form with no problem and Dr. Jonathan Wright has used 40 mg on his patients without any side effects. One of the reasons fluoride is so harmful is because it binds lithium and causes it to precipitate out of solution, thereby rendering one of the most important brain nutrients unavailable. Dr. Marshall yearns for the time when the general public will recognize lithium as a brain nutrient.

Dr. Marshall believes that the soft drink brand name 7 Up actually comes from the original drink which contained lithium, a nutritious mineral which has largely gone out of fashion in more recent years.

I have made one of Dr. Marshall's papers [47a] into required reading for anyone reading this report. But to highlight just one paragraph there, I'll paste it below (my emphasis in bold):

> Low doses of lithium were found to increase brain-derived neurotrophic factor (BDNF) expression in cortical neurons (10% at 0.02mM) and hippocampal neurons (28% and 14% at 0.02 mM and 0.2 mM, respectively). **Extracellular BDNF of cortical neurons increased** 30% at 0.02 mM and **428% at 0.2 mM**, and in hippocampal neurons, BDNF increased 44% at 0.02 mM.[20] [47a]

Dr. Marshall credits the combination of minerals such as magnesium, lithium, zinc, and selenium with the remarkable results he has achieved in the work he does with doctors to develop supplement plans for TBI patients and patients with other types of neurological damage, and lithium, largely unknown as it is to the general public today, certainly plays a very central role in stimulating regeneration.

One of the most fascinating cases he has seen was a case of drug-induced Parkinson's in a child. Most Parkinson's is induced by drugs, says Dr. Marshall. But this was in a 13-year-old girl taking Abilify with the ostensible goal of helping OCD. Through his protocol, the Parkinson's is gone and there was some affected speech remaining as of the 2018 interview I listened to in which he related the story of the patient. However, that was less than a year after she started on the protocol and she had not done the HBOT treatments, which he believes would have helped produce even better results.

"Brain injury is not irreversible," says Dr. Marshall. He works in Arizona and his colleagues are involved in a nonprofit called Healing Arizona Veterans where they use minerals such as those mentioned above, other nutritional interventions, and HBOT.

For the benefit of the reader, Dr. Marshall's credentials/background are available at his website as are his publications. [47b]

For more information about lithium, there is another paper [47c] by Dr. Marshall that covers some additional points that are very important and should be considered by any practitioner, especially if he or she is at all skeptical of the use of Li for various types of brain damage. Here is a remarkable paragraph from that paper (my emphasis in bold, except for the section heading at the top):

Lithium Effects on Neural Tissue and Blood

In his 2009 review,[15] Young cited the following biochemical effects and benefits:

→ Lithium up-regulates neurotrophins, including brainderived neurotrophic factor (BDNF), nerve growth factor (NGF), neurotrophin-3 (NT3), as well as receptors to these growth factors in the brain.
→ Lithium stimulates proliferation of stem cells, including bone marrow and neural stem cells in the subventricular zone, striatum, and forebrain. The stimulation of endogenous neural stem cells may explain why lithium increases brain cell density and volume in patients with bipolar disorders.
→ Lithium also remarkably protects neurons against glutamate, seizures, and apoptosis due to a wide variety of neurotoxins via N-methyl-D-aspartate receptor (NMDA) inhibition/modulation.
→ Lithium causes granulocytosis and enhances immunological activities of monocytes and lymphocytes.

Young concludes, **"Lithium has been reported to be beneficial in animal models of brain injury,** stroke, Alzheimer's, Huntington's, and Parkinson's diseases, amyotrophic lateral sclerosis (ALS), spinal cord injury, and other conditions. A recent clinical trial suggests that lithium stops the progression of ALS."[15]

In 2014, Stenudd et al. demonstrated that endogenous neural stem cells restrict damage and promote repair of damaged spinal cord neurons.[16] **Lithium's ability to stimulate neural stem cell production may prove to be of significant benefit in individuals recovering from spinal cord injury and neurological injuries caused by severe trauma (TBI, traumatic brain injury), dietary and environmental excitotoxins** (mercury, aspartame, monosodium **glutamate**), and substance abuse. [47c]

Zinc and copper:

As WAPF has repeatedly stressed, zinc is known as "the intelligence mineral." Perhaps there is good reason below to think it is rapidly expended by the body in the aftermath of a TBI:

> "As shown in a clinical study, after head injury patients are at risk for the development of zinc deficiency. TBI patients have elevated urinary zinc losses that persist for weeks following injury and result in reduced serum zinc levels. It also appears that urinary zinc losses are proportional to TBI severity. In fact, the study found that the most severely injured patients had mean urinary zinc levels that were 14 times higher than normal values." [48]

It is very important to balance zinc intake with copper intake because they antagonize each other. In the context of helping a TBI patient, it would make perfect sense that knowing about and acting correctly on this Cu-Zn antagonism becomes even more important than with someone who is not dealing with an emergency at all. My report on aortic aneurysm (free at the Reports page of my website) goes into a little detail about the importance of copper for blood vessel strength and shows there is good reason to believe existing aortic aneurysms, even large ones, may be able to heal with copper supplementation provided that they haven't first ruptured and killed the patient, obviously. And it is known that there is often blood vessel damage in the brain of the TBI patient:

> "Because vessels are critical to the maintenance of the healthy brain, any injury or dysfunction of the vasculature puts neural tissue at risk. It is well known that these vessels commonly tear and bleed as an immediate consequence of traumatic brain injury. It follows that other vessels experience deformations that are significant though not severe enough to produce bleeding. Recent data show that such subfailure deformations damage the microstructure of the cerebral vessels, altering both their structure and function." [49]

Because of this damage, I have made the aortic aneurysm report required reading for the reader of this report on TBI/concussion. Not only does it pay great dividends to show the reader that another type of very serious damage to the body can be healed with the wonderful foods and medicines G-d designed and implanted in the natural world, but the blood vessel repair information there is simply too relevant to leave unmentioned here. The same types of blood vessel repair strategies there should and must be implemented also on the patient with any severe TBI at all to give him or her the best shot of vascular healing.

Since that has been said, I believe the best and most balanced zinc supplement for the TBI patient is going to be powdered oysters. They have plenty of zinc but also copper, manganese, selenium, some B12, and some iodine. The main point here is that the minerals are very available in this dried animal food source of zinc and it will be balanced to some degree by the copper that is already there. I think it would also be a good idea to take a good amount of the supplement Ultimate Selenium by Youngevity for a boost of copper, selenium, and chromium. For those who already like WAPF, WAPF includes ads for Oyster Max at the end of their *Wise Traditions* journal in the section The Shop Heard 'Round the World and a similar product called Oyster Power is sold Ramiel Nagel's supplement company, Traditional Foods Market. Two of Mr. Nagel's outstanding books, *Cure Tooth Decay* and *Cure Gum Disease Naturally*, have been extremely helpful to me as I have become more serious about eating a WAPF diet to heal many cavities that appeared suddenly about 4 years ago. I got about 30 of them in a very short time and have not, thank G-d, had a single filling. Many of them visibly remineralized and the rest became inactive. It is because of the use for tooth- and gum-related health problems that Mr. Nagel added this supplement to his supplement company, but I believe a good powdered oyster supplement would be great for the TBI patient who is presumed to be losing very large amounts of zinc in the urine as his body expends it rapidly after the damage.

I would be negligent if I did not also say that all of the essential minerals are essential for all vertebrate animals every single day, and Dr. Joel Wallach, DVM ND, of *Dead Doctors Don't Lie* (the book, the CD, and now the radio show for over 20 years) says that the number of essential minerals is 60. The way I get the trace minerals is by taking my own homemade version of his Plant-Derived Minerals liquid supplement. I learned from listening to an interview or presentation by Dr. Wallach that the way the company Youngevity makes Plant-Derived Minerals liquid is to take some of the ancient plant compost deposit they have in Utah (it looks like coffee-grounds), mix it with some spring water they have there on site, and add an acid of some kind. Then they let this sit for two weeks. The result is the supplement Plant-Derived Minerals and they bottle it and ship it out. So that liquid has all 60 essential minerals in it, though it would be fair to say that supplementing additionally with some of the specific minerals that are needed in larger amounts would be more than a good idea but actually a requirement. That's a reason why I think Ultimate Selenium is such a life-saving invention because it has selenium, copper, and chromium all in one capsule, three of the minerals best at saving human lives (and for all three it is beneficial to consume them in

amounts that are larger than what a person would be getting by taking Plant-Derived Minerals.

In any case, my strategy at home (both to avoid the plastic bottles of the Plant-Derived Minerals supplement and to save a little money) is to buy Bloomin' Minerals and to mix it with filtered water and a little raw apple cider vinegar and then let it sit in the jar. I would recommend a large jar such as a 1/2-gallon jar at least if only one person is consuming this. Bloomin' Minerals is a product for application to gardens and farms and is available in 40-lb. bags. It is the same ancient plant compost from their deposit in Utah, the previously mentioned compost that looks like coffee grounds. I think it's fair to call it a humic shale deposit.

So by this point the reader might be wondering why this is being explained. By way of explanation, the illness called Type II diabetes will help a lot. One of the best books available on Type II diabetes is *Hell's Kitchen...* by Dr. Wallach. Doc Wallach explains that all 60 minerals are needed in order for the two most important in curing Type II diabetes, chromium and vanadium, to work properly. When research broke on these minerals, he watched in the '70s and '80s as people went out to health food stores and bought up chromium and vanadium and saw it only work about 10 percent as much as people had hoped for. He explains that all 60 minerals are absolutely required. And this does make sense. A great number of the enzymes in the human body are metalloenzymes; they do require a mineral cofactor that makes them work. Not only is this true for the human body and for vertebrates, but I would point out that it's even true for plants. That proteolytic enzyme from pineapples that everyone is so excited about for good reason, the enzyme called bromelain, only forms in the pineapple when the pineapples are grown organically in selenium-rich soil. That should make people take a step back from the idea that they're going to be okay if they just do a really good job eating a WAPF diet without taking into account the absolute requirement for all 60 minerals every single day. So we can see clearly here that not even a pineapple plant is not at all reaching its full genetic potential (or full utility for use by mankind) if the trace mineral selenium is missing from the soil. How much more so this is true for mankind: we are not reaching our full genetic potential in terms of the enzymes we can produce without consuming all the minerals we need every day.

Now there is no reason to think that only the deposit in Utah will do the job, though it does have the advantage of having been studied by Dr. Gerhard Schrauzer PhD and declared to be very useful, according to Dr. Wallach. Just because most places on the face of the earth are dreadfully depleted of minerals that plants <u>cannot</u> make and people are suffering greatly from it. Super-duper-organic Amish people, if they are not bringing it in from somewhere, Doc Wallach explains, are often afflicted with a number so-called genetic diseases and this is precisely because they're eating only local food! It pays to read that sentence twice to drive home the point. Local food is good if it's grown in the manner it was grown in the Garden of Eden (as explained in Chapter 3 of my book) and if the ground has all the minerals that are needed. If the ground didn't start off that way, then what can be done? Well, I would suggest that Bloomin' Minerals or any similar product that has everything in it would be a very good start.

There may well be plenty of other places on the earth where similar ancient composts have been preserved and, seemingly, were somehow not washed away by the Great Flood in the times of Noach. I don't have any particular partiality to the supplement company Youngevity. I actually would point out that there are significant issues with some of the other products I haven't mentioned here, for instance the ones that include synthetic B vitamins. So any brands that

accomplish the same thing as the non-problematic supplements made by Youngevity would accomplish the same thing.

The reader should note that I personally took about five years to warm up to the work of Dr. Joel Wallach. I initially had concern that he was too commercial. And even though I thought his sense of humor was remarkable, I still wondered if he was just being exceedingly good at marketing. I later found out that his supplement company doesn't make him a penny and that he willed it to his children. Doc Wallach makes his money from his sales of books, CDs, DVDs, etc. I own several of his books and have thoroughly read *Dead Doctors Don't Lie* and *Epigenetics: The Death of the Genetic Theory of Disease Transmission* (and this is only because of time constraints; I consider it unacceptable that I have not digested his entire corpus of work). I have confirmed a great many of the outrageous claims he makes and I have no reason to think that he has fabricated or even exaggerated any of them to the slightest degree. His multi-author textbook *Diseases of Exotic Animals* (which he essentially wrote himself after the other authors quit) really is in the Smithsonian as a national treasure, just as he says (I confirmed this by email). There is every reason to believe his claims about selenium. Even the criminal WHO has public documents that seem to support Dr. Wallach's claims about Keshan disease, for instance. He isn't joking about selenium and muscular dystrophy, either. There is a very, very long list of large discoveries Dr. Wallach has made and it is simply far too much to list here. Anyone who reads *Dead Doctors Don't Lie* is in for the adventure of a lifetime, complete with elephants and rhinos in Africa and zoo escapees here in the USA, and will be getting, to the best of my knowledge, the truth.

As we've already seen, copper intake is one of the key determinants of vascular healing. That is explained to some extent in the aortic aneurysm report (required reading). But a variety of protein misfolding diseases have been found in the aftermath of TBI. Copper deficiency, according to Dr. Wallach, is also the key problem with such things as enzootic ataxia and with steely wool disease in sheep, for instance, but also for BSE in cattle/CJD in humans. As explained over 20 years ago in *Nourishing Traditions*, the landmark book that kicked off the Weston A. Price Foundation, BSE was shown to be a non-contagious illness in cattle. So here we have at least two hard-hitting nutritional giants (WAPF and Wallach) saying that BSE is noncontagious and one of them is saying it's a Cu deficiency; meanwhile, the standard researchers aren't looking for another scurvy, another pellagra, or another beriberi but instead for something infectious. Naturally, since we are living in a time when there is ample room for discovering or rediscovering the nutrients involved in various nutrient deficiency diseases (as most are so married to the germ and genetic theories of disease transmission that they aren't looking for this type of answer), copper is obviously the specific nutrient I would encourage someone to try for Lewy body dementia.

Table 1 in the (required) WAPF article "Understanding the Concussion Epidemic" explains that it's the zinc depletion that's (at least) partly responsible for formation of plaques after TBI. Their citation [50] for this is from the paper by Dr. Stephanie Seneff and WA Morley.

Also note that glycine substitution has been suggested [51] by Dr. Seneff more recently as a means by which glyphosate (Roundup's most active ingredient) destroys connective tissue in the human body. Glycine is abundant in our connective tissue and if glyphosate substitutes for that amino acid, Dr. Seneff believes, it can lead to some of the great damage we have seen in the joints and backs of Americans in recent years. Surely our goal of helping the blood vessels in the brain would be hindered greatly by exposure to Roundup in the diet or the water or the air of the TBI patient.

A case report [52] of two patients with early-onset dementia after moderate-severe TBI found that one had Alzheimer's disease and the other atypical Alzheimer's disease with Lewy bodies. Structures associated with these illnesses were found such as the β-amyloid plaques and neurofibrillary tangles. Researcher David Sharp has also made headlines for research (e.g. this paper [53]) showing that TBI leads to formation of plaque in the brain of the type found in Alzheimer's disease, though this is in different locations.

From my perspective, this not only suggests that turmeric would be one of the first things to try for preventing damage in the aftermath of a TBI but also that the essential mineral copper would be one of the first things to try in prevention of lasting damage and plaques/tangles from a TBI both before and after the accident because, let's not forget, we all need all 60 of the essential minerals; and plant medicines are not essential nutrients. So in the next chapter we will see how turmeric (a plant medicine) is also indicated for preventing plaques and tangles in the brain of the TBI patient and others, just as it is indicated for plaques and tangles elsewhere in the body. Before we do that, though, let's finish this chapter on minerals.

There is a review paper from 2012 on zinc [54] and it shows good results for zinc supplementation after TBI. The entire abstract of a 2013 paper called "Myelin and traumatic brain injury: The copper deficiency hypothesis" in *Medical Hypotheses* [55], to which I do not have full access, is very, very relevant to our chapter here:

> "Nearly two million people suffer traumatic brain injury in the US each year. These injuries alter adversely the metabolism of myelin, a major lipid material in brain, both in people and in experimental injuries of animals. A newly discovered and severe human neuropathy from copper deficiency provides evidence that some people in the US are malnourished in copper. As it is well known among copper cognoscenti that it is impossible to synthesize myelin if copper nutriture is inadequate, it seems reasonable to assume that repair will be poor in this situation. Copper status of patients should be evaluated and experiments with injured animals should be repeated with graded doses of copper to determine if copper metabolism is important in this illness." [55]

So here we see that it is not merely the connective tissue strengthening properties of copper, in its capacity as an essential nutrient, that are important in TBI; it is also absolutely required for synthesis of myelin, which is essentially the insulative coating of nerves. Dr. Barrie Trower's paper *WiFi: A Thalidomide in the Making -- Who Cares?* (2013) explains that microwave irradiation negatively impacts the development of the myelin sheath, a structure consisting of 122 layers and built up over the span of 22 years. So even though this report is not meant to focus on EMR dangers I will just point out that those who think establishing a radio station right next to the head of the TBI victim in the hospital for the purpose of broadcasting jazz music to the surrounding landscapes might want to think twice. That would be entirely counter-therapeutic.

A 2010 study [56] in *J Neurosci Res* found that low copper levels are predictive of high intracranial pressure after TBI. I don't have access to the full paper, but there is a 2020 review called "Role of zinc and copper ions in the pathogenetic mechanisms of traumatic brain injury and Alzheimer's disease." The abstract includes:

> The disruption of homeostasis of zinc (Zn2+) and copper (Cu2+) ions in the central nervous system is involved in the pathogenesis of many neurodegenerative diseases, such as amyotrophic lateral sclerosis, Wilson's, Creutzfeldt-Jakob, Parkinson's, and Alzheimer's diseases (AD), and traumatic brain injury (TBI). The last two pathological conditions of the brain are the most common; moreover, it is possible that TBI is a risk factor for the development of AD. Disruptions of Zn2+ and Cu2+ homeostasis play an important role in the mechanisms of pathogenesis of both TBI and AD. This review attempts to summarize and systematize the currently available research data on this issue. The neurocytotoxicity of Cu2+ and Zn2+, the synergism of the toxic effect of calcium and Zn2+ ions on the mitochondria of neurons, and the interaction of Zn2+ and Cu2+ with β-amyloid (Abeta) and tau protein are considered. [57]

But a 2013 study [58] that is very much worth reading in full for our purposes and is only about 1.5 pages long explains:

> It is suggested that the correlation between the patient's outcome and serum Cu is probably due to the vital role of Cu in eliminating the oxidative stress (through metallothionin and SOD) that is the most detrimental factor in severe head injury. The patients, who have persistent low GCS score, also have persistent low serum copper levels. Therefore Serum Copper levels can be used as one of the reliable methods to prognosticate the traumatic brain injury." [58]

A 2018 double-blind trial [59] did find better outcomes for the group supplemented with zinc by NG tube in TBI. I will point out that a lot of the researchers carrying out studies might not be aware how important it is to balance copper and zinc intake.

A review about copper and brain disease [60] has a section on TBI which includes:

> "After TBI, Cu/Zn SOD also increased significantly [152]. SOD, as an endogenous free radical eliminator, can reduce brain injury after ischemia and TBI [153]. Shigeki Mikawa et al. demonstrated the neuroprotective effects of Cu/Zn SOD on cortical contusion in mice through transgenic mice, including acute injury, such as BBB destruction and brain oedema, and chronic injury, including functional motor recovery and tissue necrosis [152]. The occurrence and development of brain oedema after TBI is closely related to superoxide anion, and exogenous lecithin superoxide dismutase can clear superoxide anion, thus reducing the degree of brain injury [154]." [60]

A study of ewes [61] found that copper- and zinc-methionine were more available than the sulfate forms of either mineral and that Cu/Zn SOD activity increased with supplementation. They even said that Cu/Zn could be used to determine bioavailability of Cu and Zn. I suggest this gives us a little picture of the importance of taking Cu and Zn together. Like zinc, vitamin C is known to compete with copper.

Copper also is extremely important for proper iron metabolism. Iron overload is known to be part of the problem in oxidative brain damage after TBI. [62,63] Adult men and postmenopausal women are most likely to have iron overload when compared with menstruating women and with growing children. I don't think I would recommend using chelating agents for removing iron from the brain when the answer is nutritional. A very excellent introduction to the real story of iron, copper, and vitamin A is presented in the article "Toxic Iron and Ferroxidase, the Master Antioxidant" [64] by

Texas Dr. Ben Edwards from the Fall 2020 issue of *Wise Traditions*. In his discussion of copper and iron metabolism, including how copper is the mechanism for removing iron from storage, Dr. Edwards writes this about the animal form of vitamin A called retinol:

> One element of the iron story I have not yet discussed is the importance of vitamin A (retinol). Retinol is the backbone of the ferroxidase enzyme that is so critical for chaperoning iron, and retinol loads copper into ferroxidase. Interestingly, studies of anemia have illustrated vitamin A's importance.35 Although we measure anemia via hemoglobin, adding iron does not meaningfully restore normal hemoglobin levels—but vitamin A does. In addition to high-quality cod liver oil, good sources of retinol include liver, pastured eggs and butter (preferably from raw milk). [64]

Selenium:

A 2014 rat study [65] found the combination of Se and N-acetyl cysteine (NAC) was protective in rats with TBI. A 2017 human study [66] did find that a sodium selenite pentahydrate product, probably one of the least bioavailable forms of selenium imaginable in my view, significantly improved outcomes for the TBI patients but did not improve mortality. See also Mr. Marshall's work on Se earlier.

Explanation of practical advice on minerals:

Given that copper and zinc must be balanced with each other, that copper is extremely important for the health of the connective tissue and for myelin repair, that many of the enzymes made by the human body are selenoenzymes and that these are extremely important for dealing with oxidative stress, and given that blood sugar is often high after TBI and associated with bad outcomes [67], it is safe to say that taking a powdered oyster supplement such as Oyster Max or Oyster Power and taking a combination copper-selenium-chromium supplement such as Ultimate Selenium would be good advice for the TBI patient. Getting all the remaining essential minerals through the tasty vinegar-dirt-water method described above would also be good advice. This is only a baseline. And the minerals that help blood sugar have a bidirectional stabilizing effect, as is the case so frequently for nutrients or herbs in the terrific world of natural medicine; they'll raise the blood sugar if it's too low and lower it if it's too high. This is a safe approach which is entirely unlike attempts at modifying blood sugar with a crude and forceful approach like using a pharmaceutical drug. And it is unpatentable because it was invented by G-d, not by mankind (credit where credit is due).

<u>What I would have recommended for Mg supplementation before finding Dr. Tim Marshall's work</u>: As for magnesium, I find it more than exceedingly hard to believe that it would not be helpful for TBI patients and it seems wrong to try to exclude an essential nutrient. Before I had heard of the work of Dr. Tim Marshall specifically in this area, I would have thrown up my hands and just recommended those taking care of a TBI patient administer it in moderate amounts by mouth in the magnesium threonate form as this is known to be able to reach the brain efficiently. At that point, if the body wants to put it there after a TBI, perhaps it will do just that. The worst outcomes, as we saw above, were with high Mg levels in CSF with low serum levels. Obviously, that doesn't measure at all the tissue levels/intracellular levels, which are generally the important question when we're dealing with non-emergency health matters. Intramuscular Mg sulfate injections are an amazing intervention for sick people in nonemergency situations and these won't reach the

bloodstream with the same immediacy as IV Mg sulfate. There is no question that the patient will be able to relax better and sleep better with Mg sulfate injections given through the intramuscular route. The tissue levels of Mg, then, should be built up through a combination of Mg threonate orally and IM Mg sulfate injections. This will not be a direct route to the brain, but it will correct the low serum Mg which, when combined with high CSF Mg, is known to be involved in the worst outcomes for TBI. I am at this time against any efforts at disrupting the blood-brain barrier (as has been suggested by some researchers, e.g. those who say using PEG might help Mg work better). I thought our society had learned in the time leading up to the last few years and especially during the last few years that PEG is a very bad thing to give to people. Maybe the intracellular levels are very important when dealing with emergency health matters such as severe TBI. It is clear that Mg deficiency before TBI is a very bad idea and extremely clear that most Americans are woefully deficient in Mg. (And, yes, I know that government-approved nutrition information generally considers what is common to be what is normal rather than looking for optimum levels, so there may even be some who think Americans aren't severely deficient in Mg. If they tried using it in their medical practice, they would discover the difference.) It is possible the sulfate component of Mg sulfate injections given intramuscularly will also be helpful as implied by Table 1 of the required WAPF article "Understanding the Concussion Epidemic." And those who can actually soak in Epsom salt baths might try this approach, as well, as a means of correcting low intracellular levers of Mg. One form that I use myself topically is magnesium chloride, also known as "magnesium oil." All of these more approaches should help to correct low intracellular Mg and the Mg may reach the brain indirectly if the body wants it there after a TBI. I suspect there may also be big differences between Mg metabolism in the brain immediately after a TBI and in the weeks and months that follow.

Recommendations after finding Dr. Tim Marshall's work: What should be done is the TBI patient, the family of the patient, and the doctor need to consult with Dr. Marshall to get the Mg levels dialed in and also to get his protocol for all of the other minerals. Surely he will be able to easily explain the inconsistent results seen in some of the Mg studies available out there and cut through the confusion effortlessly, given that this is his special area of work and he gets outstanding results. I am hoping that I will be able to audit such a consultation for the purposes of putting together the generalized mineral supplementation information recommended for TBI in an update of this report. And if Dr. Marshall still believes as he explained in a 2018 interview that he doesn't believe there is a significant problem with oxidized (rancid) fish oil supplements on the market, then he would be mistaken about that (and rancid polyunsaturated oils, as we've already seen, are safe to consider a most potent "Brain Killer"). But the information Dr. Marshall is providing is generally of outstanding quality and I am thrilled by the fact that G-d arranged for me to find his work while quickly putting this report together.

Chapter 7: **RAW MILK for TBI**

The Weston A. Price Foundation has achieved tremendously good results feeding babies with their raw milk baby formula, which is explained here. [68] I think it is safe to say that some variation on this formula is what should be used for TBI patients. After all, it is not enough to oppose the standard commercial enteral formulations that are loaded with vegetable oils, soy, heat-treated milk proteins from confinement dairy animals, and carrageenan; we have to say what it is that we promote. Note: Raw milk is an antihistamine food known to stop allergies/stabilize mast cells.

Modifications to the original WAPF raw milk infant formula recipe for TBI patients:

These are my own opinions, not the opinions of the Weston A. Price Foundation.

If cod liver oil is going to be used, I would say that Rosita or Dropi should be the two brands considered as possibilities. I do know that Rosita flushes its bottles with nitrogen and uses romemary extract and a natural vitamin E to prevent rancidity. The fermented cod liver oil from Green Pasture is going to be excitatory for the brain and we don't want this to happen in a TBI patient. I think tyramine [69] would be the culprit, but I can't be sure. My rule is that if it causes migraine headaches, it's probably excitatory to the brain. As I know firsthand, fermented cod liver oil is unsuitable for people with severe migraine headaches. I would make very, very sure that the extra virgin olive oil being used is absolutely not a fraudulent oil. A May 2015 CBS *60 Minutes* report showed that 75-80 percent of the olive oil sold in America and in Europe is fraudulent, meaning that it is cut by about 50 percent with deadly industrial seed oils/vegetable oils and beta carotene is added for bite and chlorophyll is added for color. I use the term fraudulent because olive oil is the only ingredient on the label. For more than 100 years, more olive oil has been sold than has been produced. The extent of olive oil fraud is astronomical and the potential for brain damage by using a fraudulent brand is very great. Note: I don't recommend people rely on government-approved news sources like CBS, but that was one thing they actually got right. The WAPF shopping guide lists some good brands of olive oil. I don't think sunflower oil would be a good addition for the TBI patient. Keeping total polyunsaturates low should be a priority. That was added to the infant formula recipe by Dr. Enig to match the omega-6 level in human breastmilk which is higher than in other animals. I wouldn't add nutritional yeast, not even the most carefully dried brands that would have the lowest levels of free glutamate. I wouldn't chance it for a TBI patient beacues it could be excitotoxic, especially after such an impact. It is said that babies can't have bee products (and even WAPF agreed with this when last I checked) but I would speculate that bee pollen might be used in the raw milk recipe for enteral feeding (tube-feeding) of a TBI patient as a means of supplying the B vitamins that would be missing without the nutritional yeast. I would just say that it should be added very gradually if this is tried. The label on this bee pollen brand that I'm using on myself [70] (and I'm not a TBI patient) says to start with two granules and move up to 1 teaspoon or more per day. Obviously, if the patient was taking bee pollen before the TBI he would not need to start off so gradually. It is a very good anti-allergy food; it is used by athletes; it is an excellent source of B vitamins and it contains about 5,000 enzymes. *Nourishing Traditions* has some advice [71] to offer on bee pollen, saying it can be good to start slow because the extreme enzyme content provokes detoxification reactions in some people that seem like allergic reactions; about 1 tablespoon a day is recommended by this amazing book. The author also notes that Russian centenarians in the province of Georgia were found in a study to be disproportionately the

beekeepers and they ate raw honey with all the pollen. Not having a library full of bee pollen books of my own, in an abundance of caution, I would consider use of bee pollen in a severe TBI patient to be experimental at this stage. But in later stages after a severe TBI or in more moderate cases, I would think it would be very much worth it to start small and try it out as part of the raw milk formulation in this chapter.

In a time when most plant foods are still being grown on tilled soil rather that with the original method from the Garden of Eden (as explained in Chapter 3 of my book), plant foods are loaded with nutrient blockers, harmful lectins, and bitter substances. They are "tough and bitter" rather than "tender and sweet," as explained in that chapter. They damage the human gut substantially. A move to growing food the right way, the original way G-d intended, has cured food allergies in those who adopted that method of gardening and only ate produce grown in that manner. This shows that protocols such as the GAPS diet developed by Natasha Campbell-McBride MD (recommended by WAPF), the Plant Paradox diet by Stephen Gundry MD (his book is not recommended by WAPF but the information could be adapted by someone very familiar with the WAPF nutritional guidelines) and others intended to heal and seal the gut lining and cure autoimmune disorders, allergies, and other health problems actually can be unnecessary if the plants are no longer toxic, tough (full of insoluble fiber), and dry, as is the case whenever they are grown in very nice, organic soil that has been tilled (tilling is the big mistake here).

When dealing with any sick person, we should be very much aware of these factors. It is a fact that our world is not perfected yet. There is not yet universal knowledge of G-d on the earth. Accordingly, we do not quite yet see the fulfillment of the explanation by the Rambam (Maimonides) of what the era of the Final Redemption will look like (my emphasis in bold):

> "In that era, there will be neither famine or war, envy or competition, for good will flow in abundance and **all the delights will be freely available as dust.** The occupation of the entire world will be solely to know G-d." [72]

So when mankind knows G-d, all the delights (sometimes also translated as "delicacies") will be like dust. Saffron, for instance, which is very expensive today, will be not accounted as being worth anything because it will be so abundant.

Now we must keep in mind that mankind has not quite reached that stage yet, so we're not seeing a time when all types of food are so readily available like dust and so inexpensive as to be almost worthless in monetary value. I would say that we're also not yet living in a time when everyone is growing their food in the original manner so that it is extremely tender and sweet and low in plant toxins. Entire schools of nutritional thought are built around the idea of avoidance of plant toxins. The hunter-gatherer or "paleo" diet plan, for instance, believes that avoidance of plant toxins from beans and grains (a noble goal) has its rationale rooted in the idea that mankind began as an advanced animal of some sort, an evolved group of hunter-gatherers, rather than as a being made in the image of G-d and placed directly in the Garden of Eden. This is obviously disproven by the Torah. And another erroneous nutritional school of thought, veganism, would have us believe that if we were put in the Garden of Eden and only given permission to kill animals for food in the days of Noah then we must be a type of being best adapted to eating only plant foods. This is also wrong. The *Beis HaLevi* says that meat was roasted for Adam by angels. Further, veganism was a strange Egyptian practice and the Egyptians also hated the Hebrews because the Hebrews were shepherds

who ate sheep, while the Egyptians worshiped sheep. (This is the whole reason why it was a most bold move for the Children of Israel to slaughter lambs and place the blood on their doorposts for the first Passover; they were killing the false "god" of their captors.)

Further, we can see today that some are achieving great health results and even Olympic-level athletic performance through the use of meat-only diets which are becoming popular today. (And some have been adding fruit and honey to these diets.) What should we make of this? Are we to believe that eating only meat and fat and broth and organ meats (all very health foods) is the ideal diet? No. They are, however, achieving a high level of avoidance of plant toxins through this diet. There isn't going to be a high level of lectins in that kind of diet. There isn't going to be a lot of phytic acid or oxalate. And the fruit and honey are going to be very low in those plant toxins, also. I think it's safe to say that avoidance of plant toxins is a defining characteristic of the meat-only diet trend that has been enjoying considerable success. And those familiar with the GAPS diet will understand the meat-only diet trend very well and see why it could help. Avoidance of plant toxins is also achieved by growing the plants the right way in the first place or else people would not have been cured of food allergies by growing their own and eating only that type of produce; curing food allergies apparently requires healing and sealing the gut lining. So this shows there is a way of curing food allergies that is actually nonrestrictive/doesn't require elimination diets. It's just not being used on a large enough scale yet.

So would it be a good idea for a sick person to be given lots of plant toxins? How about a TBI patient? I don't think so.

Raw milk is rich in zinc for the nervous system of the developing baby and low in iron because it isn't needed in large amounts at that time of development. In fact, it has everything the baby needs to grow a healthy brain and healthy nerves. In the acute stage of a TBI, it would make sense that a very high level of iron in the diet would not be a great idea because it might increase oxidative stress. A higher dose of amla or acerola than used in the WAPF baby formula might be a good idea.

However, liver (here we are making assumptions about the mineral content of the food the animals are eating) is twice as rich in copper as it is in iron, and it is also a true, food-based multivitamin in and of itself. So while it is an iron source, it also supplies the much-needed copper for mobilizing stored iron. This mobilization is reasonably assumed to be so important for TBI, as we have already seen in a previous chapter. The liver-based WAPF infant formula recipe on the same page [68] could be modified in the same way as it was modified above. Liver should be a superfood used by the TBI patient and that liver formula recipe could be used (with the modifications already mentioned) if the TBI patient is being given enteral feeding.

A Q&A on that page [68] gives:

> **Q. Why does the infant formulas include lots of vegetable oils like sunflower and olive oil? These are very high in linoleic acid.**
> A. Answer from Chris Masterjohn. The amount of sunflower oil and olive oil in the infant formula recipe provides the amount of unsaturated fatty acids found in the milk of modern American mothers. I have found compelling evidence that arachidonic acid and DHA are necessary for infant development, but not linoleic acid. That said, linoleic acid serves as a precursor for arachidonic acid, so I think the formula should have some linoleic acid (mainly

> from the sunflower oil). However, it is likely that current linoleic acid levels in breast milk are higher than they otherwise would be, not because they are needed, but because they are present in excess as a result of the consumption of vegetable oils. So I think the amount of linoleic acid in the formula should be normalized to pre-1960 data for Americans, or, better, if they are available, to data from breast milk concentrations of mothers from traditionally living populations that had not yet encountered dietary vegetable oils at the time the data were collected. This would mean reducing the amount of sunflower oil by half. [68]

Here I would suggest that adding egg yolks from birds fed on pasture would be a way of upping the content of arachidonic acid, which we WAPF people know is so critical for the brain. Liver and egg yolks are the highest sources of arachidonic acid. Says WAPF:

> The second myth is that animal fats promote inflammation because they contain a small amount of the omega-6 PUFA arachidonic acid, found primarily in liver and egg yolks with smaller amounts in butter and meat fats...
>
> ...We use arachidonic acid to make cell-to-cell junctions that form physical barriers against toxins and pathogens,31-33 to create a unique environment in the gut that causes our immune system to react to food proteins with tolerance instead of intolerance,34 and to make important molecules called lipoxins that help resolve existing inflammation.30,35 [73]

> Arachidonic Acid: Eleven percent of your brain is composed of arachidonic acid (AA), a type of omega-6 fatty acids found exclusively in animal fats like butter. A supply of AA is critical to neurological development in the infant. [74]

> PGE2 is a short-lived signaling compound that our bodies synthesize from arachidonic acid. It stimulates the formation of gap junctions[12-13] and tight junctions,[14] which are protein-based connections between cells whose vast array of functions includes regulating the permeability of the skin barrier.[15-16] [75]

Maybe a supply of pre-formed arachidonic acid (especially from egg yolks and liver), known to be important for building a healthy, intact gut lining, will help the TBI patient in repairing damage resulting from mechanical trauma of a head injury.

> ...The nutrients found in most abundantly and in some cases exclusively in animal fats—including choline, cholesterol and arachidonic acid—are critical for the development of the brain and the function of receptors that modulate thinking and behavior. Studies show that choline from egg yolks and liver helps the brain make critical connections and protect against neurotoxins; animals studies suggest that if choline is abundant during developmental years, the individual is protected for life from developmental decline... [76]

In the process of recovering from a TBI, it would make sense that a patient should be consuming foods that support brain development in the infant.

Raw milk safety:

Raw milk is the safest unfermented raw food. It has about 20 living antimicrobial factors in it that

are very effective at killing pathogens but are very effectively destroyed by heat. This is explained very well in the presentation "Raw Milk Safety" from a FARFA conference in 2009 which has been made available free to the public through the OrganicTexas channel on the YouTube by permission of the Weston A. Price Foundation. WAPF president Sally Fallon-Morell is the presenter.

"Raw Milk Safety" (80 minutes):
Part 1: https://www.youtube.com/watch?v=MuAMPupIwzo
Part 2: https://www.youtube.com/watch?v=nFNA6dqvsrM
Part 3: https://www.youtube.com/watch?v=sRf4O8QX908
Part 4: https://www.youtube.com/watch?v=3NYaEyWYfRg
Part 5: https://www.youtube.com/watch?v=3FPp-7lVW84
Part 6: https://www.youtube.com/watch?v=_7BwOPhjvLE
Part 7: https://www.youtube.com/watch?v=XKFQAIkbh2c
Part 8: https://www.youtube.com/watch?v=7-ZSoGpDwqI

Raw milk, raw cream, raw butter and raw cheeses are legal in the ordinary grocery stores now in California; this has long been the case in states like Idaho. Raw milk vending machines are popular in Europe. Many countries have them. With over 3 percent of the US population drinking raw milk, illnesses attributed to raw milk continue to decline as raw milk consumption continues to rise. A raw milk enzyme called lactoferrin is used in the meat-packing industry to make the food safer. The Real Milk Finder is a terrific listing of places to find raw milk in all 50 states (and raw milk is far more readily available than it was decades ago because of the ongoing legal work by WAPF). It is legal to possess and consume raw milk anywhere. In some states, a herdshare agreement is necessary (which is far, far easier than it sounds—you just sign a form) to buy it.

https://www.realmilk.com/raw-milk-finder/

Those who are skeptical of raw milk's safety and health benefits should thoroughly familiarize themselves with the work of the Weston A. Price Foundation and should be amazed to find out consuming raw dairy is not at all like playing Russian roulette with one's health. Most of the health benefits of dairy are destroyed by heat. In terms of disease risk, raw milk as we know it today is clearly a much safer food than Pasteur-ized milk.

The raw milk challenge tests related in the above presentation "Raw Milk Safety" show that after adding very large amounts of E. coli, campylobacter, salmonella, and listeria to raw milk it was found that the pathogen counts later dropped to zero or were greatly reduced. This goes to show it is a living food with its own immune system and that it is very much the opposite of what public health officials say when they call it "a breeding ground for pathogens."

Yes, it is technically true that a person could seek out only "certified" raw milk which has been certified pathogen-free. It is available in some places. I don't consider this sort of testing to be of much value and it is my opinion that it is certainly unnecessary.

The liver could certainly be raw. If there is enteral feeding going on, this would work even if the patient doesn't like liver or doesn't like raw liver because the palatability/familiarity factor would not be an issue. The USDA, according to *Nourishing Traditions*, says that all parasites in raw meat are

killed after 14 days in the freezer. Raw liver has been used as a health tonic for thousands of years and it was more common in the 20th century for people to give raw liver in various forms (such as blended raw liver) than it is in the 21st century. The Egyptians used raw liver juice for to cure night blindness. The Babylonians, Greeks, and Arabs also used liver to cure night blindness. [77] (And WAPF president Sally Fallon-Morell used cod liver oil to cure it.) But of more interest to us is the liver cocktail developed by Francis Pottenger. He would grate frozen liver into tomato juice and give it to TB patients and others with breathing problems at his sanitorium. A recipe in *Nourishing Traditions* on page 612 recommends some other helpful minor ingredients that may be added to the Pottenger Liver Cocktail (canned tomato juice will be loaded with methanol and fresh, home-squeezed tomato juice will still have some. The methanol in the fresh, home-squeezed juice is probably compensated for by the WAPF diet in my own speculation). So I'm not recommending tomato juice for the TBI patient but just pointing out this is how he made it palatable. I'd say you can just blend the stuff up with homemade broth to make an enteral formula similar to the WAPF liver baby formula. The B_{12} (abundant in liver) won't be destroyed by heat that way. Since beef liver is said by WAPF to be surprisingly low in vitamin D (and they cite example of the traditional practice of Hungarian peasants who always cooked beef liver in lard, a vitamin D source when the pigs are on pasture, because they knew it otherwise tasted like it was "missing something") I would recommend livers from birds raised on pasture be the source of liver for the TBI patient's smoothies/liver-based formula which should be alternated with the raw milk formula. As we'll see, vitamin D is beneficial for TBI. But vitamin D supplements are not recommended by WAPF. There should be a good amount of real, full-spectrum vitamin D in bird livers to do the job.

Perhaps keeping the vitamin C-rich plant powders (amla, acerola, etc.) out of the liver-based formula would be a good ideo in the acute phase of TBI recovery because vitamin C accelerates iron absorption. Adding egg yolks would also prevent iron uptake, with one egg yolk blocking about 60 percent of the iron in that meal.

Dr. Natasha Campbell-McBride's nutritional protocol, the GAPS Diet, has yielded a lot of reports of recovery from a variety of neurological disorders. Her diet is focused on gelatinous broth and lactofermented vegetables and animal foods at the beginning. It is very restrictive and must be supervised by a Certified GAPS Practioner, in my opinion, because it is easy to get the protocol wrong if you are trying to do it on your own. In any case, there are a lot of similarities between the GAPS diet and the Weston A. Price Foundation diet and this is a temporary diet for healing and sealing the gut lining. Multiple sclerosis is one neurological illness they've reported success with.

Terry Wahls MD has got a WAPF podcast episode that mentions TBI. [77a] She explains at about 10:50 in the interview that her Wahls Protocol is "very, very good for TBI." Dr. Wahls developed a severe form of multiple sclerosis (MS) and tried all kinds of MS drugs and experimental MS drugs in an effort to get better. She just kept getting worse. She was eventually in the type of wheelchair that sits the person up because she wasn't able to sit up on her own. She decided the allopathic approach wasn't working and began to research nutrition. She ended up developing a diet for MS through which she successfully recovered from the disease. She knew she was really going in the right direction (the direction of healing) on the day that she got on her bicycle and was starting to ride around the neighborhood with her family watching. Not long after that, she recovered further and biked 20 miles. Dr. Wahls is going to do a study through the University of Iowa [77b] with $2.5 million on 156 patients. [77c] Another study of her has 58 patients. [77d] The Wahls Protocol has some similarities with the GAPS diet and with the Weston A. Price Foundation diet and features

liver as an important aspect of the diet. The point: much greater nervous system repair is possible than most have been aware of.

Here is some more information that can also help to drive that point home. Milk from humans and animals is a source of PQQ. So buying raw milk, the production of which would involve cows or goats that have been eating grass rather than Roundup-laden grains and soybeans, is a good way to get some PQQ in the diet. Celery and kiwis are also good sources. I have been told that PQQ recycles CoQ10 in the human body. So here are some relevant quotes for the reader:

> Conclusion: Neuronal degenerative findings and the secondary brain damage and ischemia caused by oxidative stress are decreased by CoQ10 use in rats with traumatic brain injury. [77e]

Eating pastured animal hearts, then, is a great strategy for the TBI patient because heart is the best source of CoQ10. There are also supplements available. The reduced form (ubiquinol) is supposed to be better than the other form. And, yes, feeding animal brains may be a good way to support TBI patients since they do contain a lot of brain nutrients and do not transmit Mad Cow Disease. (Young animal brains have more pregnenolone that older brains and this can be helpful as long as carbohydrate intake is sufficient; this hormone precursor is also taken as a supplement and will help if blood sugar levels are adequate. I learned this from a diligent student of Dr. Raymond Peat.) Feeding grass-fed beef bone marrow and other organ meats blended into the liver-based enteral formula could also be a very good idea, and the marrow could be raw which might be very healing. Again, there would be no issue of palatibility with an enteral formulation; further, raw fats contain lipase which makes them more easily digestible. If I were in an induced coma in a hospital because of a TBI and woke up to find out that people had been blending up all these sorts of things for me to put in the tube, I would be very grateful and I'm sure I would be a lot healthier and less damaged in the brain than without all of that real food. There is someone who calls himself the Liver King who eats a lot of raw liver and bone marrow and credits his greatly improved health to this practice. I do like the taste of the marrow roasted or raw but I'm working on a pate recipe that would include raw marrow and I think other people will like it. Eating raw animal foods is not scary.

But where I'm getting at with this discussion of CoQ10 and PQQ is that PQQ is actually known to regrow nerves. So this is an example of yet another way in which much greater nervous system repair is possible than most have been aware of.

> CONCLUSIONS: PQQ has a remarkable effect in enhancing nerve regeneration of transected peripheral nerve. [77f]

> We conclude that PQQ is a potent enhancer for the regeneration of peripheral nerves. [77g]

In an animal model [77h], it was established that PQQ...

> "may play an important role in recovery post-TBI." [77h]

According to the authors of that same study, PQQ...

> **"has been established as an essential nutrient in animals."** [77h]

How many yolks?

First, I should say duck eggs from birds on pasture are likely going to have about four times the vitamin D of pastured chicken eggs, according to a food table in Ramiel Nagel's book *Cure Tooth Decay*. This is desirable if pastured duck eggs are available in your area.

There are a lot of health purposes for using a large quantity of eggs. The 88-year-old Denver man with "normal" plasma cholesterol (not that their definitions of normal are reliable or reasonable) was eating 24 per day, as reported by the *New England Journal of* Medicine. The use of 18 eggs per day on burn patients in hospitals comes to mind. As reported on page 440 of the classic WAPF book *Nourishing Traditions* (now past its 20th birthday), 18 eggs per day were force-fed on burn patients in hospitals with the goal of helping them quickly regrow skin. And this also did not cause any blood cholesterol problem. A study in 1975 from the *British Journal of Plastic Surgery* on the use of 35 eggs per day for severe burns concluded [78] that it raised the low levels of serum proteins to normal in a short time and also did not create a serum cholesterol problem. This is roughly twice the dose of eggs given as described in *Nourishing Traditions*. A later study in 1986 put eggs into milkshakes for feeding of burn patients whether this was given orally or through an NG tube. [79] Hint, hint.

Nearer to our subject of TBI, page 443 of *Nourishing Traditions* explains:

> An unpublished study out at the University of California at Berkeley proves the folk wisdom of the Orient—that eggs are a brain food. Researchers studied men in their 80s, dividing them into two groups: those who were senile and required constant care, and those who had all their faculties intact and were able to care for themselves. All men were given dietary surveys. Researchers found only one difference between the dietary habits of those who required care and those who were mentally alert—the latter group ate at least one egg per day.
>
> Scientists engaged in a recent study of breast milk components carried out in China discovered that pregnant and nursing mothers routinely ate up to 12 eggs per day. This is the explanation for the fact that their milk had high levels of DHA, a fatty acid found in egg yolks that is necessary for optimal mental development of the infant. SWF [80]

(Note: Because of the above discussion of DHA, I should mention here that Raymond Peat PhD has made claims that the essential fatty acids may not be essential, meaning they can be made by the human body. For many good reasons that I believe WAPF would agree are good reasons, he recommends reducing polyunsaturates to an absolute minimum. The idea they are not essential would go against the lipid chemistry text *Know Your Fats* by lipid chemist Mary Enig PhD upon which we WAPF people have relied for years. This claim is worth investigation.)

If it is assumed that Dr. Peat is wrong about EFAs, then statements [81] made that cold-water fatty fish like wild salmon will help heal the brain are right on. But if Dr. Peat is right instead, we would do well to keep the total amount of polyunsaturates very, very low. Forgive me, readers. I'm caught in a minor clash between the nutritonal giants WAPF and Dr. Raymond Peat here. This detail isn't sorted out.

To the best of my knowledge, Dr. Peat believes that EFAs are in foods in amounts far beyond the human requirement for EFAs or even that EFAs may not be essential at all. However, the Weston A. Price Foundation has said consistently for years that some people are not converting ALA to DHA

properly and that it may need to be obtained from the diet. They also have suggested that some people descended from sea coast regions may need to get more EPA from the diet and that a number of people may benefit from a variety of preformed nutrients, fatty acids being just one class of them. It is clear that DHA is going to be very low in the standard American diet and plentiful in the WAPF diet. There should also be a good amount of DHA in Dr. Peat's recommended diet because he's going to be recommending the high-quality animal foods that are fed on pasture. Since I know a lot of people today love the WAPF diet as I do and since I also am compelled to say from what I've learned so far that there is a lot of good in the diet recommended by Dr. Peat, I am trying to find a practical answer quickly today that would at least partially meet the needs of of both nutritional schools of thought. After all, there are a lot of people today who are getting onto Dr. Peat's diet. In the way of a compromise between WAPF and Dr. Peat's work, I would say that the majority of fats in the diet should be saturated and there should be a certain amount of DHA in the diet of the TBI patient. With raw, grass-fed dairy of the highest quality, this will not be a problem and if this is the bulk of the fat intake of the TBI patient the total level of polyunsaturates is kept low. WAPF has for many years been saying that the total amount of polyunsaturates in the diet should be kept low and the saturated animal fats and dairy fats should be the bulk of the fat intake since they are stable, anti-inflammatory [82], and very nutritious (especially because they are vectors of fat-soluble activators). Since DHA is the main fatty acid component of the cell membranes in the brain, it would seem reasonable that it might be okay to supply some DHA in the diet of the TBI patient.
Another consideration is the recent book *The Devil in the Garlic* by Greg Nigh, ND. He offers a low-sulfur nutritional protocol lasting two weeks and providing needed sulfate through Epsom salt baths during that time and, impressively, his protocol is reported to have healed people who failed the GAPS diet. And it is clear from his work that Dr. Nigh has found that there are considerable differences in sulfur metabolism issues across the spectrum of patients he sees. So this idea of eating large numbers of eggs for TBI should probably be mentioned with the caveat of the recent development Dr. Nigh has apparently come up with: some people seem to have issues with sulfur metabolism today and some of the foods recommended in this report are high in sulfur. He presented recently at the WAPF conference *Wise Traditions*, so maybe he is especially familiar with their general dietary guidelines already. The WAPF article on concussion/TBI does say that sulfate deficiency in the cerebrospinal fluid makes a person more susceptible to severe outcomes than if it were replete in the CSF. I don't know how Epsom salt baths would be given to a TBI patient heavily sedated and on a ventilator, but Dr. Nigh's book does recommend using Epsom salt baths for anyone doing his 2-week low-sulfur dietary protocol to make sure that the highly essential sulfate is abundantly available for the patient while the dietary sulfur is so reduced. I don't know if intramuscular magnesium sulfate injections (probably a good choice for the severe TBI patient since both magnesium and sulfate would be expected to be rapidly expended and low after a TBI) would supply enough sulfate if, theoretically, a TBI patient were also dealing with a sulfur metabolism difficulty as outlined by Nigh's work. Specific supplementation with extra molybdenum (aside from the blend of all 60 essential minerals from the deposit in Utah mentioned in a previous chapter) would help anyone with slow metabolism of dietary sulfur and could be recommended in a TBI patient if they had this problem just as it would be recommended for anyone with this problem.

I didn't find much precedent online for something that seems to be a no-brainer for anyone familiar with WAPF (supporting TBI recovery with egg yolks), but the website FlintRehab recommends [83] egg consumption for healing from TBI, though it's not clear whether they are referring to use of eggs in the immediate aftermath of the injury or the subacute stage which some people are

suffering from over a longer period of time. They base this recommendation on the choline content of eggs and on an *Am J Clin Nutr* study from 2021 that found higher choline intake was related to better cognitive performance. [84] So eating eggs, brain, liver, and other animal foods and organ meats for choline...that's starting to sound like WAPF.

It is common in the WAPF diet, for those who don't know, to eat a few tablespoons of butter with each meal. And Dr. Joel Wallach has a CD called A Stick of Butter A Day Keeps the Doctor Away. He also has another related motto: "A dozen eggs a day keep the doctors away." In fact, Dr. Wallach regularly recommends a dozen eggs a day for neurological problems, though this amount is reduced for young children because his dosages of everything are based on body weight. One man from Moose Jaw, Canada had Parkinson's disease and Dr. Wallach got him on a complete supplement program, a special diet, and 12 eggs a day. He later called back and reported that he was healed from the Parkinson's disease. Chris Kresser argues that the omega-6 polyunsaturates are not to be considered evil and that the context in which they arrive in whole foods should be considered as nutrients such as vitamin E and magnesium protect omega-6 polyunsaturates from oxidation. [85] Could it be possible that the large amount of butter recommended by WAPF and my Dr. Wallach is protective against the polyunsaturates found in the egg yolks? Also, could it be that the large amount of animal fats and butter in Dr. Wallach's recommended diet and in the WAPF diet help to keep the level of polyunsaturates, as a percentage of total fat intake, low enough that a larger number of egg yolks per day does not lead to harms? The reason I'm asking this will be clear in the next paragraph.

The approximate amount of polyunsaturates in 6 confinement eggs is just over 4 grams. 4 grams per day of polyunsaturates is associated with higher cancer rates, as Dr. Raymond Peat has pointed out. So a Dr. Peat diet seeking to optimize thyroid function and avoid other harms from eating large amounts of polyunsaturates would say that any more than 6 egg yolks per day would be too much and probably that fewer than 6 would be better (and Dr. Peat, like WAPF, does encourage eating more yolks than whites, by the way, to the best of my knowledge).

So I'll just say that 4 to 6 pastured egg yolks per day in the enteral formula based on raw milk (or the variant enteral formula based on liver and broth) would seem to be reasonable brain support and it might be a good idea to adjust this based on the amount of cod liver oil that might be given (for the purpose of reducing the total level of polyunsaturated fatty acids in the diet). There is plenty of protein in the raw milk. I don't think giving raw egg whites is likely to be helpful for the TBI patient. Olympic athletes use it for its muscle-building properties and it is known to make elderly people gain muscle even without strength training. Page 271 of *Deep Nutrition* explains that the membrane of the milk fat globule in raw milk is covered with special proteins that give the signal that no immune inspection is needed and the insides of the globule can be used easily without the gall bladder needing to release any bile for this fat to be absorbed. That book also explains that the minerals in raw milk are about six times more absorbable than in Pasteur-ized milk.

Raw milk is the best source of glutathione and it is the best source of an glutathione precursor, N-acetyl cysteine. Gelatinous broth is another precursor particularly because of its glycine content. Selenium also boosts glutathione. Glutathione is known to drop after TBI. A 2019 study explores use of a non-denatured whey supplement for TBI. [86] Imagine the results of instead using the real thing: whole raw milk from grass-fed Jersey cows! (Jersey have the highest cream content of any

cows I know of.) Again, folks, protein powders are known to be very harmful (as reported by WAPF); and eating lean protein is "the fastest way," according to WAPF president Sally Fallon-Morell, "to deplete your body of vitamin A." Further: "The Eskimos had one food-combining rule. They never ate lean meat because they knew it would make them sick. When they ate jerky, they spread the fat on it like butter on bread." (paraphrased quotation) "The darling of the modern dietician is the boneless, skinless chicken breast."

As reported by NIH, in 2013 in mice with TBI, "Glutathione reduced the amount of cell death by 67% when applied to the skull surface 15 minutes after brain injury and by 51% when applied 3 hours after injury." [87]

A new paper that is just coming out goes by the name "The Protective Role of Glutathione on Zinc-Induced Neuron Death after Brain Injuries." The abstract includes:

> The adequate supplementation of GSH has neuroprotective effects in several brain injuries such as cerebral ischemia, hypoglycemia, and traumatic brain injury. [88]

I would guess that the paper will address the topic its title implies when it comes out. For now, we have a little evidence that glutathione is protective in TBI.

"Moo-shine" is what raw milk has sometimes been called in America. In this 'free' country, people have driven hundreds of miles across state lines to buy this most necessary medicine. Today, it is much more available than before and the Real Milk Finder makes access a breeze.

Those who think raw milk is dangerous simply haven't gone to those on the other side of the argument and asked, "What's your best evidence?"

Chapter 8: **GELATIN for TBI**

This is meant to support the addition of gelatin to the raw milk enteral formula in the previous chapter or the use of broth in the liver enteral formula.

There actually is evidence now that gelatin would be helpful for TBI, so common sense does prevail for those natural health care practitioners out there who may have been thinking the same thing.

A 2018 rat study [89] out of Lund University found that when needles used to wound rat brains were coated with gelatin there was rapid restoration of integrity of the blood-brain barrier. The purpose of this study appears to be related to implantable medical devices more than anything to do with treatment of TBI. Most especially in a time when MDs are saying there is essentially nothing that can be done for the TBI patient aside from managing symptoms, it is absolutely reasonable to think giving the TBI patient extra broth and gelatin and cartilage might be very much indicated by the results of this study. After all, broth is one of the most anti-inflammatory foods that can be eaten. The study is called "Gelatin promotes rapid restoration of the blood brain barrier after acute brain injury" and was published in *Acta Biomaterialia*. Commenting on the study, the researchers said:

> "When we used gelatin, we saw only a small number of the inflammatory microglial cells. Instead we observed cells of a different kind, that are anti-inflammatory, which we believe could be significant in accelerating healing," explained researcher Lucas Kumosa.
> "Gelatin is a protein and its decomposition releases amino-acids that we believe could promote the reconstruction of blood vessels and tissue," Jens Schouenborg, professor of neurophysiology at Lund University, explained. [90]

Anyone familiar with the most remarkable research with oral and injectable cartilage (especially the work of Dr. Prudden) in the outstanding, amazing book *Nourishing Broth* should see that perhaps we should look to direct application of gelatin and/or cartilage in brain surgery on TBI patients; if the surgery is going to be done anyway for that patient, maybe the application of an organic, grass-fed gelatin and/or cartilage of very high quality would be something to reduce harm and promote faster healing (and there is little doubt this should be done along with oral broth/gelatin/cartilage). So we should conclude that even though there is not a large amount of research in this area, the great safety of gelatin and cartilage and broth and the very, very long track record of everything from joint repair to the most remarkable cancer treatments done by Dr. Prudden to the understanding that the support for repair of connective tissue and blood vessels in the TBI patient should not be limited to good, natural sources of the whole vitamin C complex and an emphasis on the mineral copper; common sense does prevail and gelatin should be tried. Many MDs would jump at the prospect of trying an experimental drug known to be severely poisonous if they think there is a modest chance of it healing the severe TBI patient but would laugh at the use of gelatin, broth, and cartilage in its various forms from various parts of the healthy animal. The former can be patented and carries no risk of scrutiny from the state medical board. The latter cannot be patented and may just be able to provide great help for the brain of the TBI patient but does risk drawing unwanted attention from the state board. The researchers from the Lund University study also had this to say:

> "Knowledge about the beneficial effects of gelatin could be significant for brain surgery, but also in the development of brain implants," say the researchers behind the study...

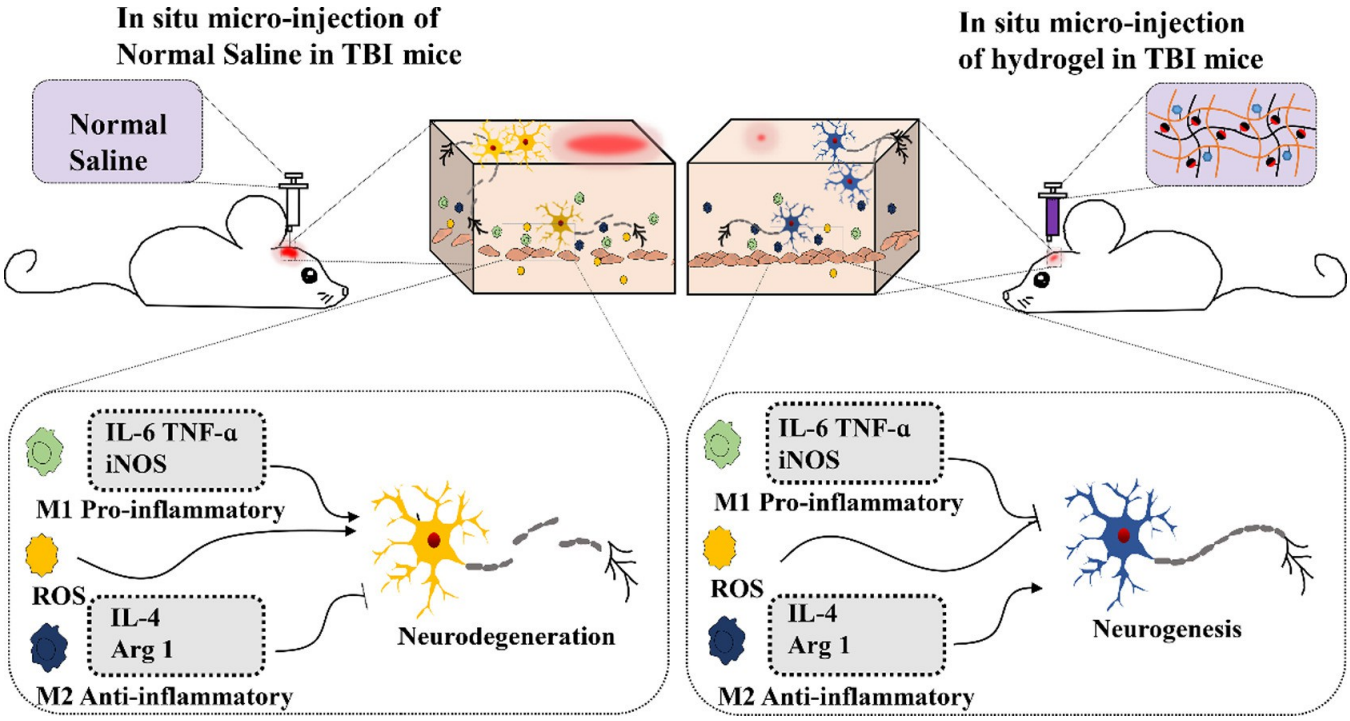
> "The use of gelatin-coated needles reduced or eliminated the leakage of molecules (which normally don't get through) through the blood brain barrier within twenty-four hours. Without gelatin, the leakage continued for up to three days," says Lucas Kumosa, one of the researchers behind the study, which was recently published in the research journal *Acta Biomaterialia*. [91]

I'd suggest this study should make us wonder about whether the most actionable thing suggested here is really just about the use of implants and surgeries or whether we should look to the great and abundant provision G-d has implanted into nature for the most responsible means of taking care of the human body. The use of injectable cartilage for many conditions (including what sounds like even better healing response than is obtained in prolotherapy for joint problems and what sounds like the strongest single natural cancer treatment I have ever heard of) was studied a good deal by Dr. Prudden over many years (and he was someone who essentially didn't believe in natural medicine except that he really had a love for bovine tracheal cartilage). His work is laid out very well in that book *Nourishing Broth* and that book simply is required reading for anyone reading this TBI report. His work and that of other researchers is presented so well there that anyone who actually gets their hands on the book will be amazed and anyone who reads this report is at risk of assuming my heartfelt recommendation of the book is at unwarranted or exaggerated. People have free will and they will read it or not read it, to their benefit of they read it or at their own loss if they don't.

But it turns out I'm not the first person to suggest injection of gelatin or related food items like cartilage might be something to try for TBI. Researchers in a 2018 study [92] conjugated an antioxidant called gallic acid with gelatin and then reacted that with dextran and used the resulting gel both for *in vitro* work and for *in vivo* work in mice with moderate TBI. The gel was given through microinjection. It appears the control was plain saline and there was not a plain gelatin group. I don't have access to the full study but will say it appears that this was also a study meant to find some way of patenting a process (the process of making that gel) rather than meant to seek out beneficial effects of something that can't be patented. They wrote:

> "In a moderate TBI mouse model, in situ implantation of GGA6Odex hydrogel efficiently facilitated neurogenesis and promoted the motor, learning and memory abilities...this injectable and ROS-scavenging GGA6Odex hydrogel is a promising biomaterial for tissue regenerative medicine, including TBI and other tissue repair relevant to raised ROS circumstance." [92]

Their graphical abstract on the next page [92]:



Other researchers have also made use of similar gels such as a simpler gelatin-gallic acid conjugate. [93] I would be interested to find out what Dr. Prudden did with his cartilage injections to get such good results on other parts of the body and would be interested to find out exactly why it is that gelatin injections were problematic in 1903. [94] If tetanus was an issue at that time it certainly wouldn't happen with a well-oxygenated patient such as would result from drinking highly oxygenated water or the like as has already been explained in this report. Tetanus needs anaerobic conditions to be pathogenic.

A functional medicine clinic called F8 Well Centers does recommend bone broth for recovering from TBI. [95]

A reminder for the reader:

Plant medicines are not essential nutrients; essential nutrients are more important. It is my expectation that lithium orotate (in combination with the other minerals mentioned in a previous chapter) will be the foundation of a lot of the functions of the useful plant medicines that are mentioned here, at least in terms of the stimulation of neurological healing through stem cells and growth factors.

Turmeric:
Turmeric is a term used to refer to the whole herb. Curcumin and many other things can be derived from turmeric.

A useful review paper [96] noted that blueberries and curcumin (from turmeric) and some other things in the diet were useful in improving BDNF expression and improving practical outcomes after TBI in rats.

Around the year 2015 there was an issue of *Townsend Letter*, previously *Townsend Newsletter for Doctors*, which included an article called "Lucky Me!" by Jacob Schor ND on his successful use of turmeric to halt the amyloidosis he was diagnosed with. Turmeric is also known to prevent plaque formation in Alzheimer's. We've already seen that turmeric is good for supporting BDNF expression as a means of helping TBI, but could it prevent the plaques known to be a part of the aftermath of TBI these days in the USA?

Even though the study in question only looked at the isolated fraction known as curcumin, which I would say is almost certainly a disadvantage over using whole turmeric prepared for best absorption, it was found useful in a study of α-Synuclein transgenic mice. The researchers say:

> "α-synuclein is the most abundant protein found in Lewy Bodies...
> "We discovered that curcumin diet intervention significantly improved gait impairments..."
> "Despite the low plasma levels and extensive metabolism of curcumin, these results show that dietary curcumin intervention correlates with significant behavioral and molecular changes in a genetic synucleinopathy mouse model that mimics human disease." [97]

A 2022 study in *ACS Omega* geared towards Parkinson's disease also found activity that prevented α-synuclein from turning into a plaque:

> "However, curcumin decreases the fluidity of α-Syn inside the condensates and efficiently inhibits α-Syn from turning into an amyloid."
> "Interestingly, our findings demonstrate that curcumin inhibits α-Syn amyloid aggregation and destabilizes the preformed aggregates in the condensates (Figure 7)." [98]

In 2008, a review paper was made for the *Annals of Indian Academy of Neurology*. The discussion given in the section "Beta-Amyloid Plaques" is pretty impressive, worth reading, only two paragraphs

long, and even talks about clearance of the plaques through use of curcumin from turmeric. But in a broader summary of the whole paper, they wrote:

> "Due to various effects of curcumin, such as decreased Beta-amyloid plaques, delayed degradation of neurons, metal-chelation, anti-inflammatory, antioxidant and decreased microglia formation, the overall memory in patients with AD has improved. This paper reviews the various mechanisms of actions of curcumin in AD and pathology." [99]

After seeing there is evidence that turmeric-based medicines are good for amyloidosis, Azheimer's disease, Lewy body dementia, and Parkinson's disease, it's clear there is room for broad application for turmeric medicines in patients dealing with the risk or actuality of a wide variety of plaque formations/amyloid formations in the brain and elsewhere in the body. Given all of the other beneficial effects on TBI, there is no reason I know of why it should not be used for TBI patients.

My MD friend from Germany who recommended ozone for TBI recommended it in part because of the stimulation of stem cell production. However, there is some evidence [100] that turmeric may stimulate neural stem cell proliferation (which we've already seen for the essential nutrient lithium), and this is a food spice/medicine that I'm already familiar with and know is extremely safe and gentle so I would have to trouble recommending it, most especially for a condition such as TBI for which the mainstream MDs say there is essentially no treatment.

That study says that aromatic-turmerone (ar-turmerone) is one of the "major bioactive compounds of turmeric." So this goes to show very directly that those who are trying to get only the curcumin are short-changing themselves by not also making use of the whole picture. This is a common battle in herbal medicine between those who are insistent about isolating what they think is the one, single important compound from an herb rather than giving up and humbly admitting, finally, that G-d made it to be synergistic. Both the *in vitro* and *in vivo* work in this study was done with only the aromatic-turmerone component only. This was a rat study. Encouragingly, their *in vitro* work showed, at certain concentrations of aromatic-turmerone, a 50% to 80% increase in "proliferating NSCs" (neural stem cells). The authors of the paper say about their own data:

> "Both *in vitro* and *in vivo* data suggest that ar-turmerone induces NSC proliferation. Ar-turmerone thus constitutes a promising candidate to support regeneration in neurologic disease." [100]

This is not a great surprise to me because I've been aware for years of the neuroprotective effects of turmeric (and have recently learned that it even protects the brain from damage caused by fluoride) and because I know that it is able to help stimulate regrowth of cartilage. I know that use of turmeric amounts to great protection against DNA damage from wireless communications devices. Now to find out that it also strongly stimulates proliferation of neural stem cells is not a huge surprise but a welcome one!

I'm certainly not against using a supplement that is meant to enhance the effects of the curcumin fraction of turmeric provided that the whole herb is also used. And we saw above that we should not for a moment believe that only the curcumin fraction would be helpful for TBI. As everyone knows, turmeric-based supplements are often poorly absorbed unless cooking and combined both with black pepper and with fat (and obviously, only fats that are approved by the Weston A Price

Foundation would be suitable for adding to turmeric because this is something that's going to go into the diet of a human being you care about). The piperine in black pepper, said to be responsible for the enhancement of absorption, is degraded only a short time after grinding. So that means that if someone is making their own supplement at home from bulk spices they definitely will need to grind the pepper fresh. This page [101] provides links to resources for learning about drug interactions that are known with turmeric and also cautions about the mild estrogenic properties of turmeric. But if the TBI patient is using the supplement called Progest-E as recommended, I would guess the mild estrogenic properties should not be an issue at all.

Whether any turmeric-related drug interactions are possible for the TBI patient will depend on what he or she is being given, if anything, after the injury. Overall, it is safe to say that if any possible interactions with drugs given to the TBI patient are managed (likely by lowering drug doses as needed) or no such interactions exist because of the interacting drugs not being given, turmeric should be an excellent avenue for treating the TBI patient on a number of levels and through a number of mechanisms. It is hoped that the reader will be convinced that searching in a laboratory for a patentable drug based on one of the active constituents of whole turmeric is not a promising avenue, if not by the main text of this report then possibly by reading a previously-cited article [101] which adequately illustrates that basic concept which is a common battle throughout the field of herbal medicine.

The standard training of MDs is to poo-poo the unpatentable treatments while ignoring the extremely great corruption in academia and in the scientific literature, corruption we have seen the tip of in a previous chapter. As much as 50% of the stuff published in the medical journals is simply not true by the admission of the universally respected Dr. John Ioannidis (and I'd say that I personally think it could be much more than 50%). Also Drs. Horton and Angell didn't mince words in showing us how unreliable the medical literature really is. Those who defect from the standard training are the brave; they are the ones who let their letters stand for "Medical Defector." Those who don't defect from that training are likely to say we shouldn't try turmeric for TBI and might say they didn't get any memo about massive double-blind, placebo-controlled clinical trials on it proving its efficacy for TBI. Any evidence short of that, they might say, would be unacceptable, so why even bother trying? If that attitude were applied across the world, nobody would ever do any studies at all because they would just be waiting for someone else to tell them what to do. But there is also something else to consider: turmeric is not a patentable drug so no one company seems likely to make billions on it. For this reason, we must wonder who would be willing to pay very large amounts of money to study it.

My personal experience with and previous knowledge of turmeric shows it to be an exceptionally gentle food spice to use as a medicine that is far from being a weakling. And because of the fact that its beneficial effects are likely to be very profound for the TBI patient it should be a first-line treatment in all who want it.

Lion's mane mushroom:

There are two very encouraging articles the reader should visit if he or she is interested in getting an overview about the lion's mane mushroom and how it can be used for concussion and TBI. [102,103]

One mouse study [104] mentioned at the second page, a 2021 study in *Antioxidants*, used both lion's mane and turkey tail in combination, finding the use of both more effective than the use of lion's mane on its own.

I do not know for certain if lion's mane would be good to take in the acute phase of a severe TBI. Turmeric certainly would be used during and after the acute phase. But I wouldn't exclude this possibility for lion's mane and would look to anyone who may already know the answer.

Wild blackberries made into extracts protected brain neurons from oxidative stress, but this did not happen with an extract of cultivated blackberries. [104a]

Chapter 10: **PROGESTERONE for TBI**

Progesterone and vitamin D given together lead to better outcomes in traumatic head injuries, according to a diligent student of Dr. Raymond Peat. This student recommends Progest-E by Dr. Peat. However, the information was found by that student, not by Dr. Peat. He found it through the organization called Vitamin D Council and says this study [105] supports the concept. I would be interested to see what the Weston A. Price Foundation would have to say about this since they do not recommend vitamin D supplementation but instead recommend the use of special animal foods only (including real, unrefined cod liver oil) as the means for obtaining full-spectrum vitamin D rather than the single D_3 which they have declared to be harmful. At the Vitamin D Council's site [106], what I found was a different paper [107] on this same topic. However, a 2016 meta-analysis of 8 studies concluded that mortality was not increased and neurological outcomes were not improved by progesterone. [108]

That same diligent student of Dr. Raymond Peat's work says that maybe the researchers in [108] were using progestins (which are highly estrogenic and would be expected to be harmful in TBI, not helpful) instead of progesterone, the real thing. He says this is common in progesterone research. I don't have access to the full study but this quote from the available text does seem to support the idea that the waters may have been muddied through mixing progesterone research with research on progestins:

> The following search terms were used: “progesterone,” “progestins,” “gonadal steroid hormones,” “estrogens,” “craniocerebral trauma,” “Glasgow Outcome Scale (GOS),” “traumatic brain injury,” “brain injury,” “head injury,” and “head trauma.” [108]

Another study that investigates progesterone alone for TBI says:

> “...Progesterone appears to have pluripotent activity in the injured brain by limiting cerebral oedema through reducing lipid peroxidation, aquaporin expression, pro-inflammatory cytokine release and complement activation.[214] **Progesterone is one of the most promising agents currently being investigated and two previous phase II studies have already demonstrated safety and suggested efficacy in TBI...**
>
> The Progesterone for the Treatment of Traumatic Brain Injury (ProTECT) study was a phase II, single-centre study where moderate to severe TBI patients were randomized to receive progesterone or lipid vehicle within 11 hours of injury...**death within 30 days of injury was lower in the progesterone group (13% vs 30.4%**; relative risk [RR[0.43; 95% CI 0.18, 0.99), primarily in the severe TBI subpopulation.”
>
> “Another phase II, single-centre, study included only severe TBI patients...Patients who received progesterone had a higher incidence of **favourable outcome, as measured by GOS compared with the placebo group at 3 months (47% progesterone vs 31% placebo; p = 0.034**). Interestingly, **the mortality rate was also different in the progesterone group in this study (18% progesterone vs 32% placebo; p = 0.039**)...” [109]

That certainly sounds very promising! I don't surely know the reason(s) why the results of the 2016 meta-analysis above were not good. I hold out hope for progesterone for TBI because, honestly, the numbers sound good in the above paper. [109]

Chapter 11: **ACTION SUMMARY**

1. Use a WAPF diet on the TBI patient.
2. Do not use standard enteral formulations.
3. Use hydrogen-infused water. These tablets are probably some of the best available https://hydrogenwaterlabs.com/product/dr-mercola-h2-molecular-hydrogen-water-tablets/ Possibly the best introduction I know of for the topic of molecular hydrogen is a short, 6-minute video (https://www.youtube.com/watch?v=BZW4slVdAIg&t=0s) by Dr. Mercola. He recommends "pulsing" higher doses of hydrogen water at 8 ppm once or twice a day rather than drinking smaller concentrations throughout the day at 1 to 2 ppm. He explains that hydrogen only activates the production of antioxidants in the body when they're needed in response to oxidative stress rather than at all times, meaning hydrogen won't hinder normal signaling processes in the body that involve oxidation. I think it's fair to say that is a very, very quick summary of Dr. Mercola's understanding of the science of hydrogen water.
4. Weigh the question of whether you should use something like HBOT or highly-oxygenated water for TBI. The hydrogen-infused water in Step 3 is going to be helpful for redox balancing if you do. Just some oxygen enrichment (e.g. with any oxygen mask) would be gentler still than using HBOT and would be more along the lines of Dr. Bruce Rind's system called Relox (though his is proprietary so I don't know what it is exactly).
5. The family of the TBI patient and the doctor of the TBI patient should consult with Dr. Tim Marshall on mineral supplementation and contact me so I can audit the consultation and take notes for an update of this report. https://www.dr-marshall.com At minimum, take the following for minerals: plenty of magnesium glycinate; 5 mg lithium orotate at first, then moving to 10 mg; Oyster Max or Oyster Power or similar; Ultimate Selenium or similar; Plant-Derived Minerals or similar (like the vinegar-dirt-water solution by purchasing Bloomin' Minerals in 40-lb. bags or something from another brand.
6. Make the enteral formulations (one type based on raw milk and one type based on homemade gelatinous broth and liver) for the patient if the patient is on a feeding tube. These formulations are based on the WAPF baby formula recipes with modifications as described in Chapter 7.
7. Use generous amounts of an absorbable turmeric supplement on the patient. This can be homemade by gently cooking some turmeric with water and adding some freshly ground black pepper and a healthy WAPF-approved fat source.
8. Consider using other plant medicines that are also explained in Chapter 9.
9. Use the supplement Progest-E on the patient. Consider giving this with a vitamin D supplement for a short time if the pastured bird livers aren't yet ready to be blended up for the enteral feeding formulation. Once you have all of that taken care of, though, a standard vitamin D3 supplement probably should be discontinued as it would cause imbalances in the long run as WAPF has shown. Better to get it from the special animal foods.
10. A B_{12} supplement is required. MethylB_{12} is a good form.
11. Everything should be beyond organic. There is an OMRI list of approved chemicals for application on USDA Organic food and certain preservatives are allowed.
12. Even though the point directly above this one is true, please keep in mind the words of Dr. Joel Wallach from *Dead Doctor's Don't Lie*: "It's not what you eat that kills you; it's what you don't eat!"
13. Required reading: "Understanding the Concussion Epidemic" by WAPF. www.westonaprice.org/health-topics/modern-diseases/understanding-concussion-epidemic-importance-nourishing-brain/

14. Required reading: "Aortic Aneurysm Report" by Insulting Consulting http://insultingconsulting.net/reports.html
15. Required reading: Dr. Tim Marshall's paper: https://www.jpands.org/vol22no2/henricks.pdf
16. Recommended reading: https://www.westonaprice.org/health-topics/toxic-iron-and-ferroxidase-the-master-antioxidant/#gsc.tab=0
17. Please thank the Creator for His abundant provision of solutions to a challenging problem called TBI.
18. Please reach out to the author of this report if any questions or updates come up or even if you just want to say, "This part you wrote is stupid because..." Thank you for reading!

Chapter 12: **ADDITIONAL RESOURCES**

Miscellaneous items that might be of further interest

Vitamin C:

A friend of mine who used to be a schoolteacher says that there is a study on cats that had their spinal cords severed surgically and were given DMSO and vitamin C to protect that exposed nerve from the oxygen in the blood. This helped the spinal cords to be able to grow back and the experiment was successful. He regularly said to his classes that if they could have gotten to that actor early enough, the one that fell off of a horse and became quadraplegic, it might have saved his spinal cord.

Irwin Stone, the author of the vitamin C book called *The Healing Factor*, was in a severe car accident in a rural place where the hospital was very small. They couldn't do very much for him. He healed very quickly, though, and attributed this to taking one gram of vitamin C per year of life. So if he was 40, for instance, that means he was taking 40 grams/day. This is a very large dose and I do not know which forms were being used. Genetically engineered corn is used to make most vitamin C today. Also, most forms of vitamin C are good at depleting copper and do not come with their necessary complement of bioflavonoids, or vitamin P, as they are called, which are part of the vitamin C complex, rutin being one of them. This is why the plant powders like amla and acerola are much better and more balanced ways of getting vitamin C. However, it can't be denied that Mr. Stone wrote a very compelling book and the same can be said about Dr. Thomas Levy who also is recommending very, very high doses for a lot of different illnesses.

Here are some related links (but I don't think I found the original study on cat spinal cords):

Effect of vitamins C and E on recovery of motor function after spinal cord injury: systematic review and meta-analysis of animal studies
https://pubmed.ncbi.nlm.nih.gov/31800057/
Regeneration of severed nerve fibers in the spinal cord of the adult cat
https://pubmed.ncbi.nlm.nih.gov/13233357/
Regeneration of spinal cord fibers in the cat
https://pubmed.ncbi.nlm.nih.gov/13252144/
Does vitamin C have the ability to augment the therapeutic effect of bone marrow-derived mesenchymal stem cells on spinal cord injury?
https://pubmed.ncbi.nlm.nih.gov/29323045/
Researchers Discover How Folate Promotes Healing In Spinal Cord Injuries
NIH Funded Study Deciphers Chemical Sequence of Nerve Regeneration in Rats.
https://www.nih.gov/news-events/news-releases/researchers-discover-how-folate-promotes-healing-spinal-cord-injuries
This page has a number of videos on food for nerve regeneration, including by doctors and TED talks, though of course I'm not recommending TED talks.
https://nutritionofpower.com/nutrition/diet-for-nerve-regeneration/
I also learned recently there is someone selling a product based on olive that is supposed to restore the human ability to make vitamin C; they claim it is an epigenetic problem, not a genetic problem, that leads to the inability to make it. Could be a scam. Could be true.

Red light therapy:

Minus any EMR problem from the electrical grid, internal unshielded electronics, or the like, this should be a safe treatment. In many ways, red light therapy, in my view, would mimic the beneficial health effects of the sun in the summer and of superefficient wood heating devices which we should all be using in the winter. Michael Hamblin is the best person to look up on this. He's the editor of the only journal on photobiomodulation. Alzheimer's and stroke have greatly benefitted from red light therapy. It would be worth looking into for TBI recovery. Sessions are supposed to be about 10 to 30 minutes. Hormones and collagen seen benefits from this, also. Dr. Raymond Peat is a big proponent of red light therapy, as well.

Homeopathy for TBI:

I was able to find a paper on mild TBI:
https://journals.lww.com/headtraumarehab/Abstract/1999/12000/Homeopathic_Treatment_of_Mild_Traumatic_Brain.2.aspx

Their conclusions:

> "These results indicate a significant improvement from the homeopathic treatment versus the control and translate into clinically significant outcomes...This study suggests that homeopathy may have a role in treating persistent MTBI. Our findings require large-scale, independent replication."

This clinic in India makes some outrageous claims:
https://livepositiveclinic.com/traumatic-brain-injury-treatment-homeopathy/

Here's a page that discusses specific remedies for head injury:
https://www.drhomeo.com/head-injury/head-injury-and-homeopathy/

Joette Calabrese's website has been contacted to ask about how she would treat a severe TBI and hopefully she will have an article out (if time permits) to be available for the public. That could be added here in an update to this report.

Hormones and TBI:
This article has some information from Dr. Mark Gordon on hormones and TBI. I wonder how it compares with Dr. Raymond Peat's hormone information.
https://www.lifeextension.com/magazine/2012/1/using-hormones-heal-traumatic-brain-injuries

Saffron tea for cerebral edema:
Naturopath Bill Mitchell recommends saffron tea. Steep ten threads "in hot water for a few minutes." Two cups of this per day costs less than a cup of latte coffee.
From: https://debrasnaturalgourmet.com/natural-medicine-for-concussion/

A short article that is from a survivor of a 20-foot fall and very severe TBI who now runs the AdventuresInBrainInjury website:
https://www.joshgitalis.com/brain-injury-rehabilitation-through-nutrition-and-supplementation-2/
I'm sure there is a lot more to his work than just this one article. He's obviously involved in healing the gut lining as part of his recovery and it was interesting to learn about the mucilaginous things like slippery elm, marshmallow root, aloe, etc. He now has a book called *How to Feed a Brain.* I'd certainly be interested to see how that lines up with WAPF nutrition, with Dr. Tim Marshall's work, Dr. Wallach's work, etc. Looking at the reviews for the book on this page (https://feedabrain.com/vip-2/) is very interesting. I see Dr. Wahls is on there as one of the reviewers.

PQQ supplementation and CoQ10 optional:
If you're not eating raw milk and kiwis and beef heart, these could be added.

Readers may ask for more from my earlier, rougher TBI report:
There are a few other miscellaneous items in that much shorter and rougher report that I put together in one day about 4.5 years ago for someone who needed it.

Chapter 13: **CONCLUSION**

What is the point of this report? What is the underlying reason why it's important to me to get it out to people? Is it merely to show that we are living in a dark age of medicine, a time when a medically untrained boy can spend a few days finding some information about healing TBI and concussion that goes far beyond the current approach of the MDs as it relates to TBI, which means "do almost nothing to help the patient"? Is it only to show that government-approved health care is beyond dismal but even has gone far into the territory of being counterfactual? Is it only to expose tyranny? Is it to encourage the formation of some kind of revolution to overthrow the rogue government under which we find ourselves? No.

The truth is that G-d is in control of every fine detail of every situation, as we went over above when I explained that He creates the solution before He creates the problem. That does not exclude a Holocaust or any other form of government tyranny or overreach but includes literally everything that happens at all times and in all places. Only by following G-d's Instruction Manual for Life, the Torah, can we be deserving as a society of having real freedom. Revolutions have gone in circles and repeated themselves again and again as empires have risen and fell. History has repeated itself in direct proportion to how much mankind has repeated its past mistakes and crimes against G-d and against each other (which are also crimes against G-d). The germ theory of disease transmission has been greatly overblown, as we've seen in living color for the past few years as a certain class of religious people and conservatives who don't want to be experimented upon have suffered from efforts to excise them from normal life in the USA, just as the Jews were slandered as "spreaders of disease" in the days of the Nazis. Yes, the germ theory of disease transmission has been overblown, but the sin theory of dictatorship is the right one.

Abraham created something out in the desert that was essentially an elaborate orchard and inn. He would consistently welcome weary travelers and feed them a bountiful meal of delicacies while explaining to them that G-d is the one taking care of them and lovingly causing them to come into existence at every moment, continuously. He would talk to them while they were eating. The episode with the angels involved beef tongues (one for each man, with the animals having been slaughtered fresh especially for those guests and specifically for the purpose of supplying beef tongue as a delicacy), cream (and I'm sure that was not Pasteur-ized), and fresh bread. The orchard also supplied a variety of fruits. What a feast! After feeding the travelers, Abraham would tell them they have to bless the one who gave them the meal. So they would start to bless Abraham and thank him for the food. But instead he would teach them to say, "Blessed is the G-d of the universe from Whose bounty we have eaten." And if they didn't want to do that, he would have the policy of drafting up a check for the meal. Some believe this must have been a hefty bill that would have climbed into the thousands of US dollars today because it might cost a lot to maintain those kind of facilities in the desert. And, so, Abraham would give them the choice. Either they can bless the One True G-d or they can pay a large bill. So they chose to bless G-d. This report should be the same idea. If you think it is really my ideas that you have benefited from here in this report, you should think again. I'm not the one who invented all of the perfect foods and perfect herbal medicines which mankind is only starting to learn about.

Here's another thing to be aware of. In the days of a great ruler of Israel named King Hezekiah, there was a book available called *Sefer HaRefuos*, "Book of the Healings." It contained the means of healing any illness. But King Hezekiah actually concealed (hid) the book because the effect was that

people were not reaching a level of humility before G-d as a result of their illnesses. They could just look in the book and know how to cure the problem. In a way, that's really not good enough because the deeper cause is not being addressed. In our own times, illness does actually serve a similar purpose of creating humility in our society and causing people to cry out to G-d. If we instead seek G-d and use Torah study for creating humility, illness will become obsolete. And if we love and fear G-d more than we love and fear the rogue government and its boards and its scary expert panels and its harmful scrutiny and its tyrannical standards of care, we may actually notice the simple solutions G-d makes clear to us right before our eyes. In my experience, they have side benefits, not side effects.

And, yes, I do think those who speculate the atmospheric pressure was greater before the Flood in the times of Noach are probably right. I have heard that this would be an explanation for the physical mechanism by which G-d changed the atmosphere to allow for rainbows after the Flood but not before: that there was a canopy of water above the part of the atmosphere we breathe and it pushed down on our air supply, making it denser and also changing the light characteristics to make rainbows impossible at that time. I think whatever the pressure was originally, if it could be known, might help inform the work of those who are using HBOT [47a] to know which pressure level(s) would be beneficial.

Appendix A: **CLAIMER**

THIS REPORT IS INTENDED TO BE A REPLACEMENT for medical advice; allopathic medical dictatorship/legally-protected allopathic monopoly must be replaced.

The author is free to make such statements and free to use the words 'cure,' 'prevent,' 'treat,' 'mitigate,' and 'diagnose' in any capacity without fear of imprisonment because:

(1) He does not have a license (i.e. MD, ND, DO, etc.) in the health care profession;
(2) He does not sell dietary supplements;
(3) This report (and each future update thereof) is free in electronic format;
(4) Most importantly: the one true G-d must surely be protecting the author—otherwise he would have been destroyed a long time ago!

Therefore, no state medical board can strip the author of a medical license that he does not have and the FDA and FTC cannot launch lawsuits against the author to continue to protect that which has been a long-standing monopoly: allopathic 'medicine'. At this time it seems that any credentialed health care professional or salesman of supplements or books would—bravely—be risking imprisonment by using the "five forbidden words" to describe a non-drug; this should be concerning to anyone who thinks the First Amendment of the US Constitution is important.

Thank you for reading! Now take action!

—John

Appendix B: **REFERENCES**

MODESTY KEY for REFERENCE-CHECKERS

If there is no mark in bold font on a reference, it may be assumed that it is probably still safe for a religious man to view in Brave Browser. Don't use anything less. I recommend using Brave Browser as default (bookmarks + settings are easily imported from others)—it's even able to block advertisements in the sidebar of the YouTube, which have been nearly pornographic. I've heard that TAG and NetSpark are used by Orthodox Jews as blocking software and plan on trying one.

[BB] = please view in Brave Browser, which blocks many advertisements

[TB] = please view in Tor Browser, which appears to block a larger number of advertisements

[WARNING: Immodest material; Wife Eyes Only] = please have your wife (or other suitable family member) copy and paste the text of the article into an office software document so that you can read it without viewing immodest advertisements that might display in any known internet browser. Note: All articles from Natural News (a useful website) are suspect in terms of modesty.

[1] www.westonaprice.org/health-topics/modern-diseases/understanding-concussion-epidemic-importance-nourishing-brain/

[2] https://www.youtube.com/watch?v=fvKdYUCUca8

[3] https://www.shieldhealthcare.com/community/nutrition/2013/08/12/tube-feeding-formula-ingredients/

[3a] https://www.westonaprice.org/health-topics/soy-alert/soy-and-seizures-bad-news-for-the-soy-industry/#gsc.tab=0

[4] Catherine Shanahan, MD and Luke Shanahan. *Deep Nutrition,* 2nd Edition. Pages 143-145. The earlier, much shorter quotation is from page xvii.

[4a] Page 244, *Nourishing Traditions: The Cookbook that Challenges Politically Correct Nutrition and the Diet Dictocrats.* Sally Fallon. 2nd Ed. 2001.

[4b] http://whilesciencesleeps.com/files/Monte%20Diet.pdf

[5] https://www.britannica.com/science/human-digestive-system/Intestinal-gas

[6] https://link.springer.com/article/10.1007/s12264-020-00597-1

[7] https://pubmed.ncbi.nlm.nih.gov/36567361/

[8] https://www.frontiersin.org/articles/10.3389/fnins.2018.00392/full

[9] https://www.spandidos-publications.com/10.3892/etm.2021.11049

[10] [8] https://journals.lww.com/shockjournal/Fulltext/2018/09000/Hydrogen_Gas_Treatment_Improves_the_Neurological.9.aspx

[11] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4176020/

[12] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8174410/

[13] https://www.nature.com/articles/s41598-020-69028-5

[14] https://www.hilarispublisher.com/open-access/multiple-effects-of-molecular-hydrogen-and-its-distinct-mechanism-2329-6895-2-189.pdf

[15] https://www.imrpress.com/journal/JIN/20/3/10.31083/j.jin2003071/htm

[16] https://www.ahajournals.org/doi/10.1161/JAHA.114.001474

[17] https://www.jpedsurg.org/article/S0022-3468(22)00393-1/fulltext

[18] https://pubmed.ncbi.nlm.nih.gov/34883075/

[19] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8572338/

[20] https://athletic.healthcare/2022/08/16/can-molecular-hydrogen-increase-the-benefits-of-hbot/

[21] https://drsircus.com/general/hydrogen-surgery-icu/; see also https://hydroproducts.info (not a modest page)

[22] https://www.mrwatergeek.com/hydrogen-water-side-effects/

[23] http://www.molecularhydrogeninstitute.com/hydrogen-an-emerging-medical-gas

[24] From dedication page of *Laetrile Case Histories; The Richardson Cancer Clinic Experience. The Richardson Cancer Clinical Experience* (2005, 1997) by John A. Richardson, M.D.; *Laetrile Case Histories* (2005, 1997) by Patricia Irving Griffin, R.N., B.S. American Media. Lib Congress control number 2005929615. ISBN 978-0-912986-38-8.

[25] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4572812/

[26] Angell M. *Drug Companies & Doctors: A Story of Corruption*. The New York Review of Books magazine. Available from: http://www.nybooks.com/articles/archives/2009/jan/15/drug-companies-doctorsa-story-of-corruption/ Note: the paragraph quoted by the Canadian Veterinary Journal is not to be found in the free part of the article. I confirmed on 3/19/2019, by private email communication with The New York Review of Books, that the quotation attributed to Dr. Angell was accurate.

[27] Horton R. *Offline: What is medicine's 5 sigma?* www.thelancet.com. Available from: http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736%2815%2960696-1.pdf.

[28] https://childrenshealthdefense.org/wp-content/uploads/FINAL-CHD-Letter-to-Facebook-1.pdf

[29] Colhoun HM, McKeigue PM, Davey Smith G (2003) Problems of reporting genetic associations with complex outcomes. Lancet 361: 865–872. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(03)12715-8/fulltext

[30] Ioannidis JP (2003) Genetic associations: False or true? Trends Mol Med 9: 135–138. https://www.cell.com/trends/molecular-medicine/fulltext/S1471-4914(03)00030-3?_returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS1471491403000303%3Fshowall%3Dtrue

[31] Ioannidis JPA (2005) Microarrays and molecular research: Noise discovery? Lancet 365: 454–455. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(05)17878-7/fulltext

[32] Ed McCabe. *Flood Your Body With Oxygen*. Page 426.

[33] Ed McCabe. *Flood Your Body With Oxygen*. Front matter.

[34] "Oxygen absorption by skin exposed to oxygen supersaturated water" by Stacey A. Reading and Maggie Yeomans. *Canadian Journal of Physiology and Pharmacology* 90, no. 5 (2012): 515-524, https://doi.org/10.1139/y2012-020

[35] "New Insights Into Oxygen Therapy for Wound Healing," *Wounds* 22, no. 12 (2010): 294-300. Daniel Ladizinsky, MD and David Roe, PhD.

[36] "Ingestion of oxygenated water enhances lactate clearance kinetics in trained runners" by N Fleming et al. J Int Soc Sports Nutr 2017 Mar 29;14:9.

[37] "The influence of oxygenated water on the immune status, liver enzymes, and the generation of oxygen radicals: a prospective, randomised, blinded clinical study" Clin Nutr 2005 Jun;24(3):407-14. doi: 10.1016/j.clnu.2004.12.007.

[38] "Neuromuscular transmission and muscle fatigue changes by nanostructured oxygen" by Ivannikov, MV. Muscle and Nerve. 2017 Apr;55(4):555-563. doi: 10.1002/mus.25248. Epub 2017 Jan 10.

[39] Page 146. *The Contagion Myth.* Sally Fallon-Morell; Thomas Cowan, MD. Skyhorse Publishing.

[39a] https://qlifetoday.com/qcupmax/?gclid=Cj0KCQiAz9ieBhCIARIsACB0oGKRpJJx8iRWf7yulFV5R7L6GFE20bKXm7eSc5dEOuN5kUaFt3xmfPQaAi4MEALw_wcB

[39b] https://transmedcomms.biomedcentral.com/articles/10.1186/s41231-

022-00123-7
[39c] https://www.youtube.com/watch?v=4h65iTVg_KY
[39d] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2850254/
[40] https://www.cochrane.org/CD005400/INJ_magnesium-for-acute-traumatic-brain-injury
[41] https://www.ncbi.nlm.nih.gov/books/NBK209305/
[42] https://link.springer.com/content/pdf/10.1016/j.nurt.2009.10.014.pdf
[43] https://www.ncbi.nlm.nih.gov/books/NBK507262/
[44] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5084116/
[45] https://www.jle.com/fr/revues/mrh/e-docs/magnesium_in_acute_and_chronic_brain_injury_an_update_282141/article.phtml
[46] https://www.liebertpub.com/doi/10.1089/neu.2007.0277?url_ver=Z39.88-2003&rfr_id=ori%3Arid%3Acrossref.org&rfr_dat=cr_pub++0pubmed
[47] https://pubmed.ncbi.nlm.nih.gov/17553217/
[47a] https://www.jpands.org/vol22no2/henricks.pdf
[47b] Credentials/backgroun: https://www.dr-marshall.com/about-dr-marshall
Publications: https://www.dr-marshall.com/publications
[47c] https://www.jpands.org/vol20no4/marshall.pdf
[48] https://academic.oup.com/nutritionreviews/article/70/7/410/1846760?login=false
[49] https://pubmed.ncbi.nlm.nih.gov/29478776/
[50] Morley WA, Seneff S. Diminished brain resilience syndrome: a modern day neurological pathology of increased susceptibility to mild brain trauma, concussion, and downstream neurodegeneration. Surg Neurol Int 2014;5(1):97. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4093745/
[51] There may be many other places this is discussed aside from this article. https://www.westonaprice.org/health-topics/environmental-toxins/glyphosate-and-non-hodgkins-lymphoma/#gsc.tab=0
[52] https://pubmed.ncbi.nlm.nih.gov/29155947/
[53] https://jnnp.bmj.com/content/90/11/1221
[54] https://academic.oup.com/nutritionreviews/article/70/7/410/1846760?login=false
[55] https://www.sciencedirect.com/science/article/abs/pii/S0306987713004490?via%3Dihub
[56] https://pubmed.ncbi.nlm.nih.gov/20091772/
[57] https://pubmed.ncbi.nlm.nih.gov/31747384/
[58] https://www.ijsr.net/archive/v4i9/03031503.pdf
[59] https://pubmed.ncbi.nlm.nih.gov/28467150/
[60] https://www.mdpi.com/1422-0067/23/22/13850/htm
[61] https://pubmed.ncbi.nlm.nih.gov/20413065/
[62] https://pubmed.ncbi.nlm.nih.gov/33100976/
[63] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6306469/
[64] https://www.westonaprice.org/health-topics/toxic-iron-and-ferroxidase-the-master-antioxidant/#gsc.tab=0
[65] https://pubmed.ncbi.nlm.nih.gov/24842665/
[66] https://pubmed.ncbi.nlm.nih.gov/28711170/
[67] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5342608/
[68] https://www.westonaprice.org/health-topics/childrens-health/formula-homemade-baby-formula/#gsc.tab=0
[69] https://researchoutreach.org/articles/fermentation-enhancing-favourable-health-properties-cod-liver-oils/
[70] https://www.beepollen.com/pollen-granules-16oz-can/
[71] Page 617. *Nourishing Traditions: The Cookbook that Challenges Politically Correct Nutrition and the Diet Dictocrats.* Sally Fallon. 2nd Ed. 2001.
[72] https://www.chabad.org/library/article_cdo/aid/4800054/jewish/32-Quotes-from-Maimonides-Mishneh-Torah.htm
[73] https://www.westonaprice.org/health-topics/know-your-fats/good-fats-bad-fats-separating-fact-from-fiction/#gsc.tab=0
[74] https://www.westonaprice.org/know-your-fats/#gsc.tab=0
[75] https://www.westonaprice.org/health-topics/know-your-fats/precious-yet-perilous/#gsc.tab=0
[76] http://www.westonaprice.org/wp-content/uploads/2010dietaryguidelinesoraltestimony.pdf
[77] https://pubmed.ncbi.nlm.nih.gov/25774260/
[77a] https://www.westonaprice.org/podcast/83-power-real-food-treat-ms-terry-wahls/
[77b] https://wahls.lab.uiowa.edu/join-study
[77c] https://uihc.org/news/terry-wahls-receives-25-million-study-effects-diet-multiple-sclerosis
[77d] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5987638/
[77e] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3160960/
[77f] https://www.ncbi.nlm.nih.gov/pubmed/16042869
[77g] https://www.ncbi.nlm.nih.gov/pubmed/15915445
[77h] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3303106/
[78] https://pubmed.ncbi.nlm.nih.gov/1191862/
[79] https://www.sciencedirect.com/science/article/abs/pii/0305417986901270
[80] Page 443, *Nourishing Traditions: The Cookbook that Challenges Politically Corect Nutrition and the Diet Dictocrats*, (Revised 2nd Edition, 2001)
[81] https://www.flintrehab.com/best-foods-for-brain-injury-recovery/
[82] *Nourishing Fats* by Sally Fallon-Morell.
[83] https://www.flintrehab.com/best-foods-for-brain-injury-recovery/
[84] https://pubmed.ncbi.nlm.nih.gov/22071706/
[85] https://chriskresser.com/an-update-on-omega-6-pufas/
[86] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6585556/
[87] https://www.nih.gov/news-events/nih-research-matters/insights-into-brain-injury
[88] https://www.mdpi.com/1422-0067/24/3/2950
[89] https://www.sciencedirect.com/science/article/pii/S1742706117306372?via%3Dihub
[90] https://www.vititoelawgroup.com/2017/12/01/study_gelatin_aids_healing_of_blood_brain_barrier_in_brain_injury/
[91] https://www.sciencedaily.com/releases/2017/11/171106100131.htm
[92] https://www.sciencedirect.com/science/article/abs/pii/S0141813022017214?via%3Dihub
[93] https://pubs.acs.org/doi/full/10.1021/bm100760x
[94] https://jamanetwork.com/journals/jama/article-abstract/448429
[95] https://f8wellcenters.com/brain-health/how-to-heal-from-brain-injury/
[96] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8037220/
[97] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4452784/
[98] https://pubs.acs.org/doi/full/10.1021/acsomega.2c03534
[99] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2781139/
[100] https://stemcellres.biomedcentral.com/articles/10.1186/scrt500
[101] https://bebrainfit.com/curcumin-supplements/
[102] https://www.vagarights.com/does-lions-mane-help-with-concussion/
[103] https://www.naturesrise.com/blogs/brainfood/lions-mane-neurogenesis
[104] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8228340/
[104a] https://pubmed.ncbi.nlm.nih.gov/22314351/
[105] https://pubmed.ncbi.nlm.nih.gov/19482377/
[106] https://www.vitamindcouncil.org/blog/rct-vitamin-d-levels-and-traumatic-brain-injury/
[107] https://www.advbiores.net/article.asp?issn=2277-9175;year=2012;volume=1;issue=1;spage=58;epage=58;aulast=Aminmansour
[108] https://www.sciencedirect.com/science/article/abs/pii/S1878875016003582?via%3Dihub
[109] https://link.springer.com/article/10.2165/11634020-000000000-00000