

FURTHER :

It would be hoped that a healthy diet, appropriate quality and quantity of exercise ,and appropriate avoidance of detrimental environmental challenges could extend a healthy existence. This should preclude the need for supplemental and pharmaceutical boosts to health maintenance.

Unfortunately this is not entirely possible for a number of reasons, a few of which are :

Aging

As our bodies and brains accrue years of wear and tear ,the unending struggle to accommodate the multiple internal and external stresses of just living becomes less effective .Protective compensatory capabilities fade ,although with appropriate life style approaches this can be delayed, and a healthy life can be maintained or retrieved.

Disuse :

Overuse--- eg training for, and running marathons --- hastens breakdown.

Underuse-- eg couch potato mode—equally destructive with its wasting characteristic.

Appropriate exercise with a modicum of regular aerobic , interval and resistance modes has been shown to be an absolute necessity if one wishes to boost one's compensatory capabilities.

Brain health is improved by physical exercise but also improved by intellectual learning challenges/exercise.

'Use it or lose it' is true for all active tissue including brain, skeletal and heart muscle. Extending useful living demands active participation—do not wait for things to happen – make them happen.

Dietary deficiencies:

As we age ,certain life supporting elements diminish, either simply because of aging itself ,because the element is less necessary in the mature no longer developing organism ,or because we neglect or are unable to replenish the elements.

The significant diminution of critical substances such as the minerals magnesium ,zinc, calcium and others , and various vitamins and essential substances in produce, more and more supplied from industrialized agriculture [which is progressively depleting the soil],make it more and more necessary to consider carefully your sources of food. Supplementation of missing or low level essential elements is appropriate.

If your baseline is a healthy one it would be reasonable to follow the above advice and to get if possible most of your dietary needs from a Mediterranean type diet.

With a few added supplements to whole food one will have a reasonable chance of decreasing the incidence of chronic illnesses and extend a more useful life . Included should be a broad spectrum multivitamin/multimineral [without iron] , an additional magnesium supplement [It is estimated that a majority of Americans are magnesium deficient], and an additional Vit D3 supplement above and beyond the multivitamin content. It is not surprising that Vit D deficiency is endemic -----for decades we have been advised to avoid the sun and use sometimes toxic sunscreens which block formation of Vit D.

These are reasonable additions to a comprehensive Med type diet ,which if followed should adequately supply most essential healthy-life sustaining elements.

listed below some reasonable food sources for many of the isolated supplements. Getting these elements from whole unprocessed ,and organic produce when available is the best route and usually practical for most these substances. Whole foods contain many more healthy and less well studied elements than just the well studied 'silver bullets' that we extract.

Diseases of aging:

These are overwhelmingly the chronic diseases of developed nations— atherosclerosis [coronary disease ,and peripheral vascular disease] ,cancer and neurological degenerative diseases, all underpinned by the chronic inflammation inherent in our modern dietary, exercise and environmental challenges. These diseases are so prevalent that some have been pessimistically and inappropriately inclined to consider the norm of aging.

The pointed use of appropriate foods and exercise, and second best, some isolated supplements to prevent ,or even ameliorate pathological processes should be considered when these disease processes are predicted or detected.

I highly recommend subscribing to readily available health maintenance web sites such as Greenmedinfo.com , the Alternatives Newsletter ,Blaylock Wellness Report , Mercola.com , LifeExtension.com, and others which are usually well referenced to supplement your data base and decision making. These sources are by and large very informative on many health issues , although some of them push products to support their bottom line and this can potentially create some conflict. Relatively speaking, these conflicts pale when compared with Big Pharma's deceiving shenanigans.

On a tangent : A conservative estimate notes that close to 200,000 of us die every year because of prescription drug caused complications. No deaths [or bankruptcies] have been reported related to supplements.

Food sources

for a number of supplements discussed in the addendum to the Cognitive Challenges handout. [See supplement on supplements handout for details]

Curcumin **

An extract of the spice turmeric which has potent anti-inflammatory/antioxidant properties.

The whole spice has many active substances above and beyond the potent curcuminoid elements, and can be used as a spice on many hot and cold dishes.

Some black pepper should be added to increase absorption.

Black pepper increases the absorption of many supplements, and is along with turmeric, cumin, ginger and other healthy spices the basis for curry sauce, a staple of Eastern foods.

Vitamin D3**

The best source by far for natural Vit D3 is the overhead sun. Fifteen minutes of bare arms and legs in the noonday sun will through adequate UVB exposure stimulate production of more than enough of the hormone. Then, you can slather non toxic sunscreen, preferable zinc oxide based.

Those living at higher latitudes will have inadequate sun light exposure for most of the year so will need supplementation of this extraordinarily important vitamin/hormone.

Very few foods contain significant amounts of D3. Oily fish [tuna, herring, sardines, salmon, mackerel and others] are low concentration sources, as also concentrated fish, calamari and krill oils. Beef liver, cheese and eggs contain a small amount. Mushrooms when exposed to light produce a modicum of Vit D2, a less potent substance which is similar to, if not the same as synthetic Vit D2 [ergocalciferol]. These are not adequate sources for most so supplementation is recommended for all.

Vit K2**

This very important substance needs to accompany Vit D3. Refer back to the supplement handout for the rationale re soft tissue calcification.

Foods containing K2 are cheeses [Gouda the highest and soft cheeses with reasonable levels], and grass fed cow derived butter.

The best source by far is Japanese fermented soy [natto] which supplies more than enough, but is not a particularly palatable food. The K2 supplement derived from it as the MK7 form is the best source.

Vit B12**

The most appropriate form, methylcobalamin, is not present in significant amounts in vegetables and fruit. Some seaweeds contain small amounts. Vegans should take B12 supplements.

Meat, fish, dairy and eggs are all adequate sources of B12. Stomach acid initiated intrinsic factor is necessary for separating the B12 from its food bound form. Unfortunately, as we age our production of acid and thus intrinsic factor tails off. It is likely this is the reason, other than the use of antacids and some other medications [eg diabetes drugs metformin, Avandia and others], and a vegan diet, for progressive decrease in B12 levels in most of us.

Supplements are recommended for all over 50 yrs, and in the other noted categories. 500 micrograms /day adequate if not already contained in a multivitamin.

Fortunately, the supplemental form of methylcobalamin is not bound to food, and can bypass the intrinsic factor deficiency. The synthetic B12 is not recommended because it has a cyanide molecule attached [cyanocobalamin] which is in tiny amounts but does need to be detoxified.

Vitamin B Complex [all the B's]**

The Mediterranean type diet contains all the B's.

As noted the vegan diet is deficient in B12, and must be carefully designed to avoid other deficiencies such as zinc, iodine, Vit D, Omega 3's, calcium and the supply of all the protein contained essential amino acids.

A good multivitamin should have an adequate amount of B vitamins.

Vit E [tocopherols and tocotrienols]**

Whole grains, nuts and seeds the best sources.

Oils when not highly processed a good source. Olive, coconut, palm, and avocado oils, wheat germ oil, organic butter and various nut oils are reasonable sources.

Oily fish are also a good source. The processed omega 6 oils contain Vit E, but are as noted, problematic.

Keep in mind that high temperature cooking, especially frying, broiling and high temperature baking will deplete or inactivate many of the B complex vitamins, Vit E and a number of the healthy polyphenols and other phytochemicals in produce.

High temperatures will also increase the oxidation of the oils, especially the polyunsaturated omega 6 oils [corn, canola, sunflower, safflower, soy, cotton seed, etc] which are already significantly oxidized in their high heat and/or chemical based extractions. These inflammatory processed oils should be entirely avoided except as naturally present in produce which provides more than an adequate un-oxidized amounts of these essential oils.

Extra virgin olive oils are best drizzled on food after cooking to preserve their high vitamin and phytochemical content depleted in cooking.

Better cooking oils are coconut, palm, clarified butter [ghee], avocado and nut oils.

No matter which oil you choose ,take a bit longer and cook at lower temperatures. And make an effort to eat some raw produce daily.

Vit A [Beta-carotene]**

Beta-carotene is a precursor of Vit A to which it is metabolized on demand for multiple anti-inflammatory/antioxidant needs, and Vit A is ,as well known, important for protecting the retina from excess UV radiation. It is important in maintaining immune resistance to infection, especially viral illness.[Vit A deficiency was found to be a major cause of the high mortality from otherwise benign measles in South African children.]

It participates in bone health maintenance along with calcium, magnesium ,and Vitamins D3, and K2 .

It is one of several important carotenoids which include astaxanthin, lutein, zeaxanthin and lycopene ,all of which are important anti-inflammatory/antioxidant substances necessary for brain and retinal integrity.

High doses of Vitamin A [50,000 units or higher] are toxic, while beta-carotene is relatively non-toxic only changing to Vit A on metabolic demand.

Sources of whole Vit A are some fish [cod and salmon, and fish roe,] ,oysters ,and beef ,pork ,chicken, duck and goose liver, and various kidneys.

If sometime in another life you are tempted to eat fish-eating seal, walrus or polar bear liver, do not. They may contain up to 8 million units of Vit A per serving and will result in massive acute brain swelling and painful demise soon after the tasty meal.

Magnesium**

The best food sources of magnesium are fresh produce and green vegetables may be the best . Magnesium plays the same key role for chlorophyll as iron does for hemoglobin.

Other reasonable sources are beans , nuts ,seeds, fish , whole grains ,avocados, yogurt, bananas and dark chocolate[cocoa best, and cocoa].

Unfortunately ,as mentioned before, magnesium deficiency is now common .It is not adequately replenished in industrial farming. Plants have become anemic and to make things worse most processed foods are frequently severely magnesium deficient. It is estimated that a majority of Americans are tissue deficient in magnesium ,likely more from processed [junk] food intake ,and a low intake of even the anemic greens and the other healthy foods mentioned above.

It is recommended that magnesium in an easily absorbable form be supplemented by all. Magnesium threonate appears to be the best choice – it is easily absorbed and gets across the blood-brain barrier best. 1000 mg per day with food is a reasonable dose.

For more , review the elaboration in the Cognitive Challenge supplement on supplements.

Resveratrol**

A few dozen bottles of red wine ,or as many bottles of Concord grape juice will supply as much resveratrol as one capsule of extract derived from grape seeds and skins or Japanese Knotweed. The capsules clearly carry the day if one supplements.

Pomegranate ,and a variety of berries also contain resveratrol and a number of other healthy phytochemicals. Blue berries are an excellent source of multiple phytochemicals including resveratrol, and are available frozen during all seasons ,as also many other whole fruits and vegetables ---and inexpensive . Raw cacao, to a lesser degree ,the processed cacao, is also a reasonable source of resveratrol. It can be added to coffee, is present in dark chocolate as cacao [avoid less than 80% dark chocolate bars – too much sugar]

A healthy sweet tooth treat is a combination of coconut oil, raw cacao powder,or pure cacao powder, and a bit of raw honey easily mixed after liquefying the honey and the coconut oil [liquefies above 76 degrees F]. Put in fridge to solidify and eat cold .

COQ10 [ubiquinol ,ubiquinone]**

Refer to the supplement handout for elaboration on this vital substance with multiple key functions.

It is present in high levels in organ meats- eg liver, kidney and heart-but also red meat in general. It is also present in oily fish –eg sardines, herring, and mackerel-. But not a problem for vegans --it is present in reasonable concentration in dark green vegetables –eg spinach ,kale and collards- , and also cruciferous vegetables – eg cauliflower, cabbage, broccoli-.

Aging, and bad eating habits are associated with a progressive decrease in levels of COQ10 . Some have suggested daily supplementation but unless one has a specific rationale for doing so--eg taking statins and/or beta blockers ,or if one has congestive heart failure or cardiac arrhythmias -- the above food sources should be adequate.

Omega 3 fatty acids**

The ratio of the essential Omega 6 to Omega 3 fatty acids should be in a range of 1-3:1 . The typical American dietary ratio is between 20-30 : 1! The reason for this is the very high use of omega 6 oils ,and relatively deficient intake of good fats which include Omega 3s among others. If one avoids the processed predominantly omega 6 oils –eg corn, soy, canola ,cottonseed, sunflower and safflower oils - altogether ,and eats a modicum of oily fish each week ,and nuts or nut oils ,and freshly ground flaxseeds, which contain a omega 3 oils, the ratio should normalize.

Astaxanthin**

This powerful anti-inflammatory/antioxidant is found in salmon ,red fleshed trout, preferably wild caught, and shrimp [especially krill], lobster, and crab.

The supplement form is extracted from red microalgae.

Taurine [2-aminomethane sulfonic acid]**

This a meat, dairy , egg and seafood sourced organic acid . It is deficient in vegetarian diets ,but internal compensatory ramping up of production may to some degree protect vegans.

Phosphatidylcholine**

Eggs ,liver, peanuts and whole grains the best sources.

Phosphatidylserine**

Brains ,organ meats ,fish, soybeans and eggs are good sources.

L-Arginine/Citrulline**

Although a healthy individual likely synthesizes an adequate amount of arginine/ citrulline, a good diet containing nuts, whole grains ,seeds, chocolate , meat and dairy products facilitate or supplement these vital precursors of the ubiquitously essential vasodilating nitric oxide.

Coconut oil**

See supplement handout elaboration on this readily available, healthy and inexpensive predominantly medium chain saturated fat. The unprocessed [unrefined] and organic cold pressed form best.

Probiotics **

Beyond supplements of which there are many and should be taken daily on an empty stomach with water to avoid the antibacterial effect of stomach acid, the best food sources of probiotics are fermented foods –eg non-sweetened or sweetened with fresh fruit, live culture containing yogurt, and kefer. Also aged cheeses, live culture sauerkraut , kombucha and kimchi are excellent sources. Natto, a fermented soy product from which we get best K2 supplements, is a good source of probiotics but not terribly appetizing.

Epilogue:

As Pogo explained ,and I hope you agree:

" We have met the enemy ,and he is us"

We can change that---

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** Please refer to the supplement portion of the main handout for elaboration.