KRESSER INSTITUTE
FOR FUNCTIONAL AND EVOLUTIONARY MEDICINE

Supplementation: Introduction

In a perfect world, we wouldn't need to take supplements. But in the world most of us live in, supplements are often necessary. This might seem inconsistent with the Paleo approach. After all, our ancestors weren't popping pills to stay healthy, so why should we?

Our modern environment is profoundly different than that of our ancestors. These differences include:

- A decline in soil diversity and quality (and consequent decline in nutrient density of foods)
- A decrease in diversity of plant species consumed
- An increase in exposure to food and environmental toxins
- Overuse of antibiotics and other medications (damaging the gut and liver)
- An increase in chronic stress
- A decrease in sleep quality and duration
- Less contact with nature and less time spent outdoors
- A move away from the tight-knit social groups that were the norm for humans until very recently (and the resulting effect on our nervous system)
- An increase in the number of hours we spend sitting

These changes have a cumulative effect on our health and well-being, and together they account for the modern epidemic of chronic, inflammatory disease. Smart supplementation—along with a nutrient-dense diet, adequate sleep and exercise, pleasure and social support, stress management, contact with nature, and play—can be an important buffer against the potentially harmful effects of the modern lifestyle.

But while supplementation is often necessary, there's a right way and a wrong way to do it. Not all supplements are created equal, and some can even cause harm if taken in the wrong forms or amounts. In this section I'll introduce three principles for "supplementing wisely," explain the difference between maintenance and therapeutic supplementation, and make suggestions for which supplements you should take—and which you should avoid.

There are three principles of "supplementing wisely."

1) Get nutrients from food whenever possible

Humans are adapted to getting nutrients from whole foods. Most nutrients require enzymes, synergistic co-factors, and organic mineral-activators to be properly absorbed. While these are naturally present in foods, they are often not included in synthetic vitamins with isolated nutrients.

If synthetic vitamins had the same effect on us as food did, then we could simply bypass eating and take a regimen of pills and powders each day to meet our nutritional needs. But a diet

consisting only of purified nutrients—even in the recommended daily amounts for each nutrient—would not promote optimal health.

The nutritional effect of a food is often more than just a sum of its individual parts. Nutrients found together in food work together in a synergistic manner: one nutrient may promote the absorption, activate, or even inhibit the action of another. Whole foods, according to nutrition researchers, are more effective than supplements in meeting nutrient needs.

For example, consumption of certain vegetables like broccoli and cauliflower reduces levels of harmful free radicals, highly reactive molecules that may play a role in cancer, heart disease, and aging. But taking the micronutrients found in these vegetables separately, in supplement form, doesn't have the same effect.

We should get nutrients from food, not supplements, whenever we can. Following a nutrient-dense, Paleo diet will maximize your absorption of key nutrients and minimize the number of nutrients you need to supplement with.

2) Take nutrients in their naturally occurring form whenever possible

Synthetic, isolated nutrients don't always have the same effect on the body as nutrients found in food. It matters whether the nutrients have been produced by technological or biological processes, because industrial processing sometimes creates an entirely new compound with different physiological actions.

For example, trans fats produced by ruminant animals (such as conjugated linoleic acids in dairy products) are beneficial to health, whereas trans fats produced in the processing of industrial seed oils are highly toxic.

Folic acid is another example. The naturally occurring form of folate is not folic acid, a compound not normally found in food or nature, but tetrahydrofolate. While folic acid can be converted into folate, that conversion is poor in humans. And unlike natural folate, folic acid does not cross the placenta; this is significant because folate is a crucial nutrient for pregnancy, and while folic acid can prevent neural tube defects, it doesn't have the other beneficial effects of folate.

What's more, several studies have shown that folic acid—but not natural folate—may increase cancer risk. Unfortunately, folic acid is what's often used in multivitamins, because it's significantly cheaper than natural folate.

3) Be selective with your supplementation

Multivitamins have become increasingly popular: half of Americans currently take an "all-in-one" supplement. But is this a good idea? Most studies show that multivitamins either provide no benefit or may even cause harm. A study in ***JAMA Internal Medicine*** showed that multivitamins have little to no influence on the risk of common cancers, cardiovascular disease, or total mortality in postmenopausal women.

And a large review in the ***Journal of the American Medical Association***, which looked at more than 68 trials with 230,000 participants, found that treatment with synthetic vitamins often found in multivitamins (such as beta carotene, vitamin A, and vitamin E) may actually increase the risk of death.

The problem with multivitamins is that they usually contain too little of beneficial nutrients like magnesium, vitamin D, and vitamin K2, and too much of potentially toxic nutrients like folic acid, calcium, iron, and vitamin E. This means that multivitamins can cause nutrient imbalances that contribute to disease.

Another problem is that multivitamin manufacturers often use the cheapest possible ingredients, such as folic acid instead of natural folate, which may have harmful effects.

Now that we've established the case for supplementation in general and talked about three principles of supplementing wisely, let's discuss two categories or types of supplementation to consider: maintenance and therapeutic.

Maintenance supplementation involves supplementing with selected micronutrients that are difficult to obtain even in the context of a nutrient-dense Paleo diet. Supplements in this category are generally taken in small doses, and indefinitely.

Therapeutic supplementation involves using supplements for a specific purpose for a specific period of time. For example, you might take melatonin on an overseas trip that involves moving across several time zones, or you might take vitamin C if you feel a cold coming on.

I discuss therapeutic supplementation throughout this training in the context of addressing particular health conditions. In this unit, we're going to focus on maintenance supplementation.

No matter how well we eat, some nutrients are difficult to obtain enough of from food alone. For example, vitamin A (retinol) is only present in high amounts in organ meats. Our Paleolithic ancestors and many traditional cultures prized organ meats and considered them superior to muscle meats (which they are, from a nutritional perspective).

However, organ meats have fallen out of favor and few people eat them today. Magnesium is found in many foods, but as soil quality has declined over the past several decades, so have magnesium

levels in fresh produce. And with the exception of cold-water, fatty fish, food has never been a primary source of vitamin D; our ancestors produced it from exposure to sunlight.

In light of this, the three nutrients I recommend for maintenance supplementation are vitamin A, vitamin D, and magnesium.

I'll also discuss other micronutrients you may want to supplement with on an ongoing basis under certain circumstances, including vitamin K2, vitamin C, selenium, and iodine.

Okay, let's get to it!