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Vitamins and Supplements

In the past, many people have asked my thoughts on vitamins and supplements. As you know, I have always been somewhat of a skeptic, but have tried to keep an open mind. Finally over the past eight weeks there has been data released to answer many of your questions.

Vitamin D

In December of 2013, Lancet (a respected European medical journal) published a review of 462 previously done studies on vitamin D. The review concluded that a low blood level of vitamin D was associated with heart disease, weight gain, high cholesterol, diabetes, and overall mortality. The problem is that supplementing vitamin D levels back to normal had no impact on the previously mentioned conditions. This means that blood levels of vitamin D are an indicator that there is a problem, but the low vitamin D is not the cause of the problem. The only data that we have showing a benefit of vitamin D is in the institutionalized elderly, where supplementation tends to reduce falls.

My end opinion is that supplementing vitamin D has little adverse impact and is a necessary vitamin for many body functions, but correcting blood levels that are low has no benefit. You need some intake of vitamin D and sunlight, in order for your body to create it. Salmon, oysters, and milk are all rich in vitamin D. If you suffer with osteoporosis you need at least 800 units a day. If you have renal disease or parathyroid disease you may need it, but usually a healthy diet is all you need. For all the skeptics, there is a final trial to be completed in 2015 that could serve as the final nail in the coffin of vitamin D, or it could rekindle the debate.

Calcium

Calcium has long been a recommendation of doctors, especially in postmenopausal women. Calcium is needed in the body for bone development, but also plays many roles including heart, nerve, and muscle function. Ninety-eight percent of your body's calcium is stored in your bones, so if your intake is not enough, your body will take what it needs from your bones. The primary reason most people take calcium is to protect their bones. There is good evidence that supplementing calcium and vitamin D in the institutionalized elderly prevents falls and fractures. Unfortunately, in the general population there is not great data to show this benefit. This result prompted the United States Preventative Task Force to not recommend supplemental calcium above the current RDA guidelines for most

people.

The risks of supplements are: bloating, constipation, and kidney stones. There are studies that show an increase in the risk of heart attacks or cardiac events with calcium supplements, but these studies have flaws and may ultimately be proven false. The data on this remains uncertain. What is certain is that if your calcium comes from your diet, you eliminate all of these risks, but get the positive benefits of calcium.

The ideal calcium requirement is listed in the chart below as well as the calcium content of common foods. In my opinion, the best source of calcium is diet and not supplements. From your normal food intake you get roughly 300 mg of calcium. If you are able to add three servings of dairy a day (each has about 300mg of calcium) you have satisfied your daily needs and do not require supplements. In fact, by taking supplements, you may be causing harm from too much calcium. If you cannot complete the dietary requirements, then you should take a supplement.

Table 2. Well-Absorbed Dietary Sources of Calcium.*

Type of Food	Serving Size	Elemental Calcium per Serving <i>mg</i>	Calories per Serving <i>kcal</i>
Dairy products			
Plain low-fat yogurt	8.0 oz	448	154
Low-fat yogurt with fruit	8.0 oz	384	238
Mozzarella, part skim milk	1.5 oz	333	108
Cheddar cheese	1.5 oz	307	171
2% Low-fat milk	1 cup	293	122
Low-fat cottage cheese	1 cup	206	194
Fruits and vegetables			
Calcium-fortified orange juice	6.0 oz	261	88
Raw kale	1 cup	100	33
Raw bok choy	1 cup	74	9
Raw broccoli	1 cup	43	31
Canned fish			
Sardines	3.0 oz	325	177
Pink salmon	3.0 oz	183	110
Grains			
Fortified, ready-to-eat cereals	1 cup	100-1333	100-160
Fortified, cooked oat cereals	1 cup	187	159
Commercially prepared white or wheat bread	1 slice	30-73	69-74

* These foods contain low levels of oxalic and phytic acid. Data are from the National Nutrient Database for Standard Reference of the U.S. Department of Agriculture.⁷

Table 1. Recommended Dietary Intake of Elemental Calcium for Healthy Persons.*

Sex and Age	RDA <i>mg/day</i>	Upper Intake Level <i>mg/day</i>
Female		
19–50 yr†	1000	2500
>50 yr	1200	2000
Male		
19–50 yr	1000	2500
>50–70 yr	1000	2000
>70 yr	1200	2000

* The recommended dietary allowance (RDA) is the level of dietary intake that is likely to meet the needs of 97% of the population. The upper intake level is the level above which the potential for harm increases. Data are from the Institute of Medicine.⁵

† This category includes women older than 19 years of age who are pregnant or lactating.

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Multiple Vitamins

On December 16, 2013, a large trial on multivitamins was published in the Annals of Internal Medicine. This study was funded by the National Heart Lung and Blood Institute and the National Center for Alternative and Complementary Medicine, so it was a well conducted trial. This trial demonstrated that there was no benefit to vitamin use when taken to reduce cardiovascular disease. This is just another study including the Physician Health Study to reach the same conclusion. There is truly no benefit to multivitamins for people who consume a healthy diet. There is good evidence that vitamins are fantastic for macular degeneration, but for the general public it is a waste of money.

The vitamin and nutritional supplement industry had sales of over \$28 billion in 2010. There is no great medical evidence that any of the money spent on them is medically necessary. I receive more pushback on drugs like statins that have numerous excellent medical studies showing their benefits, yet people take vitamins without questioning their benefit. You would be better off spending your money on fruits and vegetables than vitamins.

In the end here is where I stand:

Vitamin D- 600- 800 units a day is fine but testing and treating levels for most people is not necessary.

Calcium- 1000-1200mg a day is needed but should be taken through foods rich in calcium, not supplements.

Multivitamins- stop wasting money and eat healthy.