
Tom Levy, MD: Death by Calcium - Proof of the Toxic Effects of Dairy and Calcium Supplements

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Tom Levy, MD:

Well, hello again. It's a pleasure to come back. I don't know if how many of you recognize me. I've talked here twice before, or three times before, I'm losing track. Anyway, it's my pleasure to discuss a new subject, at least new to me, and that is ... We just kicked in, all right, and that is calcium.

Now, for those who want a little more information on anything that I talk about where it's pertinent, and there's a scientific reference that pertains, I'll just give the author's name, but more, importantly, I'll follow the number, the PMID number, and if go to the PubMed website just type in the number, and nothing else, and hit enter, you'll get the abstract, and sometimes the whole article.

Okay, just a little bit of background information about calcium. Certainly, we know how prominent calcium, and it's, uh, usage has been promoted, not only in the medical literature, amazingly enough, even though there's not a lot of sound, solid scientific evidence there, but very prominently in the lay press, uh, and unfortunately, as we'll see lots of doctors along with the lay people, uh, are really so busy I suppose you could say they-they buy what the lay press says just as well as what the public does.

Anyway, it's important to understand that even though calcium, no doubt about it, is essential for normal cellular function it's what I call one of the big three of essential nutrients that being calcium, that being iron, and that being copper. All three of those are absolute essential nutrients. You can't live without them. They're also absolute toxins when you get above a certain dose, and in the case of all three they represent part of nature's natural mechanism by which to kill cells.

So it's not hard to go from that to a leap where you could see that if certain micro-environment changes take place inside the cell, and you're steadily increasing the amount of one of these, in this case calcium, you start to not only promote disease, but promote apoptosis, and sometimes, frank cell necrosis.

So, I'm going to make my attempt to give you the broad-based foundation for what I consider now, or myself, conclusively, to be the fact that calcium in its toxicity is an important factor in all chronic degenerative diseases. You really can't have an abnormal cell if there's no increase in oxidative stress inside the cell. If the redox balance is correct inside the cell, you have have a healthy cell.

Conversely, when you start to increase oxidative stress with the associated, uh, changes in abnormal physiology this is always, always accompanied by an increase in calcium. Chicken egg, cause-and-effect, I actually think it's both. I actually think pathology will allow calcium to re, increase, and if you do enough to increase calcium you increase the oxidative stress as well.

Now, okay, what we're gonna see, also, and one of the big things that has really sunk hard into both medical minds, and the, and the lay people's minds is that with the ravages of osteoporosis, and the fact, clearly, that osteoporotic bone is

frail, and devoid not only of minerals, but devoid of calcium. There's a deficiency of calcium in the bones, yes, but that's not a body-wide deficiency, and we'll see that this deficiency is not only-only applicable to the bones, it's actually what feeds the excess elsewhere in the body.

Okay, just start with a few points, what I like to call the "myths" that are related to not only calcium metabolism, but also osteoporosis in general. Now you will hear of a few studies where, "Well, we gave calcium supplements, and we got decreased fracture rate." Well, what they don't tell you is they also gave vitamin D. They act like calcium, and vitamin D are co-supplements, and you can't take one without the other. Well, I've got news for you. Calcium is a supplement, and vitamin D is a supplement, and they're not a uni-supplement.

And what more, specifically, it showed going along very nicely with the idea that vitamin D alone has been documented to decrease fracture incidence, and fracture is the bottom line on osteoporosis. If whatever you're doing doesn't make the bones less likely to fracture it's irrelevant, and beside the point. If your intervention makes a fracture less likely, well, you're doing some good.

So when you look at this wide array of studies they do on calcium, and vitamin D together, lo and behold, you find that those studies that have 800 units, or more of vitamin D administered with the calcium does decrease fracture incidence. Those in the 400 units or less, no consistent benefit. And Ku-Kurabayashi did another study in which he just looked at calcium supplementation alone, and clearly showed it did not decrease fracture incidence.

Now, when you're an osteoporosis patient, or you're concerned about osteoporosis you go see your doctor. What's your doctor do? Bone mineral density test. Now this is a good test, but it's very much misinterpreted, okay? When it's low, yes, that means the bone density is low, and there's osteoporosis, but what's difficult, or different is to interpret what the increases mean.

When, for example, a patient, osteoporotic patient takes a large amount of calcium that patient can increase the bone density as it's read on this scan can increase it, give you approved number, but it's not associated with a decrease in fracture incidence, okay? And this is what I call the "Fresh paint rotten fence" metaphor. If you-you can put a coat of fresh white paint on a rotten fence it looks good, but it's gonna crumble just as though you didn't, and it's no different with osteoporotic bone.

Now, probably, one of the single-most significant studies, but we'll see that what I'm talking about tonight by no means is just hinging on one, or two, or three studies. There's a very large body of evidence to support the thesis that I'm making about us all having excess calcium, and suffering the consequences of it, and that is over a 19 year old period in a prospective study with over

61,000 women looking at calcium intake by both supplementation, and by high calcium in the food, namely, dairy, it was quite profound.

The women with the highest calcium intakes compared with the women with the lowest calcium intakes had a 250% greater chance of death, in a very large study over a very extended period of time. Now, here's where the marketing plays into all of this. Gosh, I mean, how many of us haven't heard 2,000 times, "Milk is a natural." "You never outgrow your need for milk." "Milk does a body good." Now, most nauseatingly of all, "Got Milk?"

Well, it's been drummed really, literally, into the heads of both the lay people, and unfortunately, many healthcare providers that it's very difficult to maintain a normal intake of calcium, and you have to have high calcium, dairy products, in order to get enough calcium into your body. Complete and utter hogwash.

And now a little more detail. I alluded to this. In the normal body 99% plus of the calcium that you have in your body is stored in your bones. Now this also means that a very tiny amount of calcium is needed to sustain the many vital, normal functions throughout the body. So the fact that you have this much calcium in the bone, and the fact that osteopenia, basically, early osteoporosis, leading into osteoporosis it literally releases calcium from the bones as it oxidizes much like smoke comes out of a fire, okay?

In very, and in very similar ways oxidation is like fire combustion, but the point being the people who are taking the most calcium which are the worst longstanding osteoporotic patients are the ones that least need it because they've already spent the last 20 years releasing an enormous amount of calcium out of their bones, and allowing it to deposit in their tissues that doesn't get excreted into the urine. And then how do they approach treating that? They take more calcium, and you just put fuel on the fire.

Let me, let me fast forward for just a second 'cause I'm seeing all these looks out here. There's a happy ending, okay? It's not all doom and gloom, so I'm gonna lay out the nasty for you, and then I'm gonna tell you how to take care of it, okay? So relax, let the heartbeat come down a little bit, and is an osteoporotic fracture a nasty thing to have?

Sure, it can kill you, no doubt about it, and they use this fear to fuel crazy supplementation, but in point of fact when they looked at 10,000 postmenopausal women that had low bone mineral density, aka osteoporosis, the ones that had the lowest bone mineral density compared to the highest had a 60% greater chance of death, so clearly, more osteoporosis is associated with more death, but here's the kicker. Most of the deaths had nothing to do with the fracture. Cancer, heart disease, those are the two biggies, but really, any chronic degenerative disease non-excluded.

Oops, wrong way. Now, you didn't think I could leave my baby completely out of this, okay? Actually, though, as it turns out Redox Biology really spearheaded by vitamin C gives us really the best, simplest, and most straightforward mechanism by which to understand the physiology of health, and how it evolves into the path of physiology of disease, and let, we're gonna do all the questions at the end. If, oh, I'm sorry, okay, reduction oxidation. I'm sorry, very good point. Glad you made that.

Now, all toxins, and all infections, 100% are pro-oxidant in nature, okay? And that's how they do their damage at the molecular level, and it's the ability of vitamin C as the premier antioxidant to reduce those pro-oxidant toxins either directly, or indirectly to either change the effect that they caused.

Now, you see the title of this slide. "Osteoporosis is a Focal Scurvy of the Bones." Okay? I can actually extend that for you. Of course, we all heard about generalized scurvy when all the vitamin C is gone in your body, and your British, uh, uh, seamen, and you're dying of infections, and your body falling apart. Well, we don't really see that.

We don't see that because they preserve so much of our food with vitamin C that even if you eat the trashiest diet in the world you're still gonna get two, three, four, five hundred milligrams of vitamin C a day, which is also, incidentally, why life expectancy has gone up in the last 20 years. It's got nothing to do with medicine. It's got everything to do with the fact that vitamin C has become a very popular preservative, okay?

Now, bone physiology involves the formation, and the destruction, and the varying levels of oxidative stress, and remember, in bone, maybe a little more so than other organs, there's a continual synthesis, and a continual breakdown. It's an ongoing dynamic balance, but when you get too much breakdown relative to formation then you ultimately get a lot of calcium released, and the osteoporosis.

Now, okay, I'm gonna sort of hammer home why I make what perhaps to some of you seems like a bold statement in saying that osteoporosis is a focal scurvy of the bones. Just a bunch of isolated tidbits, and then you could put them all together.

When you have increased oxidative stress reflected by increased C-reactive protein levels in your blood which is a marker you reliably predict increased chance of osteoporotic fracture, okay? Number two: Other inflammatory parameters also relate to increased fracture risk giving support to the first study, then the flip side is these two parameters that increase fracture risk are significantly reduced by high doses of vitamin C.

Now, osteoblasts are the cells that form new bone. Vitamin C stimulates osteoblasts to be formed from their precursor cells, and then, furthermore, the

precursor cells themselves are stimulated to proliferate by vitamin C. Then the flip side, the osteoclast, those are the cells that break down bone. Guess what vitamin C does to that? It inhibits it, okay? So vitamin C is pushing at all the different directions to form new good bone, and to prevent bone from being broken down.

Very importantly, as it is with all the other forms of collagen in the body, vitamin C is essential, not good for, essential for the type two collagen required for the accelerated growth of osteoblasts that lays down into the bone. Now, that same bone collagen which, incidentally, we think about so much calcium in the bones, well, yes, there's a lot of protein in the bones, too.

The bone collagen comprises 90% of the bone matrix protein required for structural strength, and what else is vitamin C essential for? It's essential for the cross-links, okay? That gives you your tensile strength. That's what prevents a fracture, or decreases the chance of a fracture.

In studies where you're no longer looking at cells, you're just looking at after the fact, supplemental vitamin C has been shown to lower the risk of osteoporotic fractures, just supplemental vitamin C, and now another study showed, however, dietary vitamin C intake had no effect. Well, does that seem a little strange? Not really. It just supports the fact that the amounts of vitamin C you need for this effect can't remotely be approached with a diet, okay?

And I think most of you realize I would never advise any of you to forego taking some form of supplemental vitamin C on a regular basis because there doesn't exist a diet that can give you enough vitamin C, and as shown by these studies that can have the same salutary effect on the bones as supplemental vitamin C.

Now, looking at another side of the coin, now two, three, four, five sides of that coin. Elderly patients who already sustained an osteoporotic fracture had statistically lower levels of vitamin C in their blood. Okay. Now, I told you about the bone mineral density test doesn't mean anything if you're taking calcium, and it gets better. It means a lot about the quality of the bone if you're not supplementing calcium, and you can take measures to make the bone density increased, then that's reflective of legitimately good healthy bone, and that's exactly what we see with vitamin C supplementation, no calcium resulted in a significant greater bone mineral density at all bone sites tested.

This is a little off, but I'm gonna tell you why it's significant. In mice with ovaries removed vitamin C prevented the bone loss otherwise seen. You know why that's impressive? Estrogen is enormously important for sustaining and improving bones, and this animal study indicates that if you take enough vitamin C you can get the protective effect without the estrogen. I'm not saying you should do that. I'm just giving it to you as evidence of how important a role vitamin C plays in the integrity of healthy bone.

And then the last two. Vitamin C not only accelerates the healing of experimental fractures, but remember what we said about the collagen, it significantly improves the strength of healed fractures. Well, having gone through all of that to tell you osteoporosis is a focal scurvy of the bones I'm gonna tell you all diseases are focal scurvy. Depending on the site, depending on the intensity because all diseases have increased oxidative stress at certain target points, and certain target tissues in clinical context, and when you get them at the molecular level there is no other pathology taking place.

Okay, now, a few little tidbits about calcium. Outside of the cells the concentration of calcium is 10,000 fold greater than calcium inside the cells, okay? Which also tells you the fact that relatively speaking there's only a tiny amount of calcium inside the cells, and it performs its important regulatory functions within a very, very narrow normal range, but when you keep this high concentration gradient present, and you continue to dump more calcium either out of the bones, or taking it in, you put a greater pressure for more calcium to get inside the cells.

Okay, now, it's been nicely established, although, not precisely, that all cancer cells are associated not only with increased intracellular oxidative stress, but that this increased intracellular oxidative stress is always associated with, or aka, caused by increased intracellular calcium. Okay?

Now, these next two slides I'm not gonna go into great detail. I'm gonna give you an overview is you can very roughly, in my opinion, breakdown the levels of normal, or the levels of intracellular oxidative stress into eight degrees. The degrees would be none, or not readily detectable, like in dormant cells. Minimal, as in non-replicating cells, but metabolically active. The most common stage would be minimal to moderate oxidative stress which represents cells that are viable, and have a high level of physiologic activity, but they're still not technically elevated beyond the normal range, and then the transition zone, moderate. Moderate can be normal or abnormal depending on what the cell is doing. If the, if it's moderate, and the cell is at its baseline it's malignant. If it's moderate, and the cell is actively replicating you still have a normal cell.

Then you go up to what you have as a clearly established level of intracellular oxidative stress always associated with cancer, and replicating cancer cells. Now, stages six, seven, and eight just then refer to when you continue to push the calcium up you first make a quote on quote, "normal" cancer into a very invasive metastatic anaplastic cancer, and then when you push it even higher then you finally increase intracellular oxidative stress to the point that the cell begins to die. A moderate increase apoptosis, a very rapid, huge increase frank cell necrosis and rupture.

Now, it's good to have a little idea of we're now centering on calcium levels inside the cells, and I'm gonna show you that that's the most important factor that we're gonna direct our attention at in terms of pathology, and in terms of

effective treatment. What controls calcium levels inside the cell? Permeability, that's pretty straightforward. The ability to have buffer proteins that bind up calcium inside the cell, so what of, when I say intracellular, increased intracellular calcium I'm talking about in the cytoplasm, not in the organelles, but in the cytoplasm.

Then you have other ways that these organelles can take calcium out of the cell. You have a mechanism called a calcium pump that's energy requiring, but here's the biggie. This is the iron, this-this is the-the main way in which calcium not only enters the cell, but that you can potentially lower calcium levels, hopefully, in some cases to a normal level, and that is the calcium channels. It's interesting because the calcium channel you have your membrane here, the calcium channel is really just a big protein that just sits right across, and it has the function of bringing calcium into the cell, unless, of course, there's something that's blocking its function, and these are the calcium channel blockers.

Now, I already showed you little eight stages of increased intracellular oxidative stress. Now let me give you what I consider to be some of the more riveting tidbits I plucked out of the literature to tell you how calcium relates to some of the most important things that we're talking about. Number one, it in fact, is the highest levels of intracellular calcium that ultimately result in cell death, okay?

Here's a super biggie. Toxins routinely increase intracellular levels of calcium with resulting increased intracellular oxidative stress, and if unchecked cell death, so that's how toxin kills. The toxin kills by flooding your cell with calcium. Very simple, very straightforward. And, in fact, in studies that have looked at cells in chronic degenerative diseases, and they don't have a study on each chronic degenerative disease, but they looked at ALS, Parkinson's and Alzheimer's, and consistently saw elevated intracellular calcium levels inside those cells.

Now calcium channel blockers, pharmacological agents, Diltiazem, Verapamil, Nifedipine those are the three classes. They work to prevent the ability of calcium to utilize those channels, thereby, lowering the levels inside the cells. Most commonly calcium channel blockers pharmacologically are prescribed, and used for relieving vascular tone. In other words, letting enough, uh, depleting muscular cells of enough calcium so that they can no longer contract hard, and when the calcium channel overdoes it you have hypotension.

Now, here's a little bit of a leap, but a completely logical leap, and I'll support it with even more data after I set this idea in motion. For calcium channel blockers to work as anti-hypertensive effects, and to have their many other positive clinical effects, and there's a large number of studies I'm not showing you that shows calcium channel blockers have a positive effect on a huge wide array of unrelated medical conditions. The direct implication is that a state of calcium excess inside the cells must exist in the first place. That's how it has its function

is to decrease calcium levels inside the cell, and if there's not a pathological level of calcium inside the cell already, then how can it have a positive effect?

Uh, these are some of the other things calcium channel blockers have been known to take care of. These are, of course, muscular spasm things, coronary spasm, angina, pulmonary hypertension, Raynaud's phenomenon. Here's a few things that aren't directly related to vascular. Acute head trauma, epilepsy, chemotherapy-induced peripheral neuropathy, and Alzheimer's, Parkinson's, even osteoporosis.

Okay, so we're sort of setting the stage. I'm giving you the body of data to show that, basically, all of us in this room have excess calcium inside our cells. Believe me, none of us have a normal status. Calcium channel blockers, remember what I said about toxins increasing the calcium, and causing cell death. Calcium channel blockers will prevent the neurologic damage from Methylmercury in rats, okay? So the Methylmercury pushes in a lot of calcium. The calcium channel blockers block that effect, and they block the effective toxicity of Methylmercury.

Here's a super biggie. Calcium channel blockers, long-acting forms to be specific, not the short-acting forms, but long-acting forms of calcium channel blockers, guess what? They decrease your risk of chance for, uh, they decrease your risk of death from everything. They decrease all-cause mortality. So I pose the question to you. If something decreases your chance of death from everything it means it's positively impacting really all the cells in your body, and that that increased calcium has to be part of the pathology.

Here's another one. Calcium channel blocker use is inversely related to prostate cancer incidence. And, also, I told you how it played such a role in causing increased malignant transformation in cells, well, look at this. Calcium channel blockers also decrease iron accumulation, and believe me, you also cannot have a cancer cell without a substantial increase in iron inside the cytoplasm.

Okay, so the five main causes of body-wide calcium excess which I'm saying all of us have, and those that have osteoporosis have even greater calcium body-wide excesses than those that don't because they've been releasing it into their body for years. Excess calcium intake, okay. Excess calcium mobilization. Deficient vitamin C, and antioxidant stores, and then two additional biggies. Sites of chronic infection, and inflammation, especially, root canals, and the tonsils that drain those root canals, and chronic deficiencies of important regulatory hormones. I'll give you a little more info on these in a moment.

Now, a few more tidbits. A third of the people over the ripe old age of 45 in this country have detectable calcium on different types of scanning, CT scan. Let me step back for a moment, and tell you right now I don't care how old you get, what disease process you develop, what you eventually die from. I'm gonna tell you something, and please remember it. There is no such thing as a normal

calcium deposit outside of your bones. That is never normal, and just because if you have anything to do with the healthcare res, uh, industry, and you look at x-rays, or you see echo-cardiograms.

I see echo-cardiograms all day long on 70 and 80-year-old people, and everything's calcified. The aorta, the coronary arteries, the mitral valve, the aortic valve, the supporting structures, it's all over, they're not normal.

Now, extracellular calcifications. Remember now, calcium even at its elevated levels is still very low inside the cell, so you're not gonna see calcium deposits inside the cells. They're all gonna be outside the cells where you have that 10,000 fold, or more higher concentration. They've made magnetic resonant imaging a bit more sophisticated these days, and they took 23 prostate cancer patients, and they found prostatic calcifications at a mere 22. Okay?

Here's another one. This actually really started me thinking on this whole concept of calcium toxicity, the information that Dr. Huggins had started passing onto me from 1994 on was when the New England Journal in its lead article in 1997, the title pretty close to verbatim said, "Women with the highest bone density have the greatest incidence of breast cancer." Now, based on what I've been talking about which women would have the highest bone density? The supplementors.

So the women that had been taking the most calcium, this-this was an early on indicator of the literature that subsequently developed epidemiologically, but it was crystal clear. You take, uh, well here's another question. Anybody have any idea how you find cancer on a mammogram? Calcifications. Okay?

Now, I'm saying super big a lot, but they're all big, I'm sorry. Coronary artery calcium, this was something that the cardiologists, I don't know why, sort of thought for a while as being something we should rely on, but let me just first say, coronary artery calcification is a very strong statistical indicator of future cardiac events, heart attacks, et cetera, okay?

Now, would it not stand to reason that if you're accumulating calcium in your coronary arteries you're accumulating it everywhere else in your body. No reason you should just pick out the calcium, uh, pick out the coronary artery. Well, guess what? These coronary calcium scores they do reliably predict heart disease death, but guess what? Also, death from all causes. Okay? So it predicts death from all causes because it's an indicator of your elevated calcium everywhere in your body, and not just in your coronary arteries.

Okay, a few more things about C. High vitamin C, low coronary calcium score, and high vitamin C levels lower all-cause mortality. Now intracellular. All this we just talked about was outside the cell, extracellular. Now let's look at intracellular calcium. Intracellular calcium not only has a well-established relationship to the malignant state that I showed you earlier in those eight

stages, but it's been shown quite elegantly that it further increases intracellular calcium, increased the degree of cancer cell proliferative, and invasiveness in metastatic capacity, so it shows that if you already have a cancer cell more calcium inside the cell is gonna make it more anaplastic, more invasive, more metastatic, more malignant.

Conversely, they developed some technology, and methodology in experimental situations where they could actually get calcium back out of the cell, so when they did that they found that the removal of calcium from the intracellular space decreased metastatic capacity, so the two things in combination go a long way to say that this is cause-and-effect with calcium, not association, not relation, cause-and-effect. More calcium inside the cell, more oxidative stress, more disease, more cancer, less calcium, less disease, less cancer, et cetera.

Okay, now we can start with a little bit of the good news. Good, this lady is finally smiling. Oh God, you've just, you've had such a, such a horrible look on your face, I'm sorry, but we'll-we'll turn that frown into a smile now, okay? All right.

Osteoporosis reversal agents, and I'm saying osteoporosis, but we're talking here about more technically speaking calcium metabolism normalization agents, okay? Magnesium, everybody knows how much I love vitamin C. Magnesium sort of wins out on this one, and I'm gonna tell you why. Magnesium is a natural calcium channel blocker. Calcium and magnesium are biologically antagonist. The more you have of one, the less you have of the other. That's nice, that's already telling you something. Get that magnesium inside your body, okay?

Also, magnesium dissolves calcium deposits. Its deficiency increases intracellular calcium. They looked at that. As a monotherapy, just taking magnesium by itself it will decrease, increase bone density, and decrease fracture incidence, and guess what else it does? As a monotherapy it decreases your chance of everything, of anything. (chuckles) Well, easy for me to say. It decreases your chance of death from all causes, okay? And it's non-toxic.

I got to take this aside right now to tell you 'cause it's not in the slides. In the course of the research for this book I ran across two mind numbing articles. Mind numbing for me, and you can tell me if it numbs your mind, too. They had two separate studies that looked at patients that either had myocardial infarction's, or unstable angina in the coronary care unit, and in one study they did it for 24 hours, and the other study they did it for 36 hours, but they infused as a steady-state infusion around the clock up to 22 grams of magnesium sulfate over a day-and-a-half, okay?

And that was, uh, that was it, that was the only therapy. Now they saw the great things that they were looking for in improving cardiac status, but they almost said as an aside, and you can, you can read the abstract for yourself, and-and see how they parsed it, how they phrased it, but guess what? In the patients

that received a day-and-a-half of magnesium their all-cause mortality was reduced for five years.

There is nothing that I know of. Anybody can tell me something, please. I know of nothing that you can take in any dose for a day-and-a-half, and never take it again, and have it positively impact your chance of death for five years. That's how important magnesium is. You could, you could, you could take three times your body weight in vitamin C over a day-and-a-half, and it's not gonna decrease your chance of death for five years. It will increase your chance of death for a few days, but not for five years.

Vitamin K, super important, activates the proteins that are known to inhibit ectopic calcification, osteocalcin, matrix Gla protein. Again, like magnesium, helps dissolve existing calcifications. Also, very effectively decreases the risk of fracture. The Japanese sort of led the way on vitamin K, and its relationship to osteoporosis, its relationship to osteoporotic fracture.

I don't know why, even today when we take vitamin K, and vitamin K2, we're taking micrograms, or one or two milligram. Well, the Japanese take 45 milligrams a day, and they do great, okay? So, ones got to catch up with the other because the Japanese aren't fracturing their bones. They're living longer, and they're doing it right.

And, once again, it's becoming a common theme. Vitamin K decreases all-cause mortality, and you should really, other than calcium channel blockers, try to find me one pharmacological prescription drug that can do that. I'm not sure it exists, and, also, no definable toxicity. Vitamin C, well, I've hammered you pretty hard on that, but it also decreases all-cause mortality.

Now, I've shown you four different agents here. Four, or three, four, three, three. I'm gonna show you a fourth that decrease all-cause mortality, and that clearly, positively, in fact, calcium metabolism, and I'm telling you that the logical conclusion, I can't look inside every one of your trillion cells, but I could tell you the logical conclusion is that the only way these things can decrease your all, all-cause mortality, and have these type of effects on calcium is because they're lessening the degree of calcium excess that you have inside your body as a result of the toxic world, and the inevitable osteopenia, leading into osteoporosis we all have from 55, 60 on because we just look at symptoms.

We don't get rid of our dental toxicity long enough. If you never got a root canal in your mouth, and you never developed gum disease, and you ate the perfect diet, you might actually have healthy bones until you're 80, but not many people do.

Vitamin D, very important to understand. Vitamin D is extremely critical to your health. Not too many years ago it was commonly felt vitamin D just messed with calcium, just affected calcium uptake, and affected calcium incorporation into

your bones. Well, in the last few decades they've actually discovered specific receptors for vitamin D on every cell in your body. Now do you think God and nature, or whatever your belief system is would put a receptor somewhere where it was pointless of binding with something else, and, in fact, vitamin D is critical for regulating up to 2,000 genes, okay?

Now, deficiency causes osteoporosis. Hey, excess worsens osteoporosis, so you can't stick your head in the sand on vitamin D. You got to tackle it head-on, and say, "I'm gonna supplement it. I'm gonna get my blood checked. I'm gonna get it in the right range, and I'm gonna stay on that." You can't do it willy-nilly. Probably, most adults will end up in a good range taking 5,000 units a day, but that's just a guesstimate. You want to take the amount that long-term is gonna put you into the 50 to 80 nanogram range per cc.

Here's another of that theme. In the therapeutic range vitamin D decreases all-cause mortality. Essential fatty acids, these are good too. They have calcium channel blockers, blocking effect. They afford protection against loss of bone mineral density. They, too, relate to decreased all-cause mortality, and they have no clear toxic effects other than causing GI distress at higher doses.

Okay, now, I'm gonna hit you with a little information on estrogen for the ladies, testosterone for the men, and thyroid hormone for both, okay? But I want to start out by saying nobody should take, no lady should take any estrogen unless they have a clearly below normal level of estrogen. Don't be messing with it if you're anywhere in the normal range. You got to be out of the normal range. Same thing for testosterone. Never supplement that, or try to correct a low-normal deficiency, to a high-normal deficiency. That's where you get into your troubles.

So, you want to establish for sure your levels are low, and you don't want to shoot for restitution to push yourself more than low-normal, or at most mid-range normal. You see these studies increase heart attacks, blah-blah-blah, well that's true if you supplement recklessly too high a dose, wrong form, but I've got news for you. This is a little bit like vitamin D. You can't stick your head in the sand, and decide you don't want to mess with it because if estrogen stays below normal, and testosterone stays below normal, your increase of death from heart attack shoots up, okay?

So it has to be addressed, but it has to be addressed intelligently. And, in fact, with regard to calcium metabolism estrogen is very critical. Decreases ectopic calcifications, lessens, very profoundly, the decrease of osteoporotic fractures, so if you're a lady, and you have a below normal level of estrogen, definitely you need to get together with your doc, and get on a regimen, and, again, it's deficiency increases all-cause mortality which sort of implies that restituting it decreases all-cause mortality, and its deficiency, like I said with heart disease promotes the metabolic syndrome. Metabolic syndrome is high cholesterol, high triglycerides, elevated blood sugar, and an increased risk of atherosclerosis.

Testosterone. It's deficiency is also a clear risk factor for fractures. It also, guess what? Has calcium channel blocking abilities. Prostate cancer is frequently associated with low testosterone levels. There's a little fear out there about testosterone therapy, and prostate cancer. I'm gonna address that in a little more detail for you on the next slide, but once again, remember that its deficiency increases all-cause mortality, and that the higher you get it within the normal range, of course, the less likely you are to have ectopic calcifications in your coronaries.

Now, the docs here know, and probably a lot of the rest of you here know is that when a man gets put on testosterone replacement therapy part of the routine follow-up is prostate specific antigen testing, PSA. Why is that? Well, here's where the misinformation gets a little fouled up. If you have existing cancer cells in the prostate, testosterone will accelerate, and promote their growth.

So, you're on testosterone for a while, and the PSA starts going up. Yes, that's an alarm sign. You need to address your prostate, but this does not mean that testosterone causes malignant transformation of the prostate. If there is no preexisting cancer in the prostate it's not going to make you more likely to have cancer. In fact, it's gonna make you less likely to have cancer. You don't have to frown so much, you're not a man. (laughs)

Uh, all right, thyroid hormone. Now, this is gonna be vague, but I'm gonna try to make it as specifically vague as possible. Thyroid function tests suck. If you're phenomenally hyperthyroid, or profoundly hypothyroid they'll give you the diagnosis. Unfortunately, a very large number of people have very mild hypothyroidism that's not reflective on standard thyroid testing, and if all you do is look at thyroid testing to guide therapy a very large number of people that are mild-to-moderately hypothyroid will be neglected, and not taken care of, and this is important because like all these other factors low thyroid increases all-cause mortality, and getting thyroid function into a clinically normal range is going to normalize the abnormal blood work that you usually see with metabolic syndrome leading to heart attack.

Now, here's where the real vague part comes. You got to have a doctor that will work with you, and that's more interested in looking at your clinical symptom profile, and following other non-thyroid blood work that can demonstrate whether a small amount of thyroid supplementation is helping to normalize cholesterol, decrease triglycerides. Those are all the real indicators of whether or not the thyroid supplementations you're taking, along with feeling better. I can't tell you the number of doctors they start you on something because there's a little bit of aberration of the thyroid test. You come back a month later feeling great, but the thyroid functions now are so far out of whack, he said, "Oh my God, get off that thyroid hormone."

So, it's a gray zone. I wish I had more specific information to give you, and I'm sure a year from now I won't agree with everything I'm saying right now because it's a feeling out process, but bottom line is with thyroid you need clinical evaluation, and you need to know that your other abnormal blood work is showing normalizing tendencies that's contrasted to abnormal, all right? You should definitely be weary if you're supplementing thyroid, and even if you're feeling a little bit better the cholesterol is starting to shoot up, the triglyceride is starting to shoot up, you're starting to get slight elevations in your fasting blood sugar. Then you need to back-off again, so it's very much as contrasted to other things that we doctors do. This is very much into the art of medicine.

Okay, now, these are what I consider to be the primary, if not effectively the only, but certainly the primary goals that allow you to reverse osteoporosis, and chronic degenerative disease, and let me be specific. I'm talking about reversing atherosclerosis, making narrowed arteries, go into a normal direction, making pre-malignant cells go back into a normal state, making arthritis lessen, okay?

The biggie are the top two. Minimize new toxin exposure. I say minimize, you can't eliminate it. You got crummy food, crummy water, come-crummy air, you got toxins that you can't, that you can't block. Eradicate acute and chronic infections. Sounds simple, but it's not. It has to be a little bit of Sherlock Holmes here because they're not always apparent, but they're very, very significant clinically. If you have a doc to work with eliminate accumulated toxins, but it's good to have someone who's going to work on this. Unless you're very acutely ill, and things need to be done quickly you want all detoxification programs to proceed slowly because detoxification is also retoxification, and as I like to say you don't want to kill the roaches by burning down the house, okay?

You want to normalize regulatory hormones. I like to say, you know, you might have an 80-year-old guy, and he really wants to get that energy back, and you just whop him with testosterone, and you still keep him in the normal range, high-normal. Well, you've just put jet fuel in a Model T. He's gonna have a good time for a while, and then he's gonna crash.

Optimize antioxidant levels, and yes, you heard it here first. Selectively and appropriately utilize prescription medications, so you know, I'm not saying don't take an antibiotic. Certainly, I'm not saying don't take a calcium channel antagonist. Don't take, I'm not saying don't take a good anti-hypertensive agent, a beta-blocker, or an ACE inhibitor. I mean, you got to get your blood pressure controlled.

Okay, now, minimize new toxins. Number one, I hope, this one's pretty obvious now. No calcium, iron, or copper supplementation. Dental toxins, number one, root canals. Let me state this perfectly clear. I consider the current evidence in the literature to show that the root canal treated tooth is the number one cause of heart attack. It's also the number one cause of cancers in the head, neck, and

chest because of shared lymphatics and venous blood supply with all of the toxins and pathogens that are present in these teeth.

I could give you a couple hours of information on root canals. We don't have that, but I want to set that apart, and make that clear, and I'm gonna tell you right now in a general way because I can't give anybody specific medical information here, but I'm gonna tell you if you're trying to treat a disease, trying to treat a cancer, trying to treat anything, and you're hanging onto your root canal, you're gonna lose. You're certainly going to get less benefit, and have a shorter life than you would have otherwise, okay? With very, very rare exceptions. I mean nothing's 100%.

I mean, if you have a root canal, or you're gonna have a cancer, or heart attack for sure, no. Are your chances excellent of having one? Yes. Is your ability to respond to a protocol going to be severely impaired by keeping them in? Yes. So, we have a lot more information on this. That's all I got for you right now, and so you could go back to the scared looks, okay. (chuckles)

Um, gum disease, important. Cavitation is important. Dental implants changed a little bit on this, and people say, "What happens when I get the root canal out?" Two things. The dentist has to take out the periodontal ligament which is simple, but most dentists don't do it, and you got to clean out all the infected bone, so that you go-go back to good, hard, normal bone, and then do all the things you need to do to promote good bone growth, and at four to six months after bone has grown back in then you can address an implant procedure.

If you address an implant procedure as is commonly done the same day, or within a week, you're-you're just pushing necrotic, infected bone deep into the bone, and you're not assuring yourself of an implant failure, but you're massively increasing the chances of one, and an implant is never gonna be horrible like a root canal because it doesn't have the draining lymph, and blood supply, okay? When you have a root canal you have the native root sitting there. The tooth filled with toxins, and pathogens, and every time you chew you just squeeze it out like a pump. Okay?

Now, really big, dietary, digestive. Um, whenever I'm in California I know there's so many people out here, and I'm-I'm not being critical. I'm just commenting, that are-are so diligent about their diet, and that's great, you should be. You should know everything that goes inside your mouth, and you shouldn't take in garbage, but let me tell you where the real toxicity comes from in the gut. It comes from rotting undigested food, okay?

If you eat McDonald's everyday of your life, and every now and then sprinkle in Burger King, but you digest it perfectly, you'll have vastly less toxicity coming into your body then if you ate the finest organic diet everyday with poor food combining, okay? How do you know if you're digesting well? Well, number-number one, first and foremost is how often do you poop? Okay? You should be

having a bowel movement at least twice a day, no more, no less than one-and-a-half times a day, so at least once one day, twice the next day.

What's your natural [inaudible 01:05:02] You have a little baby. Give the baby food it poos. Food-poo, food-poo, it's just a really nice straightforward relationship. How do I come up with these figures? Well, at the beginning part of the century the Nobel Prize winning physiologist doc, Dr. Ivan Pavlov was doing experiments on what were called grotesquely enough "isolated dog stomach preps," so they had dogs that were cut apart, but they could put food into the stomach.

Well, I don't know what inspired Dr. Pavlov to take this approach, but he put starch by itself into the stomach. How long you think it took to reach the pylorus? 60 to 90 minutes. Okay. Then he took ground-up meat chips, all by itself, and put it into the stomach. It took about three hours. Now, he took starch and meat chips, and put it in the stomach together. Anybody ever eat starch with their meat? You know how long it stayed in the stomach? Oh no, nine hours, nine hours, but you'll never have a bowel movement in 12 to 18 hours with these type of combinations, okay? And what always happens is as digestion slows down putrefaction kicks up, and the bacteria in the gut, the clostridium, when they get trapped in the anaerobic environment of the gut, guess what? You have the gut equivalent now of several more root canals.

Eradicate infections, very important. I don't have a lot of time. I will tell you that when you have a root canal, for not that long, probably a few months, but, definitely, after a few years the ipsilateral, same side tonsil is trashed. That tonsil has been draining, uh, uh, pus, and-and necrosis, and pathogens, and toxins for so long it's overwhelmed, and it now becomes what it tried to prevent, a source of focal infection.

Dr. Issels not only took out root canals, he took out tonsils, too. I will tell you this. I'm not talking about wholesale taking out of tonsils because for one thing it's a brutal operation. I had it done, it nearly killed me. I'm glad I did, but it nearly killed me. If, however, you've had your root canals taken out, and you've done everything that you know how to perf, to make your diet perfect, you're food combining, your supplements, you can't find infections anywhere else in your body, and you still have a lousy C-reactive protein, or a lousy elevated cholesterol, you should give serious consideration to a tonsillectomy.

A quick personal story. I faced this very scenario. About two years ago I started getting chest pain when I ran after my dog. I said, "Oh, you idiot. I, after all you've talked about here, you're gonna go, and drop dead on top of your dog." And I scavenged my mind, I said, "What's going?" I had been fighting elevated CRP's, elevated cholesterol's. I'd take five IV's in a row on a daily basis of vitamin C, 150 milligrams. It would bring it down a little bit, and then it'd go back up again, and after I got this chest pain, I said, "There's no more waiting. You've read Issels' work, you know the physiology."

So what did I do? I found myself a friendly ENT, and the first thing I did was lie my brains out. I said, "I can't take another bout of tonsillitis. I've had it. Take these out." "Okay, all right, we'll do it." And he did the examination, said, "They looked fine." He said, "Maybe a little bit enlarged, but they looked perfect," and that's what Issel's repeatedly found that morphologically they looked great.

I got them taken out, and then I saw the doctor right after. He said, he said, "Tom, Doc, uh, that's pretty interesting." I said, "What do you mean?" He said, "Well, as soon as I grabbed that tonsil on the left side," which was the side where I had had my root canal 20 years earlier, "as soon as I grabbed that tonsil pus started coming out." Well, I didn't have a care-caregiver, and I nearly died in the next few days, but I managed to give myself IV's at three o'clock in the morning, and survived, so end of it, but never take a tonsillectomy lightly, but never rule it out as a potentially life-saving procedure.

Okay, uh, detox, we talked about hormone deficiencies, and where you shoot for. This is a basic overall protocol. This is in the book, and I'm not gonna go into detail on this, but you do need when you look at calcium, coronary artery calcium scores, if you think your protocol is great, and you have a number at day one, and six months later that number is higher, your protocol is not so great. These things I'm telling you should lower your coronary artery calcium score unless it's already at zero.

Okay, and then finally, then the five things, my recap. All-all chronic degenerative disease feature increased extracellular, and intracellular levels of calcium. All of them. Calcium deficiency in the bones, calcium excess in the rest of the body. Important, vitamin D. Remember, you got to have a normal range of vitamin D in your body, or you're not addressing an extremely critical factor in your long-term health, and your longevity, and you got to do it with a blood test.

Uh, oh final thing, uh, this-this might help put a few smiles on the frowns, too. I told you about calcium. Okay, God, no, never drink a glass of milk, but you could have all the butter you want, you could have all the sour cream you want, you can have all the heavy whipping cream you want, okay? And-and if you want some cheese, have some cheese every now and then, or have some yogurt every now and then, but just don't make them dietary staples. Okay, and finally, death from all causes is increased by calcium intake whether from calcium supplementation, or increased dietary calcium, or both. There you go.
(applause)