

# Brief Critique of “Supplemental Vitamins and Minerals for CVD Prevention and Treatment” in *Journal of the American College of Cardiology* 2018



**ALEX VASQUEZ DO DC ND FACN**  
Clinician, Researcher, Lecturer, Academician, Consultant, Author



- ▶ Major books include *Inflammation Mastery 4<sup>th</sup> Edition* (and any later versions) printed also in separate and progressive volumes as *Textbook of Clinical Nutrition and Functional Medicine* (2016), with excerpts published as *Brain Inflammation* (2016), *Human Microbiome and Dysbiosis in Clinical Disease* (2015); anticipated new books include *Deciphering the Gut-Brain Axis in Clinical Practice* (2018) from which *Autism, Dysbiosis, and the Gut-Brain Axis* (2017) has been prereleased.
- ▶ Peer-reviewed/independent publications include: *The Lancet.com*, *British Medical Journal* (BMJ), *Annals of Pharmacotherapy*, *Nutritional Perspectives*, *Journal of Manipulative and Physiological Therapeutics* (JMPT), *Journal of the American Medical Association* (JAMA), *Original Internist*, *Integrative Medicine*, *Holistic Primary Care*, *Alternative Therapies in Health and Medicine*, *Journal of the American Osteopathic Association* (JAOA), *Dynamic Chiropractic*, *Journal of Clinical Endocrinology and Metabolism*, *Current Asthma and Allergy Reports*, *Complementary Therapies in Clinical Practice*, *Nature Reviews Rheumatology*, *Annals of the New York Academy of Sciences*, and *Arthritis & Rheumatism*, the Official Journal of the American College of Rheumatology.

The video of this presentation is archived at [ichnfm.org/18](http://ichnfm.org/18), and the transcript in PDF format—which is considered the final and citable version—is archived at [academia.edu/36790803](http://academia.edu/36790803); any corrections or updates will be made to the PDF file. The video contains citations which are not replicated in the PDF document; both the video and the PDF transcript should be reviewed for a complete representation of the information. This version was updated on **June 21, 2018**.

**Introduction:** “Hello everyone, Dr. Alex Vasquez here with a quick review of the recently published article, “Supplemental Vitamins and Minerals for Cardiovascular Disease Prevention and Treatment.” This was published in the June 2018 issue of the *Journal of The American College of Cardiology*. For this very quick presentation, I am going to discuss the following content, that is 1) the publication context of this article, 2) article’s details and design, 3) errors in this article, 4) exemplification in which I will provide several real-world examples that demonstrate the errors within this article and also 5) how to improve this line of research. This video will be produced in two versions, the shorter of which you are currently viewing. The longer version will be available through various channels including:

1. My [Facebook page, Inflammation Mastery](#), which is basically updated daily with news and videos,
2. My video archive on [Vimeo which is Dr. Vasquez](#),
3. Thirdly, the [ichnfm.org website /18](http://ichnfm.org/18). This is the 2018 archive of free videos and PDF transcripts.

The goal of this second or shorter version of this video is to emphasize the significance of one of the errors in this published article. Other sections will be covered quickly herein. Viewers can pause the video to read the slides and or see the longer version for more details. Now I will start with part one, which is the context, specifically *Journal of the American College of Cardiology*, which was recently discussed in a 2017 article published in the *British Medical Journal* titled “Payments by U.S. Pharmaceutical and Medical Device Manufacturers to U.S. Medical Journal

Editors.”<sup>1</sup> What was noted in this research is that the editors of the *Journal of the American College of Cardiology* receive an abundance of extra money from the U.S. pharmaceutical and medical device industry. And as you can see here from a related article, quote, “Worst on the list is *Journal of the American College of Cardiology* were 19 of its editors received on average, nearly half a million dollars personally and another \$120,000 dollars for “research.”<sup>2</sup> Number two, let's take a look at the article itself and comment on the design. This is published in the *Journal of the American College of Cardiology* 2018 June. This is a meta-analysis regarding cardiovascular disease outcomes and all-cause mortality associated with the use of supplemental vitamins and minerals. Findings reported in this article are [paraphrased] “Conclusive evidence for the benefit of any supplement across all dietary backgrounds including deficiency and sufficiency was not demonstrated, therefore any benefits seen must be balanced against the possible—or in this case, *purposed and hypothesized*—risk of nutritional supplementation.”

DR VASQUEZ'S  
RESEARCH  
REVIEW

**1. Context**

2. Article, design

3. Errors in this article

4. Exemplification

5. How to improve this line of research

## Journal of the American College of Cardiology (JACC)

### Industry Payments to Editors

Journal	General pay (\$)	Research (\$)
JAMA	6331	84 516
JACC	475 072	119 407
J Clinical Oncology	5 957	160 304
J Infectious Disease	44 140	17 526
Diabetes Care	96 688	212 426
JAMA Internal Med	59	122 712

(Liu et al., BMJ, 2018)

The average 'in hand' payment in 2014 alone was US\$27,564, plus research funds.

Worst on that list is the *Journal of the American College of Cardiology (JACC)*, where 19 of its editors received, on average, US\$475,072 personally and another US\$119,407 for 'research'.

“Supplemental  
Payments by US pharmaceutical and medical device manufacturers to US medical journal editors: retrospective observational study

Cite this as: *BMJ* 2017;359:j4619  
<http://dx.doi.org/10.1136/bmj.j4619>

Jessica J Liu,<sup>1,2</sup> Chaim M Bell,<sup>1,2,3,4</sup> John J Matelski,<sup>2</sup> Allan S Detsky,<sup>1,2,3</sup> Peter Cram<sup>1,2,3,4</sup>

**ABSTRACT**  
**OBJECTIVE**  
To estimate financial payments from industry to US

urology (\$480, \$90-669). For high impact general medicine journals, median payments were \$0 (\$0-14). A review of the 52 journal websites revealed

MacDonald F. This Is The Sickening Amount Pharmaceutical Companies Pay Top Journal Editors: Scientific publishing is totally broken. [sciencealert.com/how-much-top-journal-editors-get-paid-by-big-pharma-corrupt](http://sciencealert.com/how-much-top-journal-editors-get-paid-by-big-pharma-corrupt) 2018 Apr

Some of the notably ridiculous statements in this article—among many contenders—include:

1. “Supplement differences might have influenced outcomes.” I actually considered that to be a ridiculous statement because **of course supplement differences would influence outcomes**.
2. “Adherence to and persistence with supplement use was an issue” with regard to the quality of the research. What that means is, in this case, they did not have [complete] data on which subjects in this research adhered or persisted with supplement use.
3. “Dose-response data was generally not available.” What that means in terms of the quality of the research that they are reviewing is the quality of the research was a very low quality and that, therefore, any conclusions that they make are going to be suspect with regard to reliability.

<sup>1</sup> Payments by US pharmaceutical and medical device manufacturers to US medical journal editors: retrospective observational study. *BMJ* 2017; 359 doi: <https://doi.org/10.1136/bmj.j4619>

<sup>2</sup> This Is the Sickening Amount Pharmaceutical Companies Pay Top Journal Editors. <https://www.sciencealert.com/how-much-top-journal-editors-get-paid-by-big-pharma-corrupt>



4. "Finally, combining different types of antioxidants **might** be suboptimal because their mechanisms of action **might** also be different." So that is basically an absurd statement that really does not have any meaning. So "combining different types of antioxidants might be suboptimal" doesn't make really any sense from a nutritional or medical, or pharmacologic standpoint. In fact, antioxidants generally work synergistically together so the suggestion that combinations might be suboptimal, that requires substantiation. If they're going to state in a research

**The study of nutrition is very similar to the study of Pharmacology. So why is this specialty journal of doctors who are expert in Pharmacology ignoring basic tenets of clinical science?**

In any Pharmacology study, if the authors don't have information about use/compliance, drop-outs, dosage, and formulation(s), then they do NOT have useful and valid data. If they are starting with poor-quality data, then their conclusions will be of even lower quality, and doubly worse if authors are financially incentivized to arrive at a predetermined conclusion that meets the needs of their funders.

publication, they need to substantiate that because actually the opposite is true because the benefits of combined antioxidants actually become additive and synergistic.<sup>3</sup> So basically, they are using here a politic tactic known as *inserting doubt*—they're trying to make the entire field of nutritional science and nutritional supplementation look questionable by inserting unnecessary doubt. This statement is, first of all, meaningless and therefore unnecessary but it does serve the purpose of making nutritional supplementation and nutritional science look bogus or questionable, or unsure and therefore worthy of avoidance. The second part of this sentence is "because their mechanisms of action might be different." Well sure, of course, **different nutrients function in different manners; of course, their mechanisms of action are going to be different**, so again, this statement really doesn't make any sense and it really doesn't belong in a top-tier medical journal.

5. "Nevertheless, when studies containing selenium were removed from the meta-analysis, the significance level favoring control increased." So basically, what they did is they established certain criteria by which they would include certain studies, then they reviewed those studies, then when they saw that selenium actually provided benefit, they removed those selenium studies from their meta-analysis because they showed benefit. That's exactly what's being stated here. When studies containing selenium were removed from the meta-analysis, the significance level favoring control increased. I'll talk more about that later in this quick review.

So basically, this a top-tier medical journal and a medical society publishing ridiculous research. When you read garbage research like this, especially when written by nearly 40 authors and published by a major medical society,

DR VASQUEZ'S RESEARCH REVIEW

1. Context

2. Article, design

3. Errors / major problems in this article

4. Exemplification

5. How to improve this line of research

"Supplemental Vitamins and Minerals for CVD Prevention and Treatment" *Journal of the American College of Cardiology* 2018

**Problems with this headline-making "research"**

1. **Problematic bias of journal:** All medical journals and societies receive millions of dollars from drug companies; in fact, some "medical societies" are nothing more than front groups for drug sales.

2. **Problematic bias of editors:** Note that this same journal was recently described as the most corrupt medical journal in terms of editors receiving massive and powerful\* payments from drug companies: "Worst on that list is the *Journal of the American College of Cardiology* (JACC), where 19 of its editors received, on average, US\$475,072 personally and another US\$119,407 for 'research'." [sciencealert.com/how-much-top-journal-editors-get-paid-by-big-pharma-corrupt](http://sciencealert.com/how-much-top-journal-editors-get-paid-by-big-pharma-corrupt) 2018 Apr \*Experts deserve to be paid for their expertise; but "getting paid for honest work" is quite different from "getting paid an exorbitant amount to leverage and influence from positional power."

3. **Problematic bias of authors funded by drug /processed food industry**

1. Agricultural Bioproducts Innovation Program	11. Haine
2. Unilever = processed foods	12. Canola and Flax Councils of Canada
3. Barilla = processed foods	13. Danone
4. Kellogg's Company	14. Abbott Laboratories
5. Quaker Oats	15. DuPont Nutrition and Health,
6. Procter & Gamble Technical Centre Ltd.	16. United States Department of Agriculture
7. Bayer Consumer Care	17. Bristol-Myers Squibb.
8. Pepsi/Quaker	18. General Mills
9. Soy Foods Association of North America,	19. International Sweeteners Association
10. Coca-Cola Company <i>investigator-initiated, unrestricted grant</i>	20. Nestlé Nutrition Institute
	21. ...his wife is an employee of Unilever Canada

what you need to realize that number one, this data is horribly biased and number two, gross deviations from logic and scientific method are becoming commonplace in the medical research as a reflection of lower social, ethical, intellectual standards and expectations.

Let's look at some more problems with this research on this page. Number one, problematic bias of the journal, number two, problematic bias of the editors. Number three, problematic bias of the authors, notably funded by the drug industry and the processed food industry as you can see in the table at the bottom of this slide.

<sup>3</sup> Health benefits of fruit and vegetables are from additive and synergistic combinations of phytochemicals. *American Journal of Clinical Nutrition* 2003 [academic.oup.com/ajcn/article/78/3/517S/4689990](http://academic.oup.com/ajcn/article/78/3/517S/4689990)

Problem number four that I noticed is the unscientific exclusion of data and that is the failure to include non-English research. What was stated in the article is that non-English research was intentionally excluded from this meta-analysis and my contention, which I state very strongly here, is that, that has no scientific basis. So, this article had nearly 40 authors and was funded by several multinational, multimillion and multibillion-dollar industries. **You can be quite sure that they had the manpower and financial resources to look at data that was published in a language other than English. So the fact that they intentionally ignored that data has nothing to do with the language, what it has to do with is the fact that they didn't want to include that data in their meta-analysis even though that data may have actually been quite important.**

Problem number five mentioned here, they are intentionally excluded data that counters their predetermined narrative. **Data on selenium was excluded from the analysis because that data was actually favorable, showing that nutritional supplementation provided benefit.** The authors state and I quote, "Studies containing selenium were removed from the analysis of antioxidants due to the high percentage of these studies of the left side of the unity line versus the right side of the unity line in the antioxidant forest plot. This is compared to other components of antioxidant mixtures. Removal of the selenium studies resulted in a significant increase in all-cause mortality." I don't see any logic whatsoever in that statement. So, removing certain studies simply because they show benefit within the context of a literature review and meta-analysis is contrary to the very nature of a literature review and meta-analysis.

Point number six that I made here is failure to maintain any clinical or pharmacologic standard. So basically, the data that was reviewed did not allow sufficient assessment for adherence or compliance with treatment nor for dose response relationships, and the third point within that category is that they used different types of supplementation. **By their own admission, the authors have no quality data here** and yet their stated conclusion is that **"vitamin and mineral supplementation" provides no benefit with regard to cardiovascular disease and all-cause mortality.**

Basically, they have no idea what they're looking at because number one, they didn't assess for adherence, number two, they have no dose-response relationship information, and number three, they used may different products but they didn't standardize in any way whatsoever the quality or quantity of the nutrients within those products. As such, their final conclusion is completely invalidated. And that point actually deserves its own emphasis, which I provide here. I call this nutritional *pseudoequivocation*. Basically, they're saying that all vitamin and mineral supplementation provides no value for cardiovascular disease prevention and with regard to all-cause mortality and that is simply illogical when they don't have the data to support that claim.

#### Offensive falsity in a supposedly scholarly publication

- **Equivocation:** Use of ambiguous language to conceal the truth
- **Pseudoequivocation:** When the equivocation is so ridiculous that its falsity is plainly obvious; even worse when the statement is directed toward people with decades of training/education at the doctorate level
- **Selective ignorance:** When a medical society that depends upon the science of pharmacology for its financial success and professional survival pretends that nutrition cannot be understood or studied rationally.

What I'm going to do in the following pages is actually show you some different products and show you the differences in those ingredients in terms of quality and quantity and also diversity and show you why that makes real world differences. Let's start this section which I'm titling here, **how to read and differentiate a multivitamin and mineral supplement label**. As I have taught my students for many years, the only way to understand nutrition is to understand each nutrient and each of its main characteristics in terms of sources, digestion, assimilation, distribution, storage and excretion. Metabolism and biochemistry, also dosages which differ for pediatrics, pregnancy, adults, elderly and patients with specific disease considerations, especially including renal and hepatic insufficiency. We also have to be aware of nutrient interactions, synergy and antagonism, drug and disease interactions and also then clinical applications, durations and reasonable expectations. So now let's look at some different product labels and see if we can tell the difference between high quality and low-quality products.

1. **Multivitamin/mineral example #1:** This product contains vitamin A and beta-carotene, presumably synthetic. The problem with supplementing with beta-carotene alone is that it blocks the absorption of other carotenoids. Vitamin D here was provided in the form of vitamin D2, which is generally considered to be ineffective as vitamin D3 cholecalciferol is the appropriate human nutrient. Furthermore, the dose is completely inadequate

at 400 international units—that is not an adequate dose for an infant let alone for an adult.<sup>4</sup> The common dose these days is 4,000 to 10,000 international units per day; so this supplement provides less than 10% of what would be adequate if it was provided in the proper form, which it is not. Vitamin D2 is considered to be about 30 to 50% as effective as vitamin D3. Vitamin E here is in the synthetic form of DL'alpha tocopherol acetate. Vitamin E is actually a family of different compounds and should at least include mixed tocopherols with an emphasis on gamma-tocopherol. As with the carotenoids as I mentioned previously, supplementation with one tocopherol may block absorption of other tocopherols and that's why we need to use a balanced or mixed tocopherol blend. The dose of vitamin B6 in this case is completely inadequate and it's also in the form of pyridoxine hydrochloride—that is an inactive form of vitamin B6. Vitamin B6, when it's in the pyridoxine hydrochloride form has to get converted into pyridoxal phosphate and that of course requires magnesium, it also has an intermediary step that requires riboflavin. The dose is here is far too low at 3 milligrams. Folic acid here was provided at 400 micrograms. Folic acid is basically obsolete these days, most nutrition companies use methylfolate or use folinic acid. Folic acid famously worsens Cerebral Folate Deficiency. Vitamin B12 was provided here in the form of cyanocobalamin which obviously contains cyanide which is a poison, especially for smokers and patients with renal insufficiency. This product claims to contain 30 milligrams of biotin, I consider that highly unlikely. Biotin tends to be one of the more expensive nutrients. The idea that they would put 30 milligrams in

### **Bias and propaganda masquerading as science and specialty medicine—key observations of recent errors**

When false prophets of science pretend to present an informed opinion on a topic on which they are ignorant, their mistakes become plainly obvious to professionals who actually have training in that particular specialty. More generally, in order to conceal their ignorance and motives, false prophets will generally have to break one or more generally accepted truths in the process of attempting to create the desired illusion. When medical authors and groups want to bash nutrition (for example, to make their pharmaceutical employers happy by demeaning the competition) they commonly break common rules and norms regarding Pharmacology, which is ironic considering that many of these medical authors are paid directly (e.g., “research”) or indirectly (e.g., medical school departments) by pharmaceutical companies, ie, they commonly break the rules of the very science (Pharmacology) that underlies their business (Pharmaceuticals). Some of these “rules” include:

- **Identity:** The molecule being discussed, or the combination of a specific formula, must be plainly identified. General descriptions of undefined and varied formulations are not allowed; we as clinicians and researchers must know what is being discussed in order to assess the significance and applicability of the findings. No—all vitamins and minerals do not function in the same way, nor are varying formulations equivalent, and to suggest otherwise is absurd, misleading, and actually insulting to both the professionals being addressed in a scientific publication as well as harmful to the patients that are ultimately on the receiving end of healthcare research information.
- **Dose per patient:** Dose of the treatment must be defined. Without dose and identity, we cannot ascribe causality, nor can we engage in any meaningful conversation.
- **Dose-response relationship:** We look for dose-response relationships which are generally linear up to a certain point before either reaching a plateau of effectiveness or resulting in toxicity. Occasionally, negative efficacy is discovered and represented as a J-shaped curve wherein diseases severity decreases to a particular dosage and then increases.
- **Combinatorial effects, synergism:** Nutrients never function in isolation as they are always components of biochemical pathways, each of which exists in a network of physiologic systems.
- **Polymechnistic “off target” effects:** A common mistake by medical authors when discussing nutrition is to categorize nutrients according to specific functions, as if nutrients functioned specifically. Such categorization reveals the limits of the authors’ knowledge, but also traps them into predetermined conversations based on these erroneous definitions. For example, the idea that vitamin D functions solely to increase calcium absorption misses its other roles in gut mucosal immunity and integrity, its immunomodulatory and tolerogenic effects, its ability to reduce neuroinflammation, and its role in insulin signaling.
- **Adverse “side” effects:** Medical writers commonly allude to “risks” without defining those risks, either because they do not know what they are talking about or because they are simply trying to instill a vague fear and unease in their readers.
- **Collateral benefits:** Nutrients always function via numerous pathways and are thus quite likely to produce collateral benefits, especially in patients transitioning from deficiency to sufficiency.
- **Natural versus foreign compounds:** Natural substances such as vitamins and minerals (also amino acids and fatty acids) are the components of foods and necessary substrates for the structure and function of the human body. As such, these substances do not trigger physiologic responses such as activation of the so-called drug-metabolizing enzymes (e.g., cytochrome p450 superfamily of enzymes) with their attendant production of reactive oxygen species and reactive intermediates. Synthetic vitamins may occasionally result in adverse effects or reduced efficacy (e.g., DL-tocopherol, vitamin D2); furthermore, synthetic vitamins may require nutrient-dependent metabolism (e.g., such as the conversion of pyridoxine hydrochloride to its active form via use of magnesium and riboflavin) before such nutrients are metabolically useful.



this multivitamin is unlikely to the point of being illogical and I think that this product is mislabeled. Such a dose of biotin is pretty unlikely and would be remarkably expensive. Most of the minerals here are provided in their cheapest and worst forms in terms of absorption and they are all subtherapeutically dosed.

2. **Multivitamin/mineral example #2:** Now let's take a look at another product. This product provides vitamins and minerals in their worst and cheapest forms and provides also incomplete descriptions on the label. You'll also notice that it has artificial colors, which are completely unnecessary, as I don't think anybody really cares what color their vitamin pill is, but in this case the two colorants that are used are both azo dyes associated with numerous health problems in humans. Most notably, the yellow dye number 6, which is noted to exacerbate asthma and hyperactivity in children.
3. **Multivitamin/mineral example #3:** Let's look at another product here, this comes from Bayer Healthcare so-called Consumer Care, this is one a day so-called men's health formula. Again, the vitamin D dose is far too low for an adult, vitamin D3 is the proper human nutrient but 700 international units is an inadequate dose for an infant let alone an adult. So, again, the appropriate dose for adults these days starts at about 4,000 international units and goes as high as 10,000 international units, especially for obese patients. Again, vitamin E is a family of different compounds and should at least include mixed and gamma-tocopherols, the dose here is too low. They used here again pyridoxine hydrochloride and that's okay, but this dose is far too low. The dose that was used here was only 3 milligrams as previously. Folic acid is obsolete as I mentioned previously, most nutrition companies use methylfolate or folinic acid and again, folic acid famously worsens Cerebral Folate Deficiency. Vitamin B12 was again provided here in the form of cyanocobalamin which contains cyanide which is a mitochondrial poison. This is especially problematic for smokers and patients with renal insufficiency. Again, here they used the cheapest and worse forms of minerals, all of which are subtherapeutically dosed, but at least this product is better than the one reviewed previously.
4. **Multivitamin/mineral example #4:** Moving on, let's look at another product, this is a multivitamin, multi-mineral called "ProMulti Plus" from Biotics Research. We see that it provides vitamin A and contains a mixture of carotenoids. We also see that it provides vitamin D in the form of vitamin D3 at 2,000 international units. It also contains mixed tocopherols, and it also contains folate in the form of calcium folinate. Vitamin B12 here is provided in the form of hydroxocobalamin. You'll also notice that the dose is quite a bit higher than the previous examples, in this case, both folic acid and hydroxocobalamin are provided at 1,000 micrograms. So generally, what you're looking at here is vitamins in higher doses and also in their active forms. Not only does this form of B12 not contain cyanide, but it actually binds to and removes cyanide and is used in hospital emergency treatment of cyanide poisoning (see video for citations). So, again, this form of vitamin B12 called hydroxocobalamin actually binds onto cyanide and helps remove it from the body. You'll also notice that the minerals in higher doses and also in more absorbable forms.
5. **Multivitamin/mineral example #5:** Let's look at another ingredient list here. This product is called Vasculosirt also from Biotics Research. Vitamin D is provided as vitamin D3 cholecalciferol at 2,000 international units per day. Now notice that difference here with vitamin K. So the vitamin K here is being provided in a form called vitamin K2, also occasionally called vitamin K7, which has been shown to have specific cardiovascular disease preventive benefits. We've got calcium folinate and methylcobalamin this time. And then toward the bottom we notice coenzyme Q10, resveratrol, lipoic acid and acetyl-L carnitine. Now for those of you who understand nutrition, when you see coenzyme Q10, resveratrol, lipoic acid and acetyl-L carnitine together, you should know what's being targeted there. And the significance of this is that what we're looking at here is called nutritional synergism. These nutrients work together, coenzyme Q10, resveratrol, lipoic acid and acetyl-L carnitine to improve mitochondrial function, which is very important for cardiovascular disease treatment and prevention. Also, you notice that this formulation provides many phytochemicals again in an antioxidant blend, which should provide additional benefit.

So now let's compare this ingredient list with the one that we looked at previously in the first example. Nobody who knows anything about nutrition would think that these two products would be capable of providing the same outcome. These products are clearly distinct even though they are both under the title of "vitamin and mineral

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<sup>4</sup> Vasquez A, Manso G, Cannell J. The clinical importance of vitamin D (cholecalciferol): a paradigm shift with implications for all healthcare providers. *Altern Ther Health Med*. 2004 Sep. Download this article in a PDF compilation of all of Dr Vasquez's articles on vitamin D at <http://www.ichnfm.org/d3>

supplements”, but these are **radically different formulas** with **different quantities, qualities and combinations** of nutrients. These are not going to provide the same outcome.

**How to improve nutrition research in medicine:** So now I will conclude with a quick review on how to improve nutritional and medical research such as the study that we're analyzing here.

1. **Micromanagement:** One is, we can micromanage these problems, such as the identification and elimination of systematic bias and the massive pro-pharmacy profiteering culture of medical practice and medical education/training.
2. **Competence in nutrition:** Number two, we can teach doctors to be nutritionally competent so that when they read research, they hold that research to a higher level of intellectual and scientific competence so that junk research like this doesn't get published in the first place. For doctors who want to learn about nutrition, I typically recommend Alan Gaby's book, *Nutritional Medicine*, which is now in its second edition combined with my book, *Inflammation Mastery, which is now in its fourth edition*.
3. **Teach ethics and honesty:** Furthermore, we need to teach ethics. Medical students commonly receive training in “medical ethics”, but most of the exercises are specific to clinical situations appropriate for inexperienced and naïve medical students rather than the broader conceptualizations of ethics that serve to create and maintain a healthy and empowered community with functioning societal infrastructure.
4. **Teach active and expressive literacies:** We also need to teach active literacies so that people will recognize and combat bogus research such as this. Modern education—notably American education as described by Gatto and Chomsky—is designed more to create compliance and subservience to prevailing power structures than it is to create independent thinkers who champion truth and publicly denounce corruption. Active *expressive* literacies—contrasted to the *passive* and *receptive* literacy of reading—such as analysis, speech and debate are needed, ideally along with physical training in various forms (which has also been removed from American education) in order to cultivate a society that is capable of speaking up and speaking out against the various forms of corruption that have now come to permeate and exude from every aspect of governmental, scientific, and academic life.

**Conclusions:** Finally, my conclusion and summary page is provided here. My main concerns are the problematic biases of this journal, the problematic bias of the editors, the problematic bias of the authors who were funded by the drug and processed food industries, the unscientific exclusion of data, especially the failure to include non-English research when they certainly had the resources to translate and include that research. Also, number five, the intentional exclusion of data that counters what appears to have been their predetermined narrative. Finally, number six here, nutritional pseudoequivocation. That is discussing all vitamin and mineral supplements together as if they were equal when clearly they are not and I showed you some very good examples of how to read a nutritional label so that you can tell the difference between a high quality product and a low quality product. And as I state here, haphazardly lumping all nutritional supplements together without due regard for quality, quantity and synergy of those nutrients is intellectually incompetent and scientifically irresponsible. I also talked about some ways to improve this line of research. So, thank you very much for your quick attention. The longer version of this video will be posted on my various channels and again, this has been Dr. Alex Vasquez with a very quick review of this recent article Supplemental Vitamins and Minerals for Cardiovascular Disease Prevention and Treatment published in the *Journal of the American College of Cardiology* June 2018. ✖

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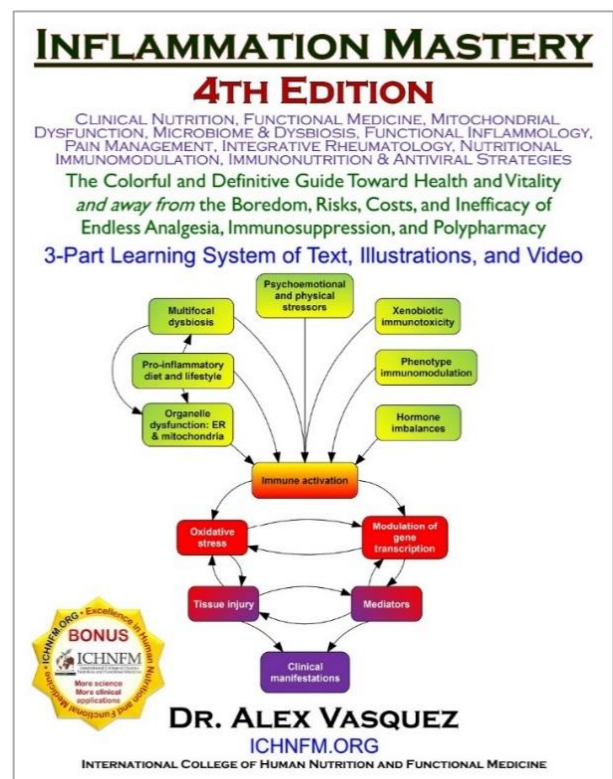
**Comments on the accompanying audio editorial by Dr Valentin Fuster**

JACC Editor Valentin Fuster MD comments that this article published in his journal is a landmark (“Phase #5”) in nutritional science, apparently equal in importance to all of nutritional science on deficiency diseases (“Phase 1”) and other critical advances in nutritional science; such a statement is bravado bordering on hubris. Among other errors, Dr Fuster repeatedly categorizes vitamin A among “antioxidants”, a mistake that would earn him a failing grade in any quality nutrition course, given that vitamin A has essentially no antioxidant activity, especially when compared to carotenoids such as beta-carotene and lycopene, or “professional antioxidants” such as tocopherols.

**About the author:** Dr Vasquez holds three doctoral degrees and has completed hundreds of hours of post-graduate and continuing education in subjects including Obstetrics, Pediatrics, Basic and Advanced Disaster Life Support, Nutrition and Functional Medicine; while in the final year of medical school, Dr Vasquez completed a Pre-Doctoral Research Fellowship in Complementary and Alternative Medicine Research hosted by the US National Institutes of Health (NIH). Dr Vasquez is the author of many textbooks, including the 1200-page [Inflammation Mastery, 4<sup>th</sup> Edition](#). (2016) also published (by popular student request) as a two-volume set titled [Textbook of Clinical Nutrition and Functional Medicine](#). "DrV" has also written approximately 100 letters and articles for professional magazines and medical journals such as *TheLancet.com*, *British Medical Journal (BMJ)*, *Annals of Pharmacotherapy*, *Nutritional Perspectives*, *Journal of Manipulative and Physiological Therapeutics (JMPT)*, *Journal of the American Medical Association (JAMA)*, *Original Internist*, *Integrative Medicine*, *Holistic Primary Care*, *Alternative Therapies in Health and Medicine*, *Journal of the American Osteopathic Association (JAOA)*, *Dynamic Chiropractic*, *Journal of Clinical Endocrinology and Metabolism*, *Current Asthma and Allergy Reports*, *Complementary Therapies in Clinical Practice*, *Nature Reviews Rheumatology*, *Annals of the New York Academy of Sciences*, and *Arthritis & Rheumatism*, the Official Journal of the American College of Rheumatology. Dr Vasquez lectures internationally to healthcare professionals and has a consulting practice and service for doctors and patients. Having served on the Review Boards for *Journal of Pain Research*, *Autoimmune Diseases*, *PLOS One*, *Alternative Therapies in Health and Medicine*, *Neuropeptides*, *International Journal of Clinical Medicine*, *Journal of Inflammation Research* (all PubMed/Medline indexed), *Integrated Blood Pressure Control*, *Journal of Biological Physics and Chemistry*, and *Journal of Naturopathic Medicine* and as the founding Editor of *Naturopathy Digest*, Dr Vasquez is currently the Editor of *International Journal of Human Nutrition and Functional Medicine* and the Director for International Conference on Human Nutrition and Functional Medicine. Dr Vasquez has also served as a consultant researcher and lecturer for Biotics Research Corporation.

**Contextualizing resource**—same information in different formats and contexts:

- [Inflammation Mastery, 4th Edition](https://www.amazon.com/dp/B01KMZZLAQ/) <https://www.amazon.com/dp/B01KMZZLAQ/> and
- [Textbook of Clinical Nutrition and Functional Medicine, vol. 1: Essential Knowledge for Safe Action and Effective Treatment](https://www.amazon.com/dp/B01JDIOHR6/) <https://www.amazon.com/dp/B01JDIOHR6/>



**Introductory videos:**

- Video introduction to books: <http://www.ichnfm.org/im4> and other videos: <http://www.ichnfm.org/18>
- Conference presentation—introducing the clinical protocol: <http://www.ichnfm.org/video-funct-inflam-1>



### Persistent inadequacies in nutrition education/training among physicians

**Introduction:** Despite the acknowledged importance of diet in the prevention of obesity, diabetes, hypertension and other components of cardiometabolic syndrome/disease, physicians are consistently and systematically untrained in nutrition. A few exemplary citations are summarized per the following:

- What do resident physicians know about nutrition? (J Am Coll Nutr 2008 Apr<sup>29</sup>): "OBJECTIVE: Despite the increased emphasis on obesity and diet-related diseases, nutrition education remains lacking in many internal medicine training programs. We evaluated the attitudes, self-perceived proficiency, and knowledge related to clinical nutrition among a cohort of internal medicine interns. METHODS: Nutrition attitudes and self-perceived proficiency were measured using previously validated questionnaires. Knowledge was assessed with a multiple-choice quiz. ... RESULTS: Of the 114 participants, 61 (54%) completed the survey. Although 77% agreed that nutrition assessment should be included in routine primary care visits, and 94% agreed that it was their obligation to discuss nutrition with patients, only 14% felt physicians were adequately trained to provide nutrition counseling. ... CONCLUSIONS: Internal medicine interns' perceive nutrition counseling as a priority, but lack the confidence and knowledge to effectively provide adequate nutrition education." These are impressive results showing that internal medicine doctors—specialists who commonly deal with diabetes, hypertension, obesity, and metabolic syndrome—do not have competence in nutrition, even by weak and basic standards.
- Relevance of clinical nutrition education and role models to the practice of medicine (Eur J Clin Nutr. 1999 May<sup>30</sup>): "Yet, despite the prevalence of nutritional disorders in clinical medicine and increasing scientific evidence on the significance of dietary modification to disease prevention, present day practitioners of medicine are typically untrained in the relationship of diet to health and disease."
- How much do gastroenterology fellows know about nutrition? (J Clin Gastroenterol. 2009 Jul<sup>31</sup>): "The mean total test score was 50.04%. ...CONCLUSIONS: Gastroenterology fellows think their knowledge of nutrition is suboptimal; objective evaluation of nutrition knowledge in this cohort confirmed this belief. A formal component of nutrition education could be developed in the context of GI fellowship education and continuing medical education as necessary."

**In sum:** The data consistently demonstrate that healthcare providers at the doctorate level are untrained in nutrition when assessed by rather simple standards; their knowledge of functional nutrition at the level of clinical intervention in the treatment of serious disease would reasonably be expected to be approximately zero. Thus, given that doctors are trained neither in musculoskeletal management (despite the fact that all patients have musculoskeletal systems and that related disorders represent no less than 20% of general practice) nor nutrition (despite the fact that all patients eat food and that such dietary habits (and/or the use of nutritional interventions) impact nearly all known diseases in the known universe), one might wonder as to the cause and perpetuation of this *systematically imposed ignorance* on such topics of major importance. Consistent faults in medical education are not accidental.

#### Dumbing Us Down: The Hidden Curriculum of Educational Systems

"Look again at the seven lessons of school teaching: confusion, class position, indifference, emotional and intellectual dependency, conditional self-esteem, and surveillance. All of these lessons are prime training for permanent underclasses, people deprived forever of finding the center of their own special genius."

Such a curriculum produces physical, moral, and intellectual paralysis, and no curriculum of content will be sufficient to reverse its hideous effects. ... Schools teach exactly what they are intended to teach and they do it well."

Gatto JT. *Dumbing Us Down: The Hidden Curriculum of Compulsory Schooling*, p. 16

### Adverse effects of nonsteroidal anti-inflammatory drugs (NSAIDs), COX-2 inhibitors (coxibs)

**Introduction:** Nonsteroidal anti-inflammatory drugs (NSAIDs) have many common and serious adverse effects, including the promotion of joint destruction. Paradoxically, these drugs *cause* or *exacerbate* the very symptoms and disease they are supposed to treat: joint pain and destruction. In a tragic exemplification of Orwellian newspeak<sup>32</sup>,

<sup>29</sup> Vetter et al. What do resident physicians know about nutrition? An evaluation of attitudes, self-perceived proficiency and knowledge. *J Am Coll Nutr*. 2008 Apr;27(2):287-98

<sup>30</sup> Halsted CH. The relevance of clinical nutrition education and role models to the practice of medicine. *Eur J Clin Nutr*. 1999 May;53 Suppl 2:S29-34

<sup>31</sup> Raman M, Violato C, Coderre S. How much do gastroenterology fellows know about nutrition? *J Clin Gastroenterol*. 2009 Jul;43(6):559-64

<sup>32</sup> Orwell G. 1984. Harcourt Brace Jovanovich: 1949. "Newspeak" is defined by the Merriam-Webster Dictionary (m-w.com) as "propagandistic language marked by euphemism, circumlocution, and the inversion of customary meanings" and as "a language designed to diminish the range of thought," in the novel *1984* (1949) by George Orwell.

## Associations of Omega-3 Fatty Acid Supplement Use With Cardiovascular Disease Risks

Meta-analysis of 10 Trials Involving 77 917 Individuals

Theingi Aung, MBBS, FRCP<sup>1,2,3</sup>; Jim Halsey, BSc<sup>1,2</sup>; Peter Knekt, PhD<sup>4,5</sup>

► Author Affiliations | Article Information  
JAMA Cardiol. Published online January 31, 2018

### Key Points

**Question** Does supplementation with omega-3 fatty acid supplements reduce the risk of nonfatal coronary heart disease in people with no history of cardiovascular disease?

**Findings** This meta-analysis of 10 trials involving 77 917 individuals found no association between derived omega-3 fatty acids for a mean duration of 10 years and the risk of nonfatal coronary heart disease or any major cardiovascular disease.

**Meaning** The results provide no support for the use of omega-3 fatty acid supplements for the prevention of fatal coronary heart disease or any major cardiovascular disease.

See other recent videos and PDF transcripts at: [ichnfm.org/18](http://ichnfm.org/18)

### ► Problems with this publication:

1. Unjustified selective exclusion of data
2. Inclusion of studies that employed sub-/non-therapeutic dosing
  1. This article took “underdosing” to the extreme and completely ignored a foundationally important advance in cardiology/science, ie, the omega-3 index.
3. 9 of the 10 studies used in this meta-analysis used synthetic “ester” form of n3 fatty acids; this is in contrast to the natural easier-to-digest triglyceride form
4. Stated conclusion at odds with data
5. Pro-pharma conflicts of interest among the authors and the publishing organization

DR VASQUEZ'S  
RESEARCH  
REVIEW

### Context

Article

Corrections

## Review of JAMA's “Omega-3 Fatty Acid Supplement Use With Cardiovascular Disease Risks”

► JAMA is notorious for publishing pro-drug and anti-nutrition articles; big medical journals/organizations make multimillion \$\$\$ profits from their pro-drug stance; massive inherent conflict-of-interest includes:

### Medical Journals Are an Extension of the Marketing Arm of Pharmaceutical Companies

Richard Smith

“Journals have devolved into information laundering operations for the pharmaceutical industry”, wrote Richard Horton, editor of the *Lancet*, in March 2004 [1]. In the same year, Marcia Angell, former editor of the *New England Journal of Medicine*, lambasted the industry for becoming “primarily a marketing machine” and co-opting “every institution that might stand in its way” [2]. Medical journals were conspicuously absent from her list of co-opted institutions, but she and Horton are not the only editors who have become increasingly queasy about the power and influence of the industry. Jerry Kassirer, another former editor of the *New England Journal of Medicine*, argues that the industry has deflected the moral compasses of many physicians [3], and the editors of *PLoS Medicine* have declared that they will not become “part of the cycle of dependency...between journals and the pharmaceutical industry” [4]. Something is clearly up.

#### The Problem: Less to Do with Advertising, More to Do with Sponsored Trials

The most conspicuous example of medical journals' dependence on

randomised controlled trials as one of the highest forms of evidence. A large trial published in a major journal has the journal's stamp of approval (unlike the advertising), will be distributed around the world, and may well receive global media coverage, particularly if promoted simultaneously by press releases from both the journal and the expensive public relations firm hired by the pharmaceutical company that sponsored the trial. For a drug company, a favourable trial is worth thousands of pages of advertising, which is why a company will sometimes spend upwards of a million dollars on reprints of the trial for worldwide distribution. The doctors receiving the reprints may not read them, but they will be impressed by the name of the journal from which they come. The quality of the journal will bless the quality of the drug.

Fortunately from the point of view of the companies funding these trials—but unfortunately for the credibility of the journals who publish them—these trials rarely produce results that are unfavourable to the companies' products [7,8]. Paula Rochon and others examined in 1994 all the trials funded by manufacturers of nonsteroidal anti-inflammatory drugs for arthritis that they could find [7]. They found 56 trials, and not one of the published trials presented results that were unfavourable to the company that sponsored the trial. Every trial showed the company's drug to be as good as or better than the comparison treatment.

By 2003 it was possible to do a systematic review of 30 studies comparing the outcomes of studies funded by the pharmaceutical industry with those of studies funded from other sources [8]. Some 16 of the studies looked at clinical trials or meta-analyses, and 13 had outcomes favourable to the sponsoring companies. Overall, studies funded by a company were four times more likely to have results favourable to the company than studies funded from other sources. In the case of the five studies that looked at economic evaluations,

1. **Reprints:** Selling reprints of pro-drug articles to drug companies (*PLoS Med* 2005 May)
2. **Advertisements:** Publicizing pro-drug advertisements
3. **Endorsing pro-drug treatment protocols:** These benefit drug companies
4. **Financial reciprocation:** Drug companies reciprocate with donations, advertisements, reprint purchases, pro-medical legislation [Video gallery: ichnfm.org/18](http://ichnfm.org/18)

1. Context
2. Article, design
3. **Errors / major problems in this article**
4. Exemplification
5. How to improve this line of research

“Supplemental Vitamins and Minerals for CVD Prevention and Treatment”  
*Journal of the American College of Cardiology* 2018

## Problems with this headline-making “research”

1. **Problematic bias of journal:** All medical journals and societies receive millions of dollars from drug companies; in fact, some “medical societies” are nothing more than front groups for drug sales.

2. **Problematic bias of editors:** Note that this same journal was recently described as the most corrupt medical journal in terms of editors receiving massive and powerful\* payments from drug companies: “Worst on that list is the *Journal of the American College of Cardiology* (JACC), where 19 of its editors received, on average, US\$475,072 personally and another US\$119,407 for 'research'.” [sciencealert.com/how-much-top-journal-editors-get-paid-by-big-pharma-corrupt](http://sciencealert.com/how-much-top-journal-editors-get-paid-by-big-pharma-corrupt) 2018 Apr \*Experts deserve to be paid for their expertise; but “getting paid for honest work” is quite different from “getting paid an exorbitant amount to leverage and influence from positional power.”

### 3. Problematic bias of authors funded by drug /processed food industry

- |   |   |
|---|---|
| 1. Agricultural Bioproducts Innovation Program                          | 11. Haine   |
| 2. Unilever = processed foods   | 12. Canola and Flax Councils of Canada            |
| 3. Barilla = processed foods  | 13. Danone  |
| 4. Kellogg's Company  | 14. Abbott Laboratories                           |
| 5. Quaker Oats  | 15. DuPont Nutrition and Health,                  |
| 6. Procter & Gamble Technical Centre Ltd.                               | 16. United States Department of Agriculture       |
| 7. Bayer Consumer Care  | 17. Bristol-Myers Squibb.                         |
| 8. Pepsi/Quaker   | 18. General Mills                                 |
| 9. Soy Foods Association of North America,                              | 19. International Sweeteners Association          |
| 10. Coca-Cola Company <b>investigator-initiated, unrestricted grant</b> | 20. Nestlé Nutrition Institute                    |
|   | 21. ...his wife is an employee of Unilever Canada |

1. Context
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## Problems with this headline-making “research”

4. **Unscientific exclusion of data, e.g. failure to include non-English research:** In addition to the obvious ethnocentrism, ignoring non-English research simply because it was published in a different language is obviously **unscientific**.

▶ **They are intentionally excluding data [that counters their pre-determined narrative?]** (#1): The idea that this article and its attendant ~40 authors, numerous international institutions, and millions of dollars in available funding could not translate 2 papers for inclusion in this analysis is overtly absurd.

▶ **Social hypocrisy:** These major journals influence news/indoctrination internationally, and as such, ignoring international research is overtly hypocritical, in essence stating, “We will influence your news, healthcare, and policy but we will not be influenced by the scientific research that your/other countries have produced.”

▶ **Litmus test for wakefulness (and minimal competence among readers and editors):** Wake up, people. This is 2018. These days, any document can be translated by Google, or they could have paid less than minimum wage (I am not advocating that, but merely showing how easy it could have been) for a translation.

▶ **Beyond stupidity:** You can be very sure that when these multinational corporations want to sell drugs and processed foods, they have no problem coordinating a team of multilanguage authors and editors.



<p>DR VASQUEZ'S RESEARCH REVIEW</p>	<p><b>Problems with this headline-making “research”</b></p>
<p>1. Context</p>	<p>5. <u>They are intentionally excluding data that counters their pre-determined narrative (#2):</u> Data on selenium was excluded from the analysis because the data was favorable.</p>
<p>2. Article, design</p>	<p>▶ “Studies containing selenium were removed from the meta-analysis of antioxidants due to the high percentage of these studies on the left side of the unity line versus the right side of the unity line in the antioxidant forest plot (83% vs. 7%) compared with the other components of antioxidant mixtures (Figure 9). Removal of the selenium studies resulted in a significant increase in all-cause mortality.”</p>
<p>3. <b>Errors / major problems in this article</b></p>	<p>6. <u>Failure to maintain any clinical or pharmacologic standard:</u></p>
<p>4. Exemplification</p>	<p>▶ <u>Failed to assess for use of treatment:</u> “Adherence to and persistence with supplement use were also an issue.</p>
<p>5. How to improve this line of research</p>	<p>▶ <u>Failed to determine any relationship between treatment and outcomes:</u> “Furthermore, dose-response data were not usually available.”</p>
<p>“Supplemental Vitamins and Minerals for CVD Prevention and Treatment” <i>Journal of the American College of Cardiology</i> 2018</p>	<p>▶ <u>Failed to standardize treatment, but then concludes with sweeping statements against use of “vitamin and mineral supplementation”:</u> “Supplement differences might also have influenced outcomes.”</p>

<p>DR VASQUEZ'S RESEARCH REVIEW</p>	<p><b>Problems with this headline-making “research”</b></p>
<p>1. Context</p>	<p>7. <u>Nutritional pseudoequivocation:</u> Perhaps the biggest, most obvious, and most incompetent error in this publication is the equivocation of these various studies, regardless of the quality of nutritional supplements used. Mainstream medical journals—written and edited by and targeted toward doctors that have zero training in nutrition—commonly discuss “nutritional supplements”, “vitamins and minerals” in categorical terms without discussing any difference, combinatorial effects, dosing, or “real world” considerations that are obvious to those of us who have spent our careers studying nutrition.</p>
<p>2. Article, design</p>	<p>▶ “Finally, combining different types of antioxidants <b>might</b> be suboptimal, because their mechanisms of action <b>might</b> also be different.”</p>
<p>3. <b>Errors / major problems in this article</b></p>	<p>▶ The lack of intellectual consistency is quite obvious when these authors/organizations/schools master pathology and pharmacology down to electrostatic interactions, but then completely fail to differentiate entire categories of elements and effects when discussing nutrition.</p>
<p>4. Exemplification</p>	
<p>5. How to improve this line of research</p> <p>“Supplemental Vitamins and Minerals for CVD Prevention and Treatment” <i>Journal of the American College of Cardiology</i> 2018</p>	

1. Context
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"Supplemental Vitamins and Minerals for CVD Prevention and Treatment"  
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## How to read and differentiate a multivitamin/mineral supplement label

▶ As I have said before and taught my students, the only way to "understand nutrition" is to understand each nutrient and each of its main characteristics:

1. Sources
2. Digestion, assimilation, distribution, storage, excretion
3. Metabolism, biochemistry
4. Dosages: pediatrics, pregnancy, adults, elderly, and specific disease considerations including renal and hepatic insufficiency and occasionally disease-specific considerations such as autoimmune hepatitis
5. Nutrient interactions, synergy, antagonism
6. Drug/disease interactions
7. Clinical applications, ...durations, expectations, etc.

▶ I am quite sure that most doctors do not know how to competently read a multivitamin/mineral supplement label and to differentiate a quality product from decoy garbage

"Supplemental Vitamins and Minerals for CVD Prevention and Treatment"  
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1. Context
2. Article, design
3. Errors in this article
4. Exemplification: Real-word examples
5. How to improve this line of research

## Context

This video review will be produced in 2 versions, the shorter of which you are currently viewing. The longer version will be available through various channels, including:

1. [facebook.com/InflammationMastery](https://www.facebook.com/InflammationMastery) Updated daily with news and videos
2. [vimeo.com/drvasquez](https://www.vimeo.com/drvasquez) Video archive
3. [ichnfm.org/18](https://www.ichnfm.org/18) This is the 2018 archive of free videos and PDF transcripts

The goal of this second/shorter version of the video is to emphasize the significance of one of the errors in this published article; other sections will be covered quickly herein; viewers can pause the video to read the slides and/or see the longer version for more details.

“A clinician who is unaware of the political forces that shape healthcare policy and research is analogous to a captain of an oceangoing ship not knowing how to use a compass, sextant, or coastline map. Medical science and healthcare policy are influenced by a myriad of powerful private interests motivated by their own goals, at times different from the stated goal of medicine, which purports to hold paramount the patients’ welfare. Scientific objectivity and the guiding ethical principles of informed consent, beneficence, autonomy, and non-maleficence are subject to different interpretations depending on the lens through which a dilemma is viewed. This gives rise to a disarrayed tug-of-war between factions and private interests, with paradigmatic victory often being awarded to those with the best marketing campaigns and political influence while less importance is given to safety, efficacy, and the economic burden to consumers. To be ignorant of such considerations is to be blind to the nature of research, policy, and our own biased inclinations for and against particular paradigms, assessments, and interventions. Research articles and sources of authority must be approached with an artist’s delicacy and with a willingness to consider new information that may contradict deeply rooted beliefs.” Dr Alex Vasquez  
***Inflammation Mastery 4<sup>th</sup> Edition*** aka *Textbook of Clinical Nutrition and Functional Medicine*



Video gallery: [ichnfm.org/18](http://ichnfm.org/18)



See video at <http://www.ichnfm.org/18>