



**Vitamin D- Supplement to 2013 North American Education Program
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People with MS often ask about whether there are particular nutritional supplements or things they should be doing that relate to their diet that might be helpful for them. And this is of course a very important and very interesting question.

There are several specific examples. One of which is vitamin D. And vitamin D is a vitamin that we now appreciate plays some role in the context of MS at the very least in terms of the risk of developing MS and research that is coming out more recently increasingly is pointing to vitamin D being relevant also for people who have established MS and may be relevant to the degree of MS activity they have.

So a big question has come up, how might we advocate or advise people in terms of taking vitamin D in a more organized way and how much for example should they be taking in this context? It turns out that this is not a straight forward question to address. And while for vitamin D we have a pretty compelling reason to ask the question, this is true also for many other potential dietary supplements or additives where gathering the type of information that would help us make this recommendation is not straightforward.

So while for example the organized clinical trial program; phase 1, 2 and 3 that is required to be able to have an agent become approved by regulatory agencies, is something that we can do when the agent is an injectable, or an infusible, and even when it's an oral treatment where we can measure something to be sure that people

have been taking the medicine, it's very, very difficult to carry out an organized trial that relates to people's diet. And there are man--, many reasons for that.

One of the reasons is that even for vitamin D, we can suggest a certain or recommend a particular dose to take in a clinical trial, but of course people who have very different exposures for instance to sunlight and that can change their vitamin D metabolism in ways that are even bigger in magnitude than the dose that we're suggesting they take. So we may think they're taking a certain dose and they may actually be taking that dose, but the effect on the biology of vitamin D can be very different depending on sun exposure or lack thereof, depending on other food that they take that can change the absorption rates of the vitamin D that they're taking, and so it's not very straightforward to know that the intervention that you're trying to test in a study is actually the intervention the person is being exposed to and that of course then can very importantly impact the results and the conclusions. It might make an intervention look good when it isn't, it might make it not look helpful when actually it could have been helpful and should have been understood to be helpful.

So there are very important challenges when it comes to trying to ask about dietary supplements or dietary factors such as vitamin D in the context of the organized approach to understanding the balance between benefit and risk for patients with MS.