Vitamin D – food for body and mind?
By Farren Briggs PhD, ScM

A quick search of PubMed (a US government-funded free resource that catalogues over 26 million citations including most, if not all, scientific, biomedical and health publications) for publications including “vitamin D” and “multiple sclerosis” results in 754 scientific articles and reviews between 2010 and 2016.¹ That’s an average of 2.4 new publications per week! And so far 2017 is on track with 45 publications as of April 23rd. Thus, there is always something to read on vitamin D, for those of us invested in MS. But this month, two publications caught my attention – one on the body, the other on the mind.

Dr. Susanne Hempel and her team published a comprehensive systematic review of randomized controlled trials (RCTs) investigating the impact of modifiable factors (including smoking, exercise, and diet) on MS progression in Multiple Sclerosis Journal.² The goal of a systematic review is to average the results of previous studies, acknowledging the differences and similarities of the individual studies. In this systematic review of English-language publications, six RCTs investigating vitamin D supplementation and change in the Expanded Disability Status Scale (EDSS) were considered. EDSS is a scale commonly used to summarize total disability in people with MS.³ It is based on a neurological examination, and multiple functional systems are assessed. Based on the examination, a score from zero to ten is assigned (with zero representing a “normal” neurological exam). However this scale heavily favors walking ability – thus, most interpret EDSS values as a measure of physical disability as opposed to a measure of the person’s overall well-being. Of the six RCTs, five studies randomized people with MS to receive a high dose of vitamin D supplementation versus a placebo and one study compared a high dose to a low dose of vitamin D supplementation. Thus, an average for the five more similar RCTs was generated. There appears to be a slight trend for better EDSS outcomes over the time intervals of the studies, which ranged from six months to two years. On average, persons with MS who were randomized to receive vitamin D

¹ https://www.ncbi.nlm.nih.gov/pubmed
² http://journals.sagepub.com/doi/abs/10.1177/1352458517690270
³ http://www.nationalmssociety.org/For-Professionals/Researchers/Resources-for-Researchers/Clinical-Study-Measures/Functional-Systems-Scores-(FSS)-and-Expanded-Disab
supplementation had a 0.22 lower EDSS score compared to those who were assigned a placebo. Thus, the therapeutic potential of vitamin D supplementation for improving EDSS scores appears modest.

In *Scientific Reports*, Dr. Hala Darwish and her team, published on the impact of vitamin D supplementation on cognition. The study compared the cognitive performance in two groups: 39 persons with MS who were vitamin D deficient to 44 persons with MS who had sufficient levels of vitamin D in their serum. At the beginning of the study, all participants complete a slew of cognitive tests covering short and long term memory, language, learning, attention, recognition and mental flexibility - and the deficient group performed significantly lower than the sufficient group at baseline. The study was only three months long, and during that time the vitamin D deficient group was provided a high dose of vitamin D supplementation while the sufficient group received normal care. At the end of the three months, 22 participants had dropped out. However there were still 31 individuals who were in the original deficient group – their serum levels of vitamin D significantly increased after supplementation – and there were 30 individuals in the original sufficient group. Most interestingly, after this short course of vitamin D supplementation, their memory (long term and visuo-spatial) significantly improved. When considering all participants, higher serum levels of vitamin D predicted better performance on the memory tests over this short 3 month period. Dr. Darwish and her team are currently expanding the number of participants in their study and will be following them for at least a year – I am intrigued, and look forward to their next publication.

So what does this all mean? Well, vitamin D seems to do a body and mind good. However, the findings from Dr. Darwish’s study suggest the memory of those deficient in vitamin D may benefit more from vitamin D supplementation.

4 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5379671/