INTERNATIONAL HEALTH NEWS

William R. Ware, PhD - Editor

NUMBER 283 DECEMBER 2017/JANUARY 2018 26th YEAR

The role of diet in poor health seems to be gaining recognition, but diet needs to be combined with certain aspects of lifestyle to obtain a better picture. What appears to be an inescapable conclusion is that dietary changes that have occurred in the past century have benefited mostly the food industry rather than the consumers. Some would cite great benefit from increased convenience and decreased need to actually prepare meals from scratch. These so-called advances were consistent with needs as modern lifestyles evolved to accommodate radical changes in occupational demands and a great expansion of urban dwelling. Eating also became less a family experience and more of an activity simply aimed at satisfying the need for energy. These changes were not small but rather amounted to a revolution in the eating experience, both its social aspect and what was actually eaten.

Remarkable studies of primitive populations living in modern times have revealed that the modern diet in developed countries appears to be related to the increase in chronic diseases. The information gathered by Weston Price, the researchers in the Blue Zone studies of longevity and the in the famous study of Okinawans[1-3] has provided compelling evidence that modern advanced societies appear to have gone down the wrong road in terms of diet and lifestyle. Confirmation comes from the dramatic and rapid changes in health that invariably accompany migration from where the dietary and lifestyle practices of ancestors were carefully maintained to a modern environment.

However, the major role was played by the food industry and the chemical industry in providing the needed products and promotion with vast unintended consequences. Consumers found factory food useful and they got it. One could get by with a hotplate and a microwave oven. The obligations of modern life did not for many allow time for meals made from scratch using real food nor the opportunity for leisurely family meals. Fat, sugar and convenience made factory food appealing and no one paid much attention to the chemical cocktails the industry found convenient for good texture, good shelf life and appealing appearance. Real food has been in a sharp decline in popularity for decades and the shelves of supermarkets became lined with items great grandmother would never recognize as food. Nevertheless this has been viewed as great progress.

In this issue we examine briefly the role that nutrition appears to play in psychiatric disorders. These disorders join a long list of serious health problems that can be connected to modern diets, junk food, fake food, added chemicals, both intentional and otherwise, and the radical lifestyle changes that have accompanied the simple act of eating. We have recently seen an example in the remarkable advances in the treatment of Alzheimer's disease and mild cognitive impairment with diet and lifestyle as discussed recently in IHN.

The Lyon Heart Diet Study revealed already in 1999 that diet is a powerful intervention to prevent a second cardiac event. Diabetes also appears to be best treated with dietary intervention, a 700 daily calorie eight-week diet. Indeed, from the mid-1880s to the 1950s, type 2 diabetes was usually treated with a simple, highly restricted diet, no sugar and no starchy foods. The integrative-holistic approach to both autism and multiple sclerosis includes dietary interventions based on patient based information. Even something as simple and popular as refined sugar appears to be a very unsatisfactory nutrient for humans because of adverse associations with many disorders. Yet all of the above interventions are so far from acceptance by the mainstream medicine that it casts a shadow of hopelessness on the whole subject.

The message is clear. There is a pressing need to pay much more attention to diet and the associated lifestyle aspects. It also seems very important to beware of the current conventional nutritional wisdom, given the amazing flip-flops we have recently witnessed.

1. *Price WT. Nutrition and Physical Degeneration. Oxford: Benediction Classics, 2010.*
2. *Buettner D. Blue Zones. National Geographic, 2010.*
3. *Willcox BJ, Willcox DC. The Okinawa Program: How the World;s Longest-Lived People Achieved Everlasting Health--And How You Can Too. Clarkson Potter, 2002.*

Wishing you and your family a Happy Holiday Season,

William R. Ware, PhD, Editor

Highlights

NUTRITION AND PSYCHIATRIC DISORDERS

Doctor to mother of patient: "Madam, I understand your concern about the early stages of this disorder being accompanied by highly unusual constipation, but your child has autism, a brain problem, and I am a psychiatrist, not a gastroenterologist."

The subject of modern psychiatry based mainly on drug therapy has been frequently discussed in this newsletter. The emphasis has been on the therapeutic issues pointed out by critics in this field. This in fact has been the subject of a number of books[1-5] all written by highly qualified observers, mostly MDs. The picture presented is not only shockingly negative, but so bad that the books themselves might cause depression and anxiety. It is even suggested that psychiatric drugs are a contributing cause.[2] If the modern pharmacological approach to mental disease is not in general treating actual causes, and positive clinical trial results are due to poor study design and especially a placebo effect, then what are the principal causes of what some describe as an epidemic of mental disease?

This raises an additional question, is there really an epidemic or is the undeniable large increase in diagnosed mental disease mostly a matter of ever expanding the definitions of the various disorders to encompass more and more individuals who traditionally would have been termed normal. They are simply undergoing normal reactions of varying degrees of severity to the common events associated with daily life.[6] In fact, it appears challenging to establish the real increase over the past 5 decades, but the increase in diagnosed cases is nevertheless large and increasing yearly with heavy financial and social costs.

As discussed in the September issue of IHN, there appears to be a robust association between diet and both mild cognitive impairment and Alzheimer's disease. With only rare exceptions, both these problems were halted or regressed with the principal intervention involving only diet and supplements suggested by blood tests. Furthermore, the diagnosis of these progressive disorders is not being confused with deviations from normal. Thus the question, is there a connection between diet and the increase in mental disease in general? The multitude of mental disorders, currently about 300, is currently being treated mainly with drugs. In addition, the mainstream focus has been almost entirely on therapy, not prevention. However, there is now an established discipline called *Nutritional Psychiatry*, with a growing literature.[7,8] Earlier, the focus in this area had been mostly on only omega-3 fatty acid and folate supplementation.

Early or premature mortality worldwide has been associated with unhealthy diets and this has now been extended to mental disorders also viewed as diseases. Mental disorders along with substance abuse have also been recognized as leading contributors to global disability.[9,10] A healthy diet, the opposite of an unhealthy one, is characterized by high consumption of fruits, vegetables, whole grains nuts, seeds and fish and limited consumption of all processed foods. In the simplest terms, this translates into real food, low intake of starchy foods and sugar, and no junk food. Over

the past several decades populations in the developed world have done exactly the opposite of this, and the effects can be seen spreading to the less developed countries.

This trend toward an unhealthy diet has been associated with the increase in non-communicable disorders (chronic diseases) such as diabetes, heart disease, obesity, metabolic syndrome, gut dysfunction, hormonal imbalance, cognitive problems, Alzheimer's disease, and now mental health. The driving force has been skillful marketing by Big Food, orchestrated misinformation about what constitutes a healthy diet, and toxic chemicals in food, water, personal care, cleaning products, furnishings, building materials and toxins that accompany air pollution. Couple this with lifestyle changes which emphasize convenience and give low priority to the traditional preparation of meals from real food while consuming foods highly unfavorable to humans and one has the setting for disaster. Information about unhealthy food is carefully suppressed or at least downplayed because of serious economic consequences to the entire food industry. Instead, the Western and junk food diet is now approaching the norm. The impact on mental health prevention and therapy will be discussed in this brief review.

We will start with a recently completed and reported trial which was randomized with a control group.[11] Its design benefited from the experience of previous investigators whose randomized controlled trials produced significant benefit from dietary intervention in only about half of the trials.[12] This trial, called SMILES, randomized 67 adults with major depression to either a diet protocol or merely social support. There was personalized dietary advice and nutritional counselling support, motivational interviewing, goal setting and assistance in mindful eating, all from a clinical dietician. This was more or less the model that in earlier trials produced the best results. The diet emphasized whole grains, vegetables, legumes, low-fat unsweetened dairy, raw unsalted nuts, fish, lean red meat, chicken, eggs, and olive oil. Suggested ranges of serving were given. Low limits were set for sweets, refined cereals, fried foods, fast food, processed meat, and sugary drinks. Moderate wine consumption was allowed with red suggested and only with meals. The primary endpoint was the change in depression measured at 12 weeks with a standard method. Readers will notice similarities with the UCLA recommended diet for Alzheimer's disease and mild cognitive impairment. However, the UCLA diet was intended to produce mild ketosis, encourage low glycemic index foods, and encourage compliance with a list of forbidden foods.

SMILES had rather impressive results:

- After 12 weeks remission was achieved in 32% of the dietary intervention group compared to 8% in the social support group, as judged by using a standard test for depression. The number needed to treat to achieve one remission over the trial period was 4.
- When another depression scale was used which included anxiety, similar finding were found.

- When the Clinical Global Impression Improvement evaluation was used, the intervention group had much-improved scores whereas the support control group had minimal improvement.
- Neither mood disturbances nor a feeling of wellbeing improved significantly, although the changes were in the expected direction and the researchers suggest a lack of statistical power for these endpoints.

The authors also suggested potential biological pathways which may influence depressive illness and point to current thinking that implicates inflammatory and oxidative stress and gut microbiota. All are influenced by diet quality and would be expected to be impacted by the intervention used.

Opie *et al have* reviewed the impact of whole diet interventions on depression and anxiety as studied by randomized controlled trials.[12] They found only 17 out of 1274 that qualified according to modern standards. Half observed significant effects on depression scores in favor of the dietary intervention group and the design of these was similar to that used in SMILES and indicated the importance of the how the subjects were instructed, motivated and monitored. It is important to note that these studies spanned the period from 2000 to 2012 during which views on diet and health were changing. SMILES had the advantage of even more recent views on this subject, including the importance of avoiding processed meat and sugary drinks.

One limitation of SMILES was that the intervention group was of course aware of being treated. This opens the possibility of a placebo effect. It has been demonstrated that in studies of the efficacy of antidepressant drugs for example, the placebo must induce side effects to confuse the subjects as to which group they and been randomly assigned. When this was done, antidepressants work no better than the placebo.[3]

The results of SMILES were consistent with the UCLA Alzheimer's study which found a dietary intervention appeared to be effective for Alzheimer's disease and mild cognitive impairment. In the UCLA trial a placebo effect appears unlikely.

BOTTOM LINE

Mental disease appears to be another among many diseases where causes can be traced back to the profound dietary changes that have occurred over the past half-century and the advent of convenience and junk foods, highly processed and refined foods laced with countless chemicals both intentionally and inadvertently via toxins in the source foods. It appears wise to pay attention to what to eat and what not to eat and to rectify problems suggested by blood tests such as the UCLA group used, thus taking aggressive action to prevent Alzheimer's and milder cognitive impairment, depression and anxiety and to treat these disorders if they are present. Don't eat anything that grandmother and great grandmother would not recognize as food and realize that back then, there were no contents labels to scrutinize.

LDL LEVEL AND MORTALITY IN THOSE OVER 60

The primary cause of atherosclerosis and cardiovascular disease has for decades been viewed as caused by an elevated level of total cholesterol (TC) and the associated level of LDL. Serum cholesterol is probably one the most common biomarkers on the minds of millions with attendant worry and concern. When some physicians examine ordered blood test results and see highly elevated cholesterol, they treat this as an emergency and some contact the patient to immediately make an appointment. However there has never been a study of unselected individuals that found an association between TC (and thus LDL) and the degree of atherosclerosis, the prerequisite pathology.[13,14] Japanese studies have found that high TC is not a risk factor for stroke and in addition find an inverse association between TC and all-cause mortality, irrespective of gender and age. This prompted a call in 2015 for a re-examination of the cholesterol hypothesis with an article the title of which included the phrase "toward a paradigm shift."[15] However, it is well known that the prevalence and burden of coronary atherosclerosis increases with age and in all risk calculators age is an important input parameter with the risk of atherosclerosis-associated events, fatal and non-fatal, also increasing with age.

A study has just appeared which examines the use of LDL as a risk factor for mortality in individuals ≥ 60years of age.[16] This is the first review in the literature that focuses specifically on LDL and mortality. In a literature search the authors report finding 19 cohort follow-up studies which included 30 cohorts and a total of 68094 elderly subjects. All-cause mortality was reported in 28 cohorts and CVD mortality in 9. The results are fascinating.

An **INVERSE** association between all-cause mortality and LDL was found in 16 cohorts. The results in 14 studies were statistically significant. This result applies to 92% of the individual in the study. In the remaining studies, no association was found. In two cohorts, CVD mortality with statistical significance was highest in subgroup (quartile) with lowest LDL.

These results are in strong disagreement with the conventional mainstream view that LDL and total cholesterol represent a primary cause of cardiovascular disease. This evidence is not new and has been growing year by year. Thus the notion that LDL causes mortality was a perfect hypothesis to address with a systematic review. Naturally, all along there have been efforts to discredit these results when they were reported. A common explanation was that serious disease caused the low LDL and the serious disease thus was associated with mortality. The authors provide a number of examples that contradict this explanation and also suggest an explanation for the phenomenon.

- A number of studies excluded individuals with terminal disease and mortality during the first few years of follow-up. In fact, three studies that showed the highest LDL-mortality association were corrected for this factor.

- It is common to observe that LDL is lower than normal in cases of acute heart attacks.
- Studies that attempted to show that this was because LDL had not been lowered enough. This explanation failed because in the aggressively lowered LDL group, the mortality was twice the control.
- In a meta-analysis of 19 studies performed by the US National Heart, Lung and Blood Institute, TC was inversely associated with mortality from respiratory and gastrointestinal diseases most of which were of infectious origin. It is also unlikely that these diseases caused low TC because the associations remained after excluding cases that occurred during the first 5 years.
- In a study that followed 100,000 subjects for 15 years, at follow-up those that had the lowest baseline TC experienced hospitalization more often because of infectious diseases that occurred later in the follow-up. Thus low TC at the time when they were healthy could not have caused the diseases they had not yet presented with.
- One explanation for the inverse LDL-mortality association is that low LDL increases the susceptibility of fatal disease. The authors cite a number of studies showing that LDL binds to and inactivates a broad range of microorganisms and as well their toxic products. They also point out that many observational studies have shown individuals with low cholesterol have a higher rate of occurrence of diseases caused or aggravated by microorganisms.
- Another explanation of the inverse association under discussion is that high LDL may protect against cancer. The connection may be that some cancer types are caused by viruses. There are nine cohort studies with follow-up for 10-30 years that found an inverse TC at the start of the study and cancer incidence, even after excluding cases that occurred during the first 4 years.
- Cancer mortality is significantly lower with individuals with the genetic disorder predisposing them to high cholesterol levels, hypercholesterolemia.

Furthermore it has been clear for at least a decade that statins did not lower coronary calcium and if there was any effect at all it was small and involved the unclarified plaque which represents a minor portion of the plaque burden. In addition, statins caused only a slight to modest decrease in the volume of atheromas. In primary prevention statins have a slight effect on the risk of major cardiovascular events associated with atherosclerosis but in most studies 98.5 to 99% experienced no benefit in this context and side effects were sufficiently prevalent to cause many users to quit. The controlled clinical studies were industry-sponsored to meet the needs of regulatory approval of their statin drugs, and thus the reported adverse side effects may be underestimated. There is also a huge discrepancy between the statin-associated increases in diabetes, on industry vs. vs. non-industry studies of this question. The latter have seen 4-5 year risks above 10%, which compares very unfavorably with the absolute benefits seen for primary (around 1.5%) and secondary (around 2-3%). Furthermore, almost all studies

find a very small or no statin effect on all-cause mortality, or even cardiovascular mortality. In general, women benefit even less than men. In addition, many consider mortality the bottom line in drug harm.

Consider the table below. It is based on data collected from the database of the Multiethnic Study of Atherosclerosis and presents the baseline TC and LDL values of a cohort of almost 7000 individuals age 45 to 84, roughly 50% women.[17] The issue to consider is the following. Is there any association between baseline TC or LDL and the observed baseline coronary calcium score? This score indicates the burden of coronary atherosclerosis and is strongly associated with the risk of acute coronary events (heart attacks). The cholesterol values are means. There does not appear to be any association. The group with a calcium score of ≥ 300 had the same mean levels of TC and LDL as those with a score of zero.

Since statin treatment does not influence the calcium score, it is irrelevant that 10% those with a score of zero and 23% of those with a score of ≥ 300 were on lipid lowering medication. However, there was a strong association between the calcium score and the Framingham risk score for coronary heart disease events.[17] This score includes age, TC and high-density lipoprotein (HDL), current smoking status, systolic blood pressure, and the use of antihypertensive medications but not calcium scores. Thus the data in this table is consistent with the view that neither TC nor LDL drives atherosclerosis. It is also consistent with another MESA study which found no association of LDL with coronary calcium progression and negligible and marginally significant association with prevalence.[18]

CORONARY ARTERY CALCIUM SCORE	0	>0	<100	≥ 100	<300	≥300
TOTAL CHOLESTEROL (mg/dL	196	195	195	196	195	195
LOW DENSITY LIPOPROTEIN (mg/dL)	120	118	120	118	118	119

Small absolute benefits are consistent with life-long therapy only if the absolute risk of harm is smaller. Statin critics claim that this is far from the truth and that side effects can even include permanent damage and disability, but this information is probably not made available to patients as part of informed consent. This may also be true for absolute benefits. The use of relative risk reductions presents a highly deceptive view of benefit and has been described as intentional.[19] To appreciate the magnitude of the problem see *Statin Drug Side Effects and the Misguided War on Cholesterol* by Duane Graveline, MD, available at Amazon. In addition, there is *The Statin Disaster* by David Brownstein, MD, available on his website.

Thus attempts to discredit all the findings that low TC and LDL either increase mortality or have no impact on it appear to fail. The new evidence involves almost 70,000 subjects in 19 studies. However, if the past is any guide, the paper of Ravnskov *et al* will be ignored. Mainstream medicine will not wish to cope with the failure of the hypothesis that high LDL increases mortality or the loss of justification for using LDL as a target for therapy, and the popular notion that the "lower the better." They would also have to cope with the evidence that low LDL appears to increase the risk of mortality in those

over 60, an age group that is a major consumer of statins. This would also create difficulties for those who are working on what they regard as the frontier, expensive targeted drugs that can result in extreme lowering of LDL. They appear to be shooting at the wrong demon and they would need to find a new one. Obviously this would also cause problems with guidelines because even those that have abandoned LDL targets still used LDL in stratification of risk groups deemed to merit cholesterol-lowering therapy. The cholesterol hypothesis is one of the most firmly established dogmas in modern medicine that high cholesterol is bad. It almost has the status of the belief that the earth is round.

BOTTOM LINE
Individuals over 60 should be concerned if their total cholesterol and LDL cholesterol is low, not high. If one tells this to their family physician or cardiologist, it may result in being labeled crazy, ignorant, or simply sadly uninformed.

REVERSAL OF ATHEROSCLEROSIS

Atherosclerosis appears to be a prerequisite for having a heart attack or stroke that is caused by sudden localized severe or total impairment of blood flow in the heart or brain. If there is no atherosclerosis there are no arterial plaques to rupture. Heart attacks and strokes are called severe cardiovascular atherosclerotic or ischemic events. Severe artery blockage also causes angina which can impact the quality of life and is a warning that coronary heart disease is present. It also can develop in the carotid arteries in the neck and caused impaired blood flow to the brain. Thus it appears reasonable to assume that either preventing or reversing atherosclerosis would be strongly indicated as an intervention.

A popular notion that goes back to the 1960s was that consuming fat caused fatty deposits in the arteries and thus heart disease. While by the late 1990s this had been shown false,[20] it was not until the last couple of years that a consensus has formed that this was nonsense although there are prominent holdouts who have not given up. It was also the dream of Big Pharm that statins could significantly reverse or prevent atherosclerosis, but thus far the results have been disappointing and when plaque (also called atheroma) is found to regress due to statin therapy, the atheroma volume changes are very small and can be regarded as far from a solution to the problem. As pointed out above, if coronary calcium is measured, there is no significant effect.

The natural history of coronary atherosclerosis is that it generally progresses relentlessly with age. This can be followed by electron beam computerized tomography which is non-invasive and quantifies coronary calcified plaque with a score which is an excellent measure of acute event risk. As mentioned above, there is no significant connection between blood total cholesterol or LDL cholesterol and the incidence, extent or progression of coronary calcified plaque which makes the absence of an effect of statins unsurprising. In this context it is interesting that the famous Multi Ethnic Study of Atherosclerosis (MESA) found that in a population of age from 40 to 75, half had a

coronary artery calcium score of zero. This means that taking statins for primary prevention in this population is totally useless instead of simply not benefiting 98 to 99% when on statins. Thus there are many individuals on statins that have no significant atherosclerosis, but their coronary calcium score has never been determined. For those with zero score on statins, the risk of side effects becomes a major issue.

Given that no really significant pharmaceutical intervention or advice to go on a low-fat diet prevents atherosclerosis from developing and progressing, there should be great interest in a non-pharmaceutical approach. Studies that have focused on such actions as not smoking, eating a Mediterranean diet or avoiding psychological stress have used acute events, but have not measured coronary atherosclerosis as an endpoint, only event rates.

It appears that there is only one alternative approach to halting and reversing atherosclerosis that is backed by some clinical evidence. The intervention is supplementation with aged garlic extract. The use of garlic for medicinal purposes goes back thousands of years and speculation regarding cardio-protection appears in ancient Indian texts.[21] Scientific studies started in the 1950s and, while many journal papers have appeared, there have been only a limited number of studies concerning the impact on atherosclerosis.[22] Nevertheless, the amount of evidence for the effectiveness of garlic extract is worth considering. There have been three randomized, double blind, placebo controlled studies that demonstrate the beneficial effects on halting the progression of coronary plaque as measured by electron beam computerized tomography to generate calcium scores.

- Budoff *et al*[23] studied 23 patients with known coronary heart disease (CHD) and compared the progression of coronary plaque with the control. Over 1 year, progression in the aged garlic group was 7.5% whereas for the control it was 22.2%.
- In a second study Budoff *et al*[24] found for 65 patients at intermediate risk of heart disease (baseline calcium score > 30), that aged garlic, vitamin B-12, folic acid, vitamin B6 and the amino acid L-arginine used together as a supplement significantly slowed plaque progression over one year. The treated group had a value of 6.8% compared to the control of 26.5%.
- Zeb *et al* enrolled 65 asymptomatic intermediate risk men (baseline calcium score 10) aged 55 ± 6 years and used aged garlic plus coenzyme Q-10 for one year. Progression for the treated group was 32% vs. 58% for the control.

The substantial decrease in annual progression of atherosclerosis implies a concomitant substantial decrease in the risk of a heart attack. In these three studies from the same laboratory, the brand of aged garlic extract was made by Kyolic. The dose used in the first two studies is hard to compare with the currently available product, but in the third study the dose was 1200 mg which would be equivalent to 4 capsules of the current product.

The scans used to determine coronary calcification also enabled Budoff's group to determine the nature of the fat tissue surrounding the coronary arteries, i.e. white and brown tissue. A higher brown to white ratio is considered desirable in the context of local inflammation and plaque stability. The scans revealed that patient treated with aged garlic had significantly increased brown fat.[25]

Aged garlic extract also decreases arterial stiffness.[26] The authors of the report point out that a high arterial stiffness significantly increases the risk of coronary hearts disease and all-cause mortality, although no study has demonstrated that reducing it is associated with better outcomes.

Thus even aged garlic extract used alone has been found highly beneficial in decreasing the rate of progression of atherosclerosis and this is a simple and easily implemented intervention given that the extract is readily available in health food stores.

There is a second intervention that has considerable anecdotal evidence and biological plausibility. It is called the Pauling-Rath protocol after the famous Linus Pauling and a physician Matthias Rath, MD, who worked closely with him on the impact of supplementation on the progression of atherosclerosis. The principal ingredients in the protocol are vitamin C (minimum 6g/day) and the amino acid lysine (minimum 2 g/day). The remainders are vitamins and minerals. The biological plausibility rests on the observation that a step in the formation of atherosclerotic plaque involves the action of lipoprotein (a) on the arterial wall which involves a lysine receptor. This can be stopped by high concentrations of lysine in the blood which tie up the lipoprotein(a) lysine receptor. Pauling and Rath also hypothesize that atherosclerosis is partly a vitamin C deficiency disease by analogy to scurvy-caused lesions and present a unified theory of atherosclerosis to justify their protocol.[27] The reader is referred to a book by Owen Fonorow and Sally Jewell titled *Practicing Medicine without a License?* for details of the protocol and numerous case histories. Fonorow also has a website describing the Pauling-Rath protocol. A powder mixture of Vitamin C and Lysine formulated by W. Gifford-Jones, MD is available at Health Food Stores.

The problem with the Pauling-Rath approach is that, based on case histories, the measure of success is not directly observed changes in coronary plaque but changes in symptoms, mostly angina. Furthermore, the changes are too rapid to be due to significantly lower plaque burden. In addition, relapses are fairly prompt when stopping the protocol, which is inconsistent with the rapid return of plaque. This is also unlikely. It is not that the dramatic decrease in symptoms, sometimes disabling, are not important. It is just that they are hard to reconcile with the theory that vitamin C and lysine are having rapid and profound effects on coronary plaque. Studies are clearly needed that either examine the impact on plaque development, or decrease in burden, all with direct measurement of plaque as Budoff's group did in order to remove the protocol from the realm of theoretical to one based on solid evidence. If such studies have been done they apparently have never been published. Budoff had a distinct advantage of being an expert in coronary plaque measurement.

The Pauling-Rath protocol is another example of alternative medicine which suffers from the lack of any clinical studies but should not be dismissed out of hand. Pauling was the recipient of two Nobel Prizes (Chemistry and Peace) with a number of important contributions to medicine including the elucidation of sickle cell anemia. Along with the oncologist Edwin Cameron he also conducted several studies on high dose vitamin C for slowing the progression of a number of cancers. The results were impressive and published in the prestigious *Proceedings of the National Academy of Science.*[28] However, Pauling was a member privileged to publish in this journal, presumably without oversight.

REFERENCES

1. Whitaker R. *Anatomy of an Epidemic*. New York: Crown Publishers, 2010.
2. Breggin P. *Brain-Disabling Treatments in Psychiatry*. Second ed. New York: Springer Publishing Co., 2008.
3. Kirsch I. *The emperor's New Drugs*. New York: Basic Books (Random House in UK), 2010.
4. Carlat D. *Unhinged*. New York: Free Press (Simon & Schuster), 2010.
5. Gotzsche P. Psychiatry Gone Astray. *http://davidhealy org/psychiatry-gone-astray* [serial online] 2016.
6. Frances A. *Saving Normal*. New York: HarperCollins Publishers, 2013.
7. Marx W, Moseley G, Berk M, Jacka F. Nutritional psychiatry: the present state of the evidence. *Proc Nutr Soc* 2017;1-10.
8. Owen L, Corfe B. The role of diet and nutrition on mental health and wellbeing. *Proc Nutr Soc* 2017;1-2.
9. Dash SR, O'Neil A, Jacka FN. Diet and Common Mental Disorders: The Imperative to Translate Evidence into Action. *Front Public Health* 2016;4:81.
10. Forouzanfar MH, Alexander L, Anderson HR et al. Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks in 188 countries, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet* 2015;386:2287-2323.
11. Jacka FN, O'Neil A, Opie R et al. A randomised controlled trial of dietary improvement for adults with major depression (the 'SMILES' trial). *BMC Med* 2017;15:23.
12. Opie RS, O'Neil A, Itsiopoulos C, Jacka FN. The impact of whole-of-diet interventions on depression and anxiety: a systematic review of randomised controlled trials. *Public Health Nutr* 2015;18:2074-2093.
13. Ravnskov U. Is atherosclerosis caused by high cholesterol? *QJM* 2002;95:397-403.
14. Ware WR. The mainstream hypothesis that LDL cholesterol drives atherosclerosis may have been falsified by non-invasive imaging of coronary artery plaque burden and progression. *Med Hypotheses* 2009;73:596-600.
15. Hamazaki T, Okuyama H, Ogushi Y, Hama R. Towards a Paradigm Shift in Cholesterol Treatment. A Re-examination of the Cholesterol Issue in Japan. *Ann Nutr Metab* 2015;66 Suppl 4:1-116.
16. Ravnskov U, Diamond DM, Hama R et al. Lack of an association or an inverse association between low-density-lipoprotein cholesterol and mortality in the elderly: a systematic review. *BMJ Open* 2016;6:e010401.
17. Okwuosa TM, Greenland P, Ning H et al. Distribution of coronary artery calcium scores by Framingham 10-year risk strata in the MESA (Multi-Ethnic Study of Atherosclerosis) potential implications for coronary risk assessment. *J Am Coll Cardiol* 2011;57:1838-1845.

18. Kronmal RA, McClelland RL, Detrano R et al. Risk factors for the progression of coronary artery calcification in asymptomatic subjects: results from the Multi-Ethnic Study of Atherosclerosis (MESA). *Circulation* 2007;115:2722-2730.
19. Diamond DM, Ravnskov U. How statistical deception created the appearance that statins are safe and effective in primary and secondary prevention of cardiovascular disease. *Expert Rev Clin Pharmacol* 2015;8:201-210.
20. Ravnskov U. The questionable role of saturated and polyunsaturated fatty acids in cardiovascular disease. *J Clin Epidemiol* 1998;51:443-460.
21. Gorinstein S, Jastrzebski Z, Namiesnik J, Leontowicz H, Leontowicz M, Trakhtenberg S. The atherosclerotic heart disease and protecting properties of garlic: contemporary data. *Mol Nutr Food Res* 2007;51:1365-1381.
22. Varshney R, Budoff MJ. Garlic and Heart Disease. *J Nutr* 2016;146:416S-421S.
23. Budoff MJ, Takasu J, Flores FR et al. Inhibiting progression of coronary calcification using Aged Garlic Extract in patients receiving statin therapy: a preliminary study. *Prev Med* 2004;39:985-991.
24. Budoff MJ, Ahmadi N, Gul KM et al. Aged garlic extract supplemented with B vitamins, folic acid and L-arginine retards the progression of subclinical atherosclerosis: a randomized clinical trial. *Prev Med* 2009;49:101-107.
25. Ahmadi N, Nabavi V, Hajsadeghi F et al. Aged garlic extract with supplement is associated with increase in brown adipose, decrease in white adipose tissue and predict lack of progression in coronary atherosclerosis. *Int J Cardiol* 2013;168:2310-2314.
26. Larijani VN, Ahmadi N, Zeb I, Khan F, Flores F, Budoff M. Beneficial effects of aged garlic extract and coenzyme Q10 on vascular elasticity and endothelial function: the FAITH randomized clinical trial. *Nutrition* 2013;29:71-75.
27. Rath M, Pauling L. A Unified Theory of Human Cardiovascular Disease Leading the Way to the Abolition of This Disease as a Cause for Human Mortality. *Journal of Orthomolecular Medicine* 1992;7:5.
28. Cameron E, Pauling L. Supplemental ascorbate in the supportive treatment of cancer: reevaluation of prolongation of survival times in terminal human cancer. *Proc Natl Acad Sci U S A* 1978;75:4538-4542.

Editor: William R. Ware, PhD

INTERNATIONAL HEALTH NEWS is published 10 times a year by
Hans R. Larsen MSc ChE, 1320 Point Street, Victoria, BC, Canada, V8S 1A5
E-mail: editor@yourhealthbase.com World Wide Web: http://www.yourhealthbase.com

ISSN 1203-1933