

NUTRITION for Bone Health

Most of us know that we are supposed to change the oil in our cars regularly, and most of us, I think, do a pretty good job of seeing to such preventive maintenance. But what happens if we don't? The car still runs today pretty much as it did yesterday, and it will tomorrow, as well. We cannot easily tell, from the performance, that changing the oil regularly makes much of a difference. But we know from experience that sooner or later the engine breaks down or loses power – is no longer reliable.

Nutrition is just like that. If we have a poor diet today, or this week, we still function pretty much as before. But slowly, imperceptibly, our body systems begin to break down, our reserves diminish. That breakdown is called, in medicine, “chronic disease” – hypertension, arthritis, osteoporosis, diabetes, heart disease, cancer, and the like. All such system breakdowns have multiple causes, and poor nutrition is only one of many. But it is one that is within our individual ability to influence. We cannot control our genes, and we cannot easily control our environments, but we can control what we eat.

Available evidence indicates that optimal nutrition can reduce our risk of prematurely succumbing to one of those system failures, by as much as 50% or more. Nutrition is one of the most powerful – and most economical – tools to maintain vigorous good health throughout life. It is not a guarantee – other harmful influences are at work. But, like wearing seat belts, it very significantly reduces our risk.



Robert P. Heaney, M.D.
John A. Creighton University Professor

The Institute of Medicine lists about 20 nutrients that are considered essential, and for which it has specified a daily requirement. There are probably another 20 or so, also necessary, for which the requirement is uncertain. Very briefly, good nutrition consists of eating a diet that provides all those essential nutrients. There are two main reasons why that is harder to do today than might have been the case in, say, the 1950s. First, we are much less physically active today than we were then, so we cannot afford to eat as much. And second, the foods readily available to us are calorie-dense and often nutrient-poor. So, for many nutrients, we hit our daily calorie limit well before we get as much calcium or folate or B12 or many of the other nutrients we need. Exercise – actually, physical work – is important for another reason, as well. Many of our body systems, such as our bones, were designed for mechanical work and without it, they can never

come up to their designer's specifications for strength. Nutrition, while essential, is not sufficient by itself.

Unfortunately, much of medicine's emphasis is negative: "Cut your salt intake"; "cut saturated fats"; "ban transfats entirely"; "watch your cholesterol" . . . I say "unfortunately" for two reasons. First, a negative approach is the wrong way to go about something as positive as eating well. And second, the evidence for those prohibitions is not only lacking, but in recent years studies have shown that they are often flat out wrong. There are transfats in milk, for example, that are essential for health. Eliminating them from our diets would be harmful rather than helpful.

Or, if you are found to have high blood pressure, your doctor will almost certainly urge you to cut back on your salt intake. Why? Because doing so will lower your blood pressure slightly, and because high salt intakes cause hypertension in a certain strain of rats. But this negative strategy ignores two key points: 1) Increasing your calcium intake will lower blood pressure more than will reducing salt; and 2) In order for salt to produce high blood pressure in those rats, investigators had first to put the animals on low calcium intakes. The positive approach simply outperforms the negative almost every time.

Nutrition is still a young science, and we are a long way from knowing all that we need to know. Still, the positive approach seems the best strategy. Worry less about avoiding certain nutrients and concentrate instead on eating foods that will give you what your body needs for the long haul.

What are some of those foods? Dairy, for starters. Dairy products are just about the most nutrient-dense foods we can eat. When calories count, as they do for most of us, dairy delivers excellent nutrition without excess calories. Reduced fat milk can be an even better energy bargain, but do not focus exclusively on skim;

we need some of the essential fats in milk. Second, lots of fruits and vegetables. (Do not fret over "fresh". Modern food production methods get broccoli from field to freezer in less than 24 hours, locking in its full complement of nutrients – while the broccoli in the food produce aisle was days old before it got there, and older still when we consume it – with its nutritional value deteriorating all the while.) Lastly, meat. Yes, meat. Human physiology is an omnivore physiology, that is, it is optimized to consume a mix of animal and plant foods. In fact, several of the nutrients recognized as essential for humans can be found only in animal foods, and for others, only animal foods provide the nutrient in adequate quantity.

Finally, supplements. What is their role? It should be what their name indicates. They should supplement an otherwise good diet, not substitute for it. Calcium is a good example. Calcium has many positive effects in addition to its recognized role in bone health. But those effects are best realized when calcium comes in as a part of the dairy package. That is not because it is better absorbed or utilized from dairy, but because dairy-poor diets have repeatedly been shown to be deficient in several other essential nutrients in addition to calcium. For example, even the bony benefits of calcium cannot be fully realized if a person is deficient in vitamin D and/or has a low protein intake.

Nutrition is not just like changing the oil regularly. It's also about working together, as in a symphony orchestra. You need all the instruments. Beethoven's 5th would sound pretty strange if played only on the flutes and percussion. Good nutrition is about good eating, and good eating is fun. Enjoy!

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So Where are Nutrients Found?

Grains – such as Bagels, Brown rice, Corn tortillas, Multi-grain bread, Oatmeal, Popcorn, Whole wheat crackers, Whole wheat cereals and Whole wheat noodles.

Whole grains are a good source of B vitamins, vitamin E, magnesium, iron and fiber.



Vegetables – such as Asparagus, Bell Peppers, Broccoli, Brussels Sprouts, Cabbage, Cauliflower, Carrots, Green beans, Lettuce, Mushrooms, Okra, Onions, Peas, Spinach, Squash, Sweet Potatoes, Tomatoes and Zucchini

Vegetables are a good source of fiber, folate, potassium, vitamin A and vitamin C.



Fruits – such as Avocados, Apples, Apricots, Bananas, Blueberries, Cantaloupe, Cherries, Cranberries, Grapes, Grapefruit, Kiwifruit, Mangos, Oranges, Peaches, Pineapple, Plums, Raspberries, Strawberries, and Watermelon.

Fruits are a good source of vitamin A, vitamin C, folate, potassium and antioxidants.



Milk and Dairy – Low-fat or Fat-free milk, Yogurt, reduced-fat or low fat cheese.

Milk and Dairy are a good source of calcium, vitamin D, protein*, phosphorus, zinc, vitamin A, vitamin B12, potassium and essential fatty acids.



Meats – such as Beef, Turkey, Chicken, Pork, Eggs, Fish and Shellfish.

Beef, Turkey, Chicken, Pork are all good sources of protein*, zinc, iron, vitamin B12, vitamin B6 and Niacin.

Eggs are a good source of protein, riboflavin, vitamin B12, phosphorus and selenium.

Fish and Shellfish are a good source of protein, iodine, iron, zinc, niacin and omega-3 fatty acids (some of which are not found in vegetable sources).

Oily fish (salmon, mackerel, lake trout, herring, sardines, and albacore tuna) contain naturally occurring vitamin D.



Beans, Nuts and Seeds – such as Pinto beans, Soy beans, Pumpkin seeds, Sunflower Seeds, Almonds, Peanuts, Walnuts and Flaxseed.

Beans are a good source of protein, calcium, iron and fiber.

Nuts are a good source of protein, calcium, phosphorus, magnesium, potassium.

Seeds are a good source of protein, calcium and iron.



*The proteins found in meats and dairy contain certain amino acids called “branched-chain” amino acids and these are hard to get from grains and other vegetable sources.

The National Osteoporosis Foundation has initiated a new volunteer position titled, “The National Support Group Leader”. Susan Recker has accepted this position and is expanding the number of support groups across the country. If you are interested in starting a support group in your area, and have questions, please contact her at srecker@creighton.edu or 402-280-4810.

Opportunities to Participate

The Creighton University Osteoporosis Research Center would like you to consider participating in one of our research studies. Below is a list of our current studies in which you might be interested. Please feel free to pass this letter on to friends, family and co-workers who may also be willing to participate.

The Dairy Diaries

This research study is looking to see if including dairy foods in diet helps to maintain a healthy weight.

- 13-14 year old teenage girls
- 5 visits in 1 year (one visit every 3 months), painless evaluations
- \$60 gift cards will be given at each completed visit

Diabetes & Bone Health

This research study is looking to see how Type 1 diabetes affects bone.

- Men and women, age 19-50, Type 1 diabetic for at least 3 years
- 3 visits to our center over a 2-3 month time frame
- \$350 stipend for completion of the study

Bone Quality in Postmenopausal Women

This research study is looking for the causes of osteoporosis in postmenopausal women.

- Females, 45-80 years of age, minimum of 4 years post menopause
- Have broken a bone in the last 5 years that was not a result of a car accident
- \$300 stipend for completion of the study

If you are interested in learning more about any of these studies, please contact us at 402-280-2663 (BONE) or toll free 1-800-368-5097. Please leave a message with your name, phone number and best time for us to call. For additional information regarding the studies, you can also log on to our website at <http://osteoporosis.creighton.edu> and click on ORC research opportunities on the left hand side.

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*Dr. John R. Mitchell, former professor and chairman of pediatrics
at Creighton University School of Medicine*

FROM: *Dr. and Mrs. Robert R. Recker*



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