



## **Live2AgeWell – Healthful Aging and Living**

**[www.live2agewell.com](http://www.live2agewell.com)**

**Live2AgeWell is the healthy aging and healthy living website. We want to share ideas that can contribute to a health span that delivers a long and happy life. This ebook is a compilation of articles dealing with nutrition and diet to help you and those you love to live longer.**

**The website is sponsored by Roman Meal Bread ([www.romanmeal.com](http://www.romanmeal.com)) and is provided with information from scientific studies from the Linus Pauling Institute at Oregon State University ([lpi.oregonstate.edu](http://lpi.oregonstate.edu)).**

# Healthful Aging and Healthy Living Articles

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## Genes: Improving the hand you're dealt

### Don and Peggy Doman

Our parents' genes determine the material we start with at conception. They determine external things like hair and eye color, short or tall, coordinated or clumsy, able to "see" how to fix mechanical things or able to "hear" how to clearly express concepts.



Most important, genes control the maximum life span of all living things. A redwood tree has a span of 1,500 years; a mouse, two years; and humans, 115 to 125 years.

But perhaps health span is a more pertinent term. Oregon State University researcher [Dr. Tory Hagan](#) says, "Health span is a term that describes how long a person is healthy, enjoying life, doing what one wants to be doing thanks to good health. This is in contrast to 'life span', which refers to how long a person lives."

Hagan's research shows that cellular repair systems decline with age. He observes that "Mitochondria become more dysfunctional as we age. The mitochondria are specialized organelles in the cell that convert raw fuel from our diet into a usable form of energy currency, ATP." Older animals do not process this conversion as efficiently. "The mitochondria are not able to utilize raw fuels, especially fatty acids, very well."

Dr. Linus Pauling's research shows that vitamin C is a tool that can help our overall health. It's a very effective antioxidant to help delay mitochondrial

decline. Additionally, Hagan found that, "Lipoic acid can directly affect metabolism and is a naturally occurring antioxidant found in green leafy vegetables, as well as in meat. Lipoic acid can directly affect metabolism and, in its free form, is a very potent antioxidant, even more powerful than vitamin C."

We're all going to die, but what will our health span be? With exercise and a healthy diet, we can generally alter our health span and our life span. If both your parents died young from heart disease or cancer then most indicators say you won't live a long life; however there's no need to order your cremation yet.

Just knowing what health weaknesses you're predisposed to can help you plan ways to live better. If your family genes show a propensity for heart disease, your doctor may suggest cholesterol lowering drugs; for a colon cancer, you may concentrate on a high fiber diet and regular colonoscopies.

Genes naturally deteriorate over the years. Our life style influences the speed of that deterioration. Short of an accident, natural disaster, pollution or poor choices, we can help keep our genes from quickly degrading so we remain healthy until we reach our natural life span.

Both heart disease and cancer fighting elements are contained in a diet rich in fruits and vegetables, [whole grains](#), and appropriate supplements. You have to work with what you have and do what you can do to increase your health and life span.

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## Not Enough Vitamin D is Risky Business for Older Adults Don and Peggy Doman



Among older adults, a low level of vitamin D is a serious problem. Adults with low levels of vitamin D have the highest degree of risk. Low levels mean as much as a 30 percent elevated risk of death over those who have higher levels of the vitamin.

Oregon State University (OSU) researchers came to this conclusion after analyzing data obtained from the Third National Health and Nutrition Examination Survey of more than 4,300 adults above age 60.

"Older adults need to be screened for vitamin D," said lead author [Ellen Smit](#), nutritional epidemiologist at OSU's College of Public Health and Human Sciences.

During the study, adults were divided into four groups based on their levels of vitamin D. The study found that participants in the group with the lowest levels of vitamin D had a greater risk of death than those in the other three groups with higher levels of vitamin D. "We want the older population to be able to live as independent for as long as possible, and those who are frail have a number of health problems as they age. A balanced diet including good sources of vitamin D like milk and fish, and being physically active outdoors, will go a long way in helping older adults to stay independent and healthy for longer," Smit said.

Around the world it is estimated that about a billion people have insufficient levels of vitamin D. "As you age, there is an increased risk of melanoma, but older adults should try and get more activity in the sunshine. Our study suggests that there is an opportunity for intervention with those who are in the

pre-frail group (see our article on [Frailty](#)), but could live longer, more independent lives if they get proper nutrition and exercise," said Smit.

Sunshine is a great source of vitamin D, but sunshine is a problem for people with a history of skin cancer, and residents of northern climates don't get much sun in the winter. So, many people have to look elsewhere for more vitamin D. Fish and milk are excellent sources of vitamin D, but some people have trouble digesting dairy products. Some cereals and breads are also fortified with vitamin D.

Researchers recommend that older adults take 2,000 IU of [supplemental vitamin D](#) daily. Most multivitamins/minerals contain 400 IU, and single-ingredient vitamin D supplements are available for additional supplementation. Those older adults or their caregivers should choose the best way to increase their levels. As in all medication suggestions, first confer with your doctor about possible interactions with other medications.

*Researchers from Portland State University, Drexel University of Philadelphia, University of Puerto Rico and McGill University in Montreal contributed to the Third National Health and Nutrition Examination Survey. It was funded in part by the National Institutes of Health and a grant from OSU. Results were published in the European Journal of Clinical Nutrition.*

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## Two tricks to counter frailty Don and Peggy Doman

"She's looking so frail." "He used to be so active." These are not good opening lines for a conversation with or about adults who once were cheerleaders, joggers or soldiers. But the use of "frail" may be a good wake-up call.

In 2009, Columbia and Johns Hopkins Universities research discovered that maintaining an active life is at the forefront of battling frailty. An article from [www.caregiverstress.com](http://www.caregiverstress.com), *Frailty Facts and Research*, points out that, "Researchers found that frailty is the result of a systems failure in older adults, rather than specific problem, disease or even chronological age."

Three of five criteria define frailty: muscle weakness, slow walking, exhaustion, low physical activity and unintentional weight loss. Pre-frail is defined as having one or two of the problems. All five of the warning signs could signify a downward spiral in over-all health.



Psychological and physical aspects of aging are affected by activity. Staying active improves physical and mental health. Activity and a diet rich in vitamin D can more easily delay frailty.

Oregon State University researchers have found that older adults have a [vitamin D deficiency](#). Those that are also frail have a 30 percent greater risk of death than those frail people with a higher vitamin D level. And since vitamin D impacts muscles and bones, low levels contribute to frailty. "What this really means is that it is important to assess vitamin D levels in older adults and especially among people who are frail. . . Our study suggests that there is an opportunity for intervention with those who are in the pre-frail group, but could live longer, more independent lives if they get proper nutrition and exercise," said Oregon State University researcher, [Ellen Smit](#).

Being active and boosting quality micronutrients by taking a [vitamin D supplement](#) may help. Vitamin D can be found in outdoor activities in the sun, naturally in milk, fish and enriched [whole grain](#) foods, or in a supplement. If your relatives are in the frail or pre-frail categories, consider adding a supplement and outdoor activities in the sun, and, add a friend they can talk with.

The object of life is not simply to live longer but to remain in good health to enjoy life. That's the combination to strive for, and frail people generally have already lost part of the equation. To do better, we need to make wiser choices in diet and activity level.

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## Fiber the colon's personal trainer

Don and Peggy Doman

Fiber has nothing to do with calories or exercise in general, but fiber rich foods are associated with significant reductions in cardiovascular disease risk. There is dietary fiber and functional fiber. Your body needs both.



The National Academies Press defines the two fibers this way: "Dietary Fiber consists of nondigestible carbohydrates and lignin that are intrinsic and intact in plants. Functional Fiber consists of isolated, nondigestible carbohydrates that have beneficial physiological effects in humans." Both fibers work together to help digestion. Basically, fiber is an indigestible carbohydrate. It's a plant food that your body can't digest or absorb. Foods high in fiber generally take longer to digest and this make us feel fuller longer.

Fiber in the diet helps speed the food up and doesn't allow it to sit as long in the intestines. At the same time, without acting as a garbage compactor, fiber keeps the load together as it moves downward. Fiber also helps the intestines keep the tunnel walls free of growths and impairments.

Constipation and gas may occur with a sudden increase of fiber in a diet, so it's important to combine liquids with high fiber meals. If you haven't been eating much fiber, begin slowly and add a few grams a week to enable your body to get used to it. Muscles need to be trained to work more efficiently.

The Micronutrient Information Center at the Linus Pauling Institute at Oregon State University reports that "Dietary fiber intakes of approximately 14g for every 1,000 calories were associated with significant reduction in the risk of coronary heart disease (CHD) as well as type 2 diabetes."

Here are five suggestions for increasing fiber intake:

1. Eat at least five servings of [fruits and vegetables](#) daily.
2. Substitute [whole grains](#) for refined grains.
3. Eat oatmeal, whole-grain cereal, or bran cereal for breakfast.
4. Eat [beans, split peas, or lentils](#) at least once weekly.
5. Substitute [nuts](#) or popcorn for less healthful snacks like potato chips or candy.

Fiber gives intestines a workout as they absorb the body's needed nutrients and the result is a decrease in the risk of cardiovascular disease or type 2 diabetes. Not bad for eating something that can't even be digested.

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## Fruits and veggies provide fiber and much more | Don and Peggy Doman



Adding fruits and vegetables to a daily diet offers many health benefits. Nutrients and fiber combine to fight coronary heart disease (CHD), lower blood pressure, and reduce the risk of some cancers. The results of numerous studies and clinical trials provide consistent evidence that diets rich in fruits and vegetables can reduce the risk of chronic disease.

Diets with higher intakes of fruits and vegetables are consistently associated with risk reductions in CHD and stroke. Adding more fruits and vegetables to a sensible diet is one way to lower high blood pressure, which directly contributes to heart disease and stroke.

Some compounds may contribute to the cardioprotective effects of fruits and vegetables, including vitamin C, folate, potassium, and various phytochemicals. Fruits and vegetables are rich in antioxidants, which help protect the body. No single fruit or vegetable delivers the most benefit, so it's best to eat a variety of fruits and vegetables.

Numerous case-control studies show that eating a diet rich in fruits and vegetables decreases the risk of different types of cancer, particularly cancers of the digestive tract and lung. Fiber is always an important element for a healthy colon and absorption of nutrients.

Many organizations like the FDA (Food and Drug Administration) suggest filling half the plate at mealtimes with fruits and vegetables. Fresh, frozen, canned, dried fruits and vegetables and 100% juices all count toward daily fruit and veggie requirements.

Here are some examples of a serving of fruits and vegetables:

6 ounces of fruit or vegetable juice

1 medium sized apple or orange or 1 small banana

1 cup of raw salad greens

½ cup of cooked vegetables

½ cup of chopped fruit or vegetables

¼ cup of dried fruit

Combining fruits and vegetables with other fiber sources deliver even more health benefits. Snacking on dried fruits and nuts adds nutrients as well as fiber. A sandwich of whole grain breads with accompanying vegetables such as lettuce, tomatoes, cucumbers and onions also provides fiber and nutrients. Tasty treats don't have to be fried.

Using more fruits and vegetables is part of a balanced diet that adds fiber and reduces calories. Better food choices and being physically active help people reduce the risk of chronic diseases as they promote overall health.

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# Whole grains for fiber and reduced risks

Don and Peggy Doman

Grains are the seeds of plants from the grass family. Edible grains include wheat, rice, maize (corn), barley, oats, and rye. Whole-grain foods contain the entire grain, including the bran, the endosperm, and the germ. Whole grains are rich in potentially beneficial compounds, including vitamins, minerals, and phytochemicals, such as lignans, phytosterols, and fiber.



Most of these compounds are located in the bran or the germ of the grain, both of which are lost during the refining process, leaving only the starchy endosperm. Compared to diets high in refined grains, diets rich in whole grains are associated with reduced risks of several chronic diseases. Diets rich in whole grains and fiber help prevent constipation and are also associated with decreased risk of diverticulosis, a painful affliction of the intestines.

Whole grains include amaranth, barley, brown rice, buckwheat (kasha), flaxseed, millet, oats, popcorn, quinoa, rye, spelt, triticale, whole wheat (wheat berries), and wild rice. Whole grains represent a unique package of energy, micronutrients, and phytochemicals that work synergistically to promote health and prevent disease.

Here are six ways to increase your whole-grain intake:

1. Eat whole-grain breakfast cereals, such as wheat flakes, shredded wheat, muesli, and oatmeal. Bran cereals are not actually whole-grain cereals, but their high fiber content also makes them a good breakfast choice
2. Substitute whole-grain breads, rolls, tortillas, and crackers for those made

from refined grains

3. Substitute whole-wheat pasta or pasta made from 50% whole wheat and 50% white flour for conventional pastas
4. Substitute brown rice for white rice
5. Add barley to soups and stews
6. When baking, substitute whole-wheat flour for white or unbleached flour

Whole grains represent a unique package of energy, micronutrients, phytochemicals, and fiber that work synergistically to promote health and prevent disease.

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## Trade in your iPods for pea pods and fiber

Don and Peggy Doman

Legumes loom large in diets around the world, but unfortunately, not so much here in America. Legumes are plants with seed pods that split in two. Edible legumes include beans, peas, lentils, soybeans, and peanuts. (Since peanuts are so nutritionally close to tree nuts we will discuss them in another article about nuts.)



Seed pods that split in two are one of the cheapest forms of protein and fiber you can add to your diet. They're also one of the most effective edible weapons against cardiovascular heart disease, diabetes, and prostate cancer.

Legumes are unique little packages of nutrients, essential minerals, dietary fiber, phytochemicals, and unsaturated fats. All varieties of edible legumes work to reduce the risk of chronic diseases.

Beans are rich in soluble fiber which helps lower cholesterol and are packed with folate, magnesium, and potassium, which help fight cardiovascular disease and high blood pressure. In 1999, the U.S. Food and Drug Administration (FDA) approved the following health claim: "Diets low in saturated fat and cholesterol that includes 25 grams of soy protein a day may reduce the risk of heart disease". Soybeans have attracted a lot of attention in the last 10 years; they are a unique source of phytoestrogens known as isoflavones, which are missing in most other legumes.

Replacing foods that are high in saturated fat or refined carbohydrates for beans, peas, soy, and lentils could help lower the risk of type 2 diabetes and cardiovascular disease, and help reduce the risk of prostate cancer in men.

When you combine more exercise, reducing the time on an ipod for physical activities, add in the inexpensive cost of legumes with their healthy nutrients and fiber, and you can see what a bargain this food group is.

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## Multivitamin/mineral supplement? Something's missing By Don and Peggy Doman



Are vitamin and mineral supplements worth the time and money? A multivitamin/mineral (MVM) supplement is the most popular supplement in America. A MVM is generally defined as a dietary supplement that contains 100% of most vitamins and nutritionally essential

minerals. However, some MVM compounds don't contain the Daily Value (DV) for some essential minerals, such as calcium and magnesium.

Some companies do include the latest RDA in their supplements and many companies market their formulations to age-and gender-specific groups. However, in many supplement brands, the DV is based on outdated, 1986 US government information and doesn't contain the current Recommended Daily Allowance (RDA) or Adequate Intake (AI), the essentials.

One-third of the population, from 1-year olds on, takes a MVM supplement every day. Statistics show that the groups who take MVM are generally females, non-Hispanic whites, older adults and individuals with higher education. Some studies have associated MVM use with a healthier diet or the individuals rate their health as good or excellent.

Many Americans are eating adequate or too many calories but still don't meet the RDA for vitamins and essential minerals. A national survey found US residents, even with daily diet and supplements, are falling short of the requirements; Americans are missing needed nutrients. We are only getting 35% of vitamin E, 55% of magnesium, 62% of calcium, 66% of vitamin A, 75% of vitamin C, 92% of vitamin B6, and zinc. Vitamin D insufficiency is also very common among Americans.

MVM deficiencies have been documented in other industrialized countries, and multiple micronutrient deficiencies, especially of vitamin A, iodine, iron, and zinc, are widespread in the underdeveloped world. MVM deficiencies have been estimated to affect almost two billion people worldwide. These lacks can increase susceptibility to infectious diseases but may also increase risk for chronic, age-related diseases, such as cardiovascular disease, osteoporosis, and cancer. Micronutrient deficiencies have further been linked to cognitive dysfunction. Given the fact that many people are not meeting micronutrient intake recommendations, a daily multivitamin/mineral supplement would offer insurance.

Take your bottle of multivitamin/mineral pills and compare the content values vs. what the RDA or AI is actually recommended. You may be surprised at what's NOT in your pill. Something could be missing.

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## Hip Fractures Connected to Lack of K Bone? Don and Peggy Doman



Vitamin K is usually associated with clotting. It's a fat-soluble vitamin and comes from the German word "koagulation." Besides being instrumental in clotting, Vitamin K is really important in calcium-binding. Vitamin K plays an important role in bone health.

Healthy adults, those getting lots of exercise and eating a nutritional diet, generally have no vitamin K deficiency. But epidemiological studies show a relationship between vitamin K and age-related bone loss. Osteoporosis is a concern in senior health, especially among women. A heart study of over 800 elderly men and women, revealed that those with the highest diets of vitamin K had a 65% lower risk of hip fracture than those that consumed the least amount of vitamin K. A ten year nurse's study of over 72,000 showed that women eating food with the least amounts of vitamin K had a 30% higher risk of hip fracture than women who had diets rich in vitamin K.

The primary dietary sources of vitamin K are generally green leafy vegetables and some vegetable oils (soybean, cottonseed, canola, and olive).

Three vitamin-K dependent proteins have been isolated in bone: osteocalcin, matrix Gla protein (MGP), and protein S. Osteocalcin is regarded as a sensitive marker of bone formation. Vitamin K is required for the gamma-carboxylation or modification of osteocalcin. Under-modification or undercarboxylation (ucOC), badly affects its capacity to bind to bone mineral. A study of 7,500 elderly women showed that high levels of ucOC was predictive of fracture risk. These results could also show a deficiency of both vitamin D and vitamin K.

Vitamin K1 is available in the USA without a prescription in multivitamin and other supplements. Acceptable doses range from 10-120 mcg per supplement. Vitamin K2, menatetrenone (MK-4), has been used to treat osteoporosis in Japan.

"Bone" supplements may contain 100 to 120 mcg of vitamin K. The heart study shows that an individual would need to eat a little more than 1/2 cup of chopped broccoli (102-141 mcg) or a large salad of mixed greens every day for a decreased risk of hip fracture.

The Linus Pauling Institute recommends taking a multivitamin-mineral supplement and eating at least 1 cup of dark green leafy vegetables daily. Vitamin K gives us a good foundation of bone health.

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## What is an anti-oxidant and what is it anti-? Don and Peggy Doman



It all begins with oxygen. We must constantly breathe oxygen to carry on normal cellular metabolism. Oxygen is mostly used in organelles, tiny bodies in our cells called mitochondria. They convert proteins, carbohydrates, and fat into a usable form of energy that enables our

cells to carry out necessary chemical processes.

But, oxygen can also result in the creation of reactive oxygen species (ROS), also called free radicals or oxidants, as they are more commonly known. The free radicals will eventually exceed the cell's ability to neutralize them. Normal metabolism produces some of these free radicals naturally, and they damage important biomolecules in our cells.

Oxidative stress is what this condition is called. Certain components of the cellular "house-keeping machinery", including repair systems, tend to decline with age. Then cells don't use oxygen as efficiently, which increases free radical production.

Aging seems to result in greater oxidative stress to our bodies, which results in more oxidative damage to cells and organs - a vicious cycle. Anti-oxidants are the easiest weapons to repress oxidants production.

Antioxidants can be found in several categories of food and vitamin supplements, especially vitamins A, C and D. Easy gains can come from a varied diet rich in colorful fruits, veggies and fatty fish. Here's a list of a few food categories richest in anti-oxidants:

- Berries, including acai, blueberries, blackberries, and strawberries.
- Beta-carotene is found most concentrated in skin-on baked potatoes, carrots and other bright yellow and orange foods, including squash, bananas, and cantaloupe.



- Green vegetables, especially kale, Brussels sprouts, artichokes, asparagus and broccoli.
- Whole grains: 100 percent whole grains are the best source, including whole wheat and multigrain versions of breads like those from [Roman Meal](#), flour, and pasta. Whole wheat pasta has a nutty taste and is widely available in grocery stores now. Other good whole grains are barley, oats, millet and corn.
- Legumes, rich in vitamin E, are vegetables that have a pod that splits in two. Many foods rich in vitamin E are also rich in anti-oxidants, such as lentils, soybeans, split peas and a wide variety of beans.
- Green tea: one serving of green tea has more anti-oxidants than a serving of broccoli.

Think of anti-oxidants as the front line in the war on aging.

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