

Life in the Raw

Do not believe everything you hear about raw food.



Glenn Cardwell, a dietitian specialising in sports nutrition, is a regular columnist for the Skeptic.

Raw vegetables are always better than cooked

There is a mixture of sheer pleasure and envy when you hear for the first time a quote that you wished you had furnished yourself. US economist Roger Brinner said "The plural of anecdote is not data." If only the pop-nutritionist would take note. In nutrition, there are many ingrained beliefs that appear to hold veracity by virtue of being repeated many times. Last edition we examined the view that you must drink 6-8 glasses of water daily. Another is that raw vegetables are better for you than cooked. This one just makes sense doesn't it? How could this not be true? Surely cooking kills the nutrients?

Cooking

Well, let's get the bleeding obvious out of the road first. Some vegetables need to be cooked before they become remotely edible. Raw potato, pumpkin, turnip and swede, for example, will not be found in the gourmet restaurant. The entire legume group needs to be soaked and cooked before being considered a food. Of course, there is a large cohort of children who do not believe such plant foods

have improved palatability after cooking.

OK, so the proponents of raw cuisine don't really mean legumes, root vegetables and others. They are referring more to the salad vegetable, the carrot, broccoli and tomato. They are also highlighting the errors of cooking vegetables for extended periods. It is well established that many vitamins eg vitamin C, are easily destroyed by heat and light, hence the recommendation to quickly cook vegetables in minimal water, such as micro-waving. Mineral losses are low during normal cooking.

More beta-carotene?

Back to the raw vegetables. Are they always a better choice? Many studies have revealed that beta-carotene and antioxidant phenolic compounds are actually more bio-available from cooked vegetables compared with raw. This is probably due to cooking breaking down the tough cell walls, releasing the nutrient content for easier absorption from the small intestine.

Dr Sue Southon, Institute of Food Research in the UK, says that the body is able to absorb around 3-4% of the carotenoids (beta-carotene is an example) in raw carrots, but the

absorption increases fivefold if they are cooked and mashed.

Carotenoids are present in chloroplasts in the leaves of dark-green leafy vegetables, which are not readily digested in the body. In carrots they are in a crystalline form, which dissolve very slowly. It is believed that the fibre of vegetables also entraps the beta-carotene, reducing its availability to be incorporated into micelles prior to absorption from the intestines. By comparison, beta-carotene in fruits is contained within the readily digestible cell wall.

Carotenoids enjoy a lipid environment, so they are generally easier to absorb if present with some oil or fat. That's right – a low fat diet means less access to the 600 carotenoids in the food chain. Adding a bit of oil to your cooking, or to your salad dressing can improve carotenoid absorption.

More lycopene?

Lycopene is the red pigment in tomatoes, watermelon, guava and pink grapefruit. It is from the family of carotenoids and has a strong antioxidant activity. It has been linked to a reduced risk of prostate cancer in men and heart disease. Researchers have found that cooking tomatoes can double the amount of lycopene that we can access. Being from the carotenoid family, it too will be better absorbed if cooked with a little oil. This is good news for the pizza lover. The lycopene in the tomato paste will be easy to absorb, so you won't get prostate cancer (but only because the saturated fats will clog your arteries first!).

More ferulic acid?

A recent study showed that cooked sweet corn has a higher antioxidant activity than the same corn before cooking. The corn was cooked according to the normal canning process (115° Celsius for 25 mins) resulting in a 25% reduction in the vitamin C content. One antioxidant chemical, ferulic acid found in the cell wall of grains, oats and corn, quintupled in bioavailability when the corn was

cooked for 25 minutes. The total antioxidant activity of the cooked corn was 44% higher than the raw form.

It must be noted that the vitamin C level dropped as expected when cooked as the vitamin C was oxidised to inactive components, but as we don't have a vitamin C problem (supplement company hype notwithstanding) then you just might be better off with the extra ferulic acid and getting your vitamin C from fruit and salad vegetables.

More sulphoraphanes?

In a paper presented to the American Chemical Society in March this year was evidence that if you chew your broccoli well, the cells rupture releasing an enzyme that encourages the production of sulphoraphanes. There are two types of sulphoraphane, a sulphur-rich and a sulphur-poor version, with the sulphur-rich type having the most potent cancer fighting properties. Another enzyme they called ESP tips the balance to the sulphur-poor version.

As you can imagine, cooking denatures protein/enzymes such that they can no longer do their job, so cooking stops ESP. Unfortunately, cooking also kills the enzyme that catalyses the formation of the sulphoraphanes in the first place. Genetic engineering may be able to reduce ESP levels such that well-chewed low-ESP raw broccoli is anticarcinogenic. I mention this because it shows us another example that nature is more complex than a simple cooked v raw debate.

It's sad really

After one of my "here's the common sense you never seem to hear about nutrition" presentations, a gentleman came up and told me that electricity was to blame for many illnesses that have befallen mankind. With electricity came cooking and the destruction of nutrients leading to heart disease and cancer, the two main causes of death in western society. Poor man. Should you take a look at, for example, *The Molecule*

Hunt by Martin Jones (Penguin 2001) and *The Ice Man* by Brenda Fowler (Pan Books 2002) you will appreciate that humans have been cooking for thousands of years. It makes food taste better, it is an excellent manner to kill many food-borne bacteria, and as we have seen for some nutrients, it makes them more bioavailable.

My tip

If you cook your vegetables, cook them quickly (eg microwave) and in minimal water, such that they retain their crispness. Eat a mixture of cooked and raw vegetables to get a full range of those wonderful antioxidant compounds that vegetables provide. This makes scientific sense as well as good food enjoyment. With only one in 10 people eating enough vegetables to be good for them, there's a good chance we could all add more to our plate. For best nutrient retention, keep your fruit and veg cool and away from sunlight.

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