

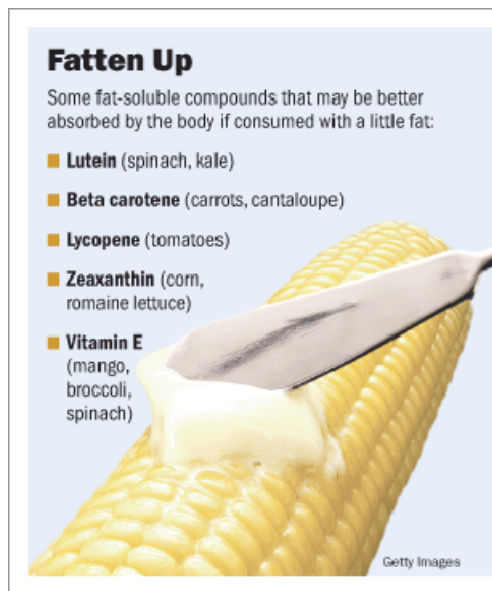
# Want Fat With That? A Surprising Way to Make Vegetables More Nutritious

Wall Street Journal, August 8, 2006; Page D1

Are you getting the most out of your fruits and vegetables?

That's the question researchers are trying to answer as they study how our bodies absorb the healthful nutrients and compounds in foods. What they are finding is that in our quest to cut calories and fat from our diets, we may be cutting out a lot more.

It turns out that some of the best stuff in fruits and vegetables -- certain vitamins and cancer-fighting compounds -- are "fat-soluble." That means some fat needs to be present for the body to adequately absorb the nutrients. But studies are now showing that people who opt for no-fat dressing or who skip adding foods like avocado or cheese to a dish to avoid fat calories, are getting far less out of their salads and other veggies.



"What we're finding is that if you don't have some fat in the meal, all these wonderful" compounds are missed, says Steven Clinton, program leader for molecular carcinogenesis and chemoprevention and the Ohio State University Comprehensive Cancer Center in Columbus. "If the nutrients don't get into your system, then what good are they?"

Dr. Clinton's latest research looks at how adding avocado -- which is relatively high in unsaturated fat -- to salsa or a salad affects how well the body absorbs healthful compounds in the foods. In particular, the study looked at absorption of carotenoids, the red, yellow and orange pigments found in many fruits and vegetables that are believed to have cancer-fighting properties.

For the salsa study, 11 test subjects were first given a meal of fat-free salsa and some bread. Another day, the same meal was offered, but this time avocado was added to the salsa, boosting the fat content of the meal to about 37% of calories. In checking blood levels of the test subjects, researchers found that the men and women absorbed an average of 4.4 times as much lycopene and 2.6 times as much beta carotene when the avocado was added to the food.

Lycopene is the red carotenoid found in tomatoes and watermelon that is being studied as a potential fighter of prostate and other cancers. Beta carotene is the orange pigment in fruits and vegetables that is used in the body's manufacture of vitamin A. Studies suggest that diets high in fruits and vegetables containing beta carotene are linked to lower cancer rates.

With the salad test, the impact of adding avocado was even greater. The first salad included romaine lettuce, baby spinach, shredded carrots and a no-fat dressing, resulting in a fat content of about 2%. After avocado was added, the fat content jumped to 42%. When the salad was consumed with the avocado, the 11 test subjects absorbed seven times the lutein and nearly 18 times the beta carotene. Lutein is a carotenoid found in many green vegetables and is linked with improved eye and heart health.

Researchers noted that a small portion of the increased carotenoid levels in the blood of test subjects could be attributed to the compounds present in the avocado. However the vast majority of the increase was attributed to better overall absorption once fat was present.

Study researchers say they were not only surprised by how much more absorption occurred with the avocado added to the meal, but they were taken aback at how little the body absorbed when no fats were present. "The fact that so little was absorbed when no fat was there was just amazing to me," says Dr. Clinton.

An earlier study done in 2004 by Ohio State University researchers showed a similar effect comparing salads consumed with no-fat, low-fat and full-fat salad dressings. When the seven test subjects consumed salads with no-fat dressing, the absorption of carotenoids was negligible. When a reduced-fat dressing was used, the added fat led to a higher absorption of alpha and beta carotene and lycopene. But there was substantially more absorption of the healthful compounds when full-fat dressing was used.

So far there isn't enough research to advise people how much fat they should consume with vegetables to get the optimal absorption of carotenoids. The basic advice is to still count calories and don't overdo the fats, choosing heart-healthy unsaturated fats like avocado or olive oil rather than foods with a high saturated-fat content.

A recent rat study by German researchers showed that the type of fat matters. They compared vitamin E absorption in rats that were fed diets with cottonseed oil or hydrogenated oils -- which contain unhealthy trans fats. The trans fats actually slowed the absorption of vitamin E compared with other type of fat.

For people watching their weight and the fat content of their diet, the balancing act might be tricky. The best nutrient absorption from the salad, for instance, occurred when diners ate dressing with 28 grams or about two tablespoons of canola oil. That translates to about 250 extra calories.

Nutritionists say diners should look at the overall fat content of the meal. A bowl of cereal with berries might be improved by using 2% milk or full-fat yogurt instead of skim milk. But if you're eating a meal, dietitians advise clients to choose one food item per meal with a significant amount of fat, and keep the other foods very low in fat.

"If you are having a hamburger for dinner and strawberries for dessert, it is not necessary to douse the berries in cream since the hamburger has plenty of fat to help you absorb the nutrients and phytochemicals from the berries," says Elizabeth Grainger, Ohio State research dietitian. "The key is always moderation."