



A chapter 2 Blending vs. Juicing *The Radical Leap Toward Natural Health* by **Victoria Boutenko**

After I published my first book about green smoothies, I have received many inquiries from my readers asking whether blending was preferable to juicing. I also heard that some nutritionists were concerned that blending might accelerate the oxidation of the food. I was very curious to find the answer for myself and decided to seriously research this question.

I conducted a simple experiment. I chose potatoes for my experiment because it is easy to observe the process of oxidation in potatoes. You probably remember an instance when you left a slice of raw potato on your cutting board and observed it turning brown within several minutes. That is why my grandmother used to put peeled potatoes in water, to prevent browning or oxidation.



First, I peeled two potatoes so that the color of their peel wouldn't interfere with the results of my experiment. I then juiced one potato in a twin-gear juicer and blended the other one in a Vita Mix blender with one cup of water. I placed both cups of fluid on the table and took a photograph of them. I was taking photographs frequently for two days. The potato juice started to turn brown within a matter of minutes and became dark brown by the end of the first hour. The blended potato stayed almost white for two days. The top of both liquids, which was exposed to the air, turned dark almost instantly. I repeated this experiment three times with different kinds of

potatoes and various shapes of glasses. The results were the same.

It was clear that the juiced potato oxidized much faster than the blended potato. Since I am not a professional scientist, I decided to seek the opinion of someone with the appropriate expertise. I went to the local university and consulted with Gregory T. Miller, professor of chemistry of Southern Oregon University. After researching this matter, he wrote the following:

The browning is the result of oxidation of specific biomolecules in the fruit or vegetable. My students study this in lab so I have some familiarity with the process (albeit they are studying the enzymatically regulated oxidation). My wife is also a winemaker and deals with oxidation of her juice/wine on a regular basis. I also possess a huge number of resources on the oxidation topic in the form of biochemistry, medical, and nutritional books. Here are my thoughts: respiratory tract ailments Many people believe that the blending process will cause increased oxidation due to thousands of tiny air bubbles getting mixed into the "juice". This effectively increases the surface area of oxygen in the liquid and facilitates the oxidation process. However, in grapes at least, I have observed the opposite to be true. The blended grape stays a truer color much longer. I believe this observation in grapes to be a result of numerous antioxidants released as the grape is blended (breaks open more cells than juicing). I believe this is what you are seeing with the potato, as well.

Potatoes contain numerous antioxidants. This may come as a surprise to many people because of the pale color of many varieties. Among others, potatoes are rich sources of phenolics, flavonoids, carotenoids, and anthocyanins. The concentration of each vary with the type of potato. Since your potatoes are skinless (where the greatest concentration of the tyrosinase enzyme is located), I believe the blending process releases a much higher percentage of these antioxidants from the tissue than the juicing process.

It is also possible that, in many fruits and vegetables, the bulk of the fiber released during blending reduces the oxygen saturation in the solution but, if true, I think this is a secondary issue.

Now I understand why it is commonly advised to drink squeezed juice within minutes of making it, and why smoothies can stay fresh for two or three days in the fridge. Even though I can clearly see the many benefits of smoothies, I still don't want to completely disregard juicing. One of the main advantages of juice is that it requires next to no digestion and can be absorbed and assimilated immediately into the bloodstream, allowing the digestive system to rest. This important quality of juice allows it to be used by people who suffer from severe nutritional deficiencies or have highly irritable digestive system. People with these conditions often cannot tolerate any fiber at all, and juice may provide invaluable nourishment for them. Later, when their health will improve, these people can switch to drinking smoothies.

I agree with Dr. Doug Graham that juices are a fractured food, which is missing an essential component fiber. When we consume enough fiber, we take a load off of our organism by improving our elimination. Toxins often build up in the colon and fiber cleans them out. When most toxins have been removed by fiber, then the body has a greater ability to absorb nutrients, thus improving digestion. Humans could not live on juices alone, whereas green smoothies are a complete food.

If I don't have a blender around me, I juice. One time I gave my blender to my brother because I thought that he needed it more than I. While waiting for my new Vita-mix, I was juicing greens because I could not live without them. While I was juicing, I quickly got tired by the limited variety of flavors, in addition to that, I noticed that I felt hungrier and I had to add more salads to my menu, as juices were not as filling as smoothies. Contrary to that, smoothies are very filling; I can live on them for days, and even weeks. I know of people who have chosen to live on smoothies for several weeks or months with beneficial results. You will find the extraordinary story of Clent Manich's green smoothie experiment further in this book.