

## Post-Exercise Acidity

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*The following is an excerpt from Dr. Loren Cordain's and Joe Friel's book, The Paleo Diet for Athletes, which is available [here](#).*

During exercise body fluids shift increasingly toward an acidic state. There is also evidence indicating that as we age our blood and other body fluids become increasingly acidic. This tendency toward a lowered pH with aging when combined with exercise creates a cumulative effect resulting in a disturbingly lowered pH (increased acidity). But regardless of age, if this acidic state following exercise is allowed to persist for some period of time the risk of nitrogen and calcium loss is greatly increased. The reason for this is that the body attempts to reduce the acidity by releasing minerals into the blood and other body fluids that have a net alkaline-enhancing effect thus counteracting the increased acidity. Calcium from the bones and nitrogen from the muscles meet this need.

The problem is that in neutralizing the acid this way we give up valuable structural resources. You're essentially peeing off bone and muscle as the acidity of your blood stays high. While cannibalizing tissue in this way is necessary from a strictly biological perspective, this is an "expensive" way to solve the problem from an athletic perspective. For while body fluids may be chemically balanced in this process, future performance and even health may well be jeopardized as muscle and bone are compromised.

Research has shown that fruits and vegetables are the only foods that have a net alkaline-enhancing effect. The accompanying table demonstrates the acid- and alkaline-enhancing effects of various foods. The foods with a plus (+) indicate increased acidity. The greater the plus value the higher the acid effect. Those foods with a minus (-) value decrease the acid of the body fluids in direct proportion to their magnitude. So by using fruits and juices, which have a net alkaline-enhancing effect (reduced acidity) in your recovery drink you are doing more than merely replacing carbohydrate stores; you're also potentially sparing bone and muscle.

Acid/Base values of food (100 gram portions)

(From Remer and Manz – J Am Diet Assoc 1995; 95:791-7)

<b>Acid Foods (+)</b>		<b>Alkaline Foods (-)</b>	
<b><u>Grains</u></b>		<b><u>Fruits</u></b>	
Brown rice	+12.5	Raisins	-21.0
Rolled oats	+10.7	Black currants	-6.5
Whole wheat bread	+8.2	Bananas	-5.5
Spaghetti	+7.3	Apricots	-4.8
Corn flakes	+6.0	Kiwi fruit	-4.1
White rice	+4.6	Cherries	-3.6
Rye bread	+4.1	Pears	-2.9
White bread	+3.7	Pineapple	-2.7
<b><u>Dairy</u></b>		Peaches	-2.4
Parmesan cheese	+34.2	Apples	-2.2

Processed cheese	+28.7	Watermelon	-1.9
Hard cheese	+19.2	<b><u>Vegetables</u></b>	
Gouda cheese	+18.6	Spinach	-14.0
Cottage cheese	+8.7	Celery	-5.2
Whole milk	+0.7	Carrots	-4.9
<b><u>Legumes</u></b>		Zucchini	-4.6
Peanuts	+8.3	Cauliflower	-4.0
Lentils	+3.5	Potatoes	-4.0
Peas	+1.2	Radishes	-3.7
<b><u>Meats, Fish, Eggs</u></b>		Eggplant	-3.4
Trout	+10.8	Tomatoes	-3.1
Turkey	+9.9	Lettuce	-2.5
Chicken	+8.7	Chicory	-2.0
Eggs	+8.1	Leeks	-1.8
Pork	+7.9	Onions	-1.5
Beef	+7.8	Mushrooms	-1.4
Cod	+7.1	Green peppers	-1.4
Herring	+7.0	Broccoli	-1.2
		Cucumber	-0.8

*Joe Friel is the author of the Training Bible book series and the founder and President of Ultrafit Associates.*