

# Urinary pH

To read WebCafe Nurse Sharon McMullen's findings on urinary pH as it relates to bladder cancer patients, click [here](#).

pH: The symbol relating the hydrogen ion concentration or activity of a solution to that of a given standard solution. (greylab)

PH is a measure of acidity and alkalinity. On a scale of 1-10, 7 represents neutrality, lower numbers indicate increasing acidity and higher numbers increasing alkalinity. Each unit of change represents a tenfold change in acidity or alkalinity. The pH of urine can range from an extremely unhealthy low of 4.5 to a high of 8.5. A high pH value may indicate the body is over buffering to compensate for a physiological system that is too acidic.

The hydrochloric acid in the stomach is required for digestion and high acidic levels in the body actually inhibit the proper production of stomach acids. When the body pH is too acidic the body's response is to compensate by secreting less acidic fluids and a shortage of proper stomach acid is the result.

Balance is the key. Too alkaline is as undesirable as too acidic (though easier to tolerate). In a pH balanced body, urine is slightly acid in the morning (after fasting), with a pH range of 6.5 - 7.0, generally becoming more alkaline, pH = 7.5 - 8.0, by evening as the body digests food and releases electrolytes.

Unhealthy pH- under 6.0

Normal pH- 6.5 TO 8.0

Unhealthy pH- above 8.5

Although a 1993 study comparing individuals with bladder cancer to those with benign prostatic hyperplasia patients has shown that those with bladder cancer had higher urine pH concentrations (or high alkaline), there is no evidence which shows that striving for a pH reading below normal levels is a deterrent.<sup>2</sup>

There is evidence that acidic urine has a negative influence on urothelial cell DNA adduct levels in humans who have been exposed to benzidine, and the aromatic amines derived from cigarette smoke. Individuals with urine pH lower than 6 had 10-fold higher DNA adduct levels compared to subjects with urine pH 7 or greater. The study reports that urine pH, which is influenced by diet, may be an important susceptibility factor for bladder cancer caused by tobacco in the general population,<sup>1</sup> but further research is needed before definite conclusions can be drawn.

Cystectomy patients are told that it is preferable to have slightly acidic urine (which is balanced), as this helps discourage bacterial growth. If the stoma appears whitish in color, increasing intake of acidic foods could lower the pH.

Urinary Ph balance is controlled by diet and can best be kept optimal by knowing which agents are acidic, and those which leave an alkaline ash behind after digestion.

#### Alkaline Foods:

Fruits, vegetables, herbs, sprouts and millet (especially raw veggies)

Although citrus fruits are acidic in the digestion process, they leave an alkaline ash.

#### Very Alkaline Foods Include

Bananas

Figs

Mineral water

Orange juice

Potatoes

Spinach

Watermelon

Tomato juice

Turnip greens

Dandelion Greens

#### Non Food Substances That Can Make Urine Alkaline

##### Antibiotics

Most mineral supplements - especially calcium, potassium, iron and magnesium.

Antacids

Hard Water

Acidic Foods Acidic; Acidic; Starch, protein, alcohol and sugar.  
Tobacco, aspirin and most drugs are acid forming.

##### Corn

Meat

Beans

Fish

Fowl

Grains

Asparagus

Vinegar

Coffee

#### Very Acidic Foods and Supplements Include

Distilled water

Filtered water

Eggs

Liver and other organ meats

Gravy

Broth made from bones or other animal parts

Wine

Yogurt

Buttermilk, including buttermilk pancakes and biscuits

Sour cream

Other fermented foods

Most B vitamin supplements

Molybdenum supplements

Hydrochloric acid supplements

Digestive enzymes

Whole grains such as whole wheat or oatmeal

#### Non Food Substances That Can Make Urine Acidic

Probiotics - These are supplements that contain "helpful bacteria". Probiotics are often used after taking antibiotics and may help some cases of bladder infections

Soft water - Soft water is water that is low in minerals. This type of water tends to be more acidic.

Many bladder cancer patients monitor pH levels using nitrazine testing strips; these are inexpensive and can be found in health food stores as well as aquarium, pool and spa supply stores, and Wal Mart. However, test results can vary according to time of day and foods ingested. Before making any major dietary changes, it would be wise to ask your doctor if this would influence your treatment in any way.

<http://www.dehlgroupp.com/acidph2.html>  
For a simple explanation of pH

## References

1. Acidic urine pH is associated with elevated levels of free urinary benzidine and N-acetylbenzidine and urothelial cell DNA adducts in exposed workers. Rothman N; Talaska G; Hayes RB; Bhatnagar VK; Bell DA; Lakshmi VM; Kashyap SK; Dosemeci M; Kashyap R; Hsu FF; Jaeger M; Hirvonen A; Parikh DJ; Davis BB; Zenser TV Occupational Epidemiology Branch, National Cancer Institute, Bethesda, Maryland 20892, USA. *Cancer Epidemiol Biomarkers Prev* 1997 Dec;6(12):1039-42 PMID: 9419400 UI: 98080670
2. Serum prostate-specific antigen in a community-based population of healthy men: establishment of age-specific reference ranges. Oesterling JE, Jacobsen SJ, Chute CG, et al *JAMA*. 1993;270:860-864. PMID: 7688054 UI: 93341065

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