Keep Plastics Out of the Heat

As we officially enter the summer months, hydration will be particularly important and for those on the go, that means grabbing a bottle of fluids to take with you on your bike, on the trails, or even in your car. But did you know the container you drink from could be just as important as staying hydrated? You might want to think twice before grabbing your cool, colorful water bottle especially if it'll be left in the sun, or boiling in your car.

The number on the bottom of your water bottle tells you what type of plastic resin your bottle was made from. Most of the personal reusable water bottles being used today (Nalgene being the most common) are made from polycarbonate, which can be identified by the "#7 PC" on the recycling symbol on the bottom of the item (unfortunately not recyclable locally). While it's lightweight and handy, a #7 plastic bottle also contains a number of potentially nasty chemicals. One that's received a lot of attention lately is bisphenol A (BPA). This chemical has been in use for about 50 years and ranks among the world's most widely-used industrial chemicals. BPA is a key building block in the manufacturing of common polycarbonate or shatter-free plastics. It is used in baby bottles, "sippy cups," microwavable food containers, children's dental sealants, the resin lining for metal food cans, and eating utensils, to name a few. As these ubiquitous plastics decay over time (accelerated by being microwaved, cleaned with harsh detergents, or exposed to acidic or hot foods or drinks), BPA is released into our food and water.

BPA is considered an endocrine disruptor as it mimics the female hormone estrogen. In 2005, scientists from the U.S. Centers for Disease Control found that 95% of Americans carry detectable levels of BPA. Back in 2002, a study on pregnant woman and their fetuses revealed significant levels of BPA in their bodies, and concluded that BPA reaches the human fetus in the womb at levels that are well within the ranges shown experimentally to alter development (Schönfelder, etal, *Environmental Health Perspectives,* 2002). What that means for our bodies and those of developing fetuses isn't yet clear, but scientists suspect that BPA is responsible for a host of human health problems, including altered immune functions and some cancers.

In a recent study with laboratory rats (published in the June 2006 issue of *Cancer Research*), researchers at the University of Illinois at Chicago and the University of Cincinnati found the first evidence of a direct link between early exposure to low levels of BPA and cancer of the prostate. Over the last 30 years, there has been an increasing rate of prostate cancer (usually in men over 50) -- an estimated one in six men will develop prostrate cancer.

So now that you've chosen to retire your trendy bottle, try reusing a glass bottle in your car or at the office. For practicality purposes while on your bike or hiking trails, choose a lightweight stainless steel container such as a Klean Kanteen (http://www.kleankanteen.com) or a stainless steel personal water bottle from Enviro Products (www.envirproductsinc.com). Next on the list are the #2 high-density

polyethylene (HDPE) plastic reusable water bottles (including bike bottles). Nalgene also makes #2 HDPE bottles that are identical in size and shape to the popular polycarbonates, and more importantly, they are presently deemed relatively benign. You can find #2 Nalgene bottles online at www.nalgene-outdoor.com. Stainless steel containers and the #2 reusable bottles can be found locally at REI or Vitamin Cottage.

If you still can't separate yourself from your colorful polycarbonate bottle, you can protect yourself by using only very mild detergents and warm water to wash the bottle and by discarding it as soon as it shows signs of discoloring. And while it's true I recommend reusing everything possible, one exception is single-use water bottles made from polyethylene terephthalate, or "#1 PET" or "PETE." It's been recommended by the International Bottled Water Association to use these bottles only once. Preliminary research conducted by a graduate student at the University of Idaho found that frequent washing of single-use bottles might accelerate the breakdown of the plastic, potentially causing chemicals to leak into the water. The jury is still out on this new field of research, so stay tuned.

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