**Article 6**

**Are Microwaves safe?**

**Question** April 11, 2010

*Claire asked:*

Are microwaves safe to use to heat up food? Do they change the food chemically, or does it just get hot?

**Answer**

***Chris*** -  Well, I think there's two ways to look at this.  There's the simple, does a microwave as a form of light, a radiowave relative if you like, have any impact on the chemistry of food?  And then, the other aspect of this is, does it have any impact on the chemistry of the other things that you put on the microwave like the container that the food is in?  So, first of all, let's look at the food angle.  The reason people think microwaves are safe is that the energy in a microwave is too low to physically break the bonds that join atoms and molecules together.  It's called non-ionizing radiation.  And for that reason, we believe that microwaves are not unsafe.  They will not rearrange or mutate things in your food.  And they shouldn't, therefore, pose a threat.

But what microwaves could do is to interact with other things you put in the microwave like plastic containers.  And not all containers are necessarily safe to be heated up to the kinds of temperature that they might get to in a microwave.  Because one of the things that a microwave does have is hotspots and cold spots because of the way the waves work.  And that's why you have to have a turntable.  But that also means that when you put something in the microwave, you could end up with the plastic being in a hotspot and getting very, very warm and some chemicals that are added in making plastics—these include chemicals called plastisizers—can have unwanted effects.  And there are now big studies going on around the world to see if some of these chemicals are a health risk at the kinds of concentrations at which they are leeching out of plastic bottles.  And we did a show a couple of months ago on this subject, and we looked at various things.  There's one called Bisphenol A, which is in certain type of plastic, and also some polycarbonate bottles can also release these chemicals.  So, the bottom line is, at the moment, we don't know for sure.  There is evidence suggesting that plastics can produce chemicals.  It may be unsafe if you heat them up.  And, therefore, the best option and the safest option is probably to use a container which is safe in a microwave, either certified as safe, as such, or use something made of porcelain because that, we know, doesn't undergo any kind of changes.  Would you concur with that, Dave?

***Dave*** -   Yeah.  The one other thing which affects food is if you've got these hotspots (I mean, it depends on your microwave and there are more modern microwaves which have less severe hotspots) is that you can overheat the food and destroy some of the goodness in it.  And so, although it hasn't been hot for very long, if it gets up to maybe 120 for a short period of time, it could destroy some of the vitamins and things.

Write a response (take a stance) to the question “*are microwaves safe*” using evidence from this article. (Must be 1 paragraph in length)