Ask the Experts:

(Answered by Bob Schiffmann, R.F. Schiffmann Associates, Inc.)

Question: there are many statements on the Internet that microwave cooking destroys nutrients and to somehow unhealthy. Is this true?

Answer: the Internet is, unfortunately, filled with erroneous information about microwave ovens and microwave cooking. Many bloggers simply copy and paste the same incorrect information with the result that the Internet is flooded with nonsense. This idea that microwave ovens somehow damage foods while heating them is a good example of Internet nonsense.

"Microwave ovens provide a convenient method of cooking and reheating food…. While few people would dispute that convenience, consumers are sometimes concerned about the safety of microwaves and their effect on nutrients in food. The majority of reports published on the nutritive value of foods cooked in microwave ovens indicate that food prepared in this manner is at least as nutritious as comparable food cooked by conventional methods. Most of these studies have concentrated on vitamin retention and indicate that cooking in minimal water for reduced time, as occurs with microwaving, promotes the retention of the water–soluble vitamins, particularly of vitamin C and thiamin. Microwave cooking is preferable to boiling to minimize the leaching of vitamins into cooking water, in this regard it is similar to steaming.

For the same reasons given for vitamin C, microwave cooking enhances mineral retention and vegetables. Studies have not revealed any non-heat related effects on the macro-nutrients of foods, proteins, fats and carbohydrates, when cooked in microwave ovens….. Reheating foods quickly in a microwave retains more nutrients than holding food hot for long periods; this is significant in institutions and hospitals where food may be held hot for several hours in traditional catering systems." (1)

An example of the percent of Vitamin C retention is shown in the following table: (2)

| Product | MW-Steamed | MW Only | Steamed | Boiled |
|---|---|---|---|---|
| Broccoli | 80 | 75 | 70 | 46 |
| Cauliflower | 85 | 81 | 67 | 45 |
| Potatoes | 92 | 86 | 84 | 63 |
| Corn | 65 | 61 | 45 | 41 |
| Peas | 76 | 64 | 60 | 54 |

Anti-oxidants: a paper published in the Journal of Food Science regarding the influence of cooking methodology upon the retention of antioxidant activity of various vegetables, the authors state "Depending on the vegetable in question, griddling and microwave cooking produced the lowest losses, while pressure cooking and boiling lead to the highest losses…In short, water is not the cook's best friend when it comes to preparing vegetables." (3)

Another erroneous claim is that microwave cooking somehow creates carcinogens. No peer-reviewed scientific study has ever validated this claim. Nor is there ever likely to be one – microwaves are a non-ionizing form of electromagnetic energy incapable of producing the high energy required to break chemical bonds, damage DNA, etc.

Grilling or frying of meat and poultry can create heterocyclic-amines, which may cause cancer. In a study by Jim Felton, Associate Director for Cancer Control at the Cancer Center at the University of California, Davis, it was found that briefly microwaving meats and draining off the juices before grilling got rid of most of the precursors of these potential carcinogens which were lost along with the juices. (3)

In fact, according to researcher Cyndi Thomson of the Arizona Cancer Center at the University of Arizona in Tucson, "I generally recommend that patients microwave then meets for 1 to 5 minutes and discard the juices before grilling"

Over the years, there have bean excellent publications in various peer reviewed journals, such as the Journal of Food Science, which clearly indicate that it is only when foods are seriously over-cooked in the microwave oven that there can be some effect upon the nutritional quality; but that effect is purely thermal and is not a "microwave effect". Other than that, study after study has shown that microwave cooking is at least as good as if not better than any other method of cooking.

The interested reader is referred to an article on the subject by David Schardt. (4)

References:

1. CSIRO Food and Nutritional Sciences factsheet: "The safety of microwave ovens", March 2005

2. Schnepf, M. and Driskell, J., "Sensory attributes and nutrient retention in selected vegetables prepared by conventional and microwave methods", J of Food Quality, 1994.

3. Jimenez-Monreal, A.M., et al, "Influence of cooking method on antioxidant activity of vegetables", J. Food Science, Vol. 74 (#3) pp 97-103, 2009

4. www.fsis.usda.gov/factsheets/ cooking_safely_in_the_microwave/index.asp

5. David Schardt "Fact vs. fiction". Nutrition Action Healthletter. FindArticles.com. 19 Aug, 2009. http://findarticles.com/p/articles/mi_m0813/is_3_32/ai_n13664949/