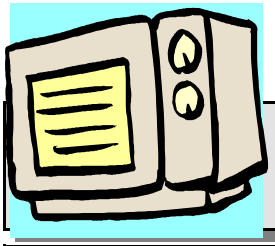

EMR Association of Australia

The facts about Microwave Ovens

Convenient and quick to heat food, microwave ovens are widely used in homes, restaurants, hot food outlets and lunchrooms throughout the country. Despite their obvious advantages, there are questions about their safety. Could they be cooking more than the evening meal?

Microwave ovens operate at a frequency of 2450 MHz, in the microwave range of the electromagnetic spectrum. They heat food by energising the oxygen component of water molecules. Microwave radiation hits cells which are torn apart and re-formed into new compounds.

How do microwave ovens affect people's health?

- A study by Richard Quan et al found that heating breast milk in a microwave oven reduces the immunologic properties of the milk. The microwaved milk showed a decrease in lysozyme activity and antibodies and an increase in bacteria. 1
- Hans Hertel and Bernard Blanc experimented on the effects of food cooked in a microwave oven on the health of volunteers. Blood analysis reflected significant changes, consistent with deteriorating health including a decrease in haemoglobin values, decrease in (good) cholesterol, short-term decrease in white blood cells and an increase in leukocytes. 2
- Japanese researcher, Dr Fumio Watanabe, has found that cooking food in a microwave oven reduces its nutrient value. Milk, beef and pork cooked in a 2450 MHz oven lost between 30-40% of essential vitamin B12. According to Watanabe, microwaving food depletes food of its vitamins more quickly than conventional cooking. 3

What else should you know?

- Microwave ovens are legally allowed to leak radiation of up to 5 milliwatts/cm^2 at a distance of 5cm or more from the oven. 4 As they age, the ovens can leak additional radiation, often as a result of deteriorating door seals.
- As well as microwave radiation, microwave ovens give off high electromagnetic fields. EMRAA has measured fields of 20 milligauss from ovens plugged in but not in use, and fields of 250 milligauss from ovens during cooking time. (Many studies show that continual exposures of 3 milligauss and over is associated with serious health problems.)
- Dangerous bacteria can survive in food cooked in a microwave. Bacteria are more likely to survive when food is reheated in a microwave than in a conventional oven. 5
- The packaging designed for microwaving foods - waxed bags and plastic film - has been shown to contaminate food during cooking. 5

How can you reduce your exposure to radiation from microwave ovens?

EMRAA advises:

- Use a conventional oven where possible.
- Regularly check microwave leakage. (Suitable devices can be bought from many electronics stores.)
- Avoid standing next to microwave ovens during cooking.
- Use glass or pyrex containers for cooking.
- Unplug the microwave oven when it is not in use and remove the plug from the socket
- Allow food that has been cooked in a microwave oven to stand for a few minutes before eating it, to allow cells to normalise (as recommended by manufacturers).

References

1. *Effects of Microwave Radiation on Anti-infective Factors in Human Milk,* Pediatrics vol 89 no 4 April 1992.
2. *Hidden Hazards of Microwave Cooking,* ACRES, USA, April 1994.
3. *Journal of Agricultural and Food Chemistry* 46, pp 206-210, 1998.
4. National Health and Medical Research Council 1985.

EMR Association of Australia
PO Box 589, Sutherland NSW 1499
Phone: (02) 9523 4750; Fax (02) 9521 1477
Email: office@emraa.org.au web page: www.emraa.org.au