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## **Microwave safety** <sup>[1]</sup>

Dear Alice,

We have a five-month-old baby, and we are concerned we have been using the microwave too much to warm his milk bottles and baby food. Is there any danger in this?

— Radiating

### **Answer**

Dear Radiating,

Microwave ovens (also called microwaves) can certainly make life easier and speed up the process of reheating or cooking food, but given its use of radiation, some have misgivings about its safety. That being said, radiation can't seep into the food or beverages you microwave. The amount of radiation emitted from a microwave is set and monitored by the U.S. Food and Drug Administration (FDA) for a standard that is said to be safe for home use. However, there is still a concern of serious burns that can occur from hot containers, overheated foods, and injury from exploding foods. Ultimately, experts recommend that baby food not be heated in the microwave due to overheating of food and in the case of breast milk, the potential breakdown of nutrients. Keep on reading more for the nuances of microwave safety!

The radiation that a microwave uses is non-ionizing, which means that it doesn't change the atomic structure of the substance. Ionizing radiation, on the other hand, has the ability to alter atoms, which is what may cause cell damage. Radiation exposure from a home microwave likely doesn't pose any risks to you or your baby as long as your microwave's safety mechanisms function properly. There is the potential of radiation leakage if the seal is cracked or caked with food, if the microwave has been dropped, or if a fire has occurred inside. In any of these cases, it's a good idea to replace the microwave. However, if your microwave is in good working order and you want to be extra safe, standing away from the microwave while in use can help ensure that you're further reducing any exposure.

While the risk of exposure to radiation is low, there is a greater risk of burns. The primary concern when heating food or milk in the microwave for babies is hot spots, which are developed when microwaves heat foods unevenly, causing some sections to become much hotter than

others. When the milk or food is checked for heat level, it may feel fine, although there may be some portions that are burning hot. Due to this, experts recommend using other ways to warm food, such as running the bottle under warm water or in a pan of heated water. When heating milk, shake the bottle after heating and let it stand for 30 seconds before checking the temperature. If the only option to heat food is in the microwave, be sure to heat the food in a separate dish (not the jar it came in) to more easily stir it and check the temperature. Additionally, as with the milk, let it stand for 30 seconds before checking the temperature. The appropriate temperature for food and drink for a baby is lukewarm. To more accurately test the temperature, exposing the top of your hand to the food or milk is recommended, rather than the inside of the wrist, as the inside of the wrist isn't very sensitive to heat.

In general, microwaving food isn't likely to result in a loss of nutrients any more than other heating methods. Typically, microwaves cook food faster and destroy fewer vitamins than conventional cooking methods. However, there is some evidence that it may reduce the amount of nutrients in breast milk. The type of food that you're providing for your baby may indicate the type of heating method you use at a given time.

If you do use the microwave, here are a few tips:?

- Only use cookware that is specifically labeled as “microwave safe.” It's best not to use foam trays, empty plastic containers (such as yogurt cartons), or takeout containers in the microwave. These materials can overheat and become warped, which will allow harmful chemicals to penetrate your food.
- Try to avoid turning on an empty microwave. Try keeping a glass of water or a box of baking soda in the oven just in case.
- Regularly clean the inside walls, the door, and the seal of your microwave with a mild detergent and water.
- Never operate the oven when something is caught in the door, as this can permit radiation to get through.
- Be sure not to put any metal in the microwave (including removing metal twist ties from bags). They act as antennae and can cause a fire.

If you have further questions about microwave safety or child food preparation, you can contact your child's health care provider. Generally, however, you can rest assured that as long as your microwave works properly, your baby is unlikely to ingest harmful radiation.

Alice!

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