

## New radiation technology targets tumors

### Zeroing in on breast cancer

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*This column is written by experts in the medical field and provides advice on men's and women's health issues.*

Our bodies are in constant motion. Each breath we take expands our lungs and moves the muscles in our chest and abdomen.

For this reason, it can be challenging during radiation therapy in breast cancer patients to accurately target tumors while still protecting nearby healthy tissues. Even the smallest breath can change the exact location of a tumor, so doctors often use a slightly larger field of radiation to target a tumor. Normal breathing also moves the heart and lungs closer to the treatment area, which raises the risk that these organs are exposed to radiation.

Studies have suggested that patients who receive radiation near their hearts have a higher risk of devel-



oping heart disease. With more women surviving breast cancer, it is important to pay attention to any long-term effects that may result from their treatment.

A new radiation technique seeks to better protect these critical tissues.

The Active Breathing Coordinator is a device that helps women hold their breaths between 15-25 seconds, which makes radiation treatment more accurate. By keeping the lungs inflated, it also increases the distance between the tumor and nearby tissues.

Here's how the device works: Before a radiation beam is delivered, a woman holds a mouthpiece between her teeth that is connected to a breathing tube. A small clamp, placed on the woman's nose, helps prevent accidental breathing. When the patient is ready, she takes a deep

breath and holds it. A small valve in the breathing tube closes, preventing air from entering the lung and stopping movement.

The patient controls the device via a handheld thumb switch. If the patient releases pressure from the switch, the radiation treatment is automatically stopped and normal breathing begins. Patients typically complete a day's treatment after five to seven breaths.

The Active Breathing Coordinator is also used for radiation treatments in lung and abdominal cancers. In addition, it can be used in the treatment planning process even before radiation therapy begins. For example, using the device during computed tomography (CT) scans produces images with a clearer outline of tumors, enabling doctors to better target tumors with radiation beams.

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