

Some radiation okay for expectant mother and fetus

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According to a new study in the *Journal of the American Academy of Orthopaedic Surgeons* (JAAOS), imaging studies necessary to diagnose traumatic injuries sustained by pregnant women are safe when used properly.

During pregnancy, approximately 5 to 8 percent of women sustain [traumatic injuries](#), including fractures and muscle tears. To help evaluate and manage these injuries, [orthopaedic surgeons](#) often recommend radiographs and other imaging studies. "While care should be taken to protect the fetus from exposure, most diagnostic studies are generally safe, and the [radiation](#) doses from these studies are well below thresholds considered risky," says lead study author and orthopaedic surgeon Jonas L. Matzon, MD.

Proper diagnosis and treatment of these injuries is important because traumatic injuries are the leading cause of non-pregnancy-related maternal death. Expectant mothers may be concerned about the impact of [radiation exposure](#) on the fetus and may perceive the risk of a diagnostic test as high. This new report shows that "the true risk is low, so these concerns should not prevent [pregnant women](#) from having indicated diagnostic imaging studies," says Dr. Matzon.

X-rays and other imaging devices emit two types of radiation: nonionizing radiation which does not carry enough energy to completely remove an electron from an atom or molecule, and ionizing radiation, which can remove one or more electrons from atoms and molecules. At

high enough doses, ionizing radiation may cause birth defects or spontaneous abortions and increase the risk of cancer. However, fetal exposure to ionizing radiation depends on many factors, including the body part being imaged, the type of imaging selected, the amount and type of radiation emitted, the mother's bodily build, the distance between the fetus and the area being imaged, and the safety protocols followed.

For example, ultrasound and [magnetic resonance imaging](#) (MRI) are not associated with known fetal effects and are considered safe for pregnant patients. In contrast, computed tomography (CT) of the pelvis results in higher doses of radiation to the fetus, and therefore, greater consideration must be taken.

The study also found the following:

- X-ray exposure from a single diagnostic procedure does not result in harmful fetal effects.
- The likelihood of a harmful effect is proportional to the [radiation dose](#) and the gestational age of the embryo or fetus at the time of exposure.

"If a patient requires multiple scans and repeated doses of radiation, a consultation with a qualified medical physicist should be considered to determine estimated fetal dose," says Dr. Matzon.

Provided by American Academy of Orthopaedic Surgeons

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