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How our company contributes to radiation protection
EOS imaging group

Imaging spine at a week´s natural radiation exposure

What is EOS?

EOS imaging designs, develops and markets EOS, a medical imaging system dedicated to the imaging of osteoarticular pathologies: in particular the hip, knee, back and the orthopaedic surgeries associated.

The system combines a Nobel Prize-winning low dose Xray detector and proprietary software technology that produces 3D modelling of the patient bones from just 2 radiographs. EOS enables whole body frontal and lateral images to be acquired simultaneously in a natural standing or seated position with very low radiation dose and no compromise on image quality. In less than 20 seconds, two full body digital radiographs are taken. From these 2 images, a 3D bone envelop can then be obtained together with precise 3D anatomical information, opening the way to advanced therapeutic planning and control of orthopedic treatments.

Paediatric patients first

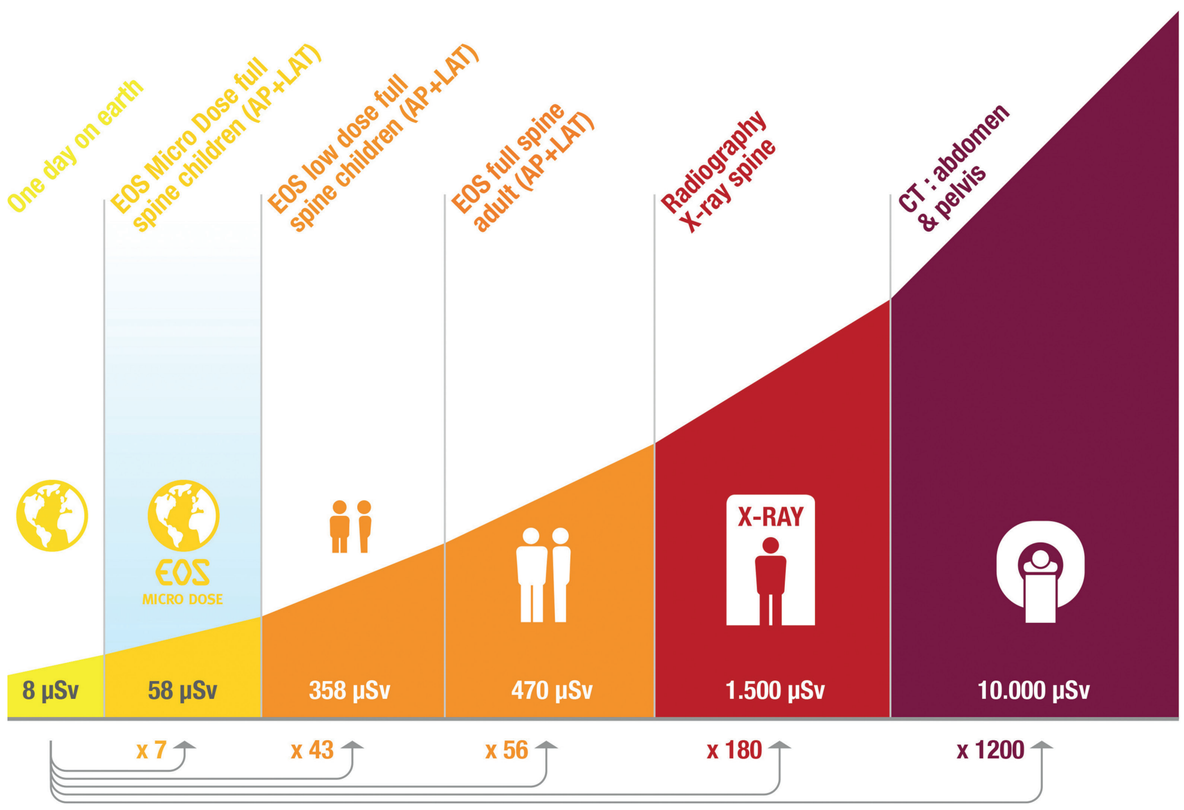
Every day, people are exposed to small levels of natural radiation from their surroundings. However, over the past two decades, the levels of radiation exposure from artificial sources – primarily from medical imaging - have increased by 600%[1]. Children in particular face potential adverse effects from excessive medical radiation, including an increased risk of radiation-induced cancer later in life[2], and those children that suffer from specific conditions, such as scoliosis, can receive very high levels of radiation[3].

Micro Dose: Xray imaging at natural dose levels

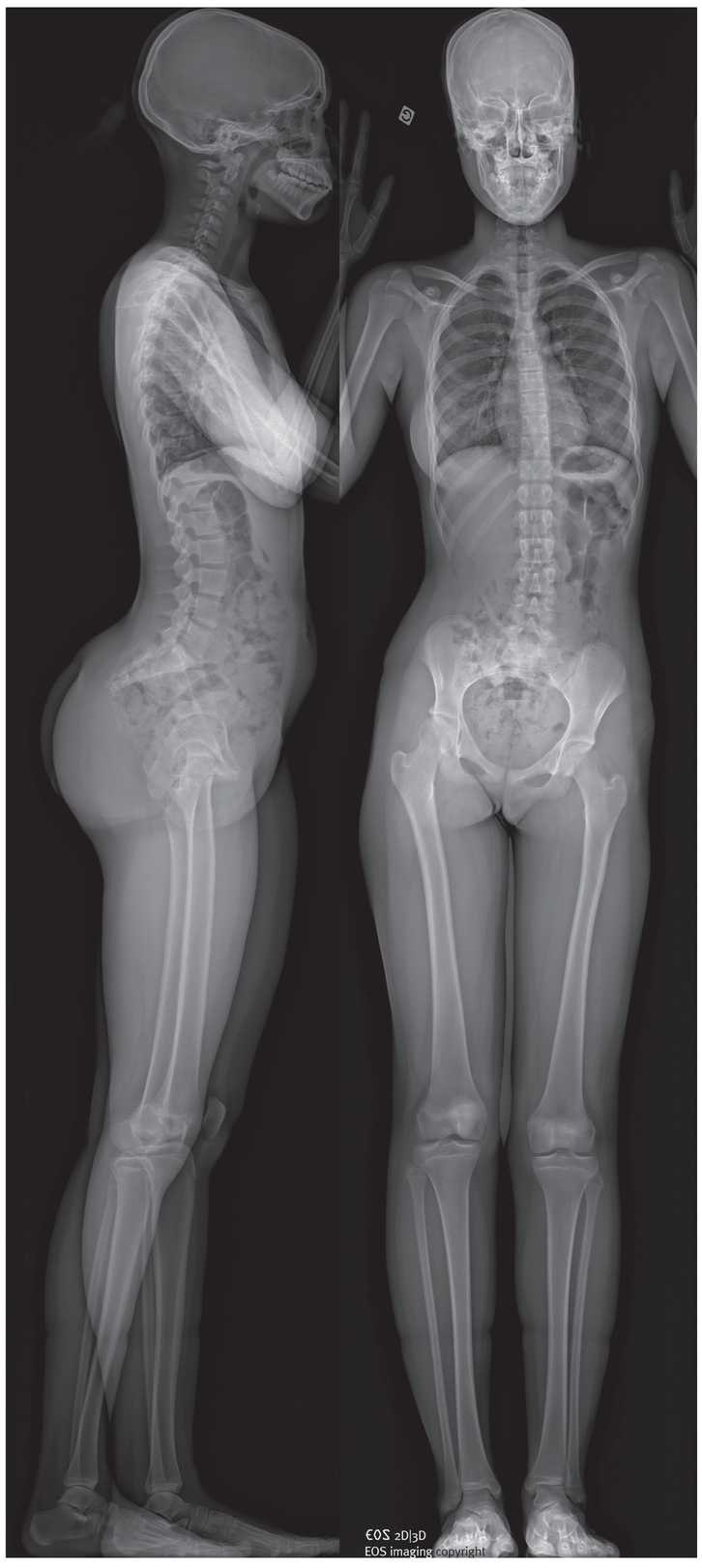
The EOS system already offers a low-dose image capability for diagnosis, treatment planning and monitoring in children. This existing offering exposes children to six to nine times less radiation than computed radiography with the same or better resulting image quality[4]. The new EOS Micro Dose feature uses up to seven times less radiation than EOS current low dose offering.
It now provides physicians with the safest imaging technology possible to monitor disease progression, in particular in pathologies which require frequent monitoring such as scoliosis follow-up. With these extremely low dose levels, there is no need to question whether or not to take a control exam if deemed necessary, and parents are reassured that physicians are not taking any risk for their child.

The importance of being ALARA

To bring the dose level of a paediatric radiograph to the same level as a few days of natural background radiation on earth is a fantastic achievement in the ALARA (As Low As Reasonably Achievable) principle for EOS customers and their patients. EOS's progression from low-dose to micro-dose imaging highlights the original principle behind the Nobel Prize-winning detection technology and allows to plan and monitor orthopaedic treatments using the lowest possible dose of radiation with the best possible image quality.



EOS Micro Dose brings the dose level of a paediatric radiograph to the level of days of natural background radiation on earth.



[1] Use of Diagnostic Imaging Studies and Associated Radiation Exposure for Patients Enrolled in Large Integrated Health Care Systems, 1996-2010, American Medical Association. 2012.

[2] Radiation exposure from CT scans in childhood and subsequent risk of leukaemia and brain tumours: a retrospective cohort study. Berrington de Gonzalez & Al, Lancet. 2012.

[3] Ionizing radiation exposure in early onset scoliosis EOS patients treated with rib-based distraction. Nelson Astur & Al. SRS. 2012.

[4] Diagnostic imaging of spinal deformities: reducing patients radiation dose with a new slot-scanning X-ray imager. Deschenes S, Charron G, Beaudoin G, Labelle H, Dubois J, Miron MC, Parent S. Spine. 2010.

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