



DON'T GUESS. SEE.

Born from Nobel Prize technology

EOS

A radically new vision
for orthopedic imaging

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Why guess when you can
see, measure, analyze?

With **EOS**, radiologists and
orthopedists can now,
for the first time, have a full view
of their patient's skeleton:
Life-size, naturally weight-bearing in
3D, from all angles.

All this with a drastic reduction
of radiation exposure.

All this with
a faster workflow.

All this thanks to
a Nobel-Prize invention.



- Life-size, naturally weight-bearing 3D
- Born from Nobel Prize technology
- Full view of the Patient's skeletal anatomy

"We cannot use standard techniques for our imaging exams when we know less irradiating alternatives exist."

Dr Peter Newton, Rady Children's Hospital, San Diego (USA)

"Orthopedic surgery is a series of precise gestures in a 3D universe, performed on 3D patients. We need to take this into account when we plan our surgeries."

Dr Hubert Labelle, St Justine Hospital, Montreal (Canada)

"Understanding the patient global sagittal balance is key to the planning and outcome of our spine surgeries. We cannot keep looking locally at pathologies that have a global impact."

Pr Jean-Charles Lehuéc, CHU Bordeaux (France)

Unequalled radiation exposure reduction

With medical imaging usage increasing over the last 25 years, reducing the patient's exposure to X-ray dose has become a top priority of medical imaging. EOS is showing the way: The Nobel-Prize technology of EOS allows a 6 to 9 fold dose reduction when compared to a CR system¹, and up to 100 fold dose reduction when compared with a CT scanners².

Why?

Because of the automatic gain control used in the Nobel Prize detector, paired with its ability to reject scattered X-rays, gives radically enhanced image contrast performance at a very reduced dose.

Only EOS can produce such amazing image quality at such a low dose, bringing the ALARA (As Low As Reasonably Achievable) principle to levels unachieved until now.

EOS allows progression monitoring of severe spinal deformity preoperatively and postoperatively, thanks to fast, simple, 2D and 3D low dose examinations.

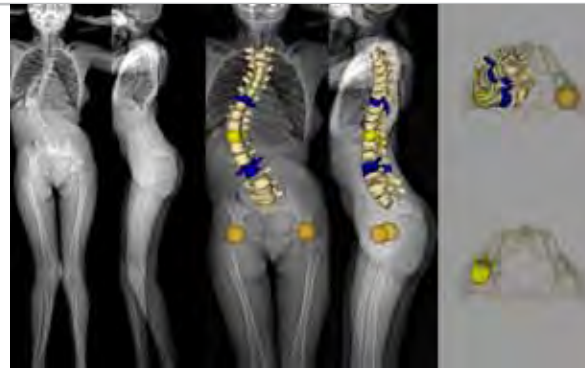


Figure 1. Preoperative EOS examination No. 1 (February 2008)

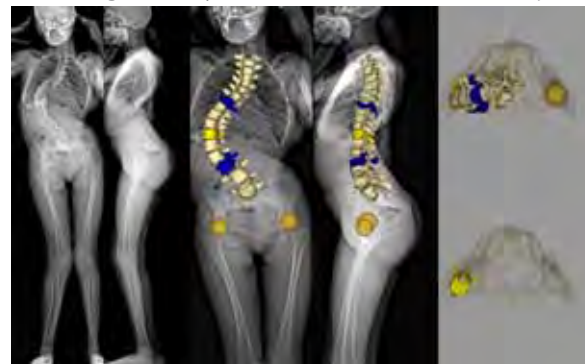


Figure 2. Preoperative EOS examination No. 2 (January 2009)

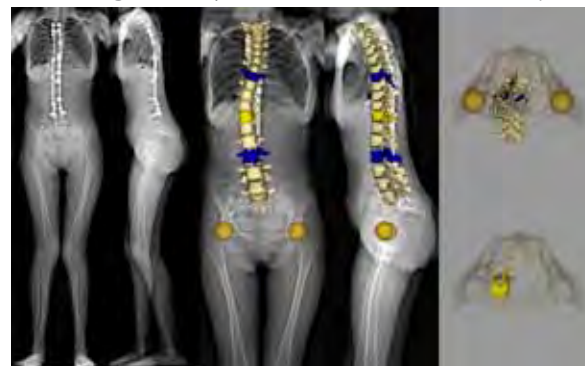


Figure 3. Postoperative EOS examination (February 2009)

Correction of a major grade secondary scoliosis in cerebral palsy

Pr. Tamas Illes, MD, DSc*

University of Pecs, Clinical Center, Department of Orthopedic Surgery, Hungary

Faster workflow

The patient stands or sits inside the EOS booth and the proprietary detector produces a full or partial body, weight-bearing image in less than 20 seconds for an adult and less than 15 seconds for a child.

How?

While the patient stands or sits, a vertical drive mechanism moves a C-arm down the entire height of the patient, or any desired subset of his length. The C-arm supports two separate imaging systems capable of simultaneously capturing both frontal and lateral images. Digital images are immediately available on the 2D workstation.

In only twenty seconds or less, two full body digital radiographs are taken. No stitching, no cassette handling: EOS saves technologist and patient waiting time during busy clinics, with total exam cycles below 4 minutes even for complex spine exams³.

¹ S. Parent et al., "Diagnostic imaging of spinal deformities: Reducing patients radiation dose with a new slot-scanning x-ray imager" – *Spine* April 2010, 35 (9): 989.

² Dubousset J., Charpak G., Dorion I., Skalli W., Lavaste F., Deguise J. et al. – *Radioprotection* 2005 ; 40 ; 245 à 255 - *Mémoires de l'Académie Nationale de Chirurgie*, 2005, 4 (4) : 22-27

³ M. Alison, R. Azoulay, B. Tilea, S. Grandjean, T. Lefevre, I. Achour, G. Sebag, "Evaluation of workflow in a pediatric radiology department using Ultra Low Dose Digital Imaging" - 2009 ESPR Congress.

A radically new diagnostic and orthopedic approach

See, measure, treat like never before

EOS captures whole body images of a standing patient in a single scan without any stitching or vertical distortion. Frontal and Lateral digital images up to maximum 175cm may be obtained simultaneously, with an outstanding image quality.

This was unavailable until EOS.

"EOS has revolutionized the way we handle scoliosis."

Pr Tamas Illes, Pecs University Hospital, (Hungary)

The lack of vertical distortion - thanks to the EOS slot scanning technology and its unique reference plane positioning system provides true size images, in 1:1 scale, for highly accurate surgical planning measurement.

This was unavailable until EOS.

"EOS brings more than beautiful images to the radiologist/orthopedist team: It delivers a full report with an array of precise measurements"

Pr Guy Sebag, Hôpital Robert Debré, Paris, (France)

The 3D bone-modeling is unique because it is performed in a weight-bearing position.

A 3D rendering of specific skeletal anatomy may be made at any time after frontal and lateral scans are performed. These 3D renderings give both a weight-bearing 3D model of the spine and lower limb* as well as the automatic calculation of clinical parameters, enabling new ways to globally



evaluate a patient's postural abnormality, in the natural UPRIGHT 3D environment.

This was unavailable until EOS.

"A 5mm error in an arthroplasty can have a significant impact on the patient wellbeing post-operatively. We need precise measurements for our surgeries"

Dr Eric Stindel, CHRU Brest (France)

EOS radically changes the way radiologist/orthopedist teams can now diagnose and treat musculoskeletal pathologies on all age groups, from children to geriatric patients**.

The EOS story

The 1992 Nobel Prize for Physics was awarded to a revolutionary invention: a high energy physics particle detector. This detector design gave birth to EOS: it enabled X-ray imaging to be performed at a much lower dose, with an expanded dynamic range and without the vertical distortion inherent to today's long length film and digital imaging systems.

A collaboration between a team of world-class physicists, engineers and most importantly orthopedic surgeons and radiologists brought EOS from proof-of-concept to a fully

operational equipment. All thanks to a radically new vision of what imaging could and should bring to orthopedic surgery.

*Pending FDA filing application

**Refer to sterEOS manual for age indications



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