A new radiolucent dedicated chair for sitting-posture radiographs in non ambulatory patients:
Application with the EOS system

Houssam Bouloussa, M.D
Director : Raphaël Vialle, M.D, Ph.D
Paediatric Orthopaedic Surgery Department
Armand Trousseau Hospital, Paris
EOS system: the imaging future of spine surgery?

- 2D/3D ultrarapid acquisition (20s)
- High-quality collimated X-rays
- Ultra-low dose X-rays
- Natural load-bearing position
- 3D reconstructions
- Ideal for scoliosis
Potential restrictions

- Narrow access
- Reduced surface
- Patient compliance
- Artifacts

Can non-ambulatory with neuromuscular scoliosis benefit from that technological rupture?
The EOS chair

- A new radiolucent device
- A universal design
- 360° rotation
- Attachment equipment
- Load: up to 80kg
Selecting the right patients

- Ideal indications:
  - Neuromuscular conditions
  - Paraplegic/tetraplegic children
  - Arthrogryposis

- Few contraindications:
  - Severe mental retardation
  - Severe dystonia
Preoperative functional assessment

- Spinal balance (frontal, sagittal, and axial rotations)
- Pelvic obliquity
- From C-spine down to the tibias for standing patients
Postoperative imaging

- Higher-quality post-op X-rays (focus on bony elements)

- 3D post-op reconstructions:
  - Precise assessment of deformities
    - 3 planes, including derotation
    - Imbalance
Understanding pre-op spinopelvic anatomy
Pre-op and post-op correction
EOS in our daily practice

- Reduced X-ray exposition for patients and caregivers
- All patients benefit from pre-op and post-op EOS.
- High turnover rate
- High acceptance rate: children, parents, and caregivers
**DISCLOSURE**

- Research support from EOS imaging
- Other financial support from EOS imaging:
  - Travel expenses / Accomodation