

USE OF 3D PRINTING IN SPINE SURGERY - A LOW COST ALTERNATIVE TO ACHIEVE SAFETY AND ACCURACY

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CONSULTANT SPINE SURGEON

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GOALS

- SAFETY
- ACCURACY
- EFFICACY
- LIMITED COMPLICATIONS
- EARLY MOBILIZATION



TECHN

- ROBOT
- NAVIGATION



- 3D PRINTING

DRAWBACKS

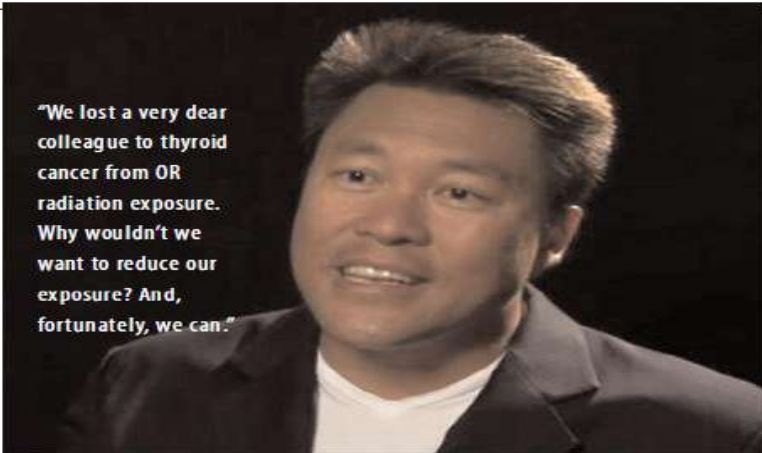
Radiation exposure

Cost/ High capital investments

Spine Surgery & Radiation

Safety First, For Surgeons, OR Staff, and Patients by Ron Trahan

"We lost a very dear colleague to thyroid cancer from OR radiation exposure. Why wouldn't we want to reduce our exposure? And, fortunately, we can."



Larry T. Khoo, MD Spine Surgeon
The Spine Clinic of Los Angeles

Spine surgeons double their lifetime radiation exposure limits in less than 10 years.

Radiation exposure in spine surgery is excessive, protection is underutilized, and the long-term biological effects can be deadly. There is a growing concern among influential spine surgeons such as Dr. Larry Khoo, who are calling for the reduction of radiation vulnerability in the OR. It has been reported that a 95%* of physicians grossly underestimate how much radiation both they, and their staff, are absorbing; and, that only 14%* of doctors have undergone training on radiation susceptibility. Nonetheless, there are simple steps that can be adopted, validated under rigorous clinical study protocols, to dramatically reduce radiation exposure in the OR. ("Glow in the Dark Doc: Radiation Exposure", Orthopedics This Week, volume 5, issue 29, Sept. 22, 2009)

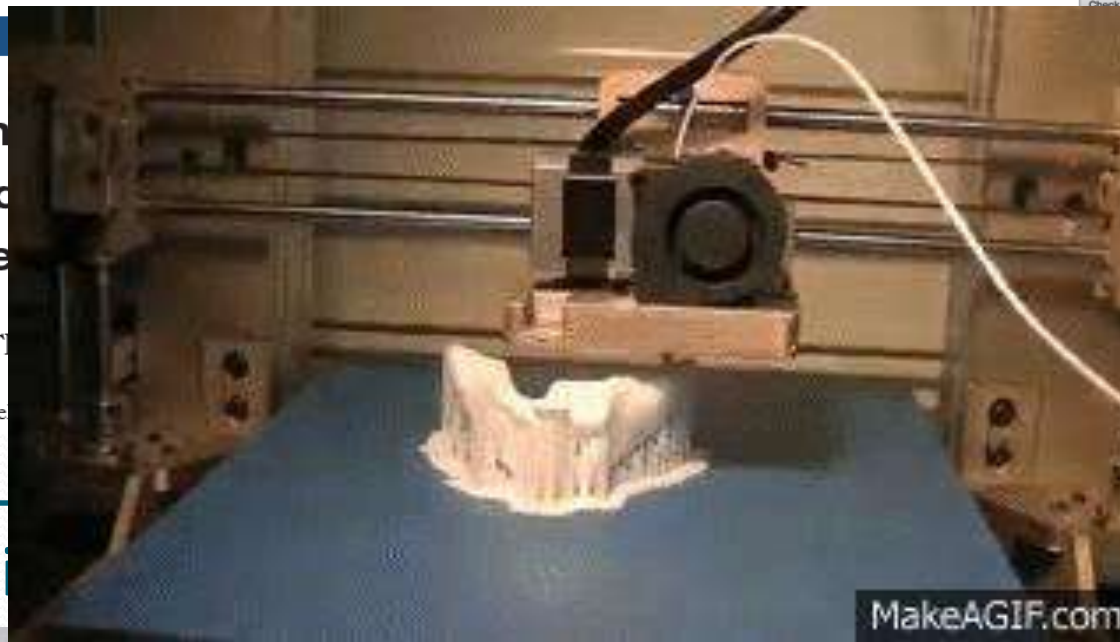
Dr. Larry Khoo completed his bachelor's degree in biological sciences at Stanford University, and then went on to graduate *magna cum laude* from Yale Medical School in New Haven, CT.



What should m acquisition and for spine surge

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Epworth Richmond Hospital, Me

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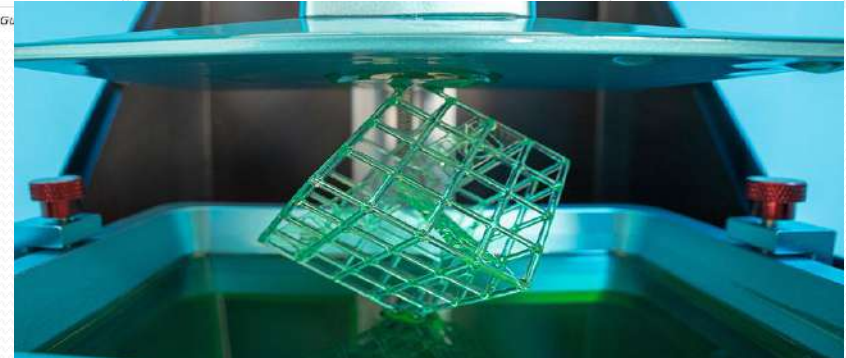
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Celcius GPS	BrainLab Cirq
500,000	<ul style="list-style-type: none"> \$100,000-\$250,000 Table-mounted device
<ul style="list-style-type: none"> Link to Identify to surgeon l-pelvis and K- 	<ul style="list-style-type: none"> Passive retaining arm for BrainLab instrumentation Requires BrainLab navigation Open implant platform

Instrument range
Instrument tracking
to navigate Globus implants



Mechanical G

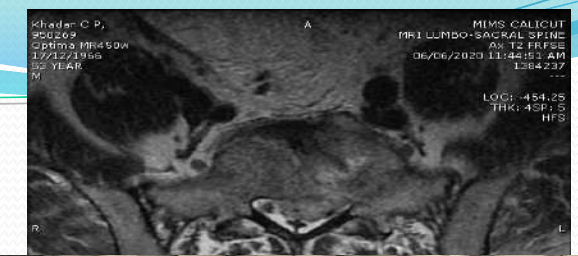
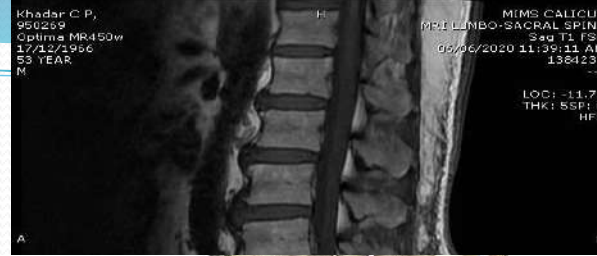




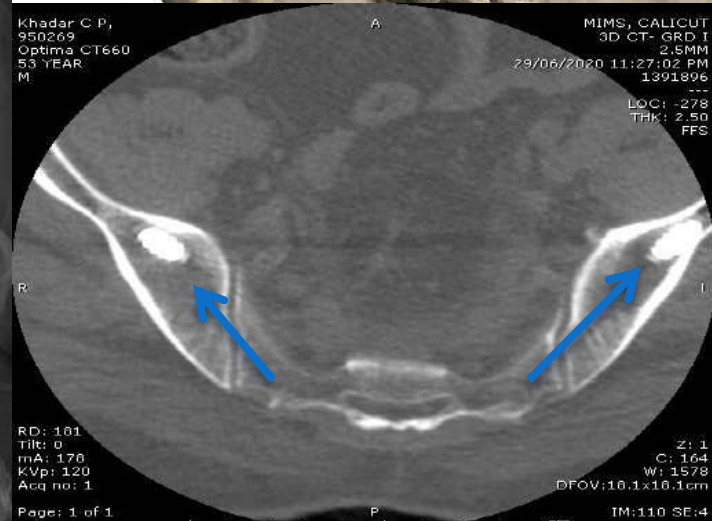
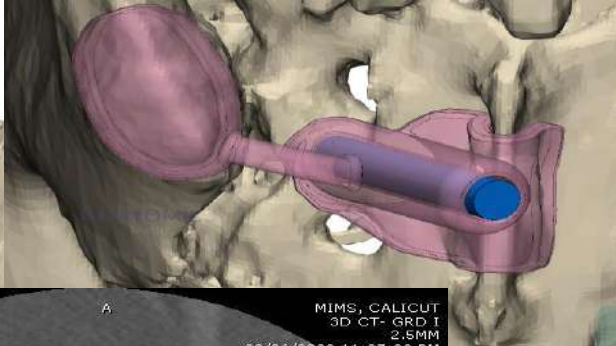
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TECHNOLOGY

Navigate. Don't complicate.

Unmatched in patient-matched solutions for the spine.



ANATOMIZ3D
Meditech Pvt. Ltd.
Personalising Healthcare



Complex Scoliosis case study



USP's of this technology

Advantages

- **Customized** for the patient. Acts as a **low-cost, accurate and simple** alternative even in complex situations
- **Avoids radiation** exposure and provides **greater accuracy**
- It also **addresses drawbacks** of image-guided navigation systems, including cumbersome stereotactic arrays, high technology startup cost, potential for surgeon interference, and increased surgical time.

Indications

- Though this technique can be used for most spine surgeries, it is particularly helpful in **complex spine surgeries** like
 - Revision spine surgeries
 - Deformity correction surgery (Scoliosis and kyphosis) in children and adults
 - Complex surgeries involving osteotomies
 - Use of Pedicle screws in the cervical spine and spinopelvic fixations

Thank you!

Technology
replace th



AsterMIMS

by pushing the boundaries in complex cases