

Surface Matters

Adam Bruggeman, MD
Texas Spine Care Center

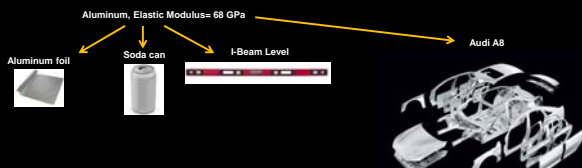


DISCLOSURES

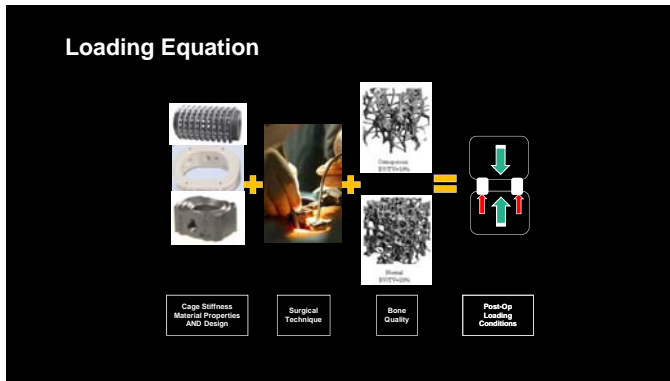
- Speaker/Honoraria
 - Titan Spine

Modulus of Elasticity is irrelevant

- Elastic modulus is related to how much a material will deform under a specific force.
- Elastic modulus is related to the bonding strength of the atoms- it is a material property.
- Objects can have the same material/elastic modulus but different strength/stiffness.



Modulus is only a material property. PEEK must increase wall thickness, decrease lumen and add struts in order to achieve the strength needed to perform structurally.



J Am Acad Orthop Surg 2017;25:
160-168

Research Article

The Effect of Cervical Interbody Cage Morphology, Material Composition, and Substrate Density on Cage Subsidence

Takeaways:

- (1) Do not perforate the endplates... simply scrape off the cartilage
- (2) Pack with robust structural substances
- (3) Larger footprint cages subside less than smaller footprint cages
- (4) No evidence of difference in subsidence between PEEK, Ti, or Silicon Nitride

Spine
Epidemiology

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Implant Materials Generate Different Peri-implant Inflammatory Factors

Poly-ether-ether-ketone Promotes Fibrosis and Microtextured Titanium Promotes Osteogenic Factors

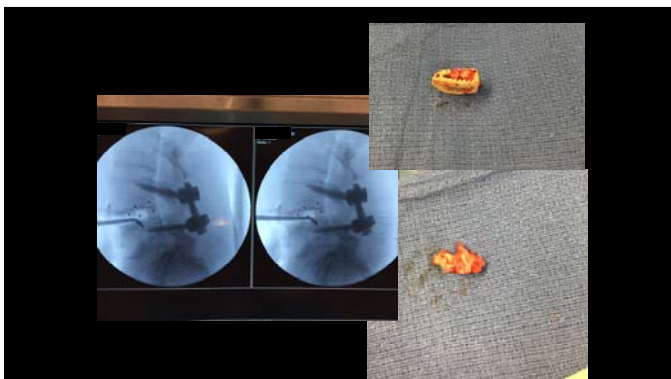
Rene Olivares-Navarrete, DDS, PhD,* Sharon L. Hyslop, MS,* Paul J. Slosar, MD,† Jennifer M. Schneider, MS‡
Zvi Schwartz, DMD, PhD,*§ and Barbara D. Boyan, PhD*§

IMAST 21st INTERNATIONAL MEETING ON ADVANCED SPINE TECHNIQUES
VALENCIA MAY 18-22 2014

- 42 y/o female
- Grade 1 Spondylolisthesis on Presentation to outside surgeon
- PLIF/PLF/Instrumentation through MIDLIF approach (Nuvasive) with cortical screws on 12-31-13







TISSUE SENT: A. Implant
B. End plate fibrosis scar tissue

CLINICAL HISTORY: Radiculitis, lumbago, post-laminectomy

FINAL PATHOLOGICAL DIAGNOSIS:

A. HARDWARE, SPINE, REMOVAL:
- ORTHOPEDIC HARDWARE IDENTIFIED (GROSS ONLY).

B. SOFT TISSUE, SPINE, EXCISION:
- CARTILAGE AND FIBROUS TISSUE WITH FOREIGN BODY GIANT CELL REACTION AND GRANULATION TISSUE.

Primary Pathologist – Jennifer R. Rushton, M.D.

GROSS DESCRIPTION:

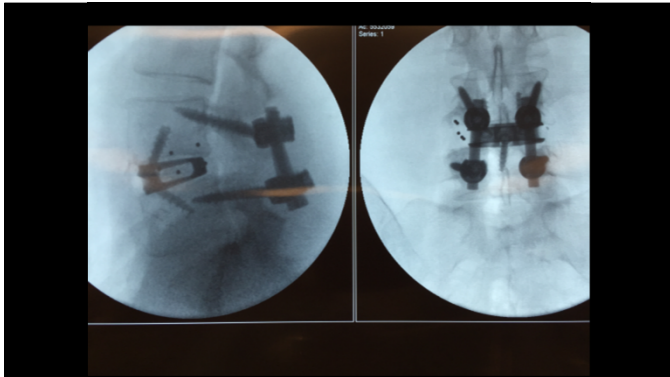
A. Received in formalin labeled "previous surgery implant" is a 2.5 x 1.3 x 0.9 cm white tan synthetic spacer with saw toothed edges. The device is partially inscribed as 23 mm – 4 degrees. The specimen is received with scar tissue attached purple-tan tissue. No tissue is submitted for microscopic examination. The specimen is for gross identification purposes only.

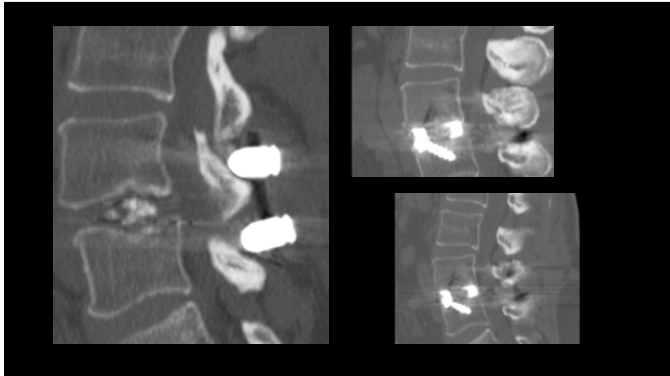
B. Received in formalin labeled "end plate fibrosis – scar tissue" is a 2.5 x 1.3 x 0.4 cm irregularly shaped fragment of purple to light tan fibrous tissue. Sections reveal a rubbery to focally calcified purple-tan out surfaces. No distinct lesions are identified. The specimen is entirely submitted as B1, post fixation and brief decalcification. (CCIV, sgh, 1030 hrs, 08/16/15)

MICROSCOPIC DESCRIPTION:

A. (Gross only)

B. Microscopic examination performed. Results reflected in final diagnosis. (JRR, lc, 8/17/15)





	Back Pain	Right Leg Pain	Left Leg Pain	ODI
Preop	6	1	6	38%
2 wk f/u	6	1	4	N/A
6 wk f/u	3	0	3	N/A
3 mo f/u	3	0	1	26%
6 mo f/u	3	0	2	18%

