Spinous process/intra-laminar devices?

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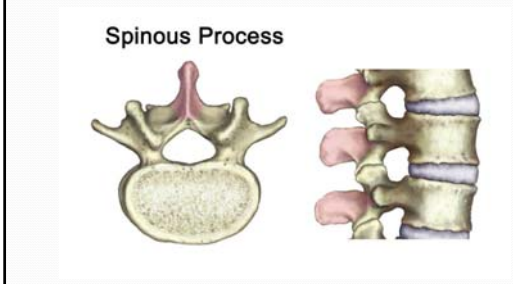


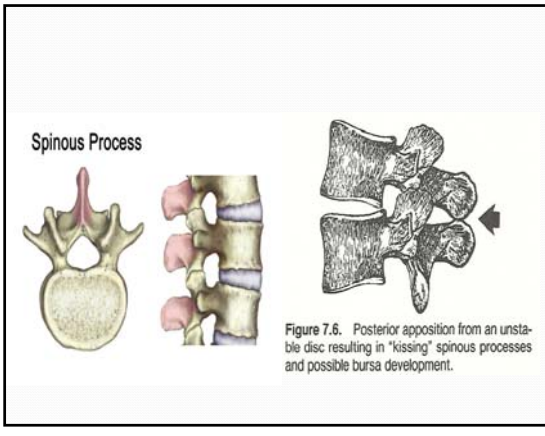
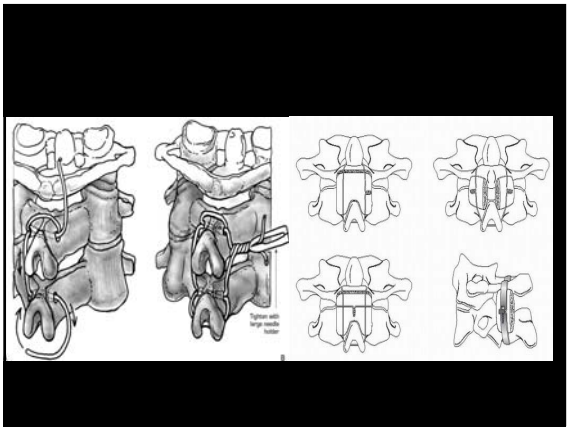
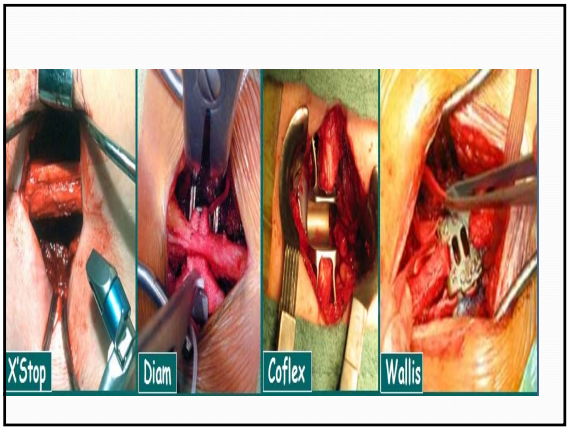


Figure 7.6. Posterior apposition from an unstable disc resulting in "kissing" spinous processes and possible bursa development.



Device purpose ?

- Spacer – passive/active
- Motion preserving device
- Fusion device- stand alone
- Fusion augmentation-ALIF,LLIF,TLIF



Inter-laminar vs spinous process

Deyo 2013

- Medicare data – 75 yo
- 2006-2009
- 6000 spacers vs 17000 fusions
- Reduce LOS (1.4 vs 2.7 days)
- Reduced complications (1.2% vs 3.3%)
- 2 yr revision (17% vs 10)

Biomechanical impact– Intact? Decompressed? Normal Spine?

- Reduce motion in extension
- Reduce intradiscal pressure in extension
- Reduce facet loads
- Prevents(?) loss of foraminal area in extension
- Other effects may be dependent on the size and placement of the implant

In vitro studies-Aspen

- stand alone decreases ROM in Ext/Flexion
- with ALIF equal to bilateral pedicle screws
- with ALIF superior to anterior plating
- created flexion at the treated level

Aspen/TLIF -- Kaibara et al

- Stand alone reduced flex/ext similar to bilat pedicle screws
- Stand alone inferior in lateral bending and rotation
- Aspen/TLIF and unilateral screws similar to TLIF and bilateral screws

Spinal Simplicity

Minuteman G3R

- Interspinous fusion device
- Bone graft window

Standard Minuteman G3 Implant

Spinal Simplicity

Clinical Benefits

- Single Position Anterior/Posterior Fusion
  - MIS Lateral surgical approach, no need to reposition patient
- Fusion Device
  - Promotes fusion by utilizing the large bone graft window and HA coated implants
- Immediate, Rigid Stabilization
  - Rigidity comparative to interbody fusion with supplemental pedicle screw-rod fixation
  - Supraspinous ligament remains intact acting as tension band

Spinal Simplicity

Biomechanics

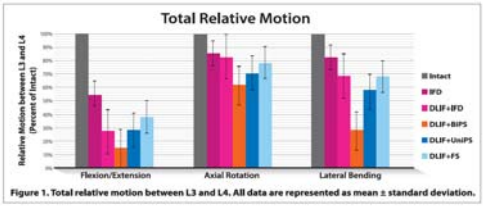


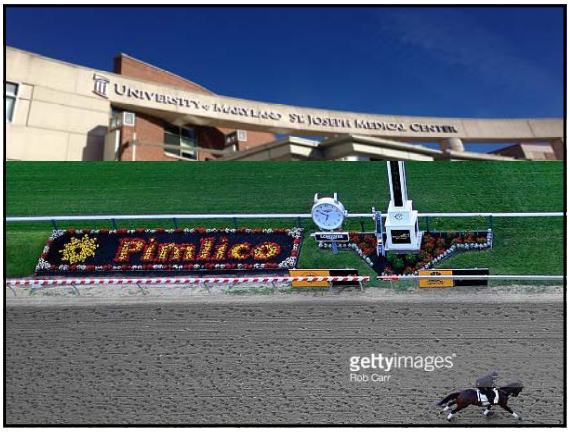
Figure 1. Total relative motion between L3 and L4. All data are represented as mean ± standard deviation.

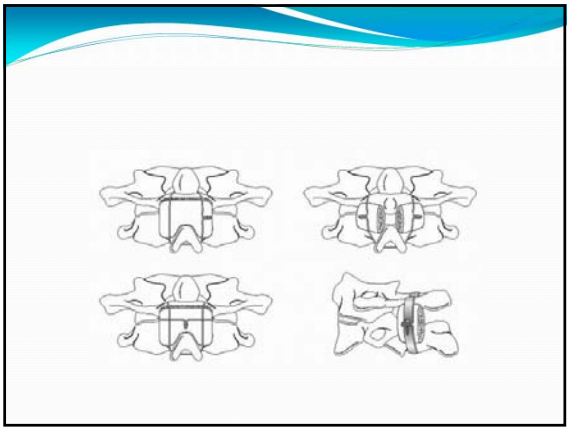
- After LLIF, Minuteman provided:
  - similar stability to bilat. pedicle screws and facet screws in F-E and axial rotation

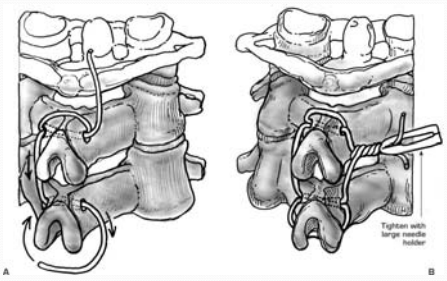
Spinal Simplicity
Innovative simple solutions

Biomechanics

- The Minuteman interspinous fixation/fusion enhances stability of the lumbar spine similar to other posterior fixation techniques when used in a DLIF/XLIF construct
- The Minuteman device may be an effective minimally-invasive alternative to traditional pedicle screw/rod constructs when used to support a DLIF/XLIF






Tighten with large needle holder
A
B

Patient goals vs biomechanics