

EOS: Bracing is Better

Michael Glotzbecker MD

ICEOS 2018

Lisbon, Portugal



Disclosures

None related to this talk

Speaker: Depuy/Synthes, Zimmer/Biomet, Nuvasive

Member : CSSG, GSSG, HSG

Consultant: Orthobullets



Outline

Dr Li is not trustworthy

Repetitive anesthesia=Damage to developing brain

Casting=Emotional toll on parents and kids

Bracing works



Dr Li is Not Trustworthy



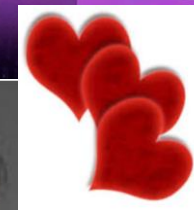
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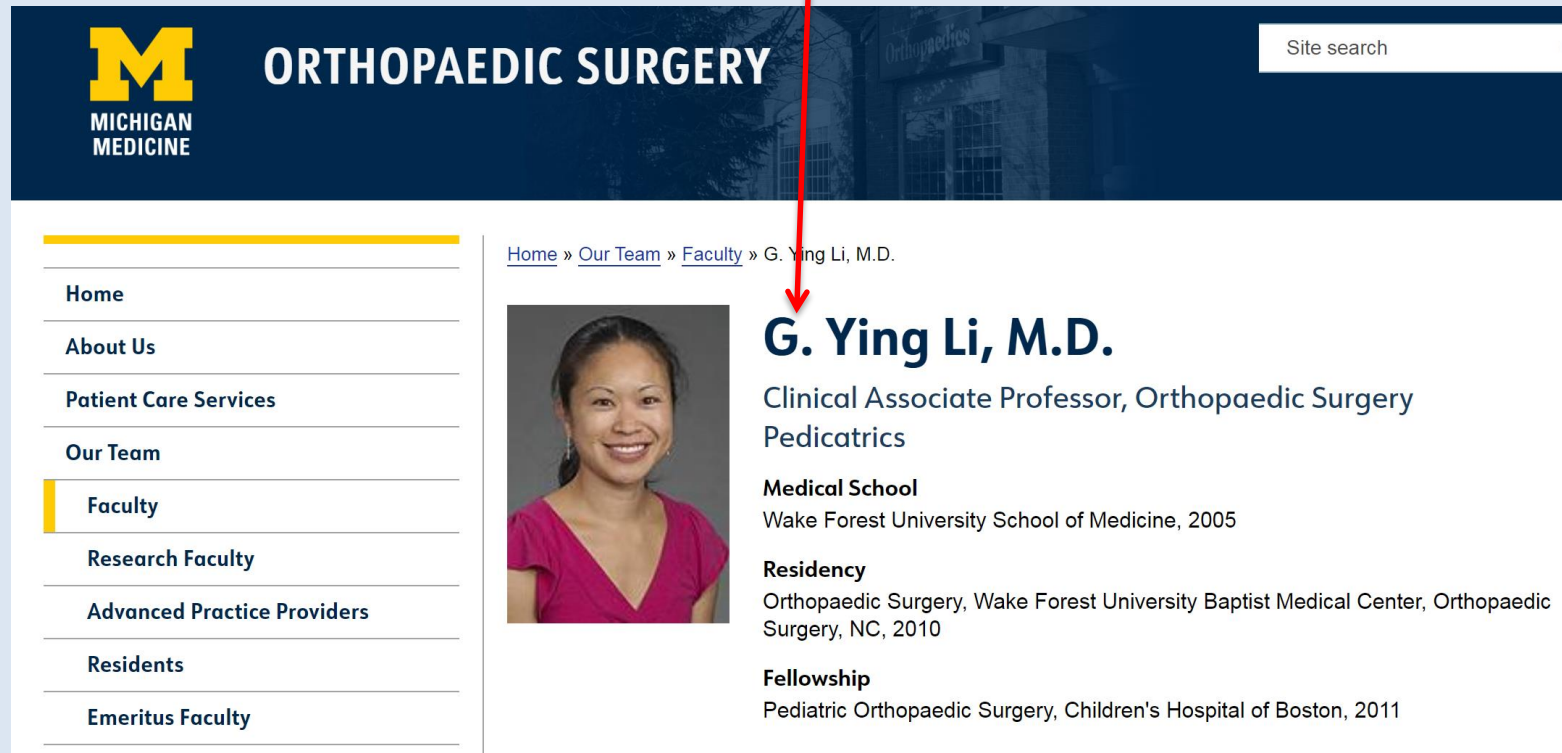
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How My Opponent Fills Free Time in 2018



Ying or Gertrude?



The screenshot shows a website header for "MICHIGAN MEDICINE ORTHOPAEDIC SURGERY" with a site search bar. A red arrow points from the title "Ying or Gertrude?" to the name "G. Ying Li, M.D." in the profile. The profile includes a photo of a woman, her name, title, and a list of her medical school, residency, and fellowship.

M MICHIGAN MEDICINE ORTHOPAEDIC SURGERY Site search

Home » Our Team » Faculty » G. Ying Li, M.D.

G. Ying Li, M.D.
Clinical Associate Professor, Orthopaedic Surgery
Pedicatrics

Medical School
Wake Forest University School of Medicine, 2005

Residency
Orthopaedic Surgery, Wake Forest University Baptist Medical Center, Orthopaedic Surgery, NC, 2010

Fellowship
Pediatric Orthopaedic Surgery, Children's Hospital of Boston, 2011

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- Research Faculty
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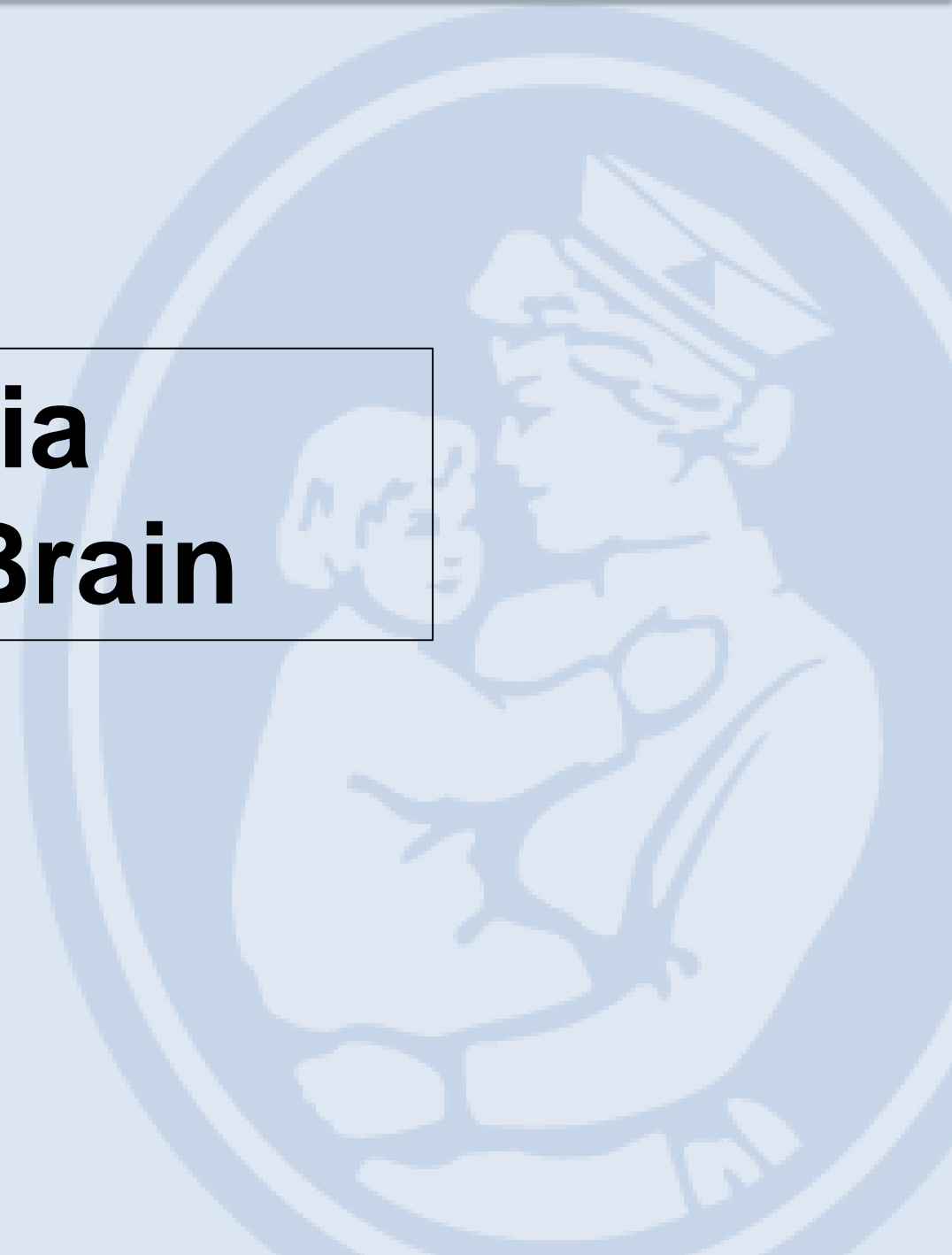
Repetitive Anesthesia Damages Developing Brain



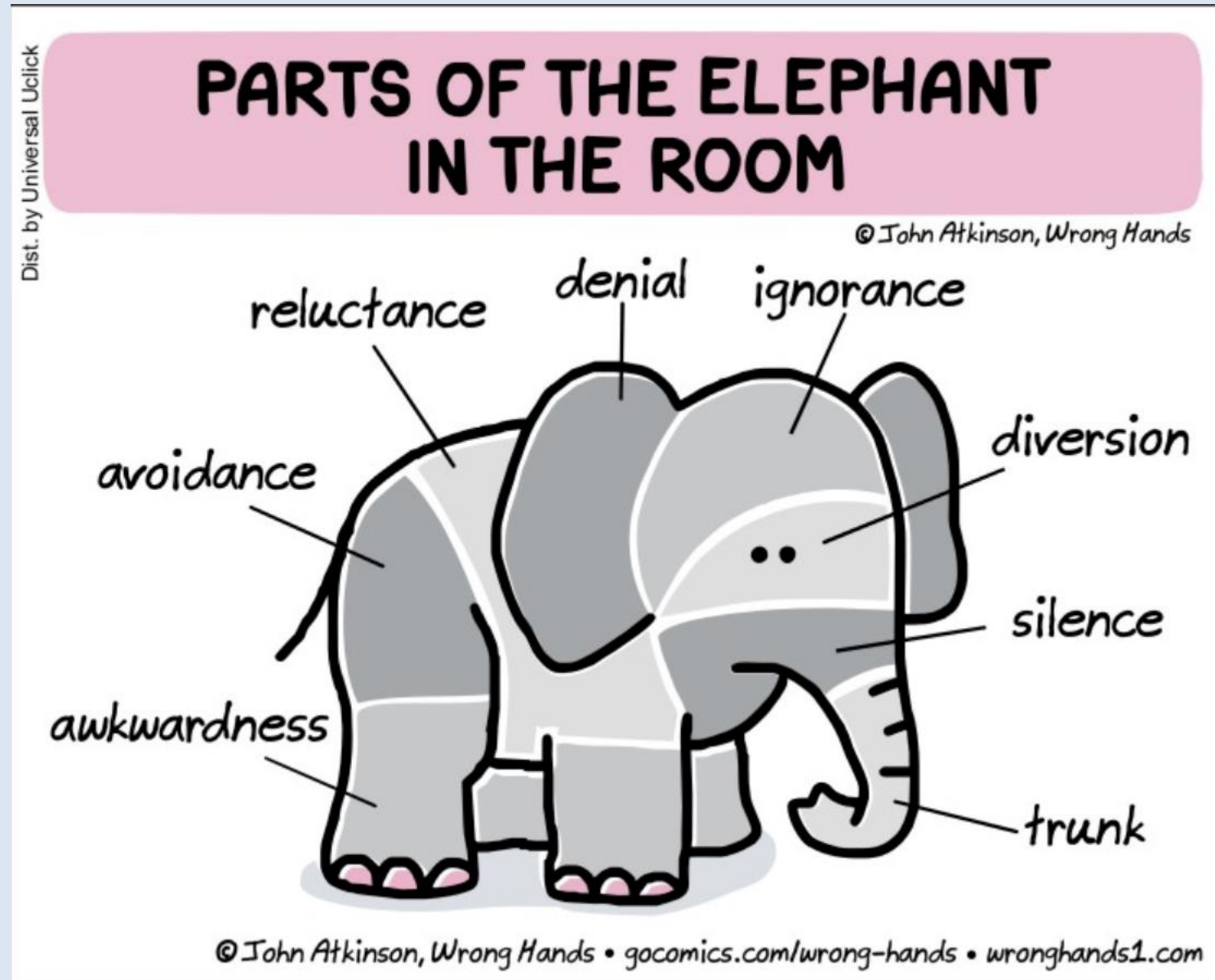
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Hot Button Issue: What Is Effect of Repetitive Anesthesia?



Repetitive Neurotoxin Exposure

The New York Times

Researchers Warn on Anesthesia, Unsure of Risk to Children

Cast every 2-3 months

Interfere with neurogenesis

Induce apoptosis

PubMed.gov
US National Library of Medicine
National Institutes of Health

PubMed | anesthesia developing brain |
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Article types
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Review
Customize ...

Text availability
Abstract
Free full text
Full text

Publication dates
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Format: Summary ▾ Sort by: Best Match ▾ Per page: 20 ▾ Send to ▾

Search results

Items: 1 to 20 of 665 << First < Prev Page 1 of 34 Next > Last >>

- [Dual effects of ketamine: neurotoxicity versus neuroprotection in anesthesia for the developing brain.](#)
1. Yan J, Jiang H.
J Neurosurg Anesthesiol. 2014 Apr;26(2):155-60. doi: 10.1097/ANA.000000000000027. Review.
PMID: 24275940
[Similar articles](#)
- [Anesthesia and neurotoxicity in the developing brain: A non-systematic review.](#)
2. Van Biesen S, Van de Velde M, Rex S.
Acta Anaesthesiol Belg. 2015;66(3):67-79. Review.
PMID: 26767231
[Similar articles](#)
- [Anesthesia and the developing brain: a way forward for clinical research.](#)
3. Davidson AJ, Becke K, de Graaff J, Giribaldi G, Habre W, Hansen T, Hunt RW, Ing C, Loepke A, McCann ME, Ormond GD, Pini Prato A, Salvo I, Sun L, Vutskits L, Walker S, Disma N.
Paediatr Anaesth. 2015 May;25(5):447-52. doi: 10.1111/pan.12652. Epub 2015 Mar 27. Review. Erratum in: [Paediatr Anaesth. 2015 Nov;25\(11\):1179.](#)
PMID: 25818094
[Similar articles](#)
- [General anaesthetics and the developing brain: an overview.](#)
4. Sinner B, Becke K, Engelhard K.
Anesthesiology. 2014 Sep;69(9):1009-22. doi: 10.1111/anes.12637. Epub 2014 May 14. Review.



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Many Ways Anesthetics May Negatively Affect Brain Development

Sinner et al. | Anaesthetic-induced neurotoxicity in the immature brain

Anaesthesia 2014, 69, 1009–1022

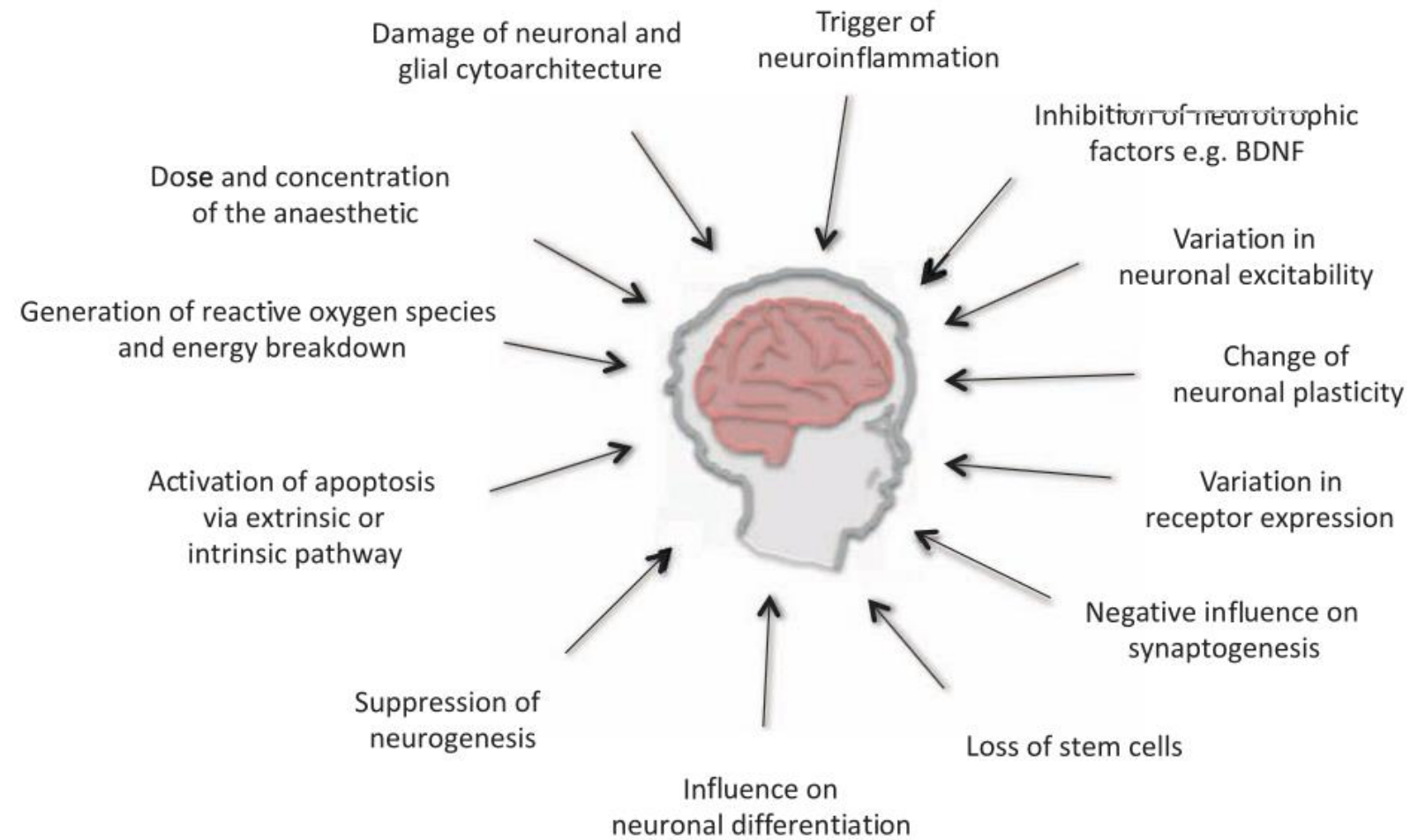
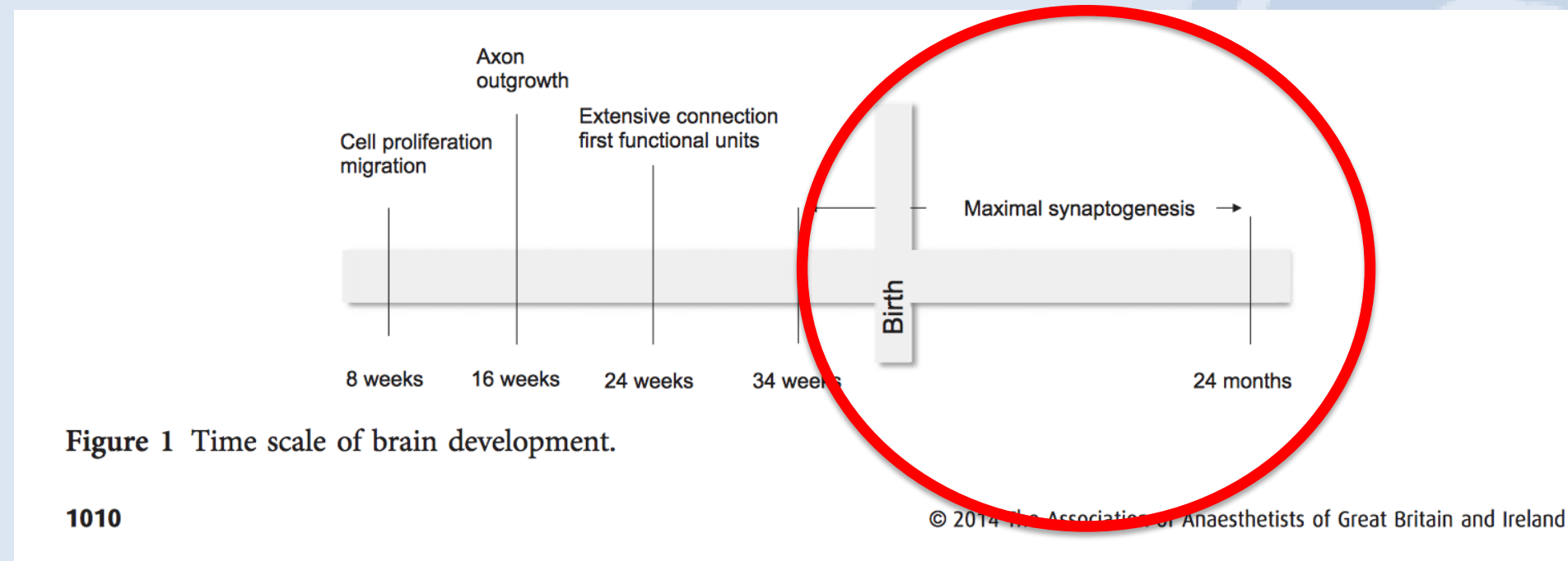


Figure 2 Possible mechanisms of anaesthetic-induced neurotoxicity in the immature brain. BDNF; brain-derived neurotrophic factor.

First 2 Years of Life Most Important

Most animal studies

But is it worth the risk during critical time of brain development?



Repetitive Anesthesia

J Pediatr Orthop. 2012 Sep;32(6):594-9. doi: 10.1097/BPO.0b013e31826028ea.

Psychological dysfunction in children who require repetitive surgery for early onset scoliosis.

Flynn JM¹, Matsumoto H, Torres F, Ramirez N, Vitale MG.

58% clinically significant range or at risk



Ying's Answer to Effect Of Anesthesia



Emotional Toll of Casting



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Casting – Disadvantages

Can't bathe

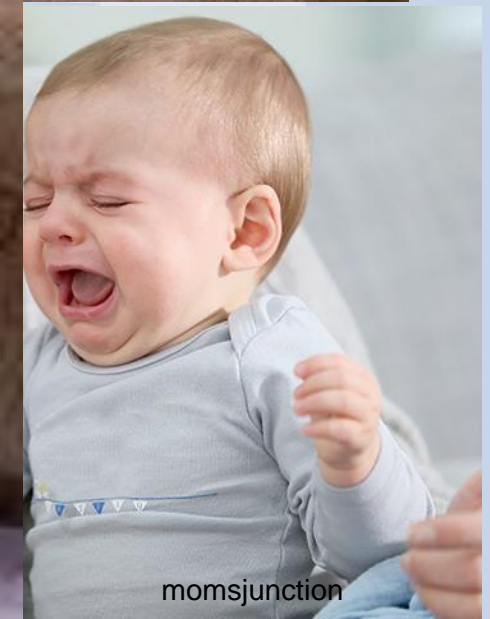
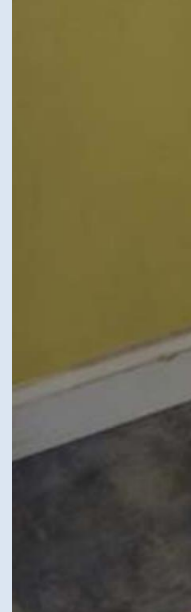
Hot

Can't inspect skin
– Cast sores

Constrict chest
– Tough to breathe

Constrict stomach
– Tough to eat

Can't "hug"



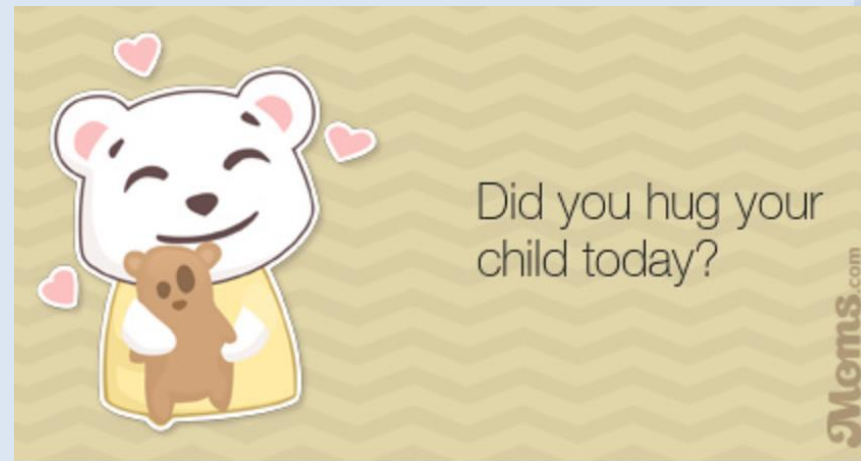
Ying Doesn't Believe in Hugs?

The Benefits of Hugging

1. Increases blood flow
2. Generates wellness
3. Provides security and trust
4. Relieves tension
5. Generates happiness
6. Improves self-esteem
7. Increases the state of peace and harmony
8. It's reciprocated
9. Soothes the soul
10. Caresses the heart



LawAttractionPlus.com



Did you hug your child today?

Moms.com

THE SCIENCE OF HUGS

7 Benefits Of Hugging



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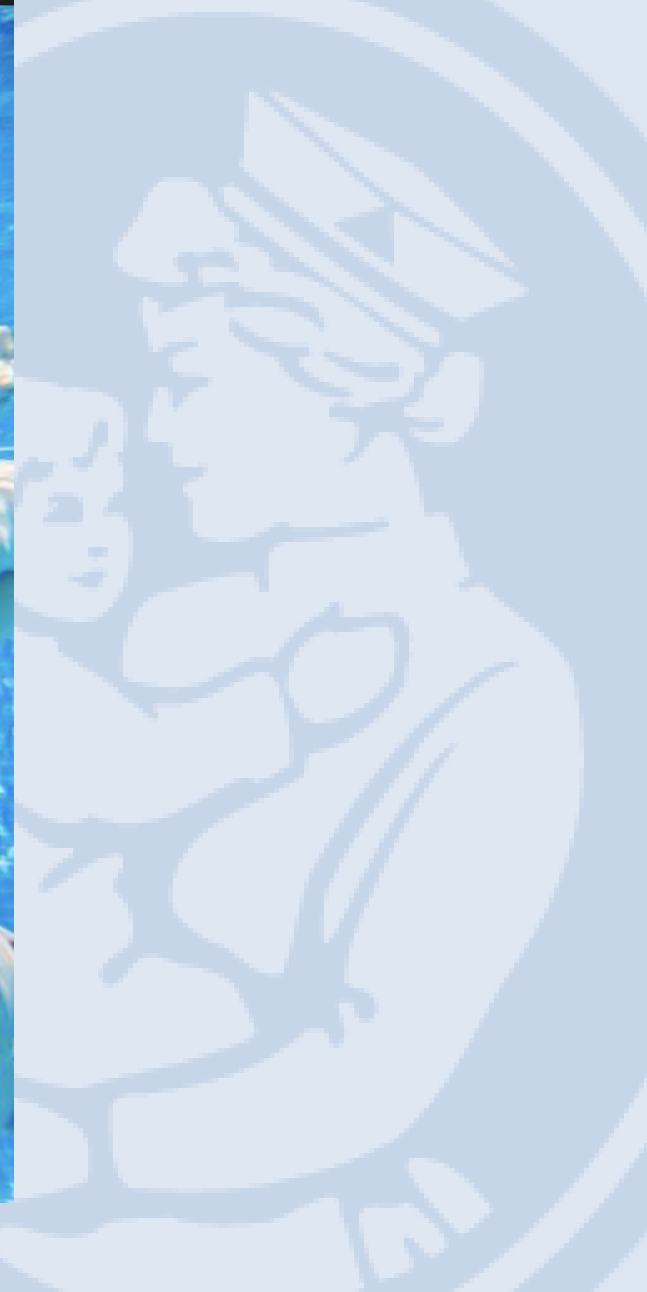
Ying Doesn't Think Kids Should Swim In Summer



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Lets Ask The Parents: The Emotions of Raising a Child With EOS

The five emotions of raising a child with infantile scoliosis

Posted on 09 Jan 2018 by Christina Poce

Posted in Diseases & Conditions, Our Patients' Stories

More On: [Michael Glotzbecker](#), [Orthopedic Center](#), [scoliosis](#), [Spinal Program](#)



“I hate Dr Glotzbecker”

Sadness

Can't hug

Difficult to console

Watching go off to sleep



Anxiety

Analyze back during cast breaks

Waiting for xray



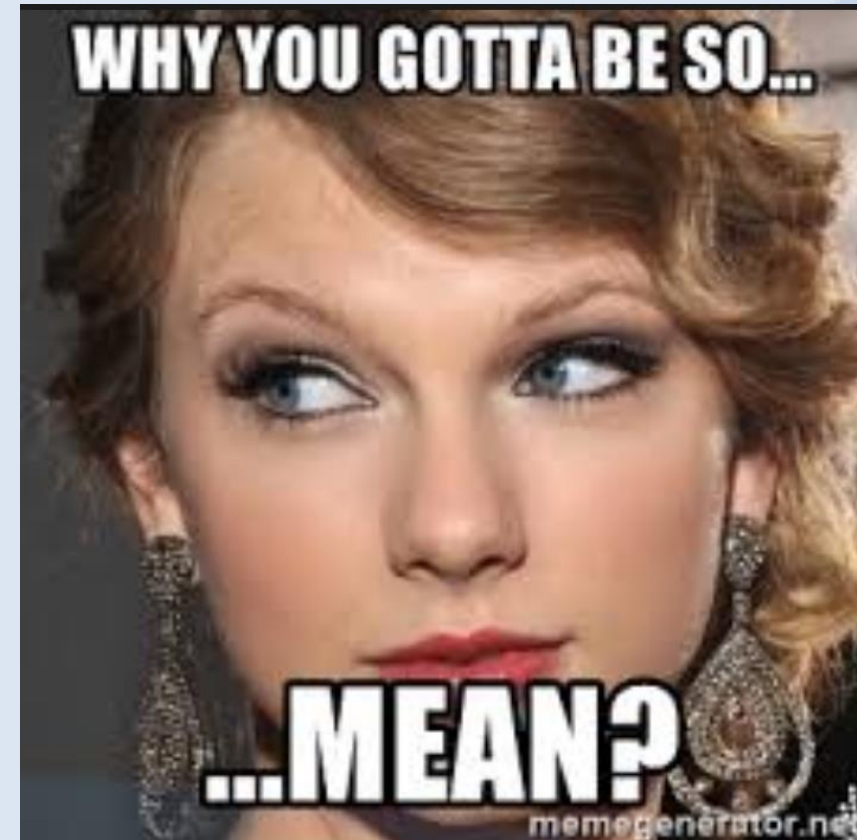
Loneliness

Rare

Hard for others to understand



So Ying Li.....



Bracing Works



Casting – Reported Advantages

Compared to bracing:

- Greater forces
- Better molding
- Better correction
- Better compliance
- Fun designs
- Possible cure?



Cure?

Maybe 30-35%

- *In the right people*
 - Curve <60
 - Idiopathic
 - Younger age (less than 18-24 months)

Majority will *NOT* be cured

Derotational Casting for Progressive Infantile Scoliosis

James O. Sanders, MD, Jacques D'Astous, MD,† Marcie Fitzgerald, PA-C,‡
Joseph G. Khoury, MD,§ Shvam Kishan, MD,|| and Peter F. Sturm, MD¶
(J Pediatr Orthop 2009;29:581–587)*

Initial Cast Correction as a Predictor of Treatment Outcome Success for Infantile Idiopathic Scoliosis

Jaime A. Gomez, MD, Alexandra Grzywna, BA,† Patricia E. Miller, MS,‡
Lawrence I. Karlin, MD,† Sumeet Garg, MD,‡ James O. Sanders, MD,§
Peter F. Sturm, MD, MBA,|| Paul D. Sponseller, MD,¶ Jacques L. D'Astous, MD,#
Michael P. Glotzbecker, MD,† Children's Spine Study Group,**
and Growing Spine Study Group††*



Growth as a corrective force in the early treatment of progressive infantile scoliosis

J Bone Joint Surg [Br] 2005;87-B:1237-47.

Times You Don't Want to Use Cast

Older, Bigger

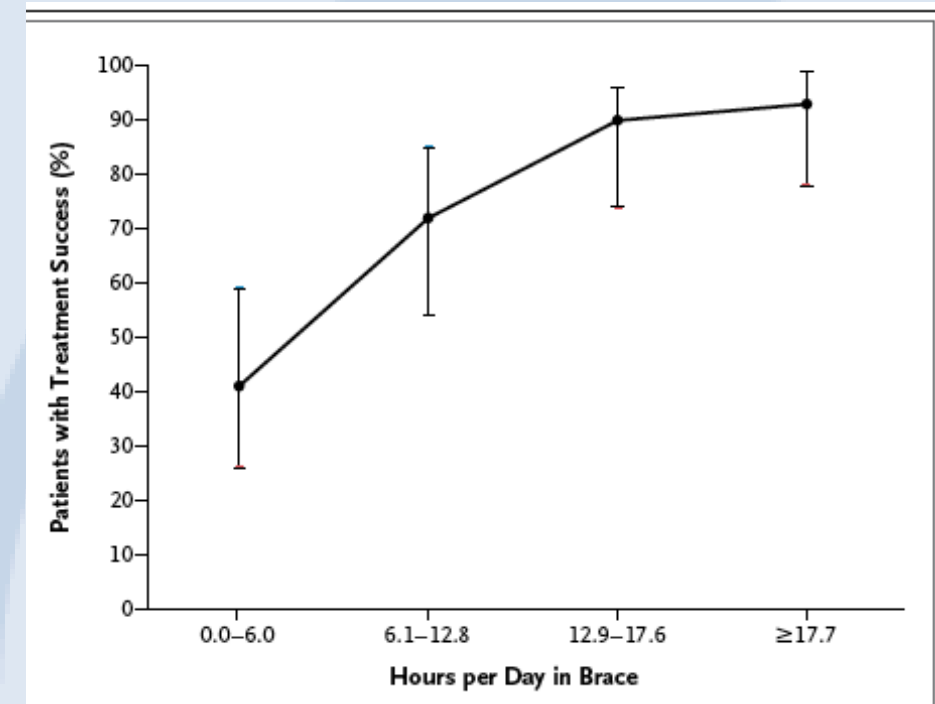
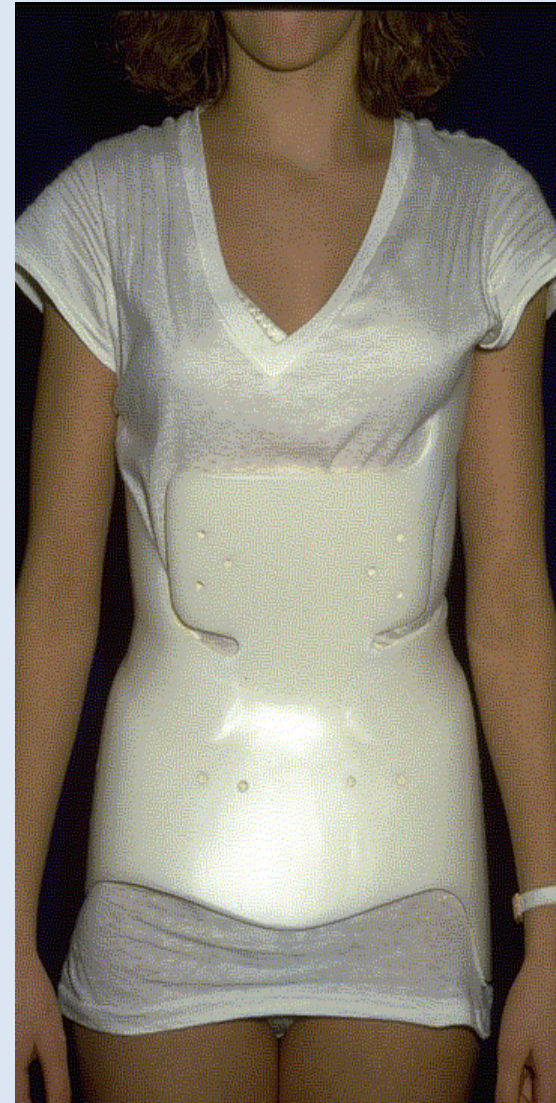
Medically Frail



Does Bracing Work?

Works in AIS...

Do they work in EOS?



THE NEW ENGLAND JOURNAL OF MEDICINE

ORIGINAL ARTICLE

Effects of Bracing in Adolescents with Idiopathic Scoliosis

L. Weinstein, M.D., Lori A. Dolan, Ph.D., James G. Wright, M.D., M. and Matthew B. Dobbs, M.D.

Can You Get Correction in a Brace?

Note happy face



Correction

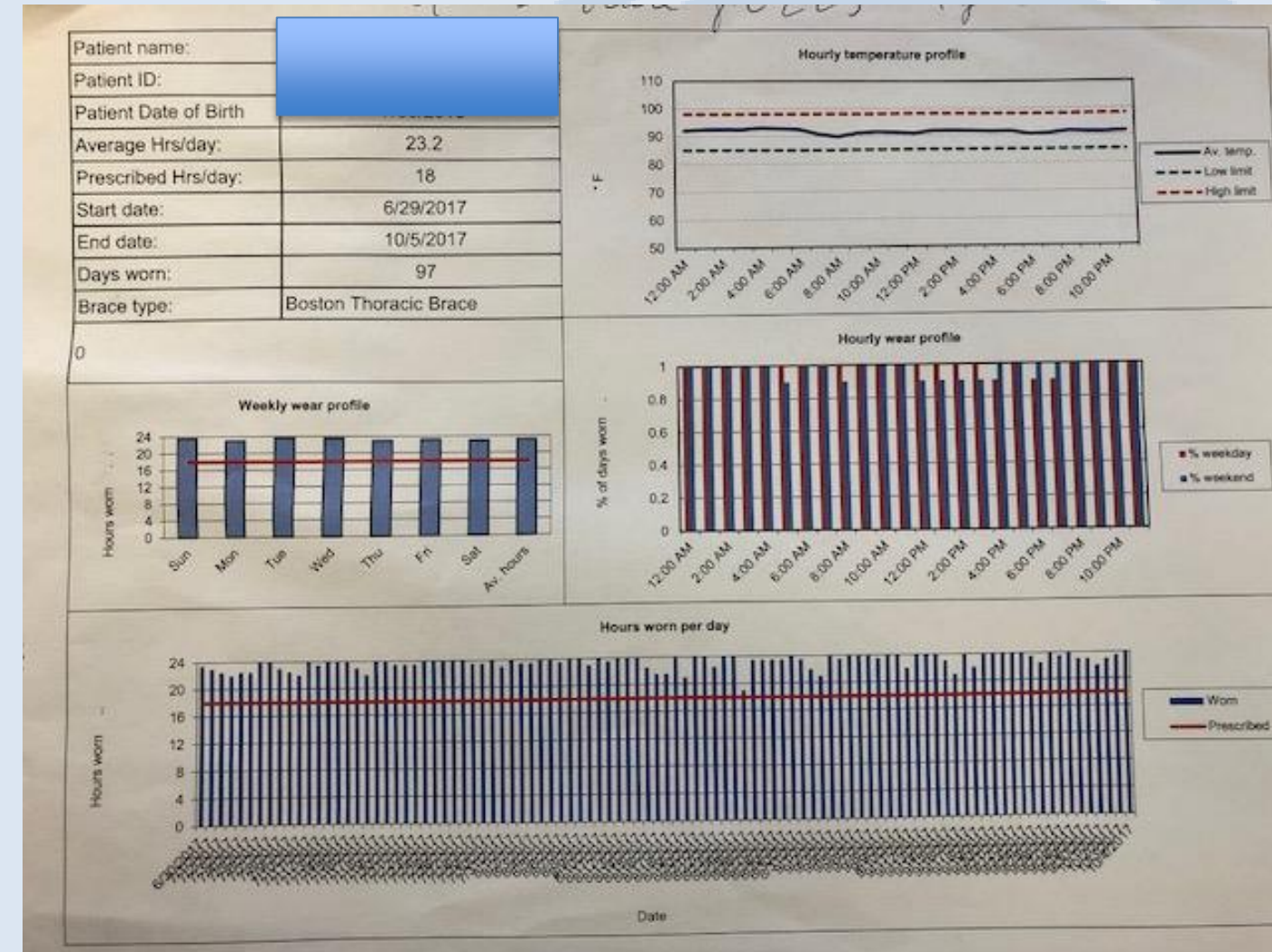
Do you need more force?

Do you need better molding?

Do you need more correction?

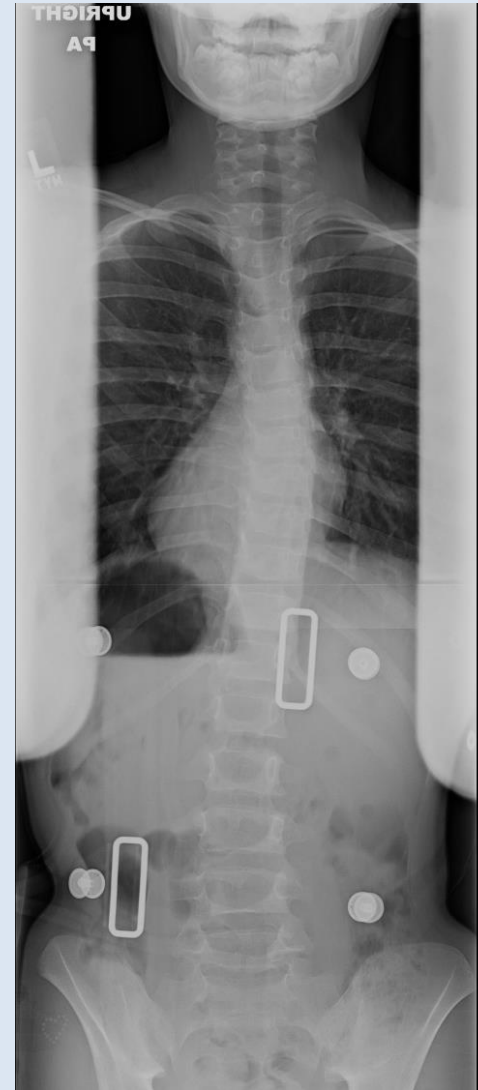
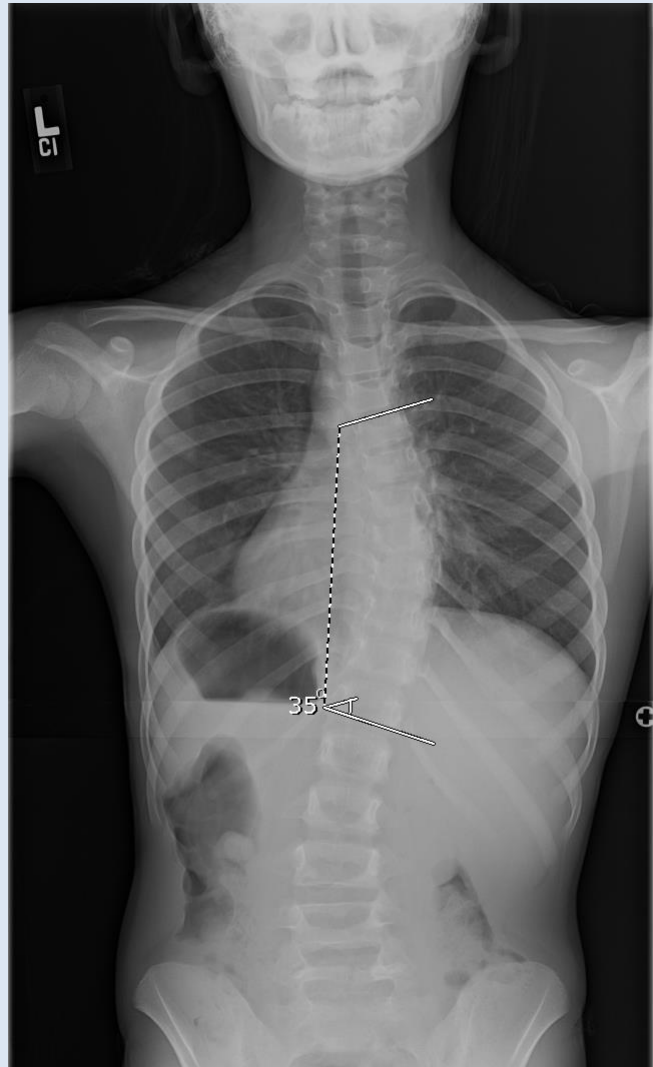


Compliance?



Bracing—It Can Work!

AGE 7



AGE 15



Brace Can....

Have excellent correction

- Molding, force

Be worn

- Compliance in EOS families different than AIS

Prevent progression in 65% JIS



**YOU CAN'T GET DIFFERENT
RESULTS BY DOING
THINGS THE SAME WAY**

RICHARD MORAN

PICTUREQUOTES.COM

PICTUREQUOTES

Bracing for Juvenile Idiopathic Scoliosis: Retrospective Review from bracing to skeletal maturity

Amanda T. Whitaker, MD^{1,2}, M. Timothy Hresko, MD², Alexandra Grzywina², Patricia Miller², John Emans MD², Lawrence Karlin MD², Daniel Hedequist MD², Michael Glotzbecker MD²

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No Comparative Study

No comparative study has proven casting better than bracing



Summary



Outline

Dr Li is not trustworthy

- Obviously

Repetitive anesthesia=Damage to developing brain

- Is it worth the risk?

Emotional toll on parents and kids

- Significant impact on family and child

Bracing works

- RCT in AIS
- Compliance and correction possible in EOS



Swimming world magazine



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Debate Summary:

Go For The Brace!



Disclaimer:

Opinions expressed in presentation
may not represent surgeons practice

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