Identifying Discogenic LBP

Clinical Predictor Variables

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If CLBP can be Diagnosed, What's Our First Step?

Can We Detect a Painful Disc?

MRI Findings in Pts w/o LBP

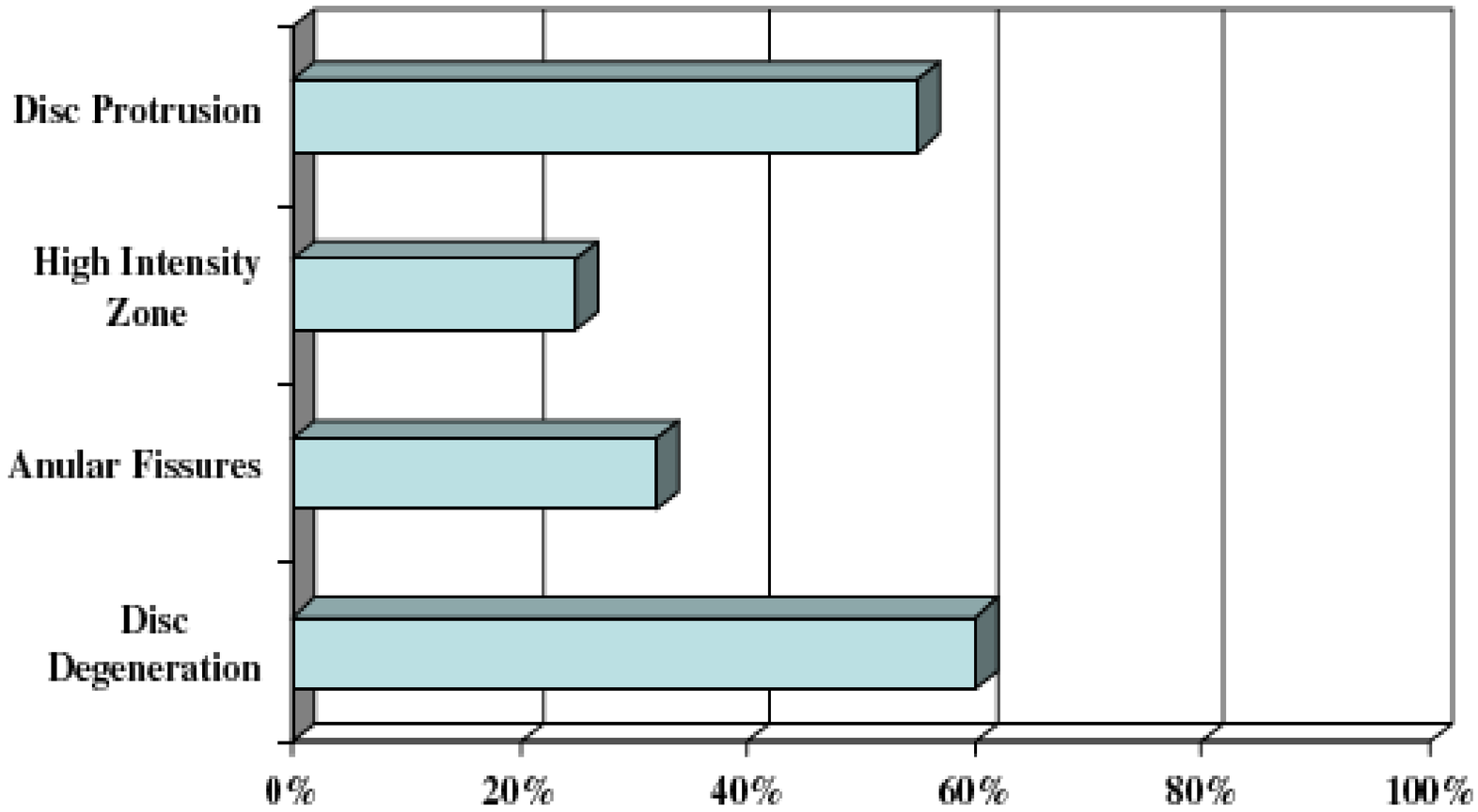


Figure 1 Prevalence of common changes on lumbar MR in adult subjects without serious LBP illness.

Boden S, JBJS 1990
Jensen M, NEJM 1994
Carragee EJ, Current Orthopedics 2007)

Diagnostic Imaging

- Imaging modalities cannot reliably differentiate discogenic vs. FJ vs. SIJ sources of LBP vs. asymptomatic patients

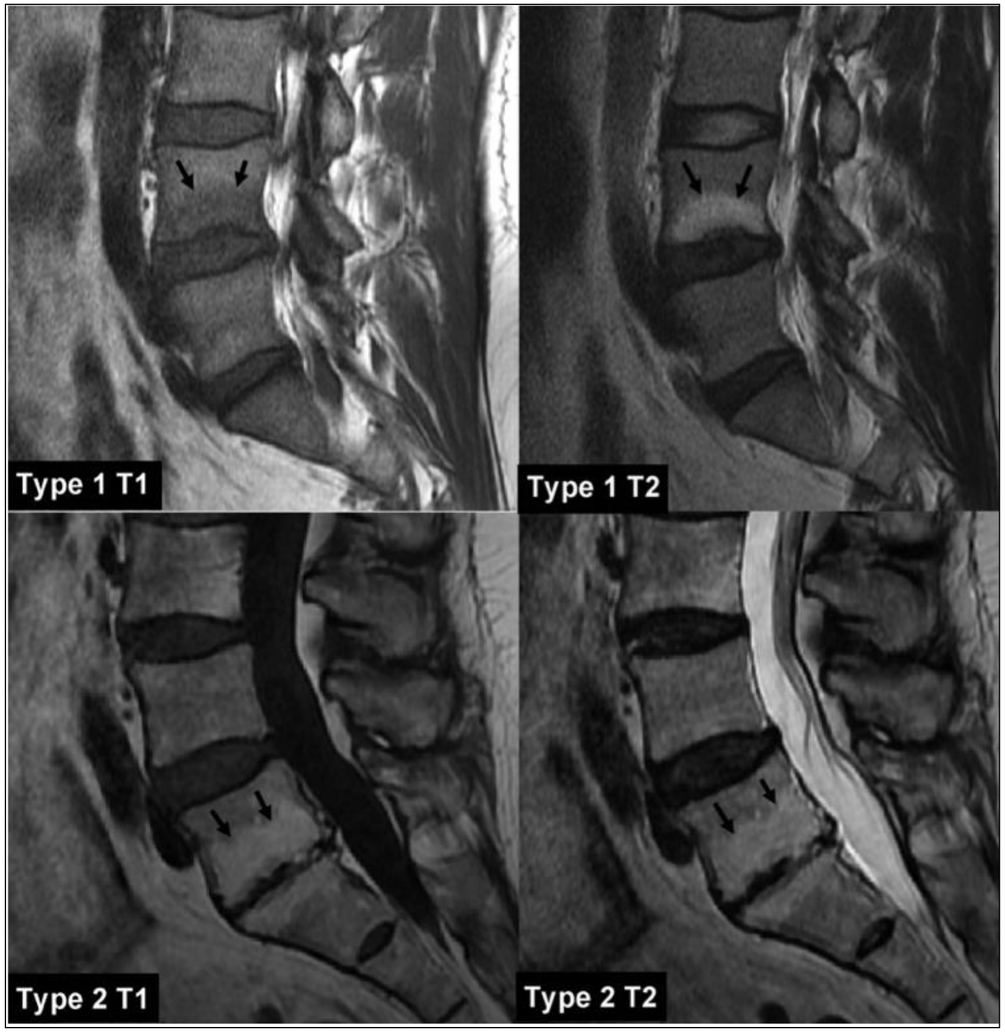
Sandhu HS, J Spinal Dis and Tech. 2000
Gilbert FJ, Radiology 2004
Jarvik JG, JAMA. 2003
Ito M, Spine 1998
Jensen M, NEJM 1994

HIZ Lesions

N Bogduk Pain Med 2013

- In CLBP pts:
  - LR = 3.8 (3.1,4.5)
  - 73% confident affected disc is painful upon stimulation
  - Presence increases chances affected disc will be source of CLBP
  - Low sensitivity- absence does not exclude disc

Type I and II Modic Changes



N Bogduk Pain Med 2013

- In CLBP pts:
  - LR = 3.4 (2.8,4.1)
  - 69% confident affected disc is painful upon stimulation
  - OR = 2.0-19.9
  - Association stronger with type I MC's
  - Absence does not exclude disc

History, PE, Pain Diagrams

- HPI, PE findings & pain drawings are unreliable in diagnosing discogenic LBP

Schwarzer A, Spine 1995
Donelson R, Spine 1997
Ohnmeiss D, Spine 1997
Bogduk N, The Pain Medicine J Club J 1997

How to Detect a Painful Disc

Features of LBP

- FJ LBP not midline
  - *Schwarzer Spine 1994;19:1132-1137; Laslett Spine J ‘06*
- SIJ LBP is rarely midline
  - *Fortin Spine Spine 1994;19:1475-1482*
- Discogenic LBP rarely presents (10% of affected patients) primarily as central LBP
  - *Schwarzer Spine 1995;20:1878-1881*

Original Research

Does the Location of Low Back Pain Predict Its Source?

Michael J. DePalma, MD, Jessica M. Ketchum, PhD, Brian S. Trussell, MD, Thomas R. Saullo, MD, Curtis W. Slipman, MD

PM&R
1934-1482/11/$36.00
Printed in U.S.A.

Vol. 3, 33-39, January 2011
DOI: 10.1016/j.pmrj.2010.09.006

LBP Location

Table 2. *Contingency tables of presence/absence of midline and paramidline LBP vs positive/negative diagnoses for IDD, FJP, and SIJP*

	IDD			FJP			SIJP		
	Yes	**No**	**Total**	**Yes**	**No**	**Total**	**Yes**	**No**	**Total**
Midline LBP									
Present	68	25	93	8	85	93	4	89	93
Absent	3	74	77	44	33	77	27	50	77
Total	71	99	170	52	118	170	31	139	170
Paramidline LBP									
Present	35	68	103	38	65	103	24	79	103
Absent	17	7	24	2	22	24	1	23	24
Total	52	75	127	40	87	127	25	102	127

LBP = low back pain; IDD = internal disk disruption; FJP = facet joint pain; SIJP = sacroiliac joint pain.

Does SHF & PR correlate with source of CLBP?

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Annular Strain

- Degeneration increases annular stress
  - Nachemson A, Acta Orthop Scan 1965;36:418-434
  - Adams M, J Bone Joint Surg [Br] 1996;78-B:965-72
- Peak stress d/t load occur in p/l annulus
  - Edwards, WT, Spine 2001;26:1753-1759
- Annular strain increased by flexion, axial rotation and compression
  - T. Steffen et aLIClinical Biomechanics 13 (1998) 495-505
  - Immediate affects of ↓intranuclear pressure
    - D.L. van Deursen et al. / Journal of Biomechanics 34 (2001) 405-408
  - Occur after instrumented fusion
    - Weinhoffer SL, Spine 1995;20:526-531
- Intradiscal pressure increased by muscle (iliopsoas) activity
  - Wilke, J. J biomechmics, Vol. 29, No. 4, pp. 549-555, 1996
- Painful discs demonstrate high p/l annular stress & ↓ nuclear stress
  - cNally et al. Spine 1996; 21:2500-2587

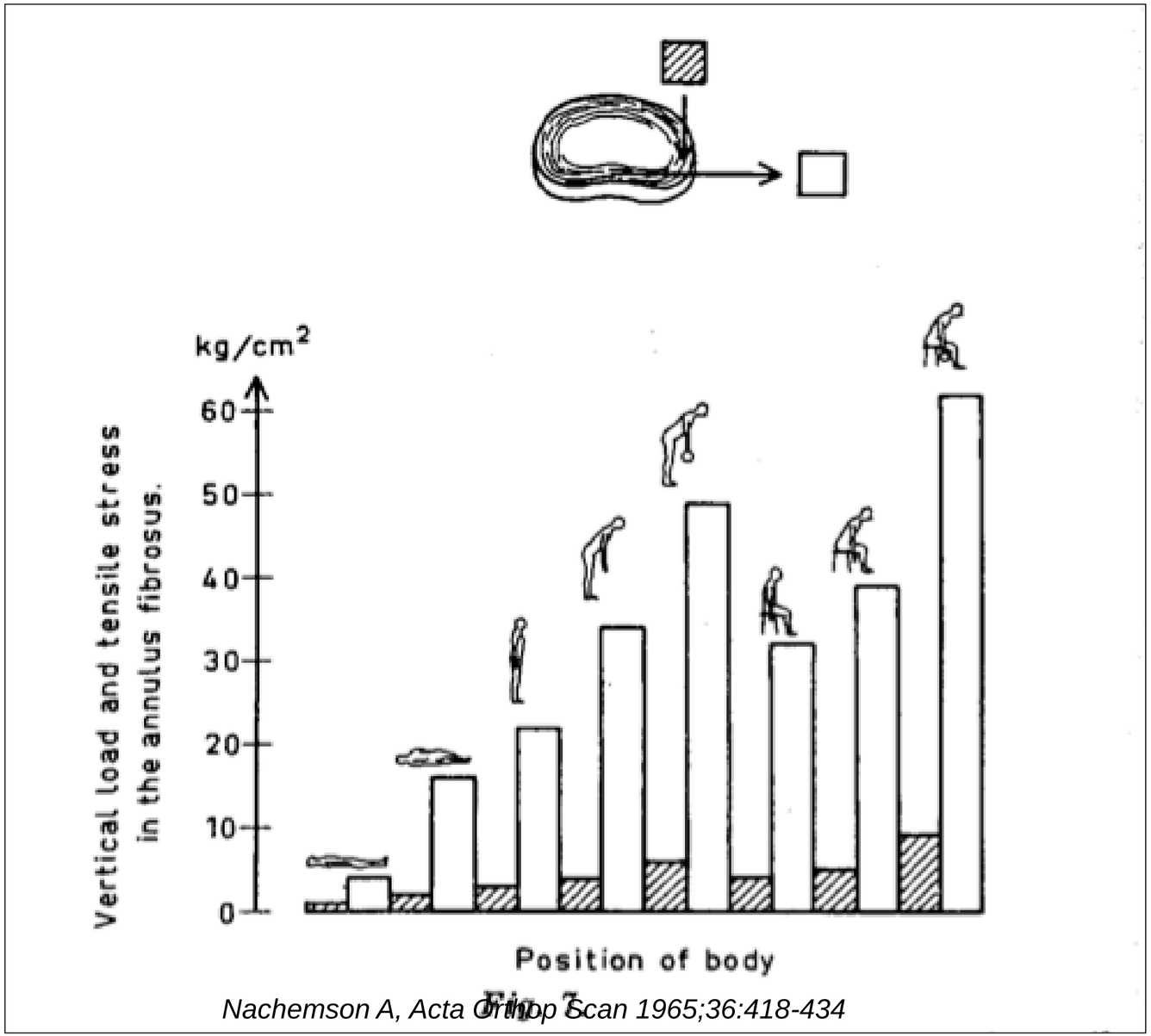

Fig. 7

Nachemson A, Acta Orthop Scan 1965;36:418-434

Patel RK, Slipman CW. eMedicine.com;2007

Cases having LBP during SHF (p-value < 0.0001):

95.8% of DP

55.8% of FJP

46.7% of SIJP

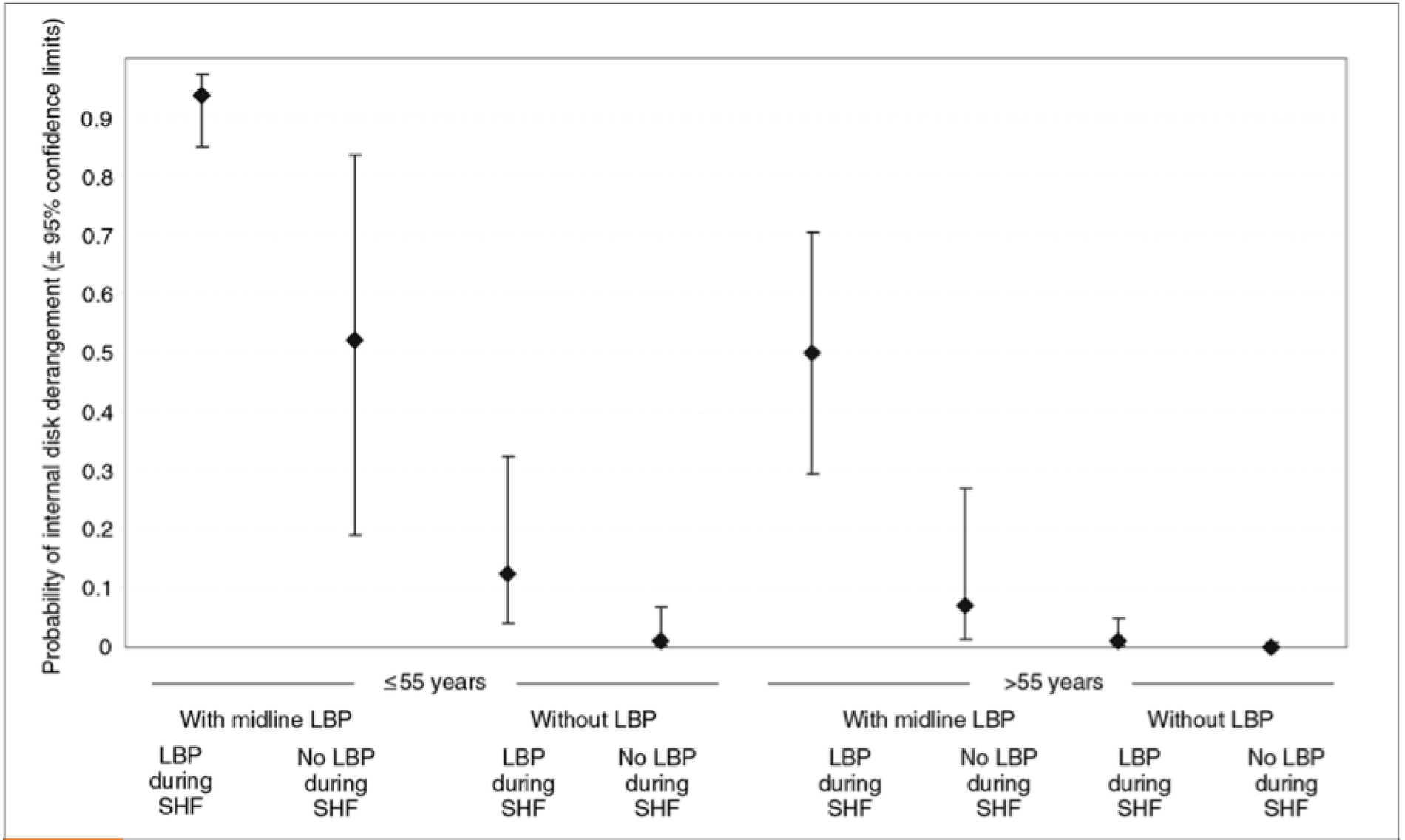

Figure 1 Graph showing the probability (± 95% confidence limits) of internal disk derangement by age group, presence of midline low back pain, and presence of low back pain during sustained hip flexion.

Conclusions

- Source of CLBP can be identified
  - DP in young adults typically males
  - FJP and/or SIJP in older adults
    - Low BMI/female= SIJ
    - High BMI/female= FJP
  - Presence of midline LBP reduces likelihood of FJP or SIJP
  - HIZ and type I and II Modic slightly increases odds of DP
  - PE findings not conclusive but corroboratory