



**Assessment and improving
osteopathic palpation skills of
Osteopathic students**

Alexandre Nunes Msc., Bsc.

PRESENTATION OVERVIEW

- Introduction
- Objectives
- Methods
- Results
- Conclusion

INTRODUCTION

- Osteopathic Diagnosis based on palpation
- Asymmetry of anatomic landmarks in pelvis and lumbar
 - Lacks of inter and intra inter-reliability (IRR) (Degenhardt et al 2005, Stovall and Kumar 2010, Sutton et al 2013)
- Diagnostic palpation lacks of inter and intra inter-reliability (IRR) (Seffinger et al 2004, Stochkendahl et al 2006, Haneline and Young 2009)
- One of the most difficult skill to develop for Osteopathic Students
- Implementing learning strategies to develop students palpation skills (Esteves and Spence 2014)
- Specific training in Osteopathic students improves inter-reliability (Degenhardt et al 2005, 2009)

OBJECTIVES

- Verify diagnostic palpation skill level in asymmetry of anatomic landmarks in pelvis and lumbar skill level of our students

METHODS

DESIGN

- Observational study

PARTICIPANTS

- Voluntary final first year (G1) and final third year (G2) students of Osteopathy course designed for health professionals.
- Small group of 6 Physiotherapist starting our course (G3)
- Sample size $n = 48$
 - G1 - $n = 21$
 - G2 - $n = 21$
 - G3 - $n = 6$

MEASUREMENT

- No previous experience with the palpation models
- One time assessment for all participants
- A.T. Still University palpation model devises were used to assess students palpation skills.
- Students recorded their answers in a specific sheet

MEASUREMENT

- First Task

- In paper models - 3
- The right side compared with the left side is more superior, inferior or equal
- A to F (6)
- ASIS, PSIS, Pubis



MEASUREMENT

- Second Task

- In wooden models - 3
- The right side compared with the left side is more superior, inferior or equal
- A to F (6)
- ASIS, PSIS, Pubis



MEASUREMENT

- Third Task

- In lumbar models - 2
- The right transverse process compared with the left transverse process is more anterior, posterior or equal
- L1, L2, L3, L4 and L5



MEASUREMENT

- Forth Task

- In pelvic models
- The right iliac compared with the left iliac is more anterior ou posterior
- Anterior and posterior aspects



STATISTICAL ANALYSIS

- Tasks 1 to 3 - probability of 33,33 to had a correct answer
- Task 4 - probability of 50% to had a correct answer
- Inter-rater reliability (IRR) for each assessment was assessed by the Cohen's Kappa coefficient
 - *k* value scales (Landis and Kock 1977)
 - 0.81-1.00 indicates almost perfect reliability
 - 0.61-0.80, substantial reliability
 - 0.41- 0.60, moderate reliability
 - 0.21-0.40, fair reliability;
 - 0-0.20, slight reliability
 - <0, poor reliability.
 - Acceptable reliability was defined as $\kappa \geq 0.40$.
- Analyses were conducting using SPSS 20 software

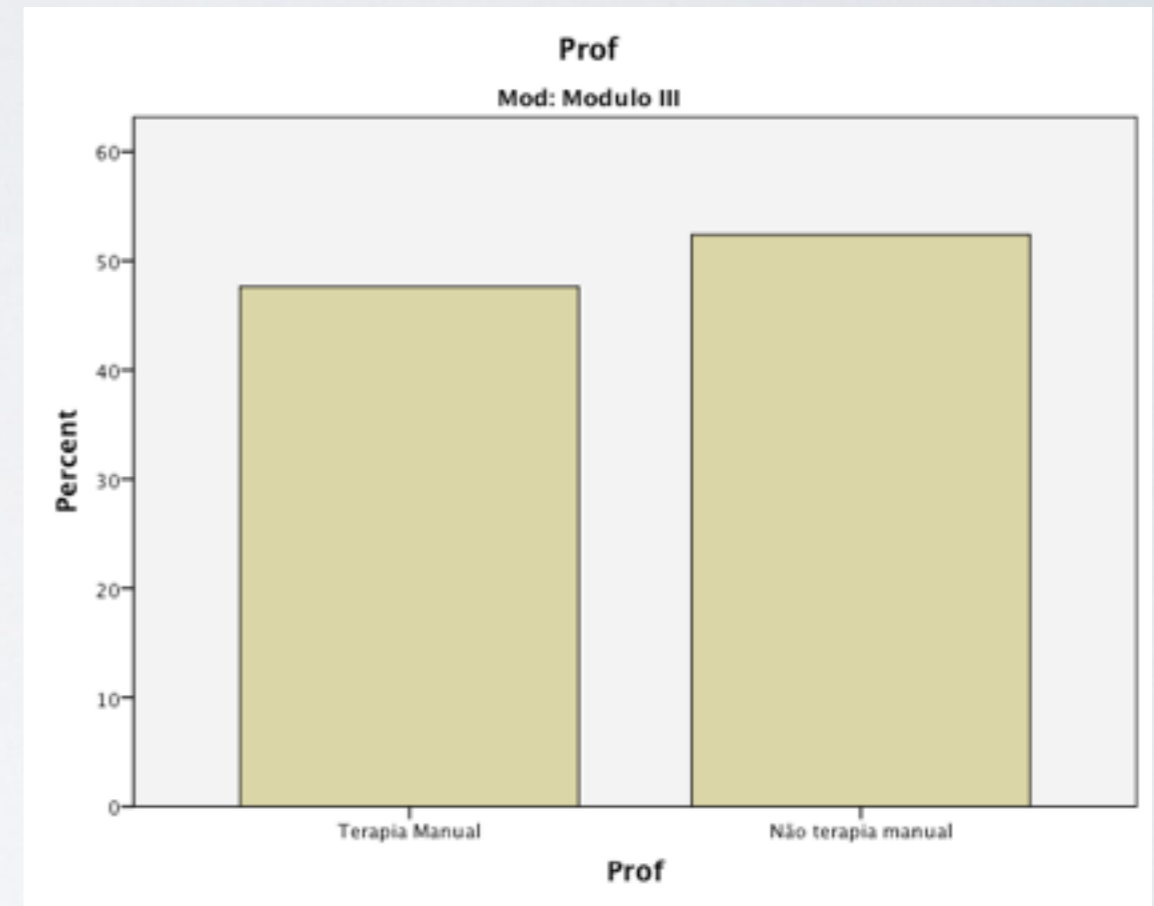
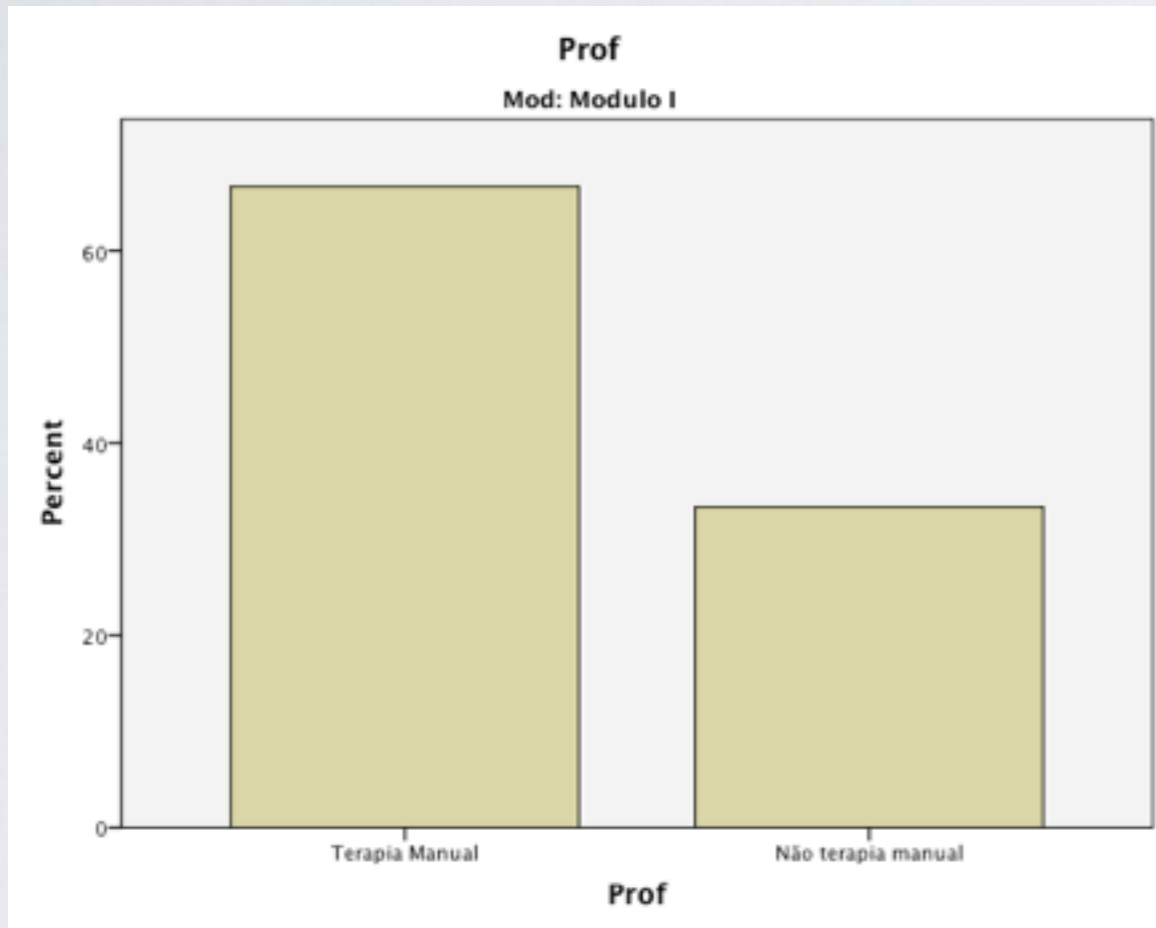
RESULTS

GROUP CHARACTERISTICS

	Group 1	Group 2	Group 3
Age	Mean/SD 35,33±9,04	Mean/SD 31,29±6,69	Mean/SD 29,33±12,62
Years of Experience	Mean/SD 5,05±4,9	Mean/SD 6,67±4,8	Mean/SD 6,33±11,65

$p > 0,05$ with 0.95 CI

AVERAGE MANUAL THERAPY SUBJECTS PER GROUP



Chi-square = 0.48

RESULTS TASK I

IRR

G1

G2

Model	k	Model	k
ASIS	0,25	ASIS	0,58
PSIS	0,54	PSIS	0,85
Pubis	0,70	Pubis	0,90

RESULTS TASK 2

IRR

G1

G2

Model	k	Model	k
ASIS	0,34	ASIS	0,58
PSIS	0,27	PSIS	0,45
Pubis	0,63	Pubis	0,65

RESULTS TASK 3 AND 4

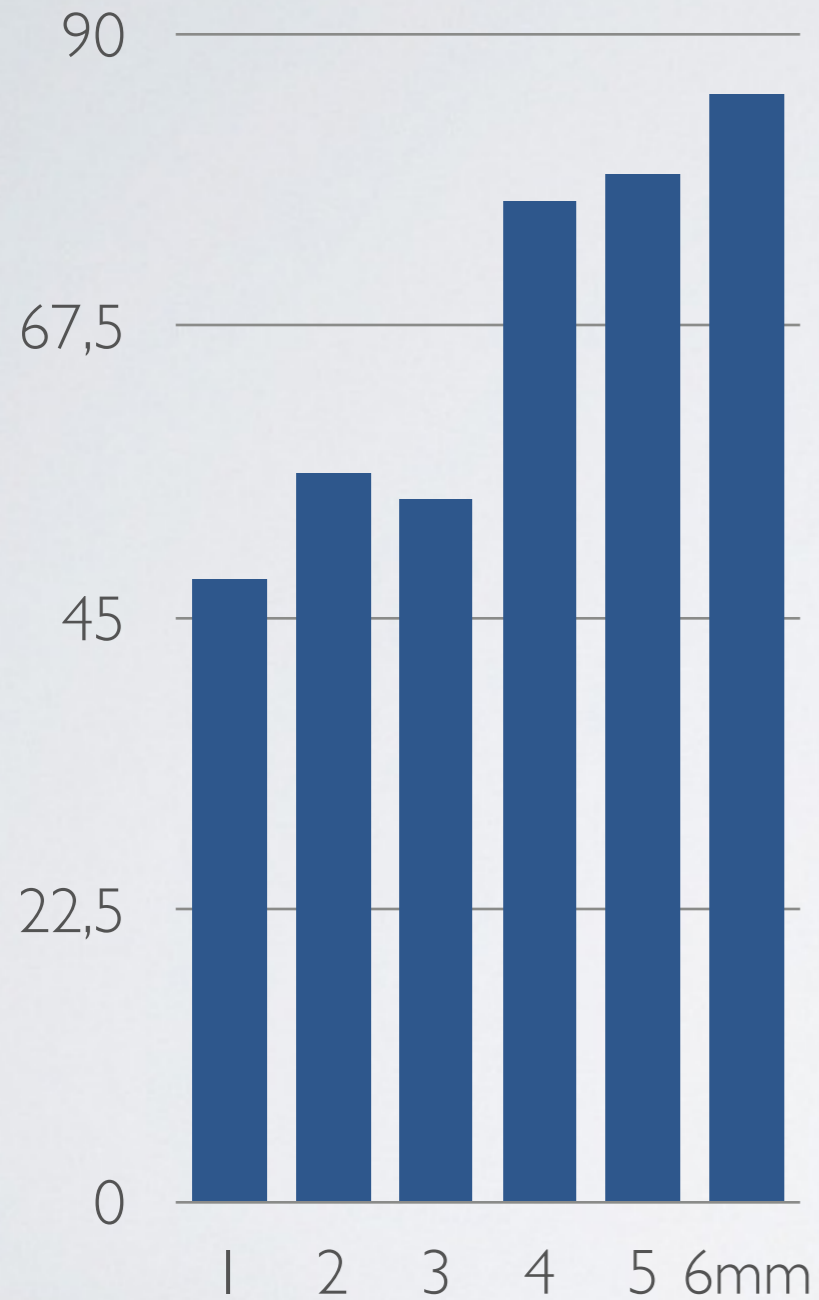
IRR

G1

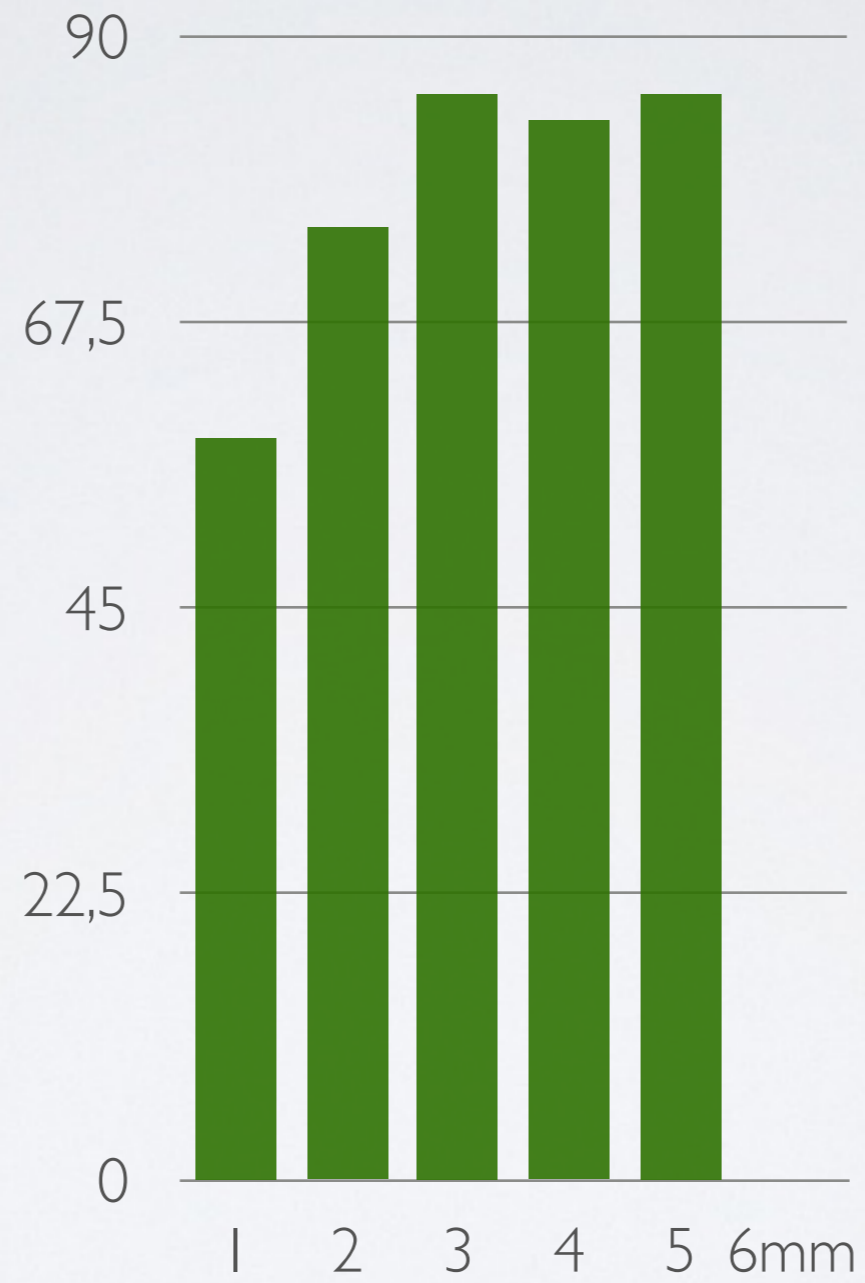
G2

Model	k	Model	k
Lombar A	0,43	Lombar A	0,64
Lombar B	0,20	Lombar B	0,30
Pelvis	0,15	Pelvis	0,18

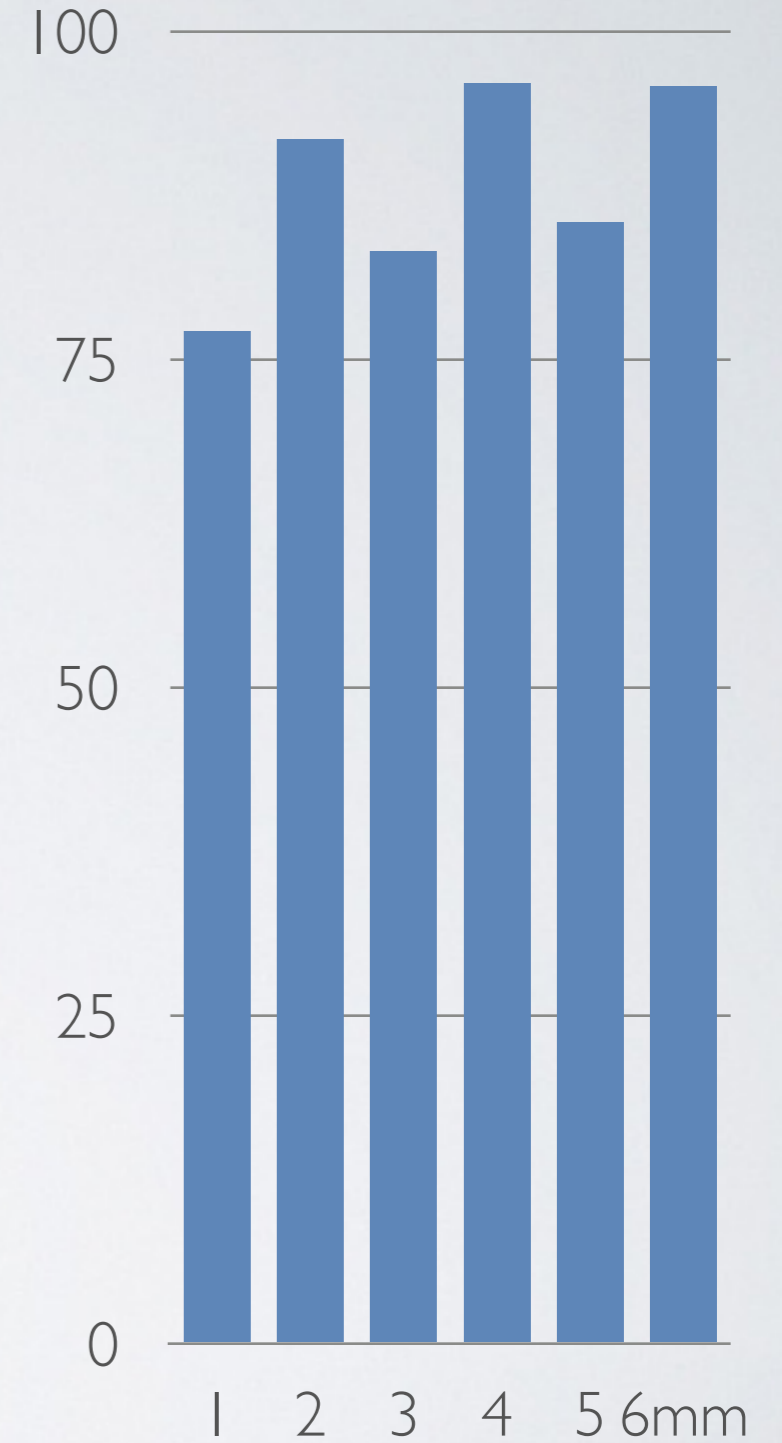
PAPER MODELS



ASIS

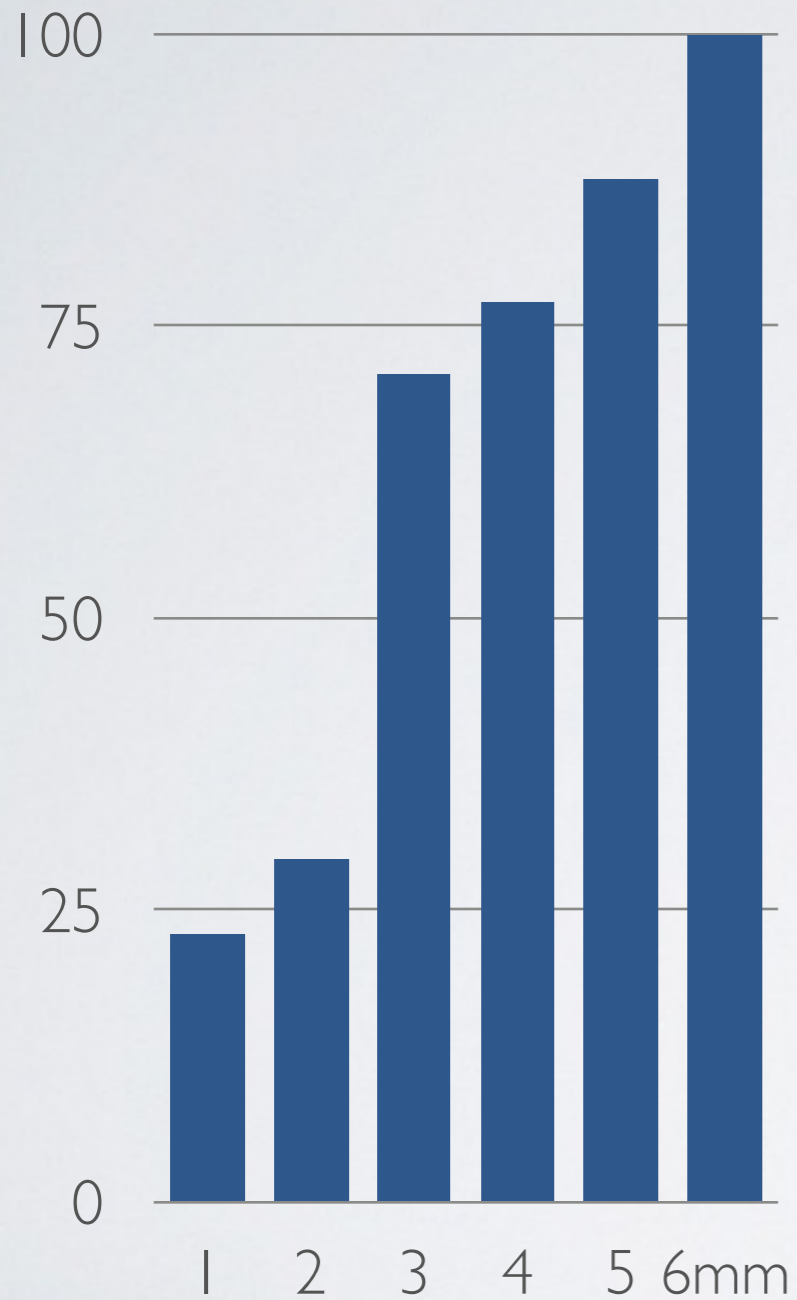


PSIS

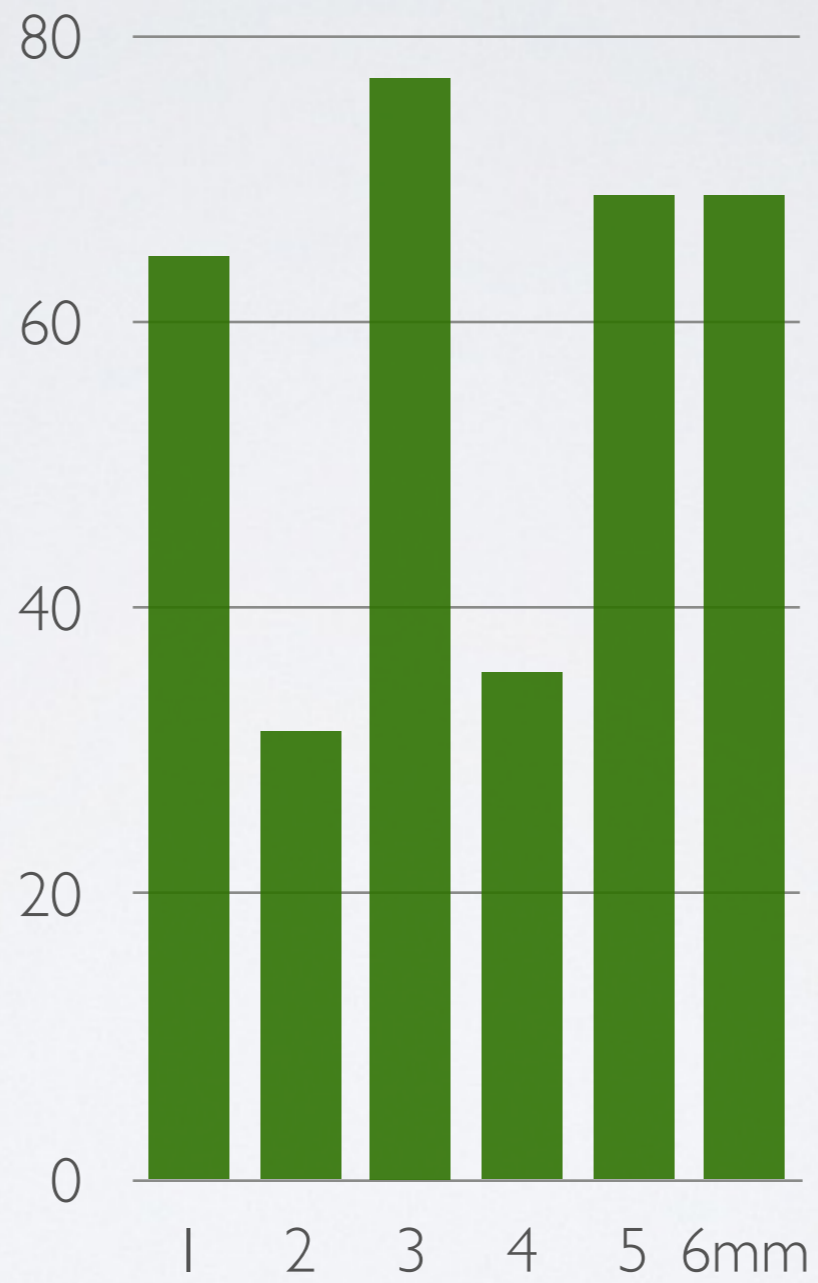


Pubis

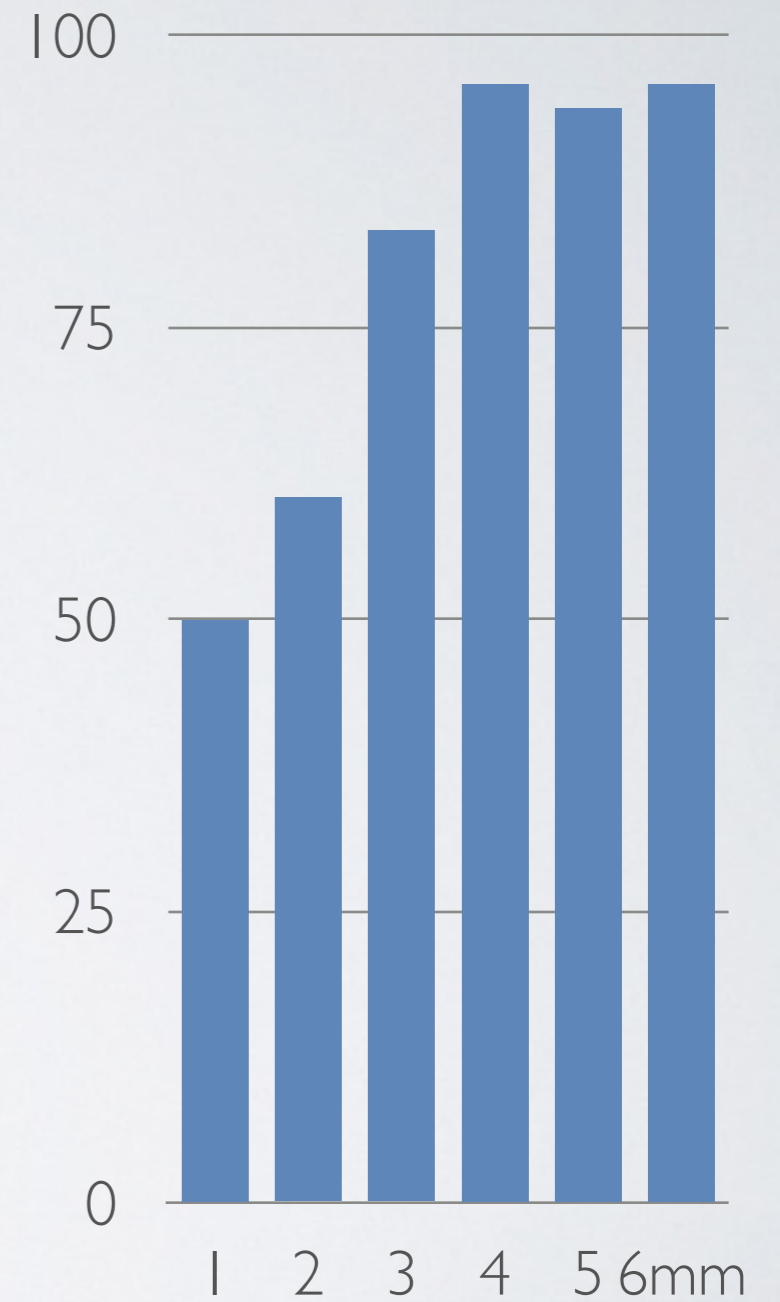
WOODEN MODELS



ASIS

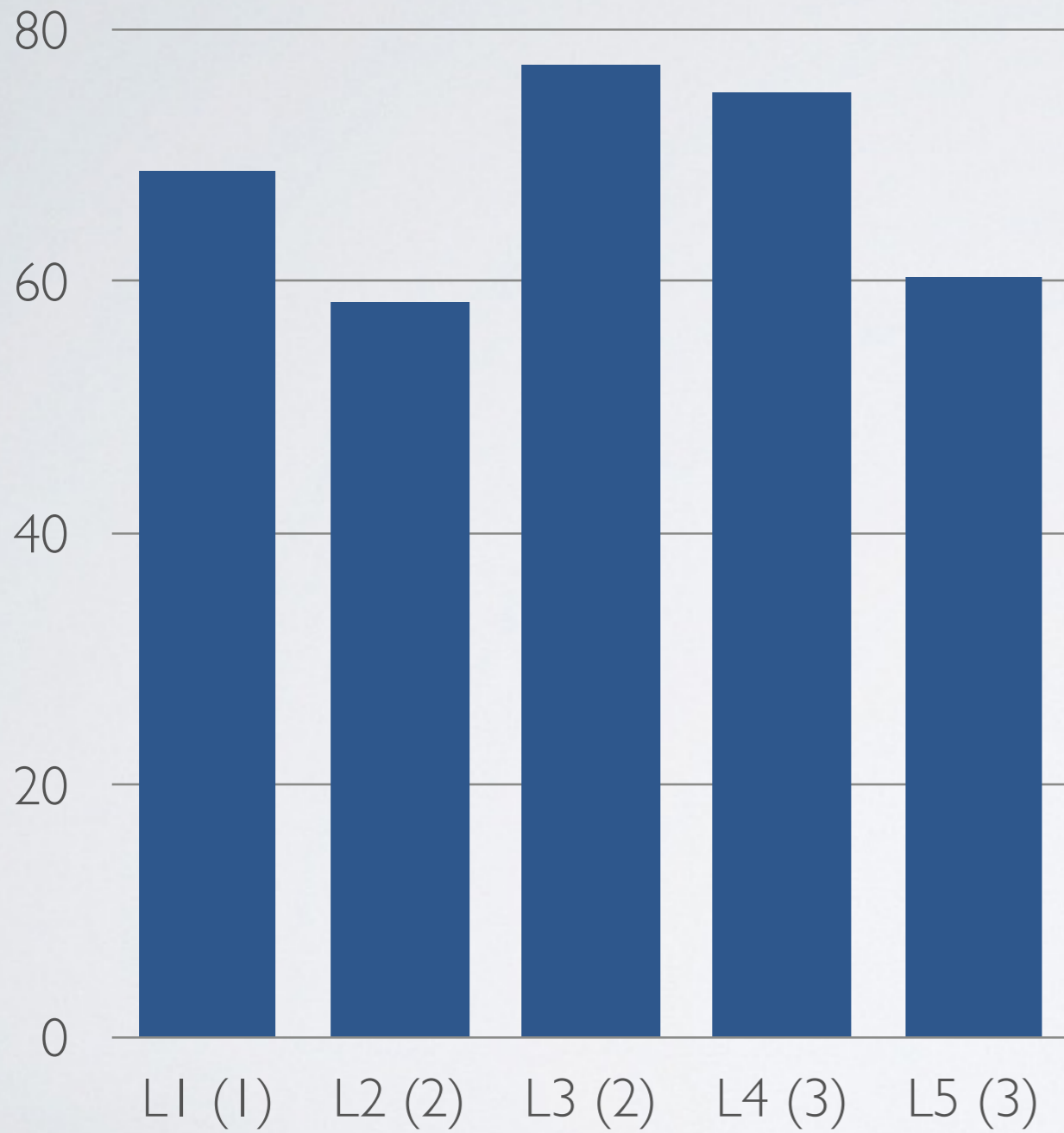


PSIS

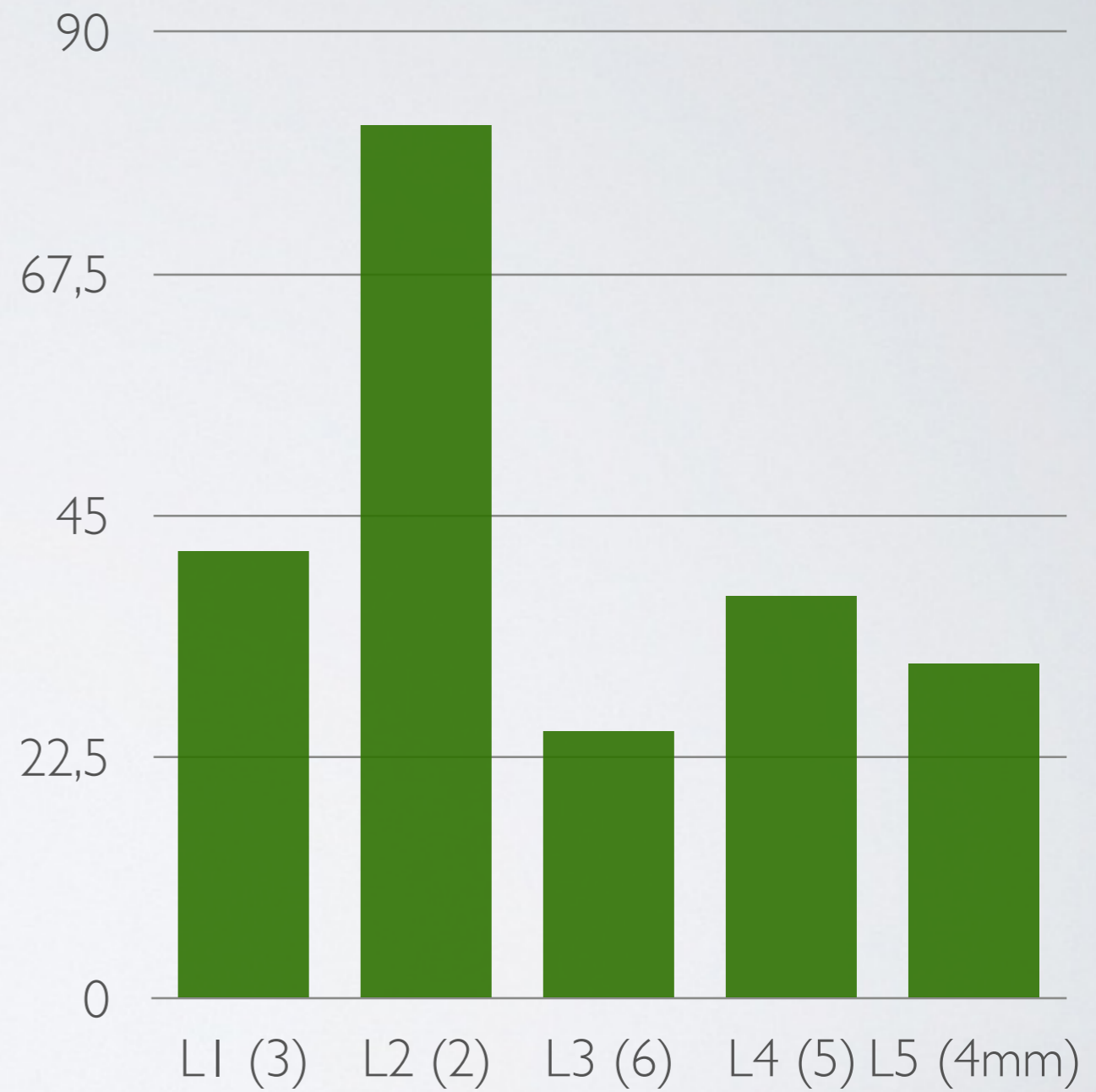


Pubis

LOMBAR MODELS



A



B

RESULTS G3

IRR

Model Paper	k	Model Wooden	k	Model	k
ASIS	0,52	ASIS	0,49	Lombar A	0,58
PSIS	0,71	PSIS	0,47	Lombar B	0,21
Pubis	0,80	Pubis	0,67	Pelvis	0,20

G3 = n | | (all physiotherapist G3 + 5 physiotherapist
from G1 and G2)

DATA SUMMARY

- G2 had more higher IRR scores in all outcomes compared with G1
- G2 had more higher IRR scores in Paper Models and Lumbar models compared with G3
- All groups had a slight to fair IRR <40 in Lumbar Model B and Pelvic Models
- Distance and differences of less than 2mm affects palpation accuracy.
- Less palpation accuracy in L3 and L5 in the Lumbar B Model (real vertebra model)

CONCLUSION

- There is a progression of palpation skills of our students during the course.
- However, the results for lumbar and pelvic palpation were not satisfactory and so there is necessary to implement more hours of palpation or to implement specific palpation frameworks in Osteopathic teaching.

REFERENCES

- Aubin A, Gagnon K, Morin C. The seven-step palpation method: A proposal to improve palpation skills. *International Journal of Osteopathic Medicine*; 17:66-72
- Cohen J. A coefficient of agreement for nominal scales. *Education and Psychological Measurement* 1960;20:37-46.
- Degenhardt Bf, Snider KT, Snider EJ, Johnson JC. Interobserver reliability of osteopathic palpatory diagnostic tests of the lumbar spine: improvements from consensus training. *J Am Osteopath Assoc* 2005;105:465-473
- Degenhardt BF, Johnson J, Snider KT, Snider EJ. Maintenance and improvement of interobserver reliability of osteopathic palpatory tests over a 4-month period. *J Am Osteopath Assoc*. 2010;110:579-586
- Esteves JE. Diagnostic palpation in osteopathic medicine: a putative neurocognitive model of expertise. In: Faculty of humanities and social sciences. Oxford: Oxford Brookes University; 2011.
- Esteves J, Spence C 2014 Developing competence in diagnostic palpation: perspectives from neuroscience and education. *International Journal of Osteopathic Medicine* 17:52-60
- Haneline MT, Young M 2009 A review of intraexaminer and interexaminer reliability of static spinal palpation: a literature synthesis. *J Manipulative Physiol Ther* 32:379-386
- Landis JR, Koch GG. The measurement of observer agreement for categorical data. *Biometrics*. 1977;33(1):159-174.
- Seffinger, M. A., Najm, W. I., Mishra, S. I., Adams, A., Dickerson, V. M., Murphy, L. S. and Reinsch, S. (2004). Reliability of spinal palpation for diagnosis of back and neck pain: a systematic review of the literature. *Spine*, 29(19), E413-25.
- Stochkendahl, M. J., Christensen, H. W., Hartvigsen, J., Vach, W., Haas, M., Hestbaek, L., Adams, A. and Bronfort, G. (2006). Manual examination of the spine: a systematic critical literature review of reproducibility. *J Manipulative Physiol Ther*, 29(6),
- Stovakk B and Kunar S Reliability of bony anatomic landmark asymmetry assessment in the lumbopelvic region: application to osteopathic medical education. *J Am Osteopathic Assoc*. 2010;110:667-674
- Sutton C, Nono L, Johnston Rg, Thomson Op. The effects of experience on the inter-reliability of osteopaths to detect changes in posterior superior iliac spine levels using a hidden heel wedge. *J Body Mov Ther* 2013;17:145-150

THANKS