

THE DONNING

OF GRADUATED COMPRESSION STOCKINGS :

COMPLEX PROCESS BUT EASY ASSESSMENT ?

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INTRODUCTION

Compliance with compression therapy remains unsatisfactory.

Non compliant		
2% to 42%	3 randomized controlled trials (VLU)	MOFFATT C et al. Int Wound J 2009;6:386-393.
10% to 80%	7 real-world studies (VLU)	
63%	3144 patients referred to a tertiary venous practice -USA-	RAJU S et al. Ann Vasc Surg 2007; 21:790-795.
31.5%	Inquiry in 332 pharmacies (2223 patients) -France-	GILLET JL, ALLAERT FA. Phlébologie 2013; 66:14-21.

Determinants of non compliance

Lack of conviction about the efficacy

Inappropriate choice of garment

Incorrect application

Difficulty in putting on the stockings

Discomfort

Skin irritation

Pain

Unaesthetic device

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C5-C6. Review of literature.***

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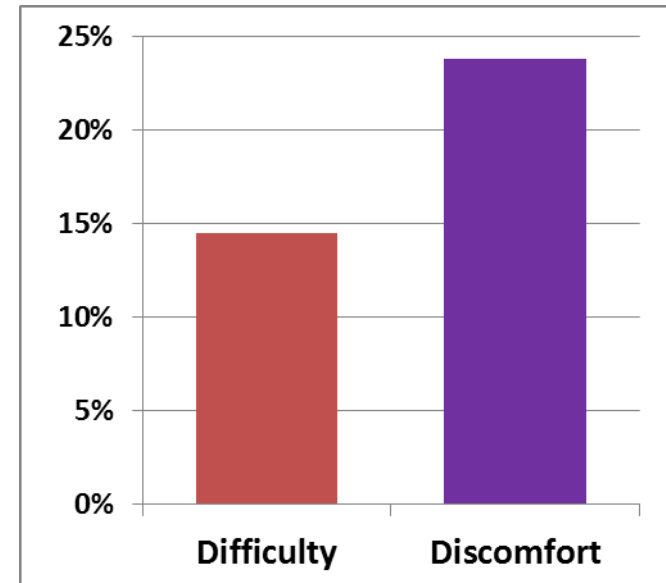
Difficulty in putting on the stockings

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OBJECTIVE

***To present a simple and reliable method
to assess the difficulty in donning GCS,
as experienced by patients.***

***Results of sensory analysis,
will be compared to results of clinical trial***

Sensory analysis

aimed at quantifying the sensations

evoked by various activities or external stimuli

THINEY G, SOUFFLET I, OUCHENE A. Utilisation de l'analyse sensorielle pour l'évaluation des bas de compression veineuse élastique. J Orthop 2008; 9:1371-1376.

THINEY G, BECKER F, OUCHENE A. Observance et compression veineuse élastique. Etude de la facilité d'enfilage et des sensations au porter précoces. Phlébologie 2007; 60:293-302.

Sensory analysis

Performed in the IFTH* sensory laboratory

By an expert panel of trained women (n= 12)

* Institut français du textile et de l'habillement

Sensory analysis: 4 phases

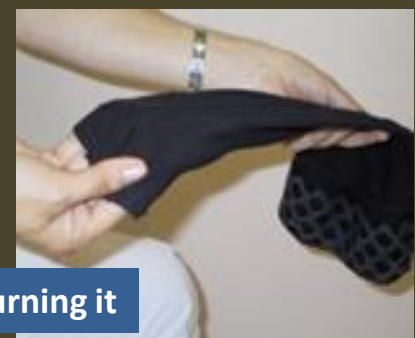
1- Preliminary trials by the panel → the best procedure for donning (putting on and putting off the stocking) has been previously finalized.



Introducing the hand into the stocking



and returning it



Pulling the edges away



Introducing the forefoot



Pulling up till the instep



Passing the heel



Sliding the textile up on the leg

Sensory analysis: 4 phases

1- Preliminary trials by the panel → the best procedure for donning (putting on and putting off the stocking) has been previously finalized.

2- For each step of the donning process, a sensory descriptor was defined, in a consensual way, by the whole panel.

METHODS

In this study, 3 sensory descriptors were used :

the global effort for putting on the stocking

the effort for passing the heel

the global effort for putting off the stocking

Sensory analysis: 4 phases

1- Preliminary trials by the panel → the best procedure for donning (putting on and putting off the stocking) has been previously finalized.

2- Sensory descriptors, corresponding to the different steps of the donning process, were chosen, in a consensual way, by the whole panel.

3- Training of the panel with the set of 3 GCS to be tested:

A (15-20 mmHg),

B (20-30 mmHg),

C (20-36 mmHg)

→ calibration of the quotation of each descriptor using the whole range of the scale (0 → 10), over the complete set of products.

4- Final quotation of sensory descriptors for the 3 stockings → analysis

Clinical trial

- Performed in the CRULL* (Spa research center of La Léchère, France)
- Involved 23 women (65-79 yrs), C1s-C5s
- Stockings were put on according to the same procedure as in sensory analysis, then worn during 3 hours, then put off.
- Subjects quoted (0 → 10) the same three sensory descriptors.
- Each subject tested the 3 stockings (A, B, C), on 3 different days.
- No training with the products before the trial: no calibration of the quotations over the whole range of efforts required by the 3 products.

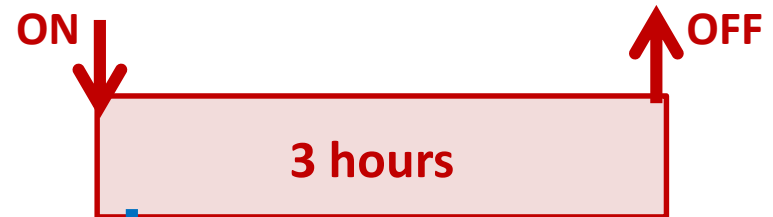
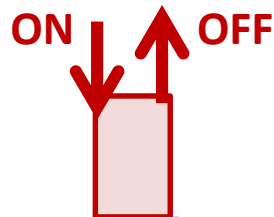
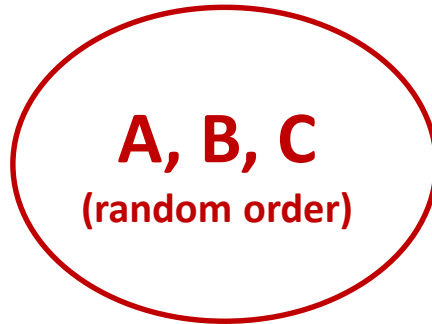
* Centre de recherches universitaire de La Léchère

METHODS

Sensory analysis

Clinical trial

stockings

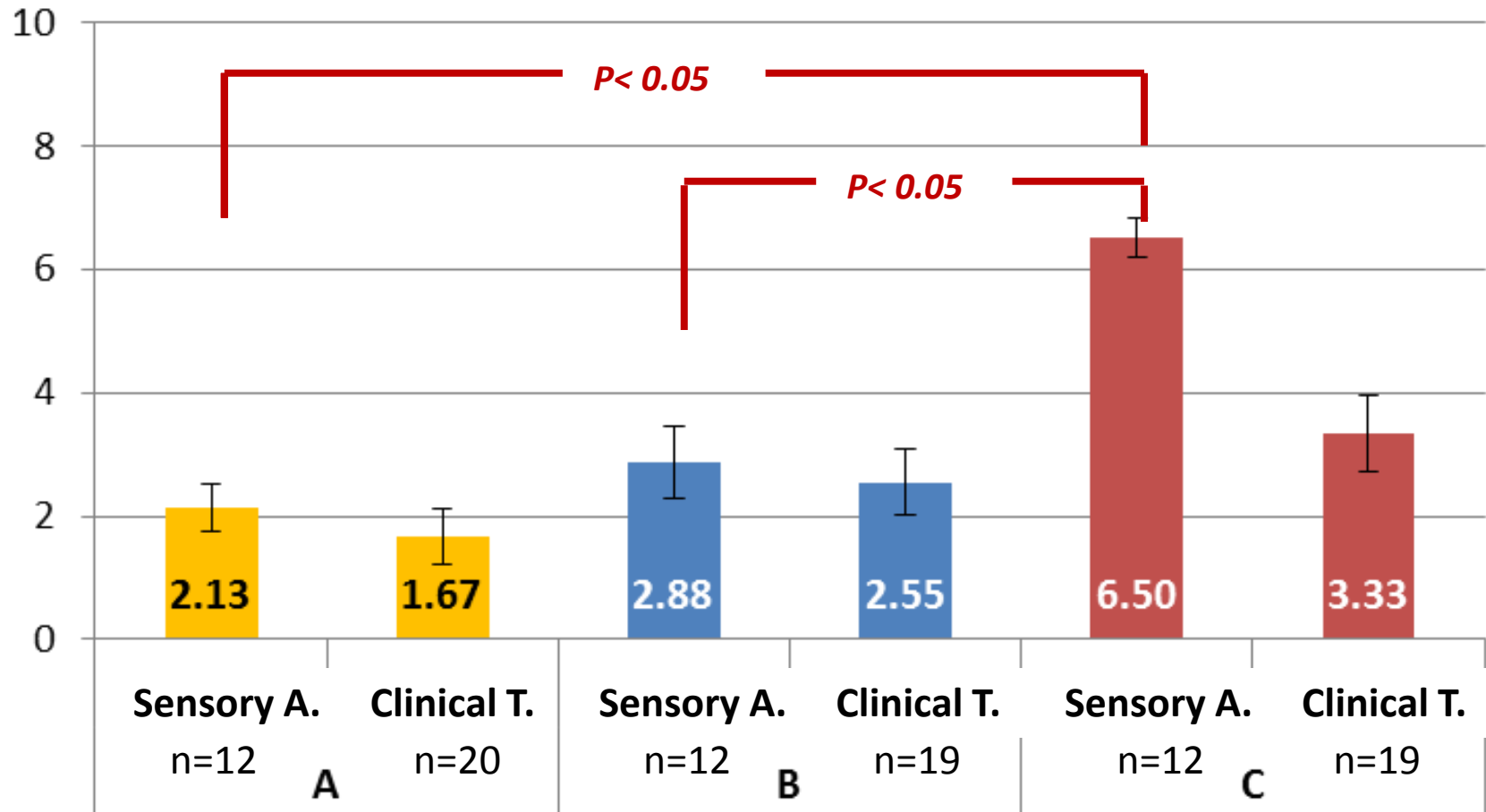


answers



RESULTS

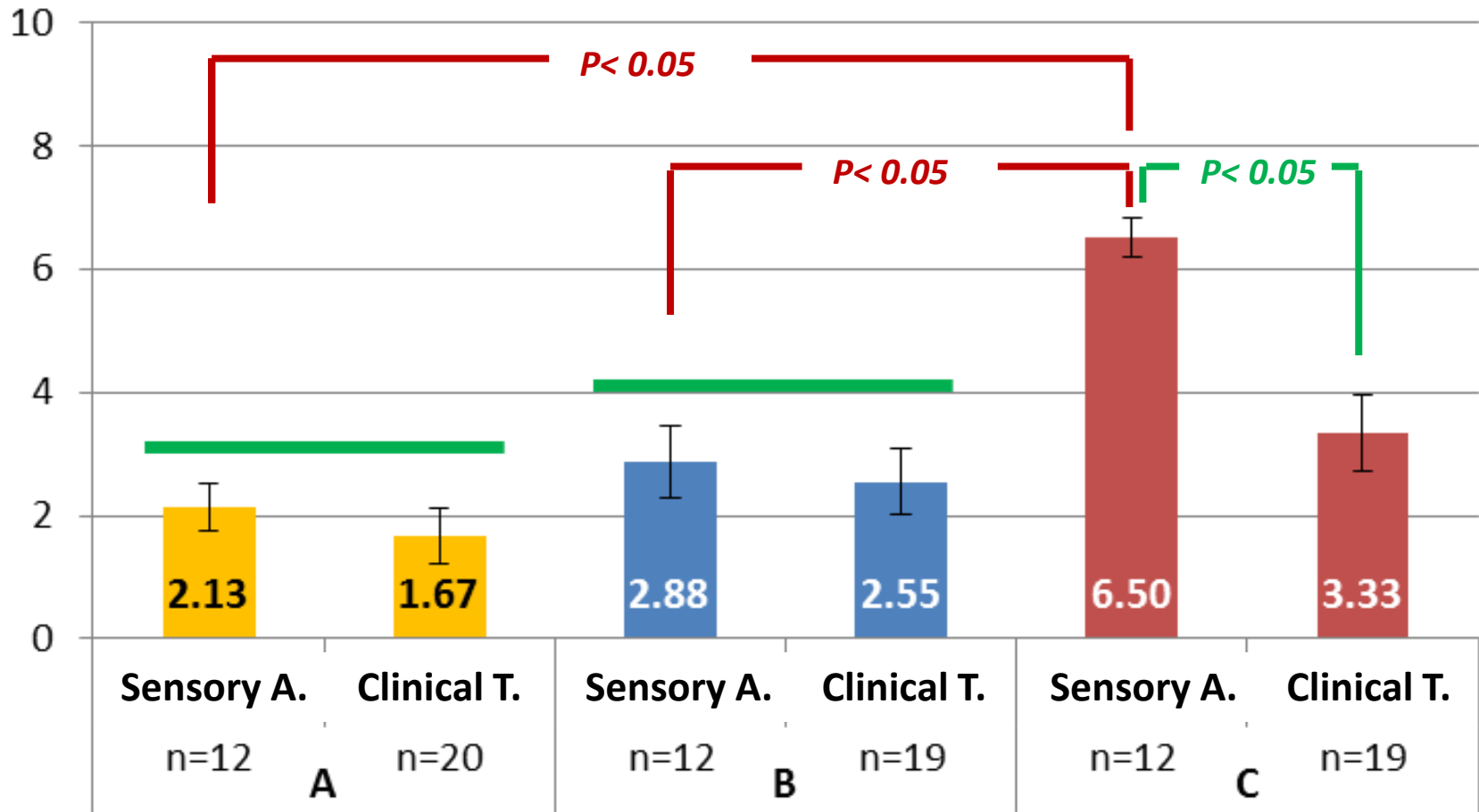
Global effort for putting on the stocking



Wilcoxon test for paired values

RESULTS

Global effort for putting on the stocking

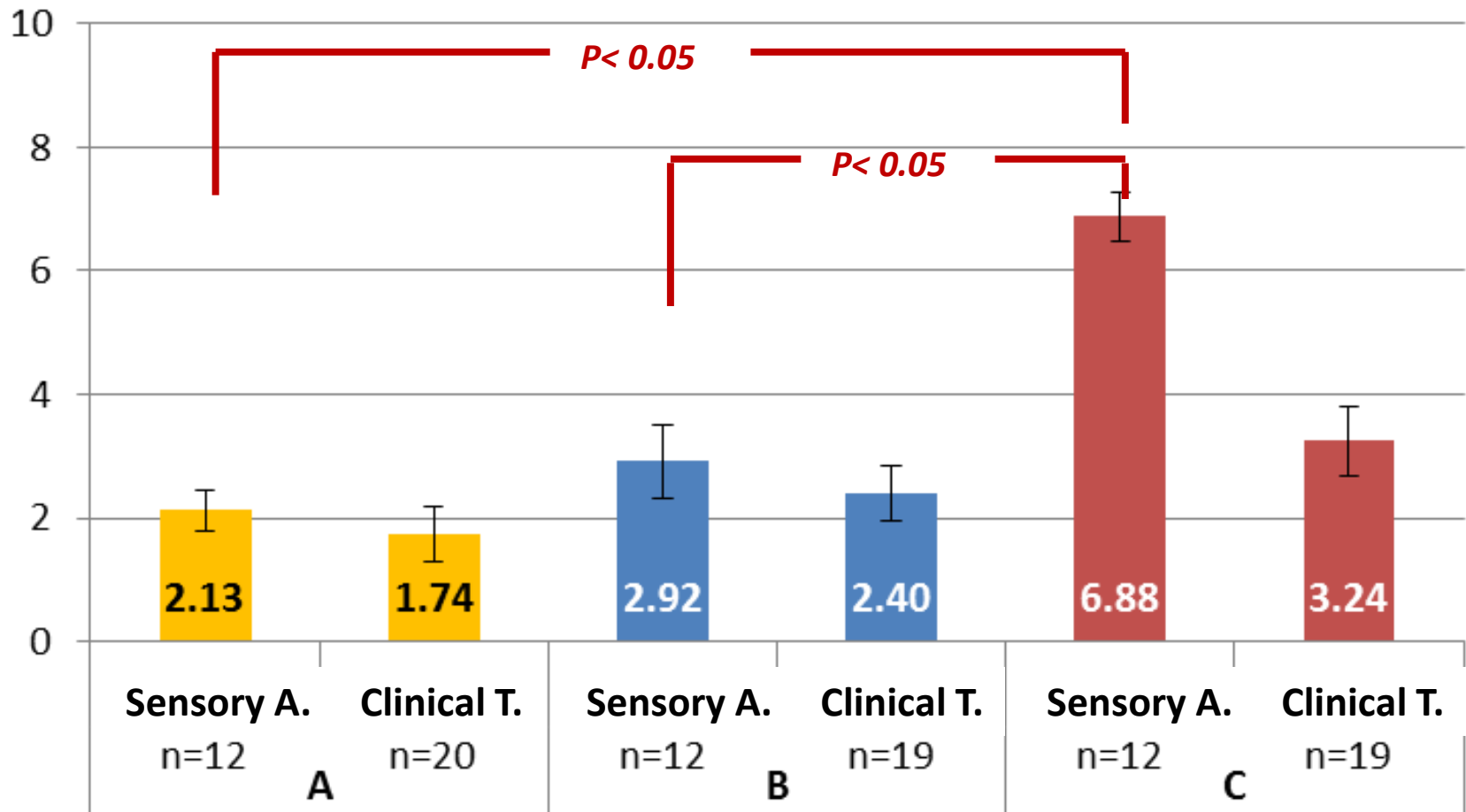


Wilcoxon test for paired values

Mann-Whitney test for unpaired values

RESULTS

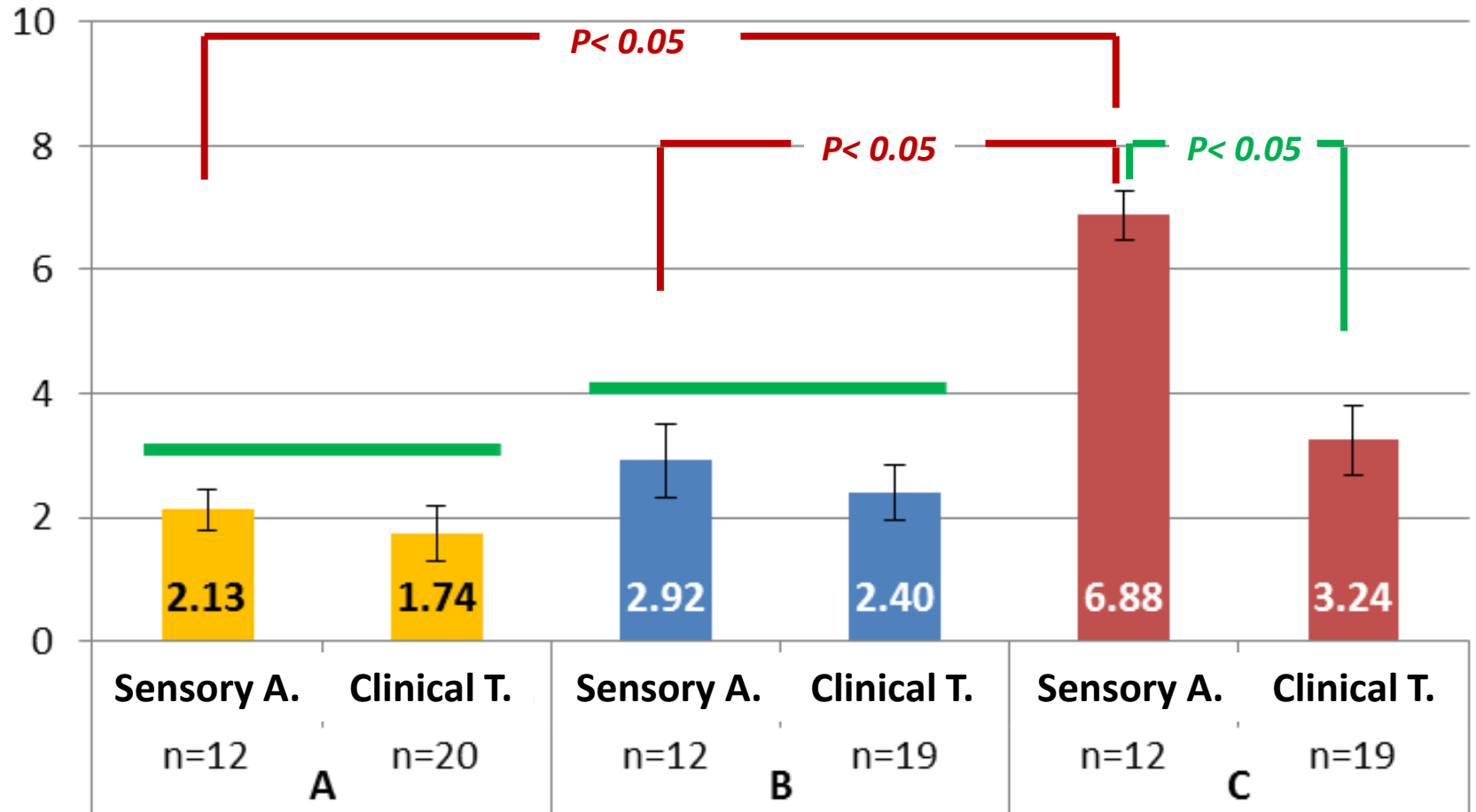
Effort for passing the heel



Wilcoxon test for paired values

RESULTS

Effort for passing the heel

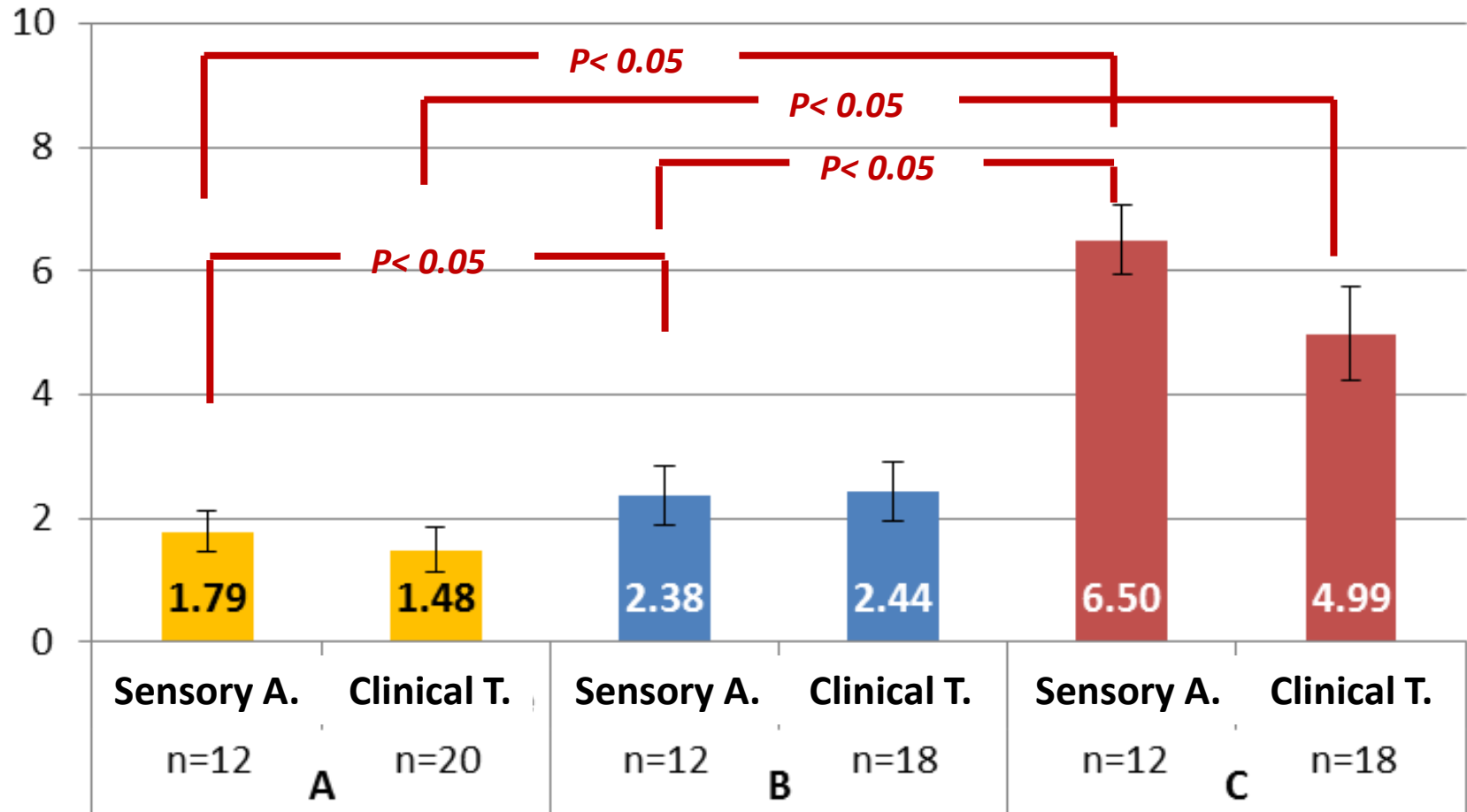


Wilcoxon test for paired values

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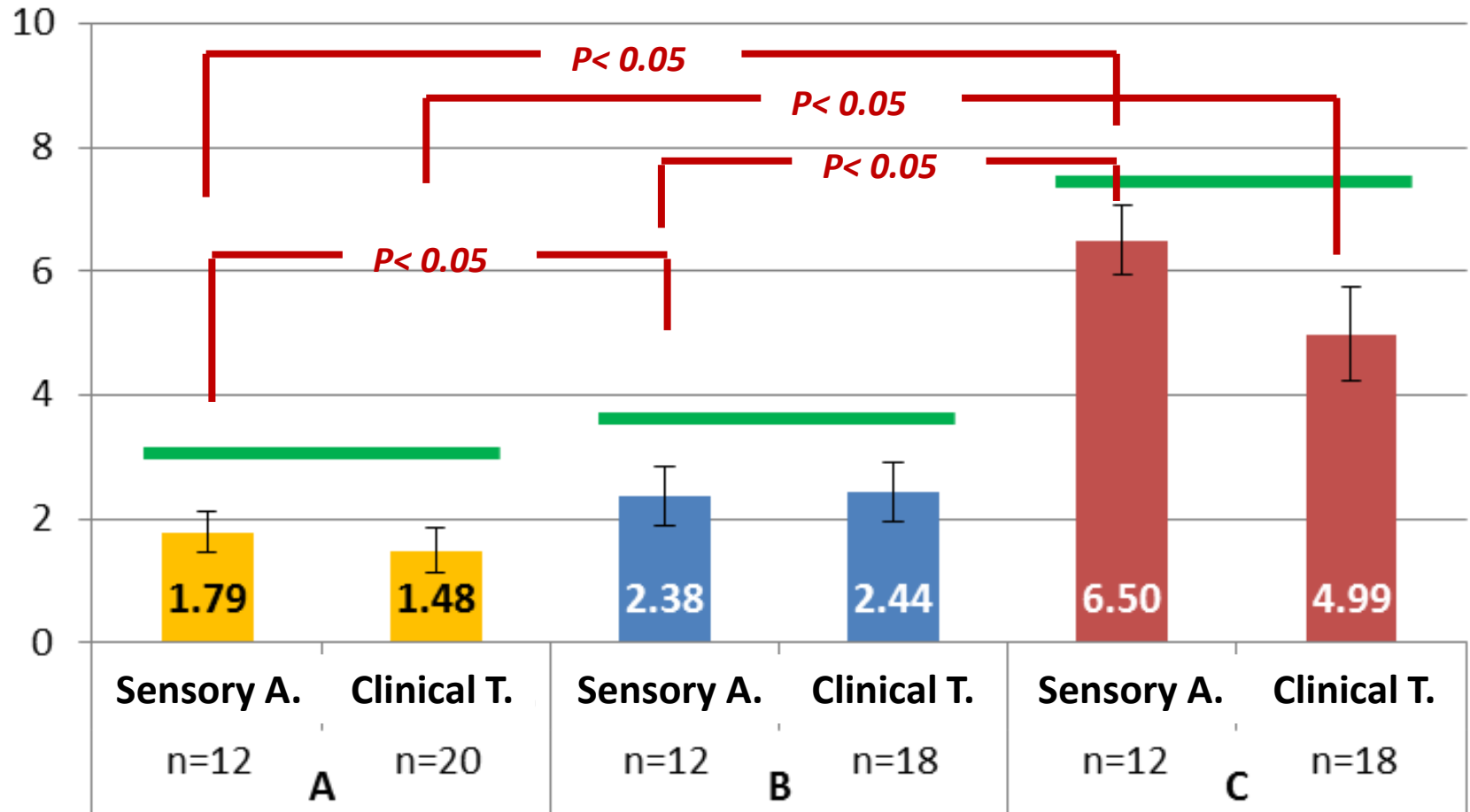
Global effort for putting off the stocking



Wilcoxon test for paired values

RESULTS

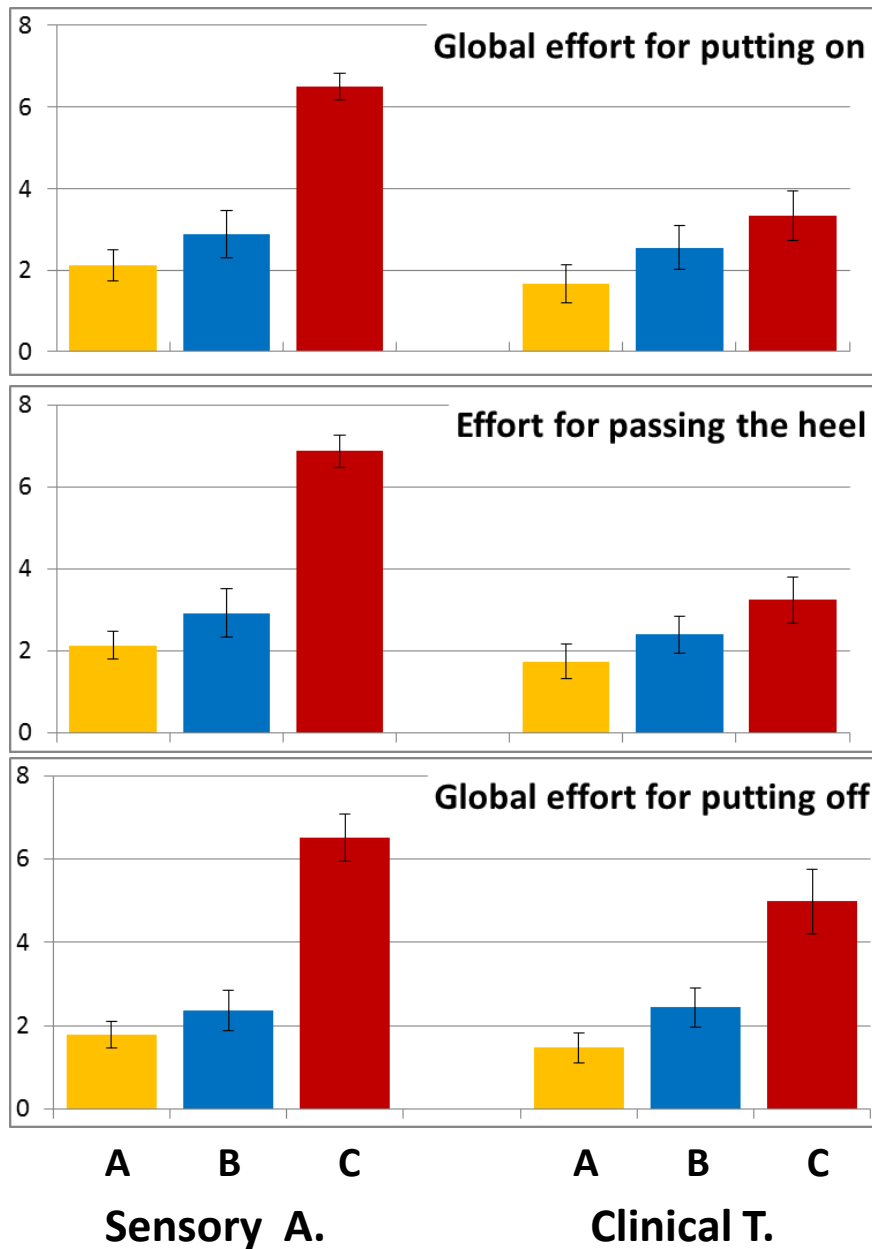
Global effort for putting off the stocking



Wilcoxon test for paired values

Mann-Whitney test for unpaired values

RESULTS

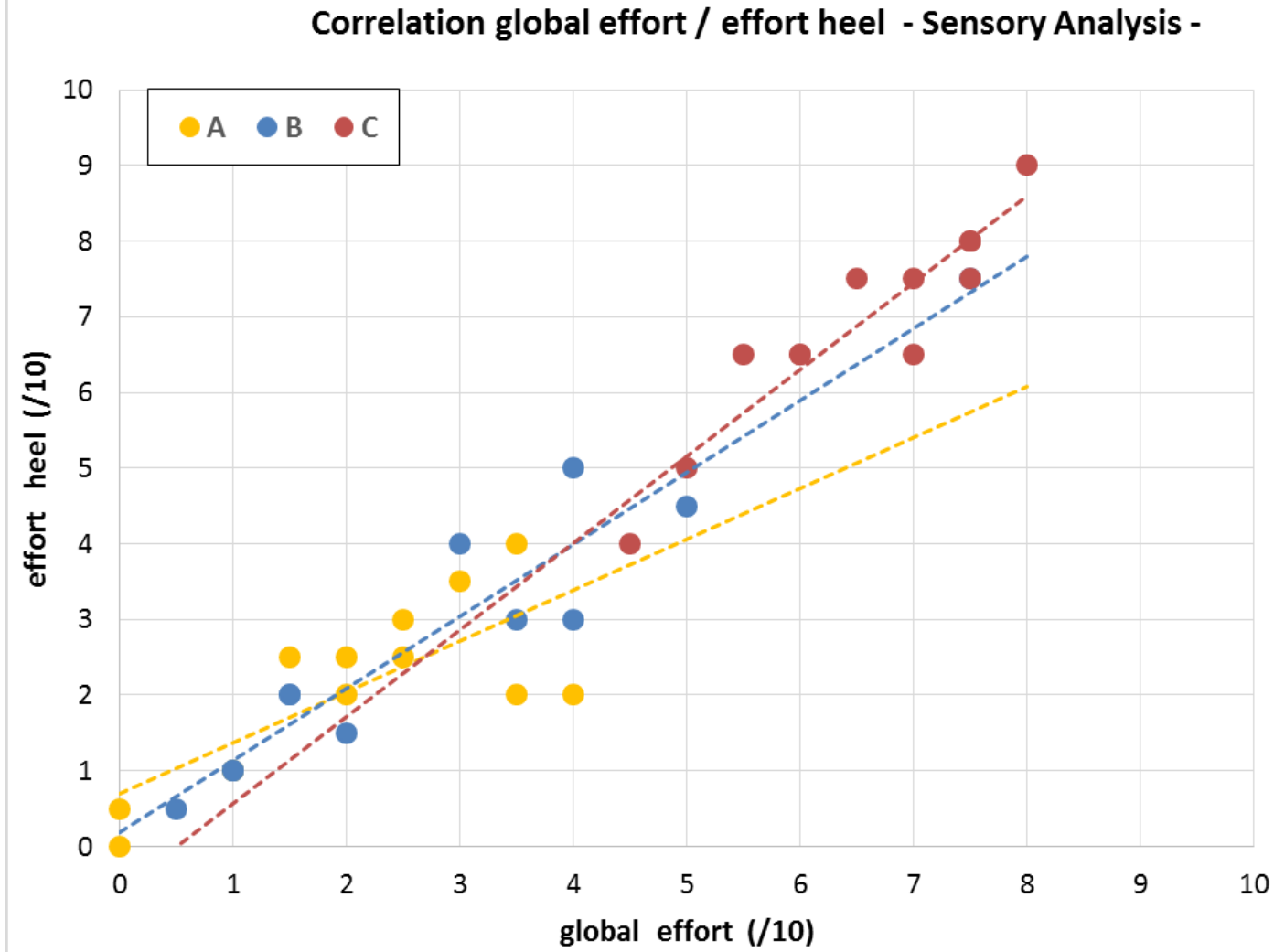


Sensory analysis vs Clinical trial:

**Increasing difficulty from A to C:
In both studies**

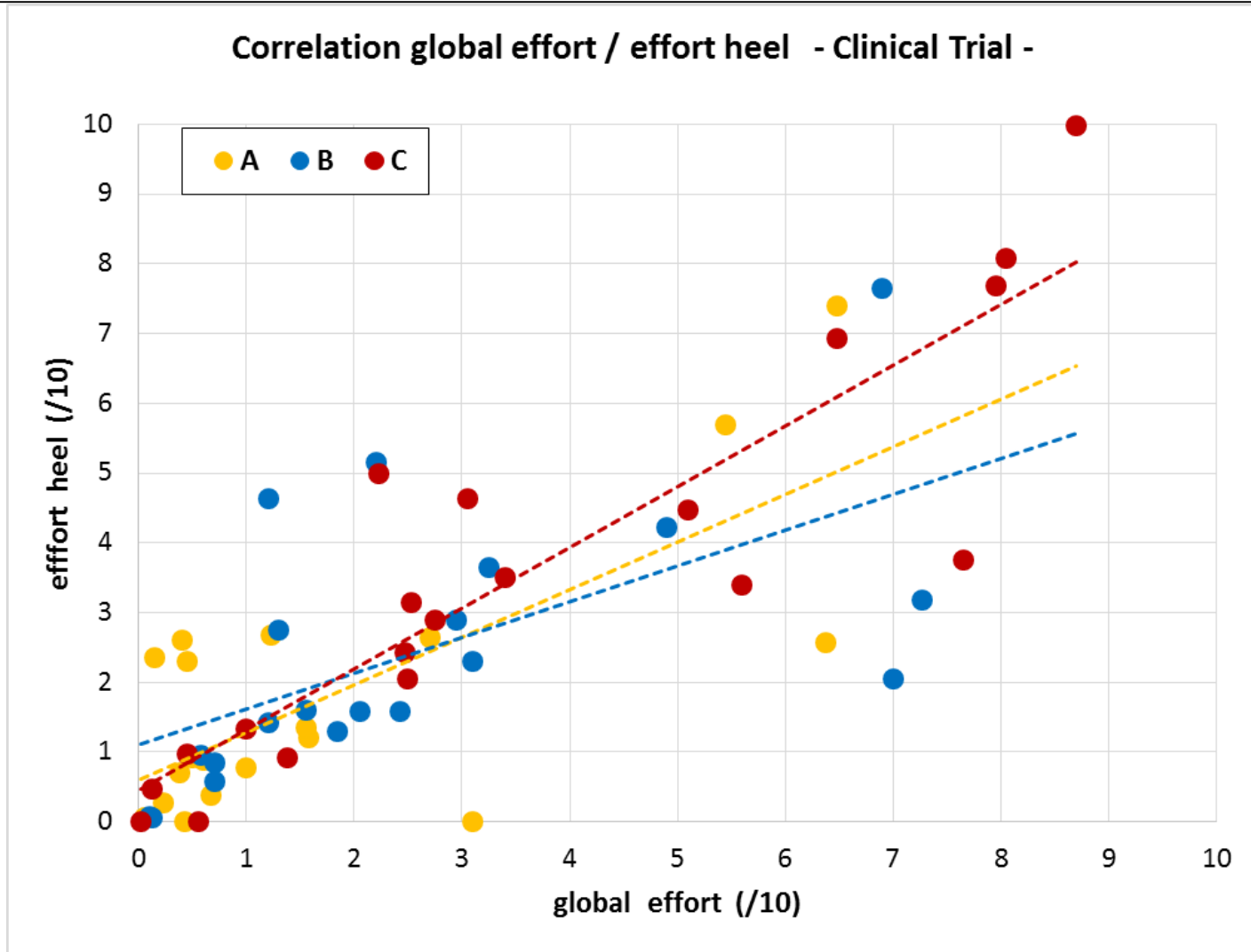
**Effort's quotations:
don't significantly differ,
except for putting on C**

RESULTS



	A	B	C
r Pearson	0.7561	0.9540	0.9303
p	0.004	< 0.0001	< 0.0001

RESULTS



	A	B	C
r Pearson	0.7362	0.6073	0.8899
p	< 0.0001	0.005	< 0.0001

CONCLUSION

1- Sensory analysis, performed by a small expert panel, is able to predict with a good agreement the difficulty in putting on and putting off stockings experienced by patients.

2- The difficulty for sliding the heel into the GCS is a marker of the overall difficulty in putting on.

Questioning patients on this point seems to be the most appropriate simple way to assess the acceptability of different stockings.