

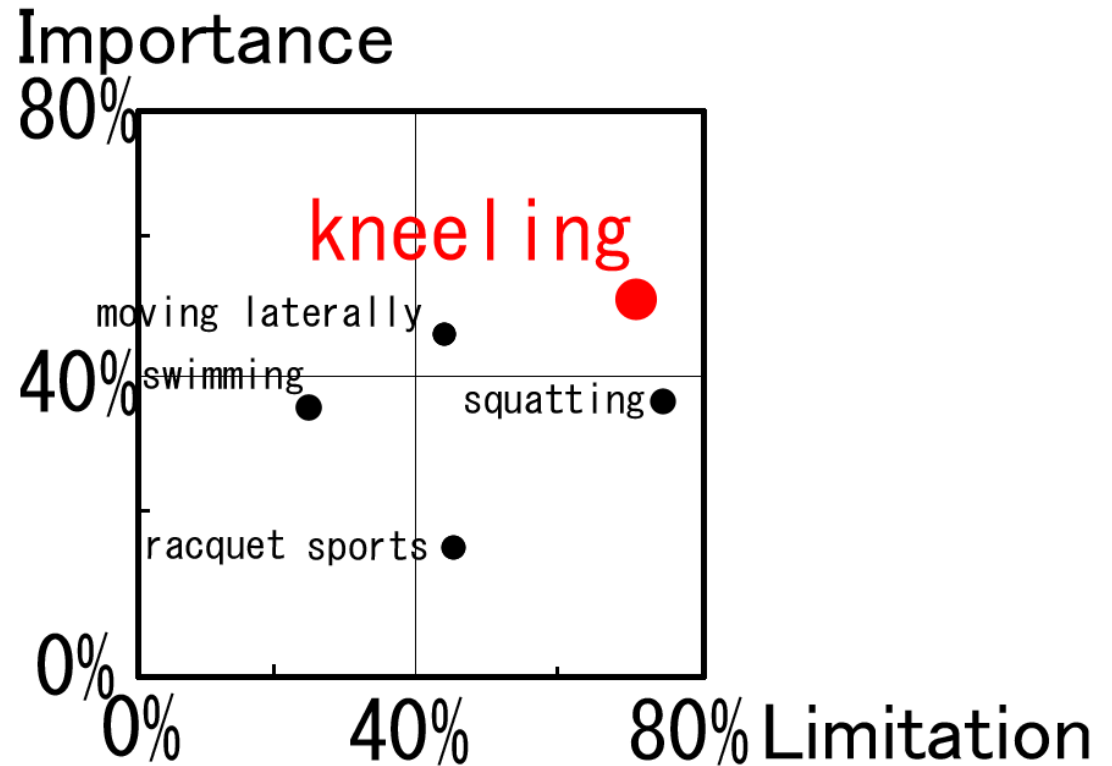
Association between kneeling ability and contact pressure on the anterior aspect of the knee

Department of Bone and Joint Surgery
Ehime University Graduate School of Medicine

Kunihiko Watamori

Yasumitsu Ishimaru, Yoshitaka Shiraishi, Kazuho Nishimatsu,
Hiroshi Kiyomatsu, Tatsuhiko Kutsuna, Seiji Watanabe,
Kazunori Hino, Hiromasa Miura

Background



Weiss J et al : Clin Orthop Relat Res 2002

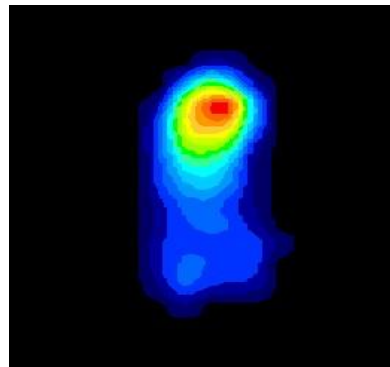
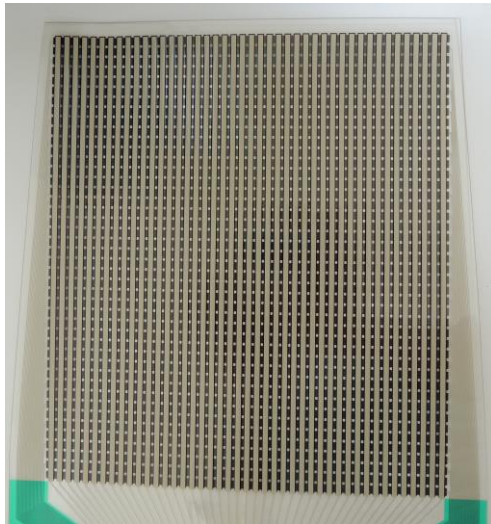
Purpose

The purpose is to quantify the contact pressure on the anterior aspect of the knee while kneeling post-TKA, and to confirm whether the kneeling pain is associated with contact pressure.



Materials and Methods

	Volunteer (n = 26)	Patient (n=40)
Age (years)	26 ± 6.8	75.3 ± 6.3
Body weight (kg)	61 ± 12.6	64 ± 9.7
Height (cm)	164.5 ± 8.2	154.2 ± 8.8
BMI (kg / m ²)	22.3 ± 2.9	26.9 ± 3.1



Low Contact pressure [N/cm²] High

I-SCAN (NITTA)

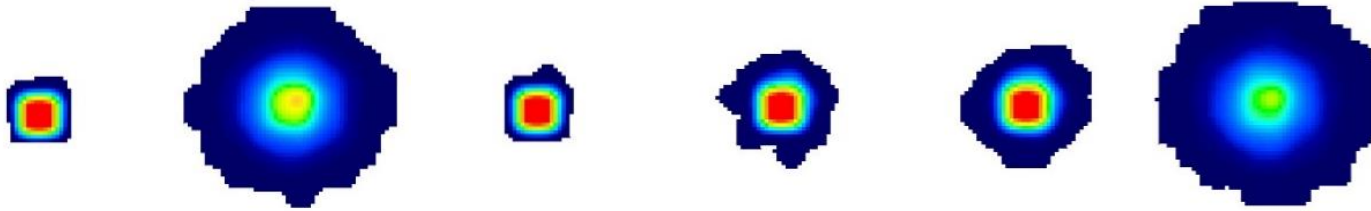
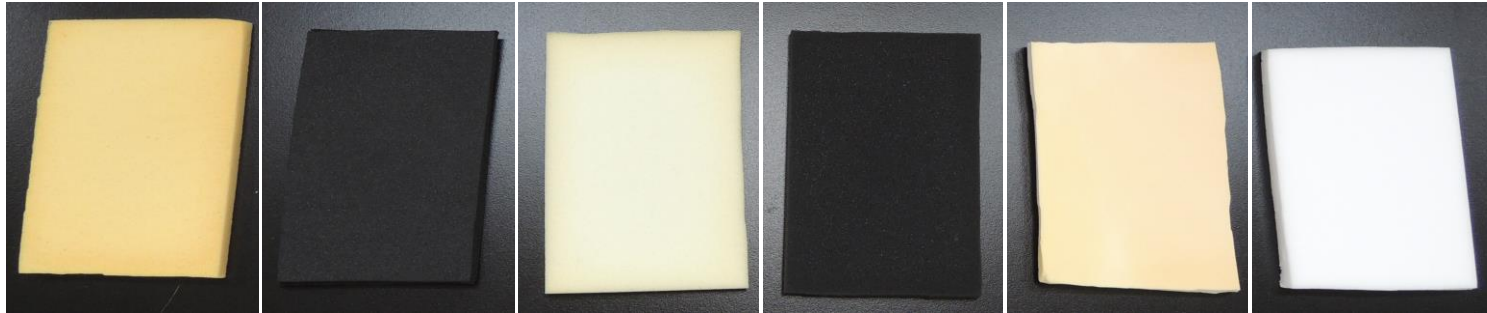


Materials and Methods

Low rebound



High rebound



No.1

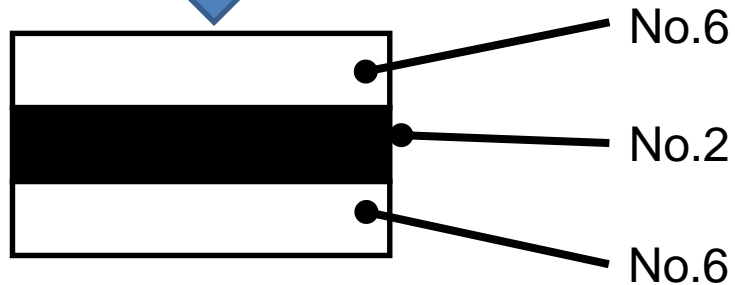
No.2

No.3

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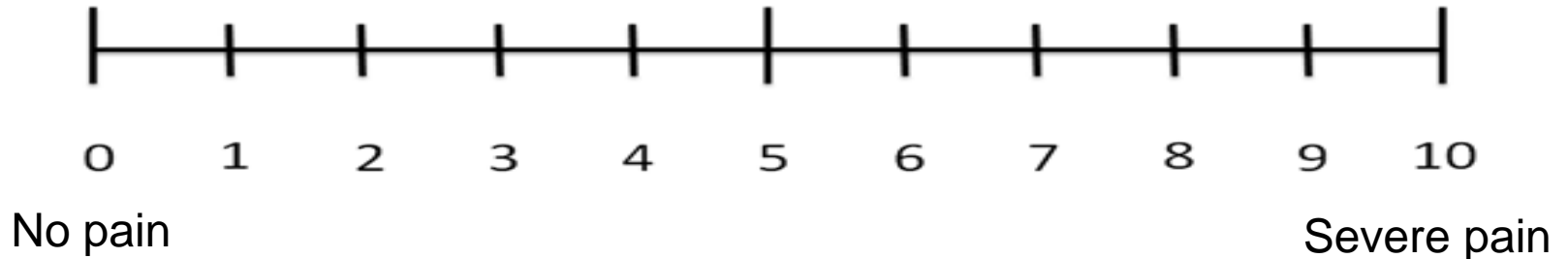


Questionnaire the patient

· Can you kneel down ?

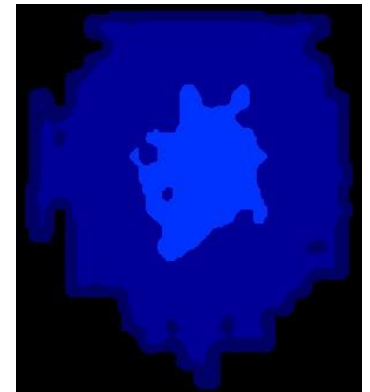
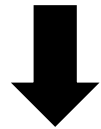
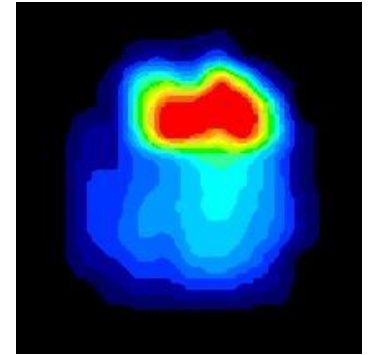
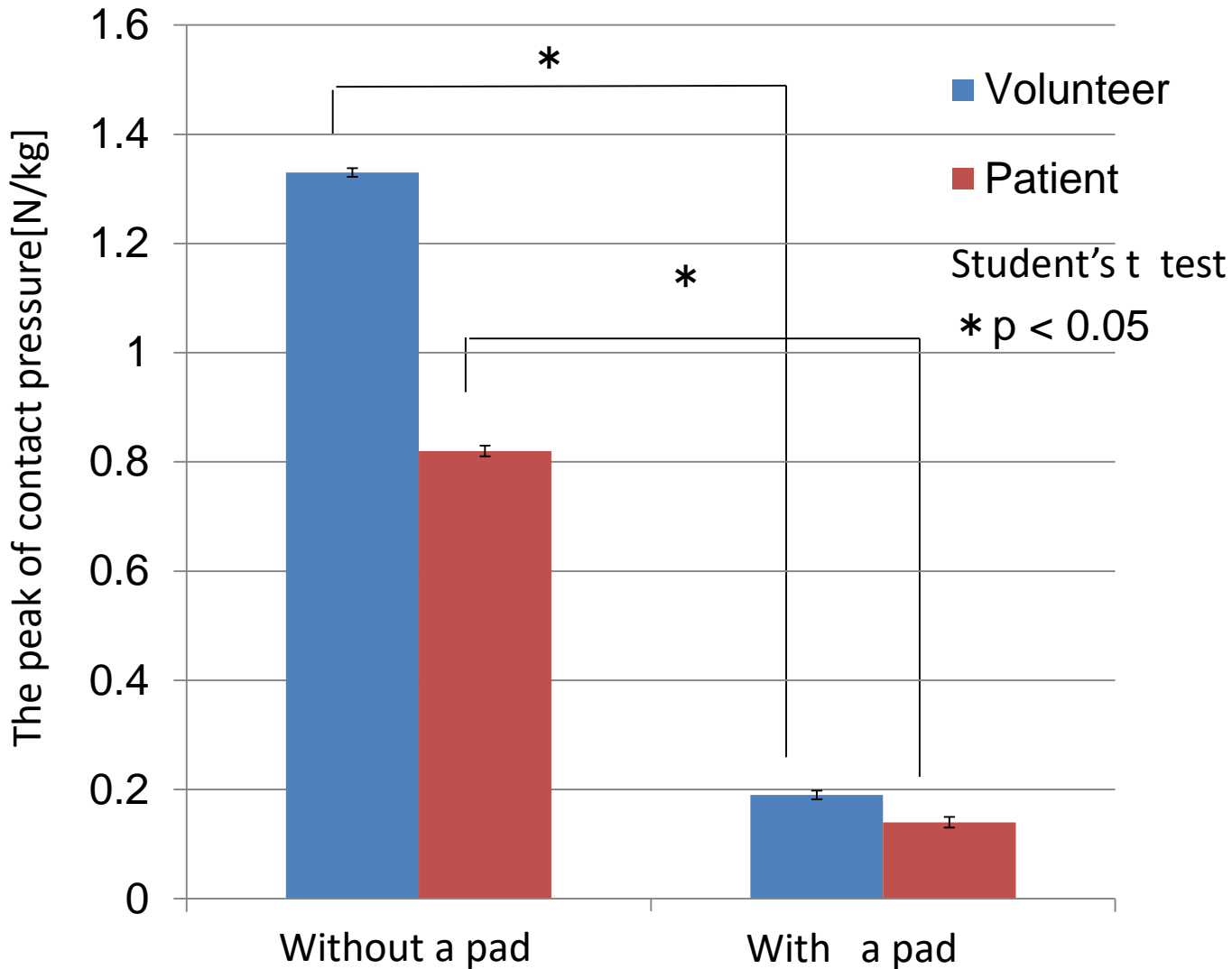
4: Not difficult 3: Little difficult 2: Difficult 1: Very Difficult 0: No

· Pain scale : the Numerical Rating Scale (NRS)



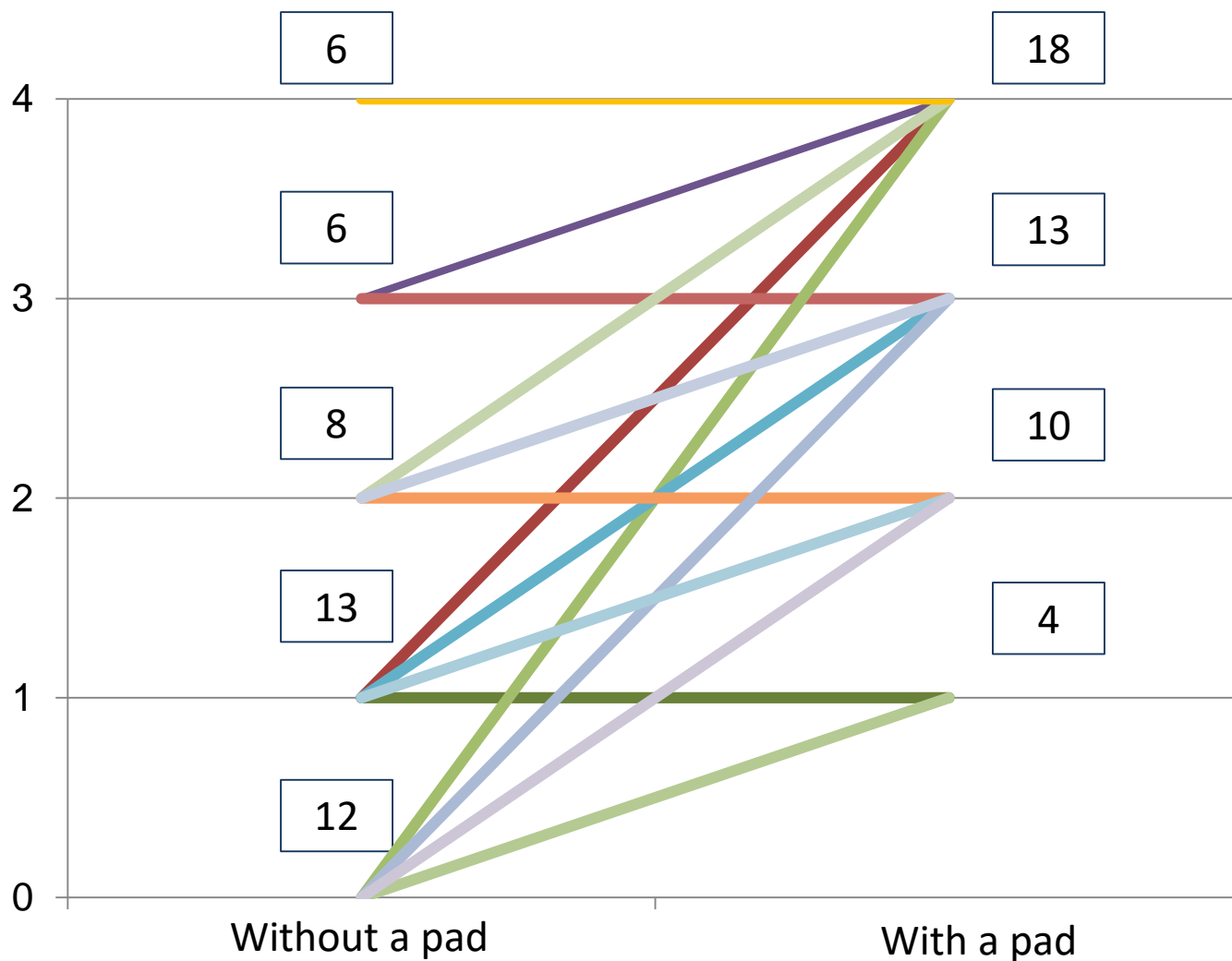
Results

The peak of contact pressure

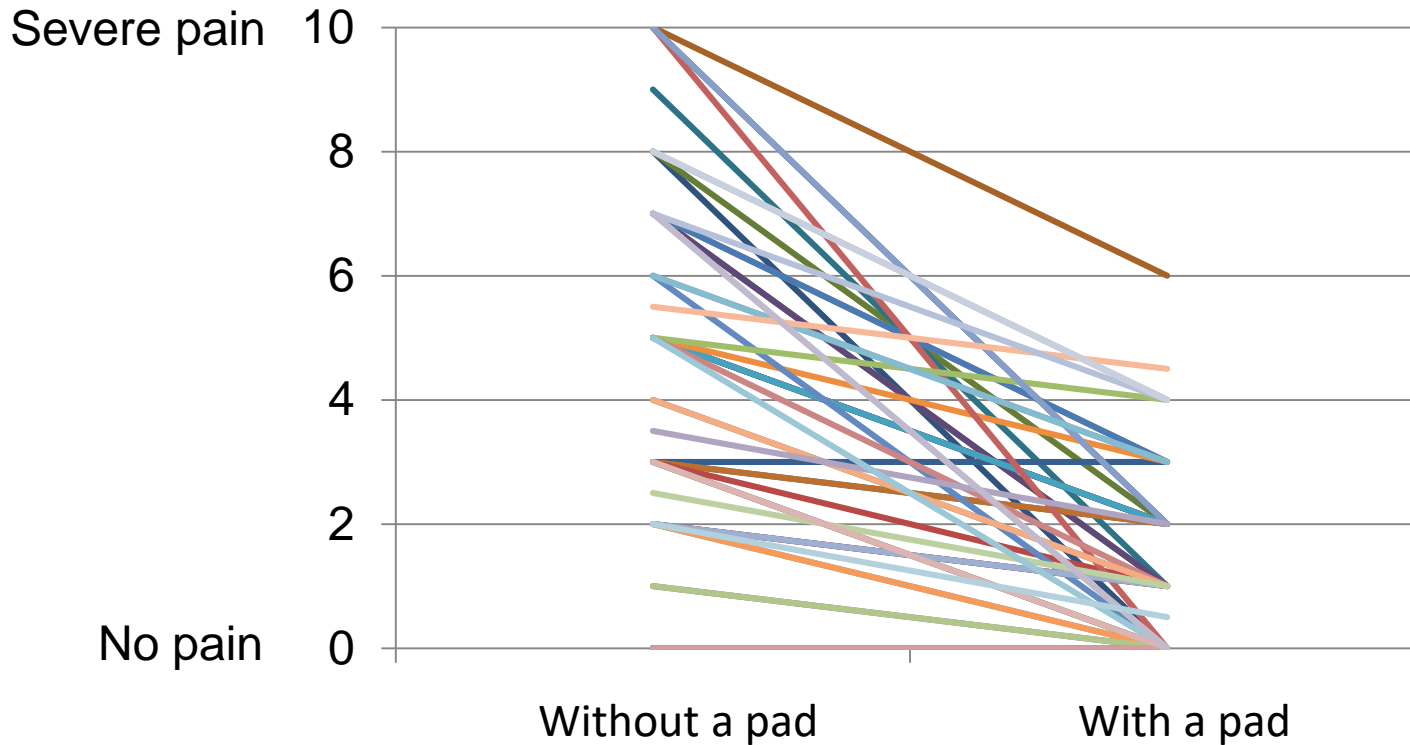


The question : Can you kneel down?

No : 0 , Very difficult : 1 , Difficult : 2 , Little difficult : 3 , No difficult : 4



Pain scale



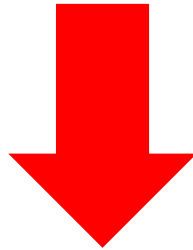
	Without a pad	With a pad
NRS average	4.58	1.44

Discussion

The most commonly mentioned problem for post-TKA patients was related to kneeling.

P.N. Baker et al : J. Bone Jt. Surg. 2007

- 12 patients could not kneel on hard floor



contact pressure decreased by about 80%

- All patients could kneel
- The average of pain score was decreased by 70%

It is possible to reduce pain and increase the patient satisfaction for postoperative kneeling by reducing the contact pressure.

Conclusions

- We measured the contact pressure on the anterior aspect of the knee while kneeling.
- The pad decreased the contact pressure by about 80%.
- When using a pad, every patients could kneel.
- The pad decreased the average of NRS by 70%.
- It is possible to reduce the kneeling pain by decrease the contact pressure.