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Changes in improvement of physical function and QOL after CR type total knee arthroplasty

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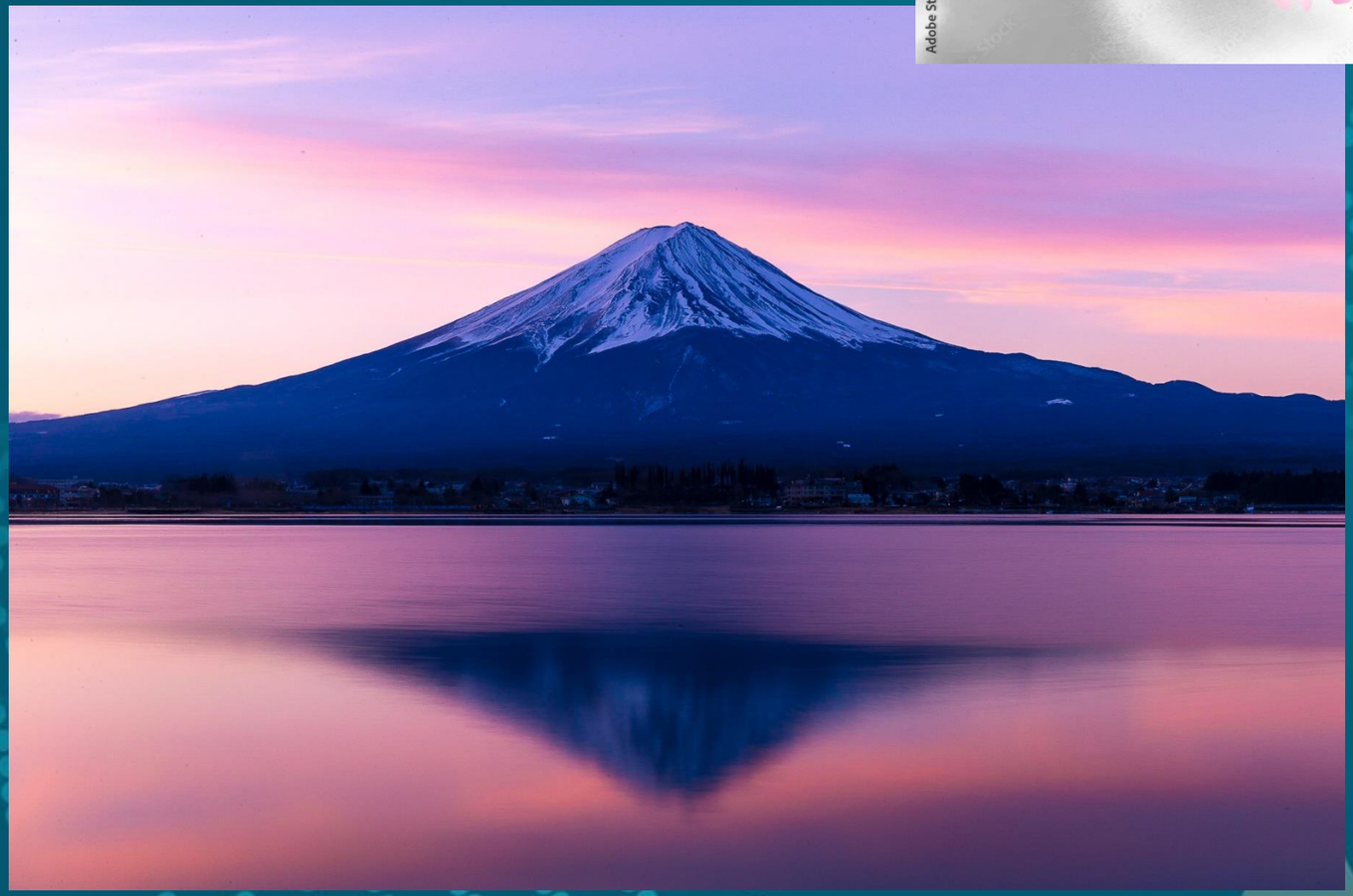
Faculty Disclosure Information

- Nothing to disclosure for all author



OUKIKAI

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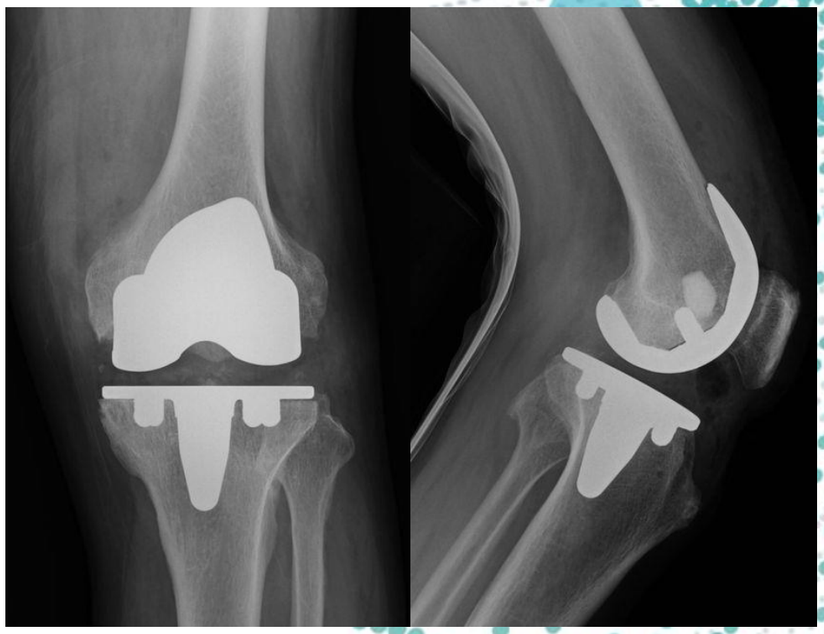
Aims

- CR-type total knee arthroplasty (TKA) is expected to improve pain and ADL in a relatively short period of time.
- However, we sometimes hear patients express concerns about the duration of improvement in physical function after surgery.

The aim of this study was to investigate the transition of improvement in physical function and quality of life from the early postoperative period.

Material

- Disease： osteoarthritis of the knee
- Period：January 2020 - December 2022



- Minimum Invasive Surgery（MIS）-TKA
- （all CR type, completely cementless)
- Approach：Trivector approach
- patella：non replacement

✓ A retrospective study of 222 knees (42 men and 180 women) undergoing TKA

Methods

Research items

✓knee joint range of motion

✓The pain Visual Analogue Scale（VAS）

Evalution Criteria

✓The Timed Up and Go test （TUG）

✓Knee Injurly and Osteoarthritis Outcome Score(KOOS)

✓MOS 36-Item Short-Form Health Survery（SF-36®）

We compared between preoperatively , at discharge(36.8±14.5days), 3 months after surgery,and 6 months after surgery.

statistical analysis： Student t-test

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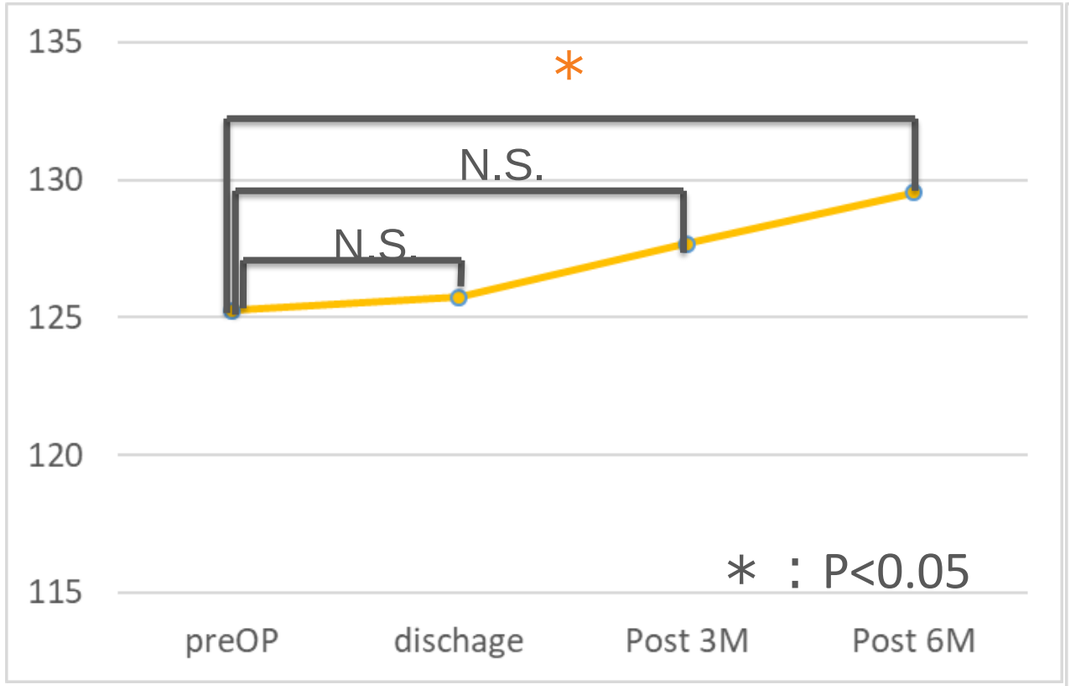
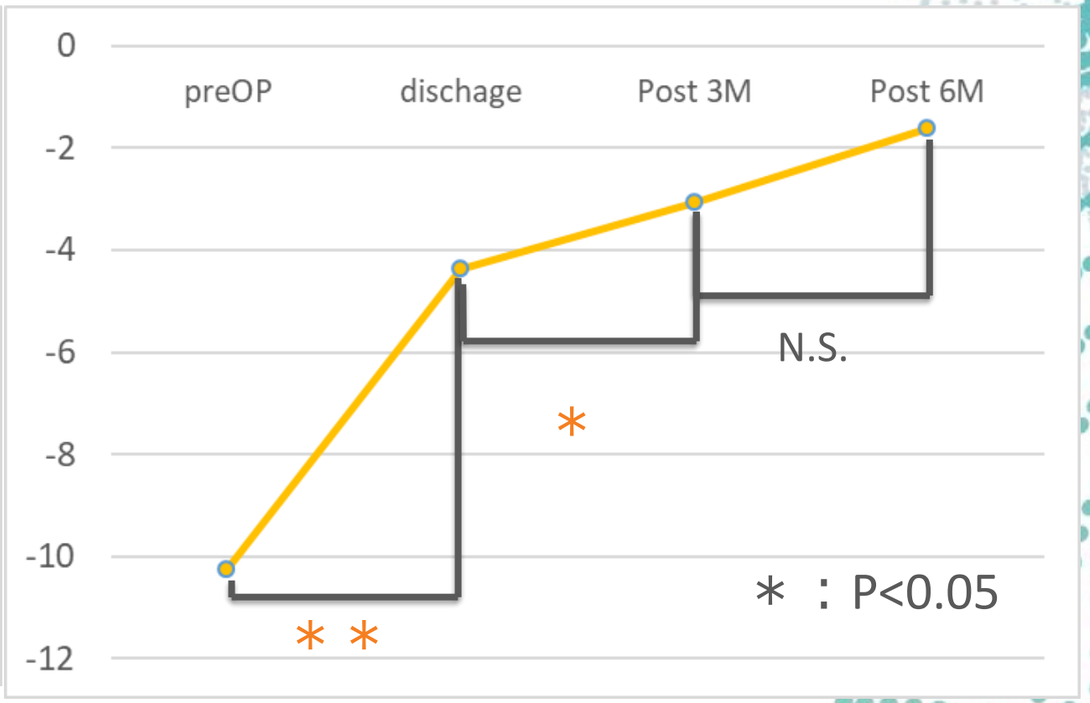
Results



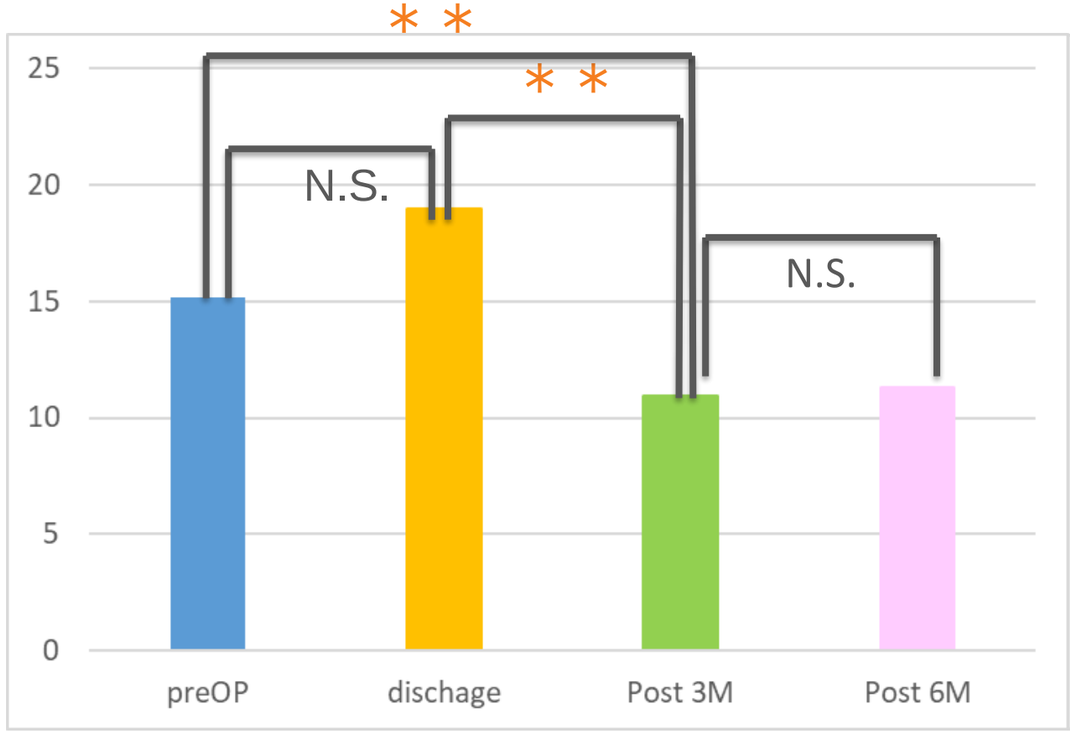
Flexion angle



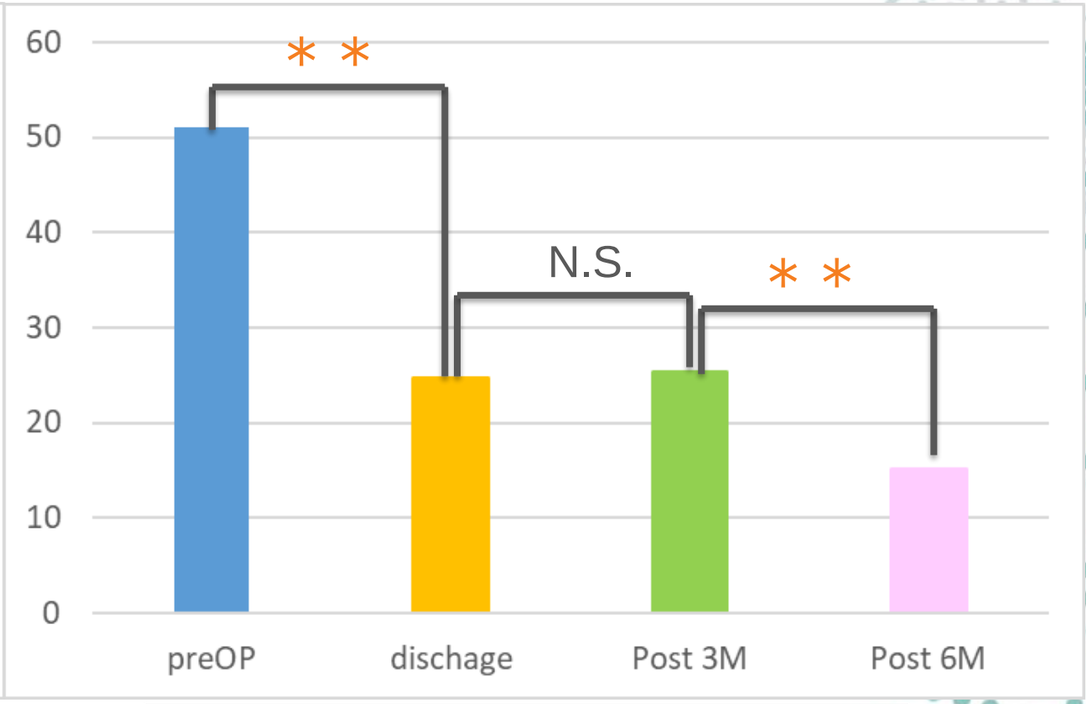
Extension angle

Results

＊＊：P<0.001



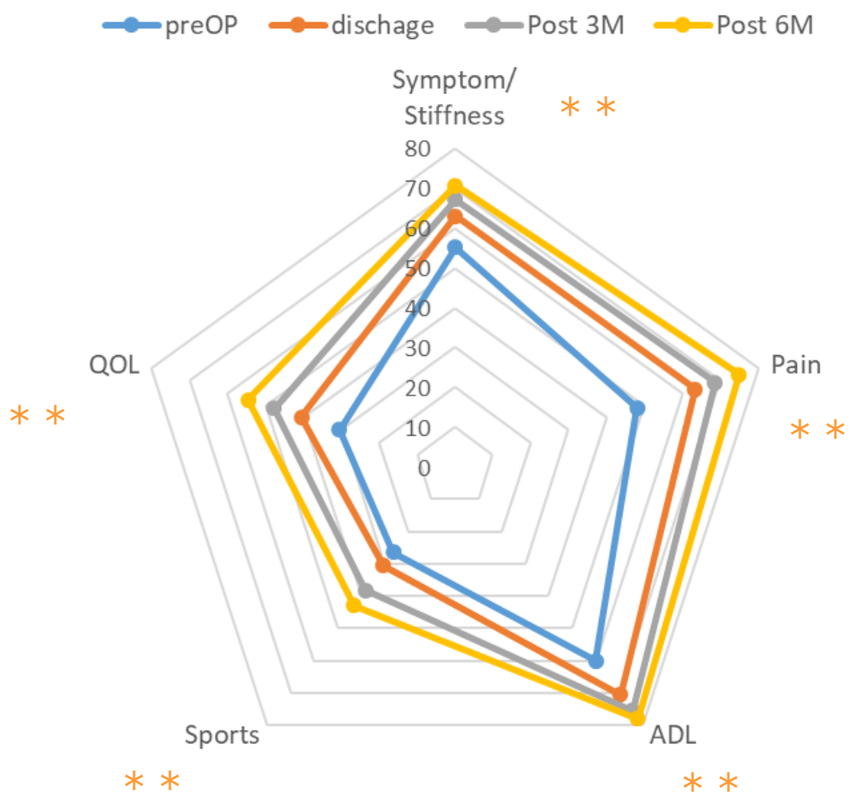
TUG



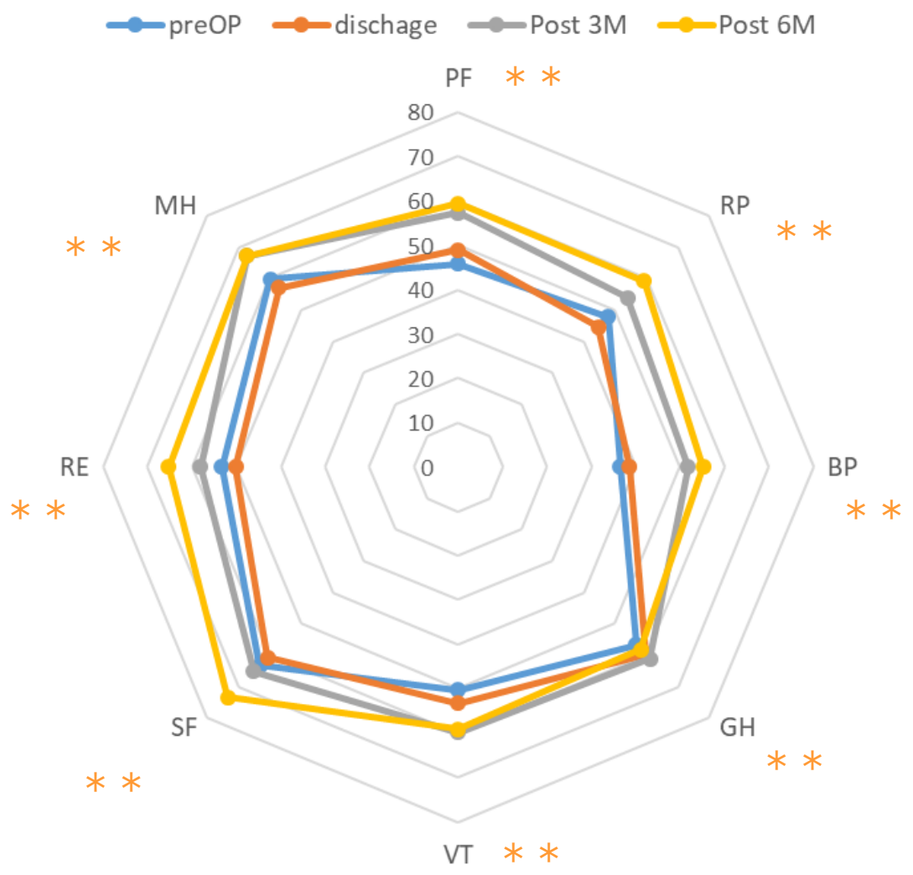
exercise pain VAS

Results

＊＊：P<0.001



KOOS



SF-36

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Discussion

Significant improvement in exercise pain VAS, knee joint extension angle, and KOOS subscales (Symtom/stiffness, pain, ADL, QOL) at discharge

- Postoperative pain improves to a low intensity after 7 days (inflammatory phase). 1)Nakakita et al. physiotherapy 29(6) :917-922,2014

- Compared to pre-TKA, walking pain and knee extension range of motion improve at 2 weeks postoperatively. 2）Oonishi et al. physiotherapy 34(6) :771-775,2019

At the time of discharge from the hospital, ADL and quality of life related to the knee can be improved compared to preoperative levels.

Discussion

Significant improvement in PF, RP, BP, GH, VT, MH and TUG of SF-36 at 3 months after surgery

- Improvement in PF, RP, BP, and VT of SF-36 at 3 months postoperatively.

3)Kiebzak et al. J South Orthop Assoc,1997,6(3) :169-172

- TUG is associated with pain and muscle strength, and delayed TUG indicates decreased ADLs such as walking, stair climbing, and outdoor activities.

4)Tobinaga et al. physiotherapy 26(2) :291-296,2011

TUG improvement due to further knee pain improvement since discharge

Improvement of knee joint function and overall sense of wellness by improving the quality of life at home

Discussion

Significant improvement in knee flexion angle, SF of SF-36, and RE at 6 months postoperatively

- If a knee joint flexion angle of 125° or more can be obtained, the patient will not experience much difficulty in various activities of daily living. 5)Nakamura et al. physiotherapy 26(2) :221-224,2011
- Wound healing and pain are associated with improvement in knee joint range of motion after TKA. 6)Toda et al. physiot h erapy 26(3) :411-415,2011

Improved knee joint flexion angle allows return to social life

Conclusion

- ✓ We investigated the transition of improvement in physical function and quality of life from the early postoperative period after CR type TKA surgery.
- ✓ At discharge from the hospital, pain during exercise VAS, knee joint extension angle, and KOOS improved significantly compared to preoperative TUG and SF-36 at 3 months postoperatively, and knee joint flexion angle at 6 months postoperatively.
- ✓ Improvement in knee joint function and ADL/QOL is possible at discharge. Improvement in physical and mental QOL was possible at 3 to 6 months.

Reference

1)Satoshi Nakakita,Osamu Wada,Yoshinori Tobiyama: Pain intensity and pain location in early postoperative physical therapy after total knee replacement: Physical Therapy ,2014 29(6) :917-922.

2)Kunihiro Onishi, Yoshiro Hori, Kenji Kawamura: Physical function recovery up to 1 year after total knee arthroplasty in patients recovery of physical function, Physical Therapy ,2019 34(6) :771-775.

3)Kiebzak GM, Vain PA, Gregory AM, et al.: SF-36 general health status survey to determine patient satisfaction at short-term follow-up after total hip and knee arthroplasty. J South Orthop Assoc, 1997, 6(3): 169-172.

4)Takeshi Tobinaga,kouichirou Oka,Kumiko Hagiwara, et al. : Recovery process of physical function and health-related quality of life after total knee replacement surgery: Physical Therapy,2011 26(2): 291-296.

5)Mutsumi Nakamura, Sawako Yamamoto, Masafumi Mizukami: Transient changes in patients' ability to perform activities of daily living after artificial knee replacement: Physical Therapy ,2011 26(2) : 221-224

6)Hidehiko Toda, Kaori Toda, Takahiro Kiyama, et al.: Flexion mobility domain prediction after artificial knee replacement: Physical Therapy, 2011 26(3): 411-415.