

Evaluation on the Effectiveness of an Accelerated Anterior Cruciate Ligament Reconstruction Rehabilitation Program for Chinese Recreational Players

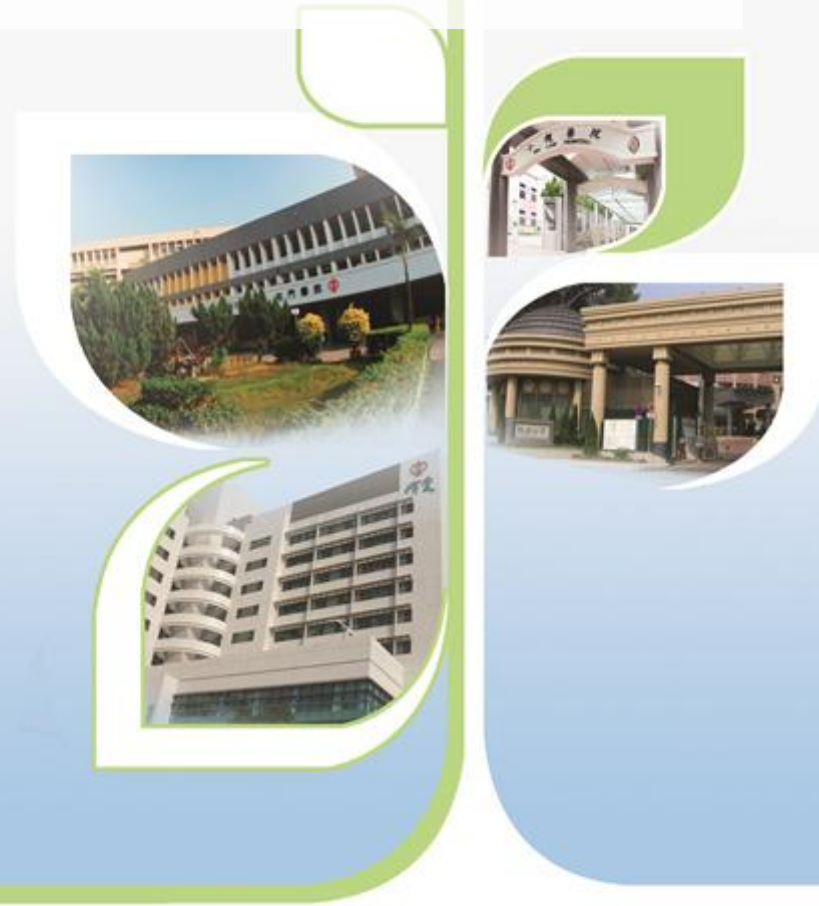
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Hospital Authority Convention 2014

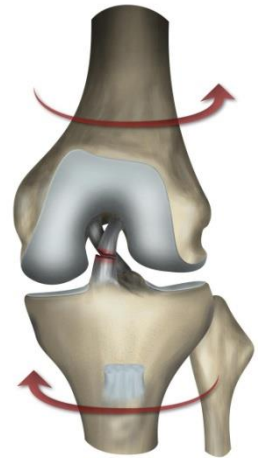
8th May 2014



New Territories West Cluster

Introduction

- Anterior cruciate ligament (ACL) injury
 - 25.4% knee injury in high school athletes of US (Swenson 2013)
- Accelerated ACL program
 - Effective in elite athletes
 - Limited studies in Chinese recreational players



Objective

- To evaluate the effectiveness of the accelerated ACL reconstruction rehabilitation program in Chinese recreational players

Inclusion Criteria

- Chinese recreational player
- Aged 15 to 50
- ACL injury without meniscal injury, fracture & patella pathology



Methodology



Wk.2-3



Wk.4-12



Wk.12 -20



9-12 months

The Accelerated ACL Rehabilitation Program



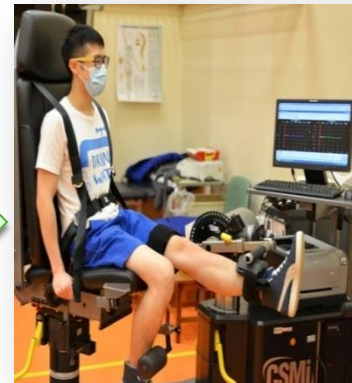
Phase 1

- Early mobilization
- FWB



Phase 2

- Close kinetic chain training
- Proprioceptive training



Phase 3

- Isokinetic training
- Agility training

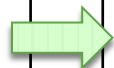
Accelerated program :

- Allow earlier mobilization, FWB & strengthening
- Faster restoration of joint range and muscle strength
- Allow less intensive follow-up in later phase
- Safe return to sports comparable to conventional program

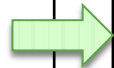


Conventional ACL Rehabilitation Program

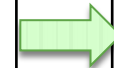
Wk 2-4
Hinge brace 30-60 deg.
NWB



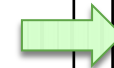
Wk 8-10
FWB



Wk 12 onwards
Gentle
strengthening



6 - 8 months
Isokinetic
training
Agility training



12 months
Return to
sports

Outcome Evaluation

**Post-op
Week 12**

**Post-op
1/2 year**

Post Training 1 year



Cybex (Humac Norm770)

Isokinetic muscle strength

- Low speed (120 deg/sec)
- High speed (240 deg/sec)



Telephone interview

Agility

- Time hop test

Rate of returning to sports

- Self report

Functional leg power

- Distance hop test

Rate of re-injury

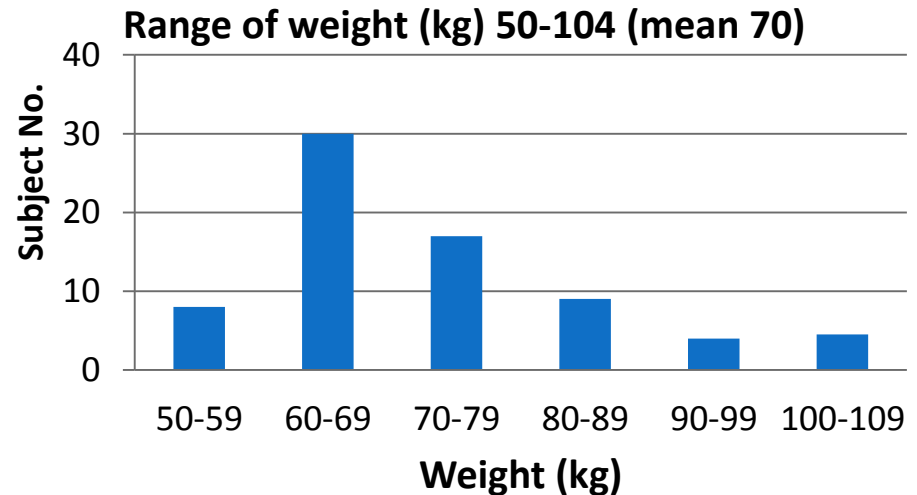
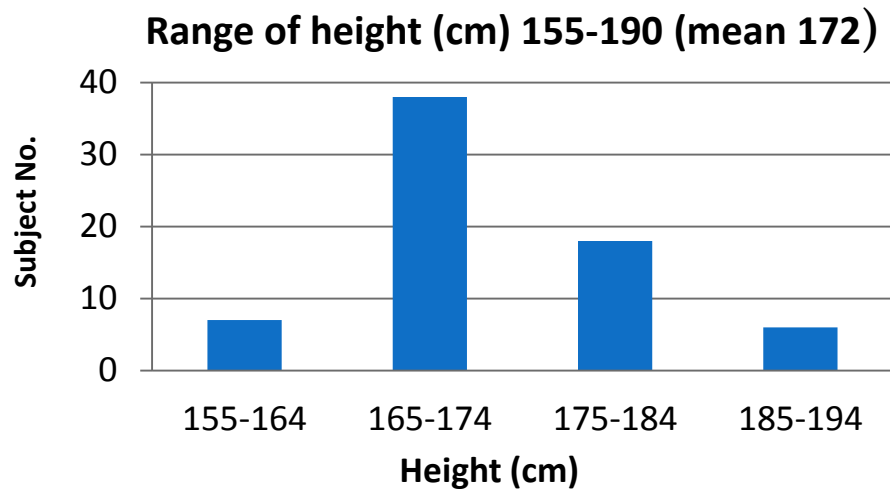
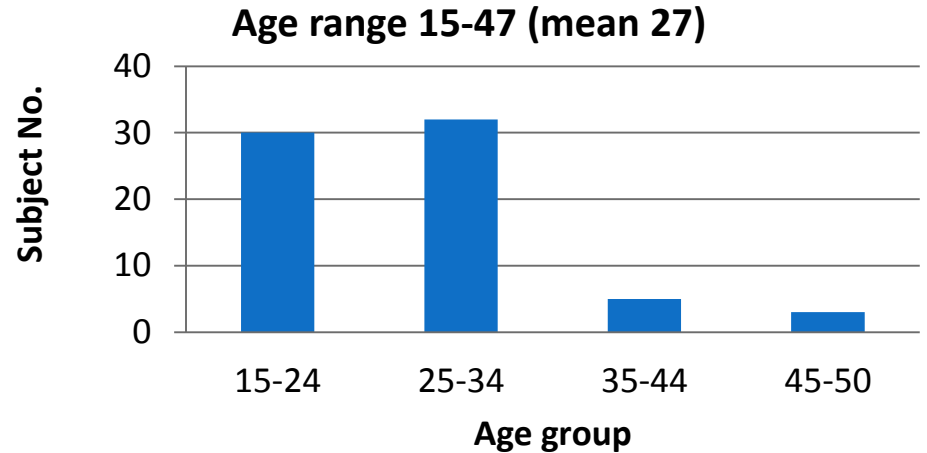
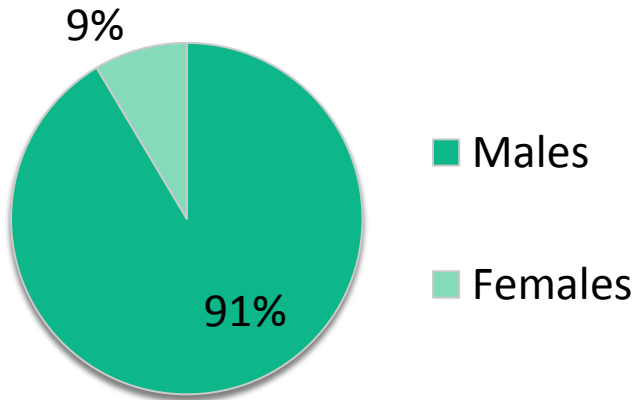
- Self report



Hop test

Result – Demographic Data

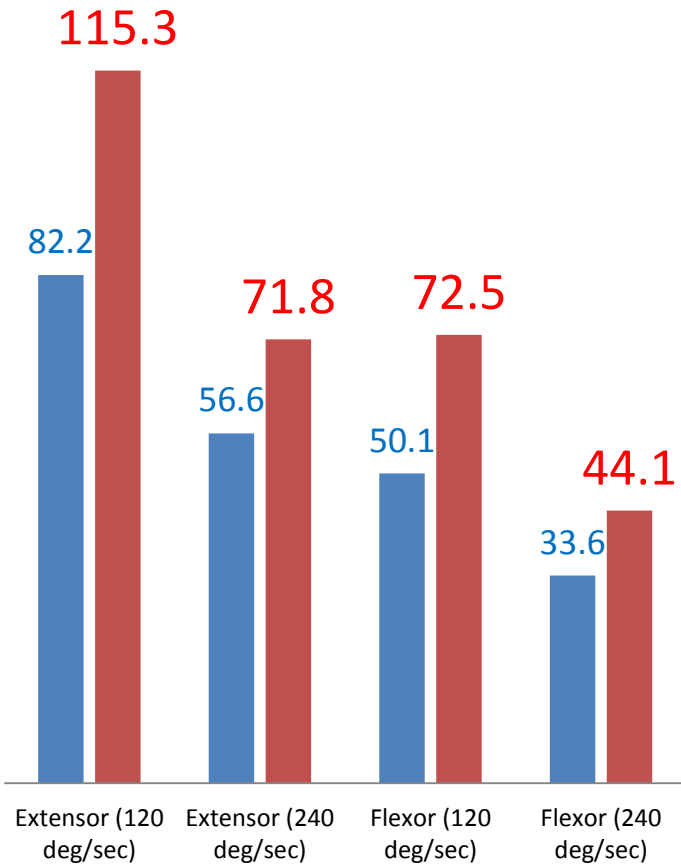
70 recreational players were recruited (From 2011 to 2013).



Result

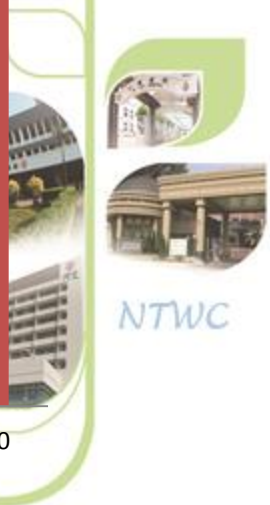
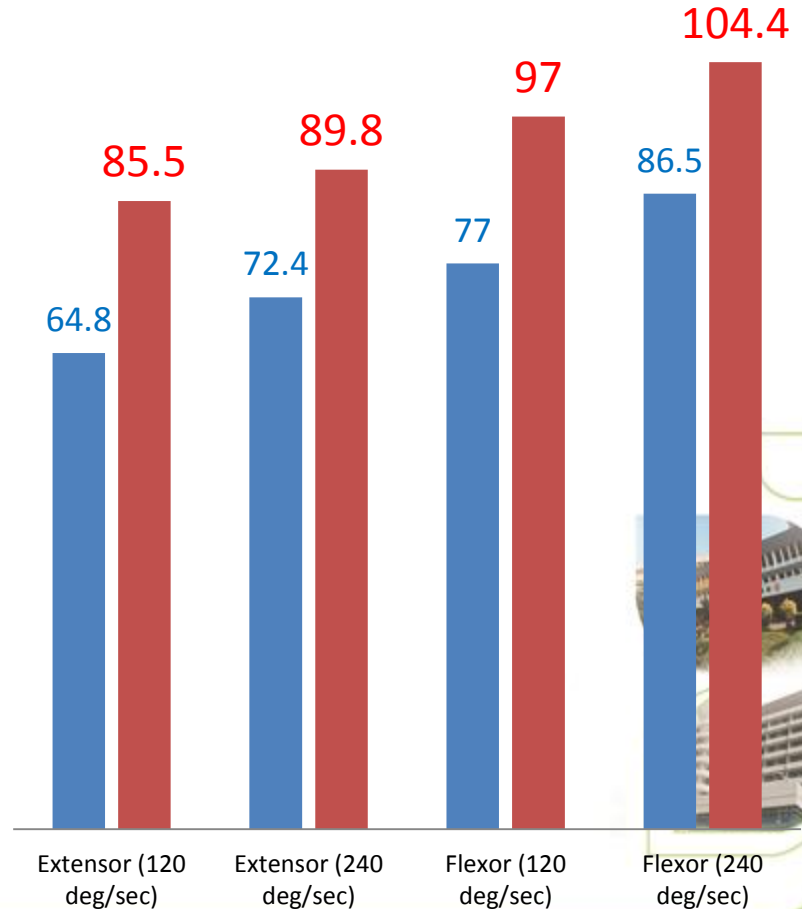
■ Before rehabilitation ■ After rehabilitation

↑ Peak Torque Strength (Nm) ($p < 0.001$)



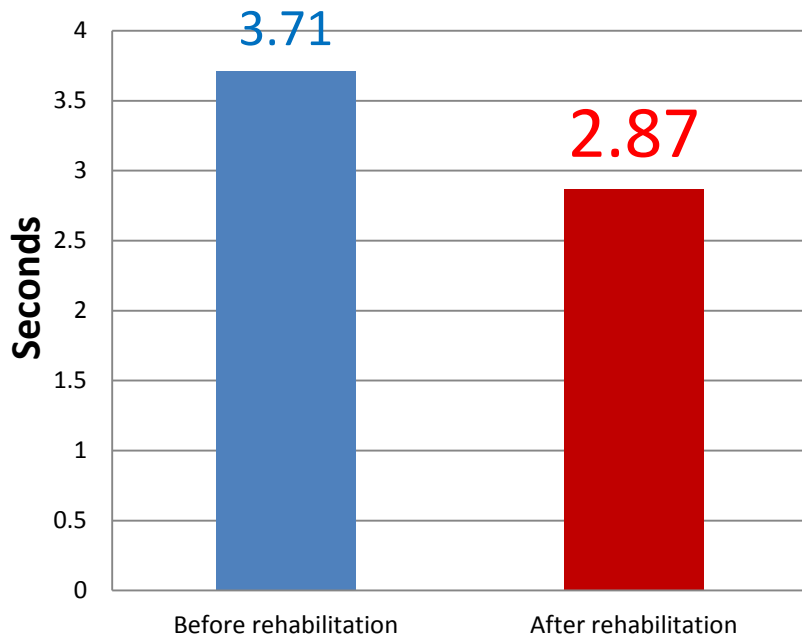
■ Before rehabilitation ■ After rehabilitation

↑ Peak Torque Ratio (%) ($p \leq 0.001$)

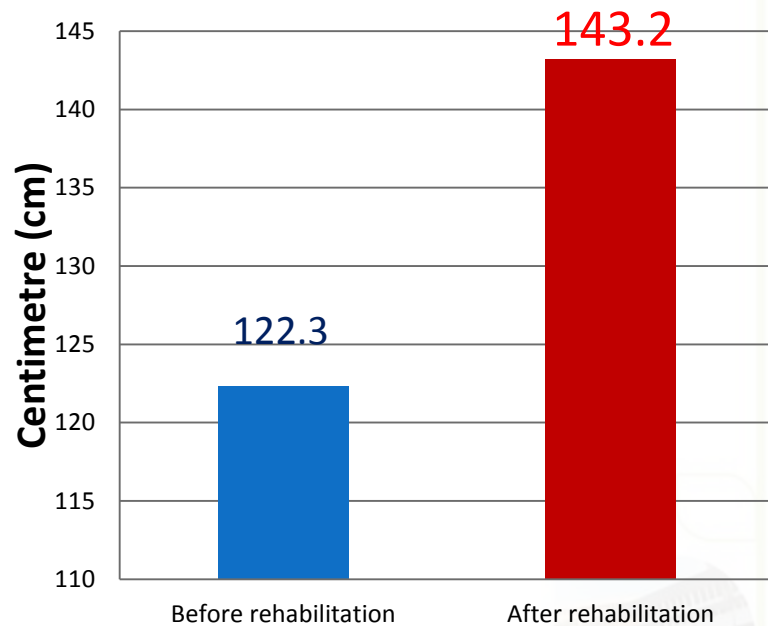


Result

Improvement in Time hop test ($p=0.001$)



Improvement in Distance hop test ($p < 0.001$)



Telephone interview:

- 53 patients were successfully contacted
- 43 (81%) patients returned to original recreational sports
- 48 (91%) of them reported without re-injury.



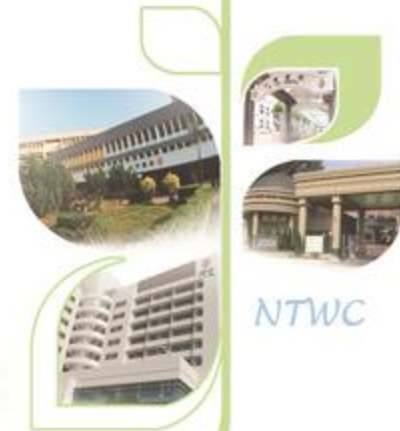
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Conclusion

Accelerated ACL rehabilitation program was found to be effective in improving

- Muscle strength
- Agility
- With most subjects return to sports in Chinese recreational players.



Acknowledgement

Our team members

- Ms. MAK MY; Senior Physiotherapist, Physiotherapy Department, TMH, NTWC
- Mr. CHUNG KM; Physiotherapist I, Physiotherapy Department, TMH, NTWC
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Special thank to :

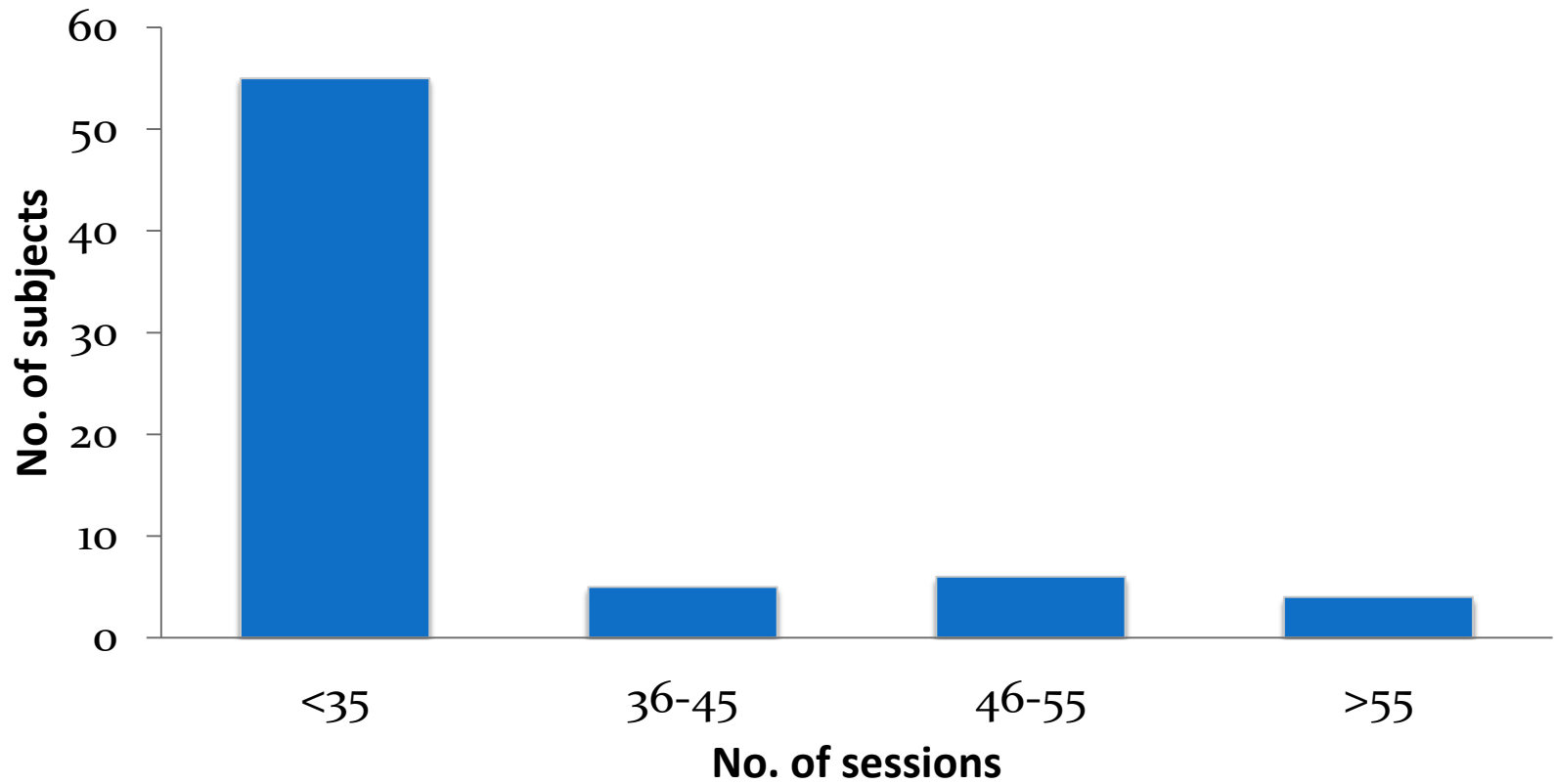
- Ms. POON YHP; Department Manager, Physiotherapy Department, TMH, NTWC
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NTWC

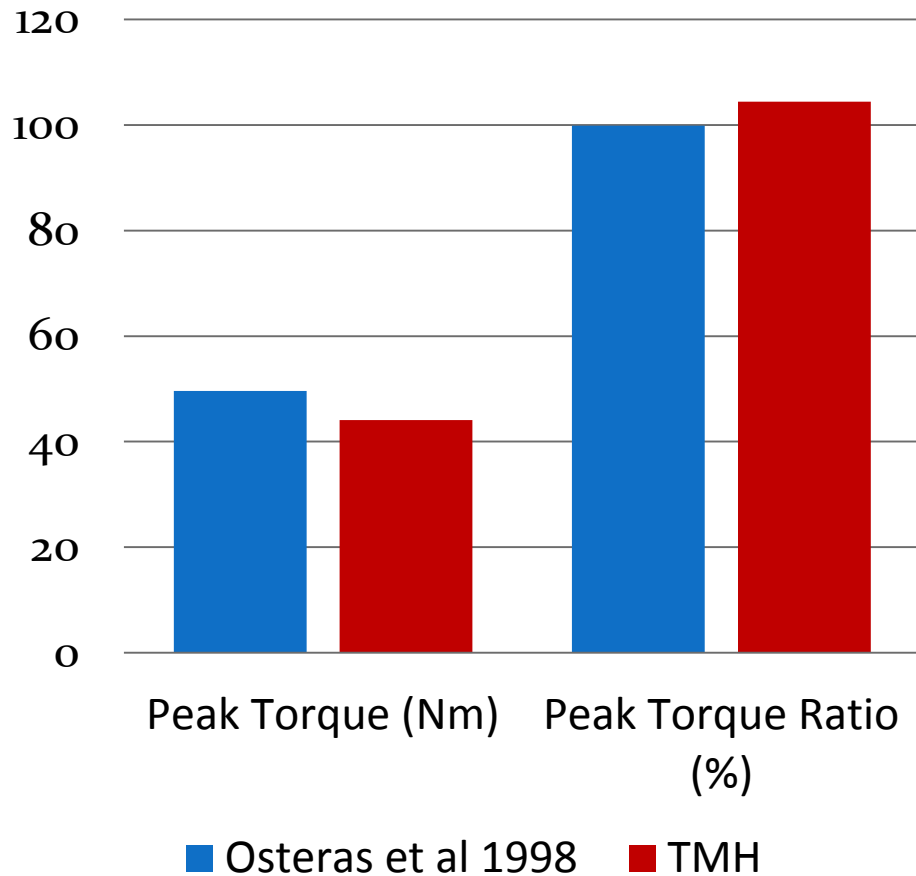
Reference Slides

Distribution of session no.



Professional versus Recreational Players

Isokinetic test of knee flexor at 240 deg/sec



Isokinetic test of knee extensor at 240 deg/sec

