



伊院中心五十年 杏林傳承展未來



# Effectiveness of Underwater Gymnasium Program for Patients with Osteoarthritic Knee Condition



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# Background

- Osteoarthritis (OA) Knee is one of the most frequent causes of pain, loss of function & disability in adults requiring medical intervention (Arden, N., et al., 2006)
- Common in HK elders (47.0%) seeking medical treatment (Center for Health Protection, 2009)
- **Under-water exercise** was suggested as a better **starting media** for rehabilitation than land exercise for OA patients because of the less joint loading (Cochrane Database of Systematic Reviews 2007; Roper, J.A., et al., 2013)
- **Objective of the study**  
To evaluate & compare the effectiveness of underwater gymnasium program versus land-based physiotherapy program for patients with OA knee

The Physiotherapy Department of the Queen Elizabeth Hospital being the **1st public hospital** of the Hospital Authority launching the underwater gymnasium program for designated clienteles since June 2012



# Methodology

Patients with Dx of OA Knee attending QEH PT OPD

**Baseline Assessment** – Pain, Quadriceps Strength, Western Ontario and McMaster Universities Osteoarthritis Index), 6-min Walk Test, Short-Form 12 QoL Survey

**Pre-**

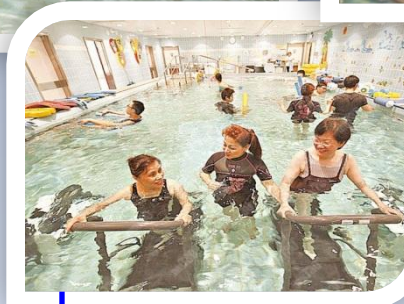
at 1<sup>st</sup> PT  
OPD  
attendance

6-week Rx period

**LAND** (n=33)  
Land-based Physiotherapy program



**HYDRO** (n=32)  
Under-water Gymnasium program



**Post-Rx Assessment**

**Post-**

at Discharge

Study Period : June-December 2012

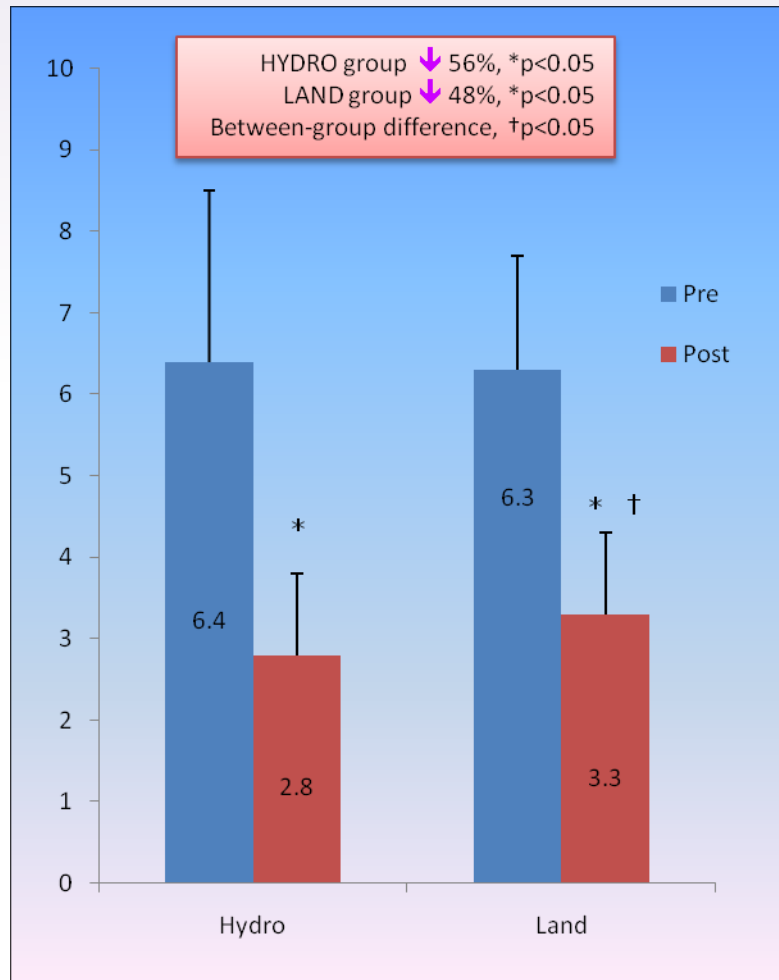




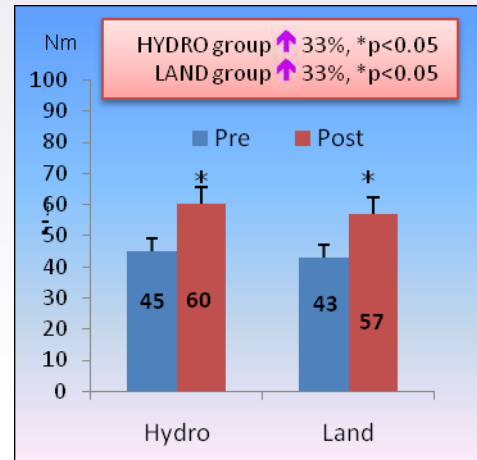
# Results



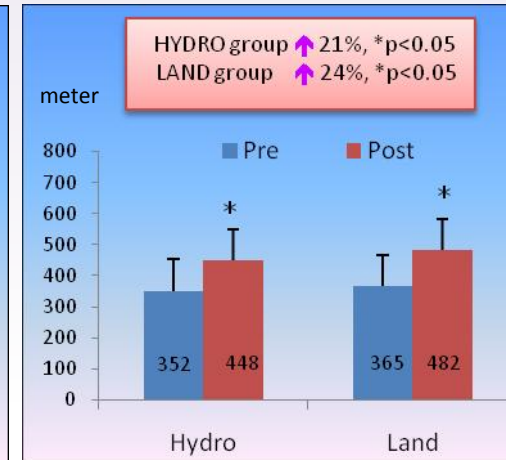
## Numeric Pain Rating Scale (NPRS)



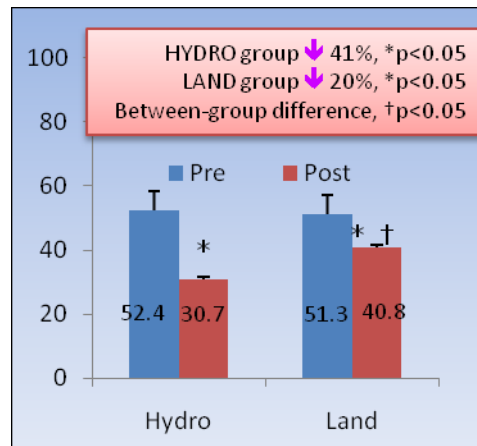
## Quadriceps Strength



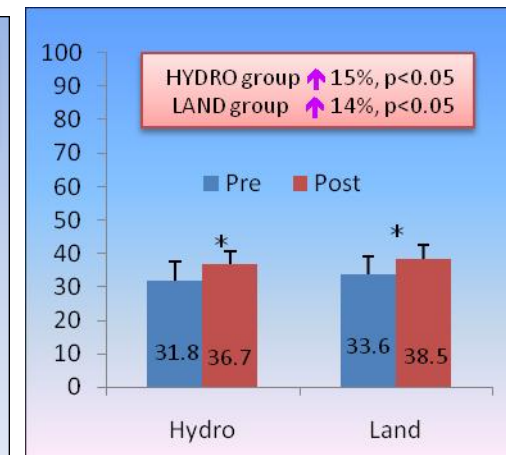
## 6-min Walk Test



## Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)



## Short Form-12 Physical Component Summary (PCS)



# Discussions & Conclusion

- Both HYDRO and LAND programs were effective with significant **pain** reduction; increased knee **range & strength**; increased **walking endurance**, enhanced **physical functioning** and health-related **quality of life** in individuals with OA knee problems
- HYDRO program demonstrated the merit of **better pain relief & improvement of disease-specific functional capability** with the possible mechanism of **decreased kinesiophobia** (fear to move) & concurrent improvement in symptom & quality of life measures
- Our findings support the use of **underwater gym** as favourable **starting rehabilitation modality** for OA knee especially for those having severe pain & fear to move
- Future studies for different severities of OA knee conditions are recommended

