Getting Evidence into Clinical Practice:
Musculoskeletal Research Facilitation Group (CAT Group)
Date: October 2016

Specific Question:

Does the use of an Isokinetic Strengthening Programme improve outcomes in adults following unilateral ACL Reconstruction versus usual rehabilitation?

Clinical bottom line

There is no high quality evidence to determine if an isokinetic strengthening programme demonstrates improved outcomes to usual rehabilitation in adults following an ACL reconstruction.
Further research is needed to evaluate the use of a Biodex machine for monitoring improvements, measurement and other areas of surgery.
Current practice will continue to use Isokinetic strengthening programmes whilst the equipment is available.

Why is this important?

Only a handful of NHS physiotherapy departments have direct access to a Biodex machine within the United Kingdom. Those used are purchased from Research funds and Capital bids due to the high expensive in excess of £50,000. The Biodex machine within the Acute Trust here at University Hospital North Midlands is close to the end of its viable state and the Therapies Management need to consider its replacement; however the purchase of a replacement Biodex is not supported by the current research for rehabilitation in ACL reconstruction.

Search timeframe:. 2000 - 2015

CAT Lead: Amanda Heath

Date CAT completed: June 2016
Date for review: June 2021

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Inclusion Criteria

	Description	Search terms
Population and Setting	Adults: 18 – 70 Primary unilateral post-operative anterior cruciate ligament (ACL) reconstruction	Anterior cruciate ligament reconstruction, anterior cruciate reconstruction, adults, English language
Intervention or Exposure	Isokinetic rehabilitation programme all doses	Isokinetic exercises, isokinetic rehabilitation.
Comparison, if any	Usual care; routine rehabilitation without isokinetic exercises	Rehabilitation without isokinetic
Outcomes of interest	**Primary Outcomes of** Quadriceps and hamstring strength **Secondary Outcomes of** Return to function, Return to work, Return to sport, Self-reported quality of life (QOL)	
Types of studies		Systematic reviews Randomised controlled trials (RCTs)

Routine Databases Searched

Clinical Knowledge Summaries, PEDro, BMJ Updates, Clinical Evidence, TRIP, Database,NICE,HTA,Bandolier,The,CochraneLibrary,Medline,Cinahl,Embase,PsycInfo, Professional websites. Joanna Briggs Institute, Web of science, Sports discus and Pub med

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Results of the search

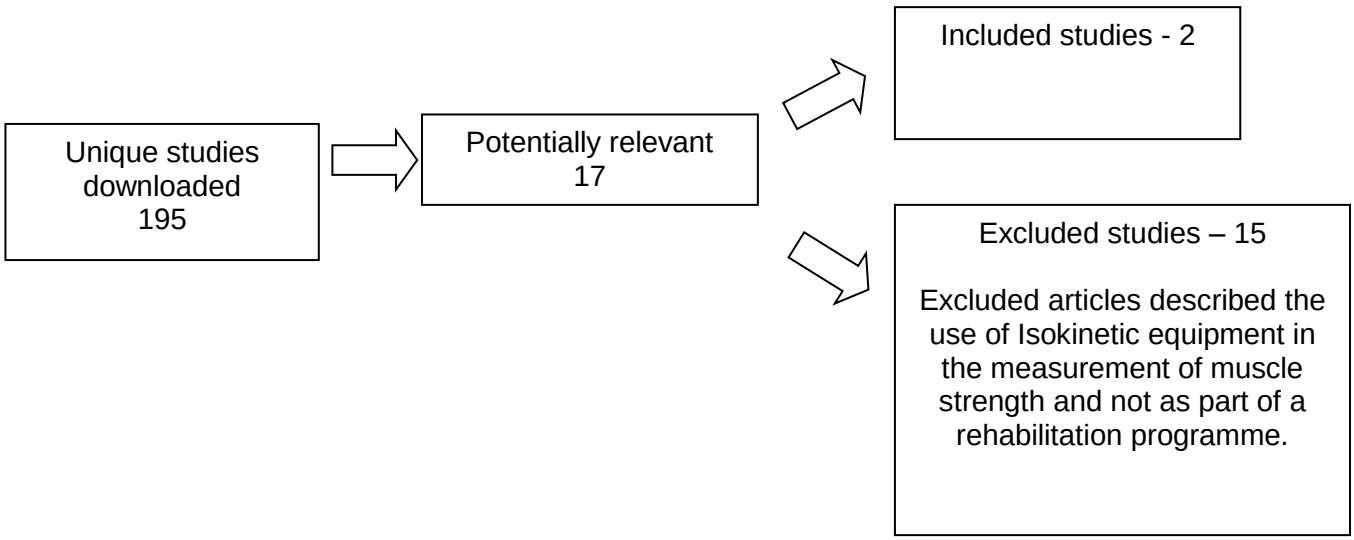

Table 1- Detail of included studies

First Author, year and type of study	Population and setting	Intervention or exposure tested	Study results	Assessment of quality and comments
Sekir 2015 RCT	48 male patient's unilateral ACL reconstruction. The author is based at the Medical School of Uludag University, Bursa, Turkey. It is not clear which setting these patient were treated in.	Isokinetic hamstring exercises were used in both groups: Group one started at week 3 post-op and Group two started at week 9.	Greater hamstring strength was measured at: 2,3,4 and 12 months in Group one along with functional tests, Cincinnati knee rating scale for symptoms, IKDC scoring and reduced laxity on Lachman's testing	No control group, both groups had the same intervention but with a six week delay. Small numbers in each group 24 and 22 all they were all males.

Bakrac 2003 Experimental design	44 athletes at the Cybex rehabilitation center, Zagreb, Croatia	Isokinetic rehabilitation programme used Group 1: 20 subjects ACL rupture treated conservatively. Group 2: 8 subjects ACL rupture reconstruction surgery. Group 3: 16 subjects Chondromalacia patellae	Hamstring and Quadriceps strength showed improvement	Population of athletes, no randomisation, description of case studies, no control group, only 8 subjects with ACL reconstruction

Summary

The 2 studies included above are both of poor quality, small numbers, no randomisation in one group and no control group in both. Neither of the settings are a suitable comparison to an NHS setting in the UK secondary care.

Implications for Practice/research

It is impossible to make a decision based on the evidence found in this search towards the importance of Isokinetic rehabilitation in patients following reconstructive surgery of the anterior cruciate ligament. The essential equipment required for isokinetic rehabilitation is extremely expensive and good quality research is needed for the future decision making of managers in physiotherapy.

What would you tweet? (140 characters)

Evidence needed for isokinetic in ACL rehab Physio depts. struggle to fund isokinetic equipment with no quality evidence to justify.

References

Bakrac, N. D. (2003). Dynamics of Muscle Strength Improvement during Isokinetic Rehabilitation of Adults with ACL Rupture and Chondromalacia Patella. *Journal of Sports Medicine and Physical Fitness*, 43 (1)69-74

Sekir, U., Gur, H. & Akova, B. (2010). Early versus late start of Isokinetic Hamstring-Strengthening Exercises after Anterior Cruciate Ligament Reconstruction with Patellar Tendon Graft. *The American Journal of Sports Medicine*, 38 (3)492-500