

INPLASY PROTOCOL

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Support: TSUM.

**Review Stage at time of this
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searches.

Conflicts of interest:
None declared.

Ultrasound Imaging for Size Prediction of the Autograft for Anterior Cruciate Ligament Reconstruction: a Systematic Review and Meta-Analysis

Chang, KV¹.

Review question / Objective: To investigate the usefulness of ultrasound (US) imaging for predicting the autograft size among patients with anterior cruciate ligament (ACL) reconstruction.

Eligibility criteria: (1) original research investigating ACL reconstruction employing the autograft; (2) using US imaging for the pre-operative assessment of the donor tendon; (3) documentation of the intra-operative autograft size; and (4) human studies.

Information sources: PubMed, Cochrane CENTRAL, EMBASE, Clinical.gov. and Web of Science databases will be searched for the relevant studies without language restriction. Case reports, case series, conference abstracts, animal studies or those performed in laboratory settings will be excluded from this meta-analysis.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 23 January 2022 and was last updated on 23 January 2022 (registration number INPLASY202210114).

INTRODUCTION

Review question / Objective: To investigate the usefulness of ultrasound (US) imaging for predicting the autograft size among

patients with anterior cruciate ligament (ACL) reconstruction.

Condition being studied: To examine the usefulness of US imaging for predicting the

autograft size in patients undergoing ACL reconstruction.

METHODS

Participant or population: Patients undergoing ACL reconstruction.

Intervention: US imaging.

Comparator: Intra-operative autograft size.

Study designs to be included: (1) cohort study; (2) cross-sectional study; (3) case-control study.

Eligibility criteria: (1) original research investigating ACL reconstruction employing the autograft; (2) using US imaging for the pre-operative assessment of the donor tendon; (3) documentation of the intra-operative autograft size; and (4) human studies.

Information sources: PubMed, Cochrane CENTRAL, EMBASE, Clinical.gov. and Web of Science databases will be searched for the relevant studies without language restriction. Case reports, case series, conference abstracts, animal studies or those performed in laboratory settings will be excluded from this meta-analysis.

Main outcome(s): The primary outcome of the study is the correlation between the pre-operative US measurements of the donor tendon and the intra-operative autograft diameter.

Additional outcome(s): The secondary outcomes include the predictive performance of size inadequacy of the autograft by using US imaging and the comparison of pre-operative size measurement between US and magnetic resonance imaging (MRI).

Quality assessment / Risk of bias analysis: The Quality Assessment of Diagnostic Accuracy Studies (QUADAS)-2 is used to assess the quality of the studies included in the meta-analysis. Based on the QUADAS-2 tool, each article is evaluated for the risk of bias in four domains (patient

selection, index test, reference standard and flow and timing).

Strategy of data synthesis: The correlations between the size of the donor tendon measured by US (or MRI) and its autograft diameter are summarized by employing the Hedges-Olkin method based on the Fisher Z transformation of the variables. The weighted mean difference will be used to investigate the discrepancy between US and MRI measurements of the donor tendon size. The performance of predicting size inadequacy of the autograft will be evaluated by the summarized sensitivity, specificity, positive likelihood ratio, negative likelihood ratio and diagnostic odds ratio by using a bivariate random-effects model.

Subgroup analysis: A subgroup analysis may be performed based on the difference of the donor tendons.

Sensitivity analysis: We may perform a sensitivity analysis to evaluate the influence of each study on the overall effect by eliminating them individually.

Language: No limitation of languages.

Country(ies) involved: Taiwan.

Keywords: Anterior cruciate ligament reconstruction, graft failure, knee, sports injury, ultrasound.

Contributions of each author:
Author 1 - Ke-Vin Chang.