

Appendix 1.

Keywords for systematic search and example search strategy.

Table A. Keywords for systematic search

Concept:	Population	Hamstring	Pathology/ injury	Risk factors
Keywords:	Athlet*	Biceps femoris	Tear	Risk
	Sport	Semitendinosus	Strain	Risk factor
	Exercise	Semimembranosus	Injur*	Caus*
		Hamstring*	Re-injur*	Pred*
		Posterior thigh		

Note: *=truncation

Table 2. Example search strategy

Database: **Ovid MEDLINE** <2011 to November 1st 2018> Search Strategy:

Keywords
1. Hamstring*.mp.
2. semimembranosus.mp.
3. semitendinosus.mp.
4. biceps femoris.mp.
5. posterior thigh.mp.
6. exp Exercise/
7. exp Sports/
8. Athlet*.mp.
9. exp Football/
10. exp Athletic Injuries/
11. tear.mp. or exp Tears/
12. exp "Wounds and Injuries"/
13. strain.mp. or exp "Sprains and Strains"/
14. injur*.mp.
15. re-inj* .mp.

16. risk.mp. or exp Risk/ or exp Risk Factors/
17. caus*.mp.
18. Pred*.mp.
19. 1 or 2 or 3 or 4 or 5
20. 6 or 7 or 8 or 9
21. 10 or 11 or 12 or 13 or 14 or 15
22. 15 or 16 or 17
23. 18 and 19 and 20 and 21

Note: m.p. = word must be in either the title, abstract, subject headings or original title.

*= truncation

/ = words matched to a subject heading

Table 3. Risk of bias assessment tool (Modified QUIPS).

Biases	Issues to consider for judging overall rating of “Risk of bias”	Judgement	
		YES	NO
1. Study Participation	Goal: To judge the risk of selection bias		
<i>Source of target population</i>	The source population or population of interest is adequately described for key characteristics		
<i>Method used to identify problem</i>	The sampling frame and recruitment are adequately described, possibly including methods to identify the sample, place of recruitment, and period of recruitment		
<i>Inclusion and exclusion criteria</i>	Inclusion and exclusion criteria are adequately described		
<i>Adequate study participation</i>	There is adequate participation in the study by eligible individuals		
<i>Baseline characteristics</i>	The baseline study sample is adequately described for key characteristics		
Summary Study Participation	The study sample represents the population of interest on key characteristics, sufficient to limit potential bias of the observed relationship between the prognostic factor and outcome		
2. Study Attrition	Goal: To judge the risk of attrition bias		
<i>Proportion of baseline sample available for analysis</i>	Response rate is adequate and is > 80%		
<i>Attempts to collect information on participants who dropped out</i>	Attempts to collect information on participants who dropped out of the study are described		
<i>Reasons and potential impact of subjects lost to follow up</i>	Reasons for loss to follow up are described		
<i>Outcome and prognostic factor</i>	Participants lost to follow up are adequately described for key characteristics		

<i>information on those lost to follow up</i>	There are no important differences between key characteristics and outcomes in participants who completed the study and those who did not	
Summary Study Attrition	Loss to follow-up is not associated with key characteristics sufficient to limit potential bias to the observed relationship between the prognostic factor and the outcome	
3. Prognostic Factor Measurement	Goal: To judge the risk of measurement bias related to how the prognostic factor was measured	
<i>Definition of the PF</i>	A clear definition or description of the prognostic factors is provided	
<i>Valid and reliable measurement of PF</i>	Method of prognostic factor measurement is adequately valid and reliable to limit misclassification bias	
	The prognostic factors measured are blinded for outcome measure	
	Continuous variables are reported or appropriate cut-offs are used	
<i>Method and setting of PF measurement</i>	The method and setting of measurement of PF is the same for all study participants	
<i>Proportion of data on PF available for analysis</i>	More than 80% of the study sample has completed data for PF variable	
<i>Method used for missing data</i>	Appropriate methods of imputation are used for missing 'PF' data	
PF Measurement Summary	PF is adequately measured in study participants to sufficiently limit potential bias	
4. Outcome Measurement	Goal: To judge the risk of bias related to the measurement of outcome	
<i>Definition of the Outcome</i>	A clear definition of the Outcome is provided	
<i>Valid and reliable measurement of Outcome</i>	The method of outcome measurement used is valid and reliable to limit misclassification bias	
<i>Method and setting of Outcome Measurement</i>	The method and setting of outcome measurement is the same for all study participants	
Outcome Measurement Summary	Outcome of interest is adequately measured in study participants to sufficiently limit potential bias	

5. Study Confounding	Goal: To judge the risk of bias due to confounding	
<i>Important Confounders measured</i>	All important confounders are measured	
<i>Definition of the confounding factor</i>	Clear definitions of the important confounders measured are provided	
<i>Method and setting of Confounding Measurement</i>	The method and setting of confounding measurement are the same for all study participants	
<i>Appropriate accounting for confounding</i>	Important potential confounders are accounted for in the study design	
	Important potential confounders are accounted for in the analysis	
Study Confounding Summary	Important potential confounders are appropriately accounted for, limiting potential bias with respect to the relationship between PF and outcome	
6. Statistical Analysis and Reporting	Goal: To judge the risk of bias related to the statistical analysis and presentation of results	
<i>Presentation of analytical strategy</i>	There is sufficient presentation of data to assess the adequacy of the analysis	
<i>Model development strategy</i>	The strategy for model building is appropriate and is based on a conceptual framework or model.	
	The selected statistical model is adequate for the design of the study	
<i>Reporting of results</i>	There is a description of the association of the prognostic factor and the outcome, including information about the statistical significance	
	Continuous variables are reported or cut-off points are used	
	There is no selective reporting of results	
Statistical Analysis and Reporting Summary	The statistical analysis is appropriate for the design of the study, limiting potential for presentation of invalid or spurious results	