

Searching PubMed: a basic guide

This guide is designed to help you search PubMed effectively but some of the following principles will also help you search other databases. PubMed provides details of articles, conference proceedings and data from thousands of peer-reviewed journals within the following areas: *health, medicine, pharmacy, pharmacology, life sciences and bioengineering*. Coverage is international. It is important that you **do not limit your searches to PubMed** as no single database indexes all relevant literature on a given topic – check the library's webpages for your subject to find other databases: <http://www.bath.ac.uk/library/>

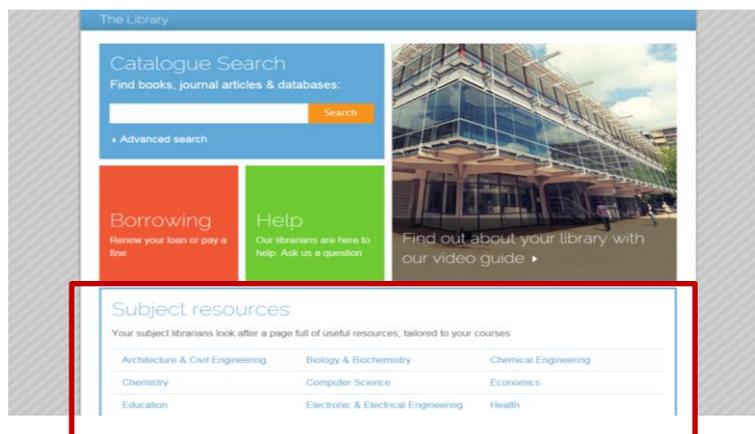
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1. Accessing PubMed

a. It is best to connect to PubMed via a link in the Library website as follows:

- Go the Library homepage: <http://www.bath.ac.uk/library/> - click the relevant link for your subject.
- Click the '**search the literature**' button and on the next page, you will find links to databases, one of which is likely to be PubMed. If not, you will find a link in the Library Catalogue.
- Connect to PubMed.



Search for journal articles (and other academic literature)



Search library databases to discover articles from across a wide range of journals; along with working papers, books and conference documents. You can also search the Library Catalogue.

- [How to evaluate journal articles: general advice](#)
- [How to evaluate health and medical literature](#)
- [How to searches and set up email alerts](#)

Library databases

 [Web of Science: all databases](#) 
Multiple subject coverage
[more...](#)

- [Guide to using Web of Science](#)

 [PubMed](#) 
Health and medicine

- [Guides to using PubMed](#) 

Search for systematic reviews

 [Cochrane Library](#) 
Health and medicine: systematic reviews, protocols and clinical answers

 [Centre for Reviews and Dissemination \(CRD\)](#) 
Search across the Database of Abstracts of Reviews of Effects (DARE), Healthcare Technology Assessments (HTA) and NHS Economic Evaluation Database (EED)

 [EPPI-Centre Knowledge Library](#) 
Browse by healthcare and social topic headings

 [PEDro Physiotherapy Evidence Database](#) 
Abstracts of systematic reviews, clinical guidelines, randomised controlled trials

 [PROSPERO](#) 
Prospectively-registered systematic reviews

 [TRIP](#) 
Ongoing systematic reviews and other evidence-based information (case reports, articles, synopses, ebooks, overdiagnosis filter, regulatory and clinical guidance)

Find more systematic reviews by searching databases such as Web of Science

2. Thinking about search terms - read this section before searching PubMed

2a Search terms

When you conduct a basic PubMed search, the database looks for your search terms within the titles and abstracts (summaries) of journal articles. **Think carefully** about your search terms before entering them into PubMed. To help you do this, **look at your assignment title / research question** and identify the most important words or phrases that appear in it i.e. write down those words or phrases that distinguish it from any *other* assignment title or research question.

For this exercise, please either use your own title or use the following title as an example:

“Investigate how the biomechanical load within a jump impacts upon the anterior cruciate ligament”

2b. Sub-themes

The following are the most important words/phrases that appear within the title above. Each represents a separate **sub-theme** that relates to the overall theme of the title

Load
Jump
Anterior cruciate ligament

2c. Thinking about alternative words or phrases

Think about the potential range of alternative words and phrases that could be used to describe each separate sub-theme (for example, *injuries* can also be defined as *fractures* or *damage*). Consider terminology that you already know from **academic books, journal articles, lectures and tutorials**, as well as more commonly-used language.

Why do this? This will help you decide which words to enter into PubMed's search boxes. Also, if you enter a large range of relevant search terms, you are more likely to **increase the number of useful search results**. **Useful tip:** You might find it helpful to write down your alternative words/phrases in separately themed rows as follows:

Sub-theme	Alternative words/phrases	Any others?
anterior cruciate ligament	ACL	
Load		
jump		

3. Entering your search terms

3a. Enter PubMed and click on Advanced Search



PubMed Advanced Search Builder

Use the builder below to create your search

[Edit](#)

Builder

or [Add to history](#)

Every time you enter a row of search terms, another blank row will appear so you can enter at least three sets of search terms, as relevant to your topic.

3b. Enter your search terms

- Enter each set of search terms (i.e. each sub-theme) into its own separate search box.
- Enter the word **OR** between each word/phrase (it doesn't have to be entered in capitals)

1 st search box	anterior cruciate ligament OR ACL
3 rd search box	load*
4 th search box	jump*

In the above example, note the default “And” that appears between boxes. This means that at least one word/phrase from each search box will appear in each of your search results.

PubMed Advanced Search Builder

(((anterior cruciate ligament or acl)) AND load*) AND jump*

[Edit](#)

Builder

All Fields ▼	anterior cruciate ligament or acl
AND ▼ All Fields ▼	load*
AND ▼ All Fields ▼	jump*
AND ▼ All Fields ▼	

or [Add to history](#)

3c. Useful search tips!

Truncating words using an asterisk

As in the examples above, enter an asterisk at the end of the stem of a word, as relevant, to find variations – this might help increase your number of search results e.g.

fractur* searches for **fracture, fractures, fracturing, fractured...** **however, note the following!**

In PubMed, it's advisable to try searching both with & without asterisks – when entering some search terms, including an asterisk can reduce numbers of relevant results (unlike Web of Science).

The reason for this: many PubMed records for journal articles include MeSH Subject Headings which define the article's content. When you enter your search terms, PubMed looks for records with any MeSH headings that match your search term. If your search term is almost the "same" as a MeSH heading except that it includes an asterisk, PubMed will not be able to identify it as a MeSH heading and the related article might not appear in your results.

Searching for a specific phrase

You can enter **"speech marks"** around a phrase so that PubMed searches for only those words in exactly the same order.

Click the search button and take a look at your results: consider the range and relevance in relation to your topic. Note the **"related data"** option on the right-hand side.

"Sort by" options: note the link just above your results. Re-sort your results so that they appear in order of **"best match"** (i.e. potential relevance) rather than **"most recent"**.

Article types
Clinical Trial
Review
Customize ...

Text availability
Abstract
Free full text
Full text

PubMed Commons
Reader comments
Trending articles

Publication dates
5 years
10 years
Custom range...

Species
Humans
Other Animals

[Clear all](#)
[Show additional filters](#)

Summary ▾ 20 per page ▾ Sort by Most Recent ▾

Send to: ▾ Filters: [Manage Filters](#)

Search results

Items: 1 to 20 of 87

<< First < Prev Page 1 of 5 Next > Last >>

[The effect of overhead target on the lower limb biomechanics during a vertical drop jump test in elite female athletes.](#)
1. [female athletes.](#)
Mok KM, Bahr R, Krosshaug T.
Scand J Med Sci Sports. 2015 Dec 21. doi: 10.1111/sms.12640. [Epub ahead of print]
PMID: 26688032
[Similar articles](#)

[Mechanisms of anterior cruciate ligament injuries in elite women's netball: a systematic video analysis.](#)
2. [analysis.](#)
Stuelcken MC, Mellifont DB, Gorman AD, Sayers MG.
J Sports Sci. 2015 Dec 8;1-7. [Epub ahead of print]
PMID: 26644060
[Similar articles](#)

[A Systematic Evaluation of Field-Based Screening Methods for the Assessment of Anterior Cruciate Ligament \(ACL\) Injury Risk.](#)
3. [Cruciate Ligament \(ACL\) Injury Risk.](#)
Fox AS, Bonacci J, McLean SG, Spittle M, Saunders N.
Sports Med. 2015 Dec 1. [Epub ahead of print]
PMID: 26626070

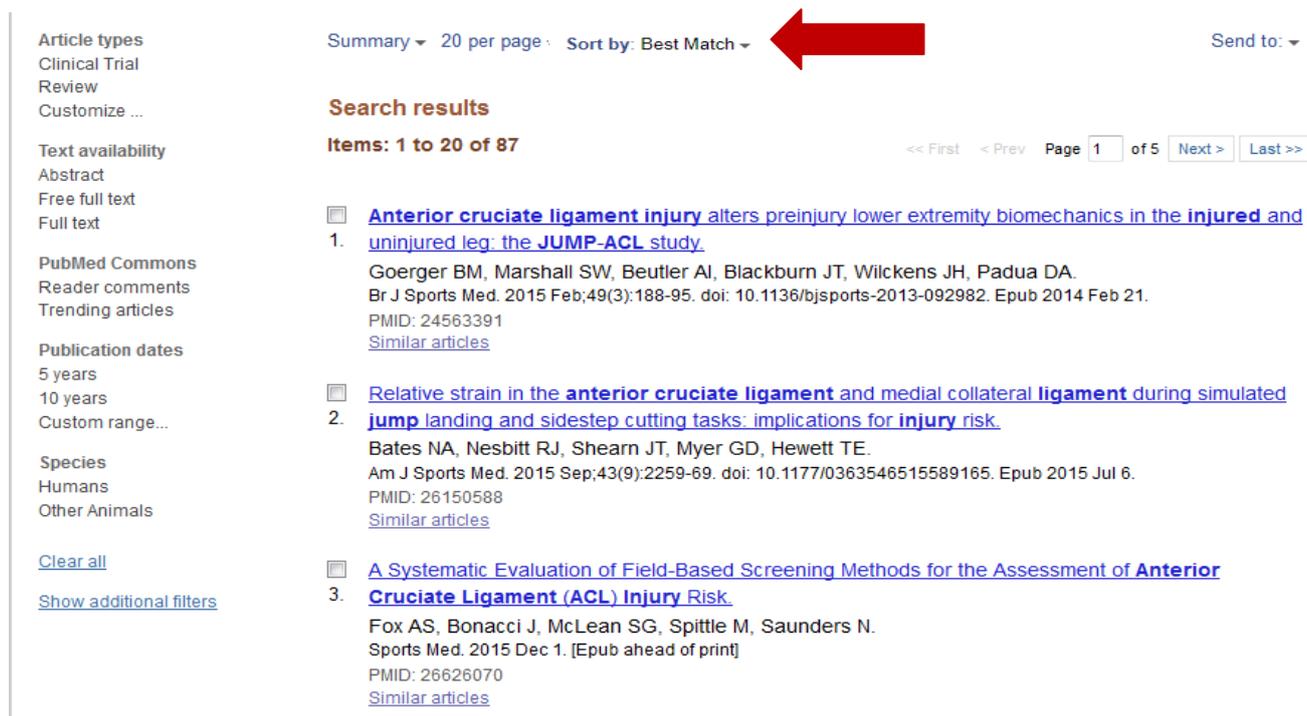
New feature
Try the new Display Settings option - [Sort by Relevance](#)

Titles with your search terms
Biomechanical measures of neuromuscular control and valgus load [Am J Sports Med. 2005]
The benefits of wearing a compression sleeve after ACL reconstr [Med Sci Sports Exerc. 1999]
Kinematics and electromyography of landing preparation in vertical st [Am J Sports Med. 2007]
[See more...](#)

Find related data
Database: [Select](#)
[Find items](#)

Search details

4. Refining & filtering your search



Article types
Clinical Trial
Review
Customize ...

Text availability
Abstract
Free full text
Full text

PubMed Commons
Reader comments
Trending articles

Publication dates
5 years
10 years
Custom range...

Species
Humans
Other Animals

[Clear all](#)
[Show additional filters](#)

Summary ▾ 20 per page ▾ Sort by: Best Match ▾  Send to: ▾

Search results

Items: 1 to 20 of 87 << First < Prev Page 1 of 5 Next > Last >>

- [Anterior cruciate ligament injury alters preinjury lower extremity biomechanics in the injured and uninjured leg: the JUMP-ACL study.](#)
Goerger BM, Marshall SW, Beutler AI, Blackburn JT, Wilckens JH, Padua DA.
Br J Sports Med. 2015 Feb;49(3):188-95. doi: 10.1136/bjsports-2013-092982. Epub 2014 Feb 21.
PMID: 24563391
[Similar articles](#)
- [Relative strain in the anterior cruciate ligament and medial collateral ligament during simulated jump landing and sidestep cutting tasks: implications for injury risk.](#)
Bates NA, Nesbitt RJ, Shearn JT, Myer GD, Hewett TE.
Am J Sports Med. 2015 Sep;43(9):2259-69. doi: 10.1177/0363546515589165. Epub 2015 Jul 6.
PMID: 26150588
[Similar articles](#)
- [A Systematic Evaluation of Field-Based Screening Methods for the Assessment of Anterior Cruciate Ligament \(ACL\) Injury Risk.](#)
Fox AS, Bonacci J, McLean SG, Spittle M, Saunders N.
Sports Med. 2015 Dec 1. [Epub ahead of print]
PMID: 26626070
[Similar articles](#)

4a. Retrieving too few results?

Take another look at the range of your search terms that you entered and consider whether or not any further terms exist on your topic – if so, add these and try another search. If you still retrieve few results, search more broadly on the topic e.g. remove one set of search terms and try again.

4b. Retrieving too many irrelevant results?

Take another look at the range of your search terms and consider whether or not any of the terms were of only marginal relevance – if so, remove these and try another search. If you still retrieve many irrelevant results, you might be able to search more narrowly by identifying a further sub-theme and enter its related set of search terms in an additional search box.

Using filters

You can filter your results so that only certain “**article types**” appear e.g. **clinical trials, legislation, meta-analyses, practice guidelines, randomised controlled trials, systematic reviews, reviews, validation studies...** You can also click “show additional filters” to filter by **species, age group and sex.**

Try filtering your search results using various filter options. **Please note!** The next time you search PubMed, you may need to clear your filter settings from your previous search.

- Article types
- Clinical Trial
- Review
- Customize ...

- Text availability
- Abstract
- Free full text
- Full text
- PubMed Commons
- Reader comments
- Trending articles
- Publication dates
- 5 years
- 10 years
- Custom range...
- Species
- Humans
- Other Animals

[Clear all](#)

[Show additional filters](#)

Additional filters

- Article types
- Text availability
- PubMed Commons
- Publication dates
- Species
- Languages
- Sex
- Subjects
- Journal categories
- Ages
- Search fields

[Show](#)

Summary ▾ 20 per page ▾ Sort by: Best Match ▾

Send to: ▾

Search results

Items: 1 to 20 of 87

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- [Relative strain in the anterior cruciate ligament and medial collateral ligament during simulated jump landing and sidestep cutting tasks: implications for injury risk.](#)
 2. Bates NA, Nesbitt RJ, Shearn JT, Myer GD, Hewett TE. Am J Sports Med. 2015 Sep;43(9):2259-69. doi: 10.1177/0363546515589165. Epub 2015 Jul 6. PMID: 26150588 [Similar articles](#)
- [Elevated gastrocnemius forces compensate for decreased hamstrings forces during the weight-acceptance phase of single-leg jump landing: implications for anterior cruciate ligament injury risk.](#)
 Morgan KD, Donnelly CJ, Reinbolt JA. J Biomech. 2014 Oct 17;47(13):3295-302. doi: 10.1016/j.jbiomech.2014.08.016. Epub 2014 Sep 1. PMID: 25218505 [Similar articles](#)
- [Jump-landing biomechanics and knee-laxity change across the menstrual cycle in women with anterior cruciate ligament reconstruction.](#)
 Bell DR, Blackburn JT, Hackney AC, Marshall SW, Beutler AI, Padua DA. J Athl Train. 2014 Mar-Apr;49(2):154-62. doi: 10.4085/1062-6050-49.2.01. Epub 2014 Feb 25. PMID: 24568229 [Free PMC Article](#) [Similar articles](#)
- [A Systematic Evaluation of Field-Based Screening Methods for the Assessment of Anterior Cruciate Ligament \(ACL\) Injury Risk.](#)
 Fox AS, Bonacci J, McLean SG, Spittle M, Saunders N. Sports Med. 2015 Dec 1. [Epub ahead of print]

- Customize ...
- Publication dates
- 5 years
- 10 years
- Custom range...
- Species
- Humans
- Other Animals

- Sex
- Female
- Male
- Ages
- Child: birth-18 years
- Infant: birth-23 months
- Adult: 19+ years
- Adult: 19-44 years
- Aged: 65+ years
- Customize ...
- [Clear all](#)
- [Show additional filters](#)

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- [Jump-landing biomechanics and knee-laxity change across the menstrual cycle in women with anterior cruciate ligament reconstruction.](#)
 4. Bell DR, Blackburn JT, Hackney AC, Marshall SW, Beutler AI, Padua DA. J Athl Train. 2014 Mar-Apr;49(2):154-62. doi: 10.4085/1062-6050-49.2.01. Epub 2014 Feb 25. PMID: 24568229 [Free PMC Article](#) [Similar articles](#)
- [A Systematic Evaluation of Field-Based Screening Methods for the Assessment of Anterior Cruciate Ligament \(ACL\) Injury Risk.](#)
 5. Fox AS, Bonacci J, McLean SG, Spittle M, Saunders N. Sports Med. 2015 Dec 1. [Epub ahead of print]

4c. Proximity searching:

Proximity searching can be useful if there are lots of potential variations of a phrase:

“carbohydrate-protein drink” - “carbohydrate drink”
“strength and power training” - “training for power and strength”

By entering the word **near/** and a number, you can search for two search terms to appear near each other e.g. within 5 words of each other. For example:

carbohydrat* near/5 (drink* OR beverage* OR fluid* OR liquid*)

5. Engaging with PubMed records (abstracts, key words...)

Click the title of the result in which you are interested. You will then enter the full PubMed record for the relevant article/document. This will normally include an abstract summarising the findings and methodologies of an article, and possibly key words and MeSH headings.

Note the range of terminology used across the full record. By increasing your awareness of relevant terminology, this may help you modify/expand your search terms and in turn, help you retrieve a greater number of relevant results.

Customize ...

Text availability
Abstract
Free full text
Full text

PubMed Commons
Reader comments
Trending articles

Publication dates
5 years
10 years
Custom range...

Species
Humans
Other Animals

[Clear all](#)

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Search results

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[Anterior cruciate ligament injury alters preinjury lower extremity biomechanics in the injured and uninjured leg: the JUMP-ACL study.](#)
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[Relative strain in the anterior cruciate ligament and medial collateral ligament during simulated jump landing and sidestep cutting tasks: implications for injury risk.](#)
2. Bates NA, Nesbitt RJ, Shearn JT, Myer GD, Hewett TE. Am J Sports Med. 2015 Sep;43(9):2259-69. doi: 10.1177/0363546515589165. Epub 2015 Jul 6. PMID: 26150588 [Similar articles](#)

[A Systematic Evaluation of Field-Based Screening Methods for the Assessment of Anterior Cruciate Ligament \(ACL\) Injury Risk.](#)
3. Fox AS, Bonacci J, McLean SG, Spittle M, Saunders N. Sports Med. 2015 Dec 1. [Epub ahead of print] PMID: 26626070 [Similar articles](#)

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Am J Sports Med. 2015 Sep;43(9):2259-69. doi: 10.1177/0363546515589165. Epub 2015 Jul 6.

Relative strain in the anterior cruciate ligament and medial collateral ligament during simulated jump landing and sidestep cutting tasks: implications for injury risk.

Bates NA¹, Nesbitt RJ², Shearn JJ², Miver GD³, Hewett TE⁴.

Author information

Abstract

BACKGROUND: The medial collateral (MCL) and anterior cruciate ligaments (ACL) are, respectively, the primary and secondary ligamentous restraints against knee abduction, which is a component of the valgus collapse often associated with ACL rupture during athletic tasks. Despite this correlation in function, MCL ruptures occur concomitantly in only 20% to 40% of ACL injuries.

HYPOTHESIS/PURPOSE: The purpose of this investigation was to determine how athletic tasks load the knee joint in a manner that could lead to ACL failure without concomitant MCL failure. It was hypothesized that (1) the ACL would provide greater overall contribution to intact knee forces than the MCL during simulated motion tasks and (2) the ACL would show greater relative peak strain compared with the MCL during simulated motion tasks.

STUDY DESIGN: Controlled laboratory study.

METHODS: A 6-degrees-of-freedom robotic manipulator articulated 18 cadaveric knee joints in a manner that simulated vertical jump and sidestep cutting tasks. Specimens were articulated in the intact-knee configuration and MCL was failed in uniaxial tension along its fiber orientations.

RESULTS: During a drop vertical jump simulation, the ACL experienced greater peak anterior force (4.8% vs 0.3% body weight; $P < .01$), medial force (0.4 N·m; $P < .01$), abduction torque (2.6 vs 0.3 N·m; $P < .01$), and adduction torque (1.2 vs 0.3 N·m; $P < .01$) compared with the MCL. During sidestep cutting testing, ACL specimens preferentially loaded in the anteromedial bundle failed at 637 N, while MCL failure occurred at 776 N.

CONCLUSION: During controlled physiologic athletic tasks, the ACL provides greater contributions to knee restraint than the MCL, which is generally unstrained and minimally loaded.

CLINICAL RELEVANCE: Current findings support that multiplanar loading during athletic tasks preferentially loads the ACL over the MCL, leaving the ACL more susceptible to injury. An enhanced understanding of joint loading during in vivo tasks may provide insight that enhances the efficacy of injury prevention protocols.

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KEYWORDS: anterior cruciate ligament injury; athletic tasks; cadaveric simulation; knee biomechanics; medial collateral ligament

Full text links
View Full-Text Article at SAGE Publications

Save items
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Similar articles
Preferential loading of the ACL compared with the MCL during landing: a n [Am J Sports Med. 2014]
Clinically relevant injury patterns after an anterior cruciate ligament injury [Am J Sports Med. 2013]
Valgus medial collateral ligament rupture causes concomitant loading and dan [J Knee Surg. 2003]
Review What is normal? Female lower limb kinematic profiles during athletic tasks used to examine anterior cruciate ligament injury risk: a systematic review. Fox AS, Bonacci J, McLean SG, Spittle M, Saunders N. Sports Med. 2014 Jun; 44(6):815-32.
Review Is there a potential relationship between prior hamstring st [Arch Phys Med Rehabil. 2014]
See reviews... See all...

Related information
Articles frequently viewed together

Recent Activity
Turn Off Clear
Your browsing activity is empty.

6. Checking if you can view the full article

6a. Checking online availability

- Within the full PubMed record of an article, look towards the top right-hand corner. Here, you may find a publisher's logo – if so, click this and you may be able to access the full text.
- It is best not to use the “text availability” filters to identify all the articles that are available to you – this does not identify articles available through the Library's subscriptions.

6b. If the full article is NOT available online via PubMed:

- Search the Library Catalogue via the Library homepage: <http://www.bath.ac.uk/library/>
- Search the Catalogue for the article title.
- If this fails to retrieve a result, search instead for the journal title in which the article was published – you may find that we provide a printed copy of the journal in the library. If we do, click the ‘shelf locations’ tab within the journal's catalogue record to find out whether we hold the relevant year/volume/issue.

7. Broadening your perspective on a topic

Note that there are links to “similar articles” within PubMed records. You can also click on an author's names to find other articles indexed by PubMed by the same author.

8. Saving/emailing results

a. It is good practice to save multiple copies of selected results so that you have “back-ups” in the event of losing one set (e.g. in your email accounts, memory sticks etc...). Click/select the box next to any individual result(s) of interest.

b. Click the **Send to** drop-down arrow where you will find multiple options for saving including an email option and creating a file of references in MEDLINE format. The file can be saved in any location of your choice or/and imported into EndNote Online/EndNote Desktop. If you're interested in saving them to EndNote Online, please refer to: <http://www.bath.ac.uk/library/infoskills/endnote/>

The screenshot shows a search results page with three items listed. The first item is "Anterior cruciate ligament injury alters preinjury lower extremity b uninjured leg: the JUMP-ACL study" by Goerger BM, Marshall SW, Beutler AI, Blackburn JT, Wilckens JH, Pac Br J Sports Med. 2015 Feb;49(3):188-95. doi: 10.1136/bjsports-2013-092982. E PMID: 24563391. The second item is "Relative strain in the anterior cruciate ligament and medial collate ump landing and sidestep cutting tasks: implications for injury risk" by Bates NA, Nesbitt RJ, Shearn JT, Myer GD, Hewett TE. Am J Sports Med. 2015 Sep;43(9):2259-69. doi: 10.1177/0363546515589165. Epub 2015 Jul 6. PMID: 26150588. The third item is "Elevated gastrocnemius forces compensate for decreased hamstrings forces during the weight- acceptance phase of single-leg jump landing: implications for anterior cruciate ligament injury". A red box highlights the 'Send to' dropdown menu, which is open and shows options: File (selected), Clipboard, Collections, E-mail, Order, My Bibliography, and Citation manager. Below the menu, it says "Download 2 items.", "Format: MEDLINE", "Sort by: Relevance", and a "Create File" button. Another red box highlights the checkboxes for the first three items, which are all checked.

9. Your next step – a MESH-only search?

You could also try a MeSH-headings-only search – this may help you retrieve a more refined and relevant set of results (e.g. including some results that you may not have found through a standard search). A guide to MeSH-only searches is available: <https://www.bath.ac.uk/publications/pubmed-resource-guides/> - if you are interested in other advanced features (e.g. saving searches/email alerts), please refer to: <http://www.bath.ac.uk/library/pass.bho/infoskills/pubmed-pgskills.pptx> - if you would like any further support in using this database, **please contact your Subject Librarian.**

Peter Bradley 14/11/2018