**Additional file 2:** Risk of bias schema

| Major risk of bias domains* | Risk | Criteria | Hints/ notes |
|---|---|---|---|
| **1. Recruitment procedure & follow-up (in cohort studies)**:<br><br>***For cohort studies***<br><br>*HINT: We are looking for selection bias:*<br>- *Was the cohort representative of a defined population? #*<br>- *Was everybody included who should have been included? #*<br>- *If response rate is slightly <50% but does not indicate selection bias, it will be listed as a demerit in extraction table.*<br><br>*PRELIMINARY RULING:*<br>- *If the cohort recruitment is based on a convenient/ self-reported sampling OR if response is <10% or not reported, the study will be excluded from analysis.* | low | ☐ Cohort recruitment was acceptable.#<br>☐ Baseline response is acceptable (50% or more) OR is <50% and >30%, but substantial differential selection could be excluded.<br>☐ Loss to follow-up is below 20% in total and not different between the two groups (up to 10% difference).* | |
| | high | ☐ Cohort recruitment was not acceptable.#<br>☐ Response not reported/ not calculable.<br>☐ Total loss to follow-up is larger than acceptable (20% or more)* OR drop out differs between the groups by more than 10%* OR the reasons for drop out considerably differ between exposed and non-exposed groups.* | |
| ***For case-control studies***<br><br>*HINT: We are looking for selection bias:*<br>- *Were the cases and control subjects representative of the same defined population ("study base"; geographically and/or temporally)? #*<br>- *Was there an established reliable system for selecting all the cases? #*<br>- *The same exclusion criteria are used for both cases and controls. #*<br>- *Comparison is made between participants and non-participants to establish their similarities or differences. #*<br>- *If response rate is slightly <50% but does not indicate selection bias, it will be listed as a demerit in extraction table.*<br><br>*PRELIMINARY RULING:*<br>- *If the recruitment of the study population is based on a convenient/ self-reported sampling OR if response is <10% or not reported, the study will be excluded from analysis.* | low | ☐ Case selection and recruitment was acceptable.#<br>☐ Control subjects' selection and recruitment was acceptable.#<br>☐ Non-response was less than 50% for cases and/or control subjects OR it was >50% and <70%, but substantial differential selection of cases and control subjects could be excluded* | |
| | high | ☐ Case selection and recruitment was not acceptable.#<br>☐ Control subjects' selection and recruitment was not acceptable.#<br>☐ Non-response was >70% for cases or control subjects OR it was >50% and<70%, but substantial differential selection of cases and control subjects could not be excluded.*<br>☐ Response not reported/ not calculable | |

*according to Ijaz et al. (2013), with modifications; # SIGN/CASP § Shamliyan

| Major risk of bias domains* | Risk | Criteria | Hints/ notes |
|---|---|---|---|
| ***For cross-sectional studies***<br><br>*HINT: We are looking for selection bias:*<br>- *Was the study population representative of a defined population? #*<br>- *Was everybody included who should have been included? #*<br>- *If response rate is slightly <50% but does not indicate selection bias, it will be listed as a demerit in extraction table.*<br><br>*PRELIMINARY RULING:*<br>- *If the recruitment of the study population is based on a convenient/ self-reported sampling OR if response is <10% or not reported, the study will be excluded from analysis.* | low | ☐ Recruitment of the study population was acceptable.[#]<br>☐ Non-response was less than 50% OR it was >50% and <70%, but substantial differential selection of the study population could be excluded.* | |
| | high | ☐ Recruitment of the study population was not acceptable.[#]<br>☐ Non-response was >70% OR it was >50% and <70%, but substantial differential selection of the study population could not be excluded.*<br>☐ Response not reported/ not calculable. | |
| **2. Exposure definition and measurement** | low | ☐ Exposure was defined adequately covering more than one aspect of exposure (duration, frequency, intensity) and was assessed objectively: direct measurement or systematic observations or using a questionnaire that is validated.* | |
| | high | ☐ Exposure was not defined adequately covering only one aspect of exposure (duration, frequency, intensity) and/or was assessed subjectively (self-report, questionnaire, interview) or using a proxy used to allocate exposure status (job matrix, job title).*<br>☐ Different methods were used to measure exposure in different groups/ cases and control subjects (***in case-control studies***).[§] | |
| | unclear | ☐ Not reported. | |
| **3. Outcome "rate of/ risk to develop meniscal lesions". Source and validation** | low | ☐ Outcome was accurately/ objectively measured to minimize bias (e.g. arthroscopically, MRI, open surgery)[#]<br>☐ Measurement methods were similar in the different groups.[#] | |
| | high | ☐ Outcome was not accurately or subjectively measured (self-reported, clinical examination).[#]<br>☐ Measurement methods were different in the groups.[#] | |
| | unclear | ☐ Not reported. | |
| **4. Confounding and effect modification** | low | ☐ If risk estimators were calculated, major confounding factors (age, sex) were considered.<br>☐ If only prevalence or incidence was assessed, at least sex and age are described. | |
| | high | ☐ Major confounding factors (age, sex) were not considered. | |
| | unclear | ☐ Not reported. | |

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| Major risk of bias domains* | Risk | Criteria | Hints/ notes |
|---|---|---|---|
| **5. Analysis method: methods to reduce research specific bias** | low | ☐ Authors used adequate statistical models to reduce bias (e.g. standardization, matching, adjustment in multivariate model, stratification, propensity scoring).§ | |
| | high | ☐ Authors did not use adequate statistical models to reduce bias. | |
| | unclear | ☐ Not reported. | |
| **6. Chronology** | low | ☐ Incident diseases were included.#<br>☐ Temporal relation may be established (exposure precedes the outcome).#<br>☐ No meniscal damage known at baseline ***(in cohort and case-control-studies).*** | |
| | high | ☐ People with prevalent meniscal damage were included OR people with prevalent meniscal damage of baseline were not excluded ***(in cohort studies)***.#<br>☐ Temporal relation cannot be established.<br>☐ Meniscal status is unknown at baseline. | |
| | unclear | ☐ Not reported. | |

| Minor risk of bias domains* | Risk | Criteria | Hints/ notes |
|---|---|---|---|
| **7. Blinding of assessors** | low | ☐ Assessors were reported or indicated to be blind for individual exposure-status in cohort and cross-sectional studies and to case status in case-control and cross-sectional studies | |
| | high | ☐ Assessors were reported or indicated <u>not</u> to be blind for individual exposure-status in cohort and cross-sectional studies and to case status in case-control and cross-sectional studies | |
| | unclear | ☐ Not reported. | |
| **8. Funding** | low | ☐ Grant/ non-profit-organizations*<br>☐ Study was clearly not affected by sponsors.* | |
| | high | ☐ Sponsoring organization participated in data analysis.<br>☐ Study was probably affected by sponsors. | |
| | unclear | ☐ Industry, combined industry+grant*, unclear if study was affected by sponsors.<br>☐ Not reported. | |
| **9. Conflict of interest** | low | ☐ Reported not having conflict of interest or clear from report/ communication that study was not affected by author(s) affiliation.* | |
| | high | ☐ Conflict of interest exists (at least one author).* | |
| | unclear | ☐ Not reported. | |

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| Overall risk of bias assessment | | | | Low Risk | High Risk | Unclear Risk |
|---|---|---|---|---|---|---|
| Major domains | 1. Recruitment procedure & follow-up (in cohort studies) | | | | | |
| | 2. Exposure definition and measurement | | | | | |
| | 3. Outcome “rate of/ risk to develop meniscal lesions”. Source and validation | | | | | |
| | 4. Confounding and effect modification | | | | | |
| | 5. Analysis method: methods to reduce research specific bias | | | | | |
| | 6. Chronology | | | | | |
| Minor domains | 7. Blinding of assessors | | | | | |
| | 8. Funding | | | | | |
| | 9. Conflict of interest | | | | | |
| **General rule for rating:** | | **Low risk of bias:** low risk in all major domains<br>**High risk of bias:** if not low risk | **Overall assessment:** | | | |

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