

Diet and endometriosis: un umbrella review.  
 Lenyca de Cassya Lopes Neri

**Table S1.** Search strategy.

| Database          | Search strategy                                                                                                                                                                                                                                                                                                                                                                                                                                 | Results  |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Pubmed            | "Endometriosis/diet therapy"[Mesh]<br>AND<br>(("endometriosis"[MeSH Terms] OR "endometriosis"[All Fields] OR "endometriosis"[All Fields])<br>AND ("diet"[MeSH Terms] OR "diet"[All Fields]) AND ("therapeutics"[MeSH Terms] OR<br>"therapeutics"[All Fields] OR "treatments"[All Fields] OR "therapy"[MeSH Subheading] OR<br>"therapy"[All Fields] OR "treatment"[All Fields] OR "treatment s"[All Fields])) AND (systematic<br>review[Filter]) | 33       |
| Scopus            | TITLE-ABS-KEY (("endometriosis" AND ("diet" OR "nutrient" OR "nutrition"))                                                                                                                                                                                                                                                                                                                                                                      | 598      |
| Web of<br>Science | (((ALL=(endometriosis) OR (adenomyosis)) AND (ALL=(nutrition) OR ALL=(diet) OR ALL=(nutrient))))                                                                                                                                                                                                                                                                                                                                                | 479      |
| Cochrane          | (endometriosis or adenomyosis) and (diet) AND<br>(endometriosis)                                                                                                                                                                                                                                                                                                                                                                                | 12<br>47 |

**Table S2:** Questions from the AMSTAR2 instrument – consensus by 2 researchers.

| Item                                                                                                                                                                                                               | Ara<br>b A.<br>et<br>al.,<br>202<br>2 | Chi<br>affa<br>rin<br>o<br>F.,<br>et<br>al.,<br>201<br>4 | Fjer<br>bæ<br>k<br>A.,<br>et<br>al.,<br>200<br>7 | Ha<br>nse<br>n<br>S.O<br>. et<br>al.,<br>201<br>3 | Hei<br>nze<br>N.,<br>et<br>al.,<br>202<br>1 | Hel<br>big<br>M.,<br>et<br>al.,<br>202<br>1 | Hip<br>olit<br>o-<br>Rei<br>s<br>M,<br>et<br>al.,<br>202<br>2 | Ho<br>ors<br>an<br>H.,<br>et<br>al.,<br>201<br>7 | Hui<br>js<br>E.,<br>et<br>al.,<br>202<br>0 | Kec<br>hag<br>ias<br>K.S,<br>et<br>al.,<br>202<br>1 | Ma<br>rdo<br>n<br>A.K<br>. et<br>al.,<br>202<br>2 | Nir<br>gia<br>nak<br>is<br>K.,<br>et<br>al,<br>202<br>2 | Par<br>azzi<br>ni<br>F.,<br>et<br>al,<br>201<br>3 | Soa<br>ve<br>l, et<br>al.,<br>201<br>8 | Suk<br>an<br>B.,<br>et<br>al.,<br>202<br>2 | Sve<br>rris<br>d'ó<br>ttir<br>U.A<br>. et<br>al,<br>202<br>2 | Xia<br>ng<br>yin<br>g<br>Qi,<br>et<br>al,<br>20<br>21 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------------------------------------------|--------------------------------------------------|---------------------------------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------------------------------|--------------------------------------------------|--------------------------------------------|-----------------------------------------------------|---------------------------------------------------|---------------------------------------------------------|---------------------------------------------------|----------------------------------------|--------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------|
| 1. Did the research questions and inclusion criteria for the review include the components of PICO?                                                                                                                |                                       |                                                          |                                                  |                                                   |                                             |                                             |                                                               |                                                  |                                            |                                                     |                                                   |                                                         |                                                   |                                        |                                            |                                                              |                                                       |
| Population                                                                                                                                                                                                         | 1                                     | 1                                                        | 0                                                | 1                                                 | 1                                           | 1                                           | 0                                                             | 0                                                | 1                                          | 1                                                   | 1                                                 | 0                                                       | 1                                                 |                                        | 1                                          | 1                                                            | 1                                                     |
| Intervention                                                                                                                                                                                                       | 1                                     | 1                                                        | 0                                                | 1                                                 | 1                                           | 1                                           | 0                                                             | 0                                                | 0                                          | 1                                                   | 1                                                 | 1                                                       | 1                                                 |                                        | 1                                          | 0                                                            | 1                                                     |
| Comparator group                                                                                                                                                                                                   | 1                                     | 1                                                        | 0                                                | 0                                                 | 1                                           | 0                                           | 0                                                             | 0                                                | 0                                          | 0                                                   | 1                                                 | 0                                                       | 1                                                 |                                        | 1                                          | 0                                                            | 1                                                     |
| Outcome                                                                                                                                                                                                            | 1                                     | 1                                                        | 0                                                | 0                                                 | 1                                           | 1                                           | 0                                                             | 0                                                | 1                                          | 1                                                   | 0                                                 | 1                                                       | 1                                                 |                                        | 1                                          | 1                                                            | 1                                                     |
| (Optional) Timeframe for follow-up                                                                                                                                                                                 |                                       |                                                          |                                                  |                                                   |                                             |                                             |                                                               |                                                  |                                            |                                                     |                                                   |                                                         | 1                                                 |                                        |                                            |                                                              |                                                       |
| Code result: 0 = No, 1 = Yes, NA                                                                                                                                                                                   | 1                                     | 1                                                        | 0                                                | 0                                                 | 1                                           | 0                                           | 0                                                             | 0                                                | 0                                          | 0                                                   | 0                                                 | 0                                                       | 1                                                 | 0                                      | 1                                          | 0                                                            | 1                                                     |
| 2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol? |                                       |                                                          |                                                  |                                                   |                                             |                                             |                                                               |                                                  |                                            |                                                     |                                                   |                                                         |                                                   |                                        |                                            |                                                              |                                                       |
| <i>For Partial Yes, ALL</i>                                                                                                                                                                                        |                                       |                                                          |                                                  |                                                   |                                             |                                             |                                                               |                                                  |                                            |                                                     |                                                   |                                                         |                                                   |                                        |                                            |                                                              |                                                       |
| The authors state that they had a written protocol or guide, including (below)                                                                                                                                     | 0                                     | 0                                                        | 0                                                | 0                                                 | 0                                           | 0                                           | 0                                                             | 0                                                | 0                                          | 1                                                   | 1                                                 | 1                                                       | 0                                                 | 0                                      | 1                                          | 1                                                            | 0                                                     |
| review question(s)                                                                                                                                                                                                 | 0                                     | 0                                                        | 0                                                | 0                                                 | 0                                           | 1                                           | 0                                                             | 0                                                | 0                                          | 1                                                   | 0                                                 | 1                                                       | 0                                                 |                                        | 1                                          | 0                                                            | 0                                                     |
| a search strategy                                                                                                                                                                                                  | 1                                     | 1                                                        | 1                                                | 1                                                 | 1                                           | 1                                           | 1                                                             | 1                                                | 1                                          | 1                                                   | 1                                                 | 1                                                       | 1                                                 |                                        | 1                                          | 1                                                            | 1                                                     |
| inclusion/exclusion criteria                                                                                                                                                                                       | 1                                     | 1                                                        | 1                                                | 0                                                 | 1                                           | 0                                           | 1                                                             | 1                                                | 1                                          | 1                                                   | 1                                                 | 1                                                       | 0                                                 |                                        | 1                                          | 0                                                            | 1                                                     |
| a risk of bias assessment                                                                                                                                                                                          | 1                                     | 1                                                        | 0                                                | 0                                                 | 0                                           | 0                                           | 1                                                             | 1                                                | 1                                          | 1                                                   | 1                                                 | 1                                                       | 0                                                 |                                        | 1                                          | 1                                                            | 1                                                     |
| <i>For Yes, ALSO ALL</i>                                                                                                                                                                                           |                                       |                                                          |                                                  |                                                   |                                             |                                             |                                                               |                                                  |                                            |                                                     |                                                   |                                                         |                                                   |                                        |                                            |                                                              |                                                       |

# Diet and endometriosis: un umbrella review.

Lenyca de Cassya Lopes Neri

|                                                     |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-----------------------------------------------------|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| the protocol should be registered                   | 1  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |
| a meta-analysis/synthesis plan, if appropriate, and | 1  | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |   | 1 | 1 | 1 |
| a plan for investigating causes of heterogeneity    | 1  | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |   |   | 1 | 0 | 1 |
| justification for any deviations from the protocol  | NA | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 |   |   | 1 | 0 | 1 |
| Code result: 0 = No, 1 = Yes, NA                    | 1  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 |   | 1 | 0 | 0 |

## 3. Did the review authors explain their selection of the study designs for inclusion in the review?

For Yes, EITHER

|                                                 |    |    |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |
|-------------------------------------------------|----|----|---|---|---|---|---|---|---|---|---|---|---|---|--|---|---|---|
| Explanation for including only RCTs             | NA | na | 0 | 0 | 0 | 0 |   | 0 |   |   |   |   | 0 |   |  |   |   |   |
| OR Explanation for including only NRSI          | 1  | 0  | 0 | 0 | 0 | 0 |   | 0 |   |   |   |   |   |   |  |   |   |   |
| OR Explanation for including both RCTs and NRSI | NA | na | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 |  | 1 | 0 | 0 |
| Code result: 0 = No, 1 = Yes, NA                | 1  | 0  | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 |  | 1 | 0 | 0 |

## 4. Did the review authors use a comprehensive literature search strategy?

For Partial Yes, ALL

|                                                               |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---------------------------------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| searched at least 2 databases (relevant to research question) | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| provided key word and/or search strategy                      | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| justified publication restrictions (e.g. language)            | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |   | 1 | 0 | 0 |

For Yes, ALSO ALL

|                                                                   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| searched the reference lists / bibliographies of included studies | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |   | 1 | 1 | 1 | 1 |   |
| searched trial/study registries                                   | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 |
| included/consulted content experts in the field                   | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| where relevant, searched for grey literature                      | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| conducted search within 24 months of completion of the review     | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Code result: 0 = No, 1 = Yes, NA                                  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 |   | 1 | 0 | 0 |

## 5. Did the review authors perform study selection in duplicate?

For Yes, EITHER

|                                                                                                                                 |   |   |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |  |
|---------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|--|---|---|---|---|--|
| at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 |  |
|---------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|--|---|---|---|---|--|

Lenyrcia de Cassya Lopes Neri

[illegible]

Lenyrcia de Cassya Lopes Neri

[illegible]

# Diet and endometriosis: un umbrella review.

Lenyia de Cassya Lopes Neri

|                                                                                                                                                                                                                    |    |   |   |    |    |    |   |   |   |   |   |   |    |    |    |    |   |   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|---|----|----|----|---|---|---|---|---|---|----|----|----|----|---|---|
| For Yes, ALL                                                                                                                                                                                                       |    |   |   |    |    |    |   |   |   |   |   |   |    |    |    |    |   |   |
| Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies | 0  | 0 | 0 | 0  | 0  | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0 | 0 |
| Code result: 0 = No, 1 = Yes, NA                                                                                                                                                                                   | 0  | 0 | 0 | 0  | 0  | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 0  | 0  | 0  | 0  | 0 | 0 |
| 11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results?                                                                                          |    |   |   |    |    |    |   |   |   |   |   |   |    |    |    |    |   |   |
| For RCTs included in reviews:                                                                                                                                                                                      |    |   |   |    |    |    |   |   |   |   |   |   |    |    |    |    |   |   |
| For Yes, ALL                                                                                                                                                                                                       |    |   |   |    |    |    |   |   |   |   |   |   |    |    |    |    |   |   |
| The authors justified combining the data in a meta-analysis                                                                                                                                                        | 1  | 1 | 0 | na | na | na | 0 | 0 | 1 | 1 | 0 | 1 | 1  | na | na | na | 1 |   |
| AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present.                                                                                                | 1  | 1 | 0 | na | na | na | 0 | 1 | 0 | 1 | 0 | 0 |    |    |    |    | 1 |   |
| AND investigated the causes of any heterogeneity                                                                                                                                                                   | 1  | 1 | 0 | na | na | na | 0 | 1 | 0 | 1 | 0 | 0 |    |    |    |    | 1 |   |
| For NRSI included in reviews:                                                                                                                                                                                      |    |   |   |    |    |    |   |   |   |   |   |   |    |    |    |    |   |   |
| For Yes, ALL                                                                                                                                                                                                       |    |   |   |    |    |    |   |   |   |   |   |   |    |    |    |    |   |   |
| The authors justified combining the data in a meta-analysis                                                                                                                                                        | 1  | 1 | 0 | na | na | na |   | 0 | 1 | 1 | 1 | 0 | na |    |    | na | 1 |   |
| AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present                                                                                                   | 1  | 1 | 0 | na | na | na |   | 0 |   | 1 | 0 | 0 |    |    |    |    | 1 |   |
| AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available   | 1  | 1 | 0 | na | na | na |   | 1 |   | 1 | 0 | 0 |    |    |    |    | 1 |   |
| AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review                                                                                                    | NA | 1 | 0 | na | na | na |   | 1 |   | 1 | 0 | 0 |    |    |    |    | 1 |   |
| Code result: 0 = No, 1 = Yes, NA                                                                                                                                                                                   | 1  | 1 | 0 |    |    |    |   | 0 | 1 | 1 | 0 |   |    |    |    |    | 1 |   |

# Diet and endometriosis: un umbrella review.

Lenyia de Cassya Lopes Neri

12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis?

*For Yes, EITHER*

|                                                                                                                                                                                |    |   |   |   |   |   |   |   |   |   |    |    |    |    |   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|---|---|---|---|---|---|---|---|----|----|----|----|---|
| included only low risk of bias RCTs                                                                                                                                            | na | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | na | na | na | na | 1 |
| OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect. | 1  | 0 | 0 |   | 0 | 0 | 0 | 0 | 0 | 1 | 0  |    |    |    |   |
| <i>Code result: 0 = No, 1 = Yes, NA</i>                                                                                                                                        | 1  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0  |    |    |    | 1 |

13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review?

*For Yes, EITHER*

|                                                                                                                                          |   |   |   |   |   |   |   |   |   |    |    |    |    |   |
|------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|---|
| included only low risk of bias RCTs                                                                                                      |   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | na | na | na | na | 1 |
| OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 0  |    |    |   |
| <i>Code result: 0 = No, 1 = Yes, NA</i>                                                                                                  | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1  | 0  |    |    | 1 |

14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?

*For Yes, EITHER*

|                                                                                                                                                                                     |   |   |   |   |   |   |   |   |   |    |    |    |   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|----|----|----|---|
| There was no significant heterogeneity in the results                                                                                                                               |   | 1 | 0 |   | 0 | 0 | 1 | 0 |   | na | na | na |   |
| OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review | 1 |   | 0 | 1 | 0 | 0 | 0 | 0 | 0 |    |    |    | 1 |
| <i>Code result: 0 = No, 1 = Yes, NA</i>                                                                                                                                             | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0  | 0  | 0  | 1 |

15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review?

*For Yes, ALL*

|                                                                                                                                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|----------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
|----------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Diet and endometriosis: un umbrella review.

Lenyia de Cassya Lopes Neri

|                                                                                                                                                 |   |    |    |    |    |    |   |    |   |   |    |   |    |    |    |    |   |
|-------------------------------------------------------------------------------------------------------------------------------------------------|---|----|----|----|----|----|---|----|---|---|----|---|----|----|----|----|---|
| <i>Code result: 0 = No, 1 = Yes, NA</i>                                                                                                         | 0 | 0  | 0  | 0  | 0  | 0  | 1 | 1  | 0 | 1 | 1  | 0 | 0  | 0  | 1  | 1  | 1 |
| 16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review? |   |    |    |    |    |    |   |    |   |   |    |   |    |    |    |    |   |
| <i>For Yes, EITHER</i>                                                                                                                          |   |    |    |    |    |    |   |    |   |   |    |   |    |    |    |    |   |
| The authors reported no competing interests                                                                                                     | 1 | 0  | 0  | 0  | 0  | 1  | 1 | 1  | 1 | 1 |    | 1 | 1  | 1  | 1  | 1  | 0 |
| OR The authors described their funding sources and how they managed potential conflicts of interest                                             |   | 0  | 0  | 0  | 0  | 1  | 1 |    |   |   |    | 1 |    |    |    |    |   |
| <i>Code result: 0 = No, 1 = Yes, NA</i>                                                                                                         | 1 | 0  | 0  | 0  | 0  | 1  | 1 | 1  | 1 | 1 | 1  | 1 | 1  | 1  | 1  | 1  | 0 |
| Count of 1 (Yes)                                                                                                                                | 9 | 6  | 0  | 1  | 1  | 1  | 7 | 6  | 7 | 9 | 11 | 7 | 5  | 4  | 10 | 6  | 9 |
| Count of 0 (No)                                                                                                                                 | 7 | 10 | 16 | 15 | 15 | 15 | 9 | 10 | 9 | 7 | 5  | 9 | 11 | 12 | 6  | 10 | 7 |
| <b>Sum of Yes out of all non-NA</b>                                                                                                             | 9 | 6  | 0  | 1  | 1  | 1  | 7 | 6  | 7 | 9 | 11 | 7 | 5  | 4  | 10 | 6  | 9 |

Diet and endometriosis: an umbrella review.  
Lenyca de Cassya Lopes Neri

**TABLE S3:** Details from the excluded articles from the analyses due to poor methodological quality

# Diet and endometriosis: un umbrella review.

Lenyia de Cassya Lopes Neri

| Author, year, country            | Question of systematic review                                                            | Participants (characteristics, total number) | Description of interventions/phenomena of interest                                                                                                                                                                                                          | Sources searched                                                                                 | Searched up to | Types of articles included                                               | Quality / Risk of Bias Assessment                                                                                                                                                                                                                       | Outcome assessed | Results / Findings | Significance / direction                                                                                             | Heterogeneity                                                                                                                                                                                                                                                                     | AMSTAR2 |
|----------------------------------|------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|----------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Parazzini F., et al, 2013, Italy | What's the role of diet on endometriosis risk, assessing both nutrients and food groups? | 11 studies                                   | Information on diet intake was collected using food frequency questionnaires in seven studies, while in one study the questionnaire focused on caffeine and alcohol intake. Simple 'no' or 'yes' questions were used in one study to evaluate coffee intake | MEDLINE (1966 to 2011), EMBASE (1985 to 2011) and Science Citation Index Expanded (1945 to 2011) | 1945 to 2011   | Most studies were case-control studies. One cohort study was identified. | The diagnosis of endometriosis has been shown to be more frequent among higher social class and more educated women (Parazzini et al., 1995) that could pay a greater attention to minor health problems, but as well could have a more health-oriented |                  |                    | beneficial effect of some nutrients on endometriosis suggest that further research should be conducted in this area. | pooled estimation was not considered since clinical populations), methodological (frequency categorization of exposure) and statistical (adjustment for confounding factors) heterogeneity is present across studies. Potential biases may also be due to the different choice of | 5       |

Lenyrcia de Cassya Lopes Neri

# Diet and endometriosis: un umbrella review.

Lenyca de Cassya Lopes Neri

|                              |                                                                                                      |                                                      |                                                                                                                                                     |                                       |                      |                          |                                                       |                                                         |                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                           |      |   |
|------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------------------|--------------------------|-------------------------------------------------------|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---|
| Hansen et al., 2013, Denmark | What is the association between dietary components and endometriosis and/or dysmenorrhea?            | 12 studies<br>n = from 45 to 70079<br>Age (y) = n.r. | Methods for measuring dietary intake varied between the studies, and the validity of the method was often not provided                              | Cochrane Library<br>MEDLINE<br>EMBASE | December 2012        | Not specified            | Evidence level - The Scottish Intercollegiate Network | not all studies had an exact diagnosis of endometriosis | Fish oils/PUFAs:<br>Vegetables/fruit<br>Red meat/ham<br>No consensus between studies                                                                                                                                                                       | specific types of dietary fats are associated with endometriosis                                                                                                                                                          | n.r. | 1 |
| Heinze et al., 2021, Germany | describing the effects of food or diet on the symptoms of endometriosis in women with endometriosis. | 20 studies<br>n = from 57 to 116,430                 | The validity of the results of this review is reduced, in particular, by small sample sizes and retrospective surveys with short evaluation periods | PubMed and Zbmed                      | from 2000 to 03/2020 | in vivo clinical studies | Oxford Centre of Evidence Based Medicine (OCEBM)      | not all studies had an exact diagnosis of endometriosis | 1-diet rich in n3 fatty acids contributes to the improvement of various endometriosis-associated symptoms<br>2-higher consumption of fats overall<br>was associated with an decreased risk<br>3-reducing the consumption of trans fatty acids and palm fat | diet has an influence on endometriosis-associated symptoms, but no recommendations for any specific endometriosis-specific diet could be derived due to the limited and partly inconclusive nature of the available data. | n.r. | 1 |

## Diet and endometriosis: un umbrella review.

Lenyrcia de Cassya Lopes Neri

|                                              |                                                                                                                                                                                         |               |                                                                                                              |                                                      |                    |                                                                                                                           |      |   |                                                                                                                                                                                                                                                      |                                                                                                                                |                                                                                            |   |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------|------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|---|
| Helbig et al., 2021, Germany                 | 1.Can endometrios be prevented with the right nutrition (preventive approach)?<br><br>2.Does diet influence manifest endometrios or the postoperative condition (therapeutic approach)? | not described | not mentioned                                                                                                | PubMed                                               | from 2000 - 2021   | reviews as well as two meta analyses, six case-control studies, two randomised trials and four prospective cohort studies |      |   | Alcohol consumption and a diet high in trans fats have been shown to have a negative impact on the occurrence of endometriosis;<br><br>fruit and vegetables, dairy products,unsaturated fats, red meat, fibre, soy products and coffee are not clear | the data is still insufficient and contentious, few studies are often contradictory                                            | n.r.                                                                                       | 1 |
| Soave I, et al., 2018, Italy and Switzerland | What are the potential modifiable risk factors of the endometrisis?                                                                                                                     | 14 studies    | self-administered questionnaire :<br><br>Vitamins A-C-E<br><br>Vitamin D and dairy products<br><br>Magnesium | Medline–PubMed, Embase, Lilacs, and Cochrane Library | up to October 2017 | Excluded only Review articles, commentaries, and papers on the effect of diet on endometrios-related symptoms were        | none | - | -                                                                                                                                                                                                                                                    | Epidemiological data concerning the association between diet and endometriosis are growing but still limited and inconsistent. | high variability of the results is noticeable and the presence of bias must be considered. | 4 |

Diet and endometriosis: un umbrella review.  
Lenyia de Cassya Lopes Neri

|                                    |                   |
|------------------------------------|-------------------|
| Green vegetables and fruits        | further excluded. |
| Soy and phytoestrogens             |                   |
| Red meat and butter                |                   |
| Polyunsaturated fatty acids        |                   |
| Olive oil and monounsaturated fats |                   |
| Trans fats                         |                   |
| Green tea                          |                   |
| Fibers and cereals                 |                   |
| Coffee                             |                   |
| Curcumin                           |                   |

**Table S4:** Description of other characteristics of the selected articles.

| Author, year, country                                     | Question of systematic review                                                                         | Sources searched                                                                                                   | Searched up to    | Quality / Risk of Bias Assessment tool reported in selected studies |
|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------|
| Arab et. al., 2022, Iran [23]                             | Does the consumption of dietary food groups and nutrients affect the risk of endometriosis?           | PubMed Scopus<br>Web of Science                                                                                    | September 2022    | NOS                                                                 |
| Chiapparino et al., 2014, Italy [19]                      | Coffee/caffeine influence the risk of endometriosis?                                                  | MEDLINE EMBASE                                                                                                     | May 2013          | n.r.                                                                |
| Hoorsan et al., 2017, Iran [24]                           | What are the risk/preventive factors related to endometriosis?                                        | ClinicalTrials.gov, PubMed<br>EMBASE<br>Scopus,<br>Google scholar<br>Cochrane<br>ProQuest Iranmedex Magiran<br>SID | From 2000 to 2015 | STROBE Statement /Begg's funnel plot                                |
| Huijs et al., 2020, Netherlands [20]                      | Effects of nutrition on symptoms in women with endometriosis                                          | PubMed Cochrane Library                                                                                            | March 2019        | GRADE criteria                                                      |
| Kechagias et al., 2021, UK, Finland and Canada [28]       | The association between caffeine consumption and endometriosis                                        | PubMed Scopus                                                                                                      | n.r.              | MINORS                                                              |
| Mardon et al., 2022, Australia [27]                       | What's the evidence concerning efficacy of self-management strategies for females with endometriosis? | Medline Embase EmCare<br>Web of Science Core Collection<br>Scopus Cochrane Central Register of Controlled Trials   | 24 March 2021     | RoB2, ROBINS-I, GRADE                                               |
| Nirgianakis K., et al, 2022, Switzerland and Austria [21] | What are the effects of dietary intervention on endometriosis?                                        | MEDLINE COCHRANE                                                                                                   | 30 April 2020     | QUIPS tool                                                          |

# Diet and endometriosis: un umbrella review.

Lenyia de Cassya Lopes Neri

|                                                |                                                                                                                                                                                                                                     |                                                |                   |                         |                                                    |  |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-------------------|-------------------------|----------------------------------------------------|--|
|                                                | Sub-questions, including (a) if a certain subcategory of patients are more likely to benefit from a dietary intervention or<br><br>(b) if specific dietary interventions ameliorate certain symptoms while others remain unchanged. |                                                |                   |                         |                                                    |  |
| Sukan B., et al., 2022, Turkey [25]            | Does antioxidant supplementation reduce pain associated with chronic pelvic pain, dysmenorrhea, and dyspareunia, in endometriosis patients?                                                                                         | Medline–PubMed<br>Cochrane Library<br>Scholar  | Scopus<br>Google  | Since 2012              | JBI for RCT<br><br>NIH (pre-post)                  |  |
| Sverrisd’ottir U.A., et al, 2022, Denmark [22] | What is the association between dietary changes and pain perception in women with endometriosis?                                                                                                                                    | Medline, Embase                                |                   | 1946–20<br>October 2020 | GRADE for RCT<br><br>NOS for observational studies |  |
| Xiangying Qi, et al, 2021, China [26]          | What is the association between dairy products and the risk of endometriosis?                                                                                                                                                       | Pubmed, Embase<br>Cochrane Library,<br>Science | databases, Web of | February 7th, 2021      | NOS<br><br>Begg’s and Egger’s test                 |  |

n = number; CI= confidence interval; FODMAP= Fermentable Oligo-, Di-, Mono-saccharides, And Polyols; FFQ: food-frequency questionnaire; GRADE= Grading of Recommendations Assessment, Development, and Evaluation; JBI= Joanna Briggs Institute; mg= milligrams; MINORS= Methodological Index for Non-Randomized Studies; n.r.= not reported; NIH= National Institute of Health; NOS = Newcastle-Ottawa Scale; OR= Odds Ratio; OTC= over the counter; QUIPS= Quality in Prognostic Studies; PUFAs= Polyunsaturated Fatty Acids; RCTs= Randomized controlled trials; RoB2= Risk of Bias 2.0; ROBINS-I= Risk of Bias of Non-Randomized Studies of Interventions; RR= Relative Risk; STROBE= Strengthening the reporting of observational studies in epidemiology; y = years; I2 and Q Tests= statistical heterogeneity tests.