| **Section and Topic**  | **Item #** | **Checklist item**  | **Location where item is reported**  |
| --- | --- | --- | --- |
| **TITLE**  |  |
| Title  | 1 | Identify the report as a systematic review. | 1 |
| **ABSTRACT**  |  |
| Abstract  | 2 | See the PRISMA 2020 for Abstracts checklist. | 2 |
| **INTRODUCTION**  |  |
| Rationale  | 3 | Describe the rationale for the review in the context of existing knowledge. | 3-4 |
| Objectives  | 4 | Provide an explicit statement of the objective(s) or question(s) the review addresses. | 4 |
| **METHODS**  |  |
| Eligibility criteria  | 5 | Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses. | 4-5 |
| Information sources  | 6 | Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted. | 5 |
| Search strategy | 7 | Present the full search strategies for all databases, registers and websites, including any filters and limits used. | 5 |
| Selection process | 8 | Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process. | 6 |
| Data collection process  | 9 | Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process. | 6 |
| Data items  | 10a | List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect. | 7 |
| 10b | List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information. | 7 |
| Study risk of bias assessment | 11 | Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process. | 6 |
| Effect measures  | 12 | Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results. | -- |
| Synthesis methods | 13a | Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)). | -- |
| 13b | Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions. | -- |
| 13c | Describe any methods used to tabulate or visually display results of individual studies and syntheses. | -- |
| 13d | Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used. | -- |
| 13e | Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression). | -- |
| 13f | Describe any sensitivity analyses conducted to assess robustness of the synthesized results. | -- |
| Reporting bias assessment | 14 | Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases). | 6 |
| Certainty assessment | 15 | Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome. | -- |
| **RESULTS**  |  |
| Study selection  | 16a | Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram. | 7 |
| 16b | Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded. | 7 |
| Study characteristics  | 17 | Cite each included study and present its characteristics. | 7-10 |
| Risk of bias in studies  | 18 | Present assessments of risk of bias for each included study. | 10 |
| Results of individual studies  | 19 | For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots. | 7-8 |
| Results of syntheses | 20a | For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies. | 9 |
| 20b | Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect. | -- |
| 20c | Present results of all investigations of possible causes of heterogeneity among study results. | -- |
| 20d | Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results. | -- |
| Reporting biases | 21 | Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed. | -- |
| Certainty of evidence  | 22 | Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed. | -- |
| **DISCUSSION**  |  |
| Discussion  | 23a | Provide a general interpretation of the results in the context of other evidence. | 10 |
| 23b | Discuss any limitations of the evidence included in the review. | 13 |
| 23c | Discuss any limitations of the review processes used. | 13 |
| 23d | Discuss implications of the results for practice, policy, and future research. | 14 |
| **OTHER INFORMATION** |  |
| Registration and protocol | 24a | Provide registration information for the review, including register name and registration number, or state that the review was not registered. | 4 |
| 24b | Indicate where the review protocol can be accessed, or state that a protocol was not prepared. | 4 |
| 24c | Describe and explain any amendments to information provided at registration or in the protocol. | - |
| Support | 25 | Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review. | 15 |
| Competing interests | 26 | Declare any competing interests of review authors. | 15 |
| Availability of data, code and other materials | 27 | Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review. | 7-9 |

*From:*  Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

S1. Prisma Checklist

S2. Search strategy for databases

1. Medline

|  |  |
| --- | --- |
| Interface: Ovid MEDLINE(R) ALLDate of Search: February 12, 2024Number of hits: 681Comment: In Ovid, two or more words are automatically searched as phrases; i.e. no quotation marks are needed | Field labels* exp/ = exploded MeSH term
* / = non exploded MeSH term
* .ti,ab,kf. = title, abstract and author keywords
* adjx = within x words, regardless of order
* \* = truncation of word for alternate endings
 |
| Database(s): **Ovid MEDLINE(R) ALL**1946 to February 09, 2024Search Strategy:

|  |  |  |
| --- | --- | --- |
| **#** | **Searches** | **Results** |
| 1 | exp Lactic Acid/ | 49121 |
| 2 | Polymers/ or Polyesters/ | 125572 |
| 3 | 1 and 2 | 7090 |
| 4 | New-Fill.nm. | 73 |
| 5 | ("Gana V" or lactic acid polymer or new fill or new-fill or newfill or PLLA or poly-d l-lactic acid or poly l lactic acid or poly levo lactic acid or "poly (lactic acid)" or "poly (lactic acid) polymer" or poly-l-lactic acid or polylactate or polylactic acid or sculptra).ti,ab,kf. | 13515 |
| 6 | 3 or 4 or 5 | 17320 |
| 7 | Skin Aging/ | 10353 |
| 8 | Rejuvenation/ | 4056 |
| 9 | exp Face/ | 175921 |
| 10 | Dermal Fillers/ | 1565 |
| 11 | exp Cosmetic Techniques/ | 59672 |
| 12 | ((chin\* or cheek\* or eye\* or face or facial or forehead or lip? or midface or midfacial or mouth or nasolabial or naso-labial or nose or perioral or skin\*) adj4 (aesthetic\* or age or aged or ageing or aging or atroph\* or cosmetic\* or cutaneous or dermal thickness or enhancement\* or enhancing or esthetic\* or fold? or laxity or photodamaged or photoaging or photoage\* or regenerat\* or rejuvenation\* or restructur\* or restor\* or sagging or skin thickness or skin-tightening or soft-tissue augmentation or subcutaneous or tissue distribution or tissue response or tissue support or volum\* or wrinkle\* or wrinkling)).ti,ab,kf. | 90487 |
| 13 | (anti-wrinkle\* or reduc\* wrinkle\*).ti,ab,kf. | 453 |
| 14 | ((cosmetic\* or aesthetic\* or estethic\*) adj3 (medicine or method\* or techni\*)).ti,ab,kf. | 3501 |
| 15 | (volume\* adj3 (enhanc\* or maint\* or restor\*)).ti,ab,kf. | 8217 |
| 16 | ((cosmetic\* or dermal or face or facial or injectable or injection\* or skin) adj3 (filler\* or filling)).ti,ab,kf. | 3276 |
| 17 | ((cosmetic\* or dermal or face or facial or skin or lactic acid polymer or new fill or new-fill or newfill or PLLA or poly-d l-lactic acid or poly l lactic acid or poly levo lactic acid or "poly (lactic acid)" or "poly (lactic acid) polymer" or poly-l-lactic acid or polylactate or polylactic acid or sculptra) adj3 (injection\* or injectable)).ti,ab,kf. | 3234 |
| 18 | (atroph\* scar\* or acne scar\* or lipoatroph\*).ti,ab,kf. | 3674 |
| 19 | or/7-18 | 321300 |
| 20 | 6 and 19 | 681 |

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2. Embase

|  |  |
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| Interface: embase.comDate of Search: February 12, 2024Number of hits: 1099Comment: Emtree is the controlled vocabulary in Embase | Field labels* /exp = exploded Emtree term
* /de = non exploded Emtree term
* ti,ab,kw = title, abstract and author keywords
* NEAR/x = within x words, regardless of order
* \* = truncation of word for alternate endings
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| --- | --- | --- |
| **No.** | **Query** | **Results** |
| #18 | #3 AND #17 | 1099 |
| #17 | #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 | 317353 |
| #16 | 'atroph\* scar\*':ti,ab,kw OR 'acne scar\*':ti,ab,kw OR lipoatroph\*:ti,ab,kw | 5306 |
| #15 | ((cosmetic\* OR dermal OR face OR facial OR skin OR 'lactic acid polymer' OR 'new fill' OR 'new fill' OR newfill OR plla OR 'poly-d l-lactic acid' OR 'poly l lactic acid' OR 'poly levo lactic acid' OR 'poly (lactic acid)' OR 'poly (lactic acid) polymer' OR 'poly-l-lactic acid' OR polylactate OR 'polylactic acid' OR sculptra) NEAR/3 (injection\* OR injectable)):ti,ab,kw | 4248 |
| #14 | ((cosmetic\* OR dermal OR face OR facial OR injectable OR injection\* OR skin) NEAR/3 (filler\* OR filling)):ti,ab,kw | 3824 |
| #13 | (volume\* NEAR/3 (enhanc\* OR maint\* OR restor\*)):ti,ab,kw | 10825 |
| #12 | ((cosmetic\* OR aesthetic\* OR estethic\*) NEAR/3 (medicine OR method\* OR techni\*)):ti,ab,kw | 5493 |
| #11 | 'anti wrinkle\*':ti,ab,kw OR 'reduc\* wrinkle\*':ti,ab,kw | 611 |
| #10 | ((chin\* OR cheek\* OR eye\* OR face OR facial OR forehead OR lip$ OR midface OR midfacial OR mouth OR nasolabial OR 'naso labial' OR nose OR perioral OR skin\*) NEAR/4 (aesthetic\* OR age OR aged OR ageing OR aging OR atroph\* OR cosmetic\* OR cutaneous OR 'dermal thickness' OR enhancement\* OR enhancing OR esthetic\* OR fold$ OR laxity OR photodamaged OR photoaging OR photoage\* OR regenerat\* OR rejuvenation\* OR restructur\* OR restor\* OR sagging OR 'skin thickness' OR 'skin tightening' OR 'soft-tissue augmentation' OR subcutaneous OR 'tissue distribution' OR 'tissue response' OR 'tissue support' OR volum\* OR wrinkle\* OR wrinkling)):ti,ab,kw | 121102 |
| #9 | 'photoaging'/de OR 'skin regeneration'/de OR 'skin thickness'/de OR 'skin tightness'/de OR 'sagging skin'/de OR 'wrinkle'/de | 12292 |
| #8 | 'esthetic surgery'/exp OR 'esthetics'/de OR 'cosmetic dermatology'/de | 40419 |
| #7 | 'injectable dermal implant'/de | 1288 |
| #6 | 'face'/exp | 145941 |
| #5 | 'rejuvenation'/de | 6694 |
| #4 | 'cutaneous parameters'/de | 10390 |
| #3 | #1 OR #2 | 19067 |
| #2 | 'gana v':ti,ab,kw OR 'lactic acid polymer':ti,ab,kw OR 'new fill':ti,ab,kw OR newfill:ti,ab,kw OR plla:ti,ab,kw OR 'poly-d l-lactic acid':ti,ab,kw OR 'poly l lactic acid':ti,ab,kw OR 'poly levo lactic acid':ti,ab,kw OR 'poly (lactic acid)':ti,ab,kw OR 'poly (lactic acid) polymer':ti,ab,kw OR 'poly-l-lactic acid':ti,ab,kw OR polylactate:ti,ab,kw OR 'polylactic acid':ti,ab,kw OR sculptra:ti,ab,kw | 14025 |
| #1 | 'polylactic acid'/de | 13783 |

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3. Web of Science Core Collection

|  |  |
| --- | --- |
| Interface: Clarivate AnalyticsEditions = A&HCI , ESCI , SCI-EXPANDED , SSCIDate of Search: February 12, 2024Number of hits: 707 | Field labels* TS/Topic = title, abstract, author keywords and Keywords Plus
* NEAR/x = within x words, regardless of order
* \* = truncation of word for alternate endings

Note: the *Exact search*-function was used for all the searches |
|

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| --- | --- | --- |
| **#** | **Search Query** | **Results** |
| 1 | TS=("Gana V" OR "lactic acid polymer" OR "new fill" OR new-fill OR newfill OR PLLA OR "poly-d l-lactic acid" OR "poly l lactic acid" OR "poly levo lactic acid" OR "poly (lactic acid)" OR "poly (lactic acid) polymer" OR "poly-l-lactic acid" OR polylactate OR "polylactic acid" OR sculptra)  | 35828 |
| 2 | TS=((chin\* OR cheek\* OR eye\* OR face OR facial OR forehead OR lip$ OR midface OR midfacial OR mouth OR nasolabial OR naso-labial OR nose OR perioral OR skin\*) NEAR/4 (aesthetic\* OR age OR aged OR ageing OR aging OR atroph\* OR cosmetic\* OR cutaneous OR "dermal thickness" OR enhancement\* OR enhancing OR esthetic\* OR fold$ OR laxity OR photodamaged OR photoaging OR photoage\* OR regenerat\* OR rejuvenation\* OR restructur\* OR restor\* OR sagging OR "skin thickness" OR skin-tightening OR "soft-tissue augmentation" OR subcutaneous OR "tissue distribution" OR "tissue response" OR "tissue support" OR volum\* OR wrinkle\* OR wrinkling ))  | 110653 |
| 3 | TS=(anti-wrinkle\* OR "reduc\* wrinkle\*")  | 631 |
| 4 | TS=((cosmetic\* OR aesthetic\* OR estethic\*) NEAR/3 (medicine OR method\* OR techni\*))  | 6403 |
| 5 | TS=(volume\* NEAR/3 (enhanc\* OR maint\* OR restor\*))  | 13686 |
| 6 | TS=((cosmetic\* OR dermal OR face OR facial OR injectable OR injection\* OR skin) NEAR/3 (filler\* OR filling))  | 4251 |
| 7 | TS=((cosmetic\* OR dermal OR face OR facial OR skin OR "lactic acid polymer" OR "new fill" OR new-fill OR newfill OR PLLA OR "poly-d l-lactic acid" OR "poly l lactic acid" OR "poly levo lactic acid" OR "poly (lactic acid)" OR "poly (lactic acid) polymer" OR "poly-l-lactic acid" OR polylactate OR "polylactic acid" OR sculptra) NEAR/3 (injection\* OR injectable))  | 4053 |
| 8 | TS=("atroph\* scar\*" OR "acne scar\*" OR lipoatroph\*)  | 4105 |
| 9 | #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8  | 137920 |
| 10 | #1 AND #9  | 707 |

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4. Cinahl

|  |  |
| --- | --- |
| Interface: EbscoDate of Search: February 12, 2024Number of hits: 99 | Field labels* MH+ = exploded Cinahl Heading
* MH = non exploded Cinahl Heading
* TI = title
* AB = abstract
* Nx = within x words, regardless of order
* \* = truncation of word for alternate endings

Note: sometimes “quotation marks” are needed for single search terms to avoid automatic term mapping (lemmatization)1 |
|

|  |  |  |
| --- | --- | --- |
| **#** | **Query** | **Results** |
| S19 | S5 AND S18 | 99 |
| S18 | S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 | 51,705 |
| S17 | TI ( ("atroph\* scar\*" or "acne scar\*" or lipoatroph\*) ) OR AB ( ("atroph\* scar\*" or "acne scar\*" or lipoatroph\*) ) | 666 |
| S16 | TI ( ((cosmetic\* OR dermal OR face OR facial OR skin OR "lactic acid polymer" OR "new fill" OR new-fill OR newfill OR PLLA OR "poly-d l-lactic acid" OR "poly l lactic acid" OR "poly levo lactic acid" OR "poly (lactic acid)" OR "poly (lactic acid) polymer" OR "poly-l-lactic acid" OR polylactate OR "polylactic acid" OR sculptra) N3 (injection\* OR injectable)) ) OR AB ( ((cosmetic\* OR dermal OR face OR facial OR skin OR "lactic acid polymer" OR "new fill" OR new-fill OR newfill OR PLLA OR "poly-d l-lactic acid" OR "poly l lactic acid" OR "poly levo lactic acid" OR "poly (lactic acid)" OR "poly (lactic acid) polymer" OR "poly-l-lactic acid" OR polylactate OR "polylactic acid" OR sculptra) N3 (injection\* OR injectable)) ) | 677 |
| S15 | TI ( ((cosmetic\* OR dermal OR face OR facial OR injectable OR injection\* OR skin) N3 (filler\* OR filling)) ) OR AB ( ((cosmetic\* OR dermal OR face OR facial OR injectable OR injection\* OR skin) N3 (filler\* OR filling)) ) | 718 |
| S14 | TI ( (volume\* N3 (enhanc\* OR maint\* OR restor\*)) ) OR AB ( (volume\* N3 (enhanc\* OR maint\* OR restor\*)) ) | 1,660 |
| S13 | TI ( ((cosmetic\* OR aesthetic\* OR estethic\*) N3 (medicine OR method\* OR techni\*)) ) OR AB ( ((cosmetic\* OR aesthetic\* OR estethic\*) N3 (medicine OR method\* OR techni\*)) ) | 753 |
| S12 | TI ( (anti-wrinkle\* or "reduc\* wrinkle\*") ) OR AB ( (anti-wrinkle\* or "reduc\* wrinkle\*") ) | 88 |
| S11 | TI ( ((chin\* OR cheek\* OR eye\* OR face OR facial OR forehead OR lip# OR midface OR midfacial OR mouth OR nasolabial OR naso-labial OR nose OR perioral OR skin\*) N4 (aesthetic\* OR age OR aged OR ageing OR aging OR atroph\* OR cosmetic\* OR cutaneous OR "dermal thickness" OR enhancement\* OR enhancing OR esthetic\* OR fold# OR laxity OR photodamaged OR photoaging OR photoage\* OR regenerat\* OR rejuvenation\* OR restructur\* OR restor\* OR sagging OR "skin thickness" OR skin-tightening OR "soft-tissue augmentation" OR subcutaneous OR "tissue distribution" OR "tissue response" OR "tissue support" OR volum\* OR wrinkle\* OR wrinkling)) ) OR AB ( ((chin\* OR cheek\* OR eye\* OR face OR facial OR forehead OR lip# OR midface OR midfacial OR mouth OR nasolabial OR naso-labial OR nose OR perioral OR skin\*) N4 (aesthetic\* OR age OR aged OR ageing OR aging OR atroph\* OR cosmetic\* OR cutaneous OR "dermal thickness" OR enhancement\* OR enhancing OR esthetic\* OR fold# OR laxity OR photodamaged OR photoaging OR photoage\* OR regenerat\* OR rejuvenation\* OR restructur\* OR restor\* OR sagging OR "skin thickness" OR skin-tightening OR "soft-tissue augmentation" OR subcutaneous OR "tissue distribution" OR "tissue response" OR "tissue support" OR volum\* OR wrinkle\* OR wrinkling)) ) | 20,137 |
| S10 | (MH "Cosmetic Techniques+") | 5,027 |
| S9 | (MH "Dermal Fillers") | 329 |
| S8 | (MH "Face+") | 24,356 |
| S7 | (MH "Rejuvenation") | 1,105 |
| S6 | (MH "Skin Aging") | 2,549 |
| S5 | S3 OR S4 | 813 |
| S4 | TI ( ("Gana V" OR "lactic acid polymer" OR "new fill" OR new-fill OR newfill OR PLLA OR "poly-d l-lactic acid" OR "poly l lactic acid" OR "poly levo lactic acid" OR "poly (lactic acid)" OR "poly (lactic acid) polymer" OR "poly-l-lactic acid" OR polylactate OR "polylactic acid" OR sculptra) ) OR AB ( ("Gana V" OR "lactic acid polymer" OR "new fill" OR new-fill OR newfill OR PLLA OR "poly-d l-lactic acid" OR "poly l lactic acid" OR "poly levo lactic acid" OR "poly (lactic acid)" OR "poly (lactic acid) polymer" OR "poly-l-lactic acid" OR polylactate OR "polylactic acid" OR sculptra) ) | 525 |
| S3 | S1 AND S2 | 420 |
| S2 | (MH "Polymers+") OR (MH "Polyesters") | 44,575 |
| S1 | (MH "Lactic Acid") | 3,470 |

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