Supplemental Materials

Table S3. MINORS for risk of bias assessment in non-RCT.

| Items                                                      | Ko, 2017<sup>26</sup> | Cheon, 2013<sup>28</sup> |
|-----------------------------------------------------------|------------------------|----------------------------|
| 1. A stated aim of the study                              | 2                      | 2                          |
| 2. Inclusion of consecutive patients                      | 2                      | 2                          |
| 3. Prospective collection of data                         | 2                      | 2                          |
| 4. Endpoint appropriate to the study aim                  | 2                      | 2                          |
| 5. Unbiased evaluation of endpoints                       | 0                      | 2                          |
| 6. Follow-up period appropriate to the major endpoint     | 0                      | 0                          |
| 7. Loss to follow up not exceeding 5%                     | 2                      | 2                          |
| 8. Prospective calculation of the sample size             | 0                      | 0                          |
| 9. A control group having the gold standard intervention  | 2                      | 0                          |
| 10. Contemporary group                                    | 2                      | 2                          |
| 11. Baseline equivalence of groups                        | 2                      | 1                          |
| 12. Statistical analyses adapted to the study design      | 0                      | 0                          |

MINORS: Methodological Index for Non-randomized Studies; non-RCT: non-Randomized Controlled Trial.
**Table S4.** Summary of findings table-GRADE levels of evidence for studies comparing core-based exercise with other treatments.

| Outcomes                  | № of studies | Study design | Risk of bias | Inconsistency | Indirectness | Imprecision | Publication bias | № of patients | Effect (95% CI) | Certainty |
|---------------------------|--------------|--------------|--------------|---------------|--------------|-------------|-----------------|---------------|----------------|-----------|
| **Cobb angel**            | 9            | 7 RCT and 2 non-RCT | serious\(^1\) | serious\(^2\) | not serious\(^1\) | not serious | strongly suspected\(^1\) | 180           | 145            | -         |
| Follow-up: median 12 weeks|              |              |              |               |              |            |                 |               | MD 2.08 lower (3.89 lower to 0.28 lower) | □□□□ VERY LOW |
| **ATR**                   | 3            | RCT          | serious\(^1\) | serious\(^2\) | not serious | serious\(^3\) | none            | 71            | 52             | -         |
| Follow-up: median 10 weeks|              |              |              |               |              |            |                 |               | MD 0.69 lower (2.61 lower to 1.22 higher) | □□□□ VERY LOW |
| **SRS-22 (total)**        | 2            | RCT          | very serious\(^4\) | serious\(^2\) | not serious | serious\(^3\) | none            | 37            | 38             | -         |
| Follow-up: median 17 weeks|              |              |              |               |              |            |                 |               | MD 0.25 higher (0.02 higher to 0.49 higher) | □□□□ VERT LOW |
| **SRS-22 (self-image)**   | 3            | RCT          | serious\(^1\) | not serious | not serious | serious\(^3\) | none            | 66            | 62             | -         |
| Follow-up: median 24 weeks|              |              |              |               |              |            |                 |               | MD 0.08 higher (0.01 higher to 0.14 higher) | □□□□ LOW |
| **SRS-22 (self-reported pain relief)** | 2          | RCT          | serious\(^1\) | serious\(^2\) | not serious | serious\(^3\) | none            | 41            | 37             | -         |
| Follow-up: median 29 weeks|              |              |              |               |              |            |                 |               | MD 0.11 higher (0.11 lower to 0.34 higher) | □□□□ VERT LOW |
| **SRS-22 (function)**     | 2            | RCT          | serious\(^1\) | not serious | not serious | serious\(^3\) | none            | 41            | 37             | -         |
| Follow-up: median 29 weeks|              |              |              |               |              |            |                 |               | MD 0.12 higher (0.03 higher to 0.2 higher) | □□□□ LOW |
| **SRS-22 (mental health)**| 2            | RCT          | serious\(^1\) | not serious | not serious | serious\(^3\) | none            | 41            | 37             | -         |
| Follow-up: median 29 weeks|              |              |              |               |              |            |                 |               | MD 0.3 higher (0.14 higher to 0.46 higher) | □□□□ LOW |

\(^1\) The basis for the assumed risk (e.g. the median control group risk across studies) is provided in footnotes. The corresponding risk (and its 95% confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).

**GRADE Working Group grades of evidence**
- **High quality:** Further research is very unlikely to change our confidence in the estimate of effect.
- **Moderate quality:** Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
- **Low quality:** Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
- **Very low quality:** We are very uncertain about the estimate.

\(^1\) >25% of participants were from studies with moderate risk of bias (inadequate concealment).
\(^2\) \(I^2 > 40\%\).
\(^3\) Participants in all the pooled studies are adolescents or adults.
The funnel plot had an asymmetrical distribution.

There were less than 200 participants in total.

>25% of participants were from studies with high risk of bias (lack of double-blinding and inadequate concealment).

GRADE: Grading of Recommendations, Assessment, Development and Evaluations; RCT: Randomized Controlled Trial; ATR: angle of trunk rotation; SRS-22: Scoliosis Research Society-22 Questionnaire.
Figure S1. The funnel plot regarding Cobb angle for core exercise compared with other forms of treatments.
Search strategies for all databases

1. Search Strategy for PubMed

#1 "parallel"[Text Word] OR "observational"[Text Word] OR "cross-sectional"[Text Word] OR "cohort"[Text Word] OR "pre–post"[Text Word] OR "before-after"[Text Word] OR "controlled trial*"[Text Word] OR "random*"[Text Word] OR "randomi*"[Text Word] OR "intervention*"[Text Word]

#2 "clinical trial" [PT]

#3 #1 OR #2

#4 animals NOT humans

#5 #3 NOT #4

#6 "idiopathic scoliosis"[All Fields] OR "idiopathic scoliotic" [Title/Abstract] OR "idiopathic spine deformit*"[Title/Abstract] OR "idiopathic spinal deformit*"[Title/Abstract] OR "idiopathic vertebral deformit*"[Title/Abstract] OR "idiopathic spine curve*"[Title/Abstract] OR "idiopathic spinal curve*"[Title/Abstract] OR "idiopathic vertebral curve*"[Title/Abstract] OR "idiopathic spine curvature*"[Title/Abstract] OR "idiopathic spinal curvature*"[Title/Abstract] OR "idiopathic vertebral curvature*"[Title/Abstract]

#7 "stabilization"[All Fields] OR "spinal strengthening"[All Fields] OR "conservative treatment*" [All Fields] OR "conservative intervention*" [All Fields] OR "physiotherapy"[All Fields] OR "physical therapy" [All Fields] OR "exercise" [All Fields]

#8 #5 AND #6 AND #7

2. Search Strategy for EMBASE
3. Search Strategy for Cochrane Library

#1 parallel/.exp OR 'observational'/exp OR 'cross-sectional'/exp OR 'pre–post'/exp OR 'before-after'/exp OR 'controlled trial*' OR 'random*' OR 'randomi*' OR 'intervention*' OR 'stabilization'/exp OR 'spinal strengthening'/exp OR 'conservative treatment*' OR 'physiotherapy'/exp OR 'physical therapy'/exp OR 'exercise'/exp

#2 [publication type] "trial"

#3 #1 AND #2

#4 'idiopathic scoliosis'/exp OR 'idiopathic scoliotic'/exp OR 'idiopathic spine deformit*' OR 'idiopathic spinal deformit*' OR 'idiopathic vertebral deformit*' OR 'idiopathic spine curve*' OR 'idiopathic spinal curve*' OR 'idiopathic vertebral curve*' OR 'idiopathic spine curvature*' OR 'idiopathic spinal curvature*' OR 'idiopathic vertebral curvature*'

#6 #3 AND #4 AND #5

#7 parallel OR observational OR cross-sectional OR pre–post OR before-after OR 'controlled trial*' OR 'random*' OR 'randomi*' OR 'intervention*' OR 'idiopathic scoliosis' OR 'idiopathic scoliotic' OR 'idiopathic spine deformit*' OR 'idiopathic spinal deformit*' OR 'idiopathic vertebral deformit*' OR 'idiopathic spine deformit*' OR 'idiopathic vertebral deformit*' OR 'idiopathic spine curvature*' OR 'idiopathic spinal curvature*' OR 'idiopathic vertebral curvature*'

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4. Search Strategy for Web of Science

#1 TS=(parallel OR observational OR cross-sectional OR pre–post OR before-after OR controlled trial* OR random* OR randomi* OR intervention*)

#2 TS=('idiopathic scoliosis' OR 'idiopathic scoliotic' OR 'idiopathic spine deformit*' OR 'idiopathic spinal deformit*' OR 'idiopathic vertebral deformit*' OR 'idiopathic spine curve*' OR 'idiopathic spinal curve*' OR 'idiopathic vertebral curve*' OR 'idiopathic spine curvature*' OR 'idiopathic spinal curvature*' OR 'idiopathic vertebral curvature*')

#3 TS=('stabilization' OR 'spinal strengthening' OR 'conservative treatment*' OR 'conservative intervention*' OR 'physiotherapy' OR 'physical therapy' OR 'exercise')

#4 #1 AND #2 AND #3

Timespan=All years. SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI

Databases=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI

Timespan =1990-2020

5. Search Strategy for CINAHL (Ebsco)

S1 MH("random assignment" OR "placebos" OR "placebo effect" OR "single-blind studies" OR "double-blind studies" OR "triple-blind studies" OR "randomized controlled
trials" OR "comparative studies" OR "evaluation research" OR "prospective studies" OR "crossover design" OR "prospective studies" OR "clinical trials" OR "clinical trial registry")
S2 TX (random$ OR allocation OR "random allocation" OR placebo$ OR single blind OR double blind OR "randomi?ed controlled trial*" OR "controlled clinical trial*" OR "comparative study" OR "evaluation stud*" OR "follow-up stud*" OR "prospective stud*" OR "cross-over stud*" OR control$ OR prospectiv$ OR volunteer$ OR "RCT" OR "clinical trial*")
S3 PT (randomized controlled trial OR "clinical trial*")
S4 S1 OR S2 OR S3
S5 TX("idiopathic scoliosis" OR "idiopathic scoliotic" OR "idiopathic spine deformit*" OR "idiopathic spinal deformit*" OR "idiopathic vertebral deformit*" OR "idiopathic spine curve*" OR "idiopathic spinal curve*" OR "idiopathic vertebral curve*" OR "idiopathic spine curvature*" OR "idiopathic spinal curvature*" OR "idiopathic vertebral curvature*")
S6 AB(stabilization OR spinal strengthening OR conservative treatment* OR conservative intervention* OR physiotherapy OR physical therapy OR exercise OR "spinal strengthening" OR "conservative treatment*" OR "conservative intervention*" OR "physical therapy")
S7 S4 AND S5 AND S6
Timespan =1975-2020