1.

a.



Egger’s test: p < 0.001

b.



Egger’s test: p < 0.001

c.



Egger’s test: p = 0.086

d.

 

Egger’s test: p = 0.342

e.



Egger’s test: p < 0.001

f.



Egger’s test: p < 0.001

g.



Egger’s test: p < 0.001

h.



Egger’s test: p < 0.001

Fig.1: Funnel plots and p value for Egger’s test conducted on BMD of a. Femur total, b. Femur trabecular, c. Tibia trabecular, d. Tibia cortical and e. vertebra and BV/TV of a. Femur, b. Tibia and c. Vertebra

2.

a.



Egger’s test: p = 0.018

b.



Egger’s test: p < 0.001

c.



Egger’s test: p = 0.254

d.



Egger’s test: p = 0.012

e.



f.



Egger’s test: p = 0.001

Fig.2: Funnel plot and p value for egger’s test conducted on a. serum osteocalcin, b. serum calcium, c. serum ALP, d. serum CTX, e. BFR and f. Oc.S/B.S

3.

a.(i)



Egger’s test: p < 0.001

(ii)



b. (i)



Egger’s test: p < 0.001

(ii)



c. (i)



Egger’s test: p = 0.001

(ii)



Egger’s test: p = 0.004

Fig.3. Funnel plot and egger’s test for comparative analysis conducted on (i) Lactobacillus and (ii) Bifidobacterium using a. Vertebral BMD, b. Femur BV/TV and c. serum calcium

4.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Random sequence generation (Selection bias) | Baseline characteristics (Selection bias) | Allocation concealment (Selection bias) | Random housing (Performance bias) | Blinding (Performance bias) | Random Outcome Assessment (Outcome bias) | Blinding of outcome assessment (Detection bias) | Incomplete outcome data (attrition bias) | Selective reporting (reporting bias) | Other bias |
| Parvaneh et. al., 2018 |  ? | + |  ? | ? | ? | ? | ? | + | + | + |
| Narva et.al., 2007 |  ? | + |  ? | ? | ? | ? | ? | + | + | + |
| Shim et. al., 2012 |  ? | + |  ? | ? | ? | ? | ? | + | + | + |
| Lee et. al., 2019 |  ? | + |  ? | ? | ? | ? | ? | + | + | + |
| Britton et. al., 2014 |  ? |  ? |  ? |  ? |  ? |  ? |  + | + | + | + |
| Shim et. al., 2013 |  ? | + |  ? |  ? |  ? |  ? |  ? | + | + | + |
| Yu et. al., 2022 |  + | + |  ? |  ? |  ? |  ? |  ? | + | + | + |
| Sapra et. al., 2021 |  ? | + |  ? |  ? |  ? |  ? |  ? | + | + | + |
| Dar et. al., 2018 |  ? | + |  ? |  ? |  ? |  ? |  ? | + | + | + |
| Lim et. al., 2021 |  ? | + |  ? |  ? |  ? |  ? |  ? | + | + | + |
| Lee et. al., 2021 |  ? | + |  ? |  ? |  ? |  ? |  ? | + | + | + |
| Chiang et. al., 2011 |  ? | + |  ? |  ? |  ? |  ? |  ? | + | + | + |
| Ohlsson et.al., 2014 |  ? | + |  ? |  ? |  ? |  ? |  ? | + | + | + |
| Yang et. al., 2020 |  ? | + |  ? |  ? |  ? | ? | + | + | + | + |
| Lee et. al., 2020 |  ? | + |  ? |  ? |  ? |  ? |  ? | + | + | + |
| H Y Dar et. al., 2018 |  ? | + |  ? |  ? |  ? |  ? |  ? | + | + | + |
| Parvaneh et. al., 2015 |  ? | + |  ? |  ? |  ? |  ? |  ? | + | + | + |
| Wallimann et. al., 2021 |  ? | + |  ? |  ? |  ? |  ? |  ? | + | + | + |
| Sapra et al., 2022 |  ? | + |  ? |  ? |  ? |  ? |  ? | + | + | + |
| Yamada et al., 2019 |  ? | + |  ? |  ? |  ? |  ? |  ? | + | + | + |
| Montazeri Najafabady et. al., 2019 |  ? | + |  ? |  ? |  ? |  ? |  ? | + | + | + |
| Kim et. al., 2019 |  ? | + |  ? |  ? |  ? |  ? |  ? | + | + | + |

**Key**

+ : low risk of bias

? : Unclear risk of bias

Fig.4: Risk of bias assessment of the 22 included studies using SYRCLE tool.