**Supplementary file 3.1. Publication bias assessment using funnel plots of main outcomes using random effect models.**

**Supplementary Figure 3.1.a Publication bias assessment of the studies on prebiotics and lipopolysaccharide (LPS).**

Number of studies = 16 Root MSE = 2.421

------------------------------------------------------------------------------

Std\_Eff | Coefficient Std. err. t P>|t| [95% conf. interval]

-------------+----------------------------------------------------------------

slope | 1.135398 .9725458 1.17 0.263 -.9505051 3.221301

bias | -6.286459 3.168025 -1.98 0.067 -13.0812 .5082792

------------------------------------------------------------------------------



Test of H0: no small-study effects P = 0.067

**Supplementary file 3.2. Influence/Sensitivity analyses results.**

**Supplementary figure 3.2.a. A leave-one-out sensitivity analysis of the impact of prebiotic administration on serum/plasma lipopolysaccharide (LPS).**

------------------------------------------------------------------------------

Study omitted | Estimate [95% Conf. Interval]

-------------------+----------------------------------------------------------

1 | -.92495304 -1.3489958 -.50091034

2 | -.8515678 -1.2802829 -.42285281

3 | -.92664301 -1.3504395 -.50284648

4 | -.78811502 -1.1834953 -.39273468

5 | -.85124892 -1.274554 -.42794377

6 | -.82356155 -1.2371482 -.4099749

7 | -.84778339 -1.27354 -.42202672

8 | -.87338895 -1.3015234 -.4452545

9 | -.94681209 -1.3495657 -.54405838

10 | -.78888017 -1.1797956 -.39796475

11 | -.95720237 -1.3564141 -.55799067

12 | -.84778339 -1.27354 -.42202672

13 | -.83670497 -1.2569182 -.41649184

14 | -.91961759 -1.3420358 -.49719942

15 | -.93291157 -1.3500092 -.51581389

16 | -.89692801 -1.3221071 -.47174904

-------------------+----------------------------------------------------------

Combined | -.87572535 -1.2794449 -.47200584

------------------------------------------------------------------------------



**Supplementary file 3.2 Influence/Sensitivity analyses results.**

**Supplementary figure 3.2.b. A leave-one-out sensitivity analysis of the impact of prebiotic administration on serum/plasma lipopolysaccharide binding protein (LBP).**

------------------------------------------------------------------------------

Study omitted | Estimate [95% Conf. Interval]

-------------------+----------------------------------------------------------

1 | .24330907 -.08505504 .57167315

2 | .20411821 -.14505053 .55328697

3 | .29556087 -.06032586 .65144759

4 | .28798717 -.05673708 .63271141

-------------------+----------------------------------------------------------

Combined | .25713293 -.04084562 .55511149

----------------------------------------------------------------

**Supplementary file 3.2. Influence/Sensitivity analyses results.**

**Supplementary figure 3.2.c. A leave-one-out sensitivity analysis of the impact of prebiotic administration on fecal calprotectin levels.**

------------------------------------------------------------------------------

Study omitted | Estimate [95% Conf. Interval]

-------------------+----------------------------------------------------------

1 | -1.5957444 -3.8623853 .67089641

2 | -1.3332833 -3.9865162 1.3199496

3 | -1.294858 -3.6088409 1.0191251

4 | -1.3851837 -3.9610085 1.1906412

5 | .13754837 -.34492904 .62002581

-------------------+----------------------------------------------------------

Combined | -1.0829742 -2.9613875 .79543906

------------------------------------------------------------------------------



**Supplementary file 3.3. The evaluation of evidence certainty using the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) framework.**

| **Certainty assessment** | | | | | | **Certainty** |
| --- | --- | --- | --- | --- | --- | --- |
| **№ of studies** | **Risk of bias** | **Inconsistency** | **Indirectness** | **Imprecision** | **Publication bias** |
| **Serum/ plasma lipopolysaccharide** | | | | | | |
| 16 | Not serious a | Not serious b | Not serious c | Not serious d | Not serious | High |
| **Serum/ plasma lipopolysaccharide binding protein** | | | | | | |
| 4 | Serious e | Not serious | Not serious c | Serious f | Not serious | Low |
| **Fecal calprotectin** | | | | | | |
| 5 | Serious e | Serious g | Not serious c | Serious d | Not serious | Very low |

a. Less than 50% of studies and participants were at high risk of bias, therefore it was not downgraded. Not downgraded

b. Although *I*2 = 85.7%, we did not downgrade for inconsistency since in one subgroup conducted by risk of bias assessment of studies, in the fair/poor subgroup [SMD= -0.19 (95% CI: -0.54, 0.19), I2=0.0 %; n=4] heterogeneity was reduced. Not downgraded

c. Not downgraded as most of the participants were at high risk of metabolic syndrome and the results were at attributed to this population

d. Not downgraded since 95% CIs of SMD did not include null effect.

e. None of the studies had low risk of bias

f. Downgraded one level, since 95% CIs of SMD include null effect.

g. Although *I*2=97.2%, we downgraded only one level, since *I*2 reduced to 53.3% after excluding one study (Vulevic et al., 2013)

**Supplementary file 3.4. Subgroup analysis results.**

**Supplementary Figure 3.4.a. Forest plot depicting standardized mean differences (SMD) and the 95% confidence interval (CI) for the impact of prebiotic administration on serum/plasma lipopolysaccharide (LPS) levels according to health conditions of participants.**

****

**Supplementary Figure 3.4.b. Forest plot depicting standardized mean differences (SMD) and the 95% confidence interval (CI) for the impact of prebiotic administration on serum/plasma lipopolysaccharide (LPS) levels according to intervention duration.**

****

**Supplementary Figure 3.4.c. Forest plot depicting standardized mean differences (SMD) and the 95% confidence interval (CI) for the impact of prebiotic administration on serum/plasma lipopolysaccharide (LPS) levels according to risk of bias assessment of the included trials.**

****

**Supplementary file 3.5. Meta-regression analysis.**

**Supplementary figure 3.5 (a, b). A random-effects meta-regression to investigate the relationship between potential moderators (a. age and b. body mass index (BMI)) and estimated net changes in serum/plasma lipopolysaccharide (LPS) using unrestricted maximum likelihood method.**

1. Age



1. Bmi



**Supplementary Figure 3.6.a. Forest plot depicting standardized mean differences (SMD) and the 95% confidence interval (CI) for the impact of prebiotic administration on fecal calprotectin levels according to health conditions of participants.**

****

**Supplementary Figure 3.6.b. Forest plot depicting standardized mean differences (SMD) and the 95% confidence interval (CI) for the impact of prebiotic administration on fecal calprotectin levels according risk of bias assessment of included trials.**



**Supplementary file 3.7. Meta-regression analysis.**

**Supplementary figure 3.7 (a). A random-effects meta-regression to investigate the relationship between potential moderator (age) and estimated net changes in fecal calprotectin levels using unrestricted maximum likelihood method.**

1. **Age**

