**Search Strategy Prepared for Medline and adapted for other search engines**

1# “birth, preterm”[MESH] OR Premature Birth [MESH]

2# “Preterm birth” [tiab] OR "premature birth"[tiab] OR prematurity[tiab] OR “pre-term birth”[tiab]

3# 1# OR 2#

4# offspring [tiab] OR newborn[tiab] OR baby[tiab] OR babies[tiab] OR children[tiab] OR infant[tiab] OR neonat\*[tiab] OR adolescen\*[tiab] OR adult[tiab]

5# 3# AND 4#

5# “[Diabetes, Gestational](https://www.ncbi.nlm.nih.gov/mesh/68016640)”[MESH] OR “Blood Pressure”[MESH] OR “hypertension”[MESH] OR “cholesterol”[MESH] OR “lipids”[MESH] OR “triglyceride”[MESH] OR “body mass index”[MESH] OR “insulin”[MESH] OR “glucose”[MESH]

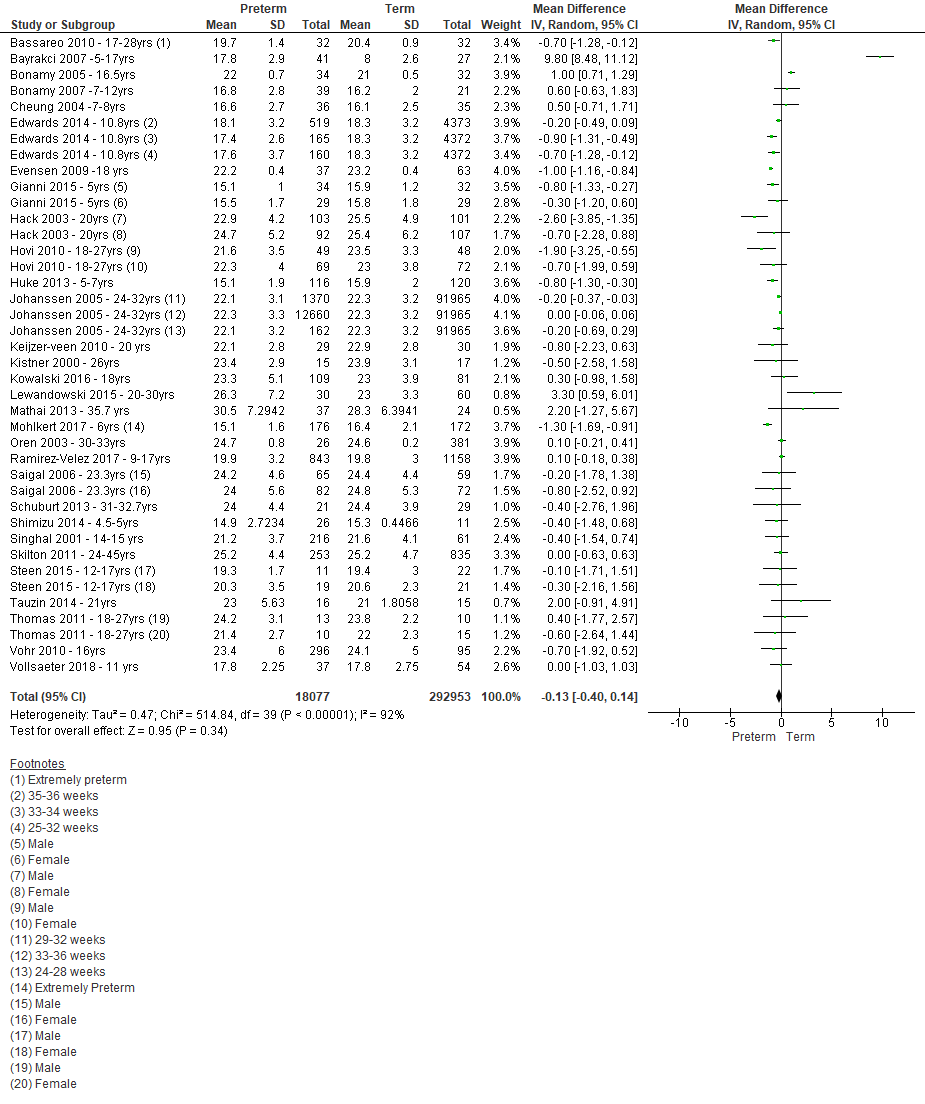
6# “blood pressure” OR diabetes OR cardiovascular OR metabolic OR hypertension OR BMI or “body mass index” OR obesity OR overweight OR lipids OR lipid OR cholesterol OR triglyceride\* OR glucose OR insulin OR vascular

7# 5# AND 6#

8# 3# AND 5# AND 7#

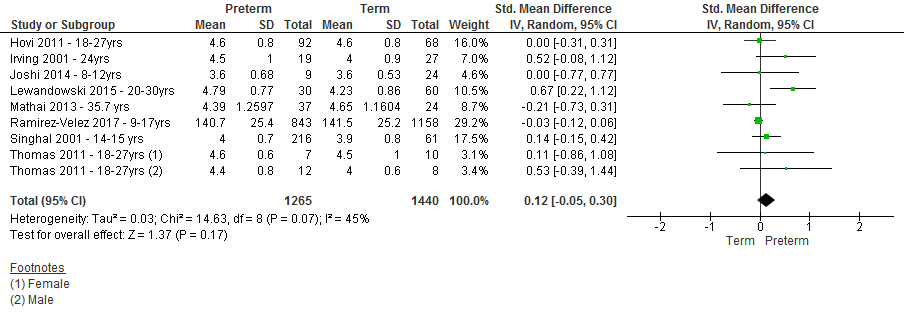
9# 8# AND humans[limit]

**Supplementary Figure 1 Mean difference in body mass index (BMI) between those born preterm and term**



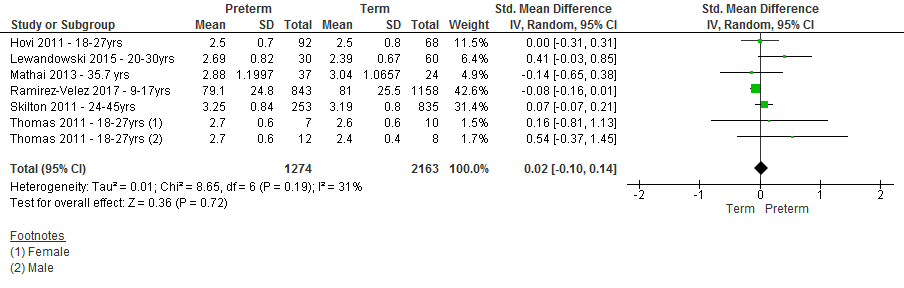
Body mass index (BMI) in kg/m2; IV, inverse variance

**Supplementary Figure 2 Mean difference in total cholesterol between those born preterm and term**



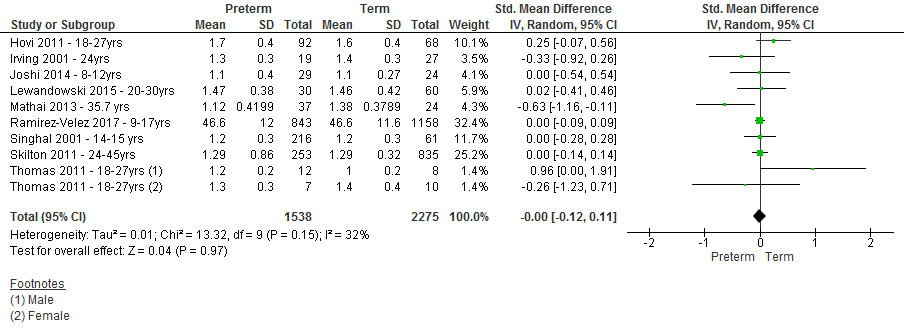
IV, inverse variance

**Supplementary Figure 3 Mean difference in LDL cholesterol between those born preterm and** **term**



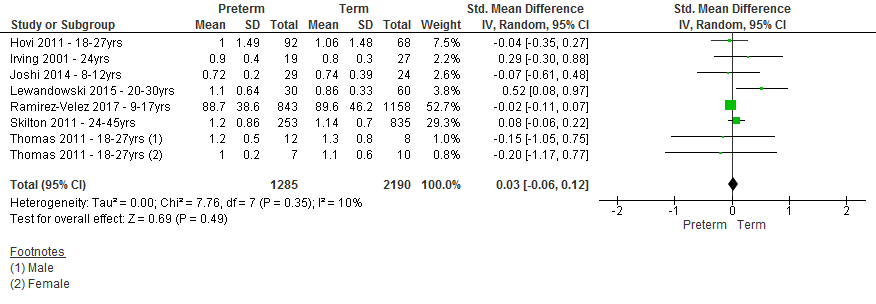
IV, inverse variance

**Supplementary Figure 4 Mean difference in HDL cholesterol between those born preterm and term**



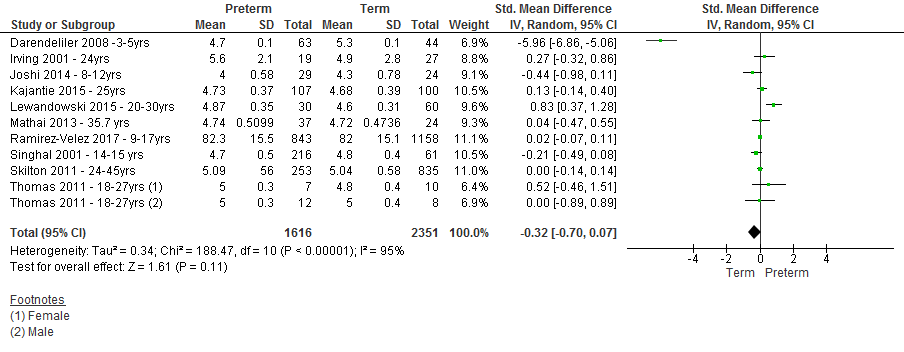
IV, inverse variance

**Supplementary Figure 5 Mean difference triglycerides between those born preterm and term**



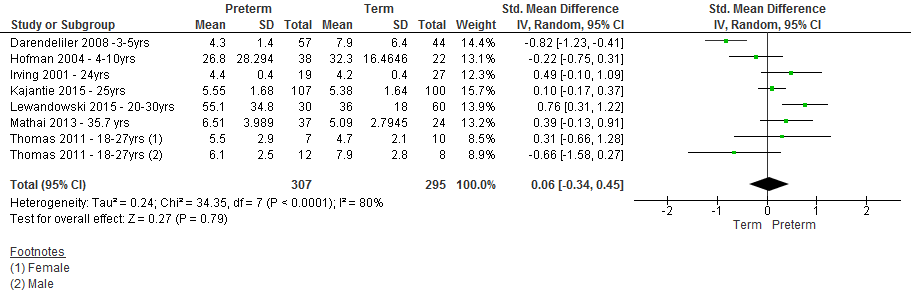
IV, inverse variance

**Supplementary Figure 6 Mean difference fasting blood glucose between those born preterm and term**



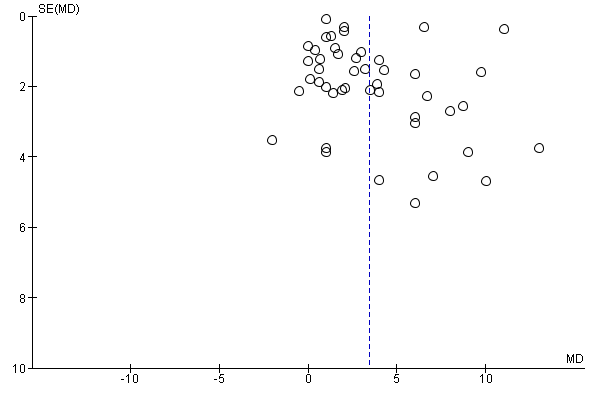
IV, inverse variance

Supplementary Figure 7 Mean difference fasting insulin between those born preterm and term

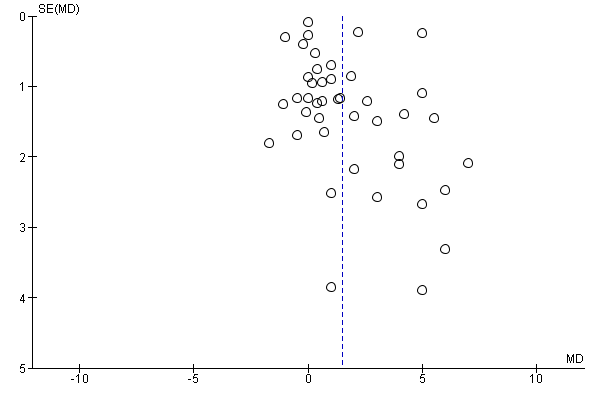


IV, inverse variance

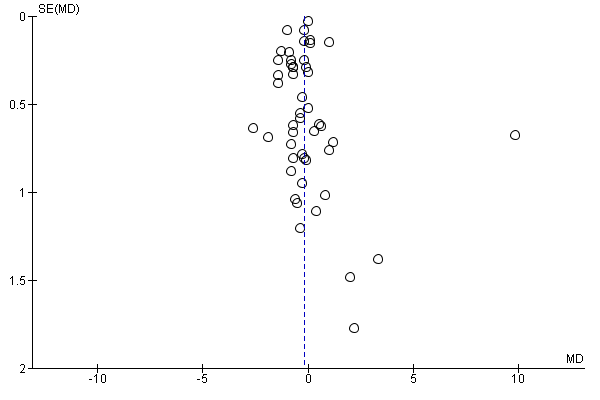
Supplementary Figure 8: Funnel plot for systolic blood pressure



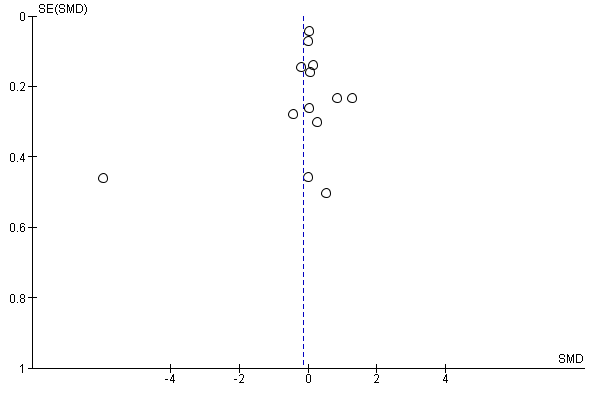
Supplementary Figure 9: Funnel plot for diastolic blood pressure



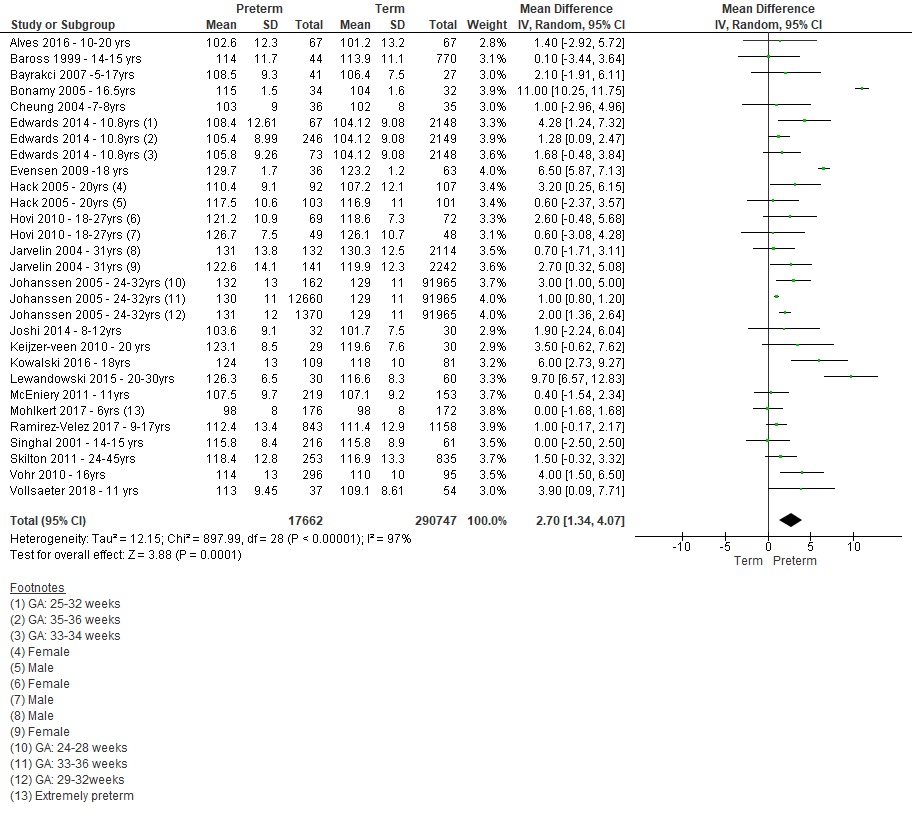
Supplementary Figure 10: Funnel plot for body mass index



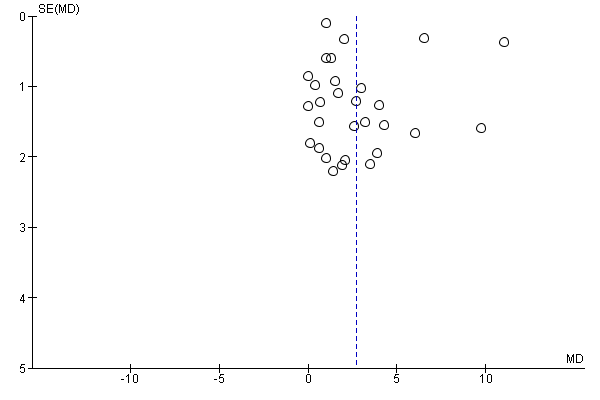
Supplementary Figure 11: Funnel plot for fasting blood glucose



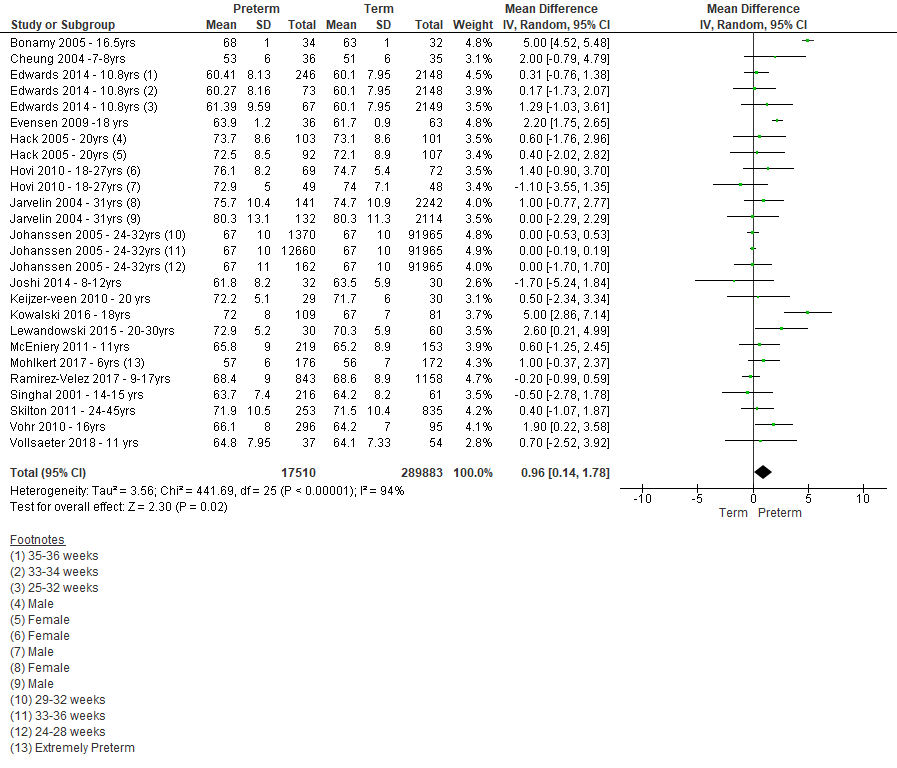
**Supplementary figure 12: Mean difference in systolic blood pressure between those born preterm and term (after excluding studies reporting results with large standard deviations)**



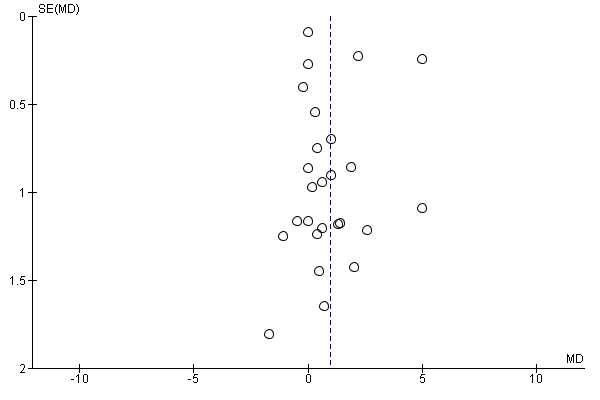
**Supplementary figure 13: Funnel plot for systolic blood pressure (after excluding studies reporting results with large standard deviations)**



**Supplementary figure 14: Mean difference in diastolic blood pressure between those born preterm and term (after excluding studies reporting results with large standard deviations)**



**Supplementary figure 15: Funnel plot for diastolic blood pressure (after excluding studies reporting results with large standard deviations)**



**Supplementary Table 1: Risk factors reported in studies not included in the meta-analyses**

|  |  |
| --- | --- |
| **Risk factor and study** | **Results** |
| **SBP (mmHg)** |  |
| Chan *et al*. 2010 | Term AGA - Median 103 (IQR 103-105) |
|  | Preterm AGA - Median 101 (IQR 101-107.5) |
| Cooper *et al*. 2009 | A reduction in SBP of 0.53mmHg (95% CI: 0.32, 0.75) for every 1-week increase in gestational age after adjusting for confounders |
| Hovi *et al*. 2016 | 3.4 mm Hg (95% confidence interval, 2.2–4.6) higher SBP among those born preterm compared to term after adjusting for confounders |
| Lee *et al*. 2014 | Increased compared to reference values; females 119±8, z score 1.23; males 118±11, z score 1.14 mm Hg) |
|  |  |
| **DBP (mmHg)** |  |
| Chan *et al*. 2010 | Term AGA - Median 60 (IQR 60-65) |
|  | Preterm AGA - Median 61 (IQR 60-70) |
| Cooper *et al*. 2009 | Those born < 37 weeks had 2.59 (1.19, 3.99) compared to those born at 40 weeks after adjusting for confounders |
| Hovi *et al.* 2016 | 2.1 mmHg (95% confidence interval, 1.3 - 3.0) higher DBP among those born preterm compared to term after adjusting for confounders |
|  |  |
| **BMI (kg/m2)** |  |
| Alves *et al.* 2016 | Obesity (BMI>97th percentile) among 13.4% of preterm compared to 11.9% of term |
| Darendeliler *et al.* 2008 | BMI SDS -0.5 ± 0.2 in preterm compared to 0.1 ± 0.2 in term |
| Hui *et al*. 2015 | Late preterm birth was not associated with BMI at age 14 years after adjusting for confounders |
| Morsing *et al.* 2014 | BMI SDS 0.2 ± 1.4 in preterm compared to 0.5 ± 1.1 in term |
| Crump *el al.* 2020 | Overweight (BMI 25.0 -29.9) term: 6.2%, very preterm:5.2%, extremely preterm:5.2%; Obese (BMI>30.0) term:1.5%, very preterm:1.8%, extremely preterm:2.2% |
| **Total cholesterol** |  |
| Alves *et al.* 2016 | 145mg/dl in preterm vs 145.2mg/dl in term, p = 0.95 |
| Cooper *et al*. 2009 | A reduction of 0.02mmol/l for every 1-week increase in gestational age after adjusting for confounders in women |
|  |  |
| **LDL** |  |
| Alves *et al.* 2016 | 86.9 mg/dl in preterm vs 85.2 mg/dl in term, p = 0.43 |
| Cooper *et al.* 2009 | No association |
|  |  |
| **HDL** |  |
| Alves *et al*. 2016 | 42.7 mg/dl in preterm vs 44.9 mg/dl in term, p = 0.23 |
| Cooper *et al.* 2009 | No association |
|  |  |
| **TG** |  |
| Alves *et al.* 2016 | 75.1 mg/dl in preterm vs 73.2 mg/dl in term, p = 0.61 |
| Cooper *et al*. 2009 | No association |
|  |  |
| **Glocose** |  |
| Alves *et al.* 2016 | 79.0 mg/dl in preterm vs 82.4 mg/dl in term, p = 0.37 |
|  |  |
| **Insulin** |  |
| Hofman *et al.*2004 | 26pmol/l (95% CI 17.5-41.0) in preterm vs 32.3pmol/l (25.0-41.7) in term, NS |
|  |  |

**Supplementary table 2: Quality assessment of included studies**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Study** | **Selection** | | | | **Comparability** | **Exposure** | | | **Total Score** |
| 1 | 2 | 3 | 4 | 1 | 1 | 2 | 3 |
| Alves et al 2016 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Baross et al 1999 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Bassareo et al 2010 | a\* | a\* | b | a\* | a\* | a\* | a\* | c | 6 out of 8 |
| Bayrakci et al 2007 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Bonamy et al 2005 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | b | 6 out of 8 |
| Bonamy et al 2007 | a\* | a\* | b | b | a+b\*\* | a\* | a\* | b | 6 out of 8 |
| Chan et al 2010 | a\* | a\* | b | b | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Cheung et al 2004 | a\* | a\* | a\* | a\* | a+b\*\* | a\* | a\* | b | 6 out of 8 |
| Cohen et al 2007 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Cooper et al 2009 | a\* | a\* | a\* | a\* | a+b\*\* | a\* | a\* | b | 6 out of 8 |
| Dalziel et al 2007 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | b | 6 out of 8 |
| Mathai et al 2013 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Darendeliler et al 2008 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Doyle et al 2003 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Edwards et al 2014 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Evensen et al 2009 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Farooqi et al 2006 | a\* | a\* | b | a\* | a\* | a\* | a\* | c | 6 out of 8 |
| Fewtreil et al 2004 | c | a\* | b | a\* | a\* | a\* | a\* | c | 5 out of 8 |
| Lewandowski et al 2011 | c | a\* | b | a\* | a\* | a\* | a\* | c | 5 out of 8 |
| Singhal et al 2001 | c | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Singhal et al 2003 | a\* | a\* | a\* | a\* | a\* | a\* | a\* | c | 7 out of 8 |
| Gianni et al 2015 | a\* | a\* | b | a\* | a\* | a\* | a\* | c | 6 out of 8 |
| Goldani et al 2007 | a\* | a\* | b | a\* | a\* | a\* | a\* | c | 6 out of 8 |
| Gunay et al 2014 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Hack et al 2003 | a\* | a\* | b | a\* | a\* | a\* | a\* | c | 6 out of 8 |
| Hack et al 2005 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Hofman et al 2004 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Hovi et al 2007 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Hovi et al 2010 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Hovi et al 2011 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | b | 6 out of 8 |
| Kajantie et al 2015 | a\* | a\* | b | a\* | a\* | a\* | a\* | c | 6 out of 8 |
| Hovi et al 2016 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Hui et al 2015 | a\* | a\* | b | a\* | a\* | a\* | a\* | b | 6 out of 8 |
| Huke et al 2013 | a\* | a\* | a\* | a\* | a\* | a\* | a\* | c | 7 out of 8 |
| Irving et al 2000 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Jarvelin et al 2004 | a\* | a\* | b | a\* | a+b\*\* | a\* | b | c | 5 out of 8 |
| Johanssen et al 2005 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Joshi et al 2014 | a\* | a\* | a\* | a\* | a+b\*\* | a\* | a\* | c | 7 out of 8 |
| Kaijser et al 2009 | a\* | a\* | b | b | a+b\*\* | a\* | a\* | c | 5 out of 8 |
| Keizer-Veen et al 2010 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | b | 6 out of 8 |
| Rotteveel et al 2008 | a\* | a\* | b | a\* | a+b\*\* | e | a\* | c | 5 out of 8 |
| Rotteveel et al 2011 | a\* | a\* | b | b | a+b\*\* | a\* | a\* | c | 5 out of 8 |
| Kistner et al 2000 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Kistner et al 2004 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Kowalski et al 2016 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Kwinta et al 2011 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Lee et al 2014 | c | a\* | b | a\* | a+b\*\* | a+b\*\* | a\* | b | 4 out of 8 |
| Lewandowski et al 2015 | c | a\* | c | a\* | a+b\*\* | a\* | a\* | c | 5 out of 8 |
| Lazdam et al 2010 | a\* | a\* | b | b | a+b\*\* | a | a\* | c | 4 out of 8 |
| McEinery et al 2011 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | b | 6 out of 8 |
| Bolton et al 2012 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | b | 7 out of 8 |
| Bracewell et al 2008 | a\* | a\* | b | a\* | a+b\*\* | a\* | a\* | b | 6 out of 8 |
| Mikkola et al 2007 | a\* | a\* | a\* | b | a\* | a\* | a\* | c | 6 out of 8 |
| Mohlkert et al 2017 | a\* | a\* | b | b | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Bonamy et al 2012 | a\* | b | a\* | b | a+b\*\* | a\* | a\* | b | 5 out of 8 |
| Morsing et al 2014 | a\* | a\* | b | b | a+b\*\* | a\* | a\* | b | 5 out of 8 |
| Oren et al 2003 | b | a\* | c | b | a\* | a\* | b | c | 3 out of 8 |
| Pilgaard et al 2010 | a\* | a\* | a\* | b | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Ramirez-Velez et al 2017 | a\* | a\* | c | b | a+b\*\* | a\* | a\* | c | 5 out of 8 |
| Rossi et al 2011 | a\* | a\* | a\* | a\* | a+b\*\* | a\* | a\* | b | 7 out of 8 |
| Tauzin et al 2014 | a\* | a\* | a\* | a\* | a+b\*\* | a\* | a\* | c | 7 out of 8 |
| Saigal et al 2006 | b | a\* | a\* | b | a+b\*\* | a\* | a\* | c | 5 out of 8 |
| Schubert et al 2013 | a\* | a\* | b | b | a+b\*\* | a\* | a\* | c | 5 out of 8 |
| Shimizu et al 2014 | a\* | b | a\* | b | a\* | a\* | a\* | c | 5 out of 8 |
| Sipola-Leppanen et al 2014 | a\* | a\* | a\* | b | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Sipola-Leppanen et al 2014 | a\* | a\* | a\* | b | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Skilton et al 2011 | a\* | a\* | a\* | a\* | a+b\*\* | a\* | a\* | c | 7 out of 8 |
| Hussain et al 2015 | a\* | a\* | a\* | b | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Juonala et al 2015 | a\* | a\* | a\* | b | a+b\*\* | a\* | a\* | c | 6 out of 8 |
| Steen et al 2015 | c | a\* | a\* | b | a+b\*\* | a\* | a\* | b | 5 out of 8 |
| Thomas et al 2011 | a\* | a\* | c | b | a+b\*\* | a\* | b | c | 4 out of 8 |
| Toumba et al 2005 | a\* | b | b | b | a\* | a\* | a\* | c | 4 out of 8 |
| Vohr et al 2010 | c | a\* | a\* | b | a+b\*\* | a\* | a\* | c | 5 out of 8 |
| Willemsen et al 2009 | a\* | a\* | a\* | a\* | a+b\*\* | a\* | a\* | c | 7 out of 8 |
| Vollsaeter et al 2018 | c | a\* | a\* | b | a+b\*\* | a\* | a\* | b | 5 out of 8 |