Web Appendix 1. Search Terms.

The search terms were adapted to each service provider and database, and were composed of a combination of the following (or related) terms: B12 and pregnancy and birth weight or length of gestation. We added restriction terms excluding review articles, intervention studies and case reports, studies evaluating adults, children (other than infants), rodents, and patients with anemia. We used a combination of controlled vocabulary terms and free text words.

**Pubmed**


**OvidSP Medline**

(exp Vitamin B 12/ or b12.tw or B 12.tw or cobalamin*.tw) and (pregnan*.tw or exp Pregnancy/ or gestation*.tw or exp Fetus/ or fetus*.tw or fetal*.tw or foetus*.tw or foetal*.tw or exp Fetal Development/ or exp Infant, Newborn/) and (exp Infant, Low Birth Weight/ or exp Birth Weight/ or birth weight.tw or birthweight.tw or SGA.tw or exp Fetal Growth Retardation/ or IUGR.tw or growth restriction.tw or growth retardation.tw or small for gestational age.tw or small for date.tw or exp Infant, Premature/ or exp Premature Birth/ or exp Gestational Age/ or preterm.tw or prematur*.tw or gestational age.tw or length of gestation.tw or duration of pregnancy.tw) not (review/ or exp child/ or exp aged/ or exp case report/ or exp clinical trial/ or exp rodentia/ or exp anemia/)

**OvidSP Embase**

(exp cyanocobalamin/ or exp cyanocobalamin deficiency/ or exp cobalamin derivative/ or exp cobalamin/ or b12.tw or b 12.tw or cobalamin*.tw) and (pregnan*.tw or exp pregnancy/ or gestation*.tw or exp fetus/ or fetus*.tw or
fetal*.tw or foetus*.tw or foetal*.tw or exp fetus growth/ or exp newborn/) and (exp birth weight/ or birthweight.tw or birth weight.tw or SGA.tw or exp intrauterine growth retardation/ or IUGR.tw or growth restriction.tw or growth retardation.tw or small for gestational age.tw or small for date.tw or exp prematurity/ or exp premature labor/ or exp gestational age/ or preterm.tw or premature.tw or gestational age.tw or length of gestation.tw or duration of pregnancy.tw) not (exp review/ or exp case report/ or exp aged/ or exp anemia/ or exp clinical trial/ or exp rodent/)

**OvidSP Global Health**

(exp vitamin b12/ or b12.tw or b 12.tw or cobalamin*.tw) and (pregnan*.tw or exp pregnancy/ or gestation*.tw or exp fetus/ or fetus*.tw or fetal*.tw or foetus*.tw or foetal*.tw or exp fetal development/ or exp neonates/) and (exp low birth weight infants/ or exp birth weight/ or birthweight.tw or birth weight.tw or sga.tw or exp growth retardation/ or iugr.tw or growth restriction.tw or growth retardation.tw or small for gestational age.tw or small for date.tw or exp prematurity/ or exp premature infants/ or exp gestation period/ or preterm.tw or prematur*.tw or gestational age.tw or length of gestation.tw or duration of pregnancy.tw) not (exp reviews/ or exp elderly/ or exp case reports/ or exp clinical trials/ or exp rodents/ or anaemia.sh)

**EBSCO-host CINAHL**

((MH "Vitamin B 12") OR (MH "Vitamin B12 Deficiency+") OR b12 OR "b 12" OR cobalamin*) AND (pregnan* OR (MH "Pregnancy+") OR gestation* OR (MH "Fetus+") OR fetus* OR foetus* OR foetal* OR fetal* OR (MH "Infant, Newborn+")) AND ((MH "Infant, Low Birth Weight+") OR (MH "Birth Weight") OR birthweight OR "birth weight" OR SGA OR (MH "Fetal Growth Retardation") OR IUGR OR "growth restriction" OR "growth retardation" OR "small for gestational age" OR "small for date" OR (MH "Infant, Premature") OR (MH "Childbirth, Premature") OR (MH "Gestational Age") OR preterm OR prematur* OR "gestational age" OR "length of gestation" OR "duration of pregnancy") NOT ((MH "Literature Review+") OR (MH "Child, Preschool") OR (MH "Aged+") OR (MH "Case Studies") OR (MH "Clinical Trials+") OR (MH "Rodents+") OR (MH "Anemia+"))

**SCOPUS**

(TITLE-ABS-KEY(b12 OR "b 12" OR cobalamin*)) AND (TITLE-ABS-KEY(pregnan* OR gestation* OR fetus* OR fetal* OR foetus* OR foetal* OR newborn*)) AND (TITLE-ABS-KEY("birth weight" OR "birthweight" OR sga OR "growth retardation" OR "growth restriction" OR iugr OR "small for gestational age" OR "small for date" OR preterm OR prematur* OR "gestational age" OR "length of gestation" OR "duration of pregnancy")) AND (EXCLUDE(DOCTYPE,"re")) AND NOT ((TITLE(anemi* OR anaemi*)) OR (TITLE-ABS-KEY(mouse OR mice OR rat OR rats OR rodent*)))
Web of Knowledge

#1: (TS=(b12 OR "b 12" OR cobalamin*)) AND (TS=(pregnan* OR gestation* OR fetus* OR fetal* OR foetus* OR foetal* OR newborn*)) AND (TS=("birth weight" OR "birthweight" OR sga OR "growth retardation" OR "growth restriction" OR iugr OR "small for gestational age" OR "small for date" OR preterm OR prematur* OR "gestational age" OR "length of gestation" OR "duration of pregnancy")) NOT ((TI=(anemi* OR anaemi*)) OR (TS=(mouse OR mice OR ra OR rats OR rodent*)))

#2: Restrict #1 to reviews

#3: #1 NOT #2

A multivariable model was applied adjusting for maternal age, BMI (or weight when BMI was unavailable) and parity. When IPD was not provided, we requested results from the following reanalyses of original studies: the association of B12 (SD score) with birth weight, gestational age at delivery, LBW and preterm birth; and the association of B12-deficiency with birth weight, LBW and preterm birth. Results were provided for both crude analyses, and two different multivariable analyses (adjusting for maternal age, BMI and parity; and adjusting for maternal age, BMI, parity and smoking habits). When neither IPD nor results from requested reanalyzes were available, we extracted relevant results from the publications.

We stratified our analysis for the following a priori subgroup and sensitivity analyses: trimester of B12 measurement (four strata: 1st, 2nd, 3rd trimesters, and 1st and 2nd trimesters combined), country income category (high-income versus low- and middle-income countries, as defined by The World Bank), risk of bias (high risk versus moderate or low risk of bias), and excluding each of the studies one by one. Additional sensitivity analyses that were carried out: overweight status (BMI ≥25 kg/m² versus BMI<25 kg/m²), B12 assay technique (radioimmunoassay, electroluminescence, microbiological), alternative multivariable models (e.g. a more saturated model including maternal education and smoking habits in addition to the main model), fixed effects model, Poisson regression with non-robust error variance, logistic regression model (dichotomous outcomes), and by excluding studies that only evaluated newborns born at term.

References:

<table>
<thead>
<tr>
<th>Study</th>
<th>Main Objectives</th>
<th>Country</th>
<th>Year(s)</th>
<th>B12 Measurement</th>
<th>Analysis Method(s)</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karakanza, 2008 (36)</td>
<td>Studied changes in iron status in relation to pregnancy outcomes (including IUGR), inflammation in relation to pregnancy outcomes, and homocysteine levels.</td>
<td>Greece</td>
<td>2004-2006</td>
<td>NA</td>
<td>NA</td>
<td>392</td>
</tr>
<tr>
<td>Lee, 2014 (38)</td>
<td>Studied iron status in relation to pregnancy outcomes.</td>
<td>USA</td>
<td>2006-2012</td>
<td>RIA, T2, T3</td>
<td>2006-2012</td>
<td>43</td>
</tr>
</tbody>
</table>

NA = not available; ECL, electroluminescence; RIA, radioimmunoassay; T2, 2nd trimester; T3, 3rd trimester.

ECL, not all eligible; RIA, radioimmunoassay; T2, 2nd trimester; T3, 3rd trimester.

Studies are referred to according to their citation number in the text. ECL, electroluminescence; IUGR, intrauterine growth restriction; n, number of pregnancies; NA, not available; RIA, radioimmunoassay; T2, 2nd trimester; T3, 3rd trimester.

*ECL, electroluminescence; IUGR, intrauterine growth restriction; n, number of pregnancies; NA, not available; RIA, radioimmunoassay; T2, 2nd trimester; T3, 3rd trimester.**

Studies included: appropriate data and results were not available in the original report, and when no association between B12 and birth weight or length of gestation was provided, appropriate data and results were not included in the systematic review of the meta-analysis when individual patient data from requested reanalyses were not NA, not available; RIA, radioimmunoassay; T2, 2nd trimester; T3, 3rd trimester.

Studies are referred to according to their citation number in the text. ECL, electroluminescence; IUGR, intrauterine growth restriction; n, number of pregnancies; NA, not available; RIA, radioimmunoassay; T2, 2nd trimester; T3, 3rd trimester.

*ECL, not all eligible; RIA, radioimmunoassay; T2, 2nd trimester; T3, 3rd trimester.**

Studies included: appropriate data and results were not available in the systematic review of the meta-analysis when individual patient data from requested reanalyses were not NA, not available; RIA, radioimmunoassay; T2, 2nd trimester; T3, 3rd trimester.
Risk of Bias of Studies Included in the Meta-Analysis

<table>
<thead>
<tr>
<th>Study</th>
<th>Bias 1</th>
<th>Bias 2</th>
<th>Bias 3</th>
<th>Bias 4</th>
<th>Bias 5</th>
<th>Bias 6</th>
<th>Bias 7</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baker, 2009 (18)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Bergen, 2012 (19)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Bhate, 2012 (20)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Chen, 2015 (21)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Dayaldasani, 2014 (22)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Dwarkanath, 2013 (23)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Halicioglu, 2012 (25)</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Hay, 2010 (26)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Hogeveen, 2010 (27)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Kaymaz, 2011 (28)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Krishnaveni, 2013 (29)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Mamabolo, 2006 (30)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Relton, 2005 (31)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Sukumar, 2011 (32)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Takimoto, 2007 (33)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Wu, 2013 (34)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Yajnik, 2008 (35)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

Each item was scored "1" (i.e. "yes"), "0" (i.e. "no") or "?" (i.e. "uncertain"), where only the answer "1" scored 1 point. The following questions were evaluated: 1: Was B12 ascertained irrespective of the risk of low birth weight birth or preterm birth, and otherwise not prone to selection bias? 2: Was the study controlled for maternal body mass index or weight either by matching or by statistical methods? In addition because of potential over-adjustment, if a study adjusted for levels of folate, homocysteine or methylmalonic acid, they earned no point on this item (even if they had adjusted for two or more of the mentioned confounders); 3: Was the exposed cohort truly or somewhat representative of the average pregnant population in the community? 4: Was the study controlled for maternal age, parity, socioeconomic status, smoking habits, ethnicity, vegetarian status or B12 supplement use (at least two of these) either by matching or by statistical methods? In addition because of potential over-adjustment, they earned no point on this item (even if they had adjusted for two or more of the mentioned confounders); 5: Did the women with B12-deficiency receive the same follow-up and interventions as the women with B12-depletion? 6: Did the women with B12-deficiency receive the same follow-up and interventions as the non-deficient women? 7: Was the outcome assessed by independent or blind assessment, or by secure records or record linkage?
| Timepoint of B12 measurement | Crude model | Adjusting for maternal age, parity, BDI or weight, smoking and
| | Fixed effects model | Adjusting for weight among those with BMI
| | | Adjusting for BMI among those with weight
| | | Adjusting for BMI among those with weight and smoking
| | | Adjusting for maternal age, parity, BDI or weight and smoking
| | | Adjusting for maternal age, parity, BDI or weight
| | | Adjusting for maternal age, parity
| | | Adjusting for maternal age
| | | Adjusting for maternal
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analyses of B12
| | | Analy...
Table 3. Continued

<table>
<thead>
<tr>
<th>Maternal BMI</th>
<th>Mean difference (95% CI) in birth weight (g) per 1 SD increase in maternal B12</th>
<th>Pooled results of the mean difference (95% CI) in birth weight (g) per 1 SD increase in maternal B12</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI &lt; 25 kg/m²</td>
<td>1.84 (1.76, 2.25)</td>
<td>6.31 (2.27, 2.39)</td>
</tr>
<tr>
<td>BMI ≥ 25 kg/m²²</td>
<td>2.72 (2.35, 4.15)</td>
<td>6.54 (2.39, 4.15)</td>
</tr>
</tbody>
</table>

BMI, body mass index; CI, confidence interval; SD, standard deviation.

a, BMI and weight (if missing BMI) as continuous covariates;
b, continuous covariate;
c, nulliparous (yes/no);
d, smoking during pregnancy (yes/no);
e, completed high school (yes/no);
f, completed high school (yes/no).

Sukumar 2011 measured n=162 by radioimmunoassay and n=27 by electrophoresis assay.
### B12 Deficiency and B12 Tertiles in Relation to Birth Weight

<table>
<thead>
<tr>
<th>B12 Tertiles</th>
<th>Number of studies</th>
<th>Number of pregnancies</th>
<th>Number of exposed</th>
<th>Mean difference in birth weight (g) in exposed versus non-exposed</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest tertile (i.e. exposed)</td>
<td>10</td>
<td>1795</td>
<td>9,542</td>
<td>3.32</td>
<td>18.9</td>
</tr>
<tr>
<td>Intermediate tertile (i.e. exposed)</td>
<td>13</td>
<td>3058</td>
<td>542</td>
<td>2.84</td>
<td>8.27</td>
</tr>
<tr>
<td>Highest tertile (i.e. exposed)</td>
<td>11</td>
<td>1739</td>
<td>308</td>
<td>1.23</td>
<td>4.86</td>
</tr>
</tbody>
</table>

Pooled results of the mean difference in birth weight (g) in exposed versus non-exposed pregnant women. All analyses are random effects models and include maternal age, body mass index (weight if missing body mass index), and parity (nulliparous yes/no). Studies included in the analyses are referred to according to their citation number in the text. CI, confidence interval; IPD, individual participant data. CI, confidence interval; IPD, individual participant data.

**Notes:**
- B12 deficiency defined as <148 pmol/L except for Halicioglu 2012 (<118 pmol/L).
- Studies included in the analyses are referred to according to their citation number in the text. CI, confidence interval; IPD, individual participant data.

**Table 4. B12 deficiency and B12 tertiles in relation to birth weight**
Funnel plot of studies evaluating the association between vitamin B12 and birth weight after adjustment for maternal age, parity and body mass index or weight. Individual studies are represented by solid dots, and the pseudo-95% confidence interval by broken lines.
**Metanalysis of studies of the association between vitamin B12 and the risk of preterm birth after adjustment for maternal age, parity and body mass index or weight. Effect estimates are expressed as risk ratios of preterm birth per one standard deviation increase of vitamin B12. CI, confidence interval; n, number pregnancies; RR, risk ratio.**
<table>
<thead>
<tr>
<th>Analysis</th>
<th>Number of studies</th>
<th>Number of premature births</th>
<th>Number of premature births per 1 SD increase in B12 (95% CI)</th>
<th>Pooled OR (95% CI)</th>
<th>Web TABLE S. Pooled Results From Subgroup and Sensitivity Analyses of B12 SD Score and the Risk of Preterm Birth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle or low income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Measurement technique**

- Microbiologic assay
- Enzyme immunoassay
- Radioimmunoassay

**Trimester of B12 measurement**

- 1st trimester
- 2nd trimester
- 3rd trimester

**Number of studies**

- 23, 28, 29, 32, 35

**Number of premature births**

- 0
- 1
- 2

**Number of premature births per 1 SD increase in B12 (95% CI)**

- 0.88 (0.76, 1.02)
- 0.87 (0.74, 1.02)
- 0.83 (0.73, 1.02)
- 0.00 (0.78, 1.02)
- 0.13 (0.78, 1.02)

**Pooled OR (95% CI)**

- 2.074 (1.802, 2.371)
- 2.074 (1.802, 2.371)
- 2.074 (1.802, 2.371)
- 2.074 (1.802, 2.371)
- 2.074 (1.802, 2.371)
Pooled results of the risk ratio (95% CI) of preterm birth per 1 SD increase in maternal B12. All analyses are Poisson regression analyses with random effects, robust error variance and adjusted for the main model (maternal age, BMI (weight if missing BMI), and parity (nulliparous yes/no)) unless otherwise specified. Studies included in the analyses are referred to according to their citation number in the text. BMI, body mass index; CI, confidence interval; SD, standard deviation.

<table>
<thead>
<tr>
<th>Study</th>
<th>BMI &lt;25 kg/m²</th>
<th>BMI ≥25 kg/m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>26</td>
<td>89</td>
</tr>
<tr>
<td>19,21,22,28,29,32</td>
<td>24,13</td>
<td>200</td>
</tr>
<tr>
<td>0.90–0.99 (0.35–1.05)</td>
<td>2.91,2.90–2.93</td>
<td>4.72,4.70–4.73</td>
</tr>
<tr>
<td>24</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>0.90–0.99 (0.35–1.05)</td>
<td>2.91,2.90–2.93</td>
<td>4.72,4.70–4.73</td>
</tr>
</tbody>
</table>
Web Figure 3. Forest plot presenting the association between B12 and birth weight standard deviation (SD) scores. Meta-analysis of studies of the association between vitamin B12 and birth weight standard deviation scores (i.e., accounting for length of gestation and sex) after adjustment for maternal age, parity, and body mass index or weight. Effect estimate expressed as change in birth weight SD score per one standard deviation increase of vitamin B12. CI, confidence interval; n, number of pregnancies.
Pooled results of the mean difference in maternal B12 (pmol/L) in SGA versus non-SGA pregnancies. All analyses are random effects models and crude. Studies included in the analyses are referred to as follows: IPD, individual participant data; SGA, small-for-gestational-age.

<table>
<thead>
<tr>
<th>Analysis</th>
<th>Number of studies</th>
<th>Number of SGA births</th>
<th>Number of non-SGA births</th>
<th>Mean difference in B12 (pmol/L) IPD + aggregate</th>
<th>Mean difference in B12 (pmol/L) IPD</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>11.7 (±4.4) 11.7 (±4.4)</td>
<td>0.1 (±3.9) 0.1 (±3.9)</td>
<td>8.36 (±1.9) 8.36 (±1.9)</td>
<td>8.18 (±1.9) 8.18 (±1.9)</td>
</tr>
<tr>
<td>49</td>
<td></td>
<td>3.3 (±1.7) 3.3 (±1.7)</td>
<td>10.3 (±7.4) 10.3 (±7.4)</td>
<td>9.56 (±2.4) 9.56 (±2.4)</td>
<td>8.78 (±2.4) 8.78 (±2.4)</td>
</tr>
</tbody>
</table>