**Supplementary table 1.** Adjusted regression coefficients comparing offspring of obese vs normal weight mothers, including offspring of non diabetic or hypertensive mothers and including the overall sample.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Cohort 1982** | | **Cohort 1993** | | **Cohort 2004** | |
| Offspring of mothers who did not present gestational diabetes or hypertension | Overall | Offspring of mothers who did not present gestational diabetes or hypertension | Overall | Offspring of mothers who did not present gestational diabetes or hypertension | Overall |
| Body mass index (z score) | 0.65  (0.48 ; 0.81) | 0.67  (0.50 ; 0.84) | 0.65  (0.45 ; 0.85) | 0.71  (0.55 ; 0.86) | 0.83  (0.64 ; 1.01) | 0.89  (0.76 ; 1.03) |
| Waist circumference (cm) | 7.46  (5.33 ; 9.58) | 7.46  (5.33 ; 9.58) | 6.57  (4.16 ; 9.00) | 7.47  (5.58 ; 9.35) | 6.95  (5.17 ; 8.72) | 7.66  (6.32 ; 9.00) |
| Fat Mass Index (%) | 4.71  (2.68 ; 6.74) | 4.71  (2.68 ; 6.74) | 5.97  (3.29 ; 8.64) | 5.50  (3.44 ; 7.57) | 6.84  (4.82 ; 8.87) | 7.60  (6.09 ; 9.11) |
| Lean Mass Index (%) | -4.26  (-6.13 ; -2.39) | -4.26  (-6.13 ; -2.39) | -5.54  (-8.03 ; -3.06) | -5.07  (-6.99 ; -3.15) | -6.58  (-8.49 ; -4.67) | -8.68  (-8.68 ; -5.82) |

**Supplementary table 2.** Adjusted regression coefficient\* of the association of maternal pre-pregnancy nutritional status with offspring body composition and anthropometric measurements by physical activity, in three Pelotas birth cohort studies.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1st tertile Physical Activity ǂ** | | | | **2nd tertile Physical Activity ǂ** | | | | **3rd tertile Physical Activityǂ** | | | | **p-value for interaction** |
| **Maternal pre-pregnancy body mass index category** | | | | **Maternal pre-pregnancy body mass index category** | | | | **Maternal pre-pregnancy body mass index category** | | | |
| **Underweight** | **Normal weight** | **Overweight** | **Obese** | **Underweight** | **Normal weight** | **Overweight** | **Obese** | **Underweight** | **Normal weight** | **Overweight** | **Obese** |
| **β (95%CI)** |  | **β (95%CI)** | **β (95%CI)** | **β (95%CI)** |  | **β (95%CI)** | **β (95%CI)** | **β (95%CI)** |  | **β (95%CI)** | **β (95%CI)** |
| **1982 Cohort** | | | |  | | | |  | | | |  |
| **Body mass index (z score) p<0.001** | | | | **p<0.001** | | | | **p<0.001** | | | |  |
| -0.20  (-0.51; 0.11) | Ref. (0) | 0.37  (0.17; 0.57) | 0.85  (0.44; 1.25) | -0.49  (-0.74; -0.25) | Ref. (0) | 0.36  (0.18; 0.55) | 0.82  (0.51; 1.13) | -0.19  (-0.43; 0.04) | Ref. (0) | 0.38  (0.21; 0.55) | 0.55  (0.27; 0.82) | **0.66** |
| **Waist circumference (cm) p<0.001** | | | | **p<0.001** | | | | **p<0.001** | | | |  |
| -2.27  (-6.02; 1.49) | Ref. (0) | 5.13  (2.68; 7.58) | 9.77  (4.82; 14.72) | -5.38  (-8.55; -2.21) | Ref. (0) | 4.01  (1.65; 6.37) | 8.10  (4.09; 12.11) | -2.47  (-5.511; 0.58) | Ref. (0) | 4.07  (1.86; 6.28) | 7.21  (3.64; 10.78) | **0.85** |
| **Fat mass index (%) p=0.076** | | | | **p<0.001** | | | | **p=0.047** | | | |  |
| -1.95  (-5.26; 1.37) | Ref. (0) | 2.36  (0.16; 4.56) | 2.37  (-2.15; 6.89) | -3.69  (-6.50; -0.71) | Ref. (0) | 4.96  (2.79; 7.13) | 7.90  (4.17; 11.64) | -1.07  (-4.09; 1.95) | Ref. (0) | 2.60  (0.38; 4.83) | 3.00  (-0.65; 6.65) | **0.99** |
| **Lean mass index (%) p=0.097** | | | | **p<0.001** | | | | **p=0.053** | | | |  |
| 1.72  (-1.34; 4.77) | Ref. (0) | -2.09  (-4.11; -0.06) | -2.09  (-6.25; 2.07) | 3.41  (0.73; 6.09) | Ref. (0) | -4.67  (-6.68; -2.66) | -7.37  (-10.82; -3.91) | 1.04  (-1.74; 3.81) | Ref. (0) | -2.36  (-4.40; -0.31) | -2.64  (-6.00; 0.71) | **0.99** |
| **Height (cm) p=0.790** | | | | **p=0.941** | | | | **p=0.903** | | | |  |
| -0.70  (-3.39; 1.99) | Ref. (0) | 0.73  (-1.00; 2.47) | 0.07  (-3.44; 3.57) | 0.68  (-1.61; 2.97) | Ref. (0) | 0.19  (-1.51; 1.90) | 0.34  (-2.56; 3.24) | 0.04  (-2.37; 2.44) | Ref. (0) | 0.38  (-1.37; 2.13) | 0.98  (-1.84; 3.79) | **0.94** |
| **1993 Cohort** | | | |  | | | |  | | | |  |
| **Body mass index (z score) p<0.001** | | | | **p<0.001** | | | | **p<0.001** | | | |  |
| -0.49  (-0.77; -0.21) | Ref. (0) | 0.37  (0.16; 0.57) | 0.74  (0.25; 1.23) | -0.48  (-0.70; -0.26) | Ref. (0) | 0.44  (0.26; 0.61) | 0.98  (0.65; 1.31) | -0.37  (-0.57; 0.16) | Ref. (0) | 0.49  (0.32; 0.66) | 0.32  (-0.02; 0.66) | **0.28** |
| **Waist circumference (cm) p<0.001** | | | | **p<0.001** | | | | **p<0.001** | | | |  |
| -4.22  (-7.55; -0.90) | Ref. (0) | 3.43  (0.99; 5.88) | 7.33  (1.75; 12.92) | -4.66  (-7.34; -1.98) | Ref. (0) | 4.60  (2.43; 6.77) | 8.86  (4.77; 12.96) | -3.84  (-6.32; -1.37) | Ref. (0) | 5.52  (3.44; 7.60) | 3.10  (-1.06; 7.26) | **0.16** |
| **Fat mass index (%) p=0.001** | | | | **p<0.001** | | | | **p=0.025** | | | |  |
| -4.39  (-7.54; -1.25) | Ref. (0) | 1.74  (-0.59; 4.08) | 6.73  (0.87; 12.59) | -6.35  (-9.16; -3.54) | Ref. (0) | 3.20  (0.87; 5.53) | 8.61  (4.34; 12.88) | -1.57  (-4.57; 1.43) | Ref. (0) | 3.33  (0.77; 5.88) | 3.02  (-2.02; 8.05) | **0.48** |
| **Lean mass index (%) p=0.001** | | | | **p<0.001** | | | | **p=0.026** | | | |  |
| 4.12  (1.19; 7.04) | Ref. (0) | -1.63  (-3.80; 0.54) | -6.32  (-11.77; -0.86) | 5.86  (3.24; 8.48) | Ref. (0) | -2.90  (-5.07; -0.73) | -8.13  (-12.10;-4.15) | 1.40  (-1.37; 4.17) | Ref. (0) | -3.07  (-5.44; -0.71) | -2.76  (-7.42; 1.90) | **0.46** |
| **Height (cm) p=0.141** | | | | **p=0.084** | | | | **p=0.045** | | | |  |
| 2.68  (0.22; 5.14) | Ref. (0) | -0.20  (-2.01; 1.61) | -1.55  (-5.61; 2.49) | 2.51  (0.29; 4.73) | Ref. (0) | -0.31  (-2.10; 1.49) | -1.79  (-5.18; 1.61) | -2.47  (-4.66; -0.28) | Ref. (0) | 1.34  (-0.50; 3.18) | 0.71  (-2.96; 4.39) | **0.01** |
| **2004 Cohort** | | | |  | | | |  | | | |  |
| **Body mass index (z score) p <0.0001** | | | | **p <0.0001** | | | | **p <0.0001** | | | |  |
| -0.46  (-0.81; -0.10) | Ref. (0) | 0.29  (0.07; 0.50) | 0.95  (0.61; 1.29) | -0.58  (-0.88; -0.28) | Ref. (0) | 0.32  (0.11; 0.52) | 0.66  (0.32; 1.01) | -0.29  (-0.54; -0.03) | Ref. (0) | 0.32  (0.14; 0.49) | 0.71  (0.44; 0.98) | **0.99** |
| **Waist circumference (cm) p<0.001** | | | | **p <0.0001** | | | | **p <0.0001** | | | |  |
| -3.41  (-6.87; 0.05) | Ref. (0) | 2.83  (0.71; 4.95) | 7.72  (4.44; 11.00) | -6.19  (-9.17; -3.21) | Ref. (0) | 3.42  (1.38; 5.46) | 6.21  (2.82; 9.59) | -3.78  (-6.35; -1.21) | Ref. (0) | 2.89  (1.07; 4.70) | 6.19  (3.50; 8.87) | **0.91** |
| **Fat mass index (%) p<0.001** | | | | **p <0.0001** | | | | **p <0.0001** | | | |  |
| -5.58  (-8.94; -2.22) | Ref. (0) | 3.44  (1.36; 5.51) | 5.75  (2.50; 9.01) | -6.67  (-9.83; -3.51) | Ref. (0) | 4.07  (1.91; 6.23) | 5.66  (2.01; 9.30) | -3.35  (-6.48; -0.22) | Ref. (0) | 2.75  (0.54; 4.96) | 8.81  (5.46; 12.16) | **0.29** |
| **Lean mass index (%) p<0.001** | | | | **p <0.0001** | | | | **p <0.0001** | | | |  |
| 5.19  (1.98; 8.39) | Ref. (0) | -3.47  (-5.45; -1.50) | -5.56  (-8.66; -2.45) | 6.38  (3.34; 9.42) | Ref. (0) | -3.79  (-5.87; -1.71) | -6.04  (-2.60; -0.40) | 3.28  (0.29; 6.27) | Ref. (0) | -2.67  (-4.78; -0.56) | -8.09  (-11.22;-4.97) | **0.34** |
| **Height (cm) p=0.230** | | | | **P=0.090** | | | | **P=0.002** | | | |  |
| 0.62  (-1.92; 3.15) | Ref. (0) | 1.42  (-0.14; 2.99) | 1.65  (-0.75; 4.05) | -1.28  (-3.62; 1.07) | Ref. (0) | 1.75  (0.15; 3.35) | 0.82  (-1.88; 3.52) | -3.42  (-5.46; -1.38) | Ref. (0) | 0.71  (-0.72; 2.16) | 1.38  (-0.80; 3.56) | **0.26** |

\*Adjusted: family income at birth, maternal schooling, maternal age, parity and maternal smoking during pregnancy.

**Supplementary table 3.** Adjusted regression coefficient\* of the association of maternal pre-pregnancy nutritional status with offspring body composition and anthropometric measurements by diet, in three Pelotas birth cohort studies.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Non-High Fat Diet**ǂ | | | | **High Fat Diet**ǂ | | | | **p-value for interaction** |
| **Maternal pre-pregnancy body mass index category** | | | | **Maternal pre-pregnancy body mass index category** | | | |
| **Underweight** | **Normal weight** | **Overweight** | **Obese** | **Underweight** | **Normal weight** | **Overweight** | **Obese** |
| **β (95%CI)** |  | **β (95%CI)** | **β (95%CI)** | **β (95%CI)** |  | **β (95%CI)** | **β (95%CI)** |
| **1982 Cohort** | | | |  | | | |  |
| **Body mass index (z score) p<0.001** | | | | **p<0.001** | | | |  |
| -0.22 (-0.43; -0.01) | Ref. (0) | 0.38 (0.25; 0.51) | 0.54 (0.30; 0.78) | -0.38 (-0.56; -0.51) | Ref. (0) | 0.38 (0.25; 0.51) | 0.81 (0.57; 1.05) | **0.29** |
| **Waist circumference (cm) p<0.001** | | | | **p<0.001** | | | |  |
| -2.91 (-5.64; -0.17) | Ref. (0) | 4.11 (2.39; 5.82) | 6.27 (3.21; 9.33) | -4.09 (-6.35; -1.82) | Ref. (0) | 4.35 (2.69; 6.01) | 8.80 (5.82; 11.77) | **0.53** |
| **Fat mass index (%) p<0.001** | | | | **p<0.001** | | | |  |
| -0.98 (-3.37; 1.40) | Ref. (0) | 3.48 (1.94; 5.01) | 4.76 (1.99; 7.53) | -2.83 (-5.00; -0.66) | Ref. (0) | 3.08 (1.47; 4.68) | 4.67 (1.74; 7.61) | **0.64** |
| **Lean mass index (%) p<0.001** | | | | **p<0.001** | | | |  |
| 1.00 (-1.20; 3.19) | Ref. (0) | -3.21 (-4.63; -1.80) | -4.27 (-6.82; -1.73) | 2.57 (0.57; 4.57) | Ref. (0) | -2.85 (-4.33 -1.37) | -4.26 (-6.97; -1.56) | **0.69** |
| **Height (cm) p=0.979** | | | | **P=0.955** | | | |  |
| -0.17 (-2.18; 1.84) | Ref. (0) | 0.03 (-1.24; 1.29) | -0.45 (-2.71; 1.81) | -0.38 (-2.01; 1.26) | Ref. (0) | 0.02 (-1.18; 1.22) | 0.35 (-1.79; 2.50) | **0.94** |
| **1993 Cohort** | | | |  | | | |  |
| **Body mass index (z score) p=0.002** | | | | **p<0.001** | | | |  |
| -0.37 (-0.69; -0.05) | Ref. (0) | 0.23 (-0.01; 0.47) | 0.59 (0.11; 1.07) | -0.48 (-0.61; -0.34) | Ref. (0) | 0.47 (0.36; 0.57) | 0.67 (0.45; 0.89) | **0.46** |
| **Waist circumference (cm) p=0.001** | | | | **p<0.001** | | | |  |
| -4.03 (-7.82; -0.23) | Ref. (0) | 3.19 (0.38; 5.99) | 7.01 (1.34; 12.68) | -4.66 (-6.29; -3.04) | Ref. (0) | 4.99 (3.69; 6.29) | 6.56 (3.89; 9.24) | **0.80** |
| **Fat mass index (%) p=0.134** | | | | **p<0.001** | | | |  |
| -3.47 (-8.10; 1.16) | Ref. (0) | 2.84 (-0.60; 6.27) | 0.95 (-6.07; 7.97) | -4.98 (-6.70; -3.26) | Ref. (0) | 3.01 (1.61; 4.42) | 7.09 (4.20; 9.97) | **0.50** |
| **Lean mass index (%) p=0.149** | | | | **p<0.001** | | | |  |
| 2.98 (-1.33; 7.29) | Ref. (0) | -2.69 (-5.89; 0.50) | -0.91 (-7.44; 5.62) | 4.61 (3.02; 6.21) | Ref. (0) | -2.77 (-4.07;-1.46) | -6.59 (-9.26;-3.91) | **0.50** |
| **Height (cm) p=0.886** | | | | **p=0.318** | | | |  |
| 0.88 (-2.34; 4.09) | Ref. (0) | 0.19 (-2.19; 2.57) | 1.52 (-3.27; 6.32) | 1.06 (-0.24; 2.35) | Ref. (0) | 0.28 (-0.76; 1.32) | -0.87 (-3.02; 1.27) | **0.77** |
| **2004 Cohort** | | | |  | | | |  |
| **Body mass index (z score) p=0.924** | | | | **p<0.001** | | | |  |
| -0.11 (-0.92; 0.71) | Ref. (0) | 0.05 (-0.42; 0.52) | -0.22 (-0.98;0.55) | -0.45 (-0.64; -0.26) | Ref. (0) | 0.41 (0.27; 0.54) | 0.87 (0.66; 0.54) | **0.08** |
| **Waist circumference (cm) p=0.672** | | | | **p<0.001** | | | |  |
| -3.95 (-12.61; 4.70) | Ref. (0) | 0.70 (-4.28; 5.68) | -3.24 (-11.37;4.89) | -4.46 (-6.32; -2.59) | Ref. (0) | 3.83 (2.55; 5.10) | 7.38 (5.35; 9.41) | **0.27** |
| **Fat mass index (%) p=0.975** | | | | **p<0.001** | | | |  |
| -2.06 (-11.28; 7.15) | Ref. (0) | -0.14 (-5.45; 5.17) | -0.77 (-9.43; 7.89) | -4.94 (-7.05; -2.83) | Ref. (0) | 4.66 (3.21; 6.11) | 7.43 (5.09; 9.77) | **0.25** |
| **Lean mass index (%) p=0.967** | | | | **p<0.001** | | | |  |
| 2.21 (-6.50; 10.92) | Ref. (0) | 0.19 (-4.82; 5.21) | 0.65 (-7.53; 8.83) | 4.64 (2.63; 6.65) | Ref. (0) | -4.55 (-5.94;-3.17) | -7.13 (-9.33; -4.93) | **0.24** |
| **Height (cm) p=0.003** | | | | **p=0.003** | | | |  |
| -10.28 (-16.99;-3.58) | Ref. (0) | 1.90 (-1.96; 5.77) | -6.87 (-13.17; 0.57) | -0.97 (-2.46; 0.51) | Ref. (0) | 1.52 (0.50; 2.55) | 1.63 (-0.01; 3.27) | **0.08** |

ǂ Block score: Non-High Fat diet ≤ 27 points; High Fat Diet > 27 points \*Adjusted: family income at birth, maternal schooling, maternal age, parity and maternal smoking during pregnancy.

**Supplementary table 4.** Adjusted regression coefficient\* of the association of maternal pre-pregnancy nutritional status with offspring body composition and anthropometric measurements by diet and physical activity, in three Pelotas birth cohort studies.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **1982 cohort at 30 years** | **p-interaction** | **1993 cohort at 22 years** | **p-interaction** | **2004 cohort at 11 years** | **p-interaction** |
|  | **Maternal pre-pregnancy BMI (kg/m²)**  **β (CI95%)** |  | **Maternal pre-pregnancy BMI (kg/m²)**  **β (CI95%)** |  | **Maternal pre-pregnancy BMI (kg/m²)**  **β (CI95%)** |  |
| **Body mass index (z-score)** |  |  |  |  |  |  |
| β with interaction term | 0.06 (0.02; 0.09) | 0.374 | 0.03 (-0.00; 0.07) | 0.035 | 0.02 (-0.05; 0.08) | 0.088 |
| Diet | -0.02 (-0.05; 0.01) |  | -0.02 (-0.04; 0.00) |  | -0.03 (-0.07; 0.00) |  |
| β with interaction term | 0.07 (0.06; 0.08) | 0.861 | 0.08 (0.07; 0.10) | 0.047 | 0.10 (0.06; 0.15) | 0.120 |
| Physical activity | -0.00 (-0.01; 0.00) |  | 0.00 (-0.00; 0.01) |  | 0.00 (-0.01; 0.02) |  |
| **Waist Circumference (cm)** |  |  |  |  |  |  |
| β with interaction term | 0.70 (0.24; 1.17) | 0.739 | 0.47 (-0.00; 0.95) | 0.164 | 0.33 (-0.31; 0.96) | 0.313 |
| Diet | -0.05 (-0.42; 0.32) |  | -0.13 (-0.43; 0.16) |  | -0.21 (-0.57; 0.15) |  |
| β with interaction term | 0.78 (0.61; 0.96) | 0.752 | 0.83 (0.67; 1.00) | 0.245 | 0.83 (0.41; 1.26) | 0.360 |
| Physical activity | -0.03 (-0.12; 0.06) |  | 0.01 (-0.10; 0.12) |  | -0.03 (-0.18; 0.11) |  |
| **Fat mass index (%)** |  |  |  |  |  |  |
| β with interaction term | 0.43 (-0.01; 0.86) | 0.694 | 0.42 (-0.11; 0.94) | 0.451 | 0.37 (-0.36; 1.09) | 0.342 |
| Diet | -0.25 (-0.60; 0.10) |  | -0.03 (-0.35; 0.29) |  | -0.18 (-0.59; 0.23) |  |
| β with interaction term | 0.49 (0.32; 0.65) | 0.888 | 0.72 (0.53; 0.90) | 0.008 | 0.74 (0.29; 1.19) | 0.803 |
| Physical activity | -0.11 (-0.19; -0.02) |  | 0.03 (-0.09; 0.14) |  | -0.20 (-0.36; -0.04) |  |
| **Lean mass index (%)** |  |  |  |  |  |  |
| β with interaction term | -0.39 (-0.79; 0.01) | 0.693 | -0.38 (-0.87; 0.11) | 0.436 | -0.41 (-1.10; 0.27) | 0.438 |
| Diet | 0.23 (-0.09; 0.55) |  | 0.03 (-0.27; 0.33) |  | 0.14 (-0.24; 0.53) |  |
| β with interaction term | -0.45 (-0.60; -0.30) | 0.860 | -0.67 (-0.84; -0.50) | 0.006 | -0.74 (-1.17; -0.32) | 0.689 |
| Physical activity | 0.10 (0.02; 0.18) |  | -0.03 (-0.14; 0.08) |  | 0.18 (0.03; 0.33) |  |
| **Height (cm)** |  |  |  |  |  |  |
| β with interaction term | 0.01 (-0.33; 0.35) | 0.778 | -0.11 (-0.49; 0.28) | 0.604 | 0.18 (-0.34; 0.69) | 0.962 |
| Diet | 0.05 (-0.23; 0.32) |  | -0.06 (-0.30; 0.18) |  | -0.04 (-0.33; 0.25) |  |
| β with interaction term | 0.07 (-0.06; 0.21) | 0.562 | -0.12 (-0.26; 0.02) | 0.002 | 0.14 (-0.18; 0.47) | 0.827 |
| Physical activity | 0.02 (-0.05; 0.09) |  | -0.09 (-0.18; -0.00) |  | -0.12 (-0.24; -0.01) |  |

\*Adjusted: family income at birth, maternal schooling, maternal age, parity and maternal smoking during pregnancy.