**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.