**Supplementary Table A.** Odds Ratio (OR) of diabetes type 2 and cardiovascular disease in grandparents with 1 z-score change in offspring birthweight in the STORK Grorud study, 2008-2010. In non-smokers first visit (N=402).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Model 1 |  | Model 2 |  | Model 3 |  | Model 4 |
|  |  |  |  |  |  |  |  |  |
| Maternal grandmother |  |  |  |  |  |  |  |  |
| T2D |  | 0.74 (0.51 0.97)\* |  | 0.67 (0.47 0.96)\* |  | 0.69 (0.48 0.99)\* |  | 0.71 (0.50 1.02) |
| CVD |  | 1.04 (0.73 1.49) |  | 1.00 (0.68 1.48) |  | 1.02 (0.68 1.51) |  | 1.03 (0.69 1.53) |
| Maternal grandfather |  |  |  |  |  |  |  |  |
| T2D |  | 0.77 (0.56 1.07) |  | 0.72 (0.51 1.03) |  | 0.74 (0.52 1.06) |  | 0.72 (0.51 1.04) |
| CVD |  | 0.83 (0.63 1.11) |  | 0.78 (0.57 1.07) |  | 0.77 (0.56 1.06) |  | 0.78 (0.57 1.08) |
| Paternal grandmother |  |  |  |  |  |  |  |  |
| T2D |  | 0.63 (0.44 0.89)\* |  | 0.52 (0.35 0.78)\* |  | 0.55 (0.37 0.83)\* |  | 0.56 (0.37 0.84)\* |
| CVD |  | 0.85 (0.56 1.29) |  | 0.89 (0.57 1.39) |  | 0.91 (0.58 1.43) |  | 0.91 (0.57 1.44) |
| Paternal grandfather |  |  |  |  |  |  |  |  |
| T2D |  | 0.86 (0.59 1.25) |  | 0.76 (0.50 1.16) |  | 0.77 (0.51 1.19) |  | 0.72 (0.47 1.12) |
| CVD |  | 0.99 (0.76 1.30) |  | 1.04 (0.78 1.38) |  | 1.04 (0.78 1.39) |  | 1.02 (0.76 1.38) |

Adjustments: Model 1: crude (z-score adjusted for gestational age and offspring sex) Model 2 Adjusted for maternal weight, socioeconomic position, gestational diabetes and preeclampsia, diet and physical activity Model 3: Model 2+ maternal socioeconomic status in childhood, and maternal grandmother` smoking Model 4: Model 3 + father`s smoking and current weight.

\*P<=0.05

**Supplementary Table B.** Odds Ratio (OR) of diabetes type 2 and cardiovascular disease in grandparents with 1 unit change in offspring ponderal index in the STORK Grorud study, 2008-2010.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Model 1 |  | Model 2 |  | Model 3 |  | Model 4 |
|  | N |  | N |  | N |  | N |  |
| Maternal grandmother |  |  |  |  |  |  |  |  |
| T2D |  | 0.99 (0.89 1.10) |  | 0.97 (0.87 1.08) |  | 0.98 (0.88 1.10) |  | 0.98 (0.88 1.09) |
| CVD |  | 1.05 (0.93 1.19) |  | 1.04 (0.91 1.12) |  | 1.03 (0.90 1.18) |  | 1.03 (0.90 1.18) |
| Maternal grandfather |  |  |  |  |  |  |  |  |
| T2D |  | 0.97 (0.87 1.08) |  | 0.95 (0.85 1.07) |  | 0.96 (0.85 1.08) |  | 0.95 (0.85 1.07) |
| CVD |  | 0.98 (0.89 1.08) |  | 0.97 (0.88 1.07) |  | 0.96 (0.87 1.06) |  | 0.96 (0.87 1.06) |
| Paternal grandmother |  |  |  |  |  |  |  |  |
| T2D |  | 0.90 (0.80 1.00) |  | 0.88 (0.79 1.00)\* |  | 0.89 (0.79 1.01) |  | 0.90 (0.79 1.01) |
| CVD |  | 1.05 (0.91 1.21) |  | 1.05 (0.91 1.22) |  | 1.05 (0.90 1.22) |  | 1.06 (0.91 1.24) |
| Paternal grandfather |  |  |  |  |  |  |  |  |
| T2D |  | 0.95 (0.84 1.07) |  | 0.95 (0.83 1.08) |  | 0.96 (0.84 1.10) |  | 0.96 (0.83 1.09) |
| CVD |  | 0.94 (0.86 1.04) |  | 0.96 (0.86 1.06) |  | 0.96 (0.87 1.07) |  | 0.96 (0.87 1.07) |

Adjustments: Model 1: adjusted for offspring sex and gestational age Model 2 Model 1+ maternal weight, socioeconomic position, gestational diabetes and preeclampsia, diet and physical activity Model 3: Model 2+ maternal socioeconomic status in childhood, and maternal grandmother` smoking Model 4: Model 3 + father`s smoking and current weight.

\*P<=0.05

**Supplementary Table C**. Adjusted mean birthweight of offspring according to type 2 diabetes (T2D) or cardiovascular disease (CVD) in grandparents, in the STORK Groruddalen study 2008-2010.

|  |  |  |
| --- | --- | --- |
|  | Birth weight\*  gram, mean (95 % CI) | Birth weight\*\*  gram, mean (95% CI) |
| Maternal grandmother |  |  |
| T2D |  |  |
| Yes | 3353 (3252, 3455) | 3378 (3276, 3480) |
| No | 3468 (3428, 3507) | 3464 (3424, 3502) |
| CVD |  |  |
| Yes | 3491 (3359, 3622) | 3509 (3379, 3639) |
| No | 3452 (3412, 3491) | 3450 (3411, 3489) |
| Maternal grandfather |  |  |
| T2D |  |  |
| Yes | 3397 (3286, 3508) | 3417 (3306, 3508) |
| No | 3456 (3417, 3496) | 3454 (3415, 3493) |
| CVD |  |  |
| Yes | 3374 (3281, 3468) | 3384 (3291, 3476) |
| No | 3464 (3423, 3505) | 3463 (3422, 3503) |
| Paternal grandmother |  |  |
| T2D |  |  |
| Yes | 3309 (3198, 3419) | 3334 (3233, 3445) |
| No | 3474 (3434, 3514) | 3470 (3430, 3511) |
| CVD |  |  |
| Yes | 3494 (3345, 3643) | 3491 (3344, 3639) |
| No | 3464 (3424, 3504) | 3464 (3425, 3504) |
| Paternal  grandfather |  |  |
| T2D |  |  |
| Yes | 3394 (3269, 3518) | 3419 (3295, 3543) |
| No | 3465 (3425, 3505) | 3462 (3423, 3502) |
| CVD |  |  |
| Yes | 3452 (3360, 3544) | 3449 (3358, 3539) |
| No | 3464 (3422, 3506) | 3465 (3423, 3506) |

\*Adjusted for gestational age and offspring sex

\*\*Additionally adjusted for mother`s ethnicity