

Table S8: Result of Multi-locus stepwise regression with 41 SNPs on waist circumference (cm) adjusted for BMI in the EPIC-Potsdam subsample (n=2,122). Starting with SNP-pairs one SNP at a time was added to the ‘best’ patterns in the interim step. Selection criterion in every step was a decrease of corrected AIC (AICc, lower values are better) and a global p value below a given threshold (2-SNPs: 0.05, 3- and more SNPs: $1/10^{(i-1)}$, where i denote the number of simultaneously analyzed SNPs in each step). SNP numbers correspond to identification number in Table 2 of the main text.

| SNP 1 | SNP 2 | SNP 3 | Global p-value | AICc |
|-------------------------|-------|-------|----------------|----------|
| 2 SNPs at a time | | | | |
| 26 | 33 | | 2.52E-03 | 12591.85 |
| 1 | 33 | | 8.38E-03 | 12594.28 |
| 27 | 33 | | 9.97E-03 | 12594.51 |
| 15 | 33 | | 1.30E-02 | 12595.10 |
| 20 | 33 | | 1.46E-02 | 12595.41 |
| 3 | 33 | | 2.14E-02 | 12596.17 |
| 16 | 33 | | 2.64E-02 | 12596.66 |
| 2 | 33 | | 2.94E-02 | 12596.90 |
| 4 | 33 | | 3.00E-02 | 12596.86 |
| 33 | 40 | | 3.03E-02 | 12596.88 |
| 21 | 33 | | 3.44E-02 | 12597.14 |
| 16 | 30 | | 3.54E-02 | 12597.31 |
| 1 | 39 | | 3.62E-02 | 12597.37 |
| 6 | 33 | | 3.77E-02 | 12597.32 |
| 23 | 33 | | 4.16E-02 | 12597.52 |
| 5 | 33 | | 4.20E-02 | 12597.54 |
| 14 | 33 | | 4.48E-02 | 12597.84 |
| 33 | 41 | | 4.88E-02 | 12597.84 |
| 3 SNPs at a time | | | | |
| 3 | 26 | 33 | 3.09E-04 | 12586.74 |
| 5 | 26 | 33 | 2.78E-03 | 12591.74 |
| 16 | 30 | 41 | 4.07E-03 | 12592.65 |
| 1 | 3 | 33 | 4.23E-03 | 12592.63 |
| 3 | 27 | 33 | 6.53E-03 | 12593.79 |
| 4 | 15 | 33 | 7.42E-03 | 12594.10 |
| 9 | 16 | 33 | 7.59E-03 | 12594.15 |
| 1 | 8 | 39 | 7.88E-03 | 12594.52 |
| 2 | 15 | 33 | 8.48E-03 | 12594.23 |
| 2 | 16 | 33 | 9.07E-03 | 12594.38 |
| 16 | 30 | 40 | 9.30E-03 | 12594.64 |
| 16 | 33 | 41 | 9.40E-03 | 12594.67 |
| 9 | 14 | 33 | 9.62E-03 | 12594.73 |
| 7 | 15 | 33 | 9.84E-03 | 12594.78 |
| 2 | 17 | 33 | 9.86E-03 | 12594.58 |