

Supplementary Table S1. Genotypic and allelic frequencies of the single nucleotide polymorphisms that were used to create the genetic risk score.

	Single Nucleotide Polymorphisms	Nucleotide Change	Total	Common Homozygous	Heterozygote	Rare Homozygous	Hardy Weinberg Equilibrium <i>p</i> Value	Minor Allele Frequency
<i>VDR</i>	rs2228570	T/C	195	CC: 83	TC: 89	TT: 23	0.91	T= 0.35
	rs7975232	C/A	200	AA: 72	CA: 92	CC: 36	0.49	C= 0.41
<i>DHCR7</i>	rs12785878	G/T	200	TT: 48	GT: 106	GG: 46	0.40	G= 0.50
<i>CYP2R1</i>	rs12794714	A/G	199	GG: 72	GA: 95	AA: 32	0.94	A= 0.40
<i>CYP24A1</i>	rs6013897	A/T	200	TT: 115	TA: 73	AA: 12	0.93	A= 0.24
<i>GC</i>	rs2282679	C/A	199	AA: 134	CA: 59	CC: 6	0.87	C= 0.18
<i>FTO</i>	rs8050136	A/C	197	CC: 71	AC: 96	AA: 30	0.79	A= 0.40
	rs10163409	T/A	198	AA: 117	TA: 64	TT: 17	0.06	T= 0.25
<i>TCF7L2</i>	rs12255372	T/G	200	GG: 85	TG: 92	TT: 23	0.80	T= 0.35
	rs7903146	T/C	200	CC: 90	TC: 87	TT: 23	0.78	T= 0.33
<i>MC4R</i>	rs17782313	C/T	200	TT: 139	TC: 55	CC: 6	0.84	C= 0.17
<i>KCNQ1</i>	rs2237895	C/A	199	AA: 85	CA: 91	CC: 23	0.86	C= 0.34
	rs2237892	T/C	200	CC: 160	TC: 35	TT: 5	0.08	T= 0.11
<i>CDKN2A/</i>	rs10811661	C/T	200	TT: 151	CT: 45	CC: 4	0.76	C= 0.13

<i>PPARG</i>	rs1801282	G/C	200	CC: 170	GC: 30	GG: 0	0.25	G= 0.08
<i>CAPN10</i>	rs5030952	T/C	200	CC: 128	TC: 66	TT: 6	0.47	T= 0.20

*dbSNP database: <https://www.ncbi.nlm.nih.gov/snp/> [1]

Reference

1. National Center for Biotechnology Information. <https://www.ncbi.nlm.nih.gov/snp/>.

Supplementary Table S2. Interaction between metabolic-GRS and dietary factors on clinical and biochemical measurements.

Clinical and Biochemical Parameters	Carbohydrates (g) <i>p</i> _{interaction}	Protein (g) <i>p</i> _{interaction}	Fat (g) <i>p</i> _{interaction}	Fibre (g) <i>p</i> _{interaction}
25-hydroxyvitamin D (ng/ml)	0.999	0.525	0.602	0.208
BMI (kg/m ²)	0.355	0.913	0.403	0.989
WC (cm)	0.997	0.349	0.839	0.734
BFP (%)	0.367	0.756	0.231	0.807
Glucose (mg/dl)	0.930	0.827	0.131	0.851
HbA1c (ng/ml)	0.694	0.392	0.438	0.792
Fasting Insulin (uIU/ml)	0.079	0.537	0.641	0.750

All variables were log transformed except for body fat percentage values which were in normal distribution. All associations were adjusted for age, gender, sun exposure, total energy intake and BMI (except BMI which was not adjusted for when the outcome was BMI). Abbreviations: GRS: genetic risk score, BMI: body mass index, WC: waist circumference, BFP: body fat percentage, HbA1c: glycated haemoglobin.