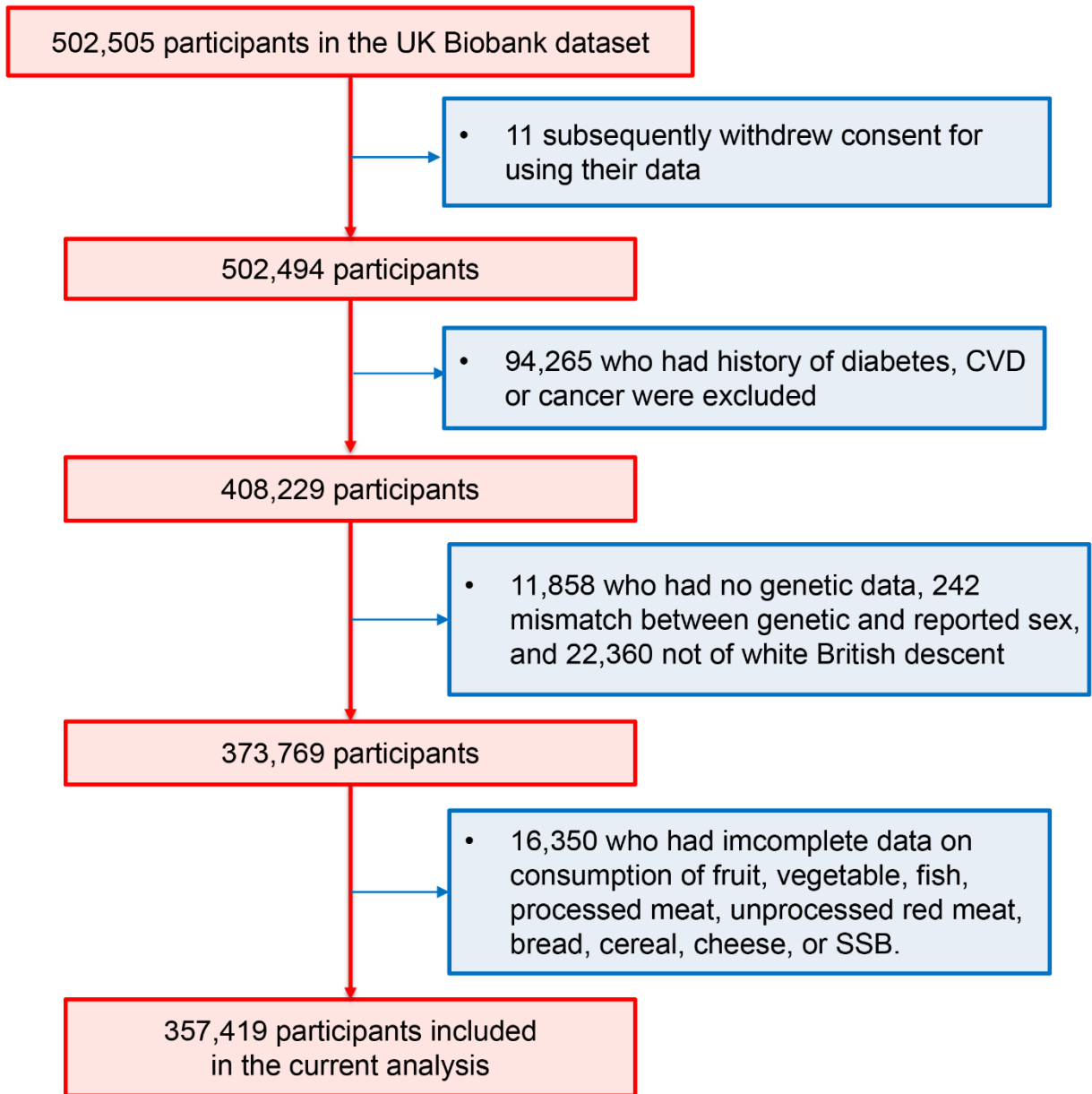


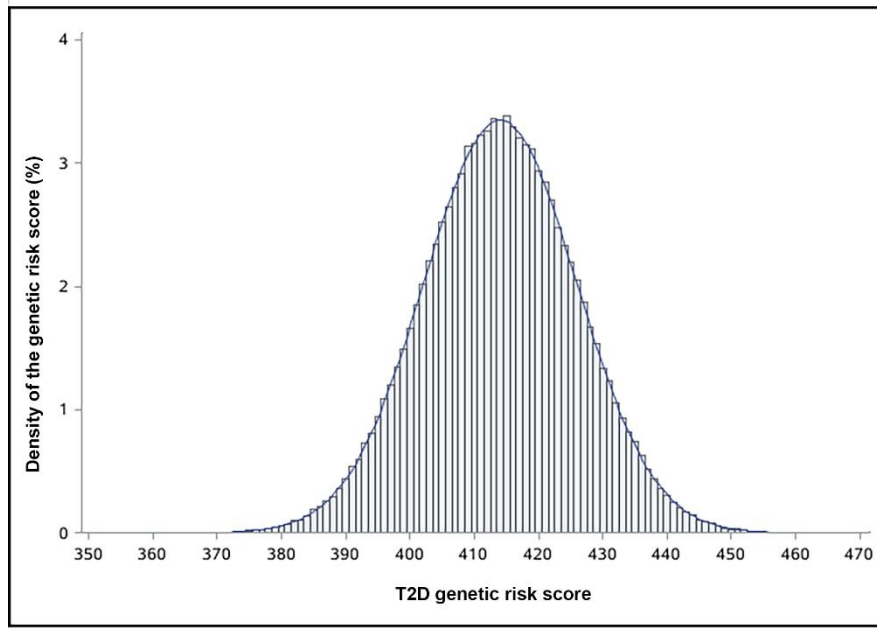
## **SUPPLEMENTARY DATA**

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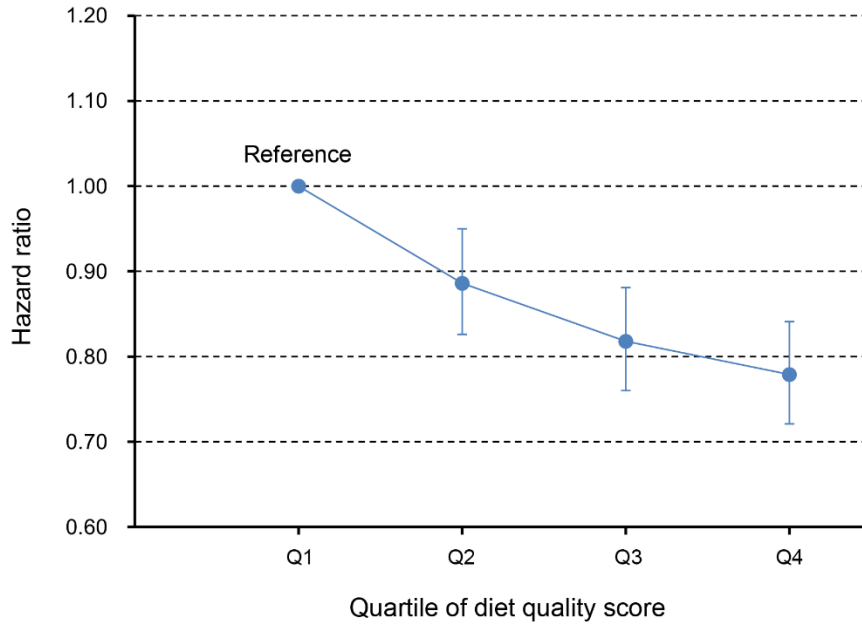
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**Supplementary Figure 1.** Flow of participants in current UK biobank study



**Supplementary Figure 2.** Distribution of the genetic risk score in UK biobank



**Supplementary Figure 3. HRs of T2D for quartiles of diet quality score**

HRs for type 2 diabetes were estimated using a Cox proportional hazards regression model adjusted for age, sex, centers, BMI, education, Townsend deprivation index, household income, smoking, alcohol consumption, physical activity, history of hypertension, history of high cholesterol, vitamin supplement use, mineral supplement use, aspirin use and lipid-lowering medication. Vertical lines represent 95% CIs.

**Supplementary Table 1.** Characteristics of 424 T2D-associated SNPs in the UK biobank

rsid	Chr	leadSNP	Effect allele	Other	EAF	$\beta$
rs10097617	8	chr8:95961626	T	C	0.469	0.037
rs10137475	14	chr14:58797953	G	A	0.422	0.026
rs10145154	14	chr14:79939525	T	C	0.222	0.055
rs10188334	2	chr2:653874	C	T	0.828	0.050
rs10240790	7	chr7:89880949	G	A	0.714	0.028
rs10305420	6	chr6:39016636	C	T	0.608	0.032
rs10404726	19	chr19:18834514	C	T	0.533	0.028
rs10406327	19	chr19:33890838	C	G	0.521	0.037
rs10407429	19	chr19:46157237	G	A	0.574	0.054
rs10471048	4	chr4:83587562	G	C	0.337	0.034
rs10490871	3	chr3:35667761	G	A	0.365	0.027
rs1059592	8	chr8:22477778	A	G	0.354	0.027
rs10737818	1	chr1:235542023	G	A	0.643	0.040
rs10750397	11	chr11:128234144	A	G	0.278	0.048
rs10769936	11	chr11:8654528	C	T	0.725	0.035
rs10771372	12	chr12:27962260	C	T	0.803	0.072
rs10771813	12	chr12:31367856	C	A	0.554	0.026
rs10787287	10	chr10:112647195	T	C	0.767	0.036
rs10788575	10	chr10:89768584	A	G	0.164	0.035
rs10811661	9	chr9:22134094	T	C	0.826	0.138
rs10821311	9	chr9:96943059	A	G	0.318	0.036
rs10830963	11	chr11:92708710	G	C	0.274	0.089
rs10841868	12	chr12:21781246	G	T	0.740	0.032
rs10844518	12	chr12:33410780	G	A	0.279	0.033
rs10882891	10	chr10:99059645	C	A	0.403	0.031
rs10889560	1	chr1:65989878	A	C	0.082	0.047
rs10899283	11	chr11:76505202	C	T	0.778	0.031
rs10915188	1	chr1:29024956	A	G	0.583	0.029
rs10916784	1	chr1:20729451	G	C	0.581	0.027
rs10937208	3	chr3:184877626	G	A	0.136	0.044
rs10937721	4	chr4:6306763	C	G	0.591	0.084
rs10938398	4	chr4:45186139	A	G	0.434	0.043
rs10963942	9	chr9:19080352	G	A	0.390	0.037
rs10974438	9	chr9:4291928	C	A	0.351	0.047
rs10998304	10	chr10:70342775	C	T	0.451	0.031
rs11038672	11	chr11:45846498	C	G	0.475	0.029
rs11048458	12	chr12:26465585	T	C	0.243	0.046
rs11073147	15	chr15:36392562	G	A	0.551	0.025
rs11078916	17	chr17:37746307	T	C	0.276	0.037
rs11108094	12	chr12:95928113	A	C	0.069	0.060
rs11117364	16	chr16:88132199	G	A	0.676	0.029
rs1111875	10	chr10:94462882	C	T	0.591	0.092

rs11129735	3	chr3:36870230	A	G	0.455	0.026
rs11155073	6	chr6:139837128	T	C	0.409	0.030
rs11181613	12	chr12:43046449	C	A	0.849	0.043
rs111824905	1	chr1:28110797	C	T	0.052	0.069
rs11201999	10	chr10:88124501	C	T	0.541	0.026
rs1122518	7	chr7:13900325	C	T	0.476	0.026
rs11257655	10	chr10:12307894	T	C	0.207	0.091
rs112667817	5	chr5:137823156	C	T	0.883	0.061
rs1127215	1	chr1:117532790	C	T	0.580	0.043
rs113036477	12	chr12:97848227	C	T	0.943	0.072
rs114136102	5	chr5:36084426	C	T	0.040	0.072
rs114447556	4	chr4:53207093	T	C	0.082	0.058
rs11558471	8	chr8:118185733	A	G	0.682	0.103
rs11602873	11	chr11:72460762	A	T	0.843	0.098
rs11614914	12	chr12:133070294	T	C	0.327	0.039
rs11616380	13	chr13:80705315	G	T	0.712	0.079
rs11639470	15	chr15:39639171	C	G	0.535	0.027
rs11646052	16	chr16:85716463	G	A	0.394	0.026
rs11655898	17	chr17:62201374	C	T	0.070	0.059
rs11657964	17	chr17:36100767	A	G	0.397	0.059
rs11662800	18	chr18:13271367	A	G	0.415	0.028
rs11666603	19	chr19:12496934	C	T	0.764	0.033
rs11667244	19	chr19:47580185	G	A	0.715	0.035
rs11680058	2	chr2:16574669	A	G	0.870	0.056
rs116861182	11	chr11:55588216	C	A	0.057	0.064
rs117001013	22	chr22:32348841	C	T	0.914	0.047
rs11708067	3	chr3:123065778	A	G	0.757	0.078
rs11716527	3	chr3:89986280	C	T	0.105	0.049
rs117173251	8	chr8:4186731	T	C	0.033	0.077
rs11723275	4	chr4:77528821	C	A	0.464	0.027
rs117233107	12	chr12:4328521	G	A	0.985	0.325
rs117316450	11	chr11:14518419	G	C	0.021	0.131
rs11759026	6	chr6:126792095	G	A	0.228	0.065
rs11793831	9	chr9:23362311	T	G	0.415	0.027
rs11830243	12	chr12:132544694	T	C	0.108	0.044
rs11870735	17	chr17:481604	T	C	0.180	0.034
rs11922794	3	chr3:72813582	C	G	0.245	0.030
rs11940813	4	chr4:20210953	G	A	0.133	0.037
rs1194606	1	chr1:154294260	C	T	0.235	0.030
rs11967262	6	chr6:43760327	G	C	0.488	0.037
rs12001437	9	chr9:34074476	C	T	0.368	0.034
rs12048743	1	chr1:205114873	G	C	0.430	0.032
rs12056338	8	chr8:12643055	T	G	0.416	0.031
rs12187734	5	chr5:51763665	C	T	0.515	0.029

rs12194820	6	chr6:127401978	A	T	0.755	0.046
rs1225052	3	chr3:131644937	G	A	0.375	0.027
rs12263348	10	chr10:65305252	T	C	0.348	0.028
rs12305809	12	chr12:133777466	G	A	0.606	0.033
rs12454712	18	chr18:60845884	T	C	0.623	0.041
rs12463719	2	chr2:203450680	A	G	0.283	0.032
rs12505942	4	chr4:140906390	T	C	0.656	0.030
rs12509379	4	chr4:129179458	T	G	0.202	0.031
rs12519500	5	chr5:78436905	C	A	0.650	0.038
rs12539264	7	chr7:48839003	G	A	0.283	0.029
rs12602834	17	chr17:29637308	G	A	0.385	0.029
rs1260326	2	chr2:27730940	C	T	0.604	0.064
rs12625671	20	chr20:42994812	C	T	0.107	0.065
rs12741141	1	chr1:6669970	G	C	0.355	0.040
rs12773019	10	chr10:73835274	G	C	0.027	0.089
rs12820906	12	chr12:123493123	A	G	0.753	0.043
rs12823740	12	chr12:124458002	C	A	0.666	0.041
rs12890750	14	chr14:103860309	G	T	0.651	0.028
rs12910361	15	chr15:77782335	G	A	0.712	0.072
rs12912777	15	chr15:38852386	T	C	0.125	0.059
rs12917449	15	chr15:74331659	C	A	0.196	0.036
rs12920022	16	chr16:89564055	A	T	0.161	0.039
rs12933120	16	chr16:3634746	A	C	0.143	0.042
rs12977104	19	chr19:4949921	A	G	0.204	0.041
rs12992995	2	chr2:175197545	C	A	0.724	0.031
rs13005841	2	chr2:212302573	A	T	0.708	0.029
rs13020443	2	chr2:152167830	C	T	0.508	0.031
rs13155752	5	chr5:44680687	C	A	0.396	0.032
rs13237518	7	chr7:12269593	A	C	0.415	0.029
rs13262861	8	chr8:41508577	C	A	0.825	0.102
rs133015	22	chr22:38572526	C	G	0.560	0.029
rs13389219	2	chr2:165528876	C	T	0.606	0.065
rs13414140	2	chr2:43671176	C	T	0.885	0.118
rs1412234	9	chr9:28410683	C	T	0.327	0.044
rs1421085	16	chr16:53800954	C	T	0.403	0.118
rs1430780	2	chr2:67878328	T	C	0.320	0.027
rs1431819	9	chr9:116943357	G	A	0.696	0.029
rs1437055	3	chr3:86831077	A	C	0.617	0.027
rs144245804	11	chr11:69453044	G	A	0.974	0.130
rs1449348	3	chr3:168225055	C	T	0.860	0.045
rs1451506	17	chr17:57407019	A	G	0.115	0.042
rs145904381	1	chr1:151017991	T	C	0.988	0.174
rs146886108	5	chr5:14751305	C	T	0.993	0.390
rs1475655	13	chr13:91963080	A	T	0.739	0.044

rs149364428	8	chr8:97737741	A	G	0.008	0.224
rs1493694	1	chr1:120526982	T	C	0.107	0.071
rs1513272	7	chr7:28200097	C	T	0.498	0.081
rs1517037	18	chr18:56878274	C	T	0.812	0.038
rs152839	5	chr5:50145266	C	T	0.584	0.026
rs1531583	4	chr4:744972	T	G	0.039	0.099
rs1561927	8	chr8:129568078	C	T	0.268	0.035
rs1562398	7	chr7:130457931	G	C	0.415	0.041
rs1573090	6	chr6:137302159	T	G	0.538	0.045
rs1656794	17	chr17:75386909	G	A	0.725	0.031
rs17035289	4	chr4:106048291	C	T	0.160	0.043
rs17036160	3	chr3:12329783	C	T	0.882	0.103
rs1705263	12	chr12:71523043	C	A	0.560	0.040
rs17091891	8	chr8:19843171	T	C	0.880	0.042
rs17175860	19	chr19:7235146	G	A	0.194	0.045
rs1724557	4	chr4:137094048	C	A	0.413	0.025
rs17265513	20	chr20:39832628	C	T	0.199	0.033
rs17294565	8	chr8:14124809	C	A	0.384	0.027
rs17354348	2	chr2:213835977	A	G	0.743	0.029
rs17439448	7	chr7:40816653	T	C	0.122	0.040
rs174541	11	chr11:61565908	T	C	0.640	0.029
rs1752169	9	chr9:126586563	A	C	0.250	0.032
rs17522122	14	chr14:33302882	T	G	0.470	0.034
rs17624303	2	chr2:105148418	C	T	0.730	0.029
rs17684074	18	chr18:54675384	G	C	0.748	0.031
rs177045	10	chr10:71321279	G	A	0.315	0.039
rs17772814	8	chr8:128711742	G	A	0.918	0.075
rs17791513	9	chr9:81905590	A	G	0.938	0.069
rs17818197	8	chr8:25872634	G	A	0.224	0.035
rs1783541	11	chr11:65294799	T	C	0.217	0.048
rs1815591	20	chr20:61277014	A	T	0.389	0.034
rs181752889	3	chr3:128579324	T	C	0.002	0.282
rs1819564	6	chr6:51505337	A	T	0.028	0.076
rs1872635	12	chr12:54541750	A	G	0.688	0.028
rs1874832	15	chr15:67260238	G	A	0.154	0.038
rs1929883	9	chr9:81344701	G	A	0.584	0.039
rs1968204	7	chr7:102800137	T	C	0.093	0.057
rs197379	1	chr1:112292303	C	T	0.380	0.027
rs197482	6	chr6:143069315	C	T	0.623	0.030
rs2008027	6	chr6:126052359	G	A	0.516	0.027
rs2011603	4	chr4:18025484	A	G	0.737	0.038
rs2032912	16	chr16:69568303	G	T	0.590	0.042
rs2033159	2	chr2:145261174	C	A	0.229	0.035
rs2055997	4	chr4:76535086	G	A	0.708	0.031



rs2056857	14	chr14:77300863	C	T	0.582	0.026
rs2080090	17	chr17:65828371	A	T	0.189	0.053
rs2103132	7	chr7:69782073	C	G	0.247	0.032
rs2115107	19	chr19:7968168	A	G	0.382	0.038
rs2191349	7	chr7:15064309	T	G	0.548	0.066
rs2237895	11	chr11:2857194	C	A	0.415	0.073
rs2243102	17	chr17:4839149	C	T	0.406	0.026
rs2250301	10	chr10:104548393	G	A	0.751	0.032
rs2252221	20	chr20:51621922	G	A	0.526	0.025
rs2268078	20	chr20:32596704	A	G	0.641	0.039
rs2269247	1	chr1:64107284	C	T	0.818	0.035
rs2280141	10	chr10:124193181	T	G	0.528	0.045
rs2289739	15	chr15:41801512	T	G	0.345	0.050
rs2290203	15	chr15:91512067	A	G	0.198	0.056
rs2292662	3	chr3:63897215	C	T	0.849	0.056
rs2297508	17	chr17:17715317	C	G	0.351	0.033
rs2313211	3	chr3:183738626	T	A	0.445	0.029
rs2336938	1	chr1:206618799	A	C	0.477	0.030
rs2403221	11	chr11:9852475	A	G	0.674	0.032
rs2409742	8	chr8:11069960	C	T	0.512	0.036
rs2410767	5	chr5:87705268	C	G	0.787	0.033
rs2426439	20	chr20:50999627	C	T	0.633	0.037
rs243018	2	chr2:60586707	G	C	0.451	0.056
rs2435907	15	chr15:57333416	A	G	0.582	0.029
rs253412	5	chr5:74955841	A	G	0.662	0.046
rs2540949	2	chr2:65284231	A	T	0.624	0.050
rs256904	5	chr5:55810305	T	A	0.746	0.069
rs2581787	3	chr3:53127677	T	G	0.560	0.025
rs2583921	12	chr12:66170481	C	A	0.089	0.095
rs2613503	1	chr1:72839774	A	C	0.803	0.039
rs2658746	18	chr18:74582340	C	T	0.378	0.030
rs2675662	10	chr10:75599127	A	G	0.563	0.027
rs2725371	8	chr8:30854033	A	G	0.303	0.037
rs2732480	12	chr12:48736303	C	A	0.572	0.034
rs2733289	12	chr12:41838235	C	T	0.478	0.030
rs2737226	8	chr8:116639474	T	C	0.392	0.038
rs2796441	9	chr9:84308948	G	A	0.581	0.059
rs2820444	1	chr1:219741820	G	A	0.702	0.047
rs28429551	9	chr9:139243334	A	T	0.755	0.073
rs2862954	10	chr10:101912064	T	C	0.502	0.029
rs2876826	7	chr7:50581972	G	A	0.223	0.031
rs28819812	4	chr4:157652753	C	A	0.678	0.038
rs2908286	7	chr7:44234737	T	C	0.178	0.068
rs2925979	16	chr16:81534790	T	C	0.299	0.045

rs2933211	14	chr14:47313541	A	G	0.493	0.027
rs2972145	2	chr2:227101309	C	T	0.646	0.090
rs3020781	1	chr1:155269776	G	A	0.265	0.033
rs303760	18	chr18:21083738	T	C	0.345	0.034
rs3094682	6	chr6:31264461	C	A	0.815	0.060
rs3111316	19	chr19:13038415	A	G	0.587	0.044
rs314879	13	chr13:23309382	C	T	0.212	0.039
rs3176466	1	chr1:51438365	C	T	0.910	0.064
rs329122	5	chr5:133864599	A	G	0.421	0.026
rs340874	1	chr1:214159256	C	T	0.568	0.067
rs34143602	15	chr15:63940058	G	A	0.410	0.035
rs34298980	6	chr6:40409243	T	C	0.491	0.038
rs34329895	2	chr2:208870017	A	G	0.396	0.028
rs34340810	8	chr8:105661926	G	C	0.927	0.054
rs34506349	2	chr2:100598726	G	A	0.959	0.068
rs34573045	3	chr3:149196752	G	C	0.433	0.031
rs34584161	13	chr13:26776999	A	G	0.764	0.052
rs34589210	2	chr2:112795492	A	G	0.145	0.039
rs346240	18	chr18:40063830	G	A	0.204	0.031
rs348330	1	chr1:229672955	G	A	0.367	0.053
rs34845373	2	chr2:25635771	A	G	0.727	0.037
rs34965774	12	chr12:118412373	A	G	0.130	0.052
rs34990153	8	chr8:9996389	A	G	0.556	0.038
rs35004890	19	chr19:1224286	T	G	0.231	0.036
rs35169799	11	chr11:64031241	T	C	0.063	0.050
rs35352848	3	chr3:23455582	T	C	0.796	0.062
rs35895680	17	chr17:47060322	C	A	0.673	0.056
rs35901985	4	chr4:186580062	A	G	0.821	0.035
rs36051838	10	chr10:34018730	C	T	0.086	0.044
rs36111056	15	chr15:83461873	G	A	0.789	0.034
rs362307	4	chr4:3241845	T	C	0.074	0.050
rs3742305	13	chr13:31036642	C	G	0.732	0.030
rs3747207	22	chr22:44324855	A	G	0.215	0.047
rs3755879	4	chr4:96114385	A	G	0.301	0.033
rs3757969	8	chr8:145551199	G	C	0.374	0.048
rs3764002	12	chr12:108618630	C	T	0.738	0.040
rs3798519	6	chr6:50788778	C	A	0.179	0.050
rs38221	7	chr7:15926228	T	C	0.253	0.033
rs3872707	3	chr3:9514016	A	G	0.124	0.045
rs3887925	3	chr3:186665645	T	C	0.549	0.042
rs39328	7	chr7:103444978	T	C	0.424	0.028
rs41276588	1	chr1:118148384	A	G	0.285	0.038
rs4132228	3	chr3:64708114	C	T	0.711	0.047
rs419842	20	chr20:42310811	T	A	0.842	0.041

rs429358	19	chr19:45411941	T	C	0.846	0.073
rs4325	17	chr17:61563200	C	A	0.532	0.035
rs4397977	13	chr13:41688401	A	G	0.342	0.029
rs4465929	3	chr3:15741389	T	C	0.402	0.030
rs448918	9	chr9:136885979	A	G	0.265	0.033
rs4655617	1	chr1:67010654	C	A	0.440	0.028
rs4688760	3	chr3:49980596	T	C	0.689	0.034
rs4709746	6	chr6:164133001	C	T	0.865	0.058
rs4714422	6	chr6:41012405	G	A	0.245	0.029
rs4721089	7	chr7:1872921	T	C	0.782	0.034
rs4734193	8	chr8:110140564	C	A	0.527	0.034
rs4776970	15	chr15:68080886	A	T	0.642	0.029
rs4796224	17	chr17:34842521	G	A	0.472	0.025
rs4805681	19	chr19:31835516	C	T	0.605	0.027
rs480840	11	chr11:74625997	C	T	0.429	0.025
rs4809369	20	chr20:62470785	G	A	0.548	0.034
rs4845987	1	chr1:11306279	C	G	0.709	0.028
rs484943	15	chr15:40398754	T	C	0.338	0.033
rs4865796	5	chr5:53272664	A	G	0.692	0.047
rs4899280	14	chr14:69526307	T	C	0.332	0.028
rs4916253	1	chr1:172361032	G	T	0.433	0.027
rs4929965	11	chr11:2197286	A	G	0.379	0.062
rs495203	9	chr9:136145240	T	C	0.318	0.049
rs4976033	5	chr5:67714246	G	A	0.401	0.028
rs4984980	16	chr16:968292	A	G	0.182	0.035
rs5219	11	chr11:17409572	T	C	0.357	0.069
rs534043	7	chr7:100312724	G	A	0.887	0.045
rs543159	6	chr6:160776017	C	A	0.527	0.032
rs545608	1	chr1:177899121	C	G	0.206	0.036
rs555784	9	chr9:85318704	T	A	0.617	0.030
rs55812705	6	chr6:111738793	T	C	0.755	0.031
rs55857387	16	chr16:300388	T	C	0.801	0.052
rs56337234	4	chr4:1784403	C	T	0.506	0.041
rs56348580	12	chr12:121432117	G	C	0.692	0.058
rs56394279	3	chr3:160171092	C	T	0.471	0.031
rs567185	1	chr1:201763499	T	C	0.649	0.037
rs5751061	22	chr22:41593873	G	T	0.629	0.026
rs5753043	22	chr22:30588041	C	A	0.908	0.061
rs576674	13	chr13:33554302	G	A	0.167	0.061
rs5771069	22	chr22:50435480	G	A	0.497	0.033
rs583769	7	chr7:18331915	A	G	0.246	0.031
rs58542926	19	chr19:19379549	T	C	0.074	0.089
rs60519666	6	chr6:107427166	G	A	0.676	0.035
rs6066138	20	chr20:45594711	G	A	0.718	0.045

rs61736066	17	chr17:70645032	G	A	0.913	0.051
rs61779275	1	chr1:39820310	T	C	0.212	0.075
rs62034975	16	chr16:20392415	C	G	0.302	0.031
rs62075585	17	chr17:76762039	G	A	0.473	0.030
rs62262091	3	chr3:47693664	T	C	0.094	0.056
rs62271373	3	chr3:150066540	A	T	0.060	0.069
rs62310934	4	chr4:48880627	C	G	0.618	0.030
rs62450857	7	chr7:4683258	A	G	0.134	0.039
rs62492368	7	chr7:150537635	A	G	0.304	0.034
rs62515938	8	chr8:57483013	T	C	0.261	0.029
rs62618693	11	chr11:32956492	C	T	0.955	0.085
rs6432613	2	chr2:161145612	G	A	0.724	0.039
rs6438247	3	chr3:115084080	C	T	0.131	0.044
rs6459733	7	chr7:156930550	G	C	0.662	0.051
rs6495182	15	chr15:75814388	C	T	0.749	0.041
rs663640	18	chr18:57846077	T	C	0.219	0.050
rs6685701	1	chr1:26868639	A	G	0.271	0.030
rs67013744	12	chr12:6681786	G	A	0.166	0.035
rs6715901	2	chr2:179650954	G	A	0.503	0.027
rs6741676	2	chr2:181618654	A	G	0.662	0.032
rs6766859	3	chr3:138055136	C	T	0.372	0.033
rs67755137	7	chr7:74108135	A	G	0.193	0.033
rs6777684	3	chr3:187741842	G	A	0.610	0.057
rs6819331	4	chr4:153504295	C	T	0.681	0.040
rs6821438	4	chr4:95091911	A	G	0.530	0.029
rs684214	17	chr17:40696915	T	C	0.280	0.042
rs686998	3	chr3:173119768	G	A	0.530	0.027
rs6878122	5	chr5:76427311	G	A	0.319	0.055
rs6976111	7	chr7:117495667	A	C	0.302	0.032
rs7026688	9	chr9:125975397	G	A	0.863	0.044
rs703981	10	chr10:80942855	G	C	0.543	0.061
rs7046845	9	chr9:97804641	A	C	0.911	0.047
rs7071943	10	chr10:93956552	G	T	0.659	0.044
rs7099048	10	chr10:77647107	A	G	0.515	0.028
rs7132908	12	chr12:50263148	A	G	0.384	0.033
rs7163757	15	chr15:62391608	C	T	0.571	0.041
rs7188071	16	chr16:28917644	T	C	0.353	0.029
rs7219033	17	chr17:9787958	A	G	0.329	0.029
rs7220340	17	chr17:27566326	A	G	0.460	0.027
rs7240767	18	chr18:7070642	C	T	0.387	0.037
rs72501964	4	chr4:1267203	G	T	0.963	0.083
rs72692805	1	chr1:149894355	G	A	0.921	0.054
rs72695645	4	chr4:185713608	G	A	0.859	0.061
rs727734	6	chr6:15475051	A	T	0.761	0.030

rs72802342	16	chr16:75234872	C	A	0.923	0.115
rs72803684	2	chr2:26192802	T	C	0.047	0.069
rs72836348	2	chr2:111888043	G	A	0.898	0.056
rs72926932	18	chr18:53050646	C	A	0.080	0.075
rs72951506	6	chr6:118011723	C	T	0.844	0.042
rs73347525	14	chr14:101255172	A	G	0.818	0.049
rs73872717	3	chr3:141134569	C	T	0.954	0.086
rs74672008	3	chr3:152451616	G	A	0.964	0.080
rs74804697	15	chr15:52588722	C	G	0.955	0.084
rs75332279	15	chr15:53099306	C	T	0.100	0.056
rs7538321	1	chr1:205789455	T	A	0.127	0.042
rs75401573	22	chr22:29805444	C	T	0.922	0.051
rs75432112	5	chr5:102586407	A	G	0.050	0.134
rs7558413	2	chr2:18721662	A	G	0.580	0.029
rs7559658	2	chr2:147920213	C	T	0.189	0.034
rs756145	9	chr9:1039939	A	G	0.306	0.029
rs7561798	2	chr2:228973660	G	A	0.481	0.028
rs7568172	2	chr2:158335340	G	A	0.937	0.067
rs75686861	4	chr4:145621328	A	G	0.092	0.047
rs75693095	7	chr7:23440057	C	G	0.022	0.112
rs75756987	21	chr21:47767295	G	C	0.896	0.044
rs7609422	2	chr2:146348037	G	A	0.408	0.030
rs7619708	3	chr3:195810187	T	C	0.760	0.033
rs76263492	3	chr3:54828827	T	G	0.043	0.068
rs7656001	4	chr4:91243865	A	G	0.550	0.026
rs7660000	4	chr4:89751858	C	T	0.718	0.031
rs7695096	4	chr4:103932556	C	T	0.514	0.038
rs7719891	5	chr5:86577352	G	A	0.247	0.040
rs7739842	6	chr6:131954797	G	T	0.189	0.033
rs7756992	6	chr6:20679709	G	A	0.265	0.122
rs7858727	9	chr9:111936128	C	A	0.205	0.034
rs7867635	9	chr9:20241069	C	T	0.411	0.037
rs7903146	10	chr10:114758349	T	C	0.287	0.280
rs79489938	1	chr1:147121000	G	A	0.984	0.113
rs798549	7	chr7:2760750	C	A	0.269	0.030
rs799661	14	chr14:35390146	C	T	0.891	0.043
rs8005994	14	chr14:29744532	A	G	0.645	0.027
rs8008540	14	chr14:74948180	C	T	0.563	0.030
rs8010382	14	chr14:91963722	G	A	0.414	0.032
rs8018512	14	chr14:38818723	G	A	0.749	0.037
rs8031576	15	chr15:90380214	C	A	0.280	0.057
rs8033609	15	chr15:60938816	A	C	0.542	0.027
rs8054556	16	chr16:29958216	A	G	0.467	0.036
rs8071043	17	chr17:3988451	C	T	0.330	0.054

rs827237	10	chr10:72648336	T	C	0.199	0.037
rs838735	2	chr2:234324192	C	G	0.385	0.029
rs844215	3	chr3:71656045	C	T	0.583	0.026
rs858519	17	chr17:7531965	T	C	0.443	0.026
rs867489	20	chr20:48833957	C	T	0.536	0.031
rs878017	10	chr10:13566204	A	G	0.527	0.035
rs890940	5	chr5:158026744	T	C	0.211	0.048
rs911300	20	chr20:57387262	G	A	0.543	0.035
rs917195	7	chr7:30728452	C	T	0.768	0.047
rs9275184	6	chr6:32654714	C	T	0.103	0.098
rs9296095	6	chr6:33542523	T	C	0.821	0.034
rs9316500	13	chr13:51094114	T	G	0.704	0.047
rs9319382	13	chr13:28245127	C	T	0.685	0.028
rs9368112	6	chr6:19718157	T	C	0.529	0.026
rs9379084	6	chr6:7231843	G	A	0.884	0.075
rs9383649	6	chr6:153428102	G	A	0.403	0.033
rs9555581	13	chr13:109944192	C	T	0.613	0.030
rs9563574	13	chr13:58656599	T	C	0.827	0.041
rs9784137	2	chr2:121325908	G	A	0.845	0.061
rs980183	2	chr2:59311536	G	A	0.397	0.036
rs9828772	3	chr3:129333182	C	G	0.897	0.052
rs9842137	3	chr3:3649850	T	C	0.001	0.425
rs9852406	3	chr3:135625498	T	C	0.253	0.038
rs9854769	3	chr3:185520948	G	A	0.314	0.108
rs9873519	3	chr3:124921457	T	C	0.532	0.038
rs9873618	3	chr3:170733076	G	A	0.710	0.058
rs987949	4	chr4:85384069	A	G	0.010	0.153
rs9900074	17	chr17:46124326	G	C	0.928	0.055
rs9912236	17	chr17:77895311	C	T	0.754	0.031
rs9927842	16	chr16:15153717	T	C	0.155	0.038

Chr., chromosome.

Effect allele is the one associated with high risk of T2D; and other is the reference allele. Each SNP's relative effect size  $\beta$  was obtained from the ancestry-specific analysis of Europeans in the latest Genome-wide multi-ethnic meta-analysis.

**Supplementary Table 2.** Components and scaling methods of diet quality score used in the UK Biobank study

Components	Field IDs	Amount per serving	Criteria for maximum score (10)	Criteria for minimum score (0)
Fruit	1309 (pieces fresh fruit/day) 1319 (pieces dried fruit/day)	1309 – 1 piece 1319 – 5 pieces	≥3 servings/day	0 servings/day
Vegetable	1289 (tablespoons cooked vegetables/day) 1299 (salad/raw vegetables/day)	3 heaped tablespoons	≥3 servings/day	0 servings/day
Whole grains	1438, 1448 (wholemeal/wholegrain bread slices/week) 1458, 1468 (bran/oat/muesli cereal bowls/week)	1438/1448 – 1 slice/day 1458/1468 – 1 bowl/day	≥3 servings/day	0 servings/day
Fish	1329 (oily fish/week) 1339 (non-oily fish/week)	Once/week	≥2 servings/week	0 servings/week
Dairy	1408 (cheese/week) 1418 (milk type)	1408 – 1 piece/day 1418 – 1 glass/day if consumption of any type of milk	≥2 servings/day	0 servings/day
Vegetable oils	1428 (Flora Pro-Active/Benecol spread) 2654 (Flora Pro-Active/Benecol, soft margarine -, olive oil based -, polyunsaturated/sunflower oil based -, other low/reduced fat spread) 1438 (bread slices/week)	1 serving/day if in combination with eating at least 2 slices of bread (ID 1438)	≥2 servings/day	0 servings/day
Refined grains	1438, 1448 (white, brown, other bread slices/week) 1458, 1468 (biscuit, other cereals/week)	1438/1448 – 1 slice/day 1458/1468 – 1 bowl/day	0 servings/day	>2 servings/day
Processed meats	1349 (processed meat/week or daily) 3680 (age when last ate meat)	1349 – 1 piece/day 3680 – 0 pieces/day if indicated having never eaten meat	0 serving/week	>1 serving/week

Unprocessed red meats	1369 (beef/week or day) 1379 (lamb or mutton/week or day) 1389 (pork/week or day) 3680 (age when last ate meat)	1359-1389 – once/week 3680 – 0 pieces/day if indicated having never eaten meat	0 serving/week	>2 serving/week
Sugar-sweetened beverages	6144 (never consumes drinks containing sugar)	0 servings	Don't drink	Drink

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Field IDs and serving sizes used per diet component in UK Biobank with available data from the general baseline questionnaire. Intermediate intakes were scored between the minimum and the maximum according to the following formula: component score = (maximum score / (Amax - Amin))\*(X - Amin) for adequacy components; component score = (maximum score - maximum score / (Amax - Amin))\*(X - Amin) for moderate components (refined grains, processed meat, and unprocessed red meat); Amax is maximum amount of the component corresponding to the recommended intake; Amin is minimum amount of the component corresponding to the recommended intake; X is amount consumed by the individual. The total diet quality score was the sum of all the diet component scores and ranged from 0 to 100.



**Supplementary Table 3.** Definitions of prevalent diabetes and incident T2D

	ICD-9	ICD-10	Self-reported fields
Diabetes at baseline [Both “possible” diabetes (T1D, T2D and other types of diabetes) and “probable” diabetes (T1D, T2D and other types of diabetes) were excluded at baseline.]*	250, 6480	E10, E11, E12, E13, E14, O24	2443(1), 2976, 6153(3), 6177(3), 20002(1220, 1222, 1223), 20003
Incident T2D		E11	

\*Eastwood SV, Mathur R, Atkinson M, et al. Algorithms for the capture and adjudication of prevalent and incident diabetes in UK Biobank. PLoS One. 2016. 11(9): e0162388.

**Supplementary Table 4.** Interaction of genetic risk score with diet quality score in men and women

	Men (n=158,064)			Women (n=199,355)		
	$\beta^*$	SE	P	$\beta^*$	SE	P
<b>Type 2 diabetes</b>						
GRS x Diet quality score	-0.040	0.018	0.029	-0.015	0.021	0.459
Diet quality score	-0.115	0.020	<0.001	-0.075	0.023	0.001
GRS	0.429	0.019	<0.001	0.430	0.020	<0.001
<b>HbA1c (mmol/mol)</b>						
GRS x Diet quality score	-0.053	0.011	<0.001	-0.032	0.009	<0.001
Diet quality score	-0.192	0.012	<0.001	-0.107	0.009	<0.001
GRS	0.601	0.012	<0.001	0.496	0.009	<0.001

GRS, genetic risk score.

\*Cox proportional hazards regression models for type 2 diabetes and generalized linear models for HbA1c were performed using standardized values of diet quality score and GRS.  $\beta$  coefficients were adjusted for age, sex, centers, BMI, education, Townsend deprivation index, household income, smoking, alcohol consumption, physical activity, history of hypertension, history of high cholesterol, vitamin supplement use, mineral supplement use, aspirin use and lipid-lowering medication.

**Supplementary Table 5.** Interaction of genetic risk score with diet component score\*

Component	Component score			GRS			Component score×GRS		
	$\beta$	SE	<i>P</i>	$\beta$	SE	<i>P</i>	$\beta$	SE	<i>P</i>
Refined grains	-0.118	0.016	<0.001	0.436	0.015	<0.001	-0.012	0.014	0.408
Whole grains	-0.082	0.016	<0.001	0.435	0.015	<0.001	-0.020	0.014	0.154
Processed meats	-0.050	0.017	0.003	0.429	0.014	<0.001	-0.043	0.015	0.005
Fish	-0.049	0.014	0.001	0.438	0.014	<0.001	0.017	0.013	0.210
Fruits	-0.044	0.014	0.003	0.435	0.014	<0.001	-0.017	0.013	0.188
Vegetables	-0.043	0.014	0.003	0.438	0.014	<0.001	0.011	0.013	0.421
Unprocessed red meats	-0.026	0.016	0.116	0.434	0.014	<0.001	-0.028	0.015	0.061
Dairy	0.004	0.015	0.803	0.439	0.014	<0.001	0.008	0.014	0.566
Sugar-sweetened beverages	0.013	0.013	0.347	0.440	0.014	<0.001	-0.030	0.013	0.017
Vegetable oils	0.020	0.014	0.147	0.438	0.014	<0.001	-0.006	0.013	0.634

GRS, genetic risk score.

\*Cox proportional hazards models for type 2 diabetes were performed using standardized values of diet component score and GRS.  $\beta$  coefficients were adjusted for age, sex, centers, BMI, education, Townsend deprivation index, household income, smoking, alcohol consumption, physical activity, history of hypertension, history of high cholesterol, vitamin supplement use, mineral supplement use, aspirin use and lipid-lowering medication.

**Supplementary Table 6. Sensitivity analyses**

	$\beta^*$	SE	P
<b>Further adjusting for sleep pattern</b>			
<b>Type 2 diabetes</b>			
GRS $\times$ Diet quality score	-0.029	0.014	0.030
Diet quality score	-0.091	0.015	<0.001
GRS	0.432	0.014	<0.001
<b>HbA1c (mmol/mol)</b>			
GRS $\times$ Diet quality score	-0.050	0.007	<0.001
Diet quality score	-0.143	0.007	<0.001
GRS	0.544	0.007	<0.001
<b>Further adjusting for hormone replacement therapy and oral contraceptive use</b>			
<b>Type 2 diabetes</b>			
GRS $\times$ Diet quality score	-0.029	0.014	0.031
Diet quality score	-0.097	0.015	<0.001
GRS	0.431	0.014	<0.001
<b>HbA1c (mmol/mol)</b>			
GRS $\times$ Diet quality score	-0.051	0.007	<0.001
Diet quality score	-0.148	0.007	<0.001
GRS	0.543	0.007	<0.001
<b>Further adjusting for glucosamine use</b>			
<b>Type 2 diabetes</b>			
GRS $\times$ Diet quality score	-0.029	0.014	0.031
Diet quality score	-0.097	0.015	<0.001
GRS	0.432	0.014	<0.001
<b>HbA1c (mmol/mol)</b>			
GRS $\times$ Diet quality score	-0.050	0.007	<0.001
Diet quality score	-0.146	0.007	<0.001
GRS	0.544	0.007	<0.001
<b>Further adjusting for fish oil use</b>			
<b>Type 2 diabetes</b>			
GRS $\times$ Diet quality score	-0.029	0.014	0.031
Diet quality score	-0.095	0.015	<0.001
GRS	0.431	0.014	<0.001
<b>HbA1c (mmol/mol)</b>			
GRS $\times$ Diet quality score	-0.050	0.007	<0.001
Diet quality score	-0.146	0.007	<0.001
GRS	0.544	0.007	<0.001

GRS, genetic risk score.

\*Cox proportional hazards models for type 2 diabetes and generalized linear models for HbA1c were performed using standardized values of diet quality score and GRS.  $\beta$  coefficients were adjusted for age, sex, centers, BMI, education, Townsend deprivation index, household income, smoking, alcohol consumption, physical activity, history of hypertension, history of high cholesterol, vitamin supplement use, mineral supplement use, aspirin use and lipid-lowering medication.

**Supplementary Table 7. Sensitivity analyses for categories of GRS**

	Percentile categories of GRS										P interaction	
	<5%	5-10%	10-20%	20-40%	40-60%	60-80%	80-90%	90-95%	95-99%	>99%		
<b>Excluding incident T2D cases within the first year</b>												
Multivariable-adjusted HR	0.95	0.93	0.92	0.95	0.93	0.89	0.91	0.89	0.77	0.77		0.029
95% CI	(0.76-1.18)	(0.77-1.13)	(0.82-1.04)	(0.88-1.02)	(0.87-0.99)	(0.84-0.94)	(0.85-0.98)	(0.81-0.98)	(0.69-0.85)	(0.64-0.93)		
Multivariable-adjusted changes in HbA1c (mmol/mol)	-0.11±0.03	-0.10±0.03	-0.12±0.02	-0.14±0.02	-0.15±0.02	-0.15±0.02	-0.13±0.03	-0.17±0.04	-0.22±0.04	-0.45±0.10		<0.001
<b>Excluding participants with missing covariate data</b>												
Multivariable-adjusted HR	1.09	0.88	1.05	0.91	0.96	0.89	0.90	0.86	0.76	0.80		0.011
95% CI	(0.84-1.42)	(0.71-1.10)	(0.91-1.21)	(0.83-1.00)	(0.89-1.03)	(0.83-0.95)	(0.83-0.98)	(0.76-0.97)	(0.68-0.86)	(0.64-0.99)		
Multivariable-adjusted changes in HbA1c (mmol/mol)	-0.11±0.04	-0.09±0.03	-0.11±0.02	-0.15±0.02	-0.14±0.02	-0.17±0.02	-0.14±0.03	-0.20±0.04	-0.25±0.05	-0.43±0.12		<0.001

GRS, genetic risk score.

\*Cox proportional hazards models for type 2 diabetes and generalized linear models for blood HbA1c were performed. Results were adjusted for age, sex, centers, BMI, education, Townsend deprivation index, household income, smoking, alcohol consumption, physical activity, history of hypertension, history of high cholesterol, vitamin supplement use, mineral supplement use, aspirin use and lipid-lowering medication.