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Supplementary Table S1. Unadjusted association of covariates with DM-related mortality: Cox proportional hazards models. Note that there were 481 deaths attributed to diabetes.

	Diabetes Mortality		
	HR	95% CI	p
Height	0.95	0.89-0.99	<0.001
SES			0.002
Low	1.59	1.21-1.99	0.001
Medium	1.53	1.16-2.03	0.003
High	1 (ref)		
Education			<0.001
<9	3.65	2.90-4.58	<0.001
10	2.25	1.68-3.02	<0.001
11	2.46	1.77-3.42	<0.001
12	1 (ref)		
Country of origin			0.005
Israel	1.20	0.72-1.98	0.47
USSR	1.51	1.07-2.13	0.021
Asia	1.00	0.78-1.28	0.99
Africa	1.46	1.16-1.84	0.001
Europe	1 (ref)		

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Supplementary Table S2. Main causes of death in the cohort and in the general Jewish population in Israel. Causes of death were grouped according to the International Classification of Diseases (ICD) coding. The number of deaths and the proportions of all deaths occurring in each category (a) within the current cohort relate to 1981 onwards, and (b) among the entire Jewish population of Israel at comparable ages between 2000 and 2011 as reported by the Israeli Ministry of Health (during which 88.4% of all DM deaths occurred in our cohort). Note that the causes of death occurring before 25 years of age (n=6,227 deaths including only one death ascribed to diabetes) are not shown in the age-specific presentation. 'Injury and poisoning' accounted for over two thirds of these early deaths.

Cause	ICD code	Age 25-44	Age 45-64
(a) Current cohort			
Diabetes	ICD9:250 ICD10:E08-13	87 (0.6%)	393 (3.3%)
Injury & poisoning*	ICD9:800-999 ICD10: S00-T98, V01-Y98	5,180 (37.1%)	1,311 (11.0%)
Neoplasms	ICD9: 140-239 ICD10: C00-D48	3,520 (25.2%)	4,798 (40.2%)
Diseases of circulatory system	ICD9: 390-459 ICD10: I00-I99	1,196 (8.6%)	1,851(15.5%)
(b) Among the Jewish population of Israel between 2001-2011			
Diabetes	ICD10:E08-13	11 (1.2%)	196 (4.6%)
Injury & poisoning*	ICD10: S00-T98, V01-Y98	311 (33.4%)	306 (7.1%)
Neoplasms	ICD10: C00-D48	268 (28.8%)	1934 (45.0%)
Diseases of circulatory system	ICD10: I00-I99	74 (8.0%)	726 (16.9%)

*Including suicide and homicide

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Supplementary Table S3. DM mortality rates by age attained during follow-up.
In this analysis we calculated DM mortality rates based on the number of deaths from diabetes that occurred within the given age range and the person time of participants within that age category. Please note that since all participants in the study had some period of follow-up after age 17 they all were included in the <35 year group.

	Age Attained during the Follow-up [years]						
	<35	**35-39**	**40-44**	**45-49**	**50-54**	**55-59**	**≥60**
Total N	2,294,139	1,203,855	892,197	647,842	437,477	246,902	72,693
Number of deaths	13	19	56	113	148	116	16
Cumulative follow-up (person-years)	27,994,329	5,199,000	3,820,007	2,699,004	1,713,540	790,469	80,658
DM mortality rate (/10^5 person years)	0.05	0.37	1.47	4.19	8.64	14.67	19.84

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Supplementary Table S4. Analysis of the association of BMI with DM mortality for adolescents with unimpaired health status. This analysis was restricted to 1,666,118 adolescents (72.6% of the cohort) whose medical examination revealed no current chronic medical condition, no chronic medical treatment and no previous history of such conditions that affect physical fitness. In this subcohort, there were 331 deaths attributed to DM during follow-up. Cox proportional hazards models were adjusted for age at examination, birth year, and sex (Model 1), and additionally for socio-economic status, country of origin, education level and height (Model 2).

(a) BMI classified by US-CDC percentiles

BMI percentiles	<5th	5th-24th	25th-49th	50th-74th	75th-84th	85th-94th	≥95th
HR (unadjusted)	1.04	1 (ref)	1.47	1.54	3.67	7.63	19.46
95% CI	0.48-2.26		0.96-2.24	1.00-2.35	2.35-5.73	5.04-11.56	12.28-30.83
P	0.92		0.08	0.048	<0.001	<0.001	<0.001
HR (model 1)	1.11	1 (ref)	1.48	1.63	3.96	8.09	19.21
95% CI	0.52-2.38		0.97-2.27	1.03-2.45	2.55-6.44	5.29-12.42	12.11-30.28
P	0.82		0.071	0.028	<0.001	<0.001	<0.001
HR (model 2)	1.19	1 (ref)	1.50	1.69	4.27	8.60	18.75
95% CI	0.55-2.58		0.98-2.30	1.10-2.59	2.73-6.68	5.66-13.05	11.80-29.81
P	0.66		0.061	0.017	<0.001	<0.001	<0.001

(b) BMI classified by kg/m^2

BMI range	<17.5	17.5-19.9	20.0-22.4	22.5-24.9	25.0-27.4	27.5-29.9	≥30.0
HR (unadjusted)	0.88	1 (ref)	1.48	2.67	6.46	10.20	21.29
95% CI	0.35-2.21		1.03-2.12	1.84-3.86	4.39-9.51	6.42-16.19	13.35-34.05
P	0.78		0.032	<0.001	<0.001	<0.001	<0.001
HR (model 1)	1.20	1 (ref)	1.36	2.48	6.10	10.05	22.25
95% CI	0.48-3.03		0.95-1.95	1.71-3.59	4.14-8.98	6.33-15.96	13.95-35.50
P	0.70		0.095	<0.001	<0.001	<0.001	<0.001
HR (model 2)	1.20	1 (ref)	1.43	2.86	7.16	11.44	23.41
95% CI	0.48-3.04		1.00-2.05	1.97-4.15	4.85-10.57	7.19-18.21	14.64-37.43
P	0.70		0.051	<0.001	<0.001	<0.001	<0.001

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Supplementary Table S5. Sex-specific analysis of the association between adolescent BMI and DM mortality. There were 432 and 49 diabetes deaths among men and women, respectively. Cox proportional hazards models were adjusted for age at examination, birth year, and sex (Model 1), and additionally for socio-economic status, country of origin, education level and height (Model 2). The 25^{th}-49^{th} percentile group was used as the reference as there were no DM deaths among women in the 5^{th}-24^{th} percentiles.

BMI percentiles	<5th	5th-24th	25th-49th	50th-74th	75th-84th	85th-94th	≥95th
Men (n=432 deaths)							
Cases	16	47	81	70	58	91	69
HR (unadjusted)	0.73	0.70	1 (ref)	1.01	2.61	5.13	10.59
95% CI	0.43-1.25	0.49-1.00		0.73-1.39	1.86-3.66	3.80-6.92	7.68-14.61
P	0.26	0.052		0.96	<0.001	<0.001	<0.001
HR (model 1)	0.85	0.74	1 (ref)	0.98	2.51	4.97	11.43
95% CI	0.50-1.45	0.52-1.06		0.71-1.35	1.79-3.52	3.68-6.71	8.29-15.76
P	0.55	0.104		0.91	<0.001	<0.001	<0.001
HR (model 2)	0.81	0.72	1 (ref)	1.03	2.75	5.40	11.51
95% CI	0.47-1.38	0.50-1.03		0.75-1.42	1.96-3.85	3.99-7.30	8.31-15.93
P	0.43	0.072		0.84	<0.001	<0.001	<0.001
Women (n=49 deaths)							
Cases	2	0	6	14	9	13	5
HR (unadjusted)	2.43	---	1 (ref)	2.27	4.03	8.02	17.45
95% CI	0.49-12.05	---		0.87-5.90	1.44-11.33	3.05-21.10	5.31-57.31
P	0.27	---		0.094	0.008	<0.001	<0.001
HR (model 1)	2.72	---	1 (ref)	2.26	4.11	8.51	21.51
95% CI	0.55-13.05	---		0.87-5.89	1.46-11.54	3.23-22.39	6.53-70.90
P	0.22	---		0.96	0.094	<0.001	<0.001
HR (model 2)	2.70	---	1 (ref)	2.24	3.93	7.81	18.74
95% CI	0.54-13.42	---		0.86-5.82	1.40-11.04	2.96-20.61	5.67-62.01
P	0.23	---		0.10	0.01	<0.001	<0.001
Total (n=481 deaths)							
Cases	18	47	87	84	67	104	74
HR (unadjusted)	0.93	0.71	1 (ref)	1.05	2.50	5.06	12.45
95% CI	0.56-1.55	0.50-1.01		0.78-1.42	1.82-3.43	3.80-6.72	9.13-16.98
P	0.79	0.059		0.63	<0.001	<0.001	<0.001

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HR (model 1)	0.93	0.71	1 (ref)	1.08	2.62	5.22	12.01
95% CI	0.56-1.55	0.50-1.01		0.80-1.45	1.91-3.61	3.93-6.94	8.81-16.38
P	0.79	0.056		0.63	<0.001	<0.001	<0.001
HR (model 2)	0.90	0.65	1 (ref)	1.14	2.78	5.48	12.22
95% CI	0.54-1.53	0.45-0.95		0.84-1.56	2.00-3.87	3.93-6.94	8.88-16.84
P	0.70	0.025		0.39	<0.001	<0.001	<0.001

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Supplementary Table S6. Sensitivity analysis restricted to participants examined between 1967 and 1977: Unadjusted and multivariable adjusted Cox models (for age at examination, birth year, and sex [Model 1], and additionally for socio-economic status, country of origin, education level and height [Model 2]). The 395,324 adolescents examined during this period yielded 417 DM deaths (86.7% of the total DM deaths). To enable comparison with the full sample, hazard ratios of the main analysis (unadjusted and model 2 adjusted, Table 2) are shown. The estimates were similar.

(a) BMI classified by US-CDC percentiles

	<5th	5th-24th	25th-49th	50th-74th	75th-84th	85th-94th	≥95th
N	22,600	82,894	114,168	106,033	35,449	26,831	7,349
Cases	15	41	78	75	57	91	60
HR (unadjusted)	1.34	1 (ref)	1.38	1.43	3.27	6.92	17.06
95% CI	0.75-2.43		0.95-2.01	0.98-2.09	2.19-4.88	4.79-10.00	11.47-25.38
P	0.32		0.096	0.065	<0.001	<0.001	<0.001
HR (unadjusted, main analysis)	1.31	1 (ref)	1.41	1.48	3.51	7.11	17.53
95% CI	0.76-2.26		0.99-2.01	1.04-2.12	2.42-5.10	5.04-10.04	12.16-25.26
P	0.33		0.059	0.031	<0.001	<0.001	<0.001
HR (model 1)	1.30	1 (ref)	1.43	1.52	3.52	7.21	15.71
95% CI	0.72-2.35		0.98-2.08	1.04-2.22	2.35-5.26	4.99-10.43	10.56-23.68
P	0.38		0.066	0.032	<0.001	<0.001	<0.001
HR (model 1, main analysis)	1.32	1 (ref)	1.41	1.52	3.71	7.38	16.98
95% CI	0.77-2.27		0.99-2.01	1.06-2.17	2.55-5.38	5.23-10.42	11.77-24.48
P	0.32		0.055	0.021	<0.001	<0.001	<0.001
HR (model 2)	1.29	1 (ref)	1.45	1.59	3.68	7.55	15.88
95% CI	0.71-2.26		1.00-2.11	1.09-2.37	2.51-5.66	5.2-10.72	10.69-23.82
P	0.44		0.051	0.011	<0.001	<0.001	<0.001
HR (model 2, main analysis)	1.29	1 (ref)	1.46	1.64	4.09	8.02	17.17
95% CI	0.75-2.23		1.02-2.08	1.14-2.34	2.81-5.95	5.66-11.34	11.87-24.83
P	0.35		0.038	0.007	<0.001	<0.001	<0.001

(a) BMI classified by kg/m^2

BMI range	<17.5	17.5-19.9	20.0-22.4	22.5-24.9	25.0-27.4	27.5-29.9	≥30.0
HR (unadjusted)	1.10	1 (ref)	1.33	2.35	5.90	8.44	19.19
95% CI	0.55-2.22		0.97-1.84	1.69-3.28	4.19-8.31	5.57-12.81	13.00-28.33
P	0.79		0.081	<0.001	<0.001	<0.001	<0.001
HR (unadjusted, main analysis)	1.06	1 (ref)	1.40	2.50	6.33	8.88	18.83
95% CI	0.56-2.01		1.03-1.89	1.84-3.42	4.60-8.71	6.05-13.05	13.16-26.94
P	0.86		0.029	<0.001	<0.001	<0.001	<0.001
HR (model 1)	1.15	1 (ref)	1.30	2.33	5.83	8.37	18.95
95% CI	0.58-2.32		0.94-1.78	1.67-3.24	4.15-8.22	5.52-12.68	12.83-27.97
P	0.60		0.11	<0.001	<0.001	<0.001	<0.001
HR (model 1, main analysis)	1.19	1 (ref)	1.31	2.38	6.08	8.88	20.04
95% CI	0.63-2.25		0.97-1.77	1.74-3.24	4.42-8.37	6.05-13.05	14.11-28.67

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P	0.60		0.083	<0.001	<0.001	<0.001	<0.001
HR (model 2)	1.12	1 (ref)	1.36	2.64	6.74	9.35	19.53
95% CI	0.56-2.26		0.99-1.88	1.90-3.69	4.78-9.51	6.15-14.22	13.19-28.93
P	0.75		0.059	<0.001	<0.001	<0.001	<0.001
HR (model 2, main analysis)	1.16	1 (ref)	1.37	2.68	6.94	9.81	20.38
95% CI	0.61-2.20		1.01-1.85	1.97-3.66	5.03-9.57	6.67-14.44	14.20-29.23
P	0.65		0.041	<0.001	<0.001	<0.001	<0.001

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Supplementary Table S7. The association between adolescent BMI and DM mortality with follow-up commencing at the age of the baseline examination (16-19 y) for all participants. The Cox models for deaths attributed to DM were computed with follow-up beginning at age 16-19. To facilitate comparison with the main analysis presented in Table 2 in which the follow-up for those examined before 1981 began at their attained ages in 1981, the results of the main analysis are also shown. Models were defined as described in Table 2.

	<5th	5th-24th	25th-49th	50th-74th	75th-84th	85th-94th	≥95th
HR (unadjusted)	1.42	1 (ref)	1.34	1.38	3.26	6.81	17.84
95% CI	0.83-2.45		0.94-1.91	0.96-1.97	2.25-4.75	4.83-9.62	12.36-25.73
P	0.21		0.11	0.081	<0.001	<0.001	<0.001
HR (main analysis, unadjusted)	1.31	1 (ref)	1.41	1.48	3.51	7.11	17.53
95% CI	0.76-2.26		0.99-2.01	1.04-2.12	2.42-5.10	5.04-10.04	12.16-25.26
P	0.33		0.059	0.031	<0.001	<0.001	<0.001
HR (model 1)	1.33	1 (ref)	1.41	1.50	3.63	7.32	16.61
95% CI	0.77-2.28		0.99-2.01	1.05-2.14	2.50-5.28	5.19-10.34	11.51-23.97
P	0.31		0.058	0.027	<0.001	<0.001	<0.001
HR (main analysis, model 1)	1.32	1 (ref)	1.41	1.52	3.71	7.38	16.98
95% CI	0.77-2.27		0.99-2.01	1.06-2.17	2.55-5.38	5.23-10.42	11.77-24.48
P	0.32		0.055	0.021	<0.001	<0.001	<0.001
HR (model 2)	1.29	1 (ref)	1.46	1.62	4.03	8.00	16.85
95% CI	0.75-2.22		1.02-2.08	1.13-2.32	2.76-5.87	5.65-11.32	11.63-24.40
P	0.36		0.037	0.008	<0.001	<0.001	<0.001
HR (main analysis, model 2)	1.29	1 (ref)	1.46	1.64	4.09	8.02	17.17
95% CI	0.75-2.23		1.02-2.08	1.14-2.34	2.81-5.95	5.66-11.34	11.87-24.83
P	0.35		0.038	0.007	<0.001	<0.001	<0.001

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Supplementary Table S8. Competing risk. The Cox models for deaths attributed to DM were computed with non-DM mortality as the competing event. Models were unadjusted, adjusted for age at examination, birth year and sex, residential socioeconomic status, education, country of origin and height to the model (model 2). For comparison, the results of the same analysis, but without competing risk are shown (labelled as main analysis). Note that accounting for competing events had a minor effect on the associations.

	<5th	5th-24th	25th-49th	50th-74th	75th-84th	85th-94th	≥95th
HR (unadjusted)	1.31	1 (ref)	1.41	1.48	3.51	7.08	17.18
95% CI	0.76-2.25		0.99-2.01	1.04-2.12	2.41-5.09	5.01-9.90	11.91-24.77
P	0.33		0.060	0.025	<0.001	<0.001	<0.001
HR (main analysis, unadjusted)	1.31	1 (ref)	1.41	1.48	3.51	7.11	17.53
95% CI	0.76-2.26		0.99-2.01	1.04-2.12	2.42-5.10	5.04-10.04	12.16-25.26
P	0.33		0.059	0.031	<0.001	<0.001	<0.001
HR (model 2)	1.31	1 (ref)	1.45	1.63	4.06	7.95	16.77
95% CI	0.76-2.25		1.02-2.08	1.14-2.34	2.79-5.91	5.62-11.24	11.63-24.18
P	0.30		0.040	0.008	<0.001	<0.001	<0.001
HR (main analysis, model 2)	1.29	1 (ref)	1.46	1.64	4.09	8.02	17.17
95% CI	0.75-2.23		1.02-2.08	1.14-2.34	2.81-5.95	5.66-11.34	11.87-24.83
P	0.35		0.038	0.007	<0.001	<0.001	<0.001

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Supplementary Table S9. Cox proportional hazards analysis of the association of adolescent BMI with DM mortality using the currently defined normal BMI (CDC BMI percentiles 5th-84th) as the reference. Analysis is presented in two modes: (a) when elevated BMI is separated into overweight and obesity, or (b) pooled as a single group.

(a)

	<5th	5th-84th	85th-94th	≥95th
HR (unadjusted)	0.97	1 (ref)	4.63	12.13
95% CI	0.60-1.56		3.70-5.81	9.38-15.70
P	0.89		<0.001	<0.001
HR (model 1)	0.86	1 (ref)	4.71	10.73
95% CI	0.53-1.38		3.76-5.90	8.28-13.88
P	0.53		<0.001	<0.001
HR (model 2)	0.81	1 (ref)	4.87	10.31
95% CI	0.50-1.30		3.89-6.12	7.93-13.39
P	0.37		<0.001	<0.001

(b)

	<5th	5th-84th	≥85th
HR (unadjusted)	0.97	1 (ref)	6.22
95% CI	0.60-1.56		5.15-7.51
P	0.88		<0.001
HR (model 1)	0.86	1 (ref)	6.12
95% CI	0.53-1.38		5.08-7.39
P	0.52		<0.001
HR (model 2)	0.80	1 (ref)	6.21
95% CI	0.49-1.29		5.14-7.52
P	0.36		<0.001

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Supplementary Table S10. The association between adolescent BMI and DM mortality stratified by deaths occurring in younger (≤50 years) and older adults (>50 years): unadjusted and multivariable adjusted Cox models (adjusted for age at examination, birth year, and sex [Model 1], and additionally for socio-economic status, country of origin, education level and height [Model 2]).

		<5th	5th-24th	25th-49th	50th-74th	75th-84th	85th-94th	≥95th
Diabetes Mortality (≤50 years, 201 deaths; >50 years, 280 deaths)								
≤50 years	N of deaths	8	19	28	34	25	50	37
	HR (unadjusted)	1.38	1 (ref)	1.15	1.53	3.29	8.38	19.92
	95% CI	0.60-3.15		0.64-2.07	0.87-2.68	1.81-5.97	4.94-14.22	11.45-34.65
	P	0.45		0.63	0.14	<0.001	<0.001	<0.001
	HR (model 1)	1.37	1 (ref)	1.17	1.61	3.64	9.31	20.89
	95% CI	0.60-3.13		0.65-2.09	0.92-2.82	2.01-6.62	5.49-15.80	12.01-36.35
	P	0.45		0.60	0.097	<0.001	<0.001	<0.001
	HR (model 2)	1.35	1 (ref)	1.19	1.69	3.92	9.85	20.68
	95% CI	0.59-3.10		0.67-2.13	0.99-2.97	2.15-7.13	5.79-16.77	11.84-36.13
	P	0.47		0.56	0.052	<0.001	<0.001	<0.001
>50 years	N of deaths	10	28	59	50	42	54	37
	HR (unadjusted)	1.30	1 (ref)	1.54	1.41	3.57	6.10	15.53
	95% CI	0.63-2.67		0.98-2.42	0.89-2.23	2.21-5.76	3.87-9.63	9.51-25.38
	P	0.48		0.060	0.15	<0.001	<0.001	<0.001
	HR (model 1)	1.29	1 (ref)	1.57	1.46	3.74	6.18	14.30
	95% CI	0.63-2.65		1.00-2.56	0.92-2.33	2.32-6.04	3.91-9.76	8.75-23.36
	P	0.49		0.051	0.107	<0.001	<0.001	<0.001
	HR (model 2)	1.24	1 (ref)	1.63	1.60	4.20	6.83	14.67
	95% CI	0.60-2.57		1.04-2.55	1.10-2.58	2.60-6.79	4.31-10.82	8.93-24.08
	P	0.55		0.034	0.047	<0.001	<0.001	<0.001

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Supplementary Table S11. Analysis of the association of BMI with DM mortality for adolescents attaining age 35 years or older during the follow-up. This analysis was restricted to 1,203,855 adolescents (56.6% of the cohort) whose medical examination revealed no current chronic medical condition, no chronic medical treatment and no previous history of such conditions that affect physical fitness. In this subcohort, there were 468 deaths attributed to DM during follow-up. Cox proportional hazards models were adjusted for age at examination, birth year, and sex (Model 1), and additionally for socio-economic status, country of origin, education level and height (Model 2).

(a) BMI classified by US-CDC percentiles

BMI percentiles	<5th	5th-24th	25th-49th	50th-74th	75th-84th	85th-94th	≥95th
HR (unadjusted)	1.30	1 (ref)	1.40	1.51	3.62	7.33	18.38
95% CI	0.74-2.26		0.98-2.01	1.05-2.17	2.48-5.29	5.16-10.41	12.68-26.66
P	0.36		0.07	0.031	<0.001	<0.001	<0.001
HR (model 1)	1.31	1 (ref)	1.41	1.55	3.83	7.60	17.62
95% CI	0.75-2.28		0.98-2.02	1.08-2.23	2.62-5.59	5.35-10.79	12.15-25.55
P	0.35		0.072	0.021	<0.001	<0.001	<0.001
HR (model 2)	1.28	1 (ref)	1.45	1.67	4.23	8.29	17.94
95% CI	0.73-2.24		1.01-2.09	1.16-2.41	2.89-6.19	5.82-11.80	12.33-26.14
P	0.39		0.045	0.006	<0.001	<0.001	<0.001

(b) BMI classified by kg/m^2

BMI range	<17.5	17.5-19.9	20.0-22.4	22.5-24.9	25.0-27.4	27.5-29.9	≥30.0
HR (unadjusted)	1.01	1 (ref)	1.41	2.57	6.66	8.95	19.78
95% CI	0.52-1.98		1.04-1.92	1.88-3.53	4.82-9.20	6.04-13.27	13.75-28.45
P	0.95		0.031	<0.001	<0.001	<0.001	<0.001
HR (model 1)	1.14	1 (ref)	1.32	2.44	6.39	8.94	20.88
95% CI	0.58-2.22		0.97-1.79	1.78-3.35	4.62-8.84	6.03-13.25	14.52-30.04
P	0.71		0.074	<0.001	<0.001	<0.001	<0.001
HR (model 2)	1.11	1 (ref)	1.39	2.70	7.11	9.62	20.84
95% CI	0.57-2.16		1.02-1.895	1.97-3.71	5.13-9.85	6.47-14.30	14.43-30.08
P	0.76		0.038	<0.001	<0.001	<0.001	<0.001

SUPPLEMENTARY DATA

Supplementary Table S12. Analysis of the association of adolescent BMI with DM mortality after excluding examinees with known diabetes at age 17.

The current analysis excludes 2,417 participants with an established diagnosis of diabetes at enrollment, of which 30 died during the study period (we lack formal diagnoses of the exact type of diabetes of these patients, but assume the majority to be T1DM). Of note, the underlying causes of death for the 30 deaths among participants with diabetes at enrolment were DM (33%; n=10), CHD (13%; n=4), trauma (13%; n=4), cancer (10%; n=3; including one case of pancreatic cancer), complications related to cystic fibrosis or HIV (7%; n=2), sepsis (3%; n=1), undetermined (17%, n=5), and missing (3%; n=1).

Cox proportional hazards models were unadjusted, or adjusted for age at examination, birth year, and sex (Model 1), and additionally for socio-economic status, country of origin, education level and height (Model 2). It is evident that for all models the association was as strong as that shown in the main analysis of Table 2 (presented here to facilitate comparison).

BMI percentiles	<5th	5th-24th	25th-49th	50th-74th	75th-84th	85th-94th	≥95th
HR (unadjusted)	1.17	1 (ref)	1.52	1.62	3.73	7.63	18.35
95% CI	0.64-2.15		1.04-2.21	1.10-2.35	2.51-5.53	5.30-10.99	12.44-27.10
P	0.61		0.029	0.013	<0.001	<0.001	<0.001
HR (unadjusted, main analysis)	1.31	1 (ref)	1.41	1.48	3.51	7.11	17.53
95% CI	0.76-2.26		0.99-2.01	1.04-2.12	2.42-5.10	5.04-10.04	12.16-25.26
P	0.33		0.059	0.031	<0.001	<0.001	<0.001
HR (model 1)	1.18	1 (ref)	1.53	1.66	3.94	7.91	17.64
95% CI	0.64-2.16		1.05-2.22	1.14-2.43	2.66-5.85	5.49-11.39	11.96-26.03
P	0.59		0.027	0.008	<0.001	<0.001	<0.001
HR (model 1, main analysis)	1.32	1 (ref)	1.41	1.52	3.71	7.38	16.98
95% CI	0.77-2.27		0.99-2.01	1.06-2.17	2.55-5.38	5.23-10.42	11.77-24.48
P	0.32		0.055	0.021	<0.001	<0.001	<0.001
HR (model 2)	1.15	1 (ref)	1.58	1.80	4.38	8.67	18.04
95% CI	0.63-2.11		1.09-2.30	1.63-2.62	2.95-6.51	6.00-12.53	12.19-26.70
P	0.65		0.017	0.002	<0.001	<0.001	<0.001
HR (model 2, main analysis)	1.29	1 (ref)	1.46	1.64	4.09	8.02	17.17
95% CI	0.75-2.23		1.02-2.08	1.14-2.34	2.81-5.95	5.66-11.34	11.87-24.83
P	0.35		0.038	0.007	<0.001	<0.001	<0.001

SUPPLEMENTARY DATA

Supplementary Table S13. Analysis of the association of adolescent BMI with DM mortality after excluding Type 1 diabetes deaths.

In this analysis deaths ascribed to type 1 diabetes (n=38; E10.000, E10.100, E10.200, E10.400, E10.500, E10.700, E10.900, 250.010, 250410) were excluded from analysis leaving 443 DM deaths. Cox proportional hazards models were unadjusted, or adjusted for age at examination, birth year, and sex (Model 1), and additionally for socio-economic status, country of origin, education level and height (Model 2). It is evident that for all models the association was as strong as that shown in the main analysis of Table 2 (shown here to facilitate comparison).

BMI percentiles	<5th	5th-24th	25th-49th	50th-74th	75th-84th	85th-94th	≥95th
HR (unadjusted)	1.27	1 (ref)	1.42	1.46	3.54	7.14	17.76
95% CI	0.73-2.21		0.99-2.03	1.02-2.10	2.43-5.16	5.04-10.11	12.28-25.69
P	0.41		0.054	0.041	<0.001	<0.001	<0.001
HR (unadjusted, main analysis)	1.31	1 (ref)	1.41	1.48	3.51	7.11	17.53
95% CI	0.76-2.26		0.99-2.01	1.04-2.12	2.42-5.10	5.04-10.04	12.16-25.26
P	0.33		0.059	0.031	<0.001	<0.001	<0.001
HR (model 1)	1.28	1 (ref)	1.43	1.50	3.74	7.41	17.16
95% CI	0.73-2.23		1.00-2.04	1.05-2.16	2.57-5.45	5.23-10.50	11.86-24.82
P	0.39		0.051	0.028	<0.001	<0.001	<0.001
HR (model 1, main analysis)	1.32	1 (ref)	1.41	1.52	3.71	7.38	16.98
95% CI	0.77-2.27		0.99-2.01	1.06-2.17	2.55-5.38	5.23-10.42	11.77-24.48
P	0.32		0.055	0.021	<0.001	<0.001	<0.001
HR (model 2)	1.25	1 (ref)	1.47	1.61	4.12	8.06	17.41
95% CI	0.72-2.18		1.03-2.10	1.12-2.32	2.82-6.02	5.67-11.44	12.00-25.27
P	0.43		0.035	0.010	<0.001	<0.001	<0.001
HR (model 2, main analysis)	1.29	1 (ref)	1.46	1.64	4.09	8.02	17.17
95% CI	0.75-2.23		1.02-2.08	1.14-2.34	2.81-5.95	5.66-11.34	11.87-24.83
P	0.35		0.038	0.007	<0.001	<0.001	<0.001

SUPPLEMENTARY DATA

Supplementary Table S14. Analysis of the association of adolescent BMI with mortality ascribed to Type 2 diabetes or unspecified diabetes.

We stratified the deaths attributed to diabetes by those relating to Type 2 (a; n=168) and to those to diabetes of unspecified type (b; n=245). There were only 35 deaths relating to Type 1 Diabetes (not shown). Data presented here are for ICD-10 classified diagnoses (ie. starting from 1998 onwards), that include 93.1% of the total diabetes mortality in our cohort. Cox proportional hazards models were unadjusted, or adjusted for age at examination, birth year, and sex (Model 1), and additionally for socio-economic status, country of origin, education level and height (Model 2). It is evident that for both Type 2 and diabetes of unspecified type, increased risk was evident in the age- and sex- adjusted model (model 1) at the 50^{th} -74^{th} percentiles, although the association of BMI with Type 2 Diabetes appears to be stronger, likely partly reflecting the effect of removing those with Type 1.

(a) Type 2 Diabetes (n=168)

	$<5^{th}$	5^{th}-24^{th}	25^{th}-49^{th}	50^{th}-74^{th}	75^{th}-84^{th}	85^{th}-94^{th}	$\geq 95^{th}$
Cases	8	12	21	30	26	41	30
HR (unadjusted)	2.28	1 (ref)	1.33	2.07	5.36	11.06	28.34
95% CI	0.94-5.56		0.66-2.70	1.06-4.05	2.70-10.61	5.81-21.04	14.51-55.36
P	0.070		0.43	0.033	<0.001	<0.001	<0.001
HR (unadjusted, main analysis)	1.31	1 (ref)	1.41	1.48	3.51	7.11	17.53
95% CI	0.76-2.26		0.99-2.01	1.04-2.12	2.42-5.10	5.04-10.04	12.16-25.26
P	0.33		0.059	0.031	<0.001	<0.001	<0.001
HR (model 1)	2.33	1 (ref)	1.32	2.10	5.56	11.24	27.05
95% CI	0.95-5.71		0.65-2.69	1.08-4.10	2.80-11.01	5.91-21.40	13.84-52.85
P	0.063		0.44	0.030	<0.001	<0.001	<0.001
HR (model 1, main analysis)	1.32	1 (ref)	1.41	1.52	3.71	7.38	16.98
95% CI	0.77-2.27		0.99-2.01	1.06-2.17	2.55-5.38	5.23-10.42	11.77-24.48
P	0.32		0.055	0.021	<0.001	<0.001	<0.001
HR (model 2)	2.27	1 (ref)	1.38	2.30	6.29	12.66	28.34
95% CI	0.93-5.57		0.68-2.80	1.18-4.50	3.17-12.50	6.63-24.19	14.51-55.36
P	0.072		0.40	0.015	<0.001	<0.001	<0.001
HR (model 2, main analysis)	1.29	1 (ref)	1.46	1.64	4.09	8.02	17.17
95% CI	0.75-2.23		1.02-2.08	1.14-2.34	2.81-5.95	5.66-11.34	11.87-24.83
P	0.35		0.038	0.007	<0.001	<0.001	<0.001

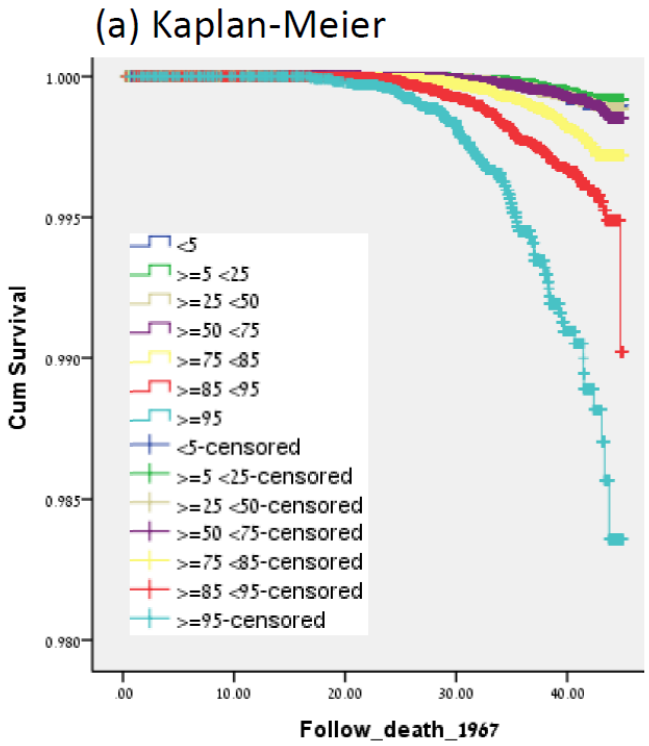
SUPPLEMENTARY DATA

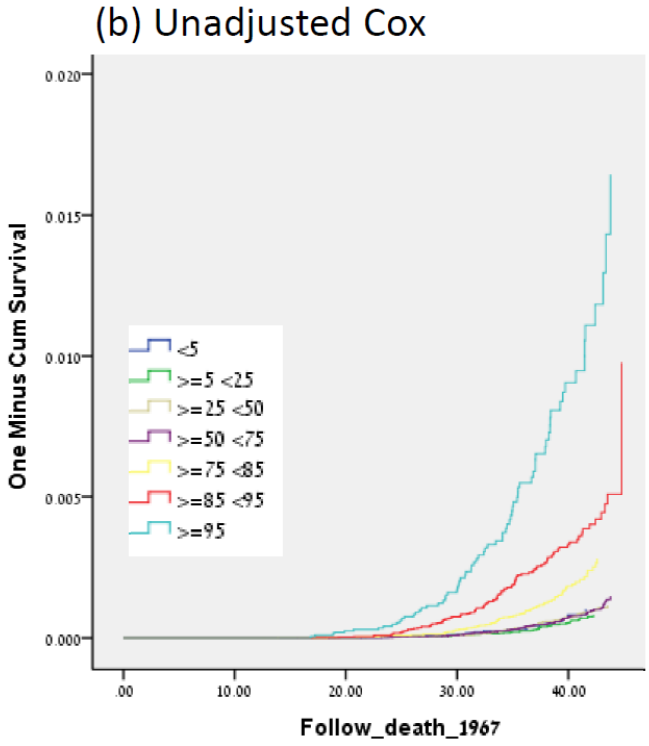
(b) Unspecified Type of Diabetes (n=245)

	<5th	5th-24th	25th-49th	50th-74th	75th-84th	85th-94th	≥95th
Cases	5	24	55	46	33	51	31
HR (unadjusted)	0.72	1 (ref)	1.73	1.58	3.41	6.94	15.08
95% CI	0.28-1.89		1.07-2.80	0.97-2.60	2.01-5.76	4.28-11.28	8.85-25.69
P	0.50		0.024	0.060	<0.001	<0.001	<0.001
HR (unadjusted, main analysis)	1.31	1 (ref)	1.41	1.48	3.51	7.11	17.53
95% CI	0.76-2.26		0.99-2.01	1.04-2.12	2.42-5.10	5.04-10.04	12.16-25.26
P	0.33		0.059	0.031	<0.001	<0.001	<0.001
HR (model 1)	0.71	1 (ref)	1.77	1.66	3.65	7.22	13.93
95% CI	0.27-1.86		1.09-2.85	1.01-2.72	2.16-6.19	4.44-11.73	8.17-23.74
P	0.48		0.020	0.044	<0.001	<0.001	<0.001
HR (model 1, main analysis)	1.32	1 (ref)	1.41	1.52	3.71	7.38	16.98
95% CI	0.77-2.27		0.99-2.01	1.06-2.17	2.55-5.38	5.23-10.42	11.77-24.48
P	0.32		0.055	0.021	<0.001	<0.001	<0.001
HR (model 2)	0.69	1 (ref)	1.83	1.80	4.08	7.92	14.21
95% CI	0.26-1.80		1.13-2.96	1.10-2.95	2.40-6.91	4.86-12.92	8.30-24.32
P	0.44		0.013	0.020	<0.001	<0.001	<0.001
HR (model 2, main analysis)	1.29	1 (ref)	1.46	1.64	4.09	8.02	17.17
95% CI	0.75-2.23		1.02-2.08	1.14-2.34	2.81-5.95	5.66-11.34	11.87-24.83
P	0.35		0.038	0.007	<0.001	<0.001	<0.001

SUPPLEMENTARY DATA

Supplementary Figure S1. The association between adolescent BMI grouped by US-CDC percentiles and diabetes mortality: Kaplan-Meier and unadjusted Cox survival analyses. Note that in this analysis the follow-up started in 1967.





SUPPLEMENTARY DATA

Supplementary Figure S2. Multivariable-adjusted spline models for the association between adolescent BMI (in kg/m^2) and DM and all-cause mortality. The minimum risk for DM and all-cause mortality was observed at BMIs of 17.7 and 19.9 kg/m^2 (continuous arrows), respectively, whereas a significantly elevated risk became evident for adolescent BMI values above ~21.6 kg/m^2 (dashed arrow) for both outcomes. The model was adjusted for age, birth year, sex, residential socio-economic status, country of origin, education and height.