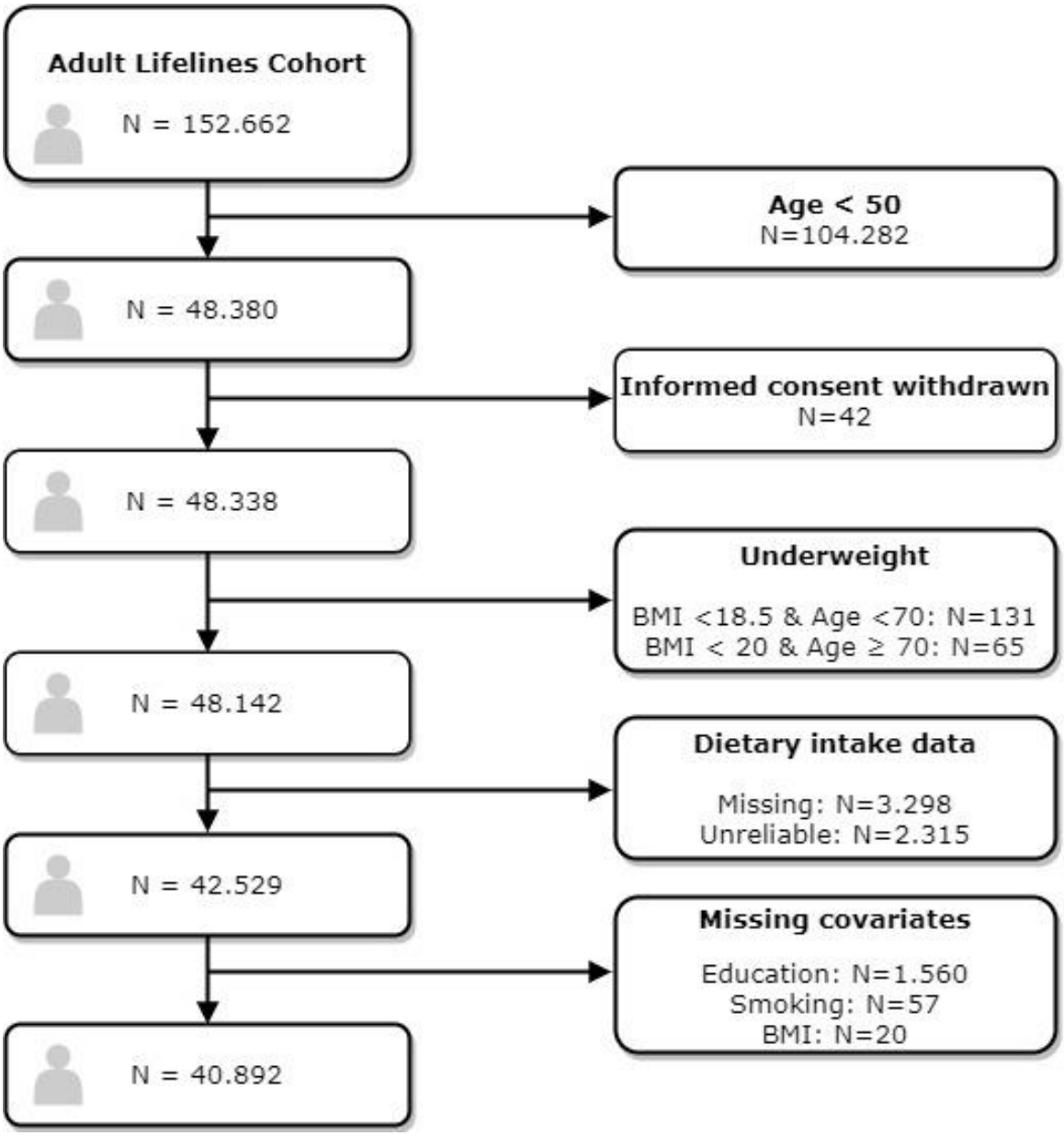
Supplemental Figure 1: Flowchart of excluded participants.



Supplemental Table 1: Cut-offs for quintiles of the food-groups included in the Lifelines Diet Score in grams/1000 kcal, defined in the total adult Lifelines cohort (n=129.363)*.

Food group	**Q1 to Q2**	**Q2 to Q3**	**Q3 to Q4**	**Q4 to Q5**
Positive groups				
Vegetables	27.0	41.1	55.2	75.5
Fruit	18.4	41.8	73.9	118.8
Whole grain products	33.6	47.9	60.1	74.3
Legumes & Nuts	3.1	6.5	10.6	16.5
Fish	1.3	3.9	6.2	9.4
Oils & Soft margarines	1.7	5.0	10.3	15.9
Unsweetened dairy	21.7	55.7	93.5	149.6
Coffee	79.4	169.6	236.4	323.1
Tea	10.9	58.6	124.5	225.5
Negative groups				
Red & Processed meat	45.2	36.2	29.1	20.7
Butter & Hard margarines	19.7	13.2	8.1	3.2
Sugar-sweetened beverages	117.7	64.2	30.0	8.8

***** previously published in online supplementary materials of Vinke et al., The Journal of Nutrition, 2020, 150(3): 560-567

Supplemental Table 2: Additional information regarding the ascertainment of cardio-metabolic diseases

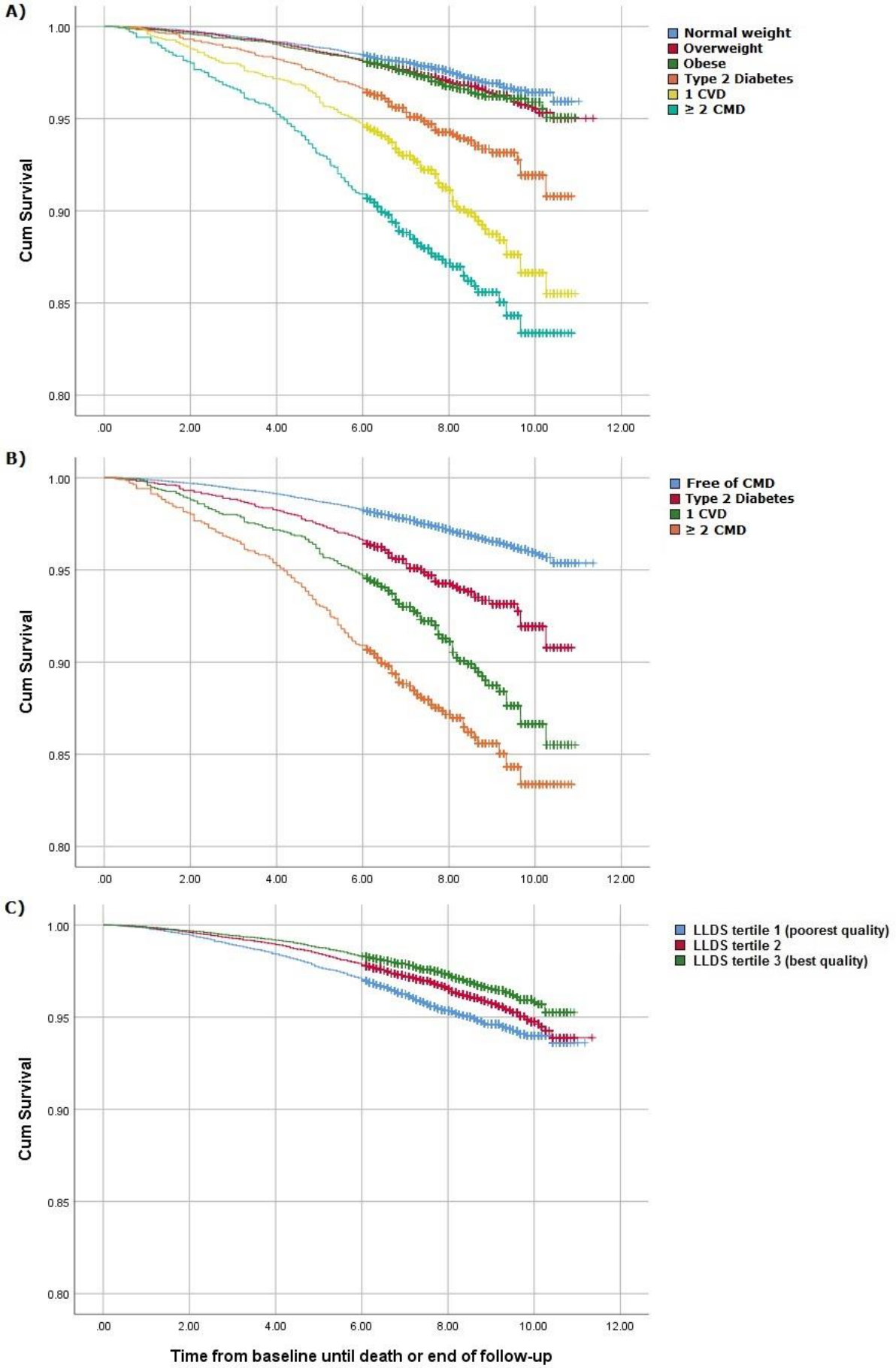
	Question in self-reported questionnaire		Medication		Laboratory assessment
Type 2 Diabetes	What type of diabetes do you have (type 1/type 2/other/don't know)? = **type 2**	**OR**	A10A **OR** A10B	**OR**	fasting glucose ≥ 7.0 mmol/L **OR** HbA1c ≥ 6.5%
			AND What type of diabetes do you have (type 1/type 2/other/don't know)? = **NOT** type 1 or other		
Myocardial Infarction	Have you ever had a myocardial infarction? = **YES**	**AND**	B01AA **OR** B01AC06 **OR** B01AC08 **OR** B01AC04		
Angioplasty or bypass surgery	Have you ever had a coronary angioplasty and/or bypass surgery? = **YES**	**AND**	B01AA **OR** B01AC06 **OR** B01AC08 **OR** B01AC04		
Aortic aneurysm	Have you ever been diagnosed with an aortic aneurysm? = **YES**	**AND**	B01A **OR** C10AA		
Transplantation (heart/kidney)	I was treated for heart failure by a heart transplant = **YES** **OR** I have had a kidney transplantation = **YES**	**AND**	L04		
Chronic kidney disease					eGFR < 60 (creatinine-based CKD-EPI equation)[1]
Stroke	Have you ever had a stroke? = **YES**	**AND**	B01AA **OR** B01AC06 **OR** B01AC08 **OR** B01AC04		
Heart Failure	Do you have heart failure? = **YES**	**AND**	C03A **OR** C03B **OR** C03C **OR** C03E **OR** C03X **OR** C09 **OR** C07 **OR** C03D		

[1] Levey AS, Stevens LA, Schmid CH et al. A new equation to estimate glomerular filtration rate. Ann Intern Med. 2009; 150(9): 604-612

Supplemental Table 3: Frequencies (N, %) of diseases and events among participants with either one cardiovascular disease, or multiple cardio-metabolic diseases.

	1 Cardio-vascular disease (N=1912)	**≥2 Cardio-metabolic diseases (N=1364)**
Type 2 Diabetes	N.A.	589 (43.2%)
Chronic kidney disease	849 (44.4%)	372 (27.3%)
Myocardial Infarction	139 (7.3%)	786 (57.6%)
Angioplasty or bypass surgery	403 (21.1%)	909 (66.6%)
Aortic aneurysm	73 (3.8%)	137 (10.0%)
Transplantation (heart/kidney)	4 (0.2%)	8 (0.6%)
Stroke	268 (14.0%)	146 (10.7%)
Heart Failure	176 (9.2%)	311 (22.8%)

Supplemental Figure 2: Kaplan Meier curves by a) levels of BMI and CMD category, b) CMD category and c) tertiles of LLDS.



Supplemental Table 4. Cox regression investigating the joint association of diet quality and cardio-metabolic disease category with all-cause mortality during a median follow-up of 7.6 years. N=40.892.

	LLDS Tertile	**Crude HR (95% CI)**	**Adjusted[1] HR (95% CI)**	**N_{EVENTS}(%)**	**Mortality rate** (Cases/1000 person-years)
Free of CMD					
	T3	1 (REF)	1 (REF)	258 (2.1)	3.0
	T2	1.24 (1.05 - 1.47)	1.20 (1.02 - 1.42)	302 (2.6)	3.0
	T1	1.69 (1.45 - 1.98)	1.62 (1.38 - 1.91)	415 (3.6)	4.6
T2D					
	T3	1.83 (1.25 - 2.67)	1.26 (0.86 - 1.83)	30 (3.8)	5.0
	T2	2.70 (1.95 - 3.74)	1.77 (1.28 - 2.46)	42 (5.6)	7.3
	T1	3.47 (2.60 - 4.62)	2.50 (1.87 - 3.34)	57 (7.2)	9.5
1 CVD					
	T3	3.37 (2.43 - 4.67)	1.50 (1.08 - 2.09)	42 (6.8)	9.1
	T2	4.43 (3.31 - 5.93)	1.98 (1.47 - 2.66)	55 (8.9)	11.9
	T1	4.93 (3.78 - 6.44)	2.15 (1.63 - 2.83)	68 (10.0)	13.3
≥2 CMDs					
	T3	5.90 (4.33 - 8.06)	2.30 (1.67 - 3.16)	47 (11.4)	15.7
	T2	6.55 (4.90 - 8.76)	2.62 (1.94 - 3.53)	55 (12.8)	17.5
	T1	6.57 (5.02 - 8.59)	2.72 (2.06 - 3.60)	67 (12.9)	17.5

[1] *Adjustment for education level, gender, age, age squared, smoking status, alcohol intake, non-occupational MVPA and energy intake*

N=40.892, P<0.001 in crude and adjusted analyses.

Supplemental Table 5. Cox regression investigating the association of cardio-metabolic diseases in combination with diet quality, versus all-cause mortality, in a sensitivity analyses in which the group of disease free participants is stratified by weight status. N=40.892.

		Crude HR (95% CI)	Adjusted HR (95% CI)
Normal weight			
	T3	1 (REF)	1 (REF)
	T2	1.24 (0.93 - 1.65)	1.18 (0.89 - 1.57)
	T1	1.85 (1.42 - 2.40)	1.74 (1.33 - 2.27)
Overweight			
	T3	1.24 (0.95 - 1.63)	1.06 (0.81 - 1.38)
	T2	1.63 (1.26 - 2.10)	1.36 (1.05 - 1.75)
	T1	1.94 (1.52 - 2.48)	1.59 (1.24 - 2.05)
Obesity			
	T3	1.35 (0.94 - 1.95)	1.24 (0.86 - 1.78)
	T2	1.30 (0.90 - 1.86)	1.20 (0.84 - 1.73)
	T1	2.22 (1.65 - 2.98)	2.10 (1.55 - 2.84)
T2D			
	T3	2.12 (1.40 - 3.19)	1.33 (0.88 - 2.01)
	T2	3.12 (2.17 - 4.49)	1.88 (1.30 - 2.72)
	T1	4.01 (2.88 - 5.57)	2.65 (1.90 - 3.70)
1 CVD			
	T3	3.89 (2.70 - 5.60)	1.59 (1.10 - 2.30)
	T2	5.12 (3.67 - 7.14)	2.09 (1.49 - 2.94)
	T1	5.70 (4.17 - 7.79)	2.28 (1.65 - 3.14)
≥2 CMDs			
	T3	6.82 (4.81 - 9.68)	2.44 (1.70 - 3.48)
	T2	7.57 (5.43 - 10.56)	2.78 (1.97 - 3.90)
	T1	7.59 (5.55 - 10.39)	2.89 (2.09 - 3.99)

** Adjustment for education level, gender, age, smoking status, alcohol intake, non-occupational MVPA and energy intake*

Table S6. Cox regression investigating the association diet quality and all-cause mortality during a median follow-up of 7.6 years, stratified by cardio-metabolic health status, with additional adjustment for baseline BMI. N=40.892.

Baseline health category		Crude HR (95% CI)	Adjusted[1] HR (95% CI)	Adjusted + BMI[2] HR (95% CI)	Adjusted + Waist[3] HR (95% CI)
Free of CMD					
	T3	1 (REF)	1 (REF)	1 (REF)	1 (REF)
	T2	1.24 (1.05 - 1.47)	1.20 (1.02 - 1.42)	1.20 (1.01 - 1.41)	1.19 (1.01 - 1.41)
	T1	1.69 (1.45 - 1.98)	1.62 (1.38 - 1.91)	1.61 (1.36 - 1.89)	1.59 (1.35 - 1.88)
T2DM					
	T3	1.83 (1.25 - 2.67)	1.26 (0.86 - 1.83)	1.20 (0.82 - 1.76)	1.17 (0.80 - 1.72)
	T2	2.70 (1.95 - 3.74)	1.77 (1.28 - 2.46)	1.71 (1.23 - 2.37)	1.66 (1.19 - 2.31)
	T1	3.47 (2.60 - 4.62)	2.50 (1.87 - 3.34)	2.37 (1.77 - 3.19)	2.30 (1.71 - 3.09)
1 CVD					
	T3	3.37 (2.43 - 4.67)	1.50 (1.08 - 2.09)	1.49 (1.07 - 2.07)	1.47 (1.06 - 2.05)
	T2	4.43 (3.31 - 5.93)	1.98 (1.47 - 2.66)	1.94 (1.44 - 2.62)	1.93 (1.43 - 2.59)
	T1	4.93 (3.78 - 6.44)	2.15 (1.63 - 2.83)	2.10 (1.59 - 2.77)	2.07 (1.57 - 2.72)
≥2 CMDs					
	T3	5.90 (4.33 - 8.06)	2.30 (1.67 - 3.16)	2.23 (1.62 - 3.07)	2.20 (1.60 - 3.03)
	T2	6.55 (4.90 - 8.76)	2.62 (1.94 - 3.53)	2.54 (1.88 - 3.43)	2.49 (1.84 - 3.36)
	T1	6.57 (5.02 - 8.59)	2.72 (2.06 - 3.60)	2.62 (1.98 - 3.47)	2.57 (1.94 - 3.40)

[1] *Adjustment for education level, gender, age, age squared, smoking status, alcohol intake, non-occupational MVPA, energy intake*
[2] *Adjustment as described under 1, with addition of BMI*
[3] *Adjustment as described under 1, with addition of waist circumference*