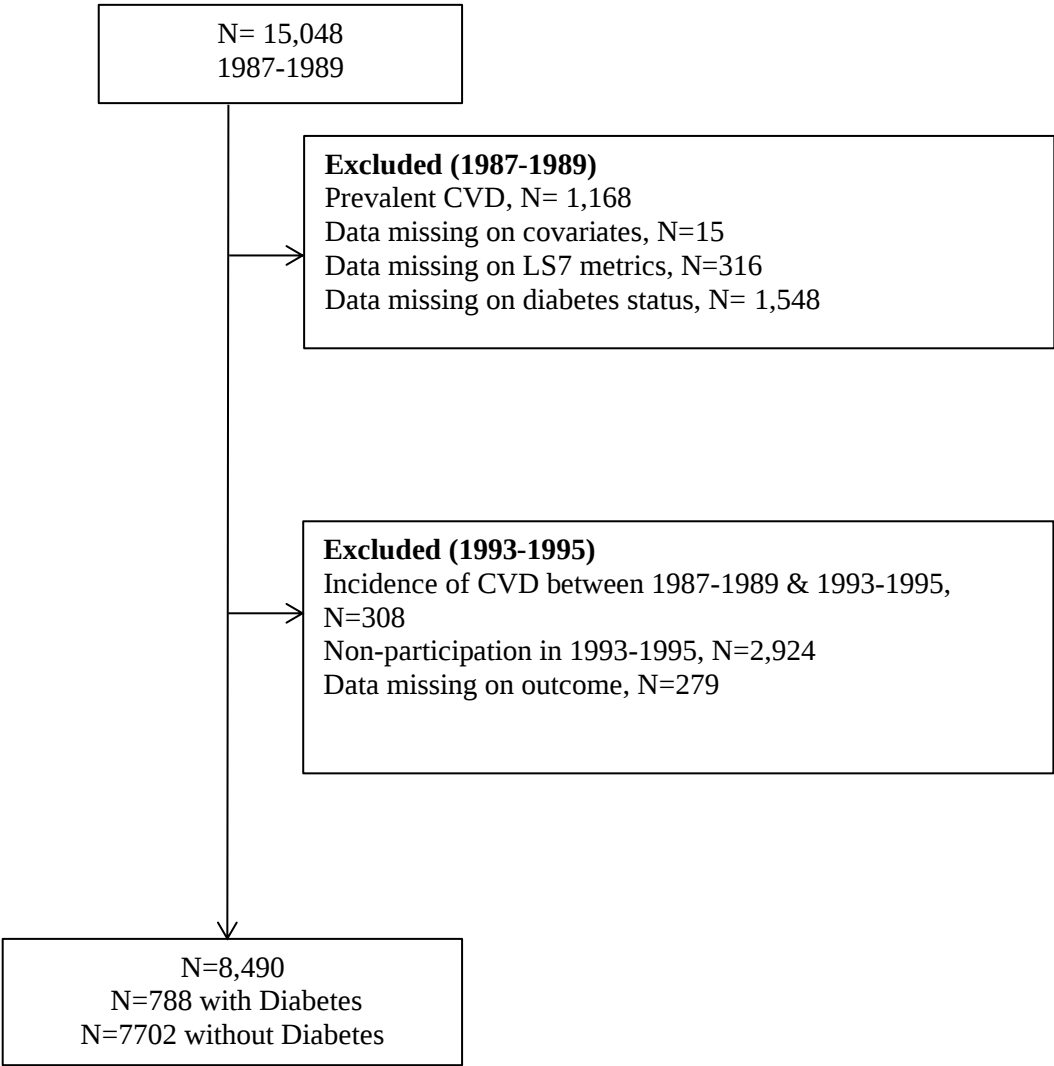


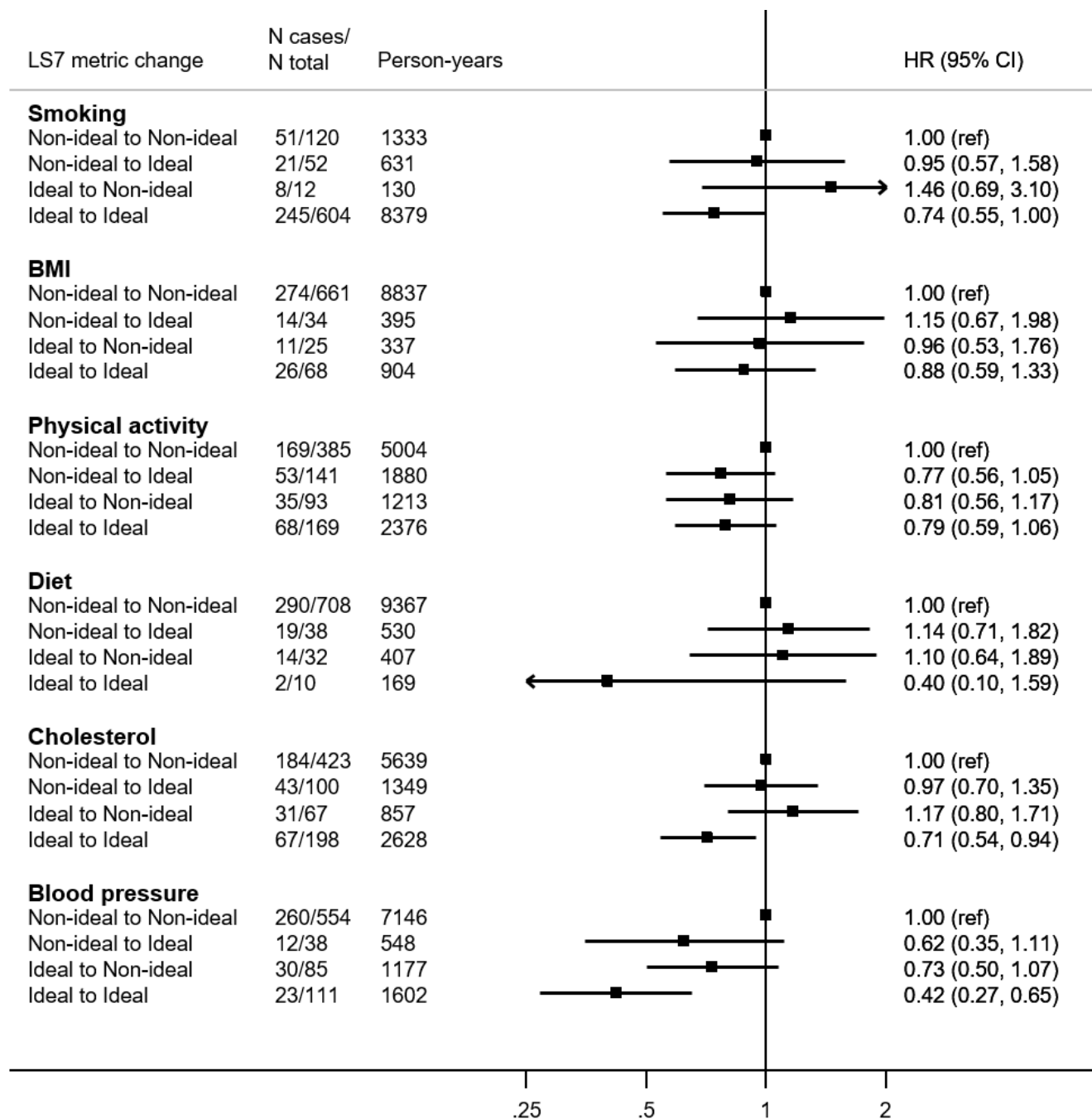
Supplemental Data

- **e-Figure 1.** Flowchart of sample selection.
- **e-Figure 2.** Multivariable ^a association of change in individual LS7 metrics with CVD risk in people with diabetes, ARIC n=788
- **e-Figure 3.** Multivariable ^a association of change in individual LS7 metrics with all-cause mortality risk in people with diabetes, ARIC n=788
- **e-Table 1.** Definition of LS7 metrics in the ARIC study, using the American Heart Association (AHA) definition.
- **e-Table 2.** Multivariable association of 6-year CVH change with CVD and all-cause mortality risk, grouped by broader categories of change, adjusting for baseline LS7 score, ARIC n=788
- **e-Table 3.** Multivariable association of 6-year CVH change categories with CVD and mortality risk in individuals that were diagnosed with diabetes both at visit 1 and visit 3 (restricted sample), N=533
- **e-Table 4.** Multivariable association of 6-year CVH change categories with CVD and mortality risk in individuals that were and were not diagnosed with diabetes both at visit 1 and visit 3 (restricted sample), N=7689
- **e-Table 5.** Multivariable association of 6-year CVH change categories where CVH is defined based on 6 LS7 metrics (excluding the glucose metric) with CVD and mortality risk, in people with diabetes, N=788
- **e-Table 6.** Multivariable association of change in 6-year CVH change categories where CVH is defined based on 6 LS7 metrics with CVD and mortality risk in people with and without diabetes

e-Figure 1. Flowchart of sample selection.

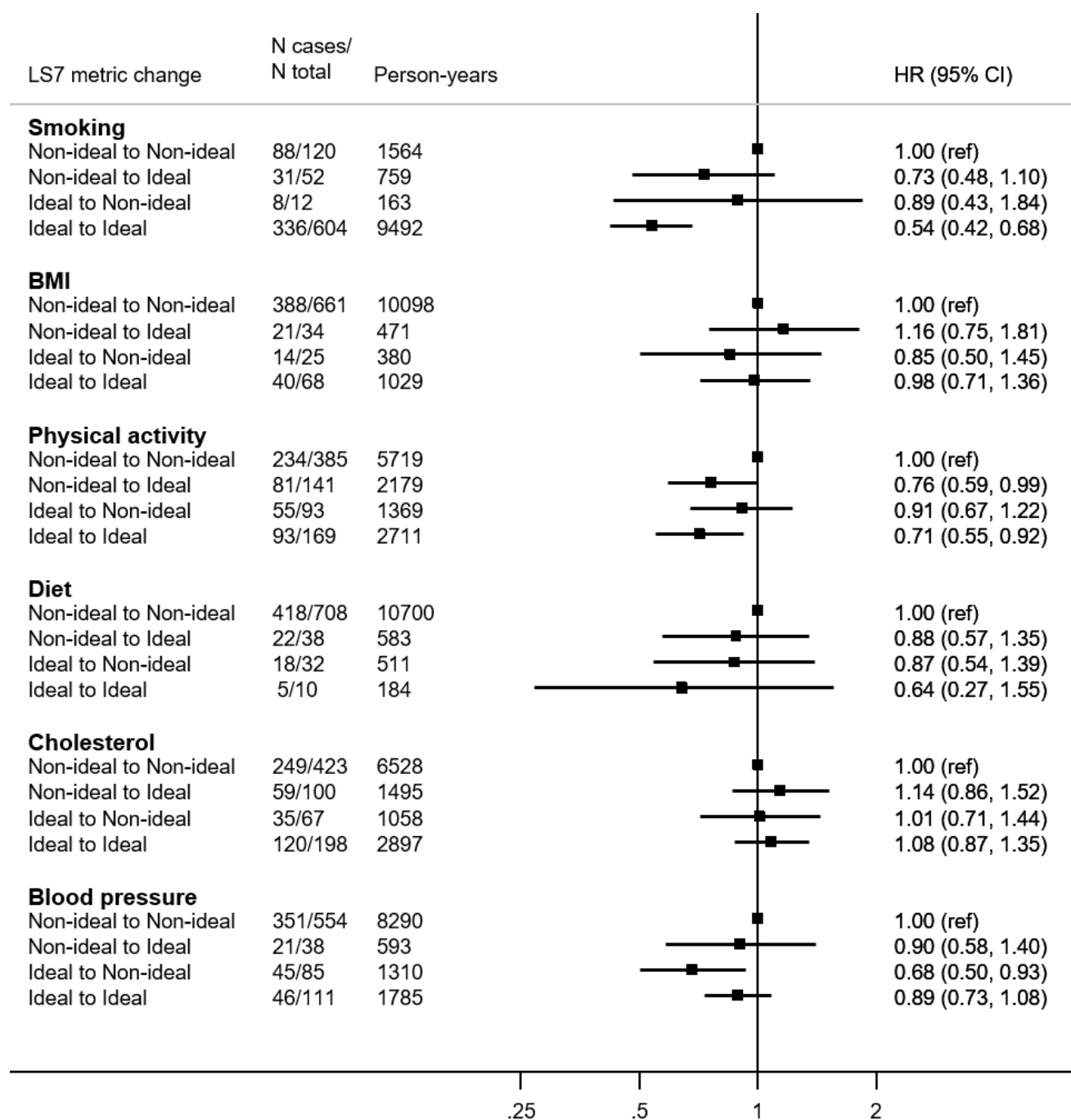


e-Figure 2. Multivariable^a association of change in individual LS7 metrics with CVD risk in people with diabetes, ARIC n=788



^a Hazard ratio adjusted for sex, ethnicity, education, baseline total LS7 score and age as the underlying time variable

e-Figure 3. Multivariable^a association of change in individual LS7 metrics with all-cause mortality risk in people with diabetes, ARIC n=788



^a Hazard ratio adjusted for sex, ethnicity, education, baseline total LS7 score and age as the underlying time variable

e-Table 1. Definition of LS7 metrics in the ARIC study, using the American Heart Association (AHA) definition.

LS7 metrics	Poor	Intermediate	Ideal
Smoking	Current smoker	Quit smoking ≤12 months ago	Never smoked OR quit >12 months ago
Body Mass Index	≥30 kg/m ²	25 to 29.9 kg/m ²	<25 kg/m ²
Healthy diet score*	0-1 component	2-3 components	4-5 components
Physical activity	No moderate or vigorous activity	1-149 min/week moderate OR 1-74 min/week vigorous activity OR 1-149 min/week of moderate and vigorous activity	≥150 min/week moderate activity OR ≥75min/week vigorous activity OR ≥150 min/week moderate and vigorous activity
Fasting Blood glucose	≥126 mg/dL	100–125 mg/dL OR <100 mg/dL treated	<100 mg/dL untreated
Fasting Total cholesterol	≥240 mg/dL	200–239 mg/dL OR <200 mg/dL treated	<200 mg/dL untreated
Blood pressure (SBP/DBP)	SBP ≥140 OR DBP ≥90 mmHg	120–139/80–89 mmHg OR <120/<80 mmHg treated	< 120/80 mmHg untreated

* Diet was assessed using the 66-item Harvard food frequency questionnaire. Persons with extreme energy intake of <600 or >4,200 kcal/day for men or <500 or >3,600 kcal/day for women (approximate lower and upper 1 per- centiles) were excluded. The following 5 components were used to designate an ideal diet: fruits and vegetables: ≥4.5 cups per day; fish: ≥ two 3.5-oz servings per week; fiber-rich whole grains: ≥three 1-oz-equivalent servings per day; sodium: <1500 mg per day; sugar sweetened beverages: ≤450 kcal (36 oz) per week.

e-Table 2. Multivariable ^a association of 6-year CVH change with CVD and all-cause mortality risk, grouped by broader categories of change, adjusting for baseline LS7 score, ARIC n=788

	CVD					Mortality				
	N cases/N total	Person-years	HR	95% CI	p-value	N cases/N total	Person-years	HR	95% CI	p-value
Deterioration	102/242	3122	1 (<i>ref</i>)	-	-	138/242	3681	1 (<i>ref</i>)	-	-
Stable	80/181	2359	0.91	[0.68 - 1.23]	0.54	114/181	2647	1.04	[0.81 - 1.34]	0.75
Improvement	143/365	4992	0.63	[0.48 - 0.84]	0.001	211/365	5650	0.70	[0.55 - 0.89]	0.003

^a Hazard ratio adjusted for sex, ethnicity, education, baseline total LS7 score and age as the underlying time variable

e-Table 3. Multivariable ^a association of 6-year CVH change categories with CVD and mortality risk in individuals that were diagnosed with diabetes both at visit 1 and visit 3 (restricted sample), N=533

	CVD					Mortality				
	N cases/N total	Person-years	HR	95% CI	p-value	N cases/N total	Person-years	HR	95% CI	p-value
Low-> Low	172/339	4137	1 (<i>ref</i>)	-	-	229/339	29329	1 (<i>ref</i>)	-	-
Low -> Moderate/Favorable	24/68	898	0.60	[0.39 - 0.92]	0.02	42/68	14090	0.79	[0.57 - 1.1]	0.17
Moderate -> Low	19/56	797	0.51	[0.32 - 0.83]	0.006	30/56	19056	0.62	[0.42 - 0.9]	0.01
Moderate -> Moderate	21/61	896	0.50	[0.31 - 0.79]	0.003	32/51	37791	0.57	[0.39 - 0.83]	0.004
Moderate -> Favourable	1/4	72	0.30	[0.04 - 2.17]	0.24	1/4	6844	0.30	[0.04 - 2.17]	0.24
Favorable -> Low/Moderate	1/3	31	0.67	[0.09 - 4.83]	0.69	2/3	10567	1.36	[0.34 - 5.55]	0.67
Favorable -> Favorable	1/2	25	0.99	[0.14 - 7.13]	0.99	1/2	9384	0.68	[0.09 - 4.84]	0.70

^a Hazard ratio adjusted for sex, ethnicity, education and age as the underlying time variable

e-Table 4. Multivariable ^a association of 6-year CVH change categories with CVD and mortality risk in individuals that were and were not diagnosed with diabetes both at visit 1 and visit 3 (restricted sample), N=7689

	CVD					Mortality				
	N cases/N total	Person-years	HR	95% CI	p-value	N cases/N total	Person-years	HR	95% CI	p-value
With diabetes										
Low-> Low	172/339	4137	6.62	[4.69 - 9.35]	<.0001	229/339	4828	4.41	[3.36 - 5.78]	<.0001
Low -> Moderate/Favorable	24/68	898	3.72	[2.24 - 6.18]	<.0001	42/68	992	3.44	[2.34 - 5.05]	<.0001
Moderate -> Low	19/56	797	3.37	[1.95 - 5.82]	<.0001	30/56	889	2.69	[1.75 - 4.13]	<.0001
Moderate -> Moderate	21/61	896	3.30	[1.95 - 5.59]	<.0001	32/51	1003	2.50	[1.64 - 3.80]	<.0001
Moderate -> Favourable	1/4	72	2.36	[0.32 - 17.14]	0.40	1/4	76	1.41	[0.20 - 10.17]	0.73
Favorable -> Low/Moderate	1/3	31	5.81	[0.80 - 42.24]	0.08	2/3	44	7.77	[1.9 - 31.67]	0.004
Favorable -> Favorable	1/2	25	8.06	[1.11 - 58.6]	0.04	1/2	36	3.59	[0.5 - 25.84]	0.20
Without diabetes										
Low-> Low	483/1721	27177	2.88	[2.09 - 3.96]	<.0001	694/1721	29329	2.20	[1.72 - 2.81]	<.0001
Low -> Moderate/Favorable	184/820	13448	2.13	[1.52 - 2.99]	<.0001	311/820	14090	1.97	[1.52 - 2.55]	<.0001
Moderate -> Low	195/1078	18212	1.95	[1.39 - 2.72]	<.0001	346/1078	19056	1.92	[1.49 - 2.48]	<.0001
Moderate -> Moderate	322/2109	36348	1.54	[1.11 - 2.12]	0.01	595/2109	37791	1.56	[1.22 - 1.99]	0.0004
Moderate -> Favourable	54/375	6576	1.46	[0.98 - 2.19]	0.07	99/375	6844	1.47	[1.09 - 1.99]	0.01
Favorable -> Low/Moderate	55/558	10279	1.10	[0.74 - 1.65]	0.63	111/558	10567	1.26	[0.94 - 1.7]	0.13
Favorable -> Favorable	42/495	9180	1 (ref)	-	-	72/495	9384	1 (ref)	-	<.0001

^a Hazard ratio adjusted for sex, ethnicity, education and age as the underlying time variable

e-Table 5. Multivariable ^a association of 6-year CVH change categories where CVH is defined based on 6 LS7 metrics (excluding the glucose metric) with CVD and mortality risk, in people with diabetes, N=788

	CVD					Mortality				
	N cases/N total	Person-years	HR	95% CI	p-value	N cases/N total	Person-years	HR	95% CI	p-value
Low-> Low	228/496	6329	1 (ref)	-	-	311/496	7364	1 (ref)	-	-
Low -> Moderate/Favorable	34/105	1450	0.61	[0.42 - 0.87]	0.007	59/105	1566	0.79	[0.6 - 1.05]	0.10
Moderate -> Low	28/81	1142	0.63	[0.42 - 0.93]	0.02	40/81	1305	0.66	[0.47 - 0.91]	0.01
Moderate -> Moderate	31/92	1352	0.57	[0.39 - 0.83]	0.004	48/92	1500	0.63	[0.46 - 0.86]	0.003
Moderate -> Favourable	1/6	96	0.29	[0.04 - 2.07]	0.22	2/6	100	0.54	[0.13 - 2.17]	0.39
Favorable -> Low/Moderate	2/5	58	0.92	[0.23 - 3.73]	0.90	2/5	86	0.96	[0.24 - 3.88]	0.95
Favorable -> Favorable	1/3	46	0.79	[0.11 - 5.65]	0.81	1/3	57	0.58	[0.08 - 4.15]	0.59

^a Hazard ratio adjusted for sex, ethnicity, education and age as the underlying time variable

e-Table 6. Multivariable ^a association of change in 6-year CVH change categories where CVH is defined based on 6 LS7 metrics with CVD and mortality risk in people with and without diabetes

	CVD					Mortality				
	N cases/N total	Person-years	HR	95% CI	p-value	N cases/N total	Person-years	HR	95% CI	p-value
With diabetes										
Low-> Low	228/496	6329	9.87	[4.38 - 22.24]	<.0001	311/496	7364	4.15	[2.50 - 6.87]	<.0001
Low -> Moderate/Favorable	34/105	1450	5.77	[2.42 - 13.76]	<.0001	59/105	1566	3.25	[1.87 - 5.65]	<.0001
Moderate -> Low	28/81	1142	6.12	[2.53 - 14.80]	<.0001	40/81	1305	2.68	[1.50 - 4.78]	0.001
Moderate -> Moderate	31/92	1352	5.38	[2.24 - 12.90]	0.0002	48/92	1500	2.52	[1.43 - 4.45]	0.001
Moderate -> Favourable	1/6	96	3.05	[0.37 - 25.35]	0.30	2/6	100	2.37	[0.54 - 10.29]	0.25
Favorable -> Low/Moderate	2/5	58	11.78	[2.38 - 58.24]	0.002	2/5	86	4.4	[1.01 - 19.13]	0.05
Favorable -> Favorable	1/3	46	8.67	[1.04 - 72.03]	0.05	1/3	57	2.61	[0.35 - 19.67]	0.35
Without diabetes										
Low-> Low	822/3259	52617	4.41	[1.97 - 9.85]	0.0003	1237/3259	56130	2.22	[1.35 - 3.63]	0.002
Low -> Moderate/Favorable	185/885	14638	3.39	[1.50 - 7.64]	0.003	316/885	15434	1.94	[1.17 - 3.20]	0.01
Moderate -> Low	168/1134	19549	2.73	[1.21 - 6.17]	0.02	320/1134	20287	1.85	[1.12 - 3.06]	0.02
Moderate -> Moderate	244/1921	34045	2.20	[0.98 - 4.95]	0.06	460/1921	35256	1.46	[0.89 - 2.41]	0.13
Moderate -> Favourable	13/161	2958	1.43	[0.54 - 3.77]	0.47	33/161	3023	1.34	[0.74 - 2.43]	0.34
Favorable -> Low/Moderate	20/226	4258	1.68	[0.68 - 4.19]	0.27	26/226	4373	0.79	[0.42 - 1.47]	0.46
Favorable -> Favorable	6/116	2141	1 (ref)	-	-	16/116	2175	1 (ref)	-	-

^a Hazard ratio adjusted for sex, ethnicity, education and age as the underlying time variable