Supplementary Fig. 1: Geographic distribution of data-driven dietary patterns

In each district, the sum of the percentages over the four maps (including the one presented in the main manuscript) always results in 100%. Dietary data were aggregated at district level. The menuCH weighting strategy was not applied to descriptive maps.

Supplementary Table S1: Consumption of different food groups and macronutrients overall and by hypothesis- and data-driven dietary patterns (n = 2,057)[a]

	Overall mean	AHEI					Dietary patterns			
		Q1	Q2	Q3	Q4	Q5	Prudent	Swiss traditional	Western-soft drinks	Western-alcohol
Food groups										
Non-alcoholic beverages[b]	293.0	640.6	350.6	241.3	142.0	69.7	164.2	220.2	674.2	207.0
Alcoholic beverages	198.2	286.1	235.9	200.9	134.0	127.9	149.1	100.1	198.1	407.9
Cereals & Starchy	287.2	343.2	284.8	293.2	268.8	243.1	244.1	286.3	282.1	340.5
Red & processed meat	78.8	135.9	96.9	73.0	60.1	25.8	45.8	55.2	132.0	104.7
White meat	25.1	24.5	20.1	31.0	24.7	24.9	37.9	21.5	21.3	20.1
Fish	21.0	7.9	13.8	19.4	22.4	41.6	41.1	10.8	18.4	17.7
Fruits & Nuts	178.6	80.4	115.8	166.5	224.5	309.2	265.8	194.4	116.3	114.2
Vegetables & Legumes	178.1	127.2	139.6	169.3	203.1	253.0	240.5	155.7	141.3	178.6
Soups[c]	46.5	32.6	45.1	35.1	58.7	62.2	60.5	50.4	43.4	27.8
Fats & oils	19.9	19.8	16.3	20.2	21.1	22.1	28.0	17.5	15.2	19.1
Eggs	13.0	12.6	13.0	12.5	12.0	14.8	12.5	13.1	15.0	11.5
Milk & dairy[d]	242.3	253.9	238.2	234.7	257.5	228.1	175.5	353.2	219.6	159.4
Chocolate[e]	36.1	47.3	36.4	34.5	30.6	30.7	28.9	47.7	34.5	26.9
Cakes	37.4	47.0	39.4	34.3	35.0	31.2	24.7	43.2	54.2	27.2
Savoury snacks	9.8	16.3	7.6	9.3	9.2	6.2	5.4	8.6	21.0	6.4
Sauces & seasoning	49.3	56.1	52.4	53.6	42.3	41.4	33.0	45.9	51.7	70.3
Others[f]	12.3	2.6	6.9	10.1	11.5	30.5	21.6	9.2	9.2	9.9
Macronutrients										
Proteins	84.6	99.2	84.0	82.8	79.5	76.5	77.9	81.2	96.3	86.8
Carbohydrates	233.0	287.4	228.3	222.9	215.1	207.8	197.8	246.4	265.1	221.2
Fats	90.8	104.4	86.7	88.1	87.7	86.2	82.1	93.2	102.3	86.1

AHEI, Alternate Healthy Eating Index; Q, quintile

[a]Consumption is given as weighted mean (g), weighted for sex, age, marital status, major regions of Switzerland (NUTS-2), nationality, household size, season, weekday; weighting factors were applied according to the menuCH weighting strategy

[b]Includes all caloric non-alcoholic beverages, i.e. sweetened soft drinks, energy drinks, frizzy drinks, ice tea, diluted syrup, fruit and vegetable juices, smoothies

[c]Includes vegetable soups, vegetable or meat broth, miso soups, mushroom soups

[d]Includes milk, branded fermented milk and milk drinks, yogurt and yogurt drinks, kefir, fresh cheese, spread cheese, processed/melted cheese, soft cheese, hard cheese

[e]Includes chocolate chips, chocolate tablets, chocolate powder, chocolate icing, sugar, syrup, jams, honey

[f]Includes meat substitutes (e.g. Quorn, tofu, vegetarian sausages), milk substitutes, dietetic products rich in protein (e.g. meal replacements, protein shakes)

Supplementary Table S2: Association of hypothesis- and data-driven dietary patterns with chronic disease mortality, with cause-specific mortality events including causes of death from all four categories reported in the death certificate (*n* = 2,057)[a,b,c]

	CVD		IHD		Stroke		All-cancer		CRC		Diabetes	
	SMR	95% CI	SMR	95% CI	SMR	95% CI	SMR	95% CI	SMR	95% CI	SMR	95% CI
AHEI[d]												
Q1 (13.6-34.5)	1.00		1.00		1.00		1.00		1.00		1.00	
Q2 (34.5-41.6)	**0.97**	**0.95 - 0.99**	**0.94**	**0.91 - 0.97**	**0.97**	**0.95 - 0.99**	1.00	0.98 - 1.01	0.99	0.97 - 1.01	0.96	0.93 - 0.98
Q3 (41.6-48.2)	0.99	0.97 - 1.01	**0.96**	**0.93 - 0.99**	0.98	0.97 - 1.00	1.00	0.99 - 1.01	0.99	0.98 - 1.01	0.98	0.94 - 1.02
Q4 (48.2-55.7)	**0.97**	**0.95 - 0.99**	0.96	0.93 - 0.99	0.98	0.97 - 1.00	0.99	0.98 - 1.00	0.99	0.97 - 1.01	**0.96**	**0.92 - 1.00**
Q5 (55.7-91.4)	**0.95**	**0.93 - 0.97**	**0.92**	**0.89 - 0.95**	**0.96**	**0.95 - 0.98**	0.99	0.98 - 1.00	**0.97**	**0.95 - 0.99**	0.93	0.90 - 0.97
p-value for trend	**< 0.001**		**< 0.001**		**0.005**		**0.01**		**0.001**		**< 0.001**	
Dietary patterns[e]												
Prudent	1.00		1.00		1.00		1.00		1.00		1.00	
Swiss traditional	**1.04**	**1.02 - 1.06**	**1.08**	**1.05 - 1.11**	**1.03**	**1.02 - 1.05**	1.01	1.00 - 1.01	1.01	1.00 - 1.03	**1.03**	**1.01 - 1.05**
Western-soft drinks	**1.04**	**1.01 - 1.06**	**1.05**	**1.02 - 1.09**	1.01	1.00 - 1.03	1.01	1.00 - 1.02	**1.02**	**1.00 - 1.04**	**1.03**	**1.01 - 1.05**
Western-alcohol	**1.02**	**1.01 - 1.04**	**1.04**	**1.01 - 1.07**	**1.02**	**1.00 - 1.04**	1.01	1.00 - 1.02	1.01	0.99 - 1.02	1.02	1.00 - 1.04

CVD, cardiovascular disease; IHD, ischemic heart disease; CRC, colorectal cancer; SMR, standardised mortality ratio; CI, confidence interval; AHEI, Alternate Healthy Eating Index; Q, quintile

[a]Results derived from Quasipoisson regression models and weighted for sex, age, marital status, major regions of Switzerland (NUTS-2), nationality, household size, season, weekday; weighting factors were applied according to the menuCH weighting strategy

[b]Bold values represent statistically significant results (p-value < 0.05)

[c]SMR were calculated at district level using indirect standardisation based on age-, sex- and year-specific mortality rates

[d]Adjusted for sex, age, education, body mass index, physical activity, smoking status, energy intake

[e]Adjusted for sex, age, education, body mass index, physical activity, smoking status

Supplementary Table S3: Association of hypothesis- and data-driven dietary patterns with chronic disease mortality by sex ($n = 2,057$)[a,b,c]

	CVD		IHD		Stroke		All-cancer		CRC		Diabetes	
	SMR	95% CI	SMR	95% CI	SMR	95% CI	SMR	95% CI	SMR	95% CI	SMR	95% CI
MEN												
AHEI[d]												
Q1 (13.6-34.5)	1.00		1.00		1.00		1.00		1.00		1.00	
Q2 (34.5-41.6)	**0.95**	**0.92 - 0.98**	**0.90**	**0.86 - 0.94**	**0.95**	**0.93 – 0.99**	1.01	0.99 - 1.03	0.99	0.96 - 1.02	0.97	0.91 - 1.04
Q3 (41.6-48.2)	**0.96**	**0.94 – 0.99**	**0.94**	**0.90 - 0.98**	**0.95**	**0.92 - 0.98**	1.01	0.99 - 1.03	0.99	0.96 - 1.02	0.99	0.93 - 1.05
Q4 (48.2-55.7)	0.98	0.95 - 1.01	**0.94**	**0.90 - 0.98**	0.97	0.94 - 1.00	1.00	0.97 - 1.02	0.97	0.94 - 1.00	**0.92**	**0.86 - 0.99**
Q5 (55.7-91.4)	**0.94**	**0.91 - 0.97**	**0.90**	**0.86 - 0.94**	**0.96**	**0.93 - 0.99**	1.00	0.98 - 1.02	**0.97**	**0.94 - 1.00**	0.91	0.85 - 0.98
p-value for trend	**0.002**		**<0.001**		**0.02**		0.41		**0.02**		**0.004**	
Dietary patterns[e]												
Prudent	1.00		1.00		1.00		1.00		1.00		1.00	
Swiss traditional	1.01	0.98 - 1.04	1.03	0.99 - 1.08	1.02	0.99 - 1.05	**0.98**	**0.96 - 1.00**	1.00	0.97 - 1.03	1.02	0.96 - 1.09
Western-soft drinks	1.01	0.98 - 1.05	1.03	0.98 - 1.08	1.03	1.00 - 1.06	1.00	0.98 - 1.00	**1.04**	**1.00 - 1.07**	**1.08**	**1.01 - 1.15**
Western-alcohol	0.99	0.97 - 1.02	1.00	0.94 - 1.04	1.02	0.99 - 1.06	0.99	0.97 - 1.01	1.00	0.97 - 1.02	0.99	0.93 - 1.06
WOMEN												
AHEI[d]												
Q1 (13.6-34.5)	1.00		1.00		1.00		1.00		1.00		1.00	
Q2 (34.5-41.6)	0.98	0.94 - 1.02	0.97	0.90 - 1.04	0.98	0.95 - 1.02	1.00	0.99 - 1.02	1.01	0.98 - 1.04	1.01	0.94 - 1.08
Q3 (41.6-48.2)	1.01	0.97 - 1.05	0.99	0.92 - 1.06	1.01	0.98 - 1.06	**1.02**	**1.00 - 1.03**	1.01	0.98 - 1.05	0.98	0.92 - 1.05
Q4 (48.2-55.7)	0.98	0.95 - 1.02	0.97	0.91 - 1.04	1.00	0.96 - 1.04	1.00	0.99 - 1.03	1.01	0.98 - 1.04	0.96	0.90 - 1.02
Q5 (55.7-91.4)	**0.96**	**0.92 - 0.99**	0.93	0.87 - 1.00	0.99	0.96 - 1.03	1.00	0.98 - 1.01	0.99	0.96 - 1.02	0.96	0.90 - 1.02
p-value for trend	**0.01**		0.06		0.96		0.21		0.29		0.05	
Dietary patterns[e]												
Prudent	1.00		1.00		1.00		1.00		1.00		1.00	
Swiss traditional	**1.08**	**1.05 - 1.10**	**1.16**	**1.10 - 1.21**	**1.05**	**1.02 - 1.08**	**1.02**	**1.01 - 1.03**	1.01	0.99 - 1.03	**1.05**	**1.00 - 1.09**
Western-soft drinks	**1.05**	**1.01 - 1.08**	1.07	1.00 - 1.14	**1.04**	**1.00 - 1.08**	1.00	0.99 - 1.02	0.99	0.97 - 1.02	1.05	0.99 - 1.12
Western-alcohol	**1.07**	**1.03 - 1.10**	**1.14**	**1.07 - 1.21**	1.03	1.00 - 1.06	**1.02**	**1.00 - 1.03**	1.02	1.00 - 1.05	**1.06**	**1.00 - 1.12**

CVD, cardiovascular disease; IHD, ischemic heart disease; CRC, colorectal cancer; SMR, standardised mortality ratio; CI, confidence interval; AHEI, Alternate Healthy Eating Index; Q, quintile

[a]Results derived from Quasipoisson regression models and weighted for sex, age, marital status, major regions of Switzerland (NUTS-2), nationality, household size, season, weekday; weighting factors were applied according to the menuCH weighting strategy

[b]Bold values represent statistically significant results (p-value < 0.05)

[c]SMR were calculated at district level separately for men and women, using indirect standardisation based on age- and year-specific mortality rates

[d]Adjusted for sex, age, education, body mass index, physical activity, smoking status, energy intake

[e]Adjusted for sex, age, education, body mass index, physical activity, smoking status