 International Journal of Epidemiology 2000;**29**:49–56

Cardiovascular risk factor changes in Finland, 1972–1997

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Background The cardiovascular risk factor levels of the population have been assessed in Finland since 1972. In the beginning the surveys were done to evaluate the North Karelia Project, which was a community-based preventive programme. A national cardiovascular disease (CVD) prevention strategy was developed and implemented during the late 1970s. Subsequently, a national cardiovascular risk factors monitoring system was developed to assess the effectiveness of the national strategy.

Methods Cross-sectional population samples were studied in 1972 and 1977 in North Karelia and Kuopio provinces in eastern Finland. An area in southwestern Finland was included in 1982, followed by the Helsinki metropolitan area in 1992 and Oulu province in northern Finland in 1997. A total of 19 761 men and 20 761 women aged 30–59 participated in the six surveys (1972, 1977, 1982, 1987, 1992, 1997).

Results The serum cholesterol levels of both genders have continuously declined. Systolic blood pressure levels have declined since 1972, but no further decline in diastolic blood pressure was found in 1997. Smoking prevalence among men continued to decline mainly due to an increase in the percentage of never-smokers. For the first time the increase in smoking prevalence among women levelled off and started to decline, mainly because the number of female quitters had increased.

Conclusions These data suggest that the cardiovascular health programme in Finland has succeeded in decreasing the general risk factor level of the population.

Keywords Cardiovascular diseases, prevention, risk factors

Accepted 22 June 1999

In the 1960s international mortality statistics, corroborated by the Seven Countries Study, showed that Finnish men had the world's highest mortality rate from ischaemic heart disease.[1] The North Karelia Project was started to test whether the main risk factors of blood pressure, cholesterol and smoking could be reduced in the population and whether this would reduce mortality from cardiovascular diseases (CVD).[2] Based on the project's encouraging experiences in North Karelia, the prevention of cardiovascular and other major chronic non-communicable diseases became part of national health policy.[3] To evaluate the effectiveness of these health strategies, a risk factor monitoring system (the National FINRISK Study) was developed.

In Finland the risk factors have been monitored since 1972 by conducting population surveys every fifth year. The first surveys were done to evaluate the North Karelia Project, which was one of the first community-based CVD prevention programmes.[2] From 1982 to 1992 the surveys were part of the WHO MONICA (Multinational MONItoring of trends and determinants in CArdiovascular disease) study and since 1982 also part of the WHO CINDI programme.[4] The 1992 and 1997 surveys were expanded to assess the effectiveness of Finland's chronic disease prevention strategies. The aim of this paper is to describe the most recent changes pertaining to the main cardiovascular risk factors in different areas in Finland, and to assess the long-term changes in North Karelia with a community-based CVD prevention programme and its reference area.

Material and Methods

Six cross-sectional population surveys (1972, 1977, 1982, 1987, 1992, 1997) assessed the levels of CVD risk factors in North Karelia and Kuopio provinces in eastern Finland. Over the years more survey areas have been added: part of southwestern Finland in 1982, the Helsinki metropolitan area in 1992, and the northern province of Oulu in 1997. For each survey, an independent random sample was drawn from the population register. In the first and second surveys (1972, 1977), a random

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sample of 6.6% of the population born during the period 1913–1947 was drawn in both areas. In 1982, 1987, 1992 and 1997 the sample included people ages 25–64; the samples were stratified according to the WHO MONICA protocol so that at least 250 subjects of each sex and 10-year age group were chosen in each area. The common age range in all six surveys was 30–59 years. The sample sizes and participation rates are given in Table 1.

The survey methods followed the WHO MONICA protocol from 1982 to 1997; these were comparable with the methods used in 1972 and 1977. The surveys included a self-administered questionnaire (mainly including questions on socioeconomic factors, medical history, health behaviour, and psychosocial factors) and measurements of height, weight and blood pressure. A venous blood specimen was taken to determine serum total cholesterol and high density lipoprotein (HDL) cholesterol. In 1982 and 1987 serum thiocyanate was also determined, and in 1992 serum cotinine concentration was determined.

The measurements were taken by specially trained nurses. Each survey followed the same methods as closely as possible. Blood pressure was measured from the right arm of the subject, who was seated for 5 min before the measurement. The fifth phase of the Korotkoff sounds was recorded as the diastolic pressure. In 1972 and 1977, a shorter cuff bladder (23 cm) was used than that used in 1982, 1987 and 1992 (42 cm). Serum cholesterol was determined in 1972 and 1977 from frozen samples using the Liebermann-Burchard method; since 1982 serum cholesterol was measured from fresh serum samples using an enzymatic method (CHOD-PAP, Boehringer Mannheim). The enzymatic assay method gave 2.4% lower values than Liebermann-Burchard. Cholesterol values of the 1972 and 1977 surveys were corrected by this percentage. All cholesterol determinations were made in the same central laboratory standardized with national and international reference laboratories.

Smoking was assessed using a standard set of questions in a self-administered questionnaire. Based on the responses, the participants were classified into three categories: Current smokers—those who had smoked regularly (cigarettes, cigars or pipe) for at least one year and had smoked during the preceding month. Ex-smokers—those who had smoked regularly but had stopped smoking at least one month before the survey. Never smokers—those who had never smoked regularly.

The analysis of variance was done to determine the mean between each 5-year interval for all the areas available in the given year. To calculate the proportions, a log-linear model was used as the statistical method.[5]

Table 1 Samples and participation rates, 1972–1992, by area and gender in the National FINRISK Study

	Men		Women	
	Sample	Participation %	Sample	Participation %
North Karelia province				
1972	1959	94	2056	96
1977	2063	87	2020	91
1982	1559	77	1511	84
1987	1521	79	1485	87
1992	759	69	750	82
1997	748	72	760	76
Kuopio province				
1972	2918	91	2949	94
1977	2933	89	2996	92
1982	1459	83	1143	88
1987	762	82	744	87
1992	768	76	735	85
1997	766	70	753	81
Southwestern Finland				
1982	1506	82	1487	87
1987	756	77	761	83
1992	747	75	720	85
1997	769	69	759	75
Helsinki metropolitan area				
1992	751	70	734	74
1997	768	63	778	72
Oulu province				
1997	765	66	753	76

Results

Cholesterol

From 1972 to 1997 mean total serum cholesterol level had declined 18% in North Karelia among both men and women, and 15% and 19% among men and women in Kuopio province, respectively. During the first 5 years the decline was faster among men in North Karelia than in Kuopio province. After 1977 the decline in cholesterol level has been similar in different areas (Table 6). In southwestern Finland both genders' cholesterol had decreased 9% during the period 1982 to 1997. Pooling all the areas together cholesterol level had decreased 4.1% among men and 1.3% among women between 1992 and 1997. The difference between men and women was statistically significant (Table 2).

The mean cholesterol level for men was 5.61 mmol/l and 5.45 mmol/l for women in the pooled area in 1997. Cholesterol level was statistically significantly higher in the eastern and northern provinces (North Karelia, Kuopio and Oulu) than in southern (Helsinki metropolitan area) and southwestern Finland. Decline in cholesterol among women has been similar in all study areas (Table 6). About half of the population had moderately high cholesterol values (5–6.5 mmol/l), and 18% of men and 15% of women had values higher than 6.5 mmol/l.

Blood pressure

Between 1972 and 1997, systolic blood pressure in North Karelia has declined by 9 mmHg among men and 20 mmHg among women, and in Kuopio province 7 mmHg and 11 mmHg, respectively. Since 1982 systolic blood pressure in southwestern Finland has declined 8 mmHg among men and 7 mm among women (Table 3).

The pooled mean systolic blood pressure level was 138 mmHg among men and 131 mmHg among women. The mean values were higher in the eastern and the northern survey areas than in the southern and the southwestern areas. High systolic blood pressure values (160+) were observed in 12% of men and 9% of women.

Table 2 Total serum cholesterol level (mmol/l), 1972–1997, in different areas in Finland in 30–59-year-old men in the National FINRISK Study

	Men							Women						
	–5	5–6.49	6.5–7.99	8–	Mean	SD	N	–5	5–6.49	6.5–7.99	8–	Mean	SD	N
North Karelia province														
1972	6	34	40	20	6.92	1.32	1742	7	37	38	18	6.81	1.37	1880
1977	11	41	37	11	6.52	1.22	1762	13	44	31	12	6.40	1.35	1817
1982	12	48	32	8	6.30	1.18	1229	20	46	25	9	6.11	1.32	1268
1987	14	49	29	8	6.25	1.19	1138	22	48	24	6	5.98	1.24	1246
1992	21	52	25	2	5.88	1.10	519	33	50	14	3	5.56	1.09	600
1997	28	50	20	2	5.65	1.08	537	32	49	16	3	5.55	1.10	573
Kuopio province														
1972	7	40	40	13	6.68	1.21	2513	9	39	37	15	6.66	1.29	2607
1977	8	42	39	11	6.58	1.23	2601	14	45	31	10	6.33	1.28	2731
1982	13	51	28	8	6.26	1.21	1206	21	48	24	7	6.01	1.28	999
1987	15	47	29	9	6.20	1.24	599	22	53	20	5	5.86	1.17	629
1992	20	52	24	4	5.91	1.08	581	32	50	17	1	5.53	1.03	619
1997	25	57	16	2	5.65	1.00	539	38	47	14	1	5.41	0.98	611
Southwestern Finland														
1982	16	52	27	5	6.06	1.11	1233	21	50	23	6	5.93	1.19	1291
1987	18	49	27	6	6.03	1.19	566	27	47	21	5	5.80	1.21	612
1992	23	55	19	3	5.80	1.08	562	36	47	15	2	5.49	1.09	609
1997	31	54	14	1	5.49	1.01	530	36	52	11	1	5.39	0.95	568
Helsinki metropolitan area														
1992	28	50	20	2	5.69	1.08	527	39	48	11	2	5.36	1.04	542
1997	32	53	13	2	5.51	1.10	481	40	48	11	1	5.31	0.96	557
Oulu province														
1997	24	54	21	1	5.73	1.02	505	29	54	15	2	5.59	1.03	565

ANOVA men	1972–1977	1977–1982	1982–1987	1987–1992	1992–1997
Area	***	n.s.	***	**	***
Year	**	***	n.s.	***	***
Area*year	***	n.s.	n.s.	n.s.	n.s.
ANOVA women					
Area	***	**	***	**	***
Year	***	***	***	***	*
Area*year	n.s.	n.s.	n.s.	n.s.	n.s.

It seems that the decline in diastolic blood pressure has ended. From 1972 to 1992 the mean value declined 6 mmHg among men and 11 mmHg among women, but from 1992 to 1997 diastolic blood pressure showed no decline (Table 4). High diastolic blood pressure (95+) was observed in 20% of men and 9% of women.

Smoking

Smoking prevalence among men declined in North Karelia from 52% in 1972 to 31% in 1997. Between 1972 and 1982 smoking declined more in North Karelia than in the reference area. This occurred because a greater proportion of smokers quit. However, the latest decline in smoking can be explained mainly by the increase of the proportion of never-smokers. The difference between North Karelia and Kuopio disappeared between 1992 and 1997 because smoking cessation increased more in Kuopio province than in North Karelia. The increase in smoking among women levelled off and declined slightly between the 1992 and 1997 surveys. The main reason for this was an increase in cessation, given the finding that the percentage of never-smokers declined (Table 5).

Discussion

The average cardiovascular risk level has decreased markedly in Finland since 1972. In both genders serum cholesterol and systolic blood pressure continued to decline between the last two surveys from 1992 to 1997. Among men smoking has been declining since 1972. As for women, the 1997 survey was the first that did not indicate an increase in smoking, and the first signs of a decline could even be seen, especially in the Helsinki metropolitan area. The only exception to this overall positive trend was diastolic blood pressure in which the decrease levelled off between 1992 and 1997.

Risk factors developed more favourably in North Karelia at the beginning of the community-based CVD prevention project. Subsequently the development in risk factors has been similar in different areas. This may indicate that the national strategy

Table 3 Systolic and diastolic blood pressure (mmHg) in men, 1972–1997, in different areas in Finland in the National FINRISK Study

	Systolic					Diastolic					
	–139	140–159	160–	Mean	SD	–89	90–94	95–	Mean	SD	N
North Karelia province											
1972	35	39	26	148.6	21.0	40	23	37	92.0	12.2	1742
1977	43	41	16	142.9	17.7	51	26	23	88.6	11.0	1764
1982	42	36	22	144.7	19.2	57	17	26	86.7	12.7	1227
1987	43	38	19	143.9	18.9	52	21	27	88.1	11.8	1139
1992	51	31	18	141.5	19.2	69	13	18	84.6	12.4	521
1997	54	30	16	139.7	19.6	68	14	18	84.3	11.7	539
Kuopio province											
1972	41	36	23	146.0	21.0	36	25	40	93.3	11.8	2520
1977	39	39	22	145.7	19.2	42	23	35	92.6	11.9	2607
1982	36	42	22	146.5	18.3	50	17	33	88.9	13.3	1207
1987	40	39	21	144.4	18.5	50	21	29	89.1	11.1	599
1992	53	30	17	140.1	18.2	69	14	17	83.8	11.9	582
1997	57	32	11	138.9	17.4	59	20	21	86.0	11.8	539
Southwestern Finland											
1982	45	36	19	143.6	19.0	57	19	24	86.7	12.3	1231
1987	53	34	13	139.2	16.7	63	17	20	85.9	11.5	566
1992	54	35	11	139.2	16.7	63	17	20	85.1	12.3	562
1997	60	32	8	136.0	16.4	61	17	22	86.1	10.7	530
Helsinki metropolitan area											
1992	60	29	11	137.0	17.4	62	19	19	85.3	12.0	527
1997	58	29	13	136.9	18.7	64	15	21	85.0	12.1	482
Oulu province											
1997	58	29	13	138.2	18.7	64	19	17	85.0	11.7	507

ANOVA systolic	1972–1977	1977–1982	1982–1987	1987–1992	1992–1997
Area	n.s.	***	***	***	***
Year	***	**	***	***	**
Area*year	***	n.s.	*	*	n.s.
ANOVA diastolic					
Area	***	***	***	n.s.	*
Year	***	***	n.s.	***	n.s.
Area*year	***	**	*	***	n.s.

has been adopted in a very similar way in different parts of the country.

The decline in serum total cholesterol can be explained by dietary changes. Twenty-five years ago the saturated fat intake was 20–21% of energy, which decreased to 15–16% in 1992[6] and to 14–15% in 1997,[7] and the very low level of poly-unsaturated fat intake has increased from 2–3% to 5–6% of energy since 1972. The main change on a behavioural level has been the decline in the use of butter on bread from almost 90% to 10%. Butter has been replaced by soft margarine and butter-vegetable oil mixtures. Most people also used butter for cooking and baking 25 years ago, but now oils and margarines have replaced it. Whole milk has been replaced by low-fat and skimmed milk.

The North Karelia Project started to communicate health information to the public on diet and heart diseases in the early 1970s. Many Finnish eating habits at that time worked against recommended dietary changes. Butter, cheese, cream and whole milk were regarded as healthy, especially for children. Finland was a butter and milk producer, and all vegetable oil was imported. Butter and milk production was subsidized by the government, and margarine was taxed to keep its price equivalent to butter.

Based on health information, people started to change their dietary habits in the 1970s. The food and agricultural industries followed the trend. Soft margarine was introduced in the late 1970s. A domestic vegetable oil and rapeseed oil industry was developed and their popularity grew in the 1980s. Low-fat and skimmed milk were introduced. The Finnish government issued a health policy statement in 1985 in parliament which indicated that health issues have important implications extending beyond the health sector. A new law was passed to allow low-fat spread and mixed butter and oils to compete.

In the 1970s there was a large debate within the medical community on the role of diet and cholesterol in CVD prevention. However, in the 1980s a general consensus was developed by the medical community on the need for dietary change,[3] which led to a larger consensus among the general population and also facilitated the political consensus needed for legislative change. The medical community recommended cholesterol

Table 4 Systolic and diastolic blood pressure in women, 1972–1997, in different areas in Finland in the National FINRISK Study

	Systolic					Diastolic					
	–139	140–159	160–	Mean	SD	–89	90–94	95–	Mean	SD	N
North Karelia province											
1972	35	29	36	152.6	26.0	42	18	40	92.4	13.5	1886
1977	50	33	17	141.2	21.1	60	22	18	86.3	10.9	1834
1982	50	31	19	141.1	19.7	66	15	19	84.5	12.0	1267
1987	55	28	17	138.7	20.6	71	15	14	83.2	11.5	1249
1992	61	25	14	135.3	20.9	81	9	10	79.5	11.3	610
1997	67	23	11	132.8	19.1	80	10	10	80.2	11.3	576
Kuopio province											
1972	43	29	28	147.2	25.5	43	23	34	91.3	12.1	2620
1977	48	32	20	142.9	22.1	55	20	25	88.4	11.9	2747
1982	48	32	20	143.3	22.3	65	15	20	84.8	11.9	999
1987	54	29	17	138.9	20.5	69	15	16	83.9	11.3	631
1992	61	26	13	135.5	21.7	78	10	12	79.7	11.9	622
1997	65	26	9	133.2	18.0	77	14	9	80.9	11.0	610
Southwestern Finland											
1982	62	24	14	135.7	20.0	75	14	11	81.0	11.7	1293
1987	62	25	13	135.7	21.1	75	13	12	81.9	11.1	614
1992	69	21	11	133.5	19.4	76	13	11	81.2	11.0	612
1997	72	20	8	129.3	18.9	78	14	8	81.0	10.2	569
Helsinki metropolitan area											
1992	71	20	9	132.4	19.1	76	11	13	81.3	11.9	545
1997	74	20	6	129.4	18.1	80	11	9	80.4	10.8	560
Oulu province											
1997	70	21	9	131.5	18.8	79	12	9	80.3	11.0	573

	1972–1977	1977–1982	1982–1987	1987–1992	1992–1997
ANOVA systolic					
Area	***	***	***	**	***
Year	***	n.s.	***	***	***
Area*year	***	n.s.	**	n.s.	n.s.
ANOVA diastolic					
Area	n.s.	***	***	n.s.	*
Year	***	***	n.s.	***	n.s.
Area*year	***	**	*	***	n.s.

screenings for all people over 20 years of age every 5 years. This greatly increased people's interest in their diets.

It is more difficult to explain why blood pressure has decreased as alcohol consumption[8] and obesity have increased.[9] The mean annual alcohol consumption was 5 l per capita in 1970 and 7.5 l in 1997. Only part of the decline in blood pressure can be explained by an increase in the use of medication for hypertension, because the whole blood pressure distribution has shifted, and not only the high values have decreased. There has been some decline in salt consumption, but it is unlikely that this explains much of the blood pressure decline. There is some evidence, especially from Finland, that blood pressure can be reduced by decreasing the saturated oil and increasing the polyunsaturated fats in the diet.[10] Also, a cohort study showed an association between changes in blood pressure and cholesterol after controlling for age and body mass index.[11]

A new finding from the last survey was that systolic blood pressure is continuing to decline but diastolic blood pressure stopped declining. This phenomenon has also been observed in the Netherlands and by the Minnesota Heart Surveys.[12,13] There is no obvious reason for these observations. One possibility is that reduced atherosclerosis increased arterial elasticity and lowered systolic blood pressure, but increasing obesity unfavourably influences diastolic blood pressure.

Finland has been active in developing anti-smoking initiatives. The work has consisted of comprehensive measures ranging from research and demonstration programmes to legislation and public policy.[14] The North Karelia Project has been used as a major national demonstration project. Health services and many non-governmental organizations have been actively involved, and many innovative campaigns have taken place, e.g. TV smoking cessation programmes, and Quit and Win campaigns. A law to reduce the harmful consequences of smoking was passed in 1977 and amended in 1995. The main content of the law is as follows: prohibition of all forms of tobacco advertising, warnings on tobacco packages, limits on harmful substances, prohibition of smoking at schools, public vehicles

Table 5 Percentage of current smokers, ex-smokers, and never-smokers, 1972–1997, in different areas in Finland in the National FINRISK Study

	Men				Women			
	Current smokers (%)	Ex-smokers (%)	Never smokers (%)	N	Current smokers (%)	Ex-smokers (%)	Never smokers (%)	N
North Karelia province								
1972	52	20	28	1802	10	2	88	1955
1977	44	27	29	1733	10	5	85	1824
1982	36	30	34	1185	15	8	77	1238
1987	35	28	37	1157	15	12	73	1274
1992	32	25	43	517	17	13	70	610
1997	31	26	43	535	16	16	68	573
Kuopio province								
1972	50	21	29	2566	11	3	86	2693
1977	44	28	28	2557	12	6	82	2729
1982	42	24	34	1181	15	8	77	986
1987	41	24	35	606	15	11	74	636
1992	37	26	37	582	19	14	67	620
1997	31	30	39	538	17	16	67	610
Southwestern Finland								
1982	39	29	32	1198	22	11	67	1275
1987	39	27	34	576	23	13	64	625
1992	39	28	33	561	23	15	62	612
1997	34	26	40	529	22	16	62	569
Helsinki metropolitan area								
1992	36	27	37	527	30	15	55	543
1997	33	28	39	483	26	20	54	561
Oulu province								
1997	32	23	45	499	20	18	62	564

Loglinear model (smoker/non-smoker)

	1972–1982	1982–1992	1992–1997
Men			
Smoking*year	***	n.s.	**
Smoking*area	n.s.	***	n.s.
Smoking*area*year	***	n.s.	n.s.
Women			
Smoking*year	***	n.s.	n.s.
Smoking*area	*	***	***
Smoking*area*year	n.s.	n.s.	n.s.

and public indoor places, prohibition of smoking at all (indoor) workplaces, except in offices intended for only one person and in designated smoking rooms (with special ventilation), prohibition of the sale of tobacco to people under 18 years, prohibition of the sale of smokeless tobacco, prohibition of smoking in school playgrounds, and the designation of 0.5% of tobacco tax revenues for health education and research. This has amounted to about 20 million Finnish marks (5 million USD) annually or roughly 1 USD per capita in Finland.

The development of smoking trends in different populations can be divided into three phases.[15] In the first phase smoking is predominantly a man's habit and relatively few women smoke. In the second phase smoking prevalence decreases among men and increases among women, and in the third phase smoking declines among men and women. Finland is clearly entering the third phase. In most European countries female smoking is still on the increase,[15] and only a few countries in the world are seeing a decline among both sexes.[16] The main reason for the decline among men is the increasing number of subjects who have never smoked regularly in their life. Smoking cessation has not seen a marked increase since the 1970s. The main reason for the levelling off or small decline among women is an increase in the number of women who stop smoking. Smoking onset is still more prevalent among younger cohorts, although this increase is levelling off in the youngest cohort.

Mortality from coronary heart disease has decreased by 73% in North Karelia and 65% nationwide. Among men, cerebrovascular diseases and lung cancer mortality have also greatly declined.[17] Most of the decline in mortality seems to be related to the described changes in risk factors, especially those of the 1970s and 1980s.[18]

In summary, CVD risk factor levels have declined markedly in Finland in the past decades, and the declining trend continued also between 1992 and 1997. The results suggest that the

Table 6 Changes in risk factors, 1972–1997, in different areas in Finland in the National FINRISK Study[a]

	North Karelia		Kuopio province		Southwestern Finland		Helsinki metropolitan area	
	Men	Women	Men	Women	Men	Women	Men	Women
Cholesterol (mmol/l)								
1972–1977	–0.40	–0.41	–0.10	–0.33				
1977–1982	–0.22	–0.29	–0.32	–0.32				
1982–1987	–0.05	–0.13	–0.06	–0.15	–0.03	–0.13		
1987–1992	–0.37	–0.42	–0.29	–0.33	–0.23	–0.31		
1992–1997	–0.23	–0.01	–0.26	–0.12	–0.31	–0.10	–0.18	–0.05
All	–1.27	–1.26	–1.03	–1.25	–0.57	–0.54	–0.18	–0.05
Systolic blood pressure (mmHg)								
1972–1977	–5.7	–11.4	–0.3	–4.3				
1977–1982	+1.8	–0.1	+0.8	+0.4				
1982–1987	–0.8	–2.4	–2.1	–4.4	–4.4	0.0		
1987–1992	–2.4	–3.4	–4.3	–3.4	0.0	–2.2		
1992–1997	–1.8	–2.5	–1.2	–2.3	–3.2	–4.2	–0.1	–3.0
All	–9.9	–19.8	–6.1	–14	–7.6	–6.4	–0.1	–3.0
Diastolic blood pressure (mmHg)								
1972–1977	–3.4	–6.1	–0.7	–2.9				
1977–1982	–1.9	–1.8	–3.7	–3.6				
1982–1987	+1.4	–1.3	+0.2	–0.9	–0.8	+0.9		
1987–1992	–3.5	–3.7	–5.3	–4.2	–0.8	–0.7		
1992–1997	–0.3	+0.7	+2.2	+1.2	+1.0	–0.2	–0.3	–0.9
All	–7.7	–12.2	–7.3	–10.4	–0.6	0.0	–0.3	–0.9
Smoking (%)								
1972–1977	–8	0	–6	+1				
1977–1982	–8	+5	–2	+3				
1982–1987	–1	0	–1	0	0	+1		
1987–1992	–3	+2	–4	+4	0	0		
1992–1997	–1	–1	–6	–2	–5	–1	–3	–4
All	–21	+8	–19	+6	–5	0	–3	–4

[a] The statistical significance can be seen in Tables 2–5.

national preventive cardiovascular strategy has been successful. Further reductions of the risk factor levels still hold great potential for improved public health.

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