

# TOPO



SUMMARIES BY THE NUTRITION • PHYSICAL ACTIVITY • WEIGHT TEAM

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## In this issue

**A portrait of the North Karelia Project, the basis for community programs in chronic disease prevention.**

## And answers to the following questions

- What were the project's goals?
- What actions were taken in this context, and what results were obtained?
- What were the details surrounding the community mobilization that contributed to the project's success?
- Is the success of the North Karelia Project transferable?

## What is TOPO?

The *TOPO* collection is produced by the multidisciplinary team on nutrition, physical activity, and weight-related problems prevention (*Nutrition, activité physique et prévention des problèmes reliés au poids* or NAPP)<sup>1</sup> at the Institut national de santé publique du Québec (INSPQ). The collection disseminates knowledge to inform the choices of practitioners and decision makers in the prevention of weight-related problems. Each issue addresses a theme and combines a critical analysis of the relevant scientific literature with observations or illustrations that can assist in applying this knowledge in the Québec context. The *TOPO* collection may be found at <http://www.inspq.qc.ca/topo>.

<sup>1</sup> The NAPP team is mandated to develop expertise on the issue of weight to support and assist the public health network's efforts in this field. The NAPP team is part of the Habitudes de vie unit, in the Direction du développement des individus et des communautés of the INSPQ.

## The North Karelia Project in Finland: A societal shift favouring healthy lifestyles

In the early 1970s, the coronary heart disease mortality rate<sup>2</sup> in Finland was the highest in the world, and North Karelia was the most affected. In every family in the region, physically active men in their prime were dying prematurely.

The goal of the North Karelia Project was to reverse the situation by changing the population's lifestyles. The goal was successfully attained: in 35 years, death by coronary heart disease in the North Karelia population dropped 85%. To this day, the project still serves as a model in promoting healthy lifestyles.<sup>(1)</sup>



North Karelia is a region of Finland with a population of 166 000 spread over an area of 21 585 km<sup>2</sup>. Traditionally based on forestry and agriculture, the region's economy has diversified and today is primarily centred on industry and services.

<sup>2</sup> Coronary heart diseases specifically affect the blood vessels that feed the heart muscle, while cardiovascular diseases are a group of diseases of the circulatory system including the heart and blood vessels (Public Health Agency of Canada: <http://www.phac-aspc.gc.ca/cd-mc/cvd-mcv/index-eng.php>).

## A WORLD FIRST

In the 1960s, research on an international scale established a link between dietary habits and cardiovascular diseases. This advance in knowledge prompted action.<sup>(2, 3)</sup> Part of this movement, the North Karelia Project was the world's first major community-based study in the field of cardiovascular disease prevention.<sup>(4)</sup> The project was launched in 1972 and officially ended 25 years later in 1997.

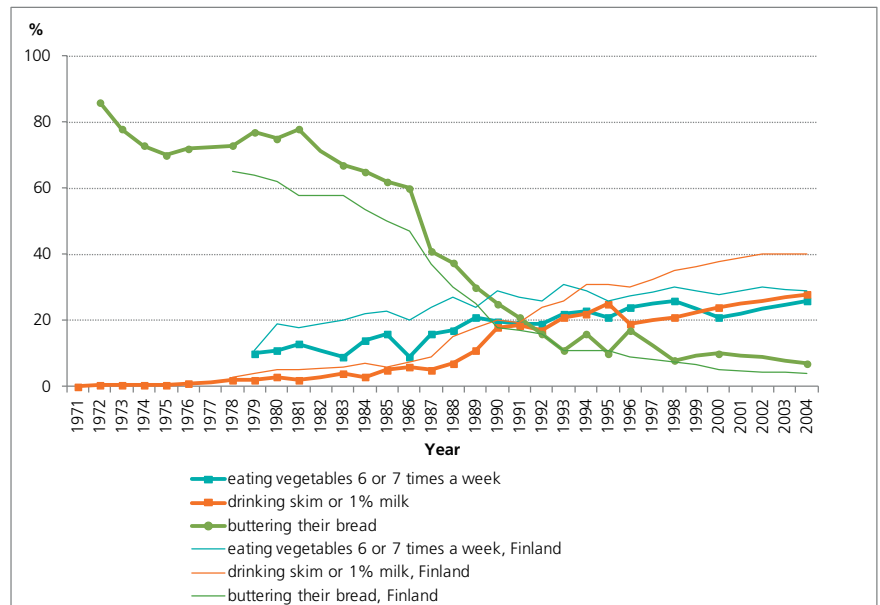
## GOAL: TO RADICALLY CHANGE LIFESTYLES

The first goal that the government of Finland set for the team responsible for the project was to radically change certain lifestyles among North Karelia's population. The vast majority of men aged 30 to 59 (the segment of the population most at risk) were physically active and had no weight problems; however, their consumption of saturated fat and their smoking habits were problematic. Saturated fat intake and smoking were therefore the two issues targeted in the project's early years; later the consumption of vegetables and fruit was added. To reduce the saturated fat intake of North Karelia's residents, the team had to specifically convince them to replace whole milk and butter with low-fat milk, non-hydrogenated margarine, and vegetable oil, less rich in saturated fat.

## IMPRESSIVE RESULTS

The evaluations carried out by the project's promoters and their partners demonstrated results that were encouraging at the end of the first five years and conclusive in the long term.<sup>(5-7)</sup>

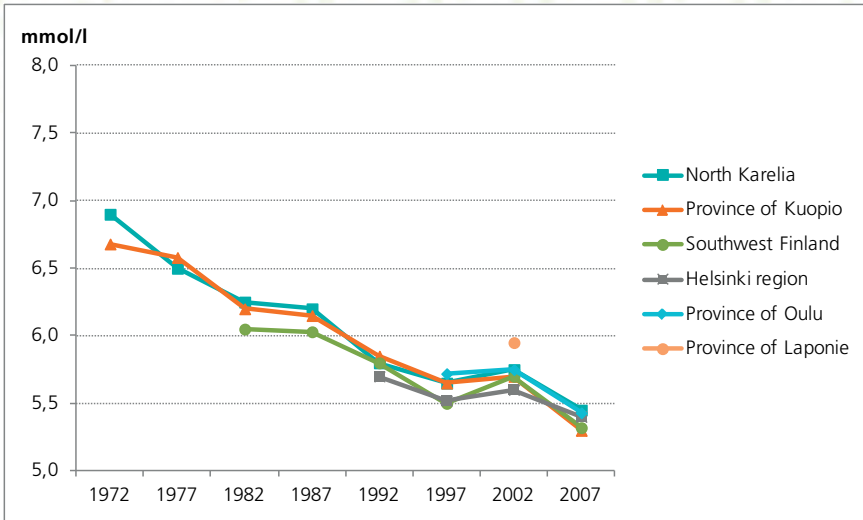
Over the course of 30 years, the dietary habits of the population of North Karelia changed radically (Figure 1). In the spring of 1972, 86% of men and 82% of women stated they ate butter with their bread. In the early 2000s, only 10% of men and 4% of women said they did so. During the same period, consumption of skim or partially skimmed milk increased among both men and women. In 2000, 24% of men and 33% of women in North Karelia said they drank skim or 1% milk. Consumption of vegetables and fruit also increased. Data compiled from 1979 to 2004 shows that the proportion of people eating vegetables 6 or 7 days a week went from 10% to 26% among men and from 12% to 47% among women.



**Figure 1: Proportion (%) of men aged 25 to 59 years consuming vegetables daily, drinking skim or 1% milk, and eating butter on bread, in North Karelia and in Finland, from 1972 to 2004**

Adapted from Helakorpi, Uutela and Puska, 2009.<sup>(8)</sup>

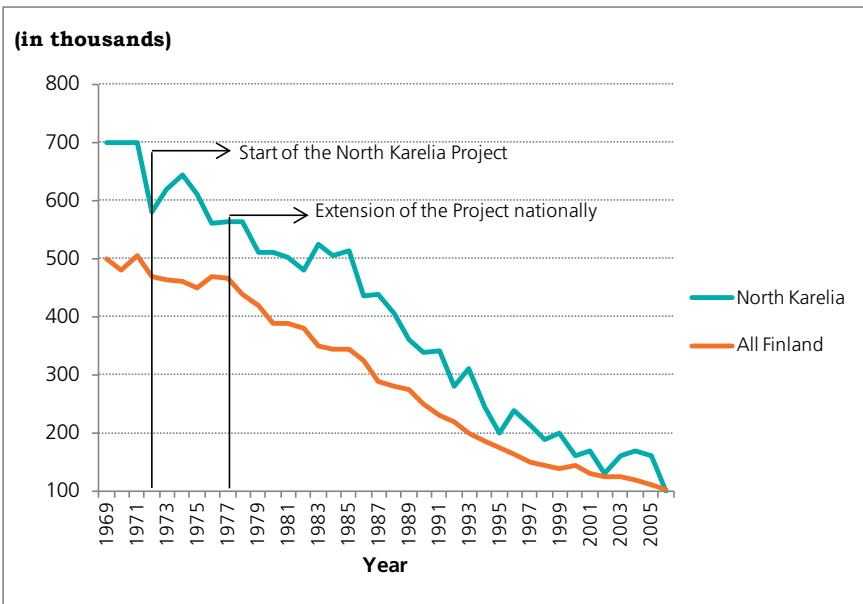
During the first five years of the project, the decline in average total blood cholesterol levels was more marked among men from North Karelia than among those in the reference region, the province of Kuopio (Figure 2). In 1978, the project became a demonstration program, and the principles ensuring its success were applied throughout the country. Over the years, data has been gathered in other regions, and a downward trend in average blood cholesterol levels has been observed in the population of eastern Finland.



**Figure 2: Decline in the average total blood cholesterol level among men 30 to 59 years of age, from 1972 to 2007**

Adapted from Vartiainen et al. 2009.<sup>(5)</sup>

Over a 35-year period, cardiovascular disease mortality rates in Finland declined constantly. Among North Karelian men 35 to 64 years of age, the coronary heart disease mortality rate dropped 85%. Even after taking into account other factors conducive to this trend, improved treatment in particular, the greater part of this result is attributable to the investments in prevention launched in North Karelia in the early 1970s.<sup>(6,7)</sup>



**Figure 3: Decline in the mortality rate\* by coronary heart disease among men 35 to 64 years of age, from 1969 to 2006, in North Karelia and all of Finland**

\*Mortality per 100 000 individuals; adjusted for age based on the European population. Adapted from Puska, Torppa and Salomaa, 2009.<sup>(7)</sup>

**PEKKA PUSKA, CHAMPION OF IMPROVED PUBLIC HEALTH<sup>3</sup>**



Photo: G. Baril

Pekka Puska in his National Institute for Health and Welfare office in Helsinki.

Today at the helm of the National Institute for Health and Welfare in Finland, Dr. Pekka Puska believes that the North Karelia Project’s long-term vision was a key factor in its success. He recounts that one of the project’s designers, Professor Martti Karvonen, one day told him: “You know Pekka, one of the wisest decisions of my career was to appoint you... Not because you were good, but because you were young!” In fact, Pekka Puska, a young graduate, was only 27 years old when, in 1972, he was given a leading role in the project. He was named project director in 1978 and would provide the project with continuity for 25 years.

In 1972, the idea of promoting health by mobilizing an entire population to change its lifestyles was very innovative. However, young Dr. Puska had training and experience that had prepared him to adopt such an approach. Besides his medical training, he had completed a master’s degree in social and political sciences. Furthermore, his interests had led him to become involved in a student organization to such a degree that he became president of its national association. The North Karelia Project involved a professional commitment that corresponded with his convictions. Today, he notes that “changing the world may have been utopic, but changing public health was possible.”

<sup>3</sup> The author interviewed Pekka Puska in Helsinki in 2009 on the occasion of his presentation at the *Noncommunicable Disease Seminar*.

Changing public health meant going into the field and meeting people to tell them they had the power to improve their health. While the population warmly welcomed these young doctors, dieticians, nurses, and other public health practitioners, the project encountered its share of obstacles in the early years. Some cardiologists were not impressed that a team with such little experience was given significant government funds to carry out a project of such scope. In addition, the project's team met with resistance from men 35 to 64 years of age, the population group most at risk. These men did not believe that they could improve their longevity by changing their lifestyles. The team was not content to solely hammer home a message; it sought the involvement of the social structures, organizations, and networks already in place in North Karelia. Dr. Puska missed no opportunity to point out that the North Karelia Project was built on a “balance between leadership and partnership.” The project's workers saw themselves as facilitators of social change.

## Favourable factors

Among the factors that contributed favourably to the North Karelia Project's success<sup>(3,9,10)</sup> were some related to the region's specific context and others based more on the project's direction.

Cited among the favourable factors associated with the project's direction are the project's theoretical foundations, sound analysis of the situation, rigorous planning, flexible implementation, and, above all, an intervention that was supported by the existing social fabric. The project's leaders and personnel truly immersed themselves in the community and adapted the program and activities to local circumstances and possibilities.<sup>(11)</sup>

The project's strategy for action was based on a theoretical model incorporating both an individual and environmental approach. In concrete terms, the strategy involved the following action:<sup>(12)</sup>

- Improving preventive services to help the public identify its risk factors and devote the desired attention to them
- Disseminating information on the relationship between health and lifestyles
- Persuading people to get involved in efforts targeting their health
- Training people, providing them with new skills to make them more capable of managing their habits and environment
- Ensuring that social support be provided to encourage individuals committed to change to pursue their efforts
- Implementing environmental changes that tackle obstacles to healthy lifestyles and that create new possibilities to make better choices for one's health
- Joining forces with local organizations and mobilizing the community to create a social climate conducive to the adoption of healthy lifestyles.

### POLITICAL MOBILIZATION

The social mobilization that characterized the North Karelia Project took root in mobilization at the political level. With the goal of stopping the disastrous trend in terms of cardiovascular diseases, several public health stakeholders made the public and decision-makers aware of a potential avenue for action, which required specific effort by the government. In January 1971, leading a delegation of elected officials and representatives of non-governmental organizations, the Governor of North Karelia presented a petition calling for immediate action to the Finnish government.<sup>(2)</sup>

Once the project was launched, its board of directors was placed under the chairmanship of the region's governor, Esa Timonen, who remained associated with the project for 20 years.<sup>(4)</sup> The project's director, Dr. Pekka Puska, was elected representative of the North Karelia region in the Finnish parliament for the period from 1987 to 1991. The project's team maintained close ties with the regional and national political bodies concerned. Through their recommendations and opinions, team members played a role in the adoption of various legislative measures, in particular anti-smoking legislation and different measures to make healthy choices more available and accessible, especially in the area of food.

- The idea of mixing vegetable oil with butter was developed through the North Karelia Project's community activities. In 1978, a law enabled this to become a product marketed throughout Finland.<sup>(12)</sup>
- In the 1980s, Finland adopted a regulation enabling the production of milk with less fat (up to 1% fat); a number of recommendations were implemented to reduce the fat content and increase the amount of fruit and vegetables in meals served at school and in workplaces; and a law was adopted to subsidize the production of dairy products based on their protein content rather than their fat content.<sup>(3)</sup>

## COMMUNITY MOBILIZATION

The North Karelia Project relied on the regional community's existing structures to create a social climate conducive to the adoption of healthy lifestyles. Stakeholders in the public system played a key role in this community mobilization; their knowledge of the background and their relations with the public facilitated the dissemination of information. The project's personnel were even active within certain community organizations, which strengthened its ties with the population.

- The collaboration of Martta (a women's group similar to Québec's Cercles des Fermières and Association féminine d'éducation et d'action sociale) contributed significantly to improving lifestyles in the region. This organization has a certain degree of influence in North Karelia's rural and semi-urban areas, particularly in the culinary field. Thousands of women and their families were thus able to acquire new culinary skills contributing to healthy eating.<sup>(13)</sup>
- The opinion leaders program was also an effective strategy. According to the principle underlying the program, the probability of a person adopting a change in behaviour is greater if the new behaviour is adopted by a trusted and influential close contact. Hence, "natural" opinion leaders, generally members of local organizations (the farmers' union, homemakers' organization, hunting club, church group, etc.), were identified in each municipality in the region. They were trained to relay the project's messages to their community and provide information on the evolution of the local situation. The opinion leaders program also aimed to exercise bottom-up pressure to incite changes in the environment. The program is believed to have helped encourage local food businesses to offer more products compatible with the goal of reducing cholesterol levels. In the early 1980s, nearly 800 opinion leaders from 19 municipalities had taken the training offered through this program.<sup>(14)</sup>

## JOINING FORCES WITH INDUSTRY

With the cooperation of industry, North Karelia's nutritional environment was modified considerably to make healthy food available and affordable. Changes were made to labelling, the benefits of "healthy" products were highlighted in advertising, and, above all, new products were developed and marketed to meet project goals.

- With North Karelia's economy based in large part on the dairy industry, campaigns encouraging a reduction in the consumption of dairy products rich in fat were greeted with disapproval by some. One potential solution was to locally develop products lower in fat. To convince the industry, the results of a survey were released in the 1970s showing that half of the population of North Karelia would be interested in buying partially skimmed milk.<sup>(12)</sup>
- The recommendations for a healthy diet promoted the sale of vegetables and fruit, most produced abroad. In the 1980s, an important project supported by the Finnish departments of Agriculture and Commerce encouraged both the consumption and production of berries (currants, gooseberries, strawberries...). As a result of the project, a substantial increase in the consumption of berries was observed as well as the conversion of some dairy operations to berry production.<sup>(13)</sup>
- At the end of the 1980s, collaboration with the food processing industry enabled the marketing of locally produced canola oil. This was followed by the development and marketing of various types of vegetable oil-based margarine.<sup>(13)</sup>
- Other products, such as bread with less salt content as well as cold cuts with lower fat and salt content, gradually appeared on the market.<sup>(13)</sup>

## CHANGES IN LIVING ENVIRONMENTS

Usual living spaces and workplaces in North Karelia were the natural settings for numerous prevention campaigns.

- “Health days” were held in food supermarkets where, at no cost, customers were offered a cholesterol test and blood pressure measurement, as well as advice on their eating habits.
- Certain environmental changes were the result of a “snowball” effect. For example, North Karelia’s main bakery voluntarily made major changes to its production after having agreed to participate in a program to improve lifestyles among its employees.<sup>(13)</sup>

## THE RIPPLE EFFECT OF MONITORING AND ASSESSMENT DATA

The North Karelia Project’s evaluation was based in part on population data from death and disease records, as well as on regional and national surveys on risk factors and lifestyles. The surveys on lifestyles included questions on participation in the activities carried out in the context of the project, which at times enabled adjustments to be made to activities. Furthermore, the results data formed the core of the information communicated to decision makers and the general public. Publicizing these successes in turn accelerated change.

## THE MEDIA’S ROLE

The North Karelia Project relied on a judicious dose of original activities and on media presence to make various aspects of the environment (physical and social) more conducive to healthy lifestyles. From 1972 to 1977 alone, the local press published 1509 articles on the project’s activities<sup>(13)</sup> carried out notably in collaboration with the food industry, media, schools, sports clubs, and community groups.

## Lessons for promoting healthy lifestyles

In recent decades, other community-based prevention programs have been implemented elsewhere in the world, at times with mixed results.<sup>(15,16)</sup> One explanation put forward for this is that in rich countries cardiovascular disease risk factors are following a general waning trend; it would thus be difficult to measure the change brought about by specific projects.<sup>(17)</sup> Although certain questions have been raised about the true extent of the North Karelia Project’s role in the spectacular decline in deaths due to cardiovascular disease in the region, it is acknowledged that the project contributed in a major way to the health of the people in the region and the country.<sup>(18)</sup> Following the lead of the North Karelia Project, today a new generation of community-based prevention programs focuses on understanding the community’s background, using a cross-sector approach, and ensuring the sustainability of the intervention.<sup>(18,19)</sup>

The North Karelia Project has had an impact on health promotion in Québec, as projects carried out in the 1990s explicitly indicate.<sup>(17,20)</sup> These interventions helped advance knowledge and the practice of approaches based on the ecological theory in public health. Today, the 2006–2012 government action plan to promote healthy lifestyles and prevent weight-related problems: investing for the future (*Plan d’action gouvernemental de promotion des saines habitudes de vie et de prévention des problèmes reliés au poids, 2006-2012, Investir pour l’avenir*) is continuing to adapt these principles to the Québec context. Experiences like that in North Karelia have demonstrated the importance of change to environments so that individuals can make better choices for their health. Based on these facts, Québec’s strategy is targeting changes to the built environment, as well as to political, economic, and socio-cultural environments, to make them more favourable to healthy eating and a physically active lifestyle.

## In summary

### The winning aspects of the North Karelia approach

- Adopting a long-term vision.
- Maintaining close ties with the political bodies and decision makers concerned.
- Making the theoretical bases of the intervention explicit.
- Influencing individual and environmental factors.
- Using the media and a variety of channels for disseminating information.
- Involving champions and influential community members in the project.
- Developing collaborative cross-sector ways of changing environments.
- Mobilizing structures and networks existing in the community.

### The principle to be retained

Relying on detailed knowledge of the background and conducting the intervention in collaboration with all involved stakeholders.

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### THE NORTH KARELIA PROJECT IN FINLAND: A SOCIETAL SHIFT FAVOURING HEALTHY LIFESTYLES

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