

# Prevent Obesity: A Public Health Challenge

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S T U D I E S



## The Problem: Canadian Trends



- Dramatic  $\uparrow$  in overweight and obesity = public health epidemic

# Body Weight Classification

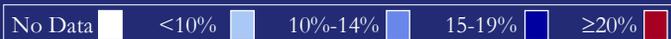
Canadian Guidelines for Body Weight Classification in Adults, Health Canada, 2003

BMI (kg/m <sup>2</sup> )	Classification	Descriptor
< 18.5	Underweight	May be associated with health problems
18.5-24.9	Normal Weight	Good weight for most people
<b>25.0-29.9</b>	<b>Overweight</b>	↑ Risk of developing health problems
<b>≥ 30</b>	<b>Obese</b>	High risk of developing health problems

## Obesity Trends\* Among Canadian Adults

**HPS, 1985**

(\*BMI ≥ 30, or ~ 30 lbs overweight for 5'4" woman)

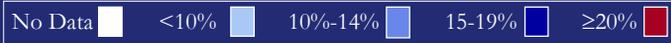


Source: Katzmarzyk PT. *Can Med Assoc J* 2002;166:1039-1040.

## Obesity Trends\* Among Canadian Adults

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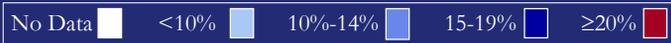


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## Obesity Trends\* Among Canadian Adults

**NPHS, 1994**

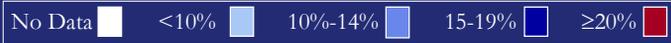
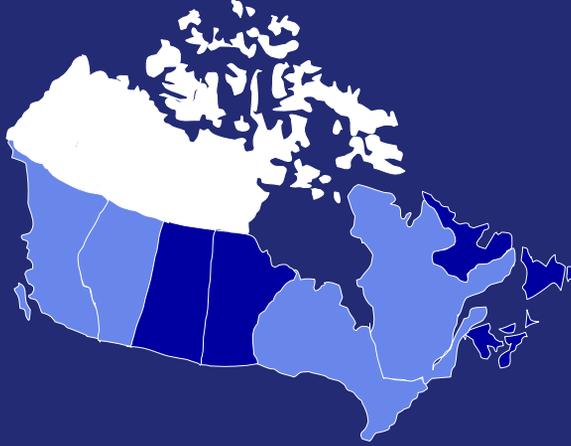
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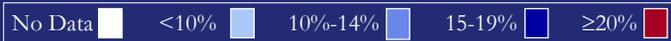
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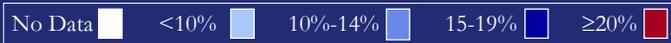
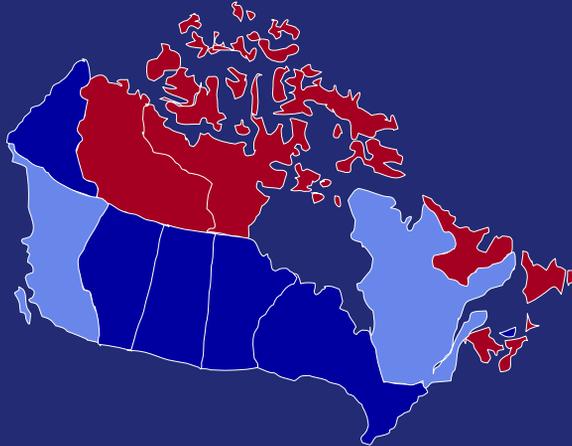
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## Obesity Trends\* Among Canadian Adults CCHS, 2000

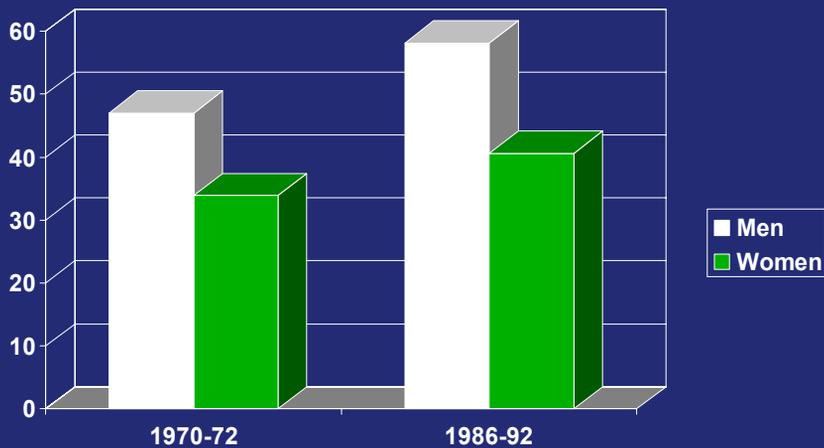
(\*BMI  $\geq 30$ , or  $\sim 30$  lbs overweight for 5'4" woman)



Source: P.T. Katzmarzyk, Unpublished Results.

Data from: Statistics Canada. *Health Indicators*, May, 2002.

## Measured Overweight % Canadian Adults BMI $\geq 25$



# Prevalence of Overweight and Obesity among Canadian Children

*Tremblay, Katzmarzyk & Willms, 2002*

	% of Children aged 7-13 years					
	Overweight			Obese		
Intl. Stds	1981 <i>(measured)</i>	1996 <i>(report)</i>	% Change	1981 <i>(measured)</i>	1996 <i>(report)</i>	% Change
Boys	10.6	32.6	208	2.0	10.2	410
Girls	13.1	26.6	103	1.7	8.9	424



## Vulnerable Groups

- Children
- Socio-economically disadvantaged
- Aboriginal populations

Need more data!





## Impact: Case for Prevention & Control



- NCD/ Chronic diseases
- Psycho-social costs
- Economic Impact

## Risk of Type 2 Diabetes

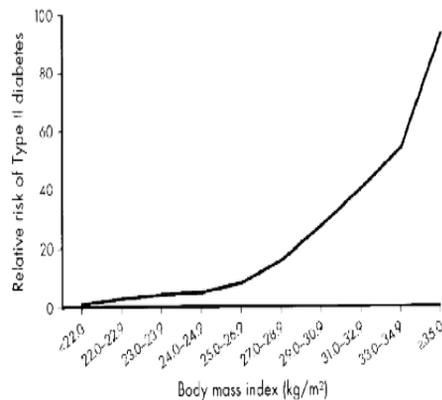
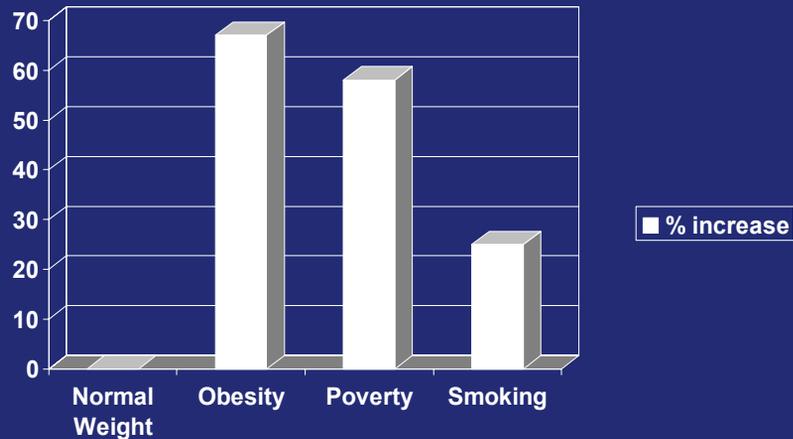


Fig. 1 Relative risk of type 2 diabetes increases with greater body mass index (BMI) in women. A BMI  $> 35 \text{ kg/m}^2$  increases the risk of diabetes by 93-fold. The relation clearly demonstrates that type 2 diabetes essentially does not occur in lean women with a BMI  $< 22 \text{ kg/m}^2$ .

Source: Astrup, A. (2001). Public Health Nutrition: 4(2B), 499-515.

# Self-reported Chronic Conditions among US Adults, 1998

*Sturm & Wells, 2001; Sturm, 2002*



## Psycho-social Costs



### Children:

- Lower self-esteem
- Body-image disturbances & disordered eating

### Adults:

- Social Bias (“acceptable” prejudice”)
- Discrimination affecting social status
- Body-image disturbances & disordered eating



# Economic Impact



## Costs to Canadian Health System

(Birmingham et al, 1999)

- Direct costs of obesity and co-morbidities  
~ \$1.8 billion

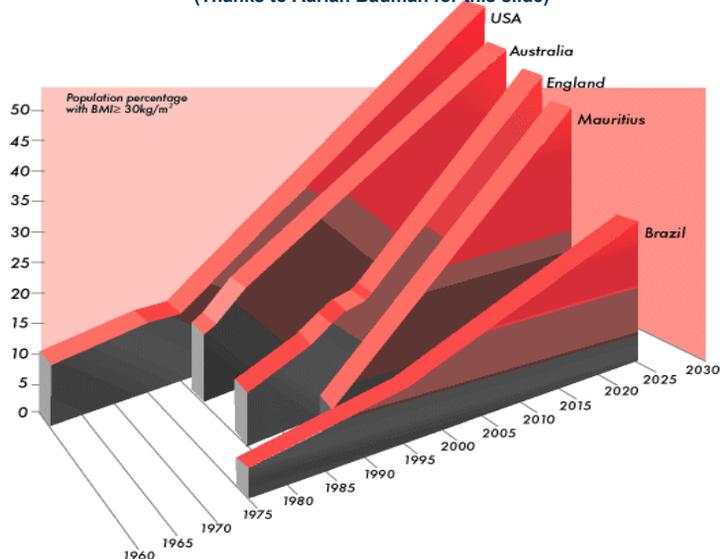
## Provincial Estimates (Nova Scotia)

(Colman, GPI Atlantic, 2002)

- Direct costs ~ \$128 million
- Indirect Costs (↓ productivity, absenteeism, disability) ~ \$140 million

## Projected increases in obesity

(Thanks to Adrian Bauman for this slide)



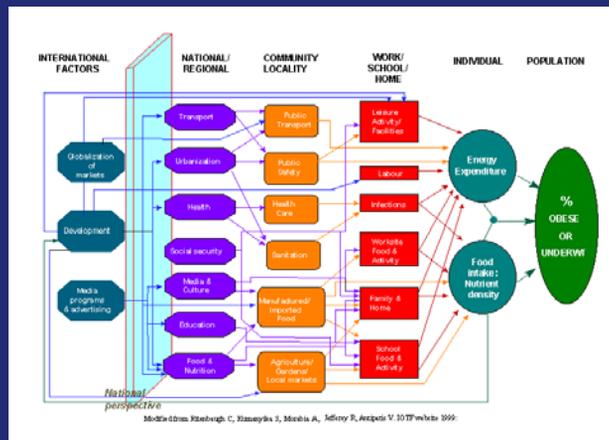


# Determinants of Obesity



- Individual determinants (Behaviour)
  - diet
  - physical inactivity
- Environmental determinants
  - context for behaviour
- Social and cultural determinants

## Causal Web



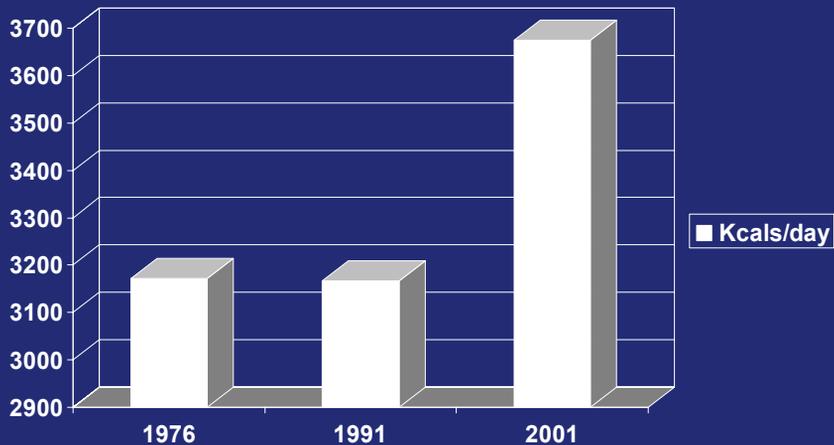
# Behavioral Determinants: Diet

- Ecological trends (crude estimates)
- Measured food consumption (lacking)



## Food Availability: Per Capita Disappearance Data

*Food Statistics (Stats Can, 2001)*





## Food Consumption



- Lack of surveillance a major barrier
  - Nutrition Canada (1970-72)
  - Provincial Nutrition Surveys (1990s)
    - Adults only
- Consistent decrease in energy intake (~10%) 1970-1990s ??
- Contrary to American trends
  - +200 kcals/ d over 20 years
- CCHS 2004 – focus on nutrition



## Environmental Determinants: Diet



- Increased eating away from home
  - 30% of Cdn food \$ in 1996
- Access to quality food retail outlets
- School food/ beverage contracts
- Portion sizes
- Marketing and advertising

# Eating Away from Home: Fast Food

30% of \$ at fast food restaurants



## Local Food Environments

- ready access to quality grocery stores and food service operations improves dietary quality

\$ within Edmonton - food costs are 14% higher in inner city

\$ northern and rural area - extreme price differentials

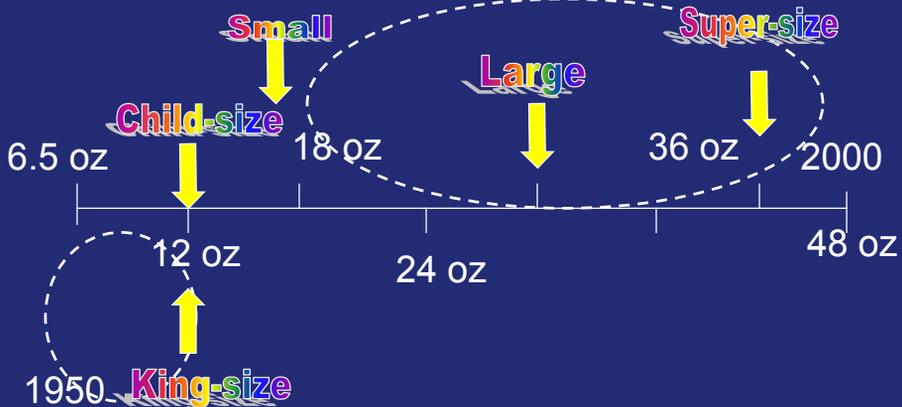


# Marketing at Schools

\$1 B USD/ year in student snack spending  
Exclusive contracts increasing



## Soft-drink sizes



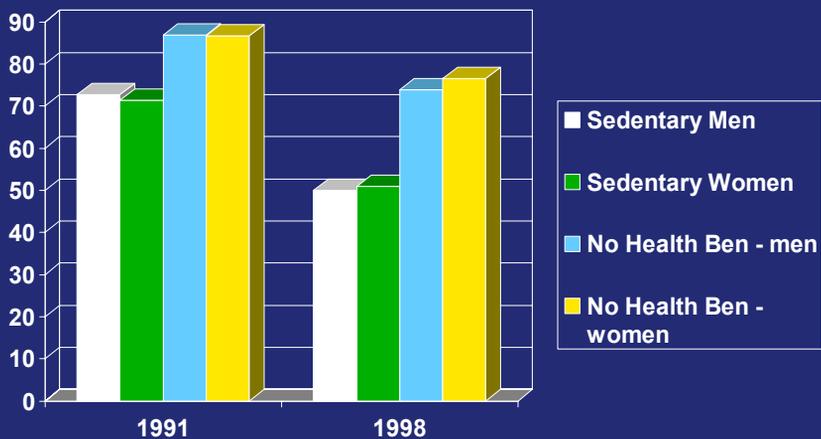


# Advertising...

McD: \$571 M USD in 1997

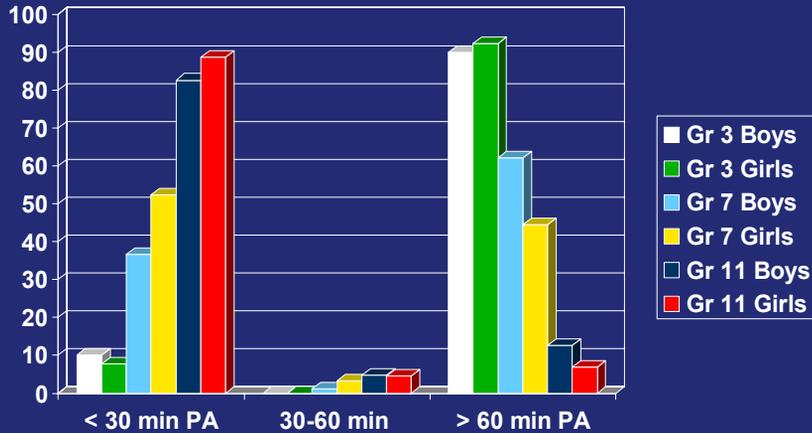


## Behavioral Determinants: Physical Inactivity



# Measured Physical Activity among NS School Children

*Campagna et al, 2002*



## Environmental Determinants: Physical Inactivity



- Occupation
- Leisure time
- Schools
- Transportation
- Urban Sprawl





## #1 Leisure Time Activity: TV Viewing

1998 GSS



## Physical Inactivity: Schools



- Funding for PE decreasing
- Only Quebec has mandatory PE until graduation
- Average time devoted to PE in Cdn schools: < 1 hour/ week
- < 5% meet standards for QDPE (150 minutes/week)



# Transportation

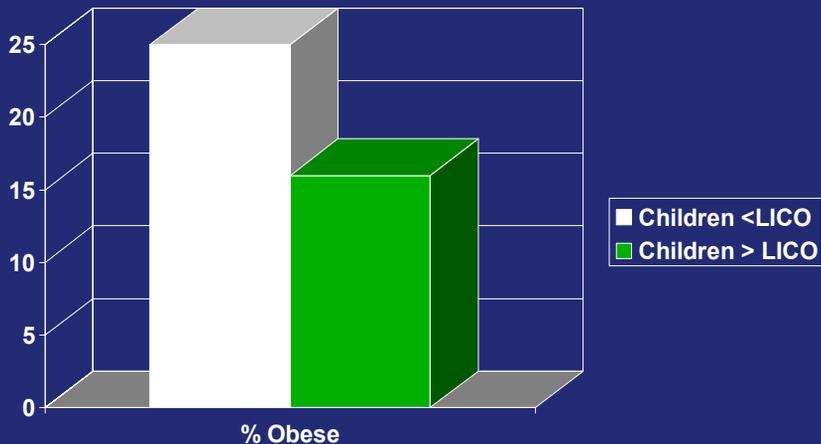


- Only 14% of Canadians live within walking distance of work
  - 51% walk some times
  - 38% walk most times
  - 49% never walk
- Barriers to Active Commuting:
  - convenience
  - Safety
  - Change facilities at work
- Automobile advertising > food advertising



# Social Determinants: SES

NLSCY 1998-99, Ages 2-11





## SES and Obesity: Potential Mechanisms



- Behaviour
  - Food insecurity = poor diet quality
  - Intermittent food availability (fasting/ feasting)
- Environment
  - Density of fast food outlets
  - Higher cost of healthy food
  - Crime: Unsafe for exercise
  - Urban sprawl = Ghettoization of inner city
- Bio-psycho-social pathways
  - Inequity triggers stress hormones – abdominal fat deposition



## Socio-cultural Context

- “Cultural embeddedness” of obesity
- Eating and physical activity patterns are rooted in culture
  - Culture associated with acceptance of variations in body sizes
  - Weight carries moral connotations
    - acts as a filter
    - obesity is only viewed as a public health problem when rates rise so rapidly that it constitutes a “crisis”

## “Toxic” environment?

“Both eating disorders and obesity exist within the context of an environment that is becoming increasingly “toxic” to food & weight – an environment that exalts thinness, stigmatizes fatness, encourages unregulated consumption of energy-dense foods and promotes “quick-fix” approaches to weight loss”.

Irving & Neumark-Sztainer. 2002.

## Ecological Perspectives on the Promotion of Healthy Weights

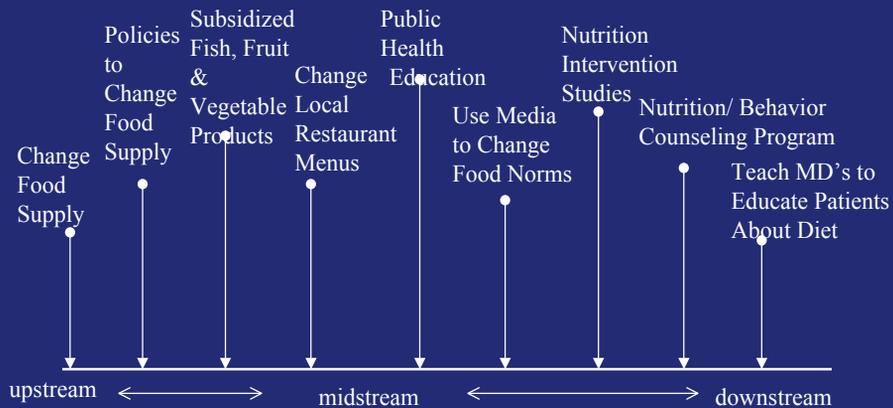
- Multilevel public health strategies
- Help to organize strategies that work:
  - to support healthy lifestyles among individuals
  - to influence policy to create opportunities for social and cultural change
- Strategies can be categorized by their predominant focus at ecological levels:
  - 1) Individual (intrapersonal and family)
  - 2) Environmental (institutional and community)
  - 3) Population

# OTTAWA CHARTER FOR HEALTH PROMOTION



Health Canada, Health Promotion and Programs Branch A.B./NWT/Nunavut

## Obesity prevention: Diet



Adapted from McKinlay, 1995, as cited in Orleans  
T. Health Psychology, January 2000 supplement, p.78



## Focus on: Individual Change



**Is this your family's idea of a fitness centre?**

We all know physical activity plays a major role in preventing heart disease. So how come 63% of Canadian women – and their families – don't get enough exercise?

The good news is that you don't have to join a club or buy a lot of expensive gear. The Toronto Heart Health Partnership has put together a *Get Going* Information Pack to help you. It has physical activity guides for the whole family, tips on relieving stress, neat maps of trails and walking paths in Toronto, and a whole lot more.

**Get going.**



**Love Your Heart!**

TO GET YOUR FREE *GET GOING* PACK, CALL 416-396-5656  
Toronto Heart Health Partnership [www.loveyourheart.org](http://www.loveyourheart.org)



## Focus on Lifestyle: Cautions



- Individual focus limits impact on population health
  - Majority in need of change
  - Effectiveness of programs for weight loss via lifestyle change is highly variable
  - Some commercial weight loss options have misleading advertising that may undermine individual efforts and compromise financial status
  - Can be used to justify cutbacks to health and social services
- Life choice or life chance?
  - Lifestyle choices are heavily structured by life circumstances
  - Personal responsibility vs. response-ability
  - Victim-blaming/ stigmatization

## Individual Change: Barriers

- Lack of resources (cost containment)
- Lack of counseling skills
- Lack of health care coverage
- Resistance from “size acceptance” and “health at any size” movements as rationale for non weight-based strategies
  - Concern with psychological well-being
  - Weight obsession
  - Disordered eating
  - Risks of chronic dieting and weight cycling

## From Individual Change to Environmental Change

- Review of determinants suggests need for emphasis on environmental strategies (in support of individual strategies)
- Environmental changes:
  - Promote healthy, normal eating and physical activity
  - Create supportive environments for healthy lifestyles
- Integrate prevention of disordered eating/ exercise and obesity



## Environmental Strategies to Promote Healthy Living



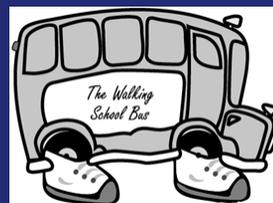
- Schools
- Worksites
- Communities



## Environmental Strategies: Schools



- comprehensive school health (KOPS, KSDPP, CCS)
- school food policies (soft drinks)
  - LA district ban in 2004 = \$4.5 M/ year
- school PE policies (QDPE)
- active schools (free play)
- safe routes to school





## Kahnawake Schools Diabetes Prevention Project



- Community driven: Mohawk elders want to spare their children the burden of diabetes
- Cultural relevance: community advisory board
- School-based intervention (organization)



## Intermediate Outcomes – KSDPP (1994-98)



- Created a supportive school environment
  - Food policy
  - Daily physical activity
  - Health curriculum
- Community participation (85%)
- Lifestyle change
  - ↑ Physical activity
  - ↓ TV viewing
  - ↑ Diet quality (↓ soda, ↓ french fries)



## Environmental Strategies – Canadian Worksites ...



- Cost savings demonstrated for comprehensive worksite programs
- Supportive work environments
  - Active commuting
  - flex time
  - shower facilities
  - subsidies for healthy foods

## Strategies: Healthy Food at Work

- Increase the number, variety and allocation of healthy food choices
- Provide incentives to food service operators for the provision of healthy food choices





## Environmental Strategies: Canadian Community



- Community Food Security
  - Toronto Food Policy Council
- Point-of-choice nutrition information
  - *Health Check*
- Community-wide PA campaigns
  - Pedometers (*PEI Stepping Out*)
  - Saskatoon *In Motion*



## Population-wide Structural Change



- Lessons from models of social change: tobacco, heart health, breastfeeding, recycling
  - crisis
  - economic costs high
  - coalition advocacy
  - government involvement



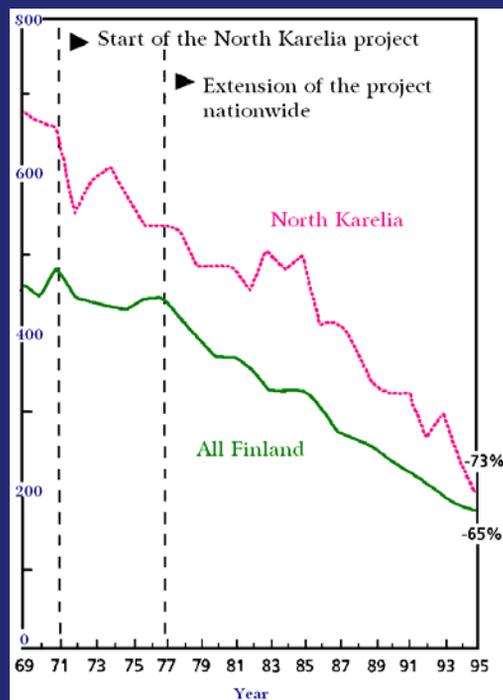
## Focus on Heart Health: Population Change



- North Karelia (Finland) Project (1972- )
- Highest CVD mortality in the world
- Political will to change
- Community-based heart health intervention
  - Education (partner with industry, media)
  - Policy (tobacco legislation, food content, advertising)
  - Environmental change: healthy choice = easy choice
  - Despite no physical activity programming, BMI has stabilized at a time when global obesity rates are increasing

Age-adjusted mortality rates of coronary heart disease in North Karelia and the whole of Finland among males aged 35-64 years from 1969 to 1995.

Mortality per  
100 000  
population





# Canadian Population-Wide Policy Change



- Dietary and physical activity guidance
- Mandatory nutrition labeling
- Taxation (GST)
  - “sin tax” returned to general revenues, not earmarked for health promotion
- Taxation: social safety net and income redistribution
- Advertising restrictions/ media regulation
- Active transportation in urban plans



## Recommendations

- Surveillance system to monitor ongoing rates of weight issues, their costs, and impact of interventions
- Health impact analyses of social policies influencing income equity to develop understanding of socio-economic determinants
- Develop policies to support weight management for those at risk (insurance, CPG)
- Work with education ministries and school boards
- Work with employers to promote “healthy” worksites
- Build on successes in population-based change (tobacco reduction)
- Create evidence base for decision-making
- Administer the “preventive dose”

## Create the Political Will



No Data  <10%  10%-14%  15-19%  ≥20% 

**Obesity Trends Among Canadian Adults**  
**NPPS, 2020**

Merci Beaucoup!