



Saskatchewan Takes Bite of Healthy Foods



Mohamed Khan, Ph.D.
Healthy Foods Specialist


Health Issues Associated with Foods



1. Overweight and Obesity
2. Type 2 diabetes
3. Cardiovascular
4. Stroke
5. High Blood Cholesterol
6. High blood pressure
7. Osteoporosis
8. Hyperactivity in children
9. Asthma
10. Various types of cancers

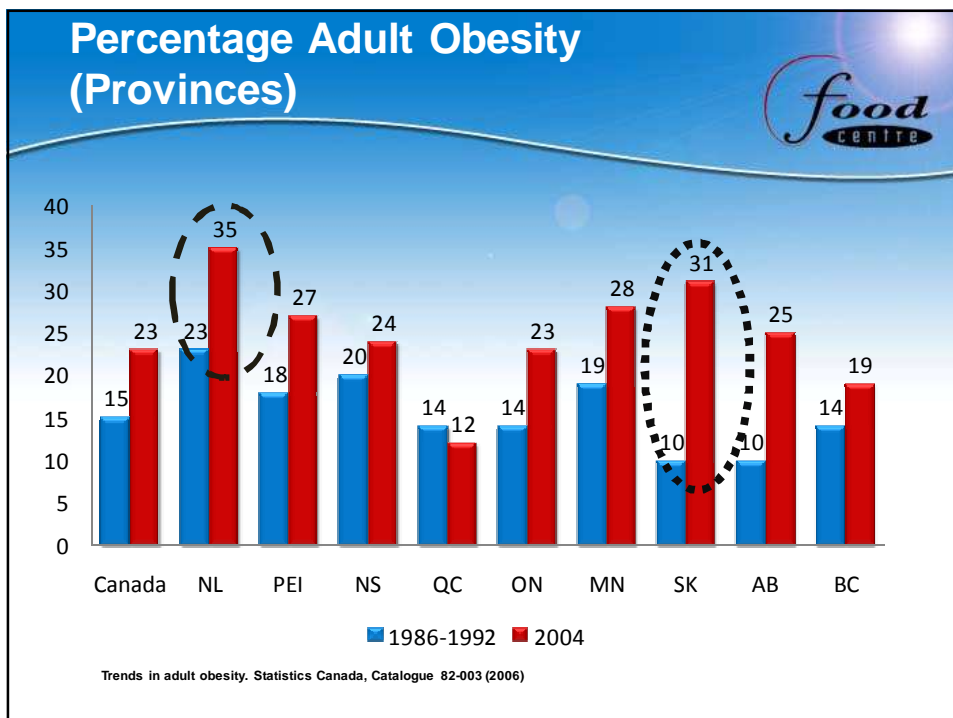
World Action on Salt and Health (WASH) (2011). http://www.worldactiononsalt.com/health/salt_health.htm
Heart and Stroke Foundation (2011) <http://www.heartandstroke.com/site/kiDLeMwJE/b.3483991/k.34A8/Statistics.htm>
Science daily (2007). <http://www.sciencedaily.com/releases/2007/09/07/0909202847.htm>
The Telethon Institute for Child Health Research (2010). http://www.preparedfoods.com/Articles/newsletter-people/BNP_GUID_9-5-2006_A_1000000000000928899

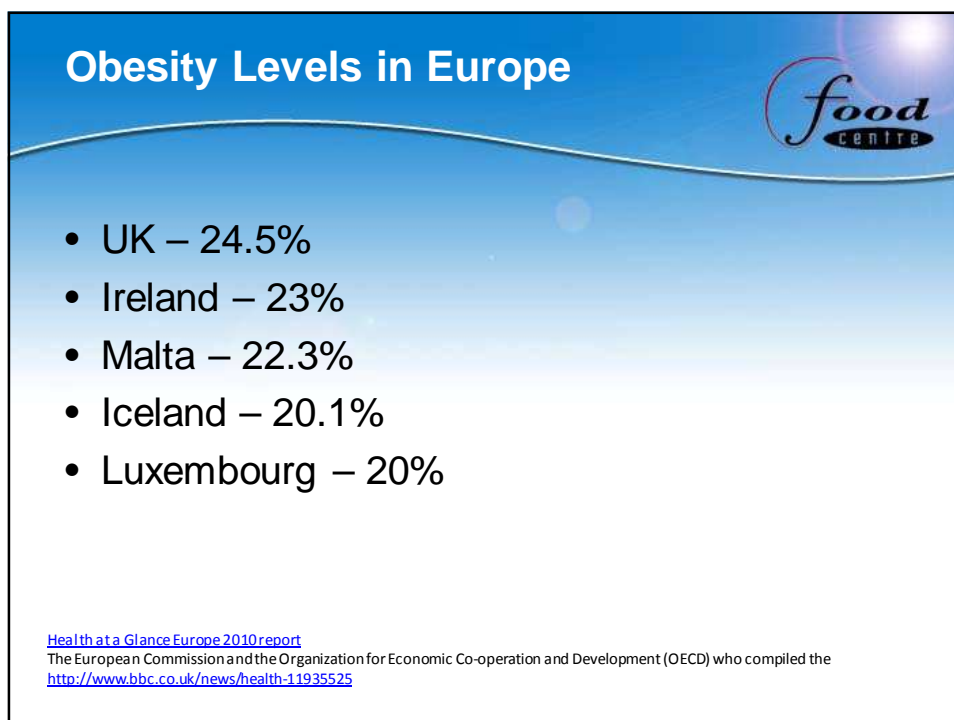
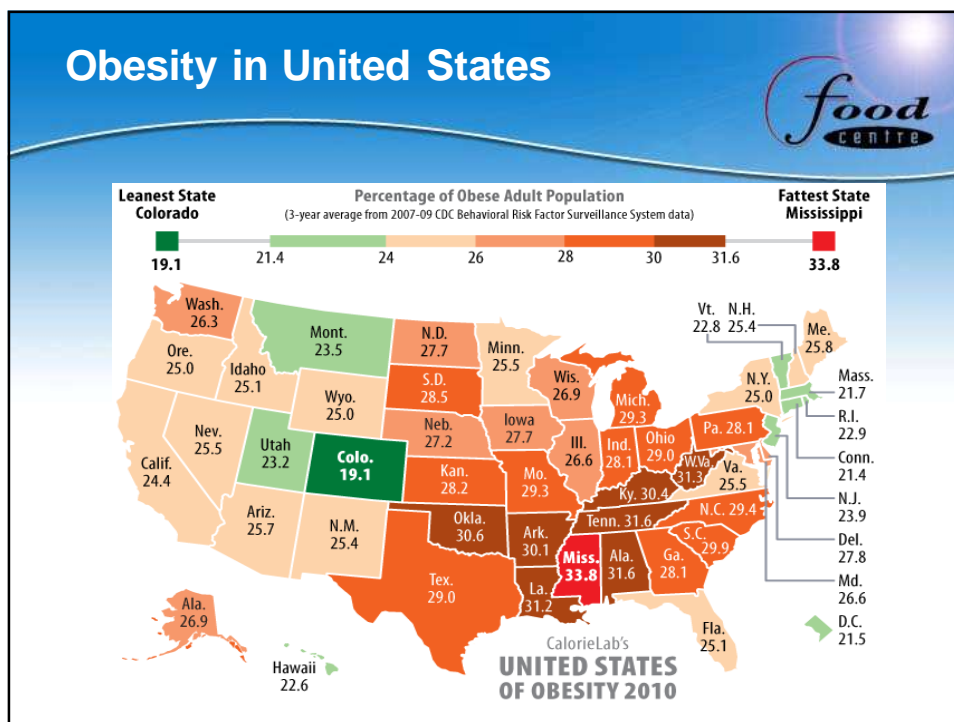
Percentage Overweight and Obese in Canada (1981 vs. 2007-2009)

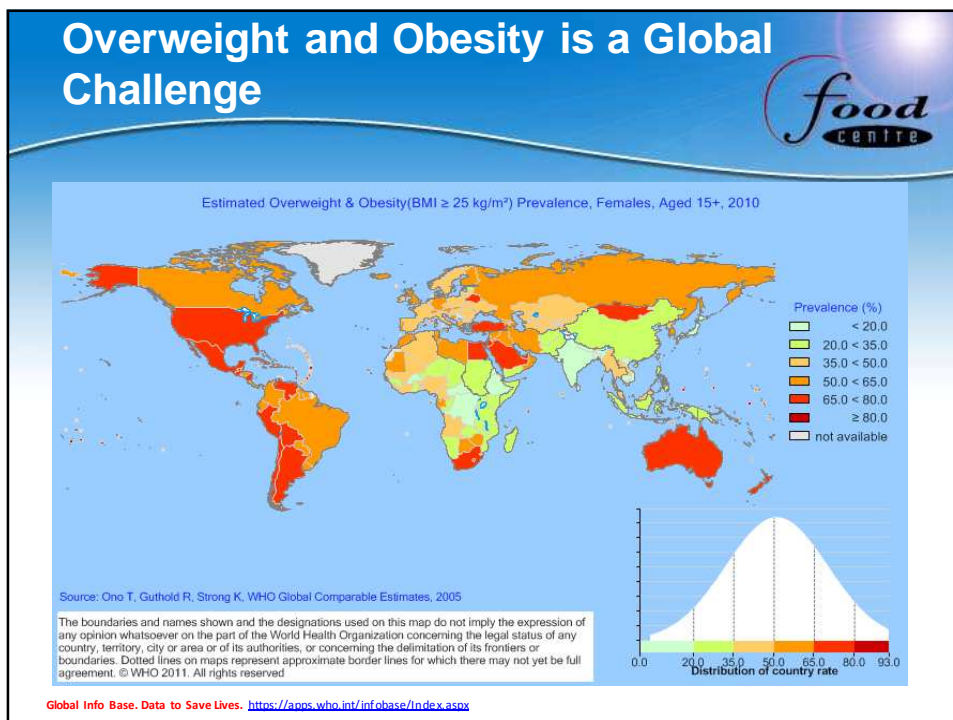
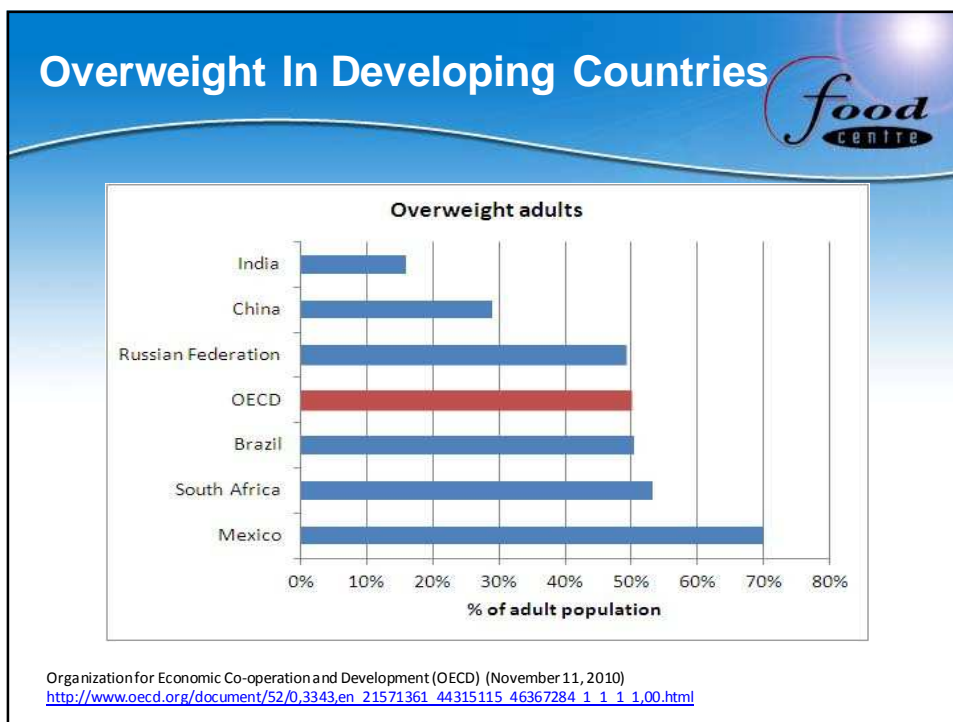


	1981			2007-2009		
	% Overweight	% Obesity	% (Obesity + Overweight)	% Overweight	% Obesity	% (Obesity + Overweight)
Men (18 to 69)	38	9	47	43	24	68
Women (18-69)	22	8	30	28	23	52
Boys (7-17)	9	2	12	17	10	28
Girls (7-17)	11	2	13	17	7	25
Total (Adults)	30	9	39	36	24	60
Total (Children)	11	2	12	17	9	26

Fitness of Canadian adults: Results from the 2007-2009 Canadian Health Measures Survey (2010). <http://www.statcan.gc.ca/pub/82-003-x/2010001/article/11064-eng.htm>
 Fitness of Canadian children and youth: Results from the 2007-2009 Canadian Health Measures Survey (2010). http://www.sportmatters.ca/images/Fitness%20of%20Canadian%20children_to%20PDF%20Approval_December%2016_e.pdf







Causes of Overweight and Obesity Epidemic



1. Increased intake of energy-dense foods that are high in **fat** and **sugars** but low in **vitamins**, **minerals** and other **micronutrients**.
2. A trend towards decreased physical activity.
 - “American society has become 'obesogenic,' characterized by environments that promote **increased food intake**, **non-healthy foods**, and **physical inactivity**.”

The Centers for Disease Control and Prevention

Obesity and overweight (2011). <http://www.who.int/mediacentre/factsheets/fs311/en/>
 Future obesity costs (2009). http://www.usatoday.com/news/health/weightloss/2009-11-17-future-obesity-costs_N.htm

Implications of Obesity



- The cost of obesity to the Saskatchewan economy is estimated at between **\$230 million and \$260 million a year** (2001 data).
- The cost of obesity to Canadian Economy is **\$4.3 billion** (2001 data).
- “If Americans continue to pack on pounds, obesity will cost the USA about **\$344 billion** in medical-related expenses by 2018, eating up about **21% of health-care spending**, says the first analysis to estimate the future medical costs of excess weight”.
- Approximately **300,000 deaths** per year may be attributable to obesity in USA.

Future obesity costs (2009). http://www.usatoday.com/news/health/weightloss/2009-11-17-future-obesity-costs_N.htm
 Office of the surgeon general (2010). http://www.surgeongeneral.gov/topics/obesity/calltoaction/fact_glanca.html
 Cost of obesity in Saskatchewan (2001). <http://www.gpi.allanbc.org/pdf/health/obesity/saskobesity.pdf>
 The obesity epidemic in Canada (2005). <http://www2.parl.gc.ca/content/opp/researchpublications/prb0511-e.htm>
 The future costs of obesity (2009). <http://www.fghhc.chronicdisease.org/pdfs/CostofObesityReport-FINAL.pdf>

The Health of Canadians!



- Health conscious consumers are increasing and they are making every effort to reduce the amount of **salt, fat**, and (to a lesser extent) **sugar** from their diet.
- Nonetheless, they consumed significantly lower than daily recommended serving of **fruits** and **vegetables**.
- Adults and youth agreed that **obesity** is the **number one health issue** affecting Canadians today.

CBC | The Health of Canadians! (2011) <http://www.cbc.ca/news/pdf/CBCFinalReport.pdf>

Obesity & Diabetes is a Public Health Concern



“We face a significant public health challenge. Four out of five Canadians over the age of 20 have at least one risk factor for heart disease or stroke. **obesity and diabetes**, two major risk factors, are on **the rise**. With the aging of the population, and the increase in diabetes and obesity, more people will develop heart disease and stroke in the future. This will put greater demands on Canadians, their families, and the health care system”.

Dr. David Butler-Jones
Chief Public Health Officer of Canada

Tracking Heart Disease and Stroke in Canada (2009) <http://www.phac-aspc.gc.ca/publicat/2009/cvd-avs/pdf/cvd-avs-2009-eng.pdf>

The Diabetes Challenge in Canada



- More than **9 million** Canadians are living with diabetes or pre-diabetes.
- 90 % is food related Type-2 diabetes.
- By 2020, it's estimated that diabetes will cost the Canadian healthcare system ~\$17 billion a year.

Canadian Diabetes Association (2011) <http://www.diabetes.ca/diabetes-and-you/what/prevalence/>

Heart Failure



- Heart failure is on the increase as a result of successes in treating heart attacks and other cardiac conditions. As people with damaged hearts are living longer, they become more susceptible to heart failure.
- It is estimated that there are **500,000** Canadians living with heart failure and **50,000** new patients are diagnosed each year.
- Up to **40% to 50%** of people with heart failure **die within five years of diagnosis.**

Heart Failure in Canada. <http://www.heartandstroke.com/site/c.ikiQLcMWJtE/b.3483991/k.34A8/Statistics.htm>

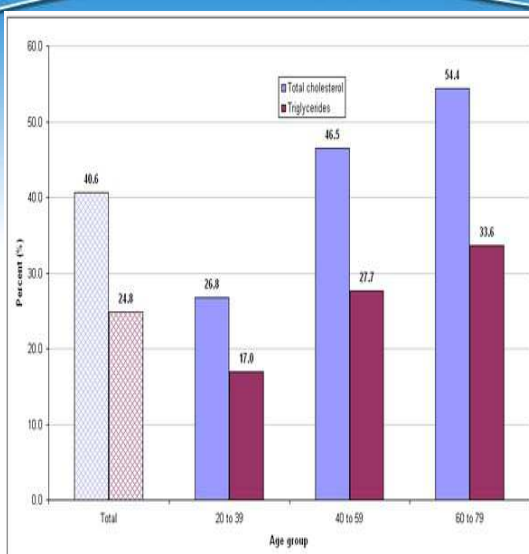
Stroke Prevalence



- There are over **50,000** strokes in Canada each year. That's one stroke every 10 minutes.
- About **300,000** Canadians are living with the effects of stroke.
- A stroke survivor has a 20% chance of having another stroke within 2 years.

Stroke in Canada. <http://www.heartandstroke.com/site/c.ikIQcMWJtE/b.3483991/k.34A8/Statistics.htm>

High Blood Cholesterol (2007-2009)



•As many as **10 million** Canadian adults have a cholesterol level higher than the recommended target!.

•The cholesterol lowering drug LIPITOR is the world's largest selling pharmaceutical product with sales reaching \$12.4 billion in 2008.

Heart health and cholesterol levels of Canadians, 2007 to 2009.
<http://www.statcan.gc.ca/pub/95-625-x20110001/article11138-eng.pdf>
 Blood Cholesterol.
<http://www.heartandstroke.sk.ca/site/c.inKMLNtEmGb.3657463k.3490/Statistics.htm>
 Pfizer Annual Review (2009).
<http://media.pfizer.com/files/annualreport2008/annualreview2008.pdf>

High Blood Pressure Facts



- One-fifth (19%) of adults (4.6 million) aged 20 to 79 years have hypertension.
- over 4 million antihypertensive medication prescriptions are written every month.
- It is estimated that almost 30% of hypertension can be attributed to excess dietary sodium.



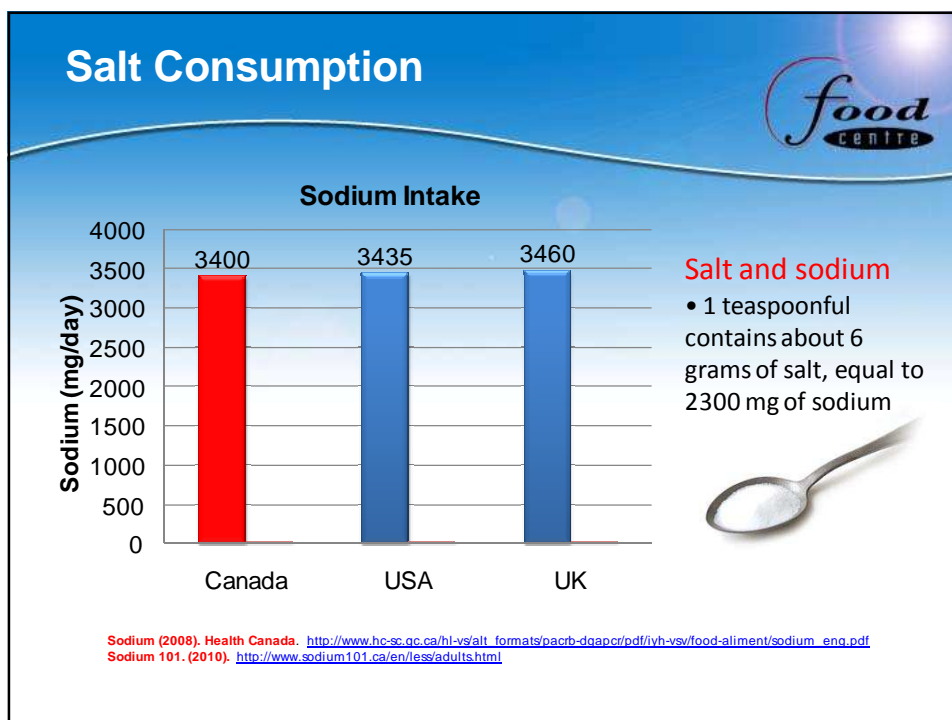
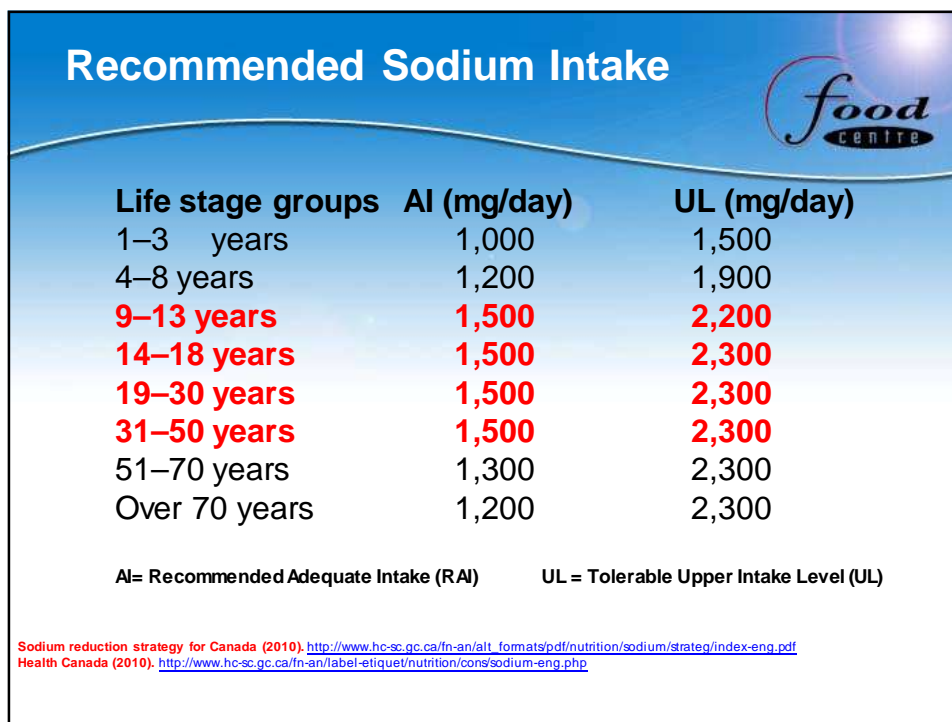
Hypertension fact and figures. http://www.phac-aspc.gc.ca/cd-mc/cvd-mcv/hypertension_figures-eng.php
 Blood pressure in Canadian adults (2010). <http://www.statcan.gc.ca/pub/82-003-x/2010001/article/11118-eng.pdf>

The Sodium Story



- Sodium is a nutrient found in table salt (Sodium chloride).
- Other sources include monosodium glutamate, sodium benzoate, sodium bicarbonate, sodium citrate, sodium nitrite and sodium acid pyrophosphate.
- Salts are used as seasoning, preservative, binding agents, color controller and texture aid.
- While the body needs some sodium to function, too much may lead to high blood pressure (4.6 million in Canada and 53.9 million in USA), a major risk factor for stroke, heart and kidney disease.

Salt and health. <http://www.saltsense.co.uk/salt-nutrition02.htm>
 Sodium. <http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/food-aliment/sodium-eng.php>



Benefits of Reduced Sodium Intake

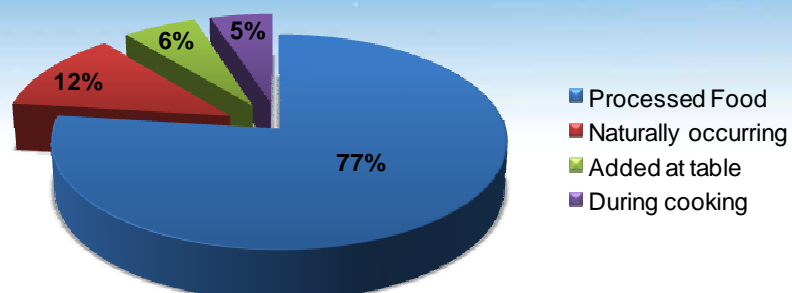


Reduction from 3500 mg/day to 1700mg/day could have the following results:

- A 30% reduction in the number of Canadians with hypertension
- An annual savings of more than \$1.38 billion in health care costs and \$2.99 billion in associated indirect and direct costs (1993 data).

Sodium reduction strategy for Canada (2010). http://www.hc-sc.gc.ca/fn-an/alt_formats/pdf/nutrition/sodium/strateg/index-eng.pdf
 Penz ED et al. (2008). *Can J Cardiol* 24(6):497-501.

Sources of Sodium in Our Diet



Sodium reduction strategy for Canada (2010). http://www.hc-sc.gc.ca/fn-an/alt_formats/pdf/nutrition/sodium/strateg/index-eng.pdf
 World Action on Salt and Health (WASH) (2011). http://www.worldactiononsalt.com/health/salt_health.htm

World Health Organization (WHO)



“Current recommendations indicate that in order to prevent chronic diseases, the population average consumption of salt should be < 5 g/day (< 2 g/day of sodium) (WHO 1983, WHO 2003)”



World Health
Organization

WHO (2006). Less Salt Less Risk of Stroke and Hear Disease.
http://www.who.int/dietphysicalactivity/reducingsaltintake_EN.pdf

Methods of Sodium Reduction in the Food Industry



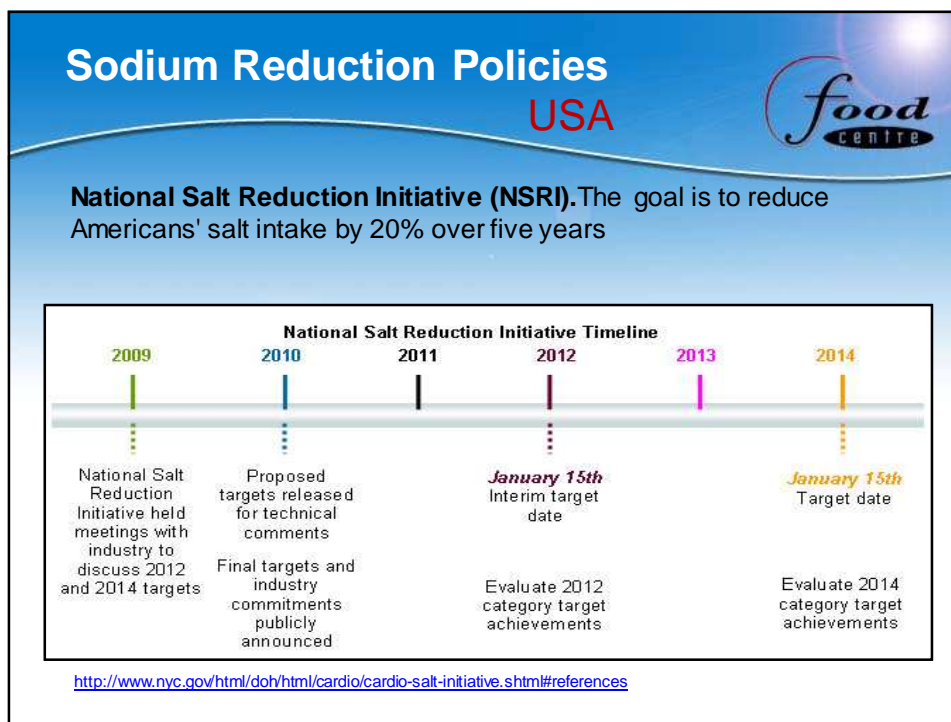
1. The Finnish strategy : Use of salt substitutes and salt labeling regulations

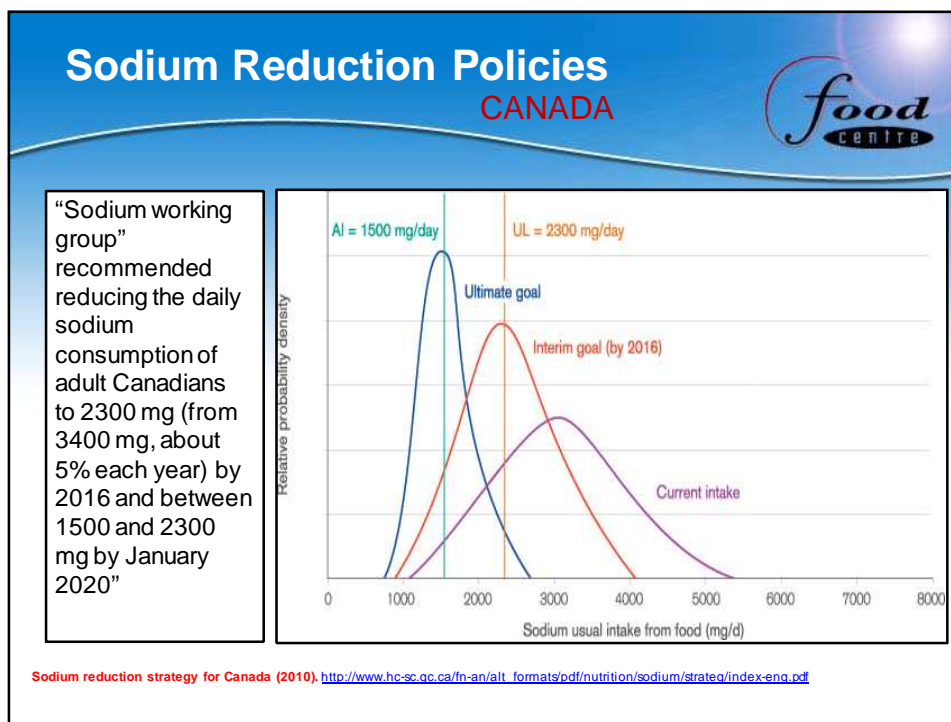
- Replacing NaCl (salt) with sodium-reduced, potassium and magnesium enriched mineral salt, low and high salt food labels resulted in 30 % reduction in salt intake in general population.
- Reduced heart disease and stroke by 75 to 80 %.

2. The United Kingdom strategy - sodium reduction by stealth


- The average daily intake of sodium decreased from 3,800 mg in 2001 to 3,440 mg in 2008.
- This salt reduction have shown to yield annual cost saving benefits of £1.5 billion ~ (CAD 2.4 billion).

Salt; Health, Functionality and Flavor (2010). http://www.malabarsuperspice.com/docs/salt_DrKeast_Literature_Review.pdf
Agency publishes 2012 salt reduction targets (2009). <http://www.food.gov.uk/news/pressreleases/2009/may/salttargets>
Sodium intake and hypertension (2006). <http://www.ncbi.nlm.nih.gov/pubmed/17046432>






Health Check Criteria for Sodium



FOOD PRODUCT	01NOV2010	CURRENT
Cereals	480 mg or less	240 mg or less
Yogurt	480 mg or less	140 mg or less
Meats (including packaged deli meats, ground meat, canned meat, meatballs, sausages, burgers)	480 mg or less	360 mg or less
Bars	480 mg or less	140 mg or less

Nutrients standard for sodium 2011.
http://www.heartandstroke.sk.ca/site/c.inKMLNIEmG/b.4415287/k.A90/Health_Check_nutrient_standards_for_sodium.htm

Sodium 101



Order your FREE MAGNET NOW!

Sodium 101
Get the facts! / La vérité choquel!
 Adequate daily intake: 1500 mg or less
 L'Apport quotidien adéquat: 1500 mg ou moins

mg of sodium per serving
mg de sodium par portion

TOO MUCH TROP	400+
WATCH OUT ATTENTION	200-400
GO AHEAD ALLEZ-Y	0-200

Sodium101.ca

“As a general rule, you should eat foods low in sodium (less than 200 mg per serving). And stick to a daily total of no more than 1,500 mg. In fact, if most of us followed this simple rule, the rate of stroke and heart disease could drop by 30 per cent in Canada!”

<http://www.sodium101.ca/en/>

1 Slice of Pizza

1,770mg

118% of recommended daily sodium intake

Vegetable Soup

922mg

61% of recommended daily sodium intake

Spaghetti with sauce

1,030mg

69% of recommended daily sodium intake

What are HEALTHY Foods?



Foods with little (minimum) of:

- **Salt**
- Sugar (glucose-fructose or high fructose corn syrup)
- **Saturated fat**
- **Cholesterol**
- Most of **Trans fats**
- Chemicals (preservatives, colors, flavors and antioxidants)

What are HEALTHY Foods?



Foods with a lot (optimum?) of:

- Fibre
- Minerals and Vitamins
- Omega-3 Polyunsaturated fatty acid (PUFA)
- Phytosterols and bioactive herbal extracts
- Antioxidants
- Carotenoids
- Prebiotics
- Probiotics
- Healthy trans fatty acids (CLA and TVA)

Food Product Design (2010). <http://www.foodproductdesign.com/topics/nutraceuticals.aspx>

Nutrition Facts Education Campaign (Health Canada, 2010)



Cereal 1

Nutrition Facts	
Per 3/4 cup (30 g)	
Amount	% Daily Value
Calories 115	
Fat 0 g	0 %
Saturated Fat 0 g	0 %
+ Trans Fat 0 g	
Cholesterol 0 mg	
Sodium 150 mg	6 %
Carbohydrate 27 g	9 %
Fibre 1 g	4 %
Sugars 10 g	
Protein 2 g	
Vitamin A 0 %	Vitamin C 0 %
Calcium 2 %	Iron 30 %



Cereal 2 has a lot of fibre
(28% DV).

Cereal 1 has a little of fibre
(4% DV).

If **fibre** is a nutrient you
want more of, Product A is
a better choice for you.

•Eating well is an important
part of a healthy lifestyle!

<http://www.healthycanadians.gc.ca/camp/dv-vg-eng.php>

Cereal 2

Nutrition Facts	
Per 1/2 cup (28 g)	
Amount	% Daily Value
Calories 120	
Fat 1 g	2 %
Saturated Fat 0.2 g	1 %
+ Trans Fat 0 g	
Cholesterol 0 mg	
Sodium 170 mg	7 %
Carbohydrate 23 g	8 %
Fibre 7 g	28 %
Sugars 5 g	
Protein 3 g	
Vitamin A 0 %	Vitamin C 0 %
Calcium 2 %	Iron 30 %

What are HEALTHY Foods?



Nutrients you may want a **Lot of** are:

Fibre
Calcium
Iron
Vitamin A
Vitamin C

Nutrients you may want a **little of** are:

Fat
Saturated and trans fats
Sodium

Health Canada (2010). <http://www.healthycanadians.gc.ca/camp/dv-vq-eng.php>

Health Check





- The Health Check symbol identifies the food product as a healthy choice.
- Health Check criteria have been developed for many nutrients and food categories.
- The criteria for each nutrient is based on scientific evidence, labeling regulations, nutrition trends as well as the eating habits of Canadians.

<http://www.healthcheck.org/page/program-criteria-3>

FOOD CATEGORY	NUTRIENT CRITERIA
Meats / Poultry (plain) Products must fit the criteria per 125 g (raw) or 100 g (cooked) serving and per on-pack serving	-Lean: 10% or less fat -Sodium: No salt or sodium ingredient added -Trans fat: 5% or less of total fat if the fat does not originate exclusively from ruminant meat
Meats / Poultry (seasoned, coated) Products must fit the criteria per 125 g (raw) or 100 g (cooked) serving and per on-pack serving	-Lean: 10% or less fat -Sodium: 360 mg or less -Trans fat: 5% or less of total fat if the fat does not originate exclusively from ruminant meat

Whole Grain Stamp






THE BASIC STAMP

Product may contain some extra bran, germ, or refined flour.

Minimum requirement: 8 g (8 grams) whole grain per serving.
(one half serving of whole grain)



THE 100% STAMP

For products where ALL of the grain is whole grain.

Minimum requirement: 16 g (16 grams) whole grain per serving.
(a full serving of whole grain)

Find whole grain. 2011. <http://www.wholegrainscouncil.org/find-whole-grains>

PC Blue Menu



- More OMEGA-3s
- More Fibre
- Less Calories
- Less Fat
- Soy
- Less Sodium



Why Should Saskatchewan Agri-Food Business Be Interested in Healthy Foods?



1. Demand for healthy food choices is increasing! Not just from consumers but also from advocacy groups, regulatory bodies, public health authorities and health ministries.
2. Production of healthy foods and ingredients will increase competitiveness in local and global markets and thus increase profitability.
3. Contribute to reducing health problems associated with consumption of un-healthy foods and ingredients. This in turn will **reduce health system costs and increase in consumer base who will spend more on foods than on medication.**

Strategies to Produce Healthy Foods and Ingredients in Saskatchewan



1. Reformulate existing food products to reduce salt, fat and sugar or fortify them with functional food ingredients in order to meet emerging nutritional and regulatory requirements.
2. Develop innovative healthy food products and ingredients using Saskatchewan agriculture raw materials (cereals, oilseeds, pulse, fruits, vegetables, herbs, spices and specialty crops) as well as dairy, honey and wild plants.
3. The products/ingredients should have optimum health and social benefits with minimum carbon footprint.

Your First Step ...



The **FOOD CENTRE** has Unique Expertise and Technological Capacities to Assist Industries In Reformulating of Existing Products to Meet Emerging Nutritional Recommendations and Development and Commercialization of Healthy Foods, Functional Food Ingredients and Natural Health Products

Health Claims



Disease risk reduction claims

“A healthy diet containing foods **high in potassium** and **low in sodium** may reduce the risk of **high blood pressure**, a risk factor **for stroke** and **heart disease**. (Naming the food) is sodium free.”

“A healthy diet low in **saturated and trans fats** may reduce the risk of **heart disease**. (Naming the food) is free of saturated and trans fats.”

<http://laws.justice.gc.ca/PDF/Readability/CRC870.pdf>

http://www.hc-sc.gc.ca/fn-an/label-etiquet/claims-reclam/permitted_claims-allegations_autorisees-eng.php

Low Salt Products



“Low Sodium V8 Juice helps your patrons get 2 servings* of vegetables”

“It’s also an excellent source of potassium which helps maintain fluid balance and normal heart rhythm”

“Diets containing foods that are a good source of potassium and low in sodium may reduce the risk of high blood pressure and stroke”

Salt Free Products



Nutrition Facts

Serving Size 1 Tbsp (15ml)	
Servings Per Container 20	
Amount Per Serving	
Calories 25 Calories from Fat 10	
	% Daily Value*
Total Fat 1g	2%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 0mg	0%
Potassium 150mg	4%
Total Carbohydrate 3g	1%
Dietary Fiber 0g	0%
Sugars 2g	
Protein 0g	
Vitamin A 0%	• Vitamin C 0%
Calcium 0%	• Iron 2%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

INGREDIENTS:

Water, Apple Cider Vinegar*, Evaporated Cane Juice*, Lemon Juice*, Honey, Herbs and Spices*, Rice Starch*, **Potassium Chloride**, Horseradish* (Cider Vinegar*, Horseradish* (Cider Vinegar*, Horseradish*, Water, **Salt**, Soybean oil, Food Starch, Sugar*, Citric Acid), Water, **Salt**†, Soybean oil, Food Starch, Sugar*, Citric Acid), Garlic Powder*, Xanthan Gum, Turmeric, Natural Flavor, yeast extract*, Gum Tragacanth, Onion Powder*.

*ORGANIC

†Adds a trivial amount of sodium

Claims:

- Organic
- No Cholesterol
- No MSG
- No Preservatives
- Gluten Free
- Wheat Free
- Dairy Free
- No HVP
- No Sulfites
- All Natural
- Salt Free
- Low Fat
- Vegan
- No HFCS

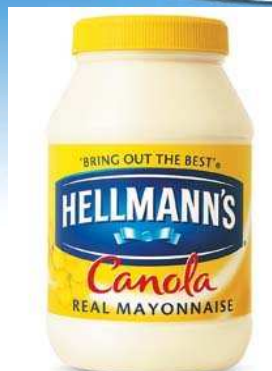
Cholesterol Free Products



Nutrition Facts

Serving Size 1 Tbsp (13 g)
 Servings per container VARIES
 Amount Per Serving
 Calories 45
 Calories from fat 40

	% Daily Value *
Total Fat 4.5 g	7%
Saturated Fat 0g	0%
Trans Fat 0g	
Polyunsaturated Fat 1.5 g	
Monounsaturated Fat 2.5 g	
Cholesterol 0 mg	0%
Sodium 95mg	4%
Total Carbohydrates 0 g -	0%
Protein 0 g	
Vitamin E	6%



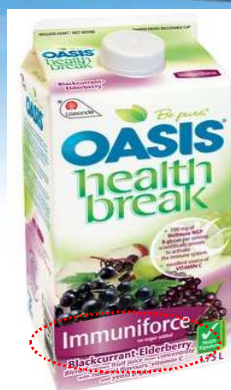
Hellmann's® Canola Cholesterol Free Mayonnaise includes fats that help to maintain heart health as part of a diet low in saturated fat and cholesterol, when substituted for other foods high in saturated fat and when caloric intake is not increased.

Fortified Products



Ingredients

juice from concentrate (water, concentrated apple and/or grape, saskatoon berry, elderberry, lemon juices), cranberry juice not from concentrate, raspberry puree, natural flavour, **green tea solids**, vitamin C.



250 mL of Oasis Health Break Immune force
 Provides 100 mg of beta glucan Wellmune WGP.
 Daily consumption of 200 mg of beta glucan Wellmune
 Activate the key immune cells (nutrophils)

Fortified Products



BioBest Plain yogurt is low in fat and contains 7 essential vitamins and minerals.

BioBest Plain yogurt contains over 1 billion active probiotic cultures Lactobacillus acidophilus NCFM, Bifidobacterium lactis HN 019, per serving, that contribute to healthy digestive tract flora. BioBest Plain yogurt is low in saturated and trans fats, and contains no gelatin."

Skim milk (Vitamin A palmitate, Vitamin A (beta carotene), Vitamin D3)*, cream, whey protein concentrate, milk protein concentrate, agar, pectin, lactase, active bacterial cultures (Lactobacillus bulgaricus, Streptococcus thermophilus, Lactobacillus acidophilus NCFM, Bifidobacterium lactis Bi-07).

*made with Vitamins A and D fortified skim milk.

Healthy Foods Development



Bio active ingredients from Echinacea, and other herbs, spices and wild plants



Fiber, protein and starch from oat and other cereals



Nutritional oils from flax and other oil seeds



Antioxidants from berries and other small fruits



Functional Food Ingredients from peas and other pulses



Natural Health Products





Health Supplements











Sport Nutrition




















Product Comparison




Isolexx		Vitalexx	
Alanine	4.7	Alanine	5.1
Arginine	6.2	Arginine	7.6
Aspartic Acid	3.8	Aspartic Acid	7.3
Cysteine	2.1	Cysteine	2.4
Glutamic Acid	16.8	Glutamic Acid	16.4
Glutamine	5.2	Glutamine	6.2
Proline	2.2	Proline	3.0
Leucine	2.7	Leucine	4.9
Lysine	1.4	Lysine	6.7
Methionine	2.1	Methionine	2.0
Phenylalanine	4.5	Phenylalanine	4.1
Protein	6.7	Protein	6.5
Serine	4.7	Serine	4.9
Threonine	4.9	Threonine	4.6
Tryptophan	1.6	Tryptophan	1.3
Tyrosine	3.8	Tyrosine	4.5
Valine	5.3	Valine	6.2
Essential amino acids	5.2%	Essential amino acids	5.9%


Superior in all 9 Essential Amino Acids

Fish Based Products

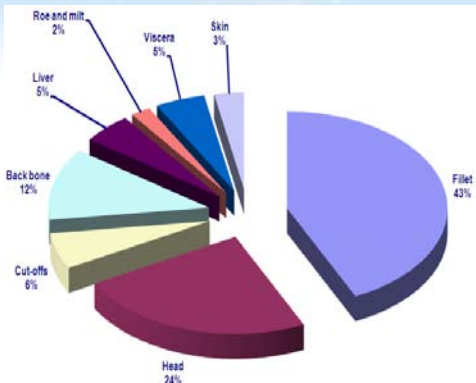





Hydrolyzed dried bonito




OceanCaps™ capsules Made from all natural fish gelatin derived from farm raised fish







Hydrolyzed whitefish



Seacure® is a 100% natural, pre-digested fish protein concentrate





Fish cakes made with addition of FPH.

Baby Foods





vegetable medley with chickpeas
100% NATURAL PRODUCE • NO ADDITIVES OR PRESERVATIVES



offer



Lentils & Vegetables

Grain Products



Nutrition Facts

Serv. size: 1 packet (50 g)
Servings per container: 8

Amount Per Serving

Calories 210
Calories from fat 30

% Daily Value*

Total Fat 3 g **5%**

Saturated fat 0.5g **3%**

Trans Fat 0g

Cholesterol 0 mg **0%**

Sodium 140 mg **6%**

Potassium 160 mg **5%**

Total

Carbohydrate 38 g **13%**

Dietary Fiber 5 g **20%**

Soluble Fiber 2 g

Sugars 10 g

Protein 6 g

Vitamin A 0%

Vitamin C 0%

Calcium 2%

Iron 10%

* Percent Daily Values are based on a 2,000

calorie diet. Your Daily Values may be higher

or lower depending on your calorie needs.

Calories: 2,000 2,500

Total Fat Less Than 65g 80g

Sat Fat Less Than 20g 25g

Cholesterol Less Than 300mg 300mg

Sodium Less Than 2400mg 2400mg

Total Carbohydrate 300g 375g

Dietary Fiber 25g 30g

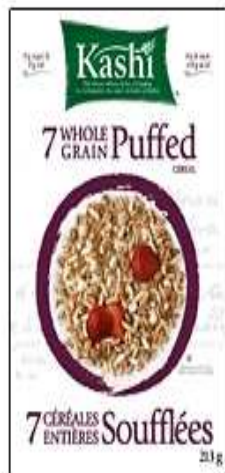
Flax Plus® Oatmeal



Enriched with Omega-3 fatty acids rich flax seeds.

Organic rolled oats, organic evaporated cane juice, **organic flax seeds**, sea salt.

Extruded Products



INGREDIENTS:

Whole hard red winter wheat, whole long grain brown rice, whole oats, whole barley, whole triticale, whole rye, whole buckwheat, sesame seeds.

- LOW FAT • SATURATED FAT FREE
- TRANS FAT FREE • SODIUM FREE
- SOURCE OF 4 ESSENTIAL NUTRIENTS • NO ARTIFICIAL COLORS, FLAVORS, PRESERVATIVES OR SWEETENERS

Extruded Products



Nutrition Facts

Serving Size 1/3 cup (55g)
Servings Per Container about 6

Amount Per Serving		% Daily Value*
Calories 60	Calories from Fat 5	
<hr/>		
Total Fat 0.5g		1%
Saturated Fat 0g		0%
Trans Fat 0g		
Polyunsaturated Fat 0g		
Monounsaturated Fat 0.5g		
Cholesterol 0mg		0%
Sodium 270mg		11%
Potassium 250mg		8%
Total Carbohydrate 5g		2%
Dietary Fiber 2g		8%
Sugars 1g		
Protein 10g		15%

Vitamin A 0% • Vitamin C 0% • Calcium 4% • Iron 15%
Thiamin 26% • Riboflavin 15% • Niacin 25% • Vitamin B6 26%
Vitamin B12 25% • Pantothenic Acid 10% • Zinc 25%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	less than	65g	80g
Sat Fat	less than	20g	25g
Cholesterol	less than	300mg	300mg
Sodium	less than	2,400mg	2,400mg
Potassium		3,500mg	3,500mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g



Beverages



An Ounce of Prevention is Worth A Pound of Cure



Canadian Health Expenditure

2005 (~CAD140 billion)

2010 (~CAD192 billion)

National Health Expenditure Trends, 1975 to 2010. Canadian Institute for Health Information.
http://www.cihi.ca/chi-ext-portal/internet/en/document/spending-and-health-workforce/spending/release_28oct10

*“Reducing the **avoidable costs** associated with [chronic] conditions [diabetes, cancer, hypertension, stroke, pulmonary conditions, mental disorders, and heart disease] is central to meeting the twin challenges of promoting affordable health care and fostering continued economic growth. **We have a choice: continue on the current path or alter it by changing our behaviors and focusing on prevention and early intervention.**”*

http://www.pbs.org/newshour/extra/teachers/lessonplans/us/ian-june08/healthcare_lp1.pdf


PRODUCTION OF VALUE ADDED HEALTHY PRODUCTS
AND INGREDIENTS FROM
SASKATCHEWAN WILL SUPPORT THE
CONCEPT OF PREVENTION AND EARLY INTERVENTION

Conclusions



1. Markets of healthy foods and ingredients are increasingly rapidly on provincial, national and international levels.
2. In order to be competitive and profitable, agri-food business in Saskatchewan **MUST** acquire and utilize the strategies and food processing technologies available to develop healthy foods.
3. The food centre has the expertise and technologies to develop innovative healthy foods and ingredients.

Contact



Mohamed Khan, Ph.D.
Healthy Foods Specialist

Food Centre
117 – 105 North Road
Saskatoon, SK
Direct Line: 306-933-7807
Email: mkhan@foodcentre.sk.ca
www.foodcentre.sk.ca



THANK YOU!



AGRICULTURE COUNCIL
OF SASKATCHEWAN INC. BUILDING SASKATCHEWAN

 Agriculture and Agri-Food Canada Agriculture et Agroalimentaire Canada

*Funding for this program has been provided by Agriculture and Agri-Food Canada through the **Canadian Agricultural Adaptation Program (CAAP)**. In Saskatchewan, this program is delivered by the Agriculture Council of Saskatchewan.*