Researching functional food consumption in older adults and creation of a toolkit for knowledge translation

CFDR Annual Research Breakfast

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Presentation Outline

- Background
- Research Project on Functional Food Consumption in Older Adults
  - Purpose and Objectives
  - Methods
  - Results

- Toolkit as Knowledge Translation Strategy
  - Development Process
  - Content
- Take-away Summary Points

Research Background
Food and Health

- Relation of food and its constituents to health has evolved
  - Traditionally prevent deficiency disease
  - Now includes prevention of chronic disease
  - Evolution manifests in numerous policies
- Key example is advance of functional foods
  - Extension of how we relate food and food constituents to health
  - Major influence on research activity in food, nutrition and health

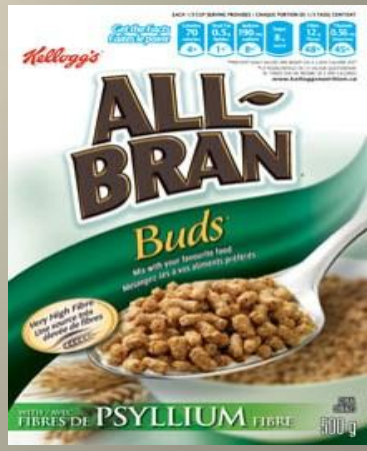
What are Functional Foods?

Simplest definition: Foods that may provide health benefits beyond basic nutrition

- Conventional food form
- Specific bioactive constituent
  - enhanced content in the food
  - added to the food
- Biological rationale to relate to health

Functional Foods: Health Canada Definition

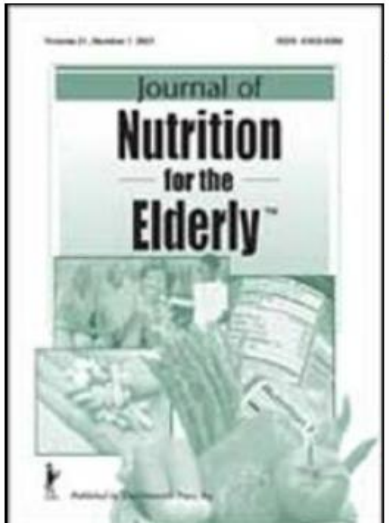
- A *functional food* is similar in appearance to, or may be, a conventional food that is consumed as part of a usual diet, and is demonstrated to have physiological benefits and/or reduce the risk of chronic disease beyond basic nutritional functions, i.e. they contain bioactive compound



Health Canada, Policy Paper - Nutraceuticals/Functional Foods and Health Claims On Foods, 2002

Functional Foods and Health: Relevance to Older Adults

- Functional foods have relevance to many areas of human health and this can apply to multiple life-stage and gender groups
- Among these life-stage groups, **older adults** emerge as a highly relevant beneficiary of FF



Journal of Nutrition For the Elderly
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http://www.informaworld.com/smpp/title~content=t792306906

The Changing Face of Food and Nutrition in Canada and the United States: Opportunities and Challenges for Older Adults

Lina Paulionis [a]
[a] Food and Nutrition Group, Cantox Health Sciences International,

Functional Foods and Health: Relevance to Older Adults

Appetite 51 (2008) 256–265

Contents lists available at ScienceDirect

Appetite

journal homepage: www.elsevier.com/locate/appet

Research report

Who consumes functional foods and nutraceuticals in Canada? Results of cluster analysis of the 2006 survey of *Canadians' Demand for Food Products Supporting Health and Wellness*

Deepananda Herath *, John Cranfield, Spencer Henson

- Analysis of Canadian's demand for food products in support of health
- Identified **disease threat** as a key driver and that this **increases with age**

Dr. David Butler Jones' Report: Canadians are living longer

Golden years shining brighter: Canadian seniors living longer, better

BY SHANNON PROUDFOOT, POSTMEDIA NEWS OCTOBER 29, 2010 COMMENTS (21)

STORY PHOTOS (1)

Canada's seniors are living longer and are vastly less likely to struggle with poverty than they were three decades ago, but there's work to be done in areas such as diagnosing and treating mental illness, reducing social isolation and combating the "mythology" of aging, Canada's chief public health officer said. File photo.

Photograph by: Darren Stone/Victoria Times Colonist, Victoria Times Colonist

STORY TOOLS

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RELATED STORIES FROM AROUND THE WEB

Golden years shining brighter: Canadian seniors living longer, better
Ottawa Citizen, Canada
Wednesday, November 10, 2010

B.C. residents living longer, healthier
CBC News, Canada

- 2010 report on the State of Public Health in Canada focused on aging and seniors
- By 2050, more than 25% of population will be over 65 years old
- Life expectancy is rising at 78 for men, 83 for women
- Chronic health conditions:
  - 89% have $\geq$1
  - 25% have $\geq$4
- 37% taken steps to improve their health

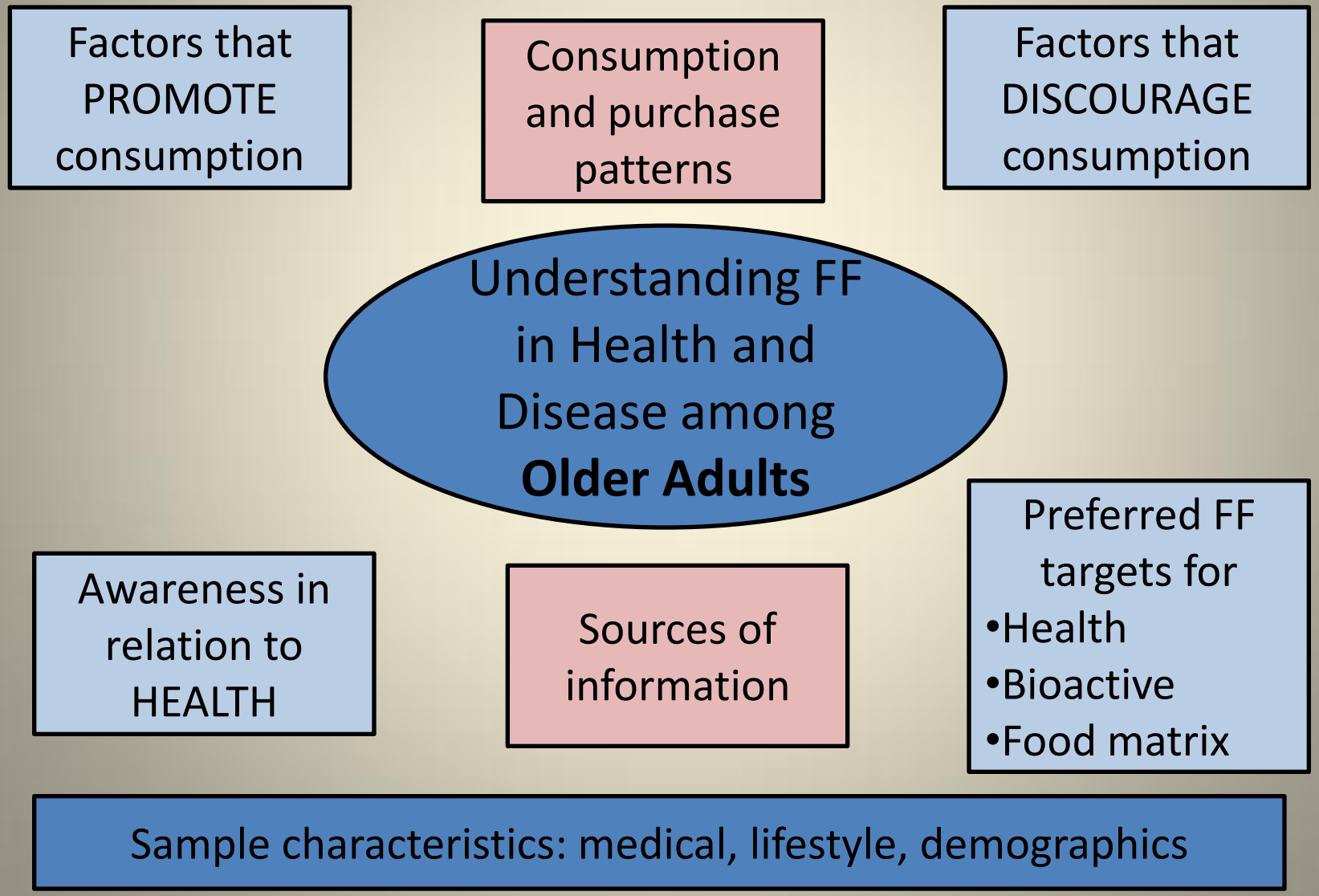
Canada.com, October 29, 2010

CFDR-Funded Research Project

Exploration of the consumption, awareness, understanding and motivating factors related to functional foods in older adults

- University of Guelph research project
- Investigators:
  - Alison Duncan, Judy Sheeshka
- Graduate and undergraduate students:
  - Meagan Vella, Laura Stratton, Hilary Dunn
  - Amanda Li, Sara Lum, Jennifer Wong
  - Undergraduate students
- Approved by University of Guelph Research Ethics Board (REB#10SE012)

Research Purpose and Objectives



Research Participants

- Older adults ≥ 60 years old
  - Community dwelling
  - Not utilizing meal-assisted services
  - Able to complete questionnaire or focus group
  - Able to provide written consent

Methods: Study Questionnaire

INFORMATION SHEETS

- Awareness of Functional Foods
- Current Functional Food Consumption
- Motivation to Consume Functional Foods
- Functional Food Matrices
- FF Definition
- FF Bioactives
- FF Food Matrices
- Functional Food Bioactive Ingredients
- Health Areas as they relate to Functional Foods
- Medical, Lifestyle, Demographic Information

REB#10SE012

Results: Participants (n=200)

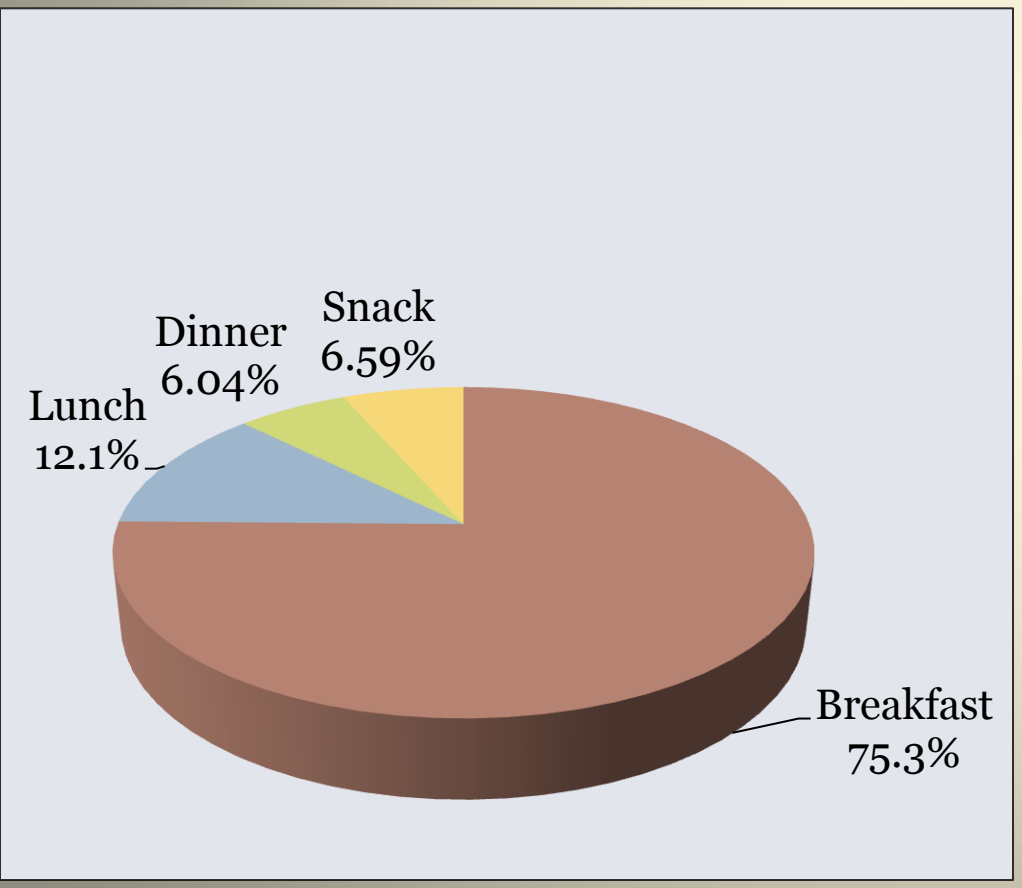
- Participant age 70.8 ± 7.17 years old (n=200)

	Percent of Participants
Female	70%
Caucasian	95%
College/University	67%
Retired	82%
Income ≥ $50,000	61%

Results:

Awareness and Consumption of Functional Foods

Timing of FF Consumption (n=200)

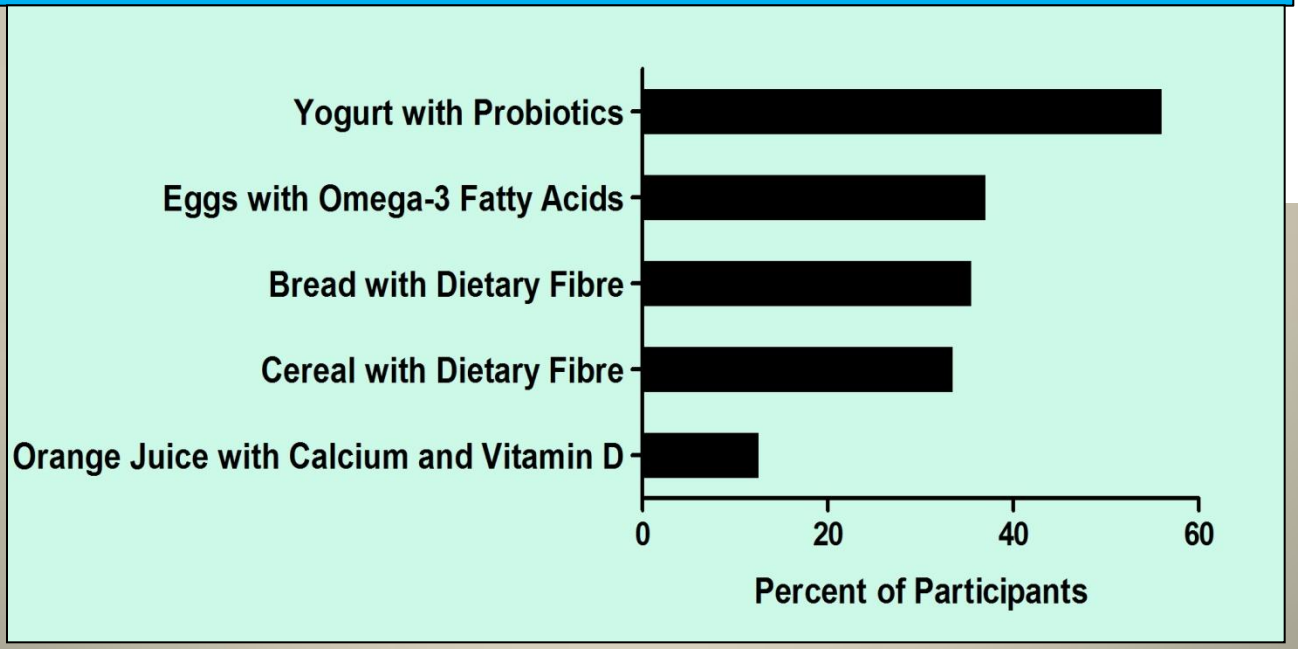


- 26% of participants aware of the term "functional food"
- Prevalence of FF consumption was 93%
- Majority (75.3%) of participants are consuming FF on a daily basis

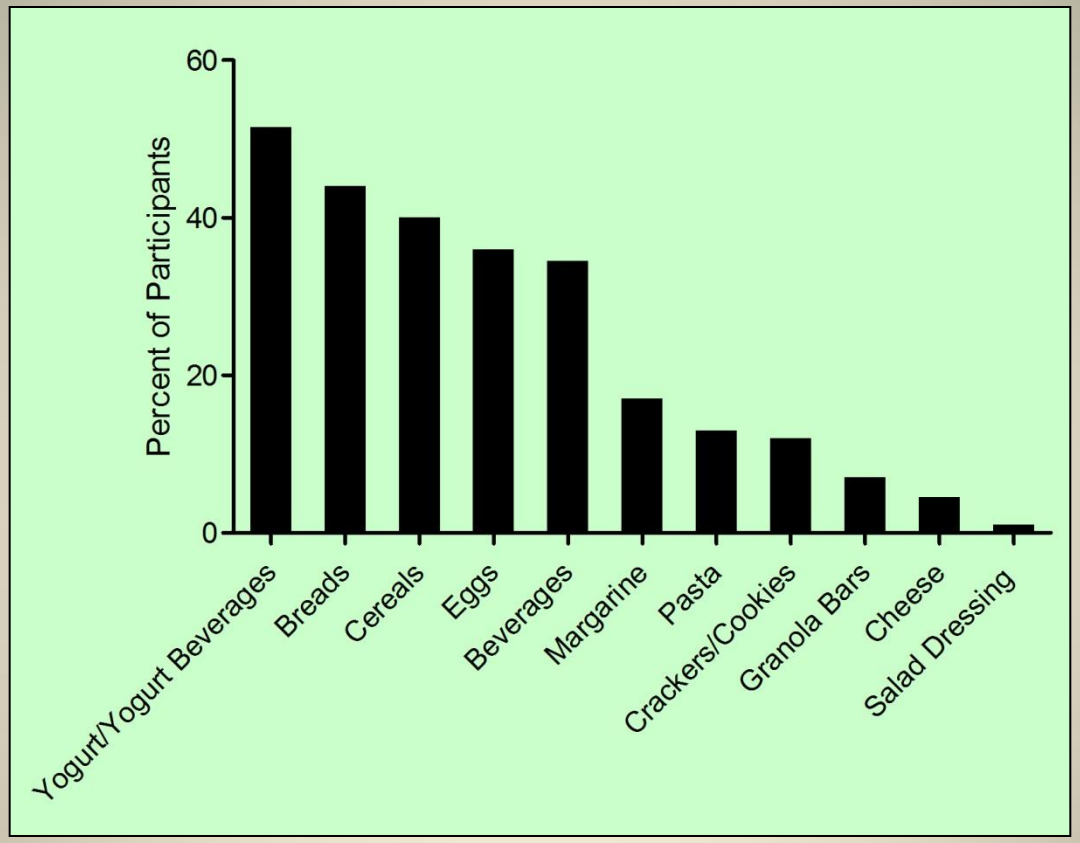
Results:

Awareness and Consumption of Functional Foods

Top most frequently consumed functional food products (n=200)

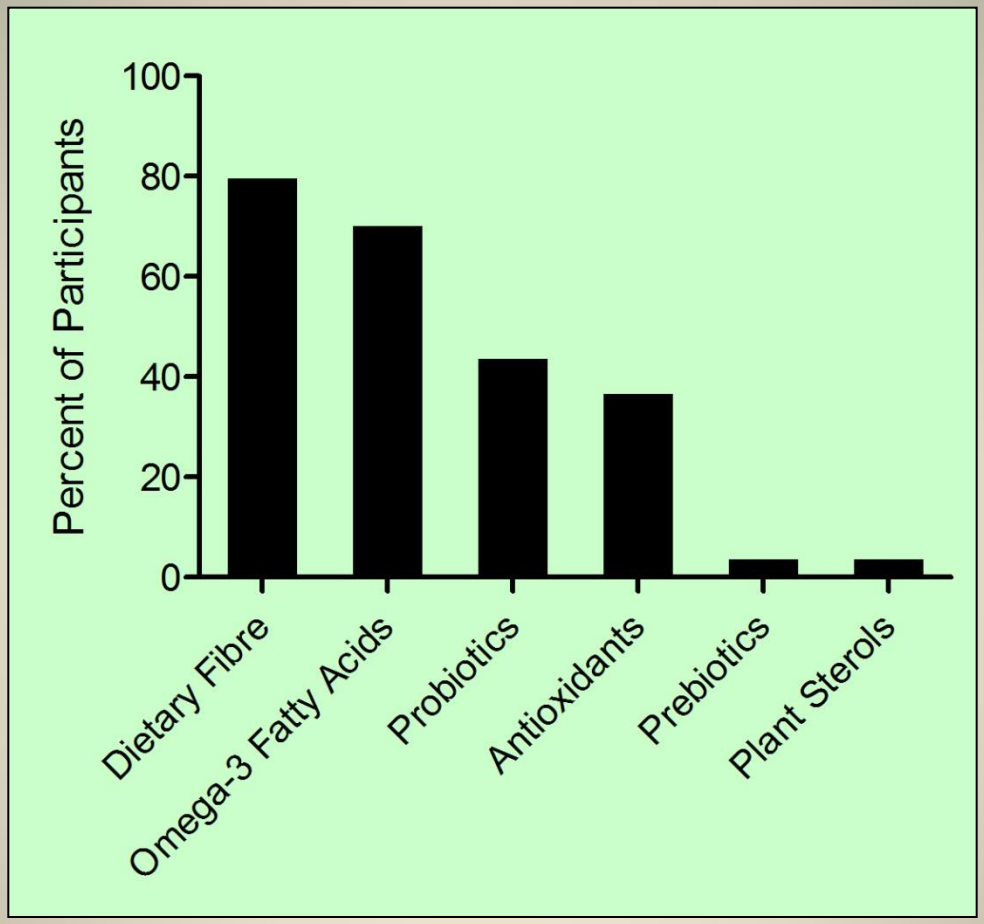


Results: Functional Food Matrices



- BREAD, CHEESE and PASTA were most frequently identified as matrices participants would consider consuming as a functional food (n=200)

Results: Functional Food Bioactives

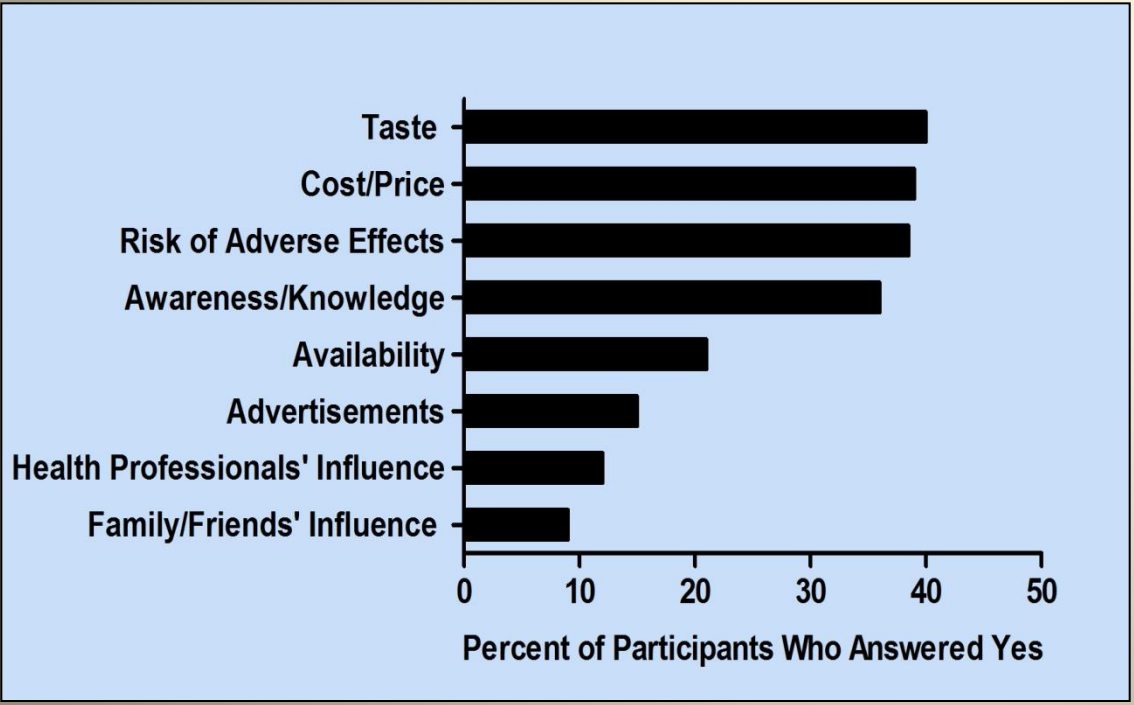


- ANTIOXIDANTS was the frequently identified as the bioactive participants would consider consuming in a functional food (n=200)

Results:

Motivation to Consume Functional Foods

Factors that act as <u>BARRIERS</u> to functional food consumption (n=200)



- Health reasons were the most frequently (**45%**) reported rationales for consuming FF
- **86.2%** of participants reported consuming FF to improve their health
- **79.6%** of participants reported feeling that they have more control over their health by consuming FF

Results: Health Areas as they Relate to Functional Foods

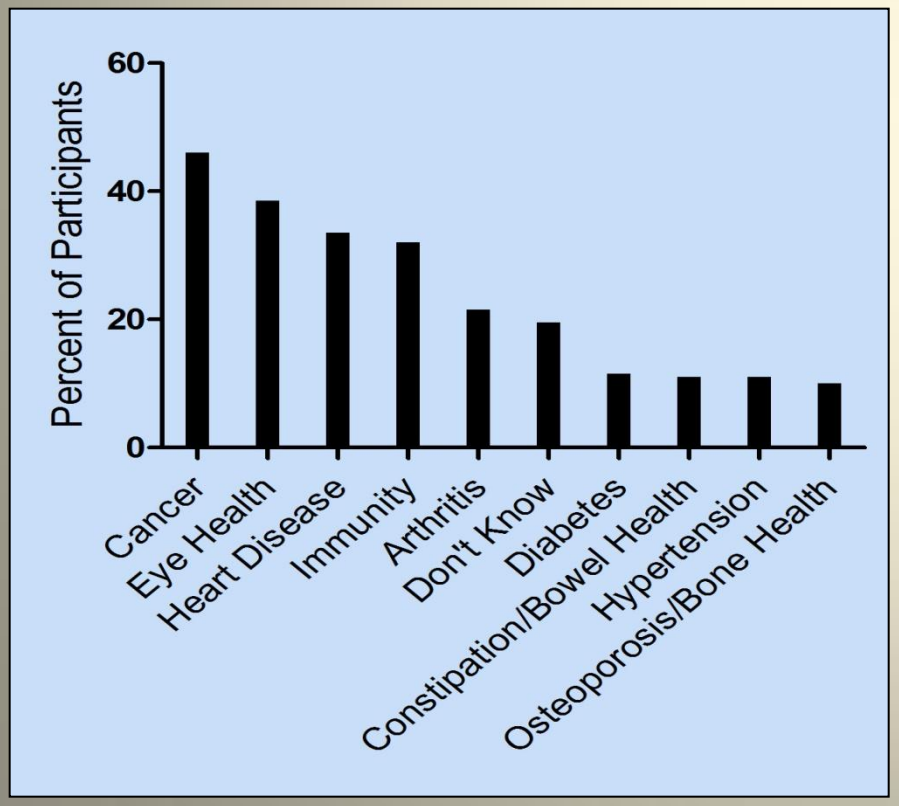
- Participants were predominately (94%) **"very interested"** in their overall health and the majority (85%) indicated that they had specific areas of health that they were concerned about.

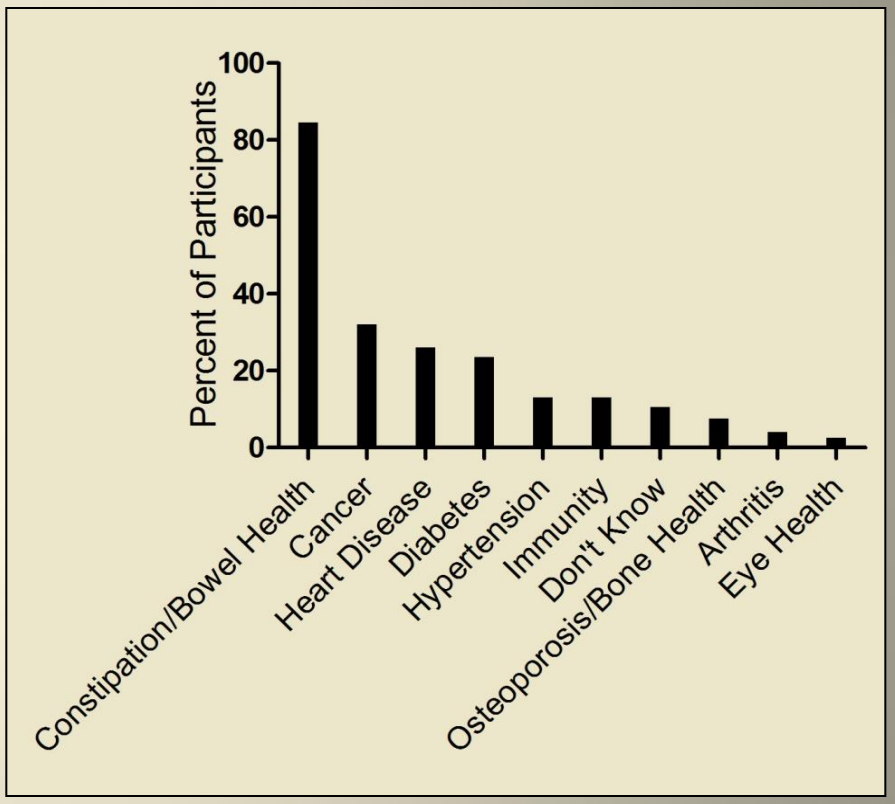
Top health areas participants address or would address through functional food consumption (n=200):

- Osteoporosis/bone health (67.5%)
- Heart disease (61%)
- Arthritis (55%)
- Constipation/bowel health (54.5%)
- Eye health (50%)

Results: Health Areas as they Relate to Functional Foods

Health areas addressed through the consumption of **Antioxidants** in functional foods

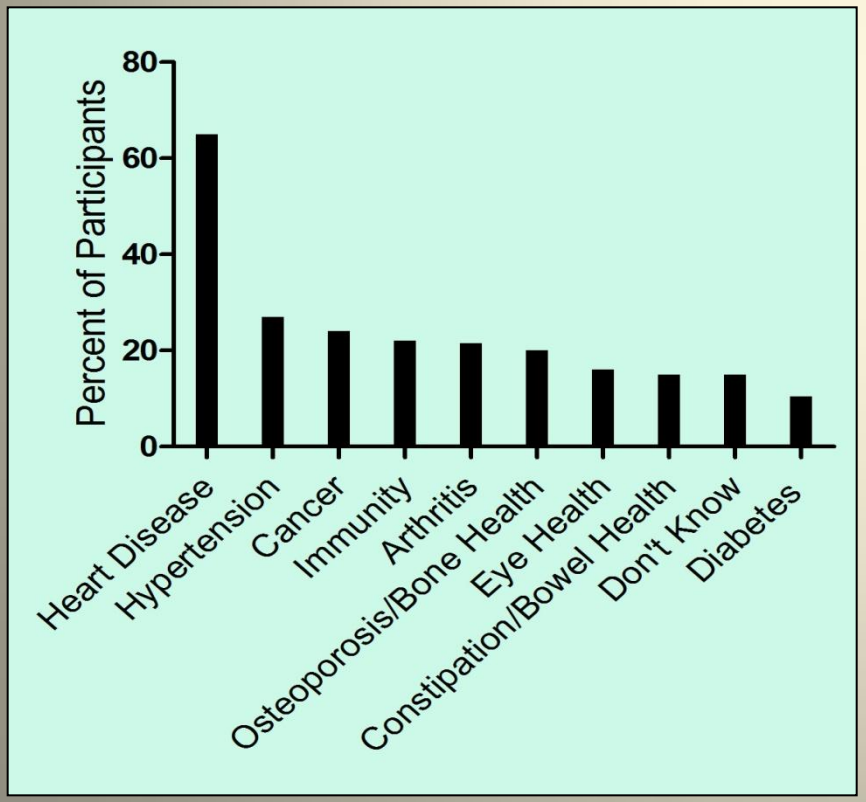


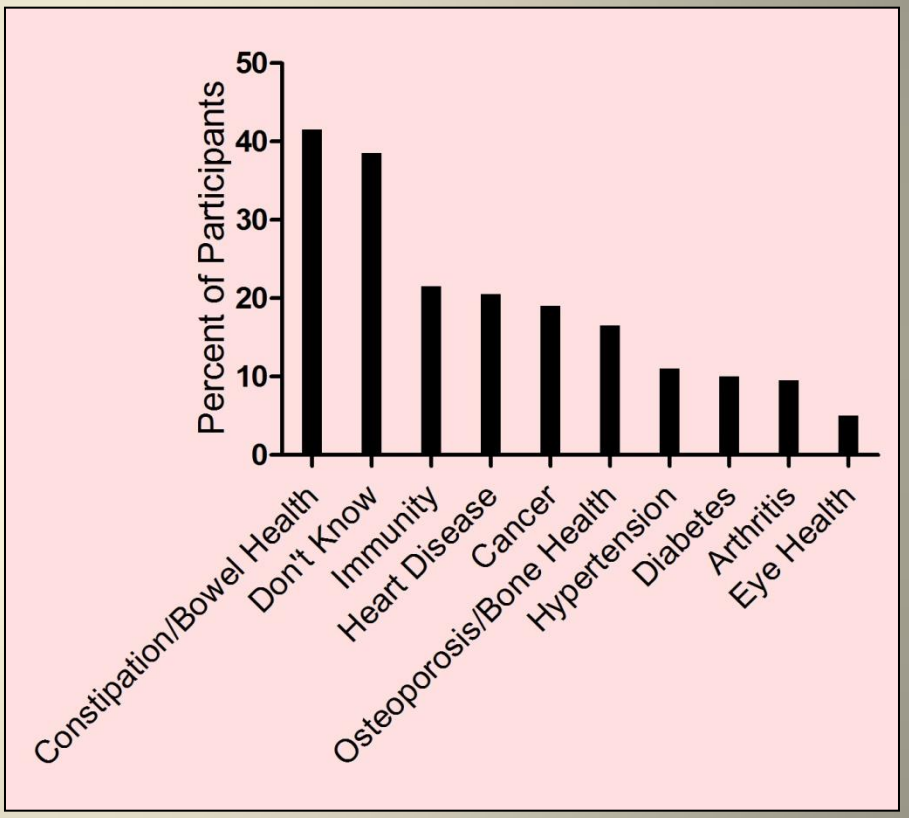


Health areas addressed through the consumption of **Dietary Fibre** in functional foods

Results: Health Areas as they Relate to Functional Foods

Health areas addressed through the consumption of **Omega-3 Fatty Acids** in functional foods

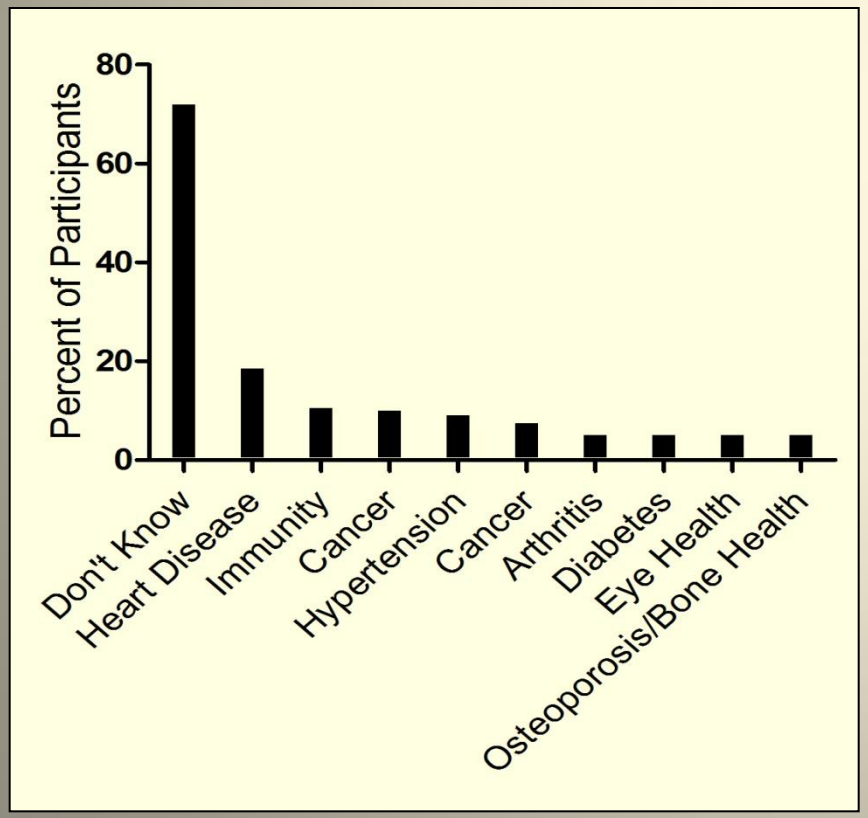


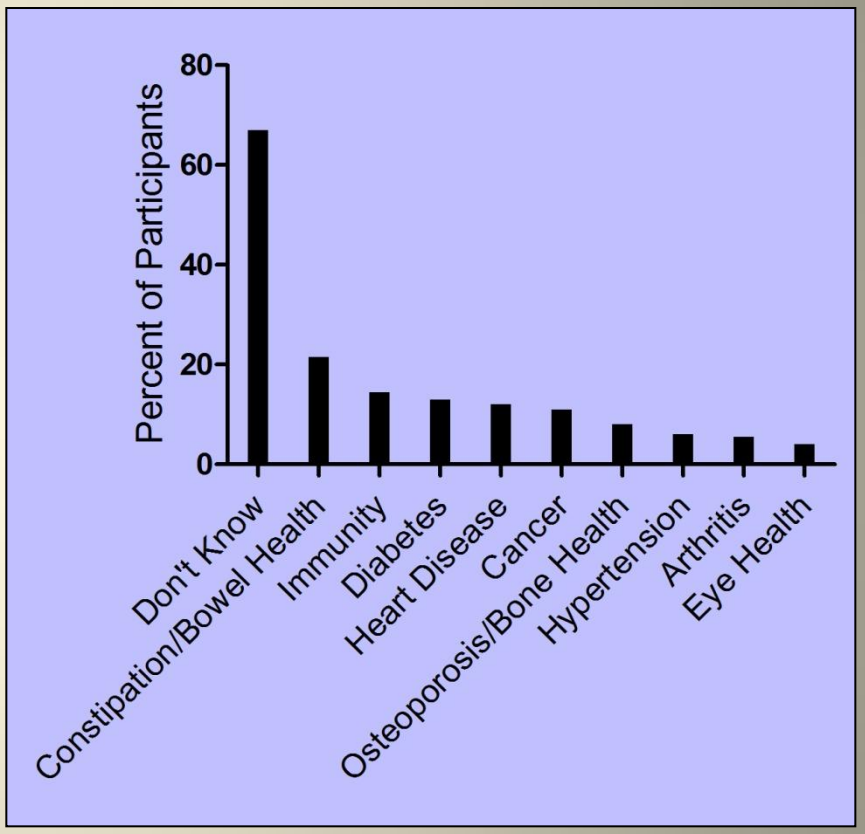


Health areas addressed through the consumption of **Probiotics** in functional foods

Results: Health Areas as they Relate to Functional Foods

Health areas addressed through the consumption of **Plant Sterols** in functional foods





Health areas addressed through the consumption of **Prebiotics** in functional foods

Results Highlight:

Dietary Fibre is Frequent

- Most frequently identified bioactive considered effective at improving health (86.9% of participants)
- Most frequently identified bioactive currently consumed in functional foods (79.5%)
- LINK between bioactive that they think is effective and what they consume in functional foods
- Suggests use of functional foods as a strategy for improving health

Results Highlight:

Yogurt is Yearned

- **Yogurt** with probiotics was the most commonly consumed functional food
- **Yogurt** was the most frequent currently consumed functional food matrix
  - However probiotics had “don’t know” when asked what area of health they would address through their consumption in a functional food
- Potential for yogurt with dietary fibre?

Results Highlight:

Prebiotics and Plant Sterols

- Most opportunity for consumer education
- Least frequently identified bioactive considered effective at improving health (26.6% and 22.1%)
- Least frequently identified bioactive currently consumed in functional foods (24% and 28.5%)
- Most frequent response of “don’t know” when asked what area of health they would address through their consumption in a functional food

Research Stakeholders

- Registered Dietitians
  - Results will inform better interaction with older adult patients/clients in their navigation of daily food choices to manage health
  - Concepts could relate to patients/clients in other life stage groups as well
- Food Industry
- Older Adults
- Academic community

Toolkit as a KT Strategy

Toolkit Purpose

To provide guidance and materials to assist Registered Dietitians in communicating with older adults about functional foods for healthy aging

Development

- Weekly meetings with toolkit team to:
  - Discuss literature
  - Identify knowledge gaps
  - Determine toolkit content and main messages
  - Review and revise

Stakeholder engagement

- Presented toolkit to stakeholders to:
  - Seek feedback
  - Inform final version
- RAWF Health Prof. Forum
- CFDR AGM
- Colleague extension
- Final version Sept 2012

Toolkit Structure

- **Section 1**:
  - Understanding FF
- **Section 2**:
  - Relevance of Functional Foods for Healthy Aging
- **Section 3**:
  - Research Summary and Results
- **Appendices**:
  - Resource and Educational Materials

Section 1: Understanding FF

- Functional Foods Defined
  - Functional food definitions established by various countries and organizations
  - Common components of functional foods
  - Food forms
  - Bioactives
  - Relation to natural health products

Section 1: Understanding FF

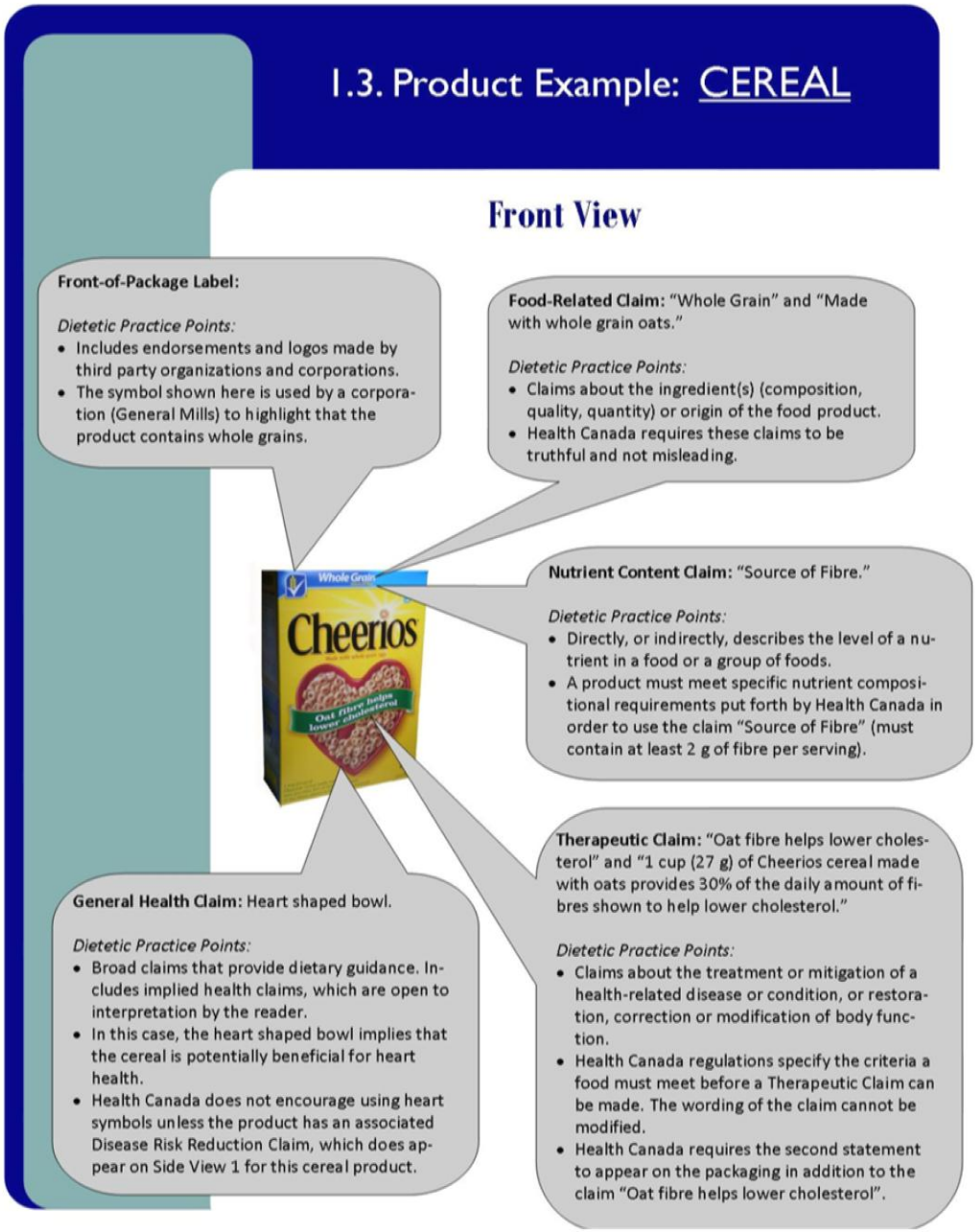
- Functional Food Product Guidance
  - Summary table of guidance tool, regulatory notes and dietetic practice points
    - List of ingredients
    - Nutrition Facts table
    - Nutrient Content Claims
    - Additional Food-Related Claims
    - Health Claims
      - Disease Risk Reduction Claims
      - Therapeutic Claims
      - Function Claims (Nutrient Function, Probiotic)
      - General Health Claims (Front-of-Package labelling)

Nutrition Facts

Per 3/4 cup (175 g)

Amount	% Daily Value
Calories 160	
Fat 2.5 g	**4** %
Saturated 1.5 g + Trans 0 g	**8** %
Cholesterol 10 mg	
Sodium 75 mg	**3** %
Carbohydrate 25 g	**8** %
Fibre 0 g	**0** %
Sugars 24 g	
Protein 8 g	

Vitamin A	2 %	Vitamin C	0 %
Calcium	20 %	Iron	0 %



Section 1: FF Product Examples

- Functional food guidance highlighted
- Dietetic practice points
- Product example sheets:
  - Cereal (oats)
  - Juice (plant sterols)
  - Margarine (omega-3)
  - Milk (omega-3)
  - Yogurt (probiotics)
- Views: top, front, back, side 1, side 2

Section 1: FF in the Canadian Marketplace

- Functional food sales revenue
- Functional foods industry growth
- Statistics Canada Functional Food and Natural Health Product Survey 2007
- Identifies need for research into consumer acceptability of functional foods

Section 2: Relevance of FF for Healthy Aging

- Role of FF in Canada's aging demographic
  - Study of Canada's aging demographic
  - Aging and increased disease risk
    - Focus on cancer, CVD risk and type 2 diabetes
  - Aging and increased health care expenditure
  - Potential for FF to contribute to healthy aging
- Role of RD in considering FF in practice
  - Review of current literature

Section 3:
Summary and Results of University of Guelph Research Study

- Summary of research rationale
- Research purpose and objectives
- Study methods and objectives
- Study conference presentation abstracts
  - Canadian Nutrition Society 2012
  - Dietitians of Canada 2012

Appendices:
University of Guelph Research Study Information Sheets

- Inform and exemplify key functional food concepts:
  - Functional food definition
  - Functional food food forms
  - Functional food bioactives
  - Functional food health claims
- Combination of text and pictures

Appendices:
Bioactive Resource Sheets

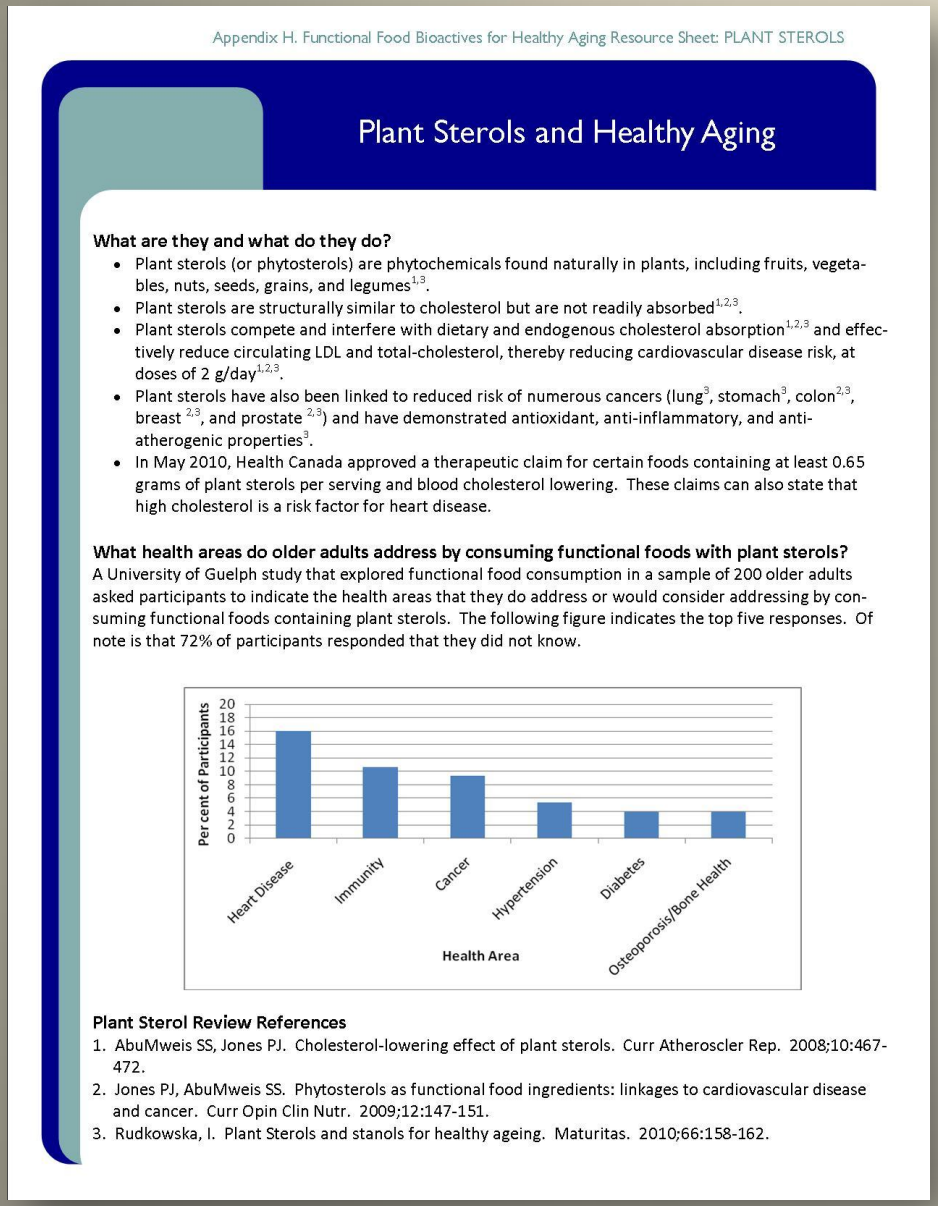
- Antioxidants
- Plant Sterols
- Dietary Fibre
- Prebiotics
- Omega-3 Fatty Acids
- Probiotics

What are they and what do they do?

Research Results: What health areas are older adults using them for?

Three review articles cited for further information.

Bioactive Resource Sheet EXAMPLE



Appendix H. Functional Food Bioactives for Healthy Aging Resource Sheet: PLANT STEROLS

Plant Sterols and Healthy Aging

What are they and what do they do?

- Plant sterols (or phytosterols) are phytochemicals found naturally in plants, including fruits, vegetables, nuts, seeds, grains, and legumes[1,3].
- Plant sterols are structurally similar to cholesterol but are not readily absorbed[1,2,3].
- Plant sterols compete and interfere with dietary and endogenous cholesterol absorption[1,2,3] and effectively reduce circulating LDL and total-cholesterol, thereby reducing cardiovascular disease risk, at doses of 2 g/day[1,2,3].
- Plant sterols have also been linked to reduced risk of numerous cancers (lung[3], stomach[3], colon[2,3], breast [2,3], and prostate [2,3]) and have demonstrated antioxidant, anti-inflammatory, and anti-atherogenic properties[3].
- In May 2010, Health Canada approved a therapeutic claim for certain foods containing at least 0.65 grams of plant sterols per serving and blood cholesterol lowering. These claims can also state that high cholesterol is a risk factor for heart disease.

What health areas do older adults address by consuming functional foods with plant sterols?
A University of Guelph study that explored functional food consumption in a sample of 200 older adults asked participants to indicate the health areas that they do address or would consider addressing by consuming functional foods containing plant sterols. The following figure indicates the top five responses. Of note is that 72% of participants responded that they did not know.

Plant Sterol Review References

1. AbuMweis SS, Jones PJ. Cholesterol-lowering effect of plant sterols. Curr Atheroscler Rep. 2008;10:467-472.
2. Jones PJ, AbuMweis SS. Phytosterols as functional food ingredients: linkages to cardiovascular disease and cancer. Curr Opin Clin Nutr. 2009;12:147-151.
3. Rudkowska, I. Plant Sterols and stanols for healthy ageing. Maturitas. 2010;66:158-162.

- Plant sterols and healthy aging
- Key background notes about phytosterols
- Results from FF research study
- Key references for further information

Toolkit: Next Steps

- Dissemination and Circulation:
  - CFDR partners
  - Canadian RDs
    - Webinar January 16, 2013 at 1pm
    - PDF circulation
  - Agri-food for Healthy Aging (A-HA) website

Take Home Points

- FFs are an exciting strategy to promote healthy aging as older adults are incorporating FF into their diets and are motivated to address multiple health concerns through FF consumption
- There are key FF matrices and bioactive ingredients preferred among older adults and this information can be valuable to stakeholders
- The Functional Foods for Healthy Aging toolkit can be used as a knowledge transfer tool to aid Registered Dietitians in their interactions with older adult clients about FFs

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- Undergraduate Students
  - Sarah Dainty, Brittney Kay, Kaitlyn Zorn
- Research Participants