Nutrition as a Vehicle for Cardiovascular Translational Research

Vascular Medicine Program (VMP): Nutrition

A Paradigm shift from individual to group research at AUB
OUTLINE:

- Nutrition and VMP at AUB
- Background Information
  - Prevalence and causes of mortality
  - Top risk factors for NCDs
  - Dietary changes related
- Vienna Declaration 2013: commitment to NCD
- NutriCard: a vehicle for translational nutrition research
  - Research Work
  - Mission
  - Objectives
- Take Home Message…
The VMP at AUB functions as a multidisciplinary unit, directed to promote vascular health and reduce the burden of cardiovascular diseases (CVD) in Lebanon and the region.
Powerful interplay between nutrition and cardiovascular disorders

Need for strategies against the nutrition-related epidemics of cardiovascular diseases

Implementation of novel nutritional interventions that may influence how cardiovascular medicine is practiced

The top risk factors underlying the disease burden of high income countries (all preventable)

Primary dietary cause

- Smoking
- High blood pressure
- Overweight & obesity
- High cholesterol
- Alcohol use
- Physical inactivity
- Low fruit & veg. intake
- Illicit drug use
- Unsafe sex
- Iron deficiency anemia

Attributable disease burden (% regional DALYs; total 149 million)

Marked changes in societal practices needed:

- TOTAL FAT
  - Trans fat
  - Saturated Fats
  - Sugars & Refined starches
  - Salt

- Exclusive Breast Feeding for 6 months
- FIBRE-RICH Vegetables & Fruit
- Increase fatty acids from fish & n-3 vegetable sources
- Modest animal protein intake

Iodine
The Ministers of Health, WHO Regional Director in Europe, Health experts & representatives of civil society made a commitment:

- To address unhealthy diet and physical inactivity (NCD risk factors)

- To achieve “A healthy diet that contributes to achieving a 25% relative reduction in premature mortality from NCDs by 2025”:

  - ↑ fruit and vegetable consumption
  - ↓ intake from energy, saturated fats and trans fats, sugar and salt

Vienna Declaration 2013

WHO European Ministerial Conference on Nutrition and Noncommunicable Diseases in the Context of Health 2020, Vienna Declaration, July 2013
Action Plan for reducing NCD risk factors

1. **Reduce food marketing pressure** to children

2. **Product reformulation and labeling** to facilitate a healthy choice

3. **Intersectoral collaboration** to facilitate healthier food choices in **schools, kindergartens, nurseries, hospitals and workplaces**
4. **Promote the health gains of a healthy diet** throughout the life-course, especially for the most vulnerable:

- **Infants**
  - Adequate breastfeeding & complementary feeding

- **Children & Adolescents**
  - **Healthy eating** in the family and school environments
  - **Social media** to promote healthy food choices and healthier lifestyles

- **Elderly**
  - Address special nutrition needs

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WHO European Ministerial Conference on Nutrition and Noncommunicable Diseases in the Context of Health 2020, Vienna Declaration, July 2013
5. **Research** the population’s nutritional status and behaviors (surveillance, monitoring, evaluation)

6. **Empower communities** and **strengthen governance, alliances and networks** to engage in health promotion and prevention efforts
UK Example

Reducing dietary sodium intake

• Areas of work:
  – Working with food industry to reduce levels of salt in foods (retailers, manufacturers, catering sector and small businesses)
  – Clear food labelling
  – Consumer awareness campaigns
  – Monitoring and promoting success

• Reductions in salt consumption in adults:
  – Decrease of 9% (9.5 grams in 2000 to 8.6 grams in 2008)

• Reductions in salt content:
  – 16% in bread (2004 to 2008); over 33% overall (since 1980s)
  – 49% in breakfast cereals (1998 to 2008)
  – 25-55% in cakes and biscuits, crisps and snacks (2006/07)
  – Around 30% in soups and sauces, some processed cheeses spreads (2003-05)

Source: Food Standards Agency, United Kingdom
Reducing risk of NCDs in populations largely depends on (structural) public health policy across all sectors.
“Best buys” from WHO for reducing the burden of NCDs: most are “structural” public health interventions

- **Tobacco:**
  - Ban on: smoking in public places, advertising, promotion, and sponsorship
  - Warning about the dangers of its use
  - Raising taxes

- **Alcohol:** ban on advertising & raising taxes

- **Reduce salt intake and salt content of food**

- **Replacing trans fats in food with polyunsaturated fat**

- **Public awareness** about diet and physical activity (mass media)
Nutrition and Cardiovascular Disease Research Unit (NutriCard)

- Multidisciplinary platform that builds on nutrition expertise

- Research work:
  - Interdisciplinary team
  - Epidemiological and human intervention studies

The unit carries out research activities that involve the collection, analysis and interpretation of data in addition to the development and dissemination of nutrition education materials aimed at increasing awareness, thus contributing to decreasing the prevalence and incidence of CVDs in target populations.
Nutrition and Cardiovascular Disease Research Unit (NutriCard)

Mission

- Housed within AUBMC
- Uses epidemiological and intervention studies to identify the correlation between diet and CVD
- Sets nutritional policies for: production, consumption, labeling, availability, economic measures, and education-based interventions
NUTRICARD: bridging nutrition & CVD research

- Vehicle for translational nutrition research and for cardiovascular translational research

- Multidisciplinary: involving nutrition, medicine, and health science

Figure 1. Nutrition knowledge comes from a variety of scientific disciplines. The art of good translation is in integrating this knowledge, making it accessible to society, and identifying future research that will benefit society.

Translational Nutrition

- Shortens the path between **nutrition research** and its application to **health**

  - Speeds up translation of public health needs for diets that improve health

  - Applies research quickly to address NCDs

1) Establish *baseline* information on dietary intakes of population.

2) Identify the correlation between *diet* and CVD risk factors.

3) Identify the correlation between *biomarkers* of nutrient intake and CVD risk factors.

4) Devise *nutrition education interventions* for prevention of NCDs.

5) Set *policy options* for government.
Examples of ongoing research

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Project Objective (s)</th>
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<tr>
<td>“Dietary intake of salt among Lebanese adults”</td>
<td>Assess average intake of salt among Lebanese adults</td>
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<td>Determine contributors of salt intake</td>
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<td>“Development and validation of a Food Frequency Questionnaire (FFQ) for the</td>
<td>Validate tool against urinary excretion of sodium</td>
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<td>assessment of salt intake among adults”</td>
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<td>“Assessment of knowledge, attitude, and behavior of Lebanese consumers toward</td>
<td>Base-line data for culture-specific intervention to decrease salt intake</td>
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<td>salt and sodium”</td>
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<td>“Development of low-salt bread”</td>
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Take Home Message ...

**Nutrition is a Vehicle for Cardiovascular Translational Research**

Strong arguments support the advancement of a nutritional preventive approach to the problem of CVD

Potential benefits include:

Health endpoints, quality of life, and the reduction in health care costs

THANK YOU