The role of dairy in chronic lifestyle diseases

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The risk of disease and dietary patterns

The role of dietary risk factors in non-communicable diseases is well recognised.
Diet related risk factors  

Traditional diet (whole foods)  

Nutrition transition  

Industrialised foods (refined/energy dense foods)  

Non communicable diseases  

Global Obesity epidemic  

Type 2 Diabetes  

Risk factors for other DRCD  
- Cardio vascular disease  
- Cancers  
- Digestive diseases  
- Sarcopenia
Diet related risk factors

Origin of DRCD

Multifactorial
10 different deregulated metabolic parameters
• Anti-oxidant status
• Acid-base imbalance
• Increased inflammatory status
• Hypertension
• Digestive disorders

Complex diet = variety of foods

Variety of foods rich in different micronutrients + bioactive compounds

Non communicable diseases

Counterbalance the deregulated metabolic parameters
Dealing with NCD’s

The importance of consuming a diversified diet or mixed meals are well supported.

This includes:

• variety of foods
• rich in many different micronutrients
• bioactive compounds
Health status of the global population 2012

- NCDs: Kills 38 mil people per year. 68% of all deaths.
- Fast replacing infectious disease & malnutrition as leading causes of death.
- 52% of deaths worldwide.
- Under 70yrs: 2/3 of deaths due to CVD, Cancers, Diabetes, CRD.

Health status of South Africans

2012 SANHANES

- Increased level of obesity and increased prevalence of NCDs
- Overweight and obesity
  - 65% females
  - 31% males
- 40% of all deaths is caused by NCDs of which 25% occur in people under 60

Obesity
Hypertension
Diabetes
Inactivity
Low dietary diversity

http://www.hsrc.ac.za/en/media-briefs/population-health/results-sanhanes1
Global efforts to ensure diversity ...... addressing DRCD
The South African Food-Based dietary guidelines

Established in 2003 and updated in 2012

**AIM:** protecting against diet-related non-communicable diseases

**SOUTH AFRICAN FOOD-BASED DIETARY GUIDELINES (2013 REVISED)**

- Eat a variety of foods
- Be active!
- Make starchy foods part of most meals
- Eat plenty of vegetables and fruit every day
- Eat dry beans, split peas, lentils and soya regularly
- Have milk, maas or yoghurt every day
- Fish, chicken, lean meat or eggs can be eaten daily
- Drink lots of safe, clean water
- Use fats sparingly
- Use sugar and foods high in sugar sparingly
- Use salt and food high in salt sparingly
Milk’s position around the Globe

Milk: worldwide recognised as an essential part of a Healthy diet

USDA: part of the Eat well Plate

UK: eat some dairy, preferably low-fat varieties everyday

Australia: Enjoy a wide variety of nutritious foods from these five food groups every day: .... Milk, yoghurt, cheese and/or their alternatives, mostly reduced fat
Dairy’s role in health benefits

• In the context of DAIRY many health benefits have been identified

BUT

• The real potential of milk and dairy as part of a complex or mixed diet

• Not individual products or isolated components

The association of dairy products with DRCD and their risk factors as a whole is of importance
Statement1: Higher dairy intake as part of a healthy diet leads to higher nutrient intakes and better diet quality

www.fao.org/docrep/018/i3396e/i3396e.pdf
The health potential of dairy is way beyond its role in bone health

• Increased evidence shows a relationship between milk and dairy products in reducing the risks related to
  • Hypertension
  • Metabolic syndrome
  • Type 2 Diabetes
  • Osteoporosis
  • Sarcopenia
What is a holistic vision of a diet?

A diet which is not only a sum of nutrients:
1. Role of food structure on health
2. Role of nutrient interaction and synergy on health
3. Effect of diet on both health and well-being

The 4 pillars of a complex, holistic and sustainable diet:
1. Environmentally protective
2. Healthy
3. Affordable by all
4. Culturally acceptable
Dairy products in complex diets

Dairy products are rarely consumed alone and act on health globally, not only on one disease risk or one risk factor.

Several dairy nutrients → **Synergy** → One physiological function

One dairy nutrients → **Multifunctionality** → several physiological functions

Portions/day in the different complex diets:
1. Mediterranean diet: ≈ 2 servings/day of cheese and yogurt
2. Healthy diet: ≥ 1.3 cup equivalent/1000 Kcal of low-fat dairy products
3. DASH diet: 2-4 servings/1600-3100 Kcal of low-fat/skimmed dairy products
4. French PNNS: 3 servings/day of dairy (milk, yogurt and cheese)
Methods used

Total dairy
Milks
Yogurts & fermented milks
Cheeses
Complex diets

International expertises (n = 15 reports)
Literature search to complete (360 papers)

Associations with chronic diseases
Association with risk factors for these diseases
Association with sustainability
Mortality & Chronic diseases

Total dairy products

- Protective
- No association
- Deleterious

Conditions and their associations:
- Hepatic Steatosis
- Obesity/Overweight
- Type 2 Diabetes
- Parkinson’s Disease
- Cognitive Decline
- Fracture Risk
- Bladder Cancer
- Liver Cancer
- Gastric Cancer
- Ovarian cancer
- Colorectal Cancer
- Breast Cancer
- Prostate cancer
- Endometrial Cancer
- CVD
- Mortality

Legend:
- Green: Protective
- Yellow: No association
- Red: Deleterious
Risk factors
Main conclusion of the French study

Except for prostate cancer and Parkinson’s disease, dairy are associated with either protective or neutral effects

• Disease associations
  • 26% protective
  • 65% neutral
  • 9% unfavourable

• Risk factor associations
  • 38% protective
  • 62% neutral
  • 0% unfavourable
How much dairy do you need?

To capitalise on the benefits of the nutrients in milk and dairy most scientific papers referred to 3-A-DAY servings.
The % RDA contribution of a single serving of full-cream for adults (250 ml)

- Calcium: 30 %
- Protein: 13-16 %
- Vitamin B12: 46 %
- Phosphorus: 32 %
- Riboflavin: 31-36%
- Vitamin A: 11-14%
- Magnesium: 7-9%
- Potassium: 20%

High bioavailability of nutrients
Three servings will provide almost 90% of your daily needs for calcium.
Calcium requirements throughout the life-stages

- **1000 - 1300 mg per day** for children and young people aged 4 to 18
- **1000 mg per day** for adults
- **1200 mg per day** for women over 50 and men over 70

**BUILD**
- Maximum peak bone mass

**MAINTAIN**
- Healthy bones

**SUSTAIN**
- Avoid premature bone loss and sustain mobility and independence
Dairy products:

1. Source of good quality protein

2. May be heart healthy
Milk Protein: new insights into functions and quality

- The quality of milk protein has been found to be higher than previously acknowledged.
- Functions of dairy protein involve more than only providing amino acids and nitrogen.
- Bioactive peptides in dairy has distinctive functions resulting in milk and dairy being classified as functional foods.

http://www.rediscoverdairy.co.za/dairy-based-nutrition-4/milk-pro:
Dairy fats / products may be heart healthy

• No conclusive evidence that milk or dairy food as a total group is associated with harm to health in terms of risk for coronary heart disease.

• Milk protein has been shown to improve the lipid profile and reduce cardiovascular risk factors

Statement 4: Dairy should be an integral part of a complex diet and should not be regarded as individual products or components

The association of dairy products with diet related chronic diseases and their risk factors as a whole is of importance.
By adding dairy to the diet the overall profile of the diet improves

Example
• Milk complements lysine deficient protein such as maize or wheat.
• Adding milk or other dairy to these foods results in complete protein.
• NB for populations where bread and maize are staples

Food groups should not be treated in isolation

A complex diet is a realistic way of eating
Figure 2a: Nutritional impact of adding 250 ml maas to 500 g stiff porridge on the contribution to RDA of females.

- Calcium (mg/portion)
- Riboflavin (mg/portion)
- Vitamin A (mcg/portion)
- Magnesium (mg/portion)
- Protein (g/portion)
- Zinc (mg/portion)
- Vit B12 (mcg/portion)
- Cost per portion (ZAR)

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Porridge</th>
<th>Porridge + maas</th>
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<tbody>
<tr>
<td>Calcium</td>
<td></td>
<td></td>
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<tr>
<td>Riboflavin</td>
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<td>Zinc</td>
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<tr>
<td>Vit B12</td>
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<tr>
<td>Cost per portion</td>
<td>ZAR 5.50</td>
<td>ZAR 1.20</td>
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</tbody>
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Statement 5: Dairy is nutritional value for money
Dairy is good value for money

Dairy is not expensive if you consider what you get for what you pay.

The nutrients in dairy make it good value for money.

300 ml
- Calcium
- Protein
- Magnesium
- Potassium
- Phosphorus
- Zinc
- Vitamin A
- Vitamin C
- Vitamin D2
- Vitamin B2

340 ml
- 760 kJ
- 14 g carbohydrates
- NO added nutrients

396 kJ
- 35 g carbohydrates

add 1 cup of milk to pap for R3.63
add 2 cups of amasi to half a loaf of bread R10.15
Statement 6: Efforts to promote increased consumption of dairy is warranted

www.fao.org/docrep/018/i3396e/i3396e.pdf    www.rediscoverdairy.co.za
In conclusion

It is essential to educate the consumer on the importance of consuming **3 servings** of dairy everyday to gain from the health benefits associated with dairy.
Thank you for listening

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