FLAVOURED MILK CONSUMPTION AMONG CHILDREN

BACKGROUND

RATIONAL

- Worldwide, calcium is a nutrient of concern
- Many children are not meeting their targets, especially teenage girls
- Milk is the most popular type of dairy & largest source of calcium in their diet
- Flavoured milk is a recommended strategy to increase consumption
- FM is a nutrient-rich beverage: protein, Ca, Mg, B₆, phosphorus, K, Zn & vitamin A
- What about added sugars?

AIM

- TO SUMMARISE ALL STUDIES RELATED TO FLAVOURED MILK CONSUMPTION, INCLUDING BEHAVIOUR AND PREFERENCES AND;
- TO INTERPRET THE SCIENCE TO UNDERSTAND THE BENEFITS OR DETRIMENTS THAT FLAVOURED MILK MAY HAVE IN CHILDREN’S DIET AND HEALTH

METHODS

SYSTEMATIC SEARCH OF MedLine & PubMed USING KEYWORDS:

- Milk, flavoured, sweetened, and chocolate, limited to English, and children

1976 ABSTRACTS IDENTIFIED:

- 186 full text assessed
- 51 studies included

EXCLUSION CRITERIA:

- Adults
- Sports performance
- Technical studies
- Did not report on flavoured milk outcomes

RESULTS

1. PREVALENCE OF CONSUMPTION

TRENDS: limited data, likely increasing

- PREVALENCE
  - Varies widely & not reported in the same way
  - 1% consumers vary from 1% in some age groups (2-5y) in the US & up to 59% among Australian adolescents

- IN THE U.S. FM CONSUMED PREDOMINANTLY AT SCHOOL AND AT LUNCH
  - 46.9% of children consumed flavoured milk at school vs. 8.7% at home
  - 22% and 50% of children participating in school lunch programs have FM at breakfast and at lunch, respectively

- ASSOCIATION WITH AGE IS INCONSISTENT:
  - studies report consumption increases & others report it decreases with age

FM CONSUMERS ALSO CONSUME PLAIN MILK

2. PREFERENCES & BEHAVIOUR

- 31 million children participate in the U.S. National School Lunch Program

- >90% SCHOOLS OFFER FM INDEPENDENTLY OF MILK CHOICE

- 46% of children prefer chocolate flavoured milk

- FM consumers and non-consumers differ in BMI, BRZ SCORE, energy intake, total and added sugars consumption, and metabolic risk profiles

- FM consumers have lower BMI, waist circumference, and triglycerides than non-consumers

- FM consumers have lower total and added sugar intakes than non-consumers

CHILDREN PREFER FLAVOURED MILK

- KIDS PREFER FM TO PLAIN MILK

- FM does not increase total energy intake

5. HEALTH OUTCOMES: DENTAL

- MAJORITY OF STUDIES REPORT NO ASSOCIATION BETWEEN FM INTAKE AND DENTAL CARIES

- Both sucrose and chocolate milk reported highest potential cariogenicity due to low pH

CONCLUSIONS

- The growing body of evidence shows FM is a popular, palatable and nutrient dense beverage
- Children who drink FM drink more total milk and they are not exclusive drinkers of FM
- When FM is not available children drink less plain milk and hence, less milk overall
- Micronutrient intakes of FM consumers are in line with that of plain milk consumers

- Despite inconsistencies in sugar intake reporting and outcomes across studies comparing FM consumers and plain milk consumers, differences between FM consumers and other groups were very small (less than 1.5 g/day)
- The nutrient density of FM outweighs the added sugar from the flavouring

- Further research to test the effect of changing FM consumption and its effect on weight among overweight children is warranted

RESULTS CONTINUED

2. PREFERENCES & BEHAVIOUR CONTINUED

- PALATABILITY
  - FM is the most palatable milk regardless of milk type or fat content
  - Children are as likely to consume lower sugar and lower fat FM as standard FM
  - Taste is the main driver of consumption among children
  - Increase FM convenience = increase intake
  - Decrease FM convenience = no effect on sales

3. TOTAL MILK INTAKE & NUTRIENT CONTRIBUTION FOR FM CONSUMERS

- HEAVIER TOTAL MILK INTAKE AMONG FM CONSUMERS

- SOME SUBGROUPS REPORT HIGHER ADDITIVE INTAKE, OTHERS REPORT NO DIFFERENCE OR LOWER THAN PLAIN MILK

- PLAN OR FM PROVIDE A GREATER PERCENTAGE OF DAILY NUTRIENTS (Ca, Fe, A, D, K, Mg, P) THAN THEY PROVIDE CALORIES

4. HEALTH OUTCOMES: ANTHROPOMETRIC

- NO DIFFERENCES REPORTED BETWEEN FM CONSUMERS AND NON-CONSUMERS FOR BMI AND BRZ SCORE, WAIST CIRCUMFERENCES, CROSS-SECTIONAL PREVALENCE OF OVERWEIGHT AND OBESITY AND PERCENT BODY FAT

- FM not associated with greater BMI, prevalence of overweight and prospective change in BMI among normal weight children

- AMONG OVERWEIGHT CHILDREN, CONFLICTING RESULTS WERE REPORTED:
  - No differences in flavoured milk consumption and 5-year weight change
  - Positive association between FM consumption and anthropometric measures among overweight children

- REPLACEMENT OF SOFT DRINK WITH FM = REDUCED ENERGY INTAKE AMONG OVERWEIGHT CHILDREN

- ASSESSMENT OF OVERWEIGHT PREVALENCE AMONG FM CONSUMERS PARTICIPATING IN THE US NATIONAL BREAKFAST AND LUNCH PROGRAMS SHOWN:
  - BMI was positively related to the percent energy from FM
  - All other studies found no association with FM & obesity

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F Fayet-Moore

Nutrition Research Australia

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