



# WHAT ARE AUSSIE KIDS REALLY EATING?

A DEEP DIVE INTO

## MILK CONSUMPTION

AMONG AUSTRALIAN CHILDREN & ADOLESCENTS

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Nutrition Research  
Australia



A SECONDARY ANALYSIS OF THE 2011-12 NATIONAL  
NUTRITION AND PHYSICAL ACTIVITY SURVEY

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INFORMATION FOR HEALTHCARE PROFESSIONALS

NESTLÉ for  
HEALTHIER KIDS 

# TOP FINDINGS

## MILK\* CONSUMPTION AMONG AUSTRALIAN CHILDREN AND ADOLESCENTS WITH A FOCUS ON FLAVOURED MILK

**MILK INTAKE, WHETHER IT BE PLAIN OR FLAVOURED, HAS A POSITIVE IMPACT ON CHILDREN'S DIETS HELPING TO MEET DAILY DAIRY TARGETS AND NUTRIENT NEEDS INCLUDING CALCIUM.**

### 1 PLAIN MILK WAS THE MOST POPULAR AND MOST MILK CONSUMERS HAD MILK AS A BEVERAGE

81% of children consumed milk. 63% of all milk consumers were drinkers, and of those, 46% were plain, 32% were flavoured, and 21% were other milk drinkers (e.g. milkshakes, smoothies).

### 2 PREVALENCE OF MILK CONSUMPTION DECREASED WITH AGE

Plain milk drinking decreased with age, from 53% of 2-3y to 11% of 14-18y. Adolescents 14-18y had the highest prevalence of milk avoiders (26%), and were the only group with a higher prevalence of flavoured milk (13%) than plain milk (11%) drinkers.

### 3 PLAIN AND FLAVOURED MILK DRINKERS HAD THE HIGHEST DAILY MILK AND TOTAL DAILY DAIRY INTAKES

Differences in total daily dairy intake were driven by milk intake, as there was no difference in the intake of non-milk dairy (e.g. yoghurt, cheese) between milk intake groups.



### 4 PLAIN AND FLAVOURED MILK DRINKERS HAD THE HIGHEST CALCIUM INTAKES, WHILE FLAVOURED MILK DRINKERS HAD A HIGHER IRON INTAKE THAN PLAIN MILK DRINKERS

Plain and flavoured milk drinkers had significantly higher calcium intakes than all other groups. Flavoured milk drinkers had significantly higher iron intakes compared to plain milk drinkers and 1 in 2 had a fortified flavoured milk, which may account for their higher iron intakes.

### 5 PLAIN MILK DRINKERS WERE THE LEAST LIKELY TO EXCEED THE WHO FREE SUGARS TARGET, AND OTHER MILK DRINKERS (e.g. MILKSHAKES) WERE THE MOST LIKELY. PLAIN AND FLAVOURED MILK DRINKERS HAD SIMILAR DAILY FREE SUGARS INTAKES

More than half of all children exceeded the World Health Organisation (WHO) free sugars target. 72% of other milk drinkers, 65% of flavoured milk drinkers, 62% of other milk non-drinkers, 58% of milk avoiders, and 52% of plain milk drinkers exceeded the targets.

There was no significant difference in the daily free sugars intake between plain and flavoured milk drinkers.

### 6 PLAIN AND FLAVOURED MILK DRINKERS HAD THE LOWEST PREVALENCE OF SUGAR-SWEETENED BEVERAGES (SSB) CONSUMPTION WHILE MILK AVOIDERS AND OTHER MILK DRINKERS HAD THE HIGHEST PREVALENCE

59% of milk avoiders and other milk drinkers consumed SSB compared to less than half of all other milk intake groups. 43% of plain and 44% of flavoured milk drinkers consumed SSB. Milk avoiders had a higher intake of SSB than all other milk intake groups except other milk drinkers (e.g. milkshakes, smoothies).



# RECOMMENDATIONS FROM RESEARCH

## 1| MILK CONSUMPTION HELPS TO MEET THE RECOMMENDED DAILY DAIRY SERVES

Encourage dairy foods at different meal occasions, such as a snack or in the lunchbox. In hot climates freezable UHT products offer a good solution and also keep the lunchbox cool.

## 2| WHEN PLAIN MILK IS AVOIDED, ENCOURAGE NUTRIENT FORTIFIED FLAVOURED MILK OR FLAVOURED MILKS WITH REDUCED ADDED SUGAR

Flavoured milks are a great alternative to encourage milk consumption to help meet daily dairy serves and nutrient intakes such as calcium and iodine. Fortified flavoured milks may help to meet at risk nutrient intakes such as iron.

## 3| FURTHER RESEARCH AS TO WHY KIDS & ADOLESCENTS AVOID MILK IS NEEDED TO CHANGE BEHAVIOUR

Adolescence is a key time where independent decisions are being made and where milk intake is dropping. Insight into the attitudes and behaviours of this group may provide the key to guide appropriate interventions or education to increase milk consumption.

## 4| FOR ADOLESCENTS ENCOURAGING FLAVOURED MILK MAY BE A SUCCESSFUL WAY TO OVERCOME MILK AVOIDANCE AND PROVIDE AN ACCEPTABLE ALTERNATIVE TO DISCRETIONARY BEVERAGES

Flavoured milks were popular among adolescents and provide a healthier alternative to sugar sweetened beverages. Milk avoiders had a higher intake of SSB than all other milk intake groups except other milk drinkers.

# OUR ACTIONS

**NESTLÉ IS COMMITTED TO PROVIDING NUTRITIOUS PRODUCTS FOR CHILDREN**

## PRODUCTS

At Nestlé we have committed to design and launch foods and beverages that address the daily nutritional needs and key nutritional gaps of children. The Nestlé Nutritional Profiling System helps us to continually improve our existing products, making it easier for people to adopt a healthy diet.



## TOOLS

In 2016 and 2017 we distributed our lunchbox flipchart to teachers, dietitians and parents through our Choose Wellness program.



## EDUCATION

Our Nestlé Healthy Active Kids program helps teachers bring nutrition education into the classroom. The program has a number of modules developed with the Australian Institute of Sport, teachers and dietitians. The modules focus on the 5 food groups and also packing a healthy lunchbox.



\*See Definitions on page 5 for types of milk and milk intake groups.



# NUTRITION RESEARCH AT NESTLÉ

In our journey towards building nutrition knowledge leadership through a deep understanding of dietary intakes and related lifestyle habits, Nestlé has committed to the global Feeding Infants and Toddlers Study (FITS) and the Kids Nutrition and Health Study (KNHS) in 10 countries. These studies, currently running in 6 countries, capture information about dietary and meal patterns, nutrient intakes, lifestyle, behaviour, demographics and healthy growth indicators of kids around the world, including Australia.

In Australia, we work in close collaboration with independent experts who carry out the research in each nutrition research project.

In 2017, Nutrition Research Australia, an independent nutrition research company, received a grant from Nestlé Australia Ltd to conduct a secondary analysis of the 2011–12 National Nutrition and Physical Activity Survey<sup>5</sup> to understand milk consumption among Australian children and adolescents.



## RESEARCH BACKGROUND

Dairy milk is a source of essential nutrients including calcium. The Australian Dietary Guidelines (ADG) encourages dairy milk consumption, along with yoghurt, cheese and/or alternatives (dairy).<sup>1</sup> The benefits of dairy intake are especially pertinent during childhood and adolescence – a critical time for bone development.<sup>2</sup>

In the 2011–12 National Nutrition and Physical Activity Survey (NNPAS), approximately 4 in 5 Australian children did not meet the ADG recommendations for dairy.<sup>3</sup>

Flavoured milk intake may be a strategy for increasing milk consumption in children as it has been associated with increased total milk intake and offers an alternative to children that dislike plain milk.<sup>4</sup>

**WE AIMED TO PROFILE MILK CONSUMPTION AMONG AUSTRALIAN CHILDREN, WITH A FOCUS ON FLAVOURED MILK, TO DETERMINE ASSOCIATIONS WITH TYPE OF MILK, AGE, AND NUTRIENT INTAKES INCLUDING FREE SUGARS.**



# RESEARCH METHODOLOGY

The Australian Health Survey (2011–2013) was conducted by the Australian Bureau of Statistics (ABS) and includes the National Nutrition and Physical Activity Survey (2011–12).<sup>5</sup> This secondary analysis used the first 24-hour dietary recall and included a total of 2812 children and adolescents (2–18 years).

## DEFINITIONS

### MILK

#### DAIRY, FLUID MILK, INCLUDING POWDERED MILK BUT EXCLUDING EVAPORATED AND CONDENSED MILK

##### PLAIN MILK:

Plain milk consumed on its own.

##### FLAVOURED MILK

Plain milk with flavouring, including pre-made beverages and fortified flavoured milk.

Flavouring: sugar, honey, syrup, topping, cocoa powder, malt powder, beverage base.

##### OTHER MILK

Milk in any form not defined as plain or flavoured milk (i.e. milk on cereal, milkshake, mashed potato).



### MILK CONSUMER

#### DRINKER

##### PLAIN MILK

Consumed plain milk as a beverage, not flavoured milk.

##### FLAVOURED MILK

Consumed flavoured milk as a beverage.

##### OTHER MILK

Consumed other milk as a beverage but not plain or flavoured milk (e.g. milkshakes and smoothies).

##### NON-DRINKER

Consumed milk but not as a beverage (e.g. milk on cereal, mashed potato).



##### MILK AVOIDER



**DID NOT CONSUME MILK, BUT MAY HAVE HAD DAIRY (i.e. YOGHURT, CHEESE)**

## OTHER VARIABLES USED

### ANTHROPOMETRY

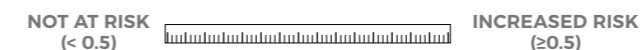
#### BODY MASS INDEX Z-SCORE (zBMI)

Children's zBMI is a measure of relative weight adjusted for age and sex. The standard normal distribution of all children's zBMI was calculated<sup>6,7</sup>, and children were categorised as:



#### WAIST CIRCUMFERENCE TO HEIGHT RATIO

Waist circumference and height were measured in centimetres (cm). Children were classified into the following categories of risk of chronic disease based on their waist to height ratio<sup>8</sup>:



### SOCIO-ECONOMIC STATUS (SES)

**SES was defined based on Socio-Economic Indexes for Areas (SEIFA)<sup>9</sup>.**

SEIFA is a product developed by the Australian Bureau of Statistics that ranks areas in Australia according to relative socio-economic advantage and disadvantage.

**Low SES was defined as the lowest 20% of SEIFA**

**High SES was defined as the highest 20% of SEIFA**

### PHYSICAL ACTIVITY

Physical activity was self-reported as the amount of physical activity children undertook in the week prior to the interview day. The number of days in the week and number of minutes per day were reported.

The number of days that each child met physical activity recommendations was determined based on the following recommendations<sup>10</sup>:

- **For children aged 2-4y**, a minimum of three hours of physical activity every day
- **For children aged 5-17y**, a minimum of 60 minutes of moderate to vigorous physical activity every day
- **For adolescents aged 18y**, a minimum of 150 minutes of physical activity over five or more sessions per week

### STATISTICAL ANALYSES

- The data were weighted to the Australian population
- General linear models were used to adjust for energy and demographic, anthropometric, and lifestyle variables
- Chi-squared tests were performed to determine statistical significance
- Reported differences are statistically significant  $P < 0.001$



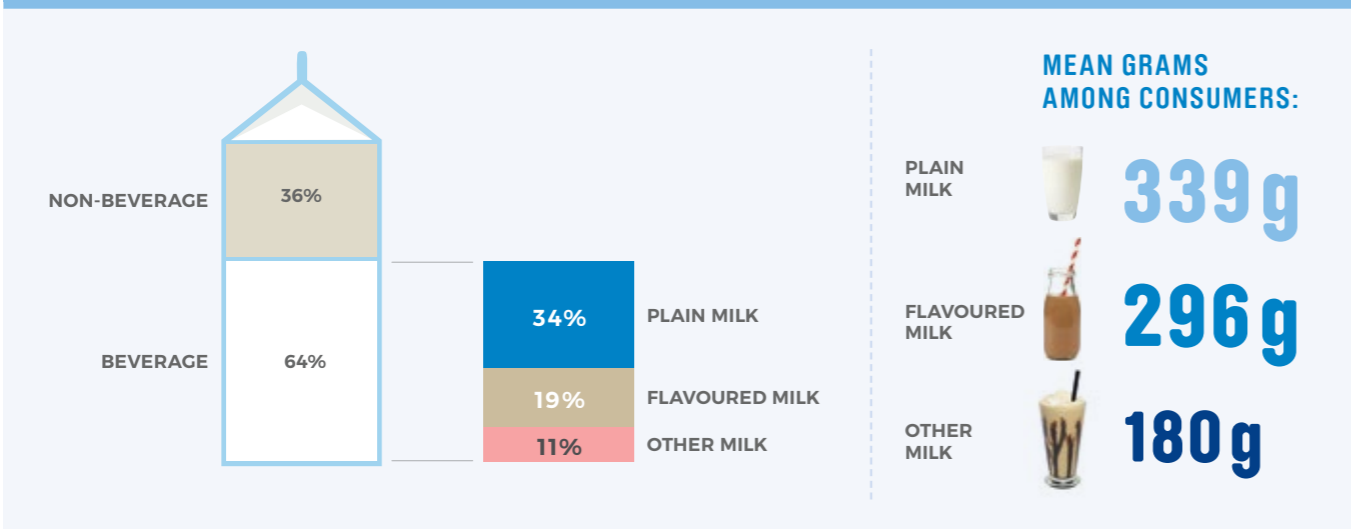
# FINDINGS

## MILK CONSUMPTION

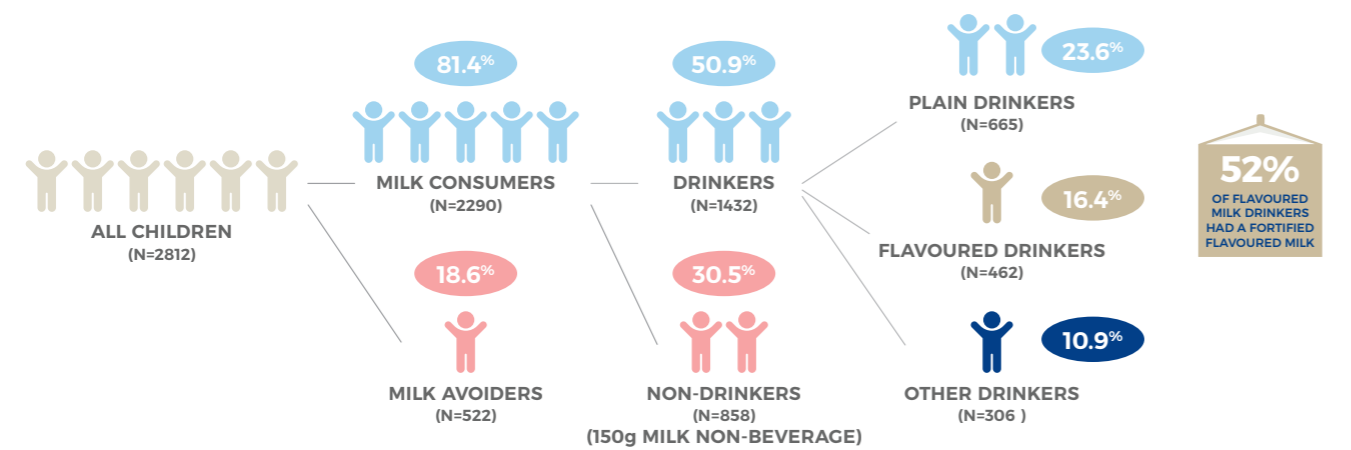
### KEY POINT

THE MAJORITY OF CHILDREN CONSUMED MILK, ALMOST TWO-THIRDS AS A BEVERAGE, AND PLAIN MILK WAS THE MOST COMMON FOLLOWED BY FLAVOURED MILK

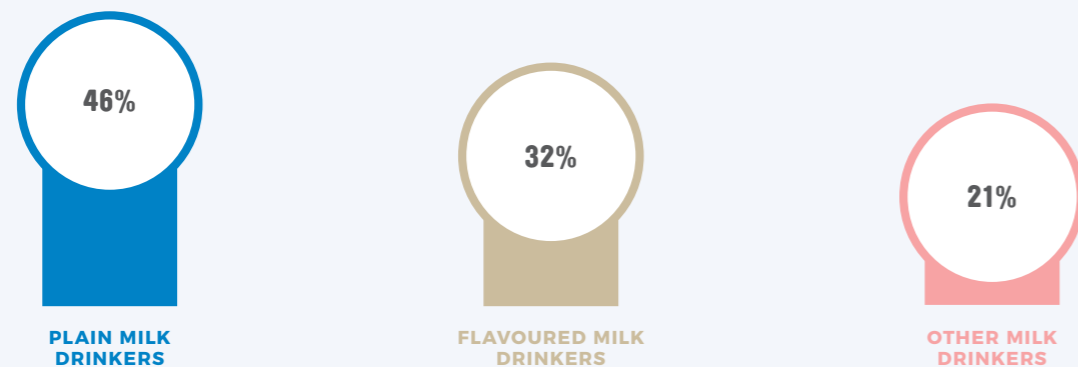
### #1 TOTAL MILK INTAKE



### #2 TYPE OF MILK CONSUMED



AMONG MILK DRINKERS, PLAIN MILK WAS MOST POPULAR, THEN FLAVOURED MILK, FOLLOWED BY OTHER MILKS.



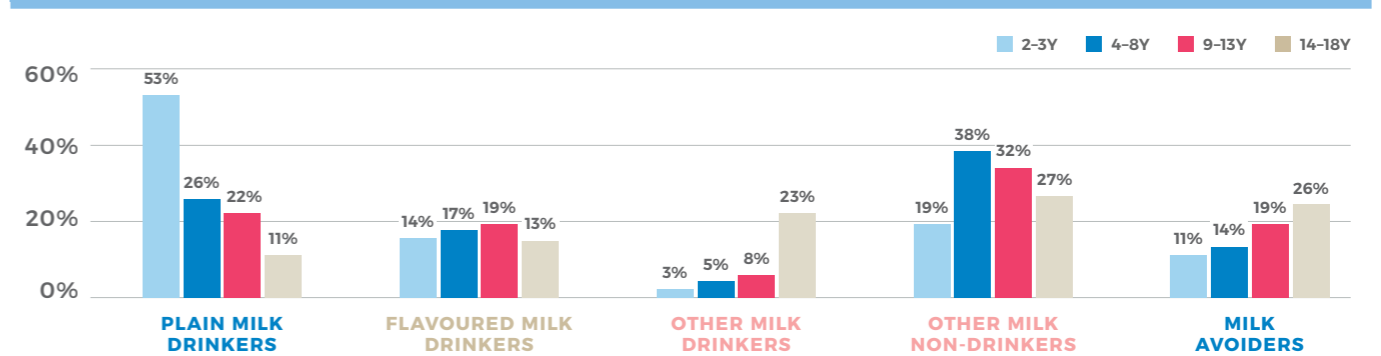
# FINDINGS

## MILK AND TOTAL DAIRY INTAKE

### KEY POINT

MILK CONSUMPTION DECREASED WITH AGE. ADOLESCENTS 14-18Y HAD THE LOWEST INTAKE OF PLAIN MILK AND WERE THE HIGHEST GROUP WITH NO MILK INTAKE.

### #3 PREVALENCE OF MILK CONSUMERS BY AGE GROUP



### 14-18Y

The only age group where flavoured milk was more popular than plain milk

PLAIN MILK CONSUMPTION DECREASED WITH AGE



MILK AVOIDANCE INCREASED WITH AGE



### 9-13Y

The age group with the highest prevalence (19%) of flavoured milk drinkers

### #4 TOTAL DAILY INTAKE OF MILK AND DAIRY

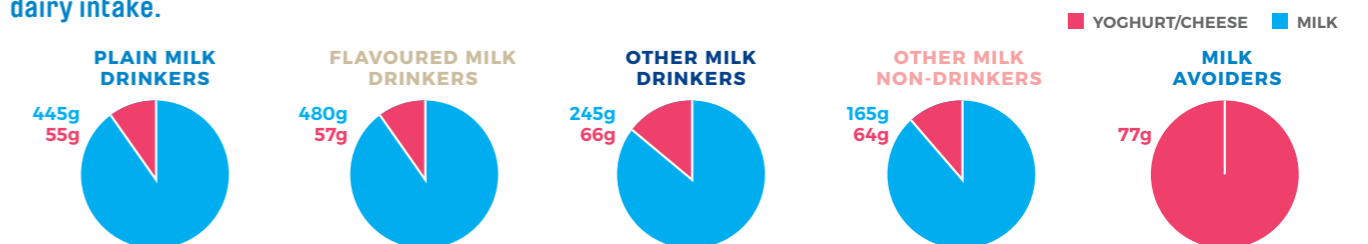
#### TOTAL DAIRY SERVES

Plain and flavoured milk drinkers had the highest consumption of dairy foods vs. milk avoiders who had the lowest.



#### MILK VS NON-MILK DAIRY (GRAMS)

Plain and flavoured milk drinkers had the highest intake of milk but there was no difference in non-milk dairy intake.



### KEY POINT

PLAIN AND FLAVOURED MILK DRINKERS HAD THE HIGHEST DAIRY INTAKES, WHICH WAS DRIVEN BY HIGHER MILK INTAKES.

# FINDINGS

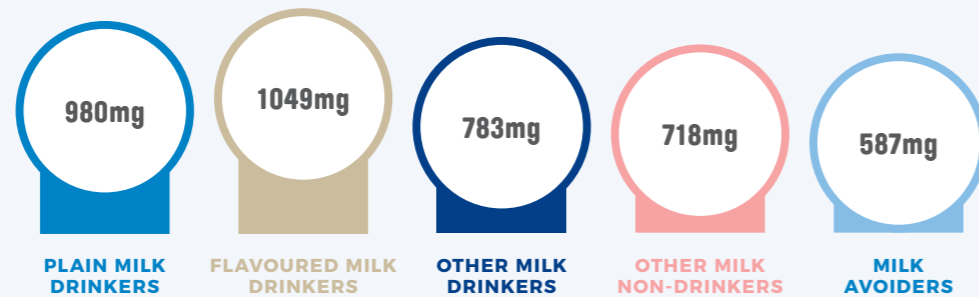
## NUTRIENT INTAKES

### KEY POINT

PLAIN AND FLAVOURED MILK DRINKERS HAD THE HIGHEST CALCIUM, PHOSPHOROUS AND IODINE INTAKES. FLAVOURED MILK DRINKERS HAD A HIGHER IRON INTAKE THAN PLAIN MILK DRINKERS.

### #5 CALCIUM INTAKE BY MILK GROUP

PLAIN AND FLAVOURED MILK DRINKERS HAD THE HIGHEST CALCIUM INTAKES AND MILK AVOIDERS THE LOWEST



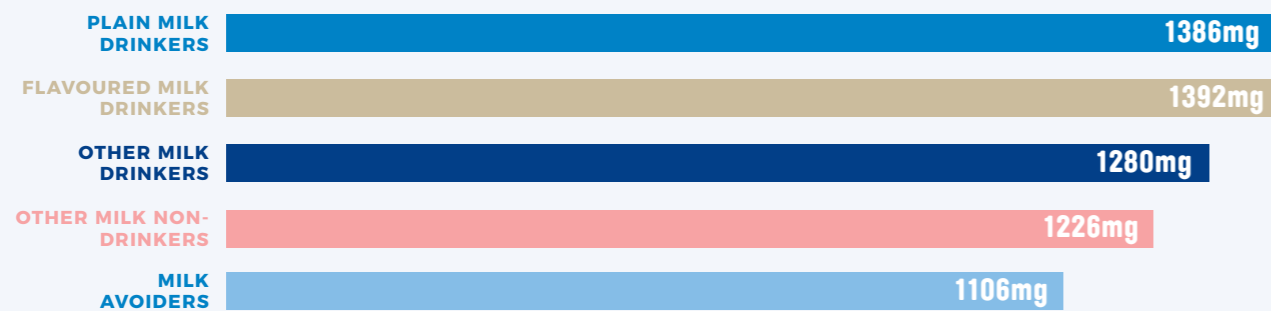
### #6 IODINE INTAKE BY MILK GROUP

PLAIN AND FLAVOURED MILK DRINKERS HAD THE HIGHEST IODINE INTAKES, MILK AVOIDERS AND NON-DRINKERS HAD THE LOWEST



### #7 PHOSPHORUS INTAKE BY MILK GROUP

PLAIN AND FLAVOURED MILK DRINKERS HAD THE HIGHEST PHOSPHORUS INTAKES AND MILK AVOIDERS HAD THE LOWEST



### #8 IRON INTAKE BY MILK GROUP

FLAVOURED MILK AND OTHER MILK NON-DRINKERS HAD THE HIGHEST IRON INTAKES. THIS MAY BE ATTRIBUTED TO CONSUMPTION OF FORTIFIED FLAVOURED MILKS AND BREAKFAST CEREALS.



# FINDINGS

## TOTAL AND FREE SUGARS INTAKE

### KEY POINT

PLAIN AND FLAVOURED MILK DRINKERS HAD SIMILAR FREE SUGARS INTAKE, WHILE PLAIN MILK DRINKERS HAD THE LOWEST PERCENT ENERGY CONTRIBUTION FROM FREE SUGARS

# 61%

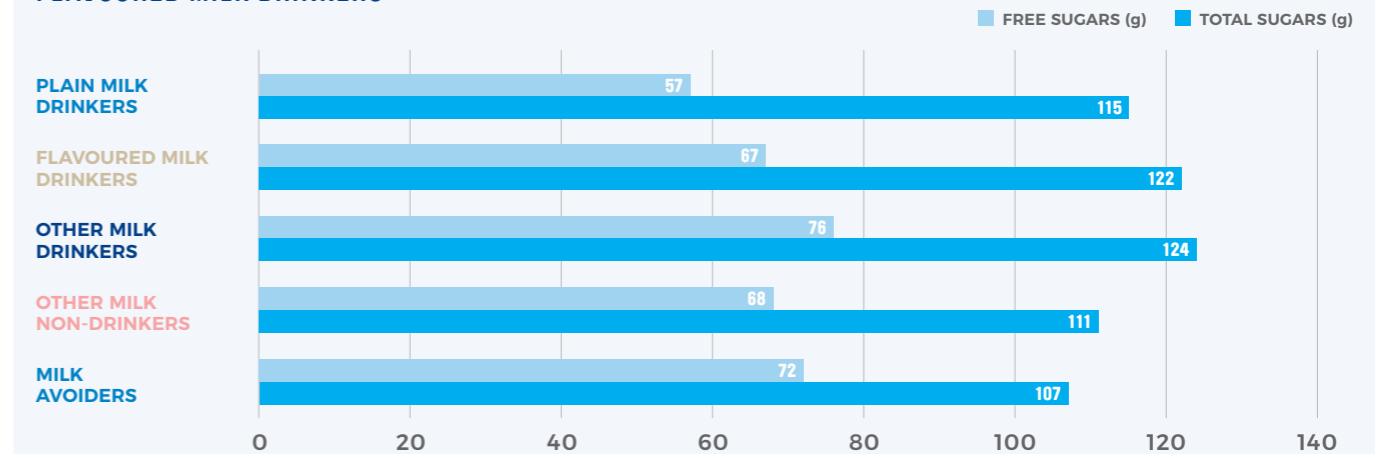
of all children exceeded the WHO free sugars target



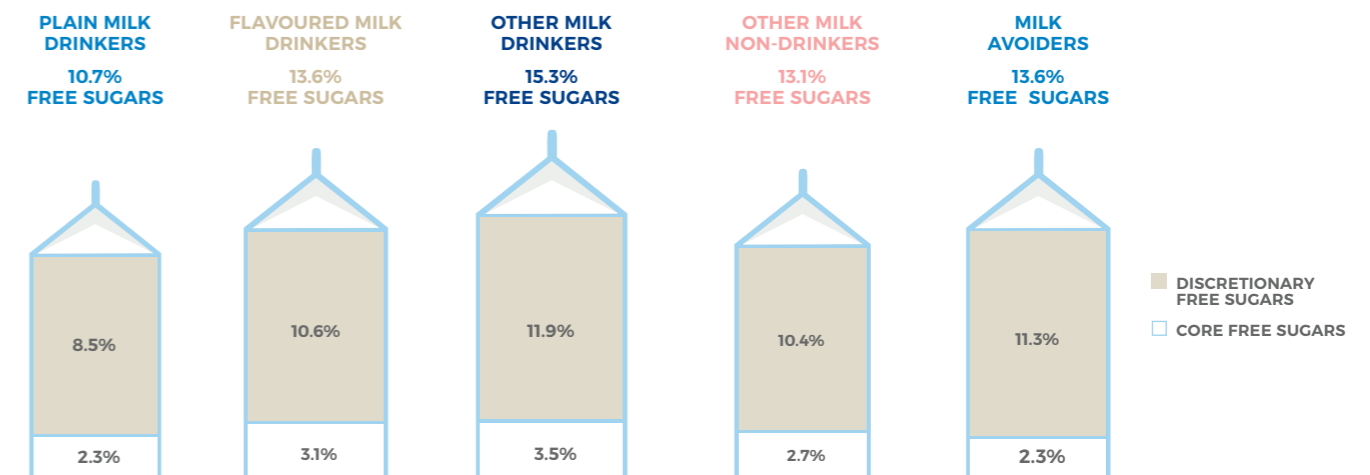
PLAIN MILK DRINKERS WERE THE LEAST LIKELY TO EXCEED THE TARGET, WHILE OTHER MILK DRINKERS (EG. MILKSHAKES, SMOOTHIES) WERE THE MOST LIKELY.

### #9 TOTAL AND FREE SUGARS INTAKE BY MILK INTAKE GROUP

PLAIN MILK DRINKERS HAD A LOWER FREE SUGARS INTAKE THAN ALL OTHER GROUPS EXCEPT FLAVOURED MILK DRINKERS



### #10 % ENERGY FROM CORE AND DISCRETIONARY FREE SUGARS



PLAIN MILK DRINKERS HAD THE LOWEST ENERGY CONTRIBUTION FROM DISCRETIONARY FREE SUGARS. - THE ENERGY CONTRIBUTION FROM CORE FREE SUGARS WAS SIMILAR BETWEEN PLAIN MILK DRINKERS, OTHER MILK NON-DRINKERS AND MILK AVOIDERS.



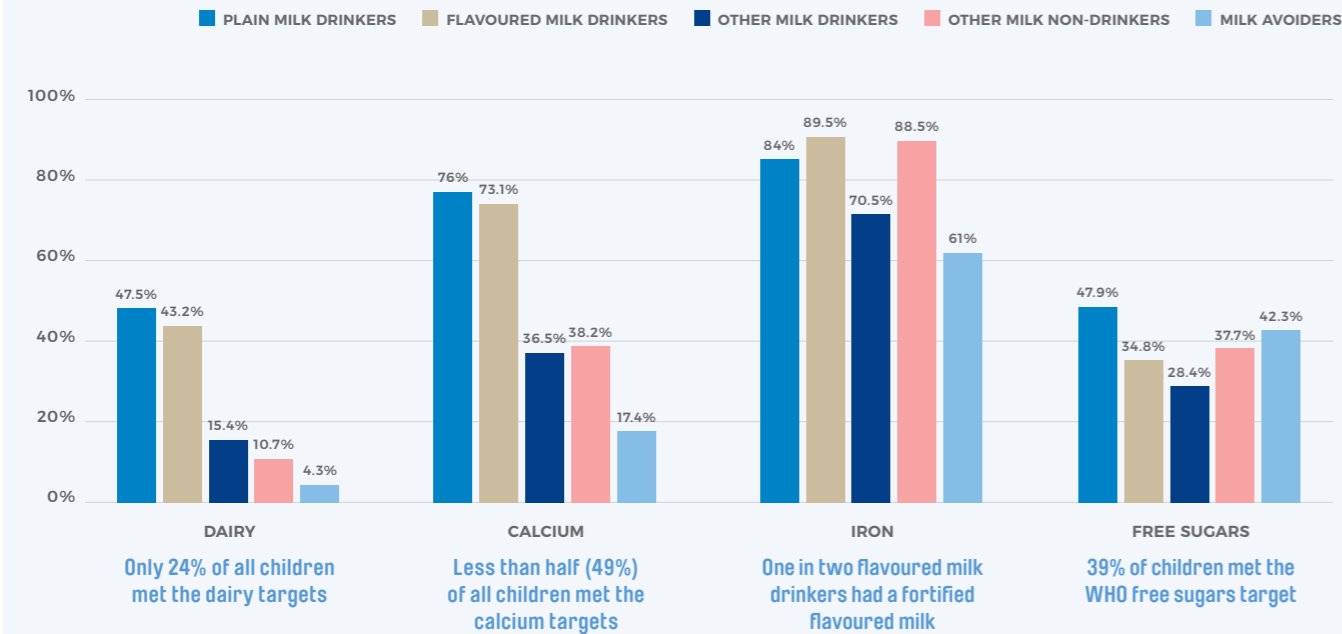
# FINDINGS

## DAILY DAIRY & NUTRIENT TARGETS

### KEY POINT

ABOUT THREE-QUARTERS OF PLAIN AND FLAVOURED MILK DRINKERS MET CALCIUM TARGETS, COMPARED TO LESS THAN 40% OF ALL OTHER CHILDREN

### #11 PREVALENCE OF CHILDREN THAT MET DAILY DAIRY & NUTRIENT TARGETS



### KEY POINT

PLAIN AND FLAVOURED MILK DRINKERS HAD THE LOWEST PREVALENCE OF SUGAR-SWEETENED BEVERAGES (SSB) CONSUMPTION WHILE MILK AVOIDERS AND OTHER MILK DRINKERS WERE THE MOST LIKELY TO CONSUME SSB

### #12 PREVALENCE AND INTAKE OF SSB BY MILK INTAKE GROUP

METRIC	PLAIN MILK DRINKERS	FLAVOURED MILK DRINKERS	OTHER MILK CONSUMERS		MILK AVOIDERS
			DRINKERS	NON-DRINKERS	
SSB Consumers (%)	42.7%	44.3%	59.2%	47.5%	58.8%
Daily SSB intake (g ± SE)	177 ± 16 <sup>b</sup>	188 ± 19 <sup>b</sup>	278 ± 25 <sup>a,b</sup>	253 ± 15 <sup>b</sup>	351 ± 18 <sup>a</sup>

Different superscripts a,b,c denote significant difference between milk intake groups. P<0.001.



# FINDINGS

## PROFILE OF THE MILK CONSUMER GROUPS

### KEY POINT

MILK CONSUMPTION WAS NOT ASSOCIATED WITH ZBMI AND WAIST:HEIGHT RATIO, WHICH ARE INDICATORS OF OVERWEIGHT AND OBESITY

### #13 CHARACTERISTICS OF CHILDREN BY MILK INTAKE GROUPS

THERE WAS NO DIFFERENCE IN SEX, MEAN z-BMI, MEAN WAIST:HEIGHT RATIO OR SES BETWEEN THE DIFFERENT MILK INTAKE GROUPS

CHARACTERISTIC	PLAIN MILK DRINKERS	FLAVOURED MILK DRINKERS	OTHER MILK CONSUMERS		MILK AVOIDERS
			DRINKERS	NON-DRINKERS	
Sex (% within milk intake group)					
Male	51.7	53.8	47.3	49.8	52.0
Female	48.3	46.2	52.7	50.2	48.0
Mean z-BMI	0.59	0.56	0.43	0.61	0.64
Mean waist: height ratio	0.49	0.48	0.47	0.48	0.48

THERE WAS A DIFFERENCE IN PHYSICAL ACTIVITY FOR 18 YEAR OLDS. IN THIS AGE GROUP, OVER 80% OF PLAIN AND FLAVOURED MILK DRINKERS MET PHYSICAL ACTIVITY RECOMMENDATIONS COMPARED TO LESS THAN HALF FOR ALL OTHER MILK INTAKE GROUPS.

#### Prevalence of meeting physical activity recommendations (%)

CHARACTERISTIC	PLAIN MILK DRINKERS	FLAVOURED MILK DRINKERS	OTHER MILK CONSUMERS		MILK AVOIDERS
			DRINKERS	NON-DRINKERS	
2-4 y (N=517)	76.8	70.8	81.1	78.3	74.0
5-17 y (n=2126)	22.1	19.6	15.8	19.9	17.8
18 y (n=169)*	81.4	85.2	44.3	26.6	36.8

\*P<0.001

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