

**Physical Activity Levels and
Dietary Intake of Children
and Youth in the Province of
Nova Scotia 2005**

Overview

- **Rationale, significance, and objectives of PACY studies**
- **Methodology**
- **Results**
 - **Body Mass Index**
 - **Physical activity**
 - **Social, behavioural, and environmental factors**
 - **Dietary intake**
- **Recommendations**

Acknowledgements

- **This project was supported by:**
 - **Nova Scotia Department of Health Promotion and Protection and Department of Education**
- **The Research Team**
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Rationale for PACY Studies

- **Moderate and vigorous intensity physical activities have health benefits**
 - Reduces risk of several diseases
 - Reduces risk of overweight and obesity
- **Physical activity attitudes, habits, & behaviours**
 - Develop in childhood and adolescence
 - May track into adulthood

Rationale for PACY Studies

- **Children and youth are increasingly inactive**
 - **Based on parent self-report data, less than 50% of Canadian children and youth are sufficiently physically active**
 - **consistent across rural, urban and Aboriginal communities (Active Health Kids Canada, Report Card on Physical Activity, 2006)**
 - **In Canada, when physical activity is objectively measured, 91% are NOT obtaining sufficient levels for health benefits (CFLRI, 2007)**

Rationale for PACY Study

- **Less healthy food habits linked to health risk**
 - Increased risk of diseases
 - Increased risk of overweight and obesity
- **Canadian youths' eating habits do not fit CFGHE recommendations**
 - Eating less Milk & Milk Products
 - Eating less Vegetables and Fruit
 - Often skip breakfast

Rationale for PACY Study

- **Canadian data on children and youth indicate:**
 - **Marginal intakes of nutrient-rich food groups is common, especially for girls (Gray-Donald et al., 2000; Jacobs-Starkey et al., 2001)**
 - **“Other” Foods Category provides up to 1/3 of daily energy intakes, mainly from fats, sugars and sweetened beverages (Garriguet, 2006)**
 - **Decline in breakfast consumption occurs with age (Cohen, Evers, et al., 2003).**

Significance of PACY Study

Only province in Canada to have established and conducted this type of population surveillance of objectively measured physical activity in children and youth – twice!

Physical Activity and Dietary Intake of Children & Youth (PACY 2005) Objectives

- **To objectively measure physical activity**
 - **Specifically, to determine the percentage who obtained 60 minutes or more of moderate or more intense physical activities on 5 or more days of the week**
- **To determine the environmental, physiological and psychosocial determinants of physical activity and food choice behaviours**

PACY 2005 Objectives – cont

- **To measure height, weight, and waist circumference**
 - Specifically to determine the percentage of underweight, healthy weight, at risk of overweight, and overweight
- **To determine usual food intakes and to describe them by**
 - Food group guidelines
 - Percent energy from Pro, CHO, Fat
 - Key nutrients for growth
 - Meal pattern

Methodology

- **Participants**
 - Approximately 2300 students in Grade 3, 7, 11 were randomly selected from randomly selected schools from six Sport and Recreation Regions
- **Anthropometry**
 - Height, weight, waist circumference, BMI
- **Physical Activity**
 - Accelerometers were used to objectively measure physical activity for 7 consecutive days
- **Social, Behavioural, and Environmental Factors**
 - Questionnaires for students, parents, teachers
- **Dietary Intake**
 - Web-based survey that included a food frequency questionnaire and 24-hour recall



Body Mass Index

Weight Classification of Grade 3 Students PACY 2001-2005

	Boys 2001	Boys 2005	Girls 2001	Girls 2005
Healthy Weight	63.0%	53.0%	55.4%	59.6%
At Risk	17.6%	21.5%	24.7%	20.6%
Over- weight	19.4%	25.6%	19.9%	19.9%

Weight Classification of Grade 7 Students PACY 2001-2005

	Boys 2001	Boys 2005	Girls 2001	Girls 2005
Healthy Weight	63.3%	59.7%	60.1%	69.7%
At Risk	16.4%	21.8%	20.5%	17.1%
Over- weight	20.4%	18.5%	19.4%	13.2%

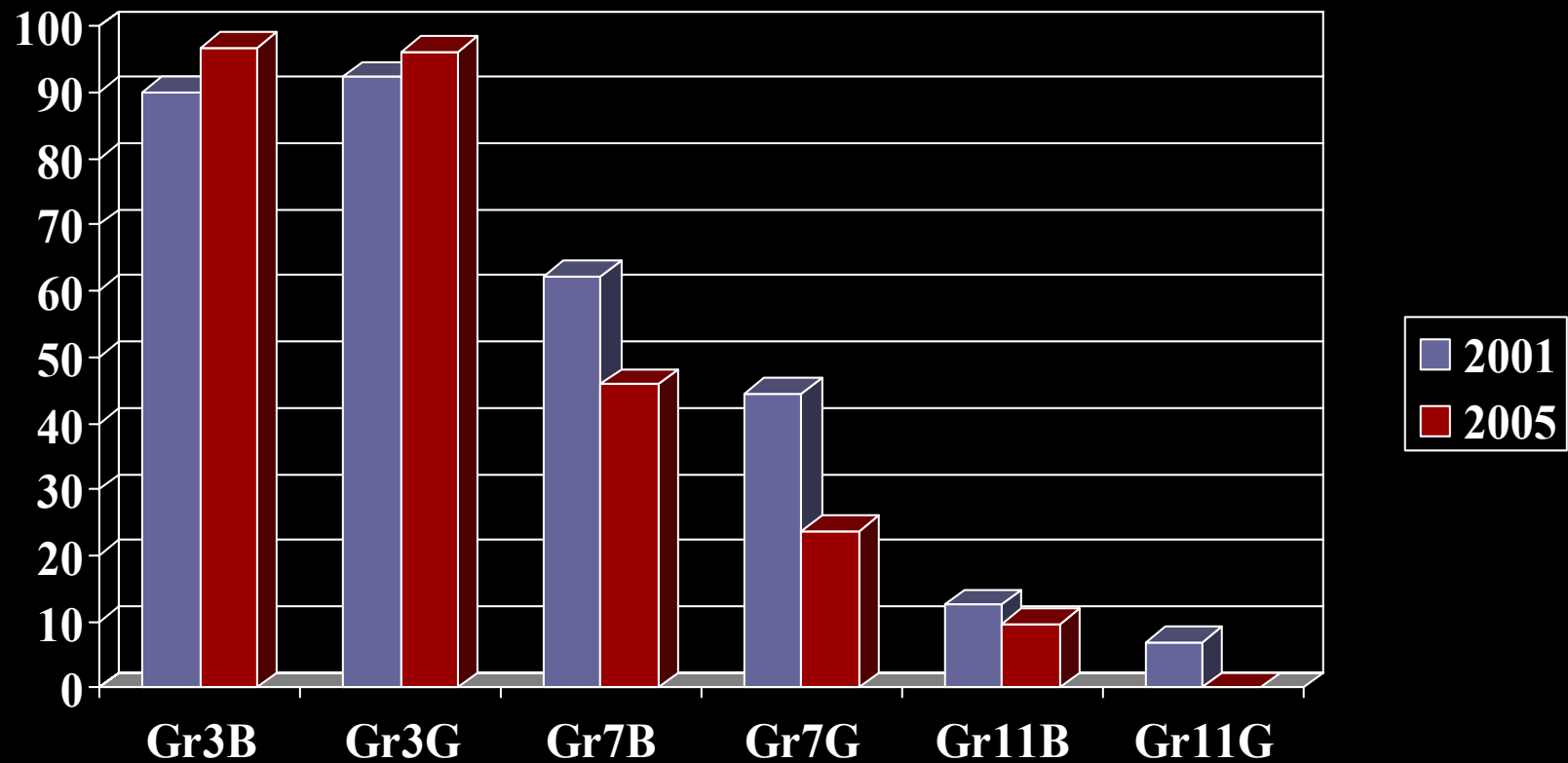
Weight Classification of Grade 11 Students PACY 2001-2005

	Boys 2001	Boys 2005	Girls 2001	Girls 2005
Healthy Weight	66.1%	69.4%	75.0%	69.8%
At Risk	16.7%	16.6%	17.1%	20.2%
Over- weight	16.2%	14.1%	7.9%	10.0%

Physical Activity Levels



Physical Activity – PACY 2001-2005



Number and percentage of Grade 7 boys and girls that achieved 60 minutes or more of moderate or more intense physical activity on zero to seven days a week

Days		0	1	2	3	4	5	6	7
Boys	2001	1.1	2.9	7.8	9.8	16.4	20.1	20.1	20.0
	2005	1.9	6.4	12.5	16.2	17.7	16.6	17.7	10.9
Girls	2001	6.4	4.9	12.4	14.5	17.3	18.0	15.5	11.0
	2005	9.3	16.5	15.4	18.0	17.1	11.0	9.3	3.5

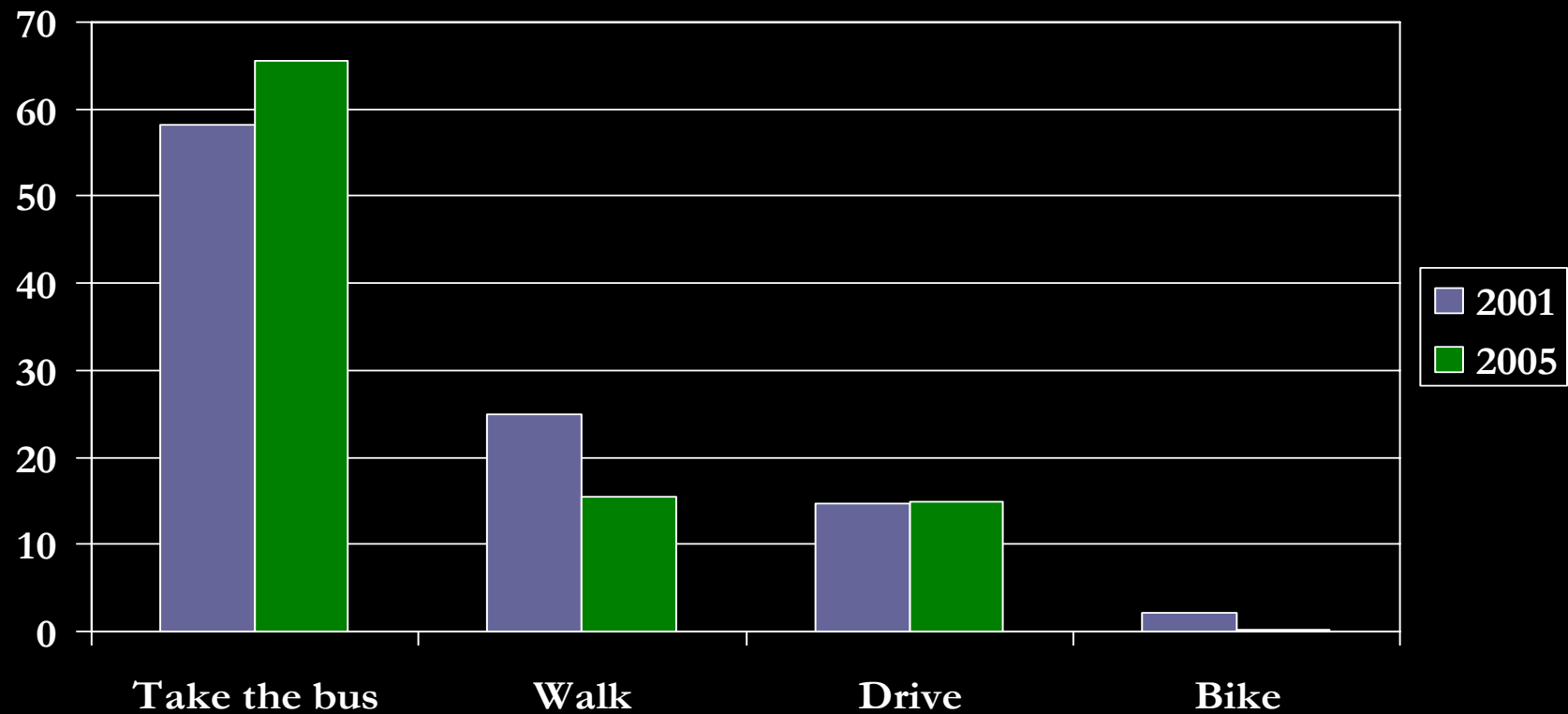
Number and percentage of Grade 11 boys and girls that achieved 60 minutes or more of moderate or more intense physical activity on zero to seven days a week

Days		0	1	2	3	4	5	6	7
Boys	2001	29.9	23.4	13.9	10.8	9.5	6.9	4.3	1.3
	2005	28.1	21.5	18.4	14.0	8.3	3.9	3.1	2.6
Girls	2001	40.7	22.4	19.3	6.2	4.5	2.8	3.1	1.0
	2005	57.2	21.2	13.7	4.9	2.6	<1	0	0

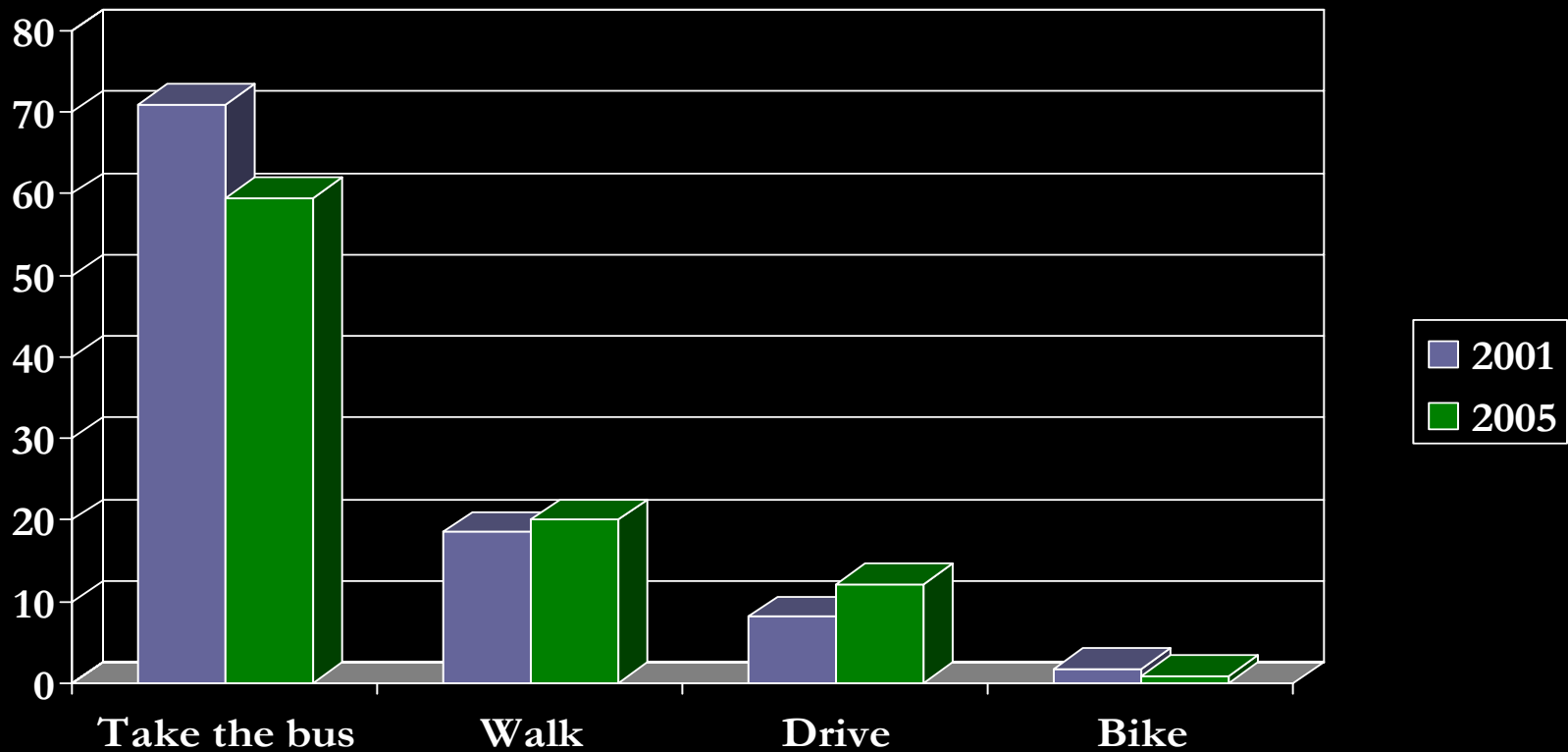
Social, Behavioural, and Environmental Factors Influencing Physical Activity



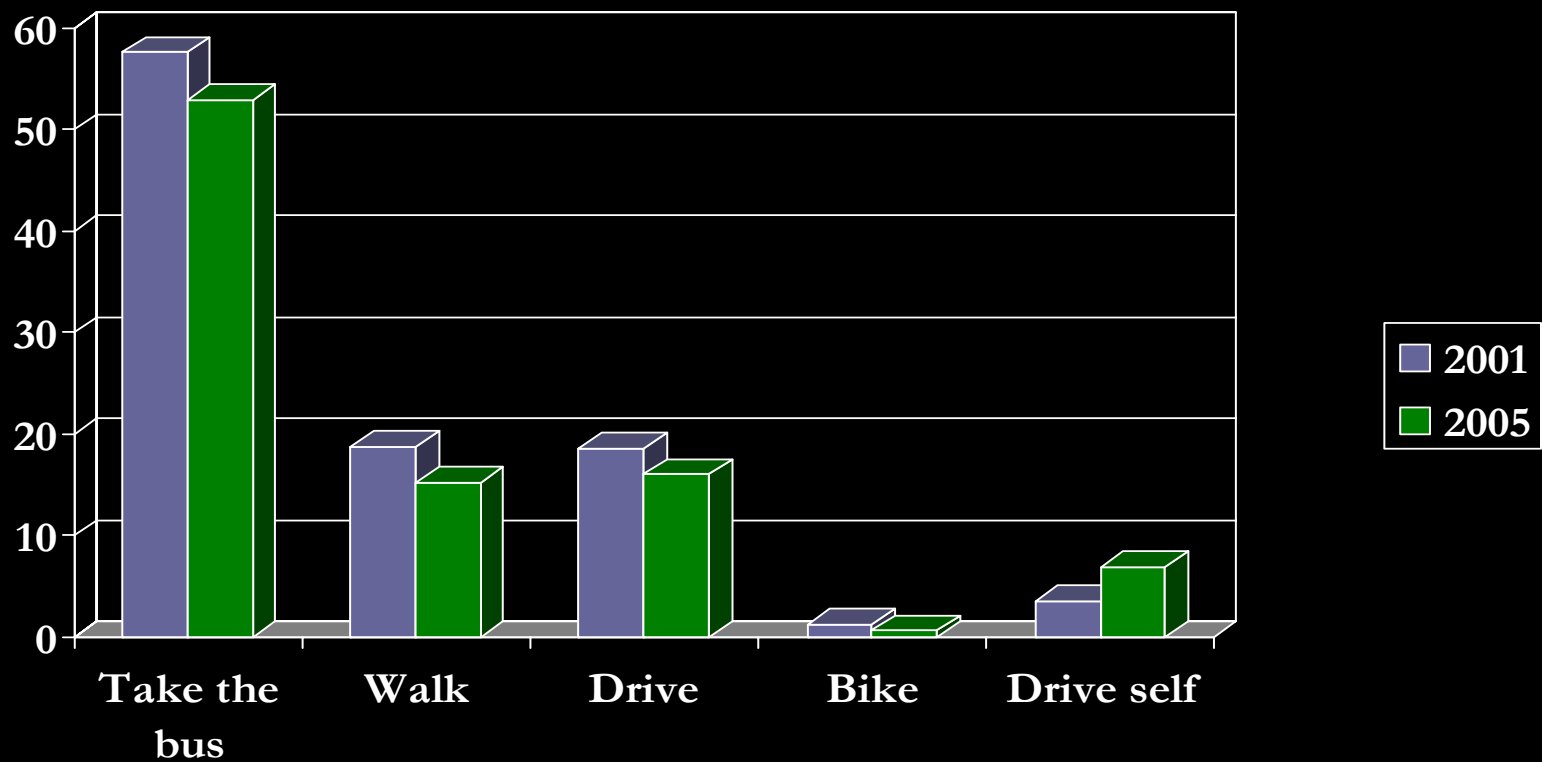
Transportation to school in good weather - Grade 3



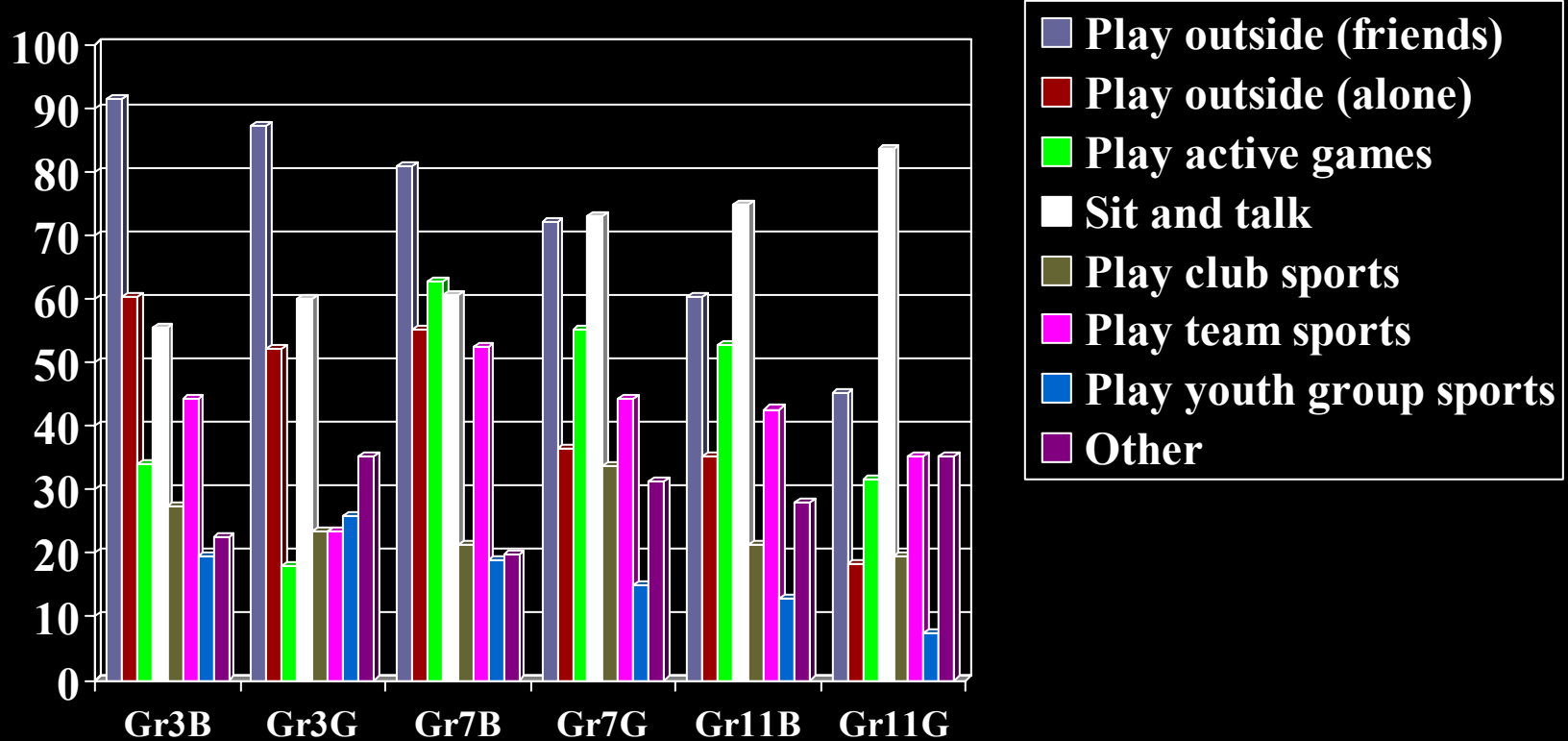
Transportation to school in good weather - Grade 7



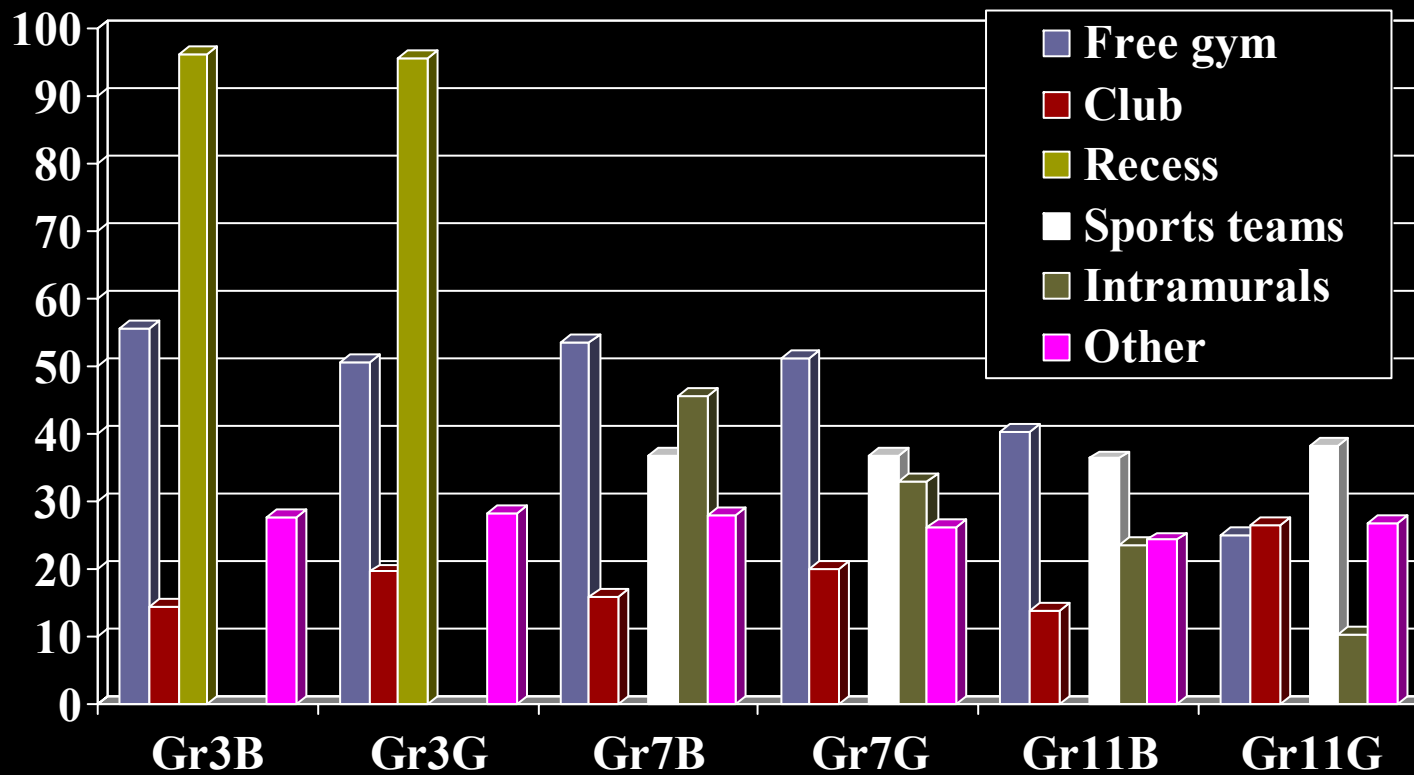
Transportation to school in good weather - Grade 11



Physical Activities Before or After School



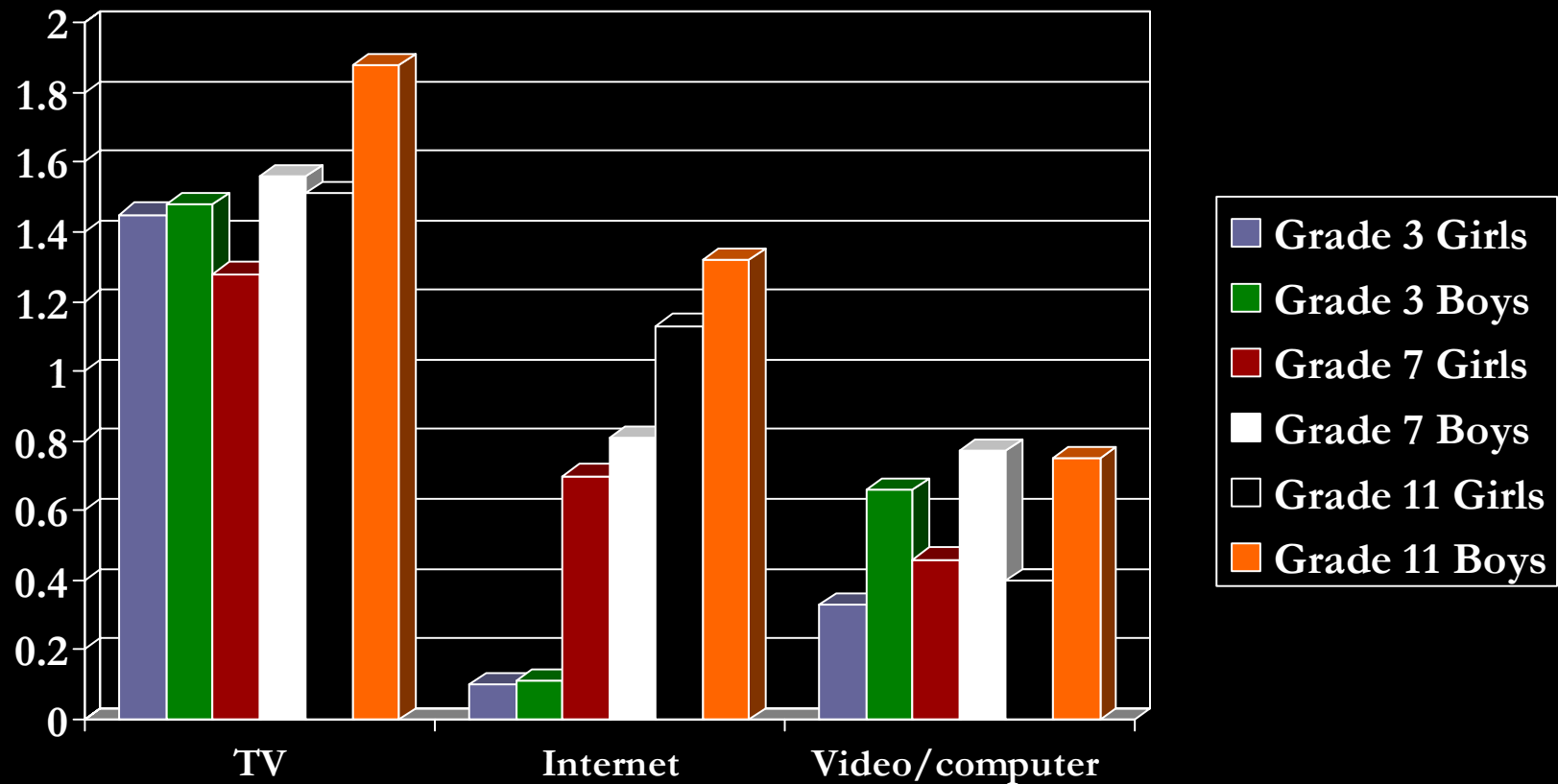
Physical Activities at School



Total Daily Screen Time by Grade and Sex PACY 2001 - 2005

Hours per day	Grade 3		Grade 7		Grade 11	
	Boys	Girls	Boys	Girls	Boys	Girls
PACY 2001						
Total screen time	2.25	1.88	3.14	2.44	3.95	3.04
PACY 2005						
Total screen time	3.70	3.11	5.36	4.78	6.29	5.51

Daily Screen Time by Type of Activity



Top Constraints to Participation Grade 3

Constraint/Percentage	Boys	Girls
Too expensive	16.5	24.1
I don't have equipment	14.4	19.7
Too much school work	15.7	13.5
Weather is bad	15.7	11.6
Too far away	12.3	15.8
No one to go with	13.1	15.5
I don't have a place to do so	12.9	13.5
Scared to go out at night	8.2	11.3
Sickness or injury	5.1	4.9
I don't know how	3.9	4.4



Top Constraints to Participation Grade 7

Constraints/Percentage	Boys	Girls
Too much school work	30.7	37.0
No one to go with	24.3	37.0
The weather is bad	27.8	29.1
It is too far away	22.3	23.9
It is too expensive	22.0	24.3
Don't have equipment	20.6	23.2
Sickness or injury	21.2	22.4
I don't have a place to do so	17.2	18.6
Too risky or dangerous	9.6	9.5
It is not fun anymore	6.7	9.3



Top Constraints to Participation Grade 11

Constraints/Percentages	Boys	Girls
Too much school work	41.4	52.6
No one to go with	30.3	39.5
My job prevents me	20.7	28.7
The weather is bad	31.9	28.0
It is too far away	24.3	27.7
I don't have any equipment	24.3	27.2
It is too expensive	20.4	26.7
Sickness or injury stops me	18.8	24.2
I don't have a place to do so	17.8	22.4
It is not fun anymore	7.9	7.3



Physical Activity Facilitators

- **Individuals that the students reported help them to be physically active:**
 - **Mother (Grade 3 > 7 > 11)**
 - **Father (Grade 3 > 7 > 11)**
 - **Friends (Grade 3 > 7 & 11)**
 - **PE teacher (Grade 3 > 7 > 11)**
 - **Brother/sister (Grade 3 > 7 > 11)**

Individuals who directly participate with students

■ Grade 3

- Friends (92.1%)
- Mothers (74.2%)
- Brother/sister (73.3%)
- Father (69.1%)

■ Grade 7 and 11

- Friends (57.7 – 75.3%)
- Teammates (59.4 – 75.7%)
- Brother/sister (25.7 – 43.9%)
- Father (9.3 – 25.8%)
- Mother (7.4 – 19.0%)

Perceived Benefits of Physical Activity

Grade 7

- Get or keep me in shape
- Fun
- Make me better at sports
- Help me feel good about myself

Grade 11

- Get or keep me in shape
- Help me to feel good about myself
- Fun
- Make me better at sports
- Give me energy

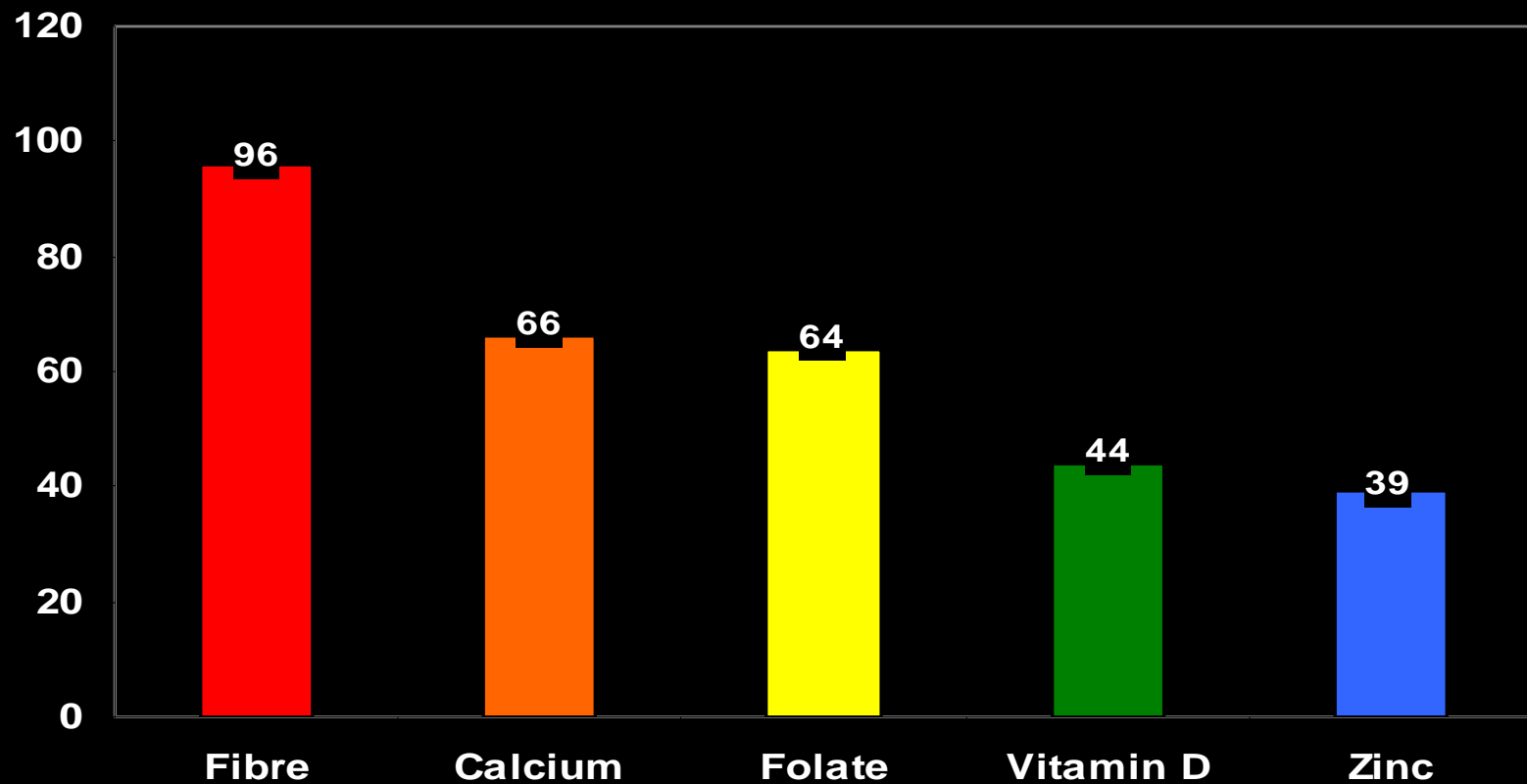
Most popular physical activities

- **Walking**
- **Jogging or running**
- **Biking (grade 3, 7, and 11 boys and grade 3 girls)**
- **Basketball (grade 7 and 11 girls)**

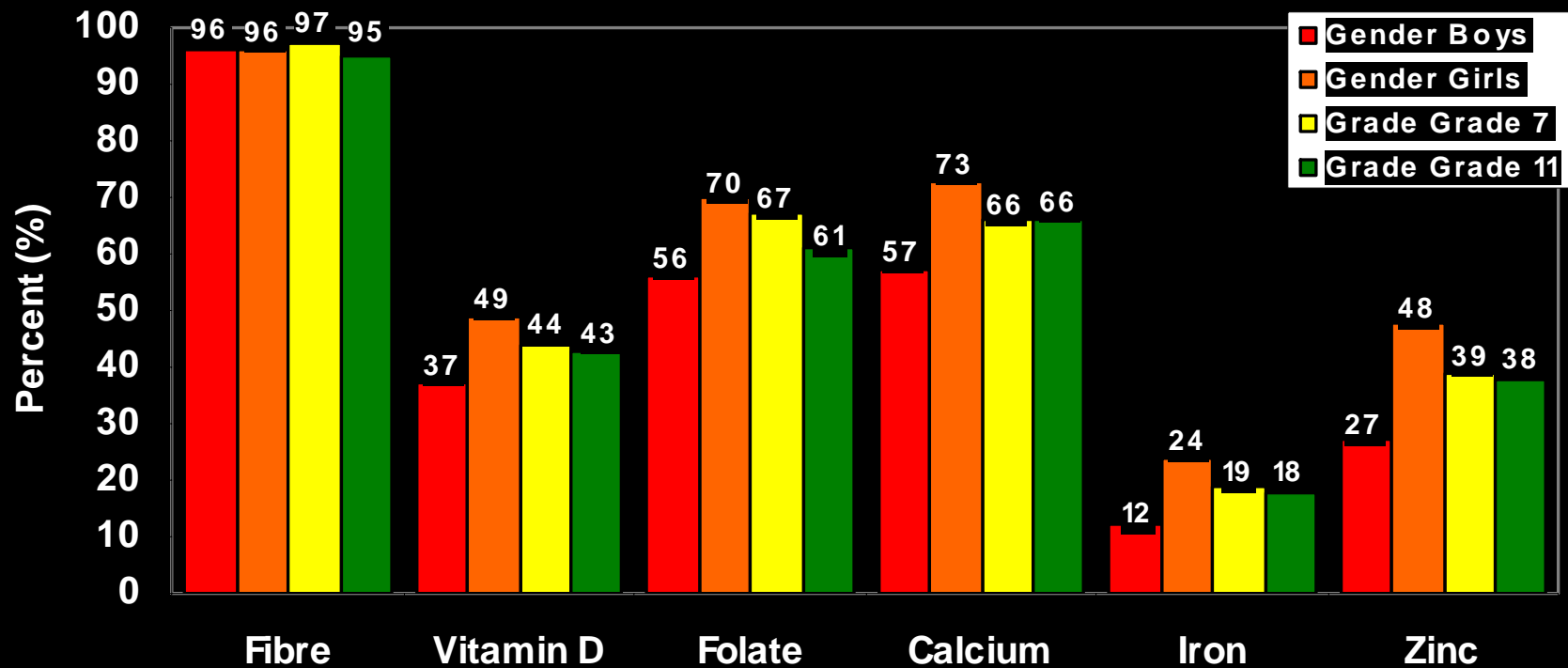
Dietary Intake



Percent of Students Falling Below the Dietary Reference Intake (DRI)



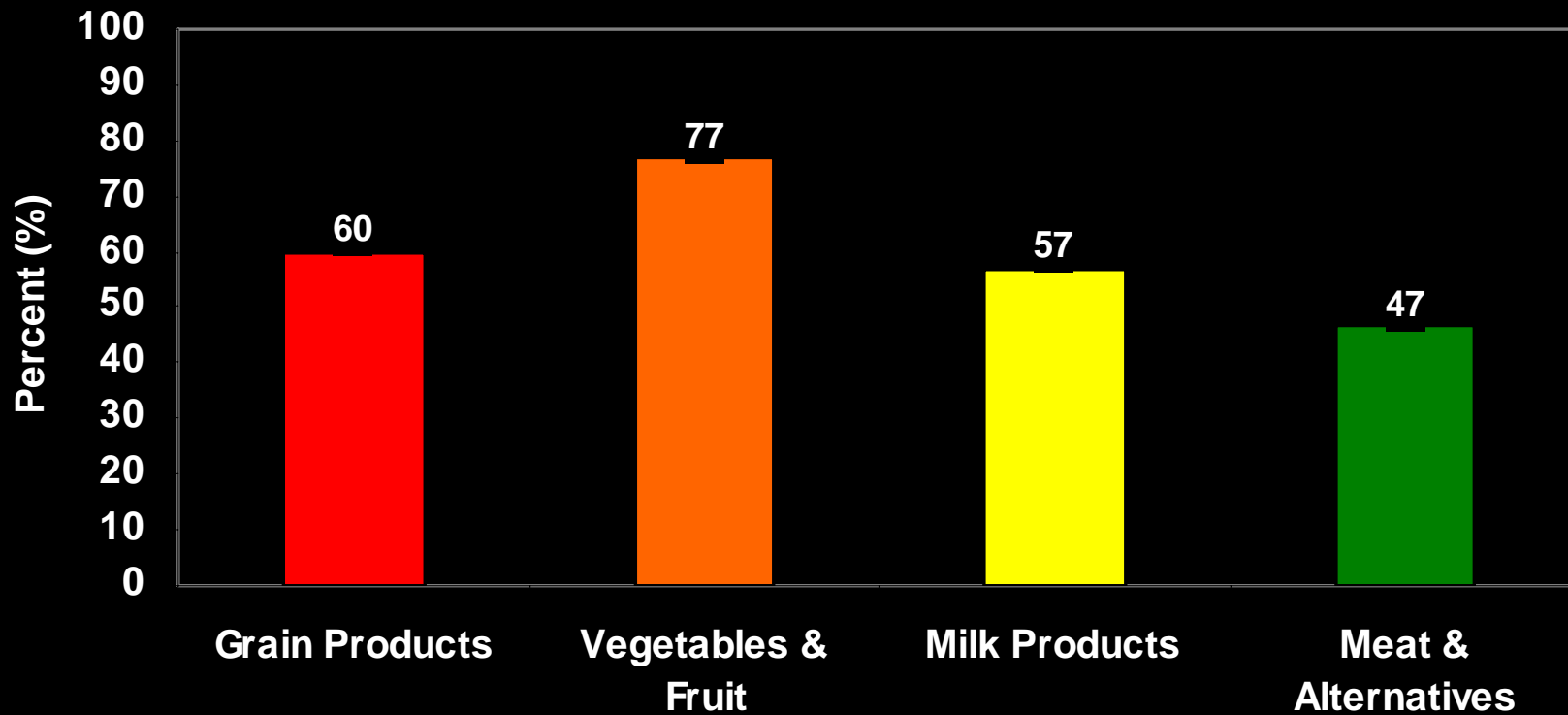
Percent of Students Falling Below DRI, by Sex & Grade



Overall Median Food Group Intakes

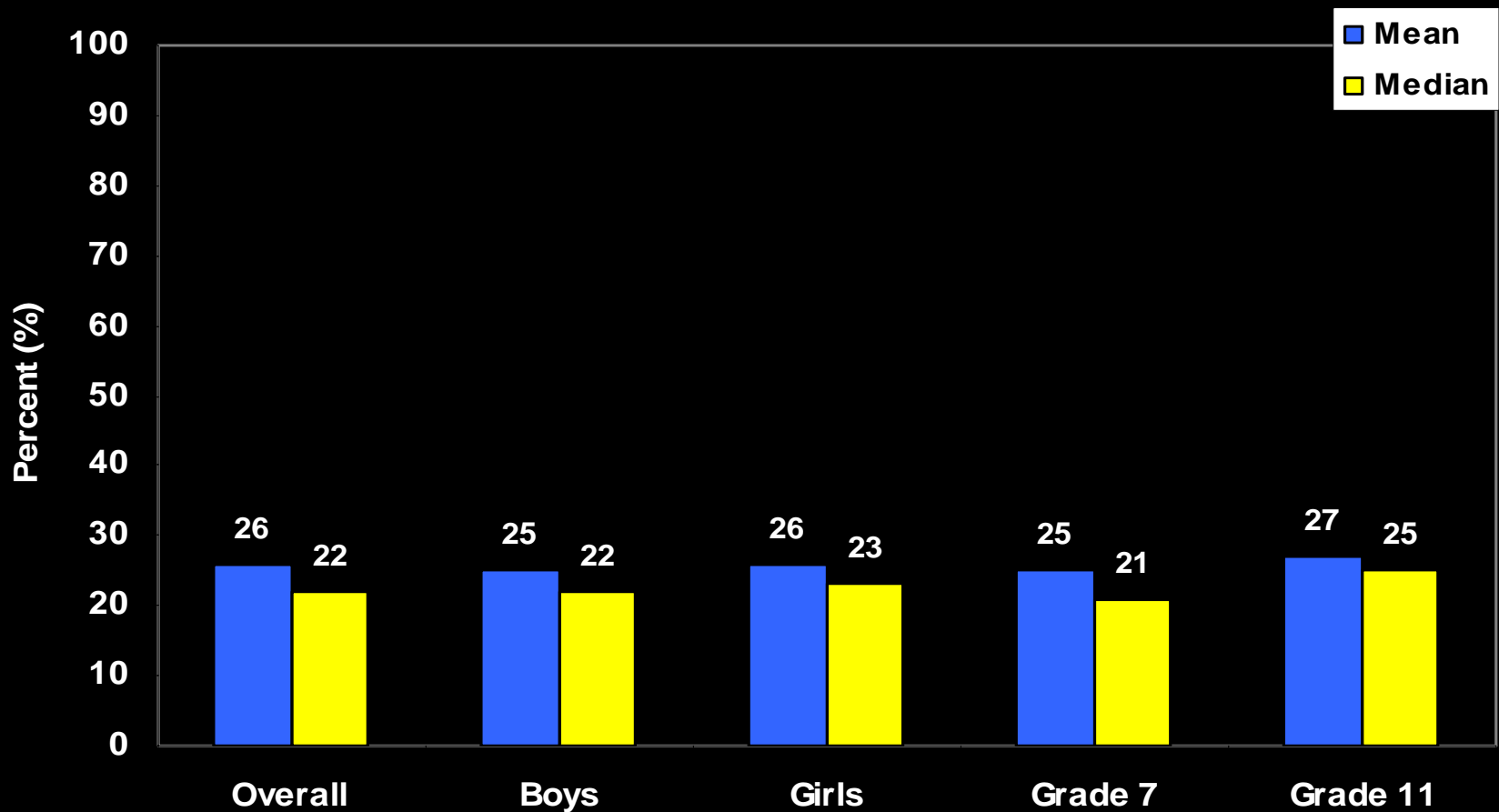
Food Group	Mean # of servings	SD	Median # of servings
Grain Products	4.8	3.2	4.3
Vegetables & Fruit	3.3	3.2	2.5
Milk Products	3.1	2.5	2.5
Meat & Alternatives ¹	2.6	2.4	2.1
Other	6.4	4.7	5.4

Percent of Students Below Canada's Food Guide for Healthy Eating (CFGHE) Recommendations

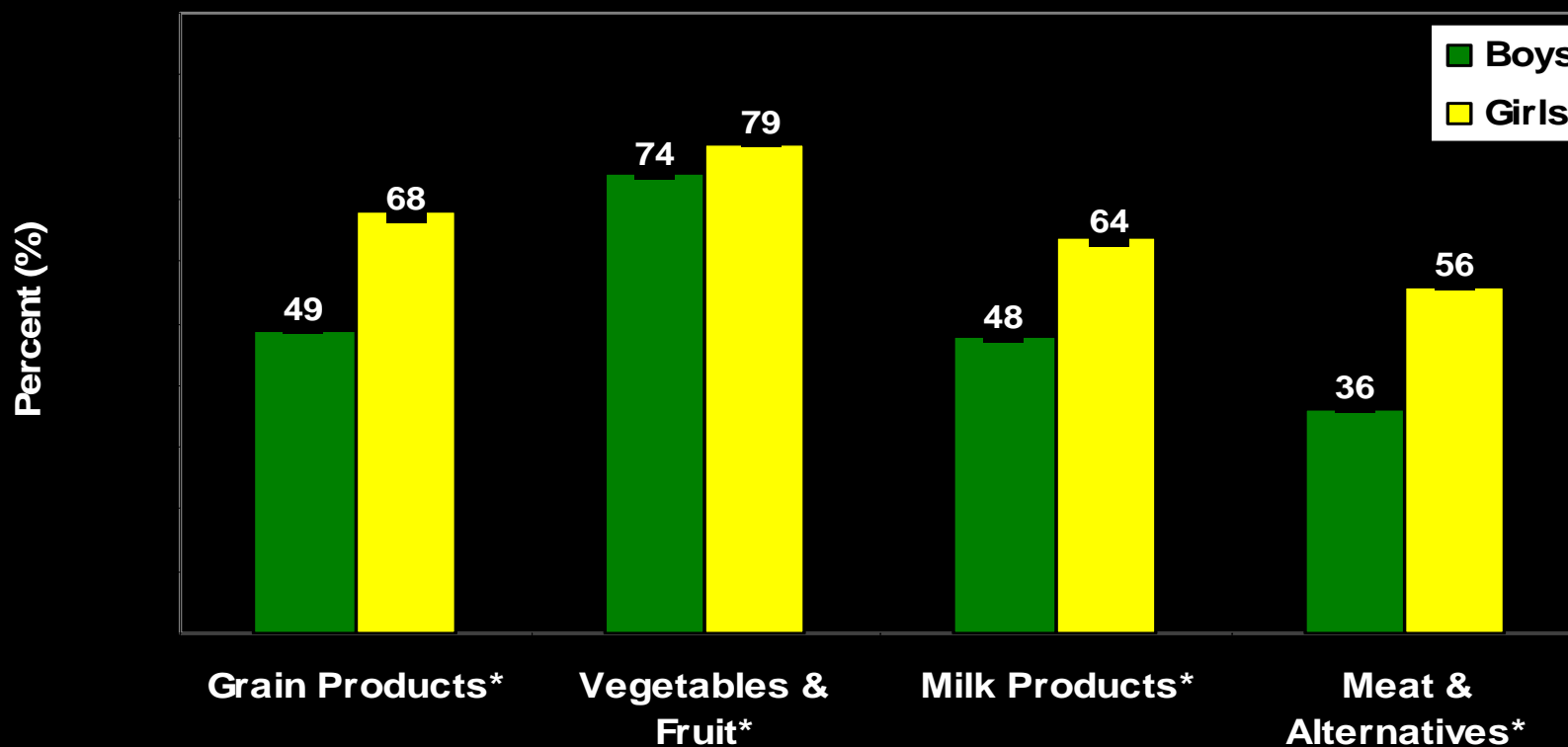


Note: Canadian Nutrient File 2001, 1 meat and alternatives serving = 50g

Percent of Total Energy from Other Foods Category



Percent of Students Below CFGHE Recommendations, by Sex

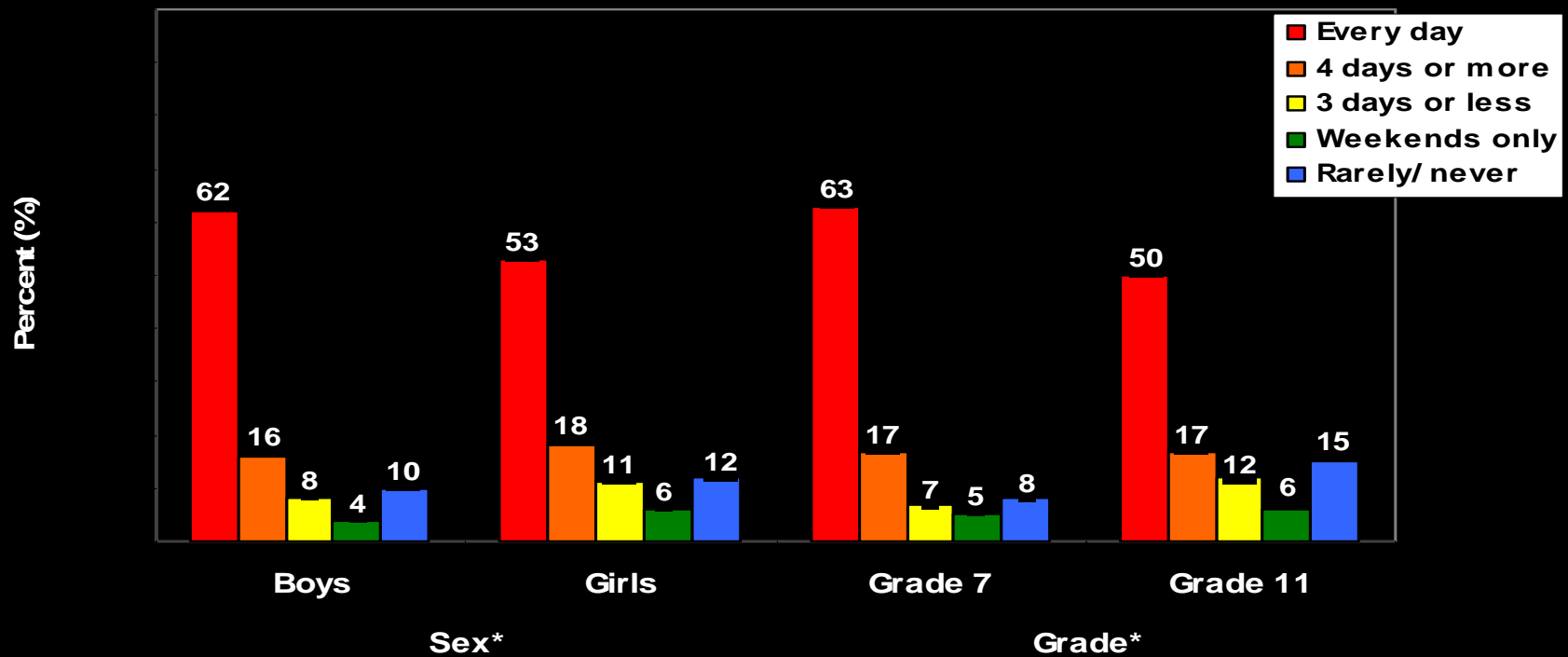


*Significant at $p < 0.05$

Note: Canadian Nutrient File 2001, 1 meat and alternatives serving = 50g

Breakfast Frequency, by Sex & Grade

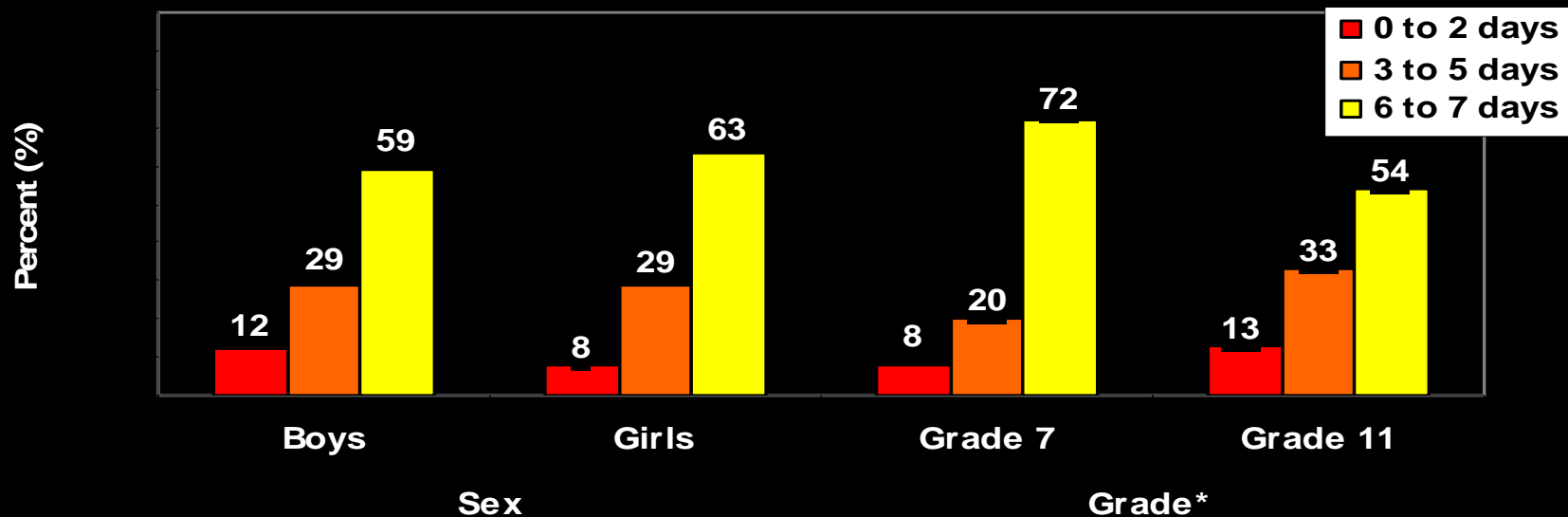
How often do you usually eat breakfast?



Significant at $p \leq 0.001$

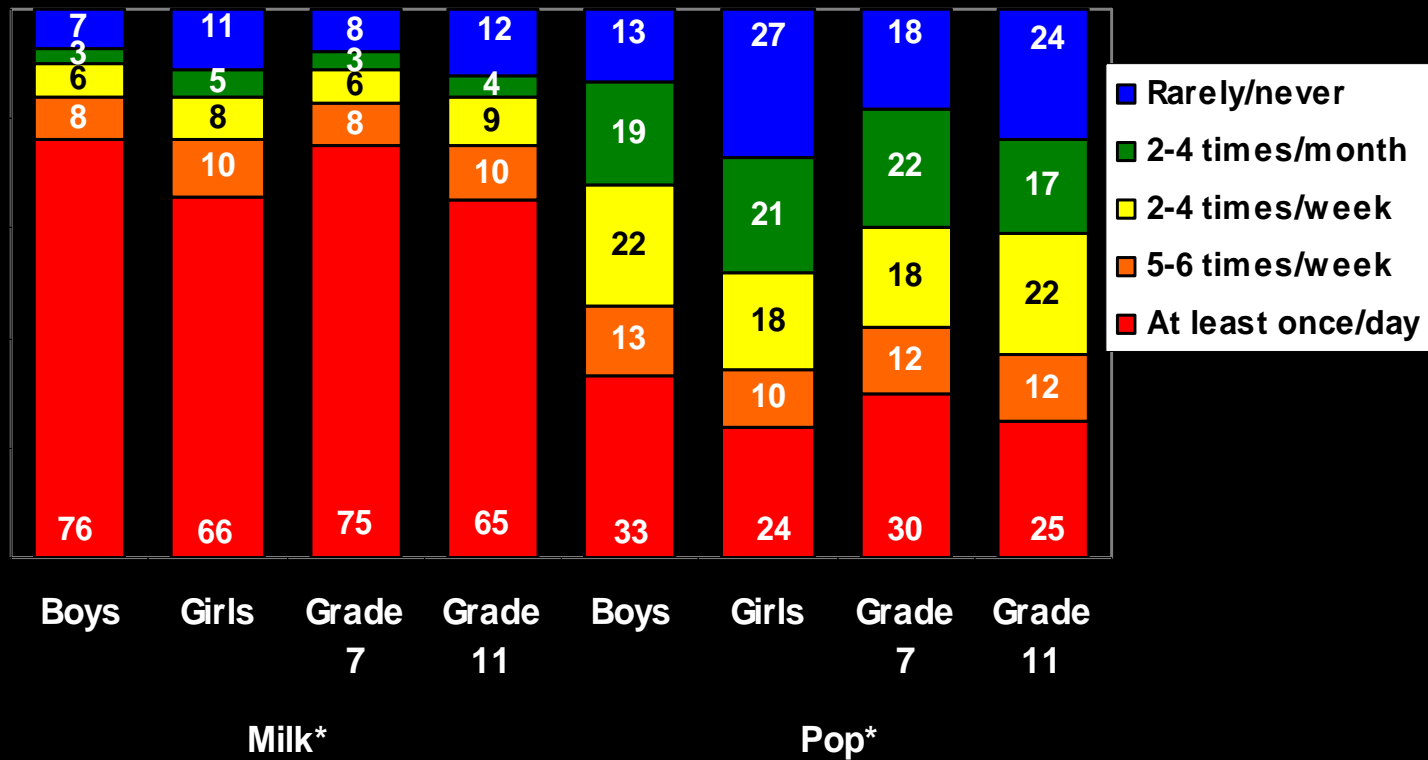
Frequency of Eating Dinner With at Least One Parent

Typically, how many days per week do you eat dinner with at least one parent?



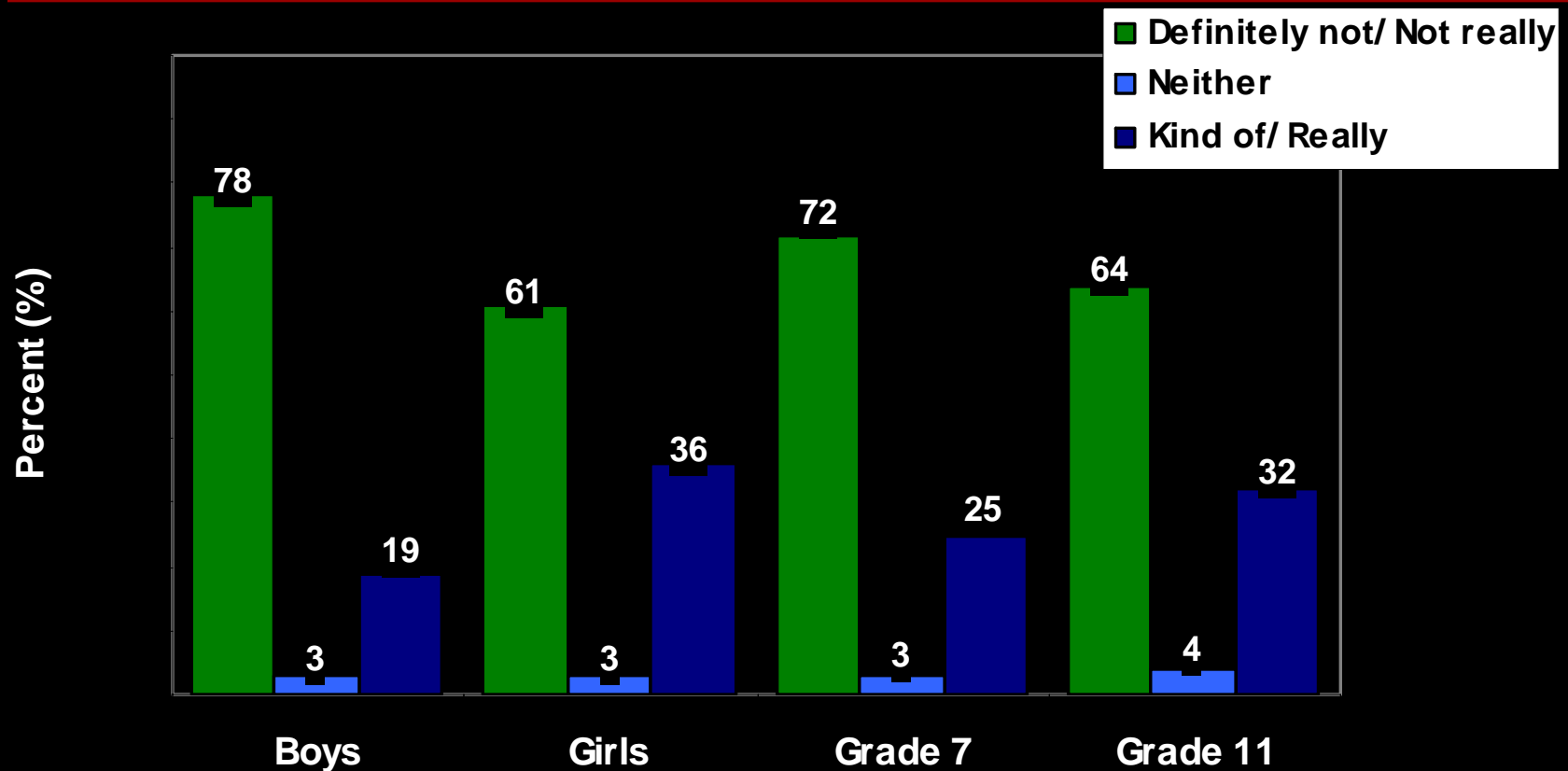
*Significant difference by grade at $p < 0.001$

Consumption Frequency of Milk & Pop, by Sex & Grade



***Significant difference by sex and grade at $p < 0.01$**

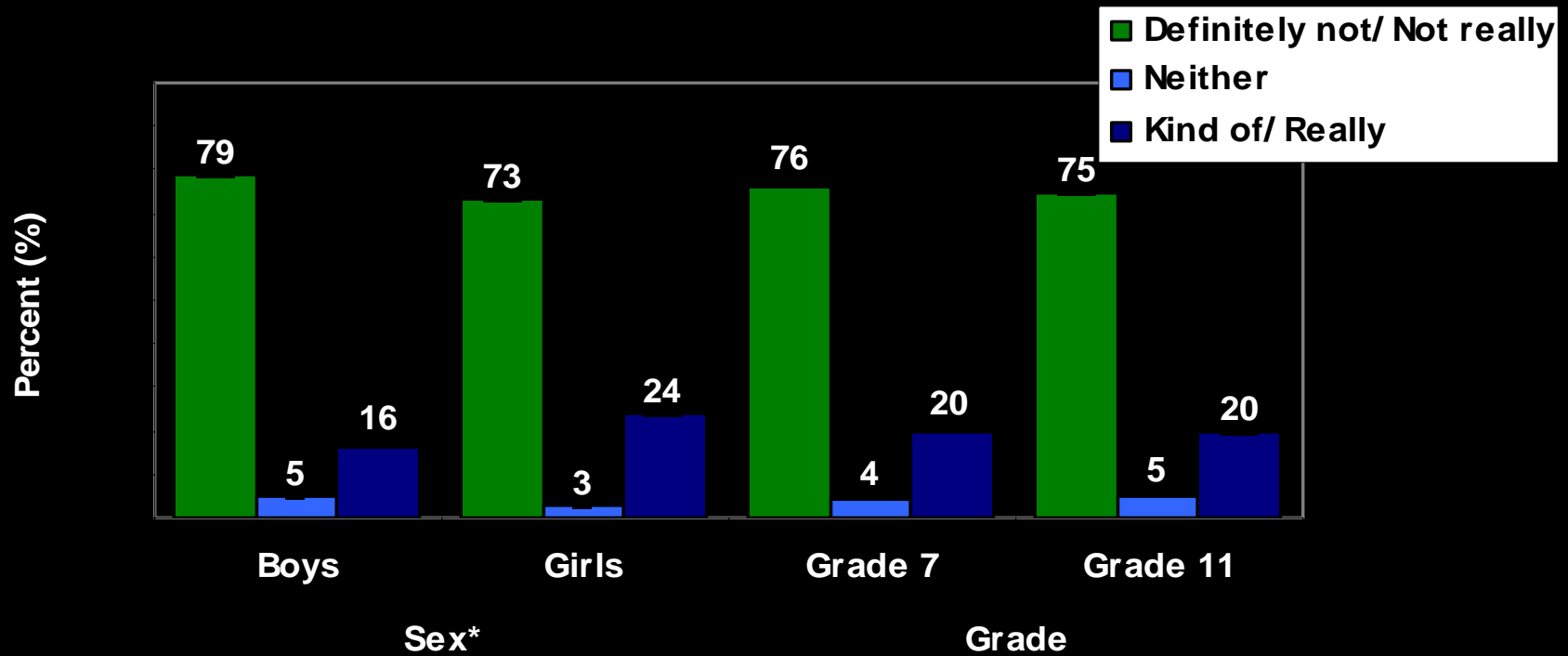
Concern that Weight is too High



*Significant difference at $p < 0.001$

Grade*

Eating Less to Lose Weight



*Significant difference at $p < 0.001$

Now what?

- **“Comprehensive programming through collaborative project and policy planning between all levels of government and across government departments as well as community organizations is required to ensure optimal health enhancing physical activity and dietary intake of Nova Scotia children and youth” PACY Report, 2007**



Recommendations

- **Continued support of future health monitoring**
- **Use PACY data for integrated planning & evaluation of programs, including AKHK & Health Promoting Schools strategies**
- **Build upon the Nova Scotia Healthy Eating strategy**
- **Expand breakfast programs beyond elementary schools**
 - **Develop programs to address meal skipping**
- **Develop supportive environments for:**
 - **Girls – physical activity & food intake**
 - **Both – diverse activities, healthy weight messages**

Recommendations

- **Develop targeted health promotion and social marketing campaigns**
 - **Educate and encourage high school students to increase intensity of physical activity**
 - **Support strategies to improve calcium, folate and fibre intakes of young females (and males too!)**
 - **Incorporate physically active transportation initiatives within school and community**
 - **Focus on opportunities to decrease screen time and increase physical activity simultaneously**

Recommendations

- **Provide opportunities for youth to be involved in physical activity and healthy eating decision making and planning**
- **Provide and encourage physically active role models**
- **Use qualitative research methodologies to better understand:**
 - **physical activity levels**
 - **decreasing consumption of grains**
 - **breakfast consumption decreasing with age**

Who Does What?

- **Youth**
- **Parents**
- **Schools**
 - Teachers, principals, PE teachers
- **Municipal**
 - Recreation staff, planners
- **Health**
 - District Health Authorities, Community Health Boards, Doctors, Allied Health Professionals
- **Voluntary Organizations**
 - Sport, recreation, youth groups, etc.
- **Universities**

Thank you!

The full report “Physical Activity Levels and Dietary Intake of Children and Youth in the Province of Nova Scotia – 2005” can be downloaded from: <http://www.gov.ns.ca/hpp/>