Sample School Report

Key Results of the Built Environment and Active Transport to School – Rural (BEATS-R) Student Survey 2018

Report prepared by
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on behalf of the BEATS Study Research Team

University of Otago
Dunedin, New Zealand

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Dear School Principal,

On behalf of the BEATS Study Research Team, I would like to thank you and your school again for participating in the BEATS Rural Study in 2018.

Our research team prepared this report for your school based on the data from the BEATS Rural Student Survey 2018. Please note that the school-specific results presented in this report are based on the responses of the surveyed students at your school and may not be generalizable to your entire school.

The report also provides the average Otago region data based on responses from students from xxx rural Otago secondary schools who completed the BEATS Rural Student Survey in 2018.

We hope that this report together with the results of the overall BEATS Rural Study will provide your school with further insights into your current cohort of students and assist your efforts in promoting healthy behaviours at your school. We will be sending you copies of scientific articles arising from the BEATS Rural Study as they become available in the upcoming years.

Should you have further questions about this report or the BEATS Rural Study, please do not hesitate to contact our research team or visit the BEATS Study website at www.otago.ac.nz/beats.

Thank you again for your support and contribution to the BEATS Rural Study in 2018. We look forward to continue to work together and make a difference in our society.

Sincerely,

Associate Professor Sandra Mandic
BEATS Study Principal Investigator

University of Otago
Active Living Laboratory
School of Physical Education, Sport and Exercise Sciences

Acknowledgements

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Background

The lack of physical activity and increased sedentary lifestyle in adolescents is a global health problem. Active transport to school, such as walking, cycling or riding a scooter, is a convenient way to integrate physical activity into everyday life, maintain or increase physical activity levels [1, 2] and may also develop into environmentally sustainable travel practices over a lifetime. Despite great variations in the prevalence of active transport to school between countries [3], national and international data [4, 5] suggest a consistent decline in active transport to school among adolescents over the last decade.

Travel behaviour is influenced by personal, family and environmental factors, preferences, constraints, cost and destination characteristics.[6] Choosing active transport is also influenced by enjoyment, personal health, the environment, discomfort and knowledge of safe routes.[6] A number of demographic [7, 8], family [7, 9], social [10] and environmental factors [7-9, 11-14] influence active transport to school in adolescents. The results of the Otago School Students Lifestyle Surveys (2009, 2011) [15, 16] showed that in Otago, walking is the most common form of active transport to school, commuting distance is one of the strongest multivariate correlates of active transport to school [17] and transport to school habits are influenced by objective measures of the built environment.[18]

The majority of the previous studies were conducted in urban areas of the United States [7, 14], Canada [8], Australia [12] and Western Europe [11, 13], which have different urban layouts and social norms compared to New Zealand. In particular, New Zealand has one of the highest rates of private vehicle ownership per capita in the world.[19] The limited data on adolescent girls suggests that promoting active transport is an effective strategy for increasing physical activity in New Zealand adolescents.[20] Understanding factors that influence adolescents' transport to school choices in a local context will enable schools, healthy promoters, policy makers, city planners, and scientific community to address barriers to active transport and reduce the reliance on motorised transport in adolescents.

BEATS Study Overview

The overall purpose of the Built Environment and Active Transport to School (BEATS) Study is to examine active transport to school habits in adolescents in Dunedin and rural Otago.[21, 22] The BEATS Study is based on contemporary ecological models for active transport (walking or cycling) that identify individual, social, environmental, and policy influences on behaviour.[23]

The BEATS Study objectives are:

- To understand the reasons behind adolescents' and their parents' choice of transport mode to school using the ecological approach;
- To examine the interaction between the transport choices, built environment, physical activity levels, fitness and weight status in adolescents;
- To identify policies that promote or limit active transport to school in adolescents.

The BEATS Study uses a mixed-method approach incorporating surveys and focus groups with students, parents, and teachers, interviews with school principals, anthropometry measurements, objective measurements of physical activity, and Geographic Information System analysis of the built environment. The study provides information on students' and parental motivations and barriers to

active transport to school, students' and parents' physical activity habits, weight status, and health behaviours, perceptions and objective measures of neighbourhood and school environment, and school policy.

The BEATS Study has been designed to advance scientific knowledge and provide service to the government, local community and schools. The study spans the fields of exercise science, health, transportation, environment and education. The study is founded on a multidisciplinary approach and multi-sector collaborations between secondary schools, city council, community, and academia. This study is a collaboration between the University of Otago, the Dunedin Secondary Schools' Partnership, the Dunedin City Council and New Zealand Transport Agency.

The BEATS Study findings will enable community health promoters, policy makers and city planners to address active transport to school barriers, encourage active transport and create supportive built environments to promote active transport to school.

BEATS Rural Study (2018-2020)

The BEATS Rural Study (BEATS-R) will examine active transport to school in adolescents living in **rural Otago** using the published BEATS Study methodology and conceptual framework (Figure 1). This study will examine individual, social, environmental, and policy influences on rural adolescents' transport to school.

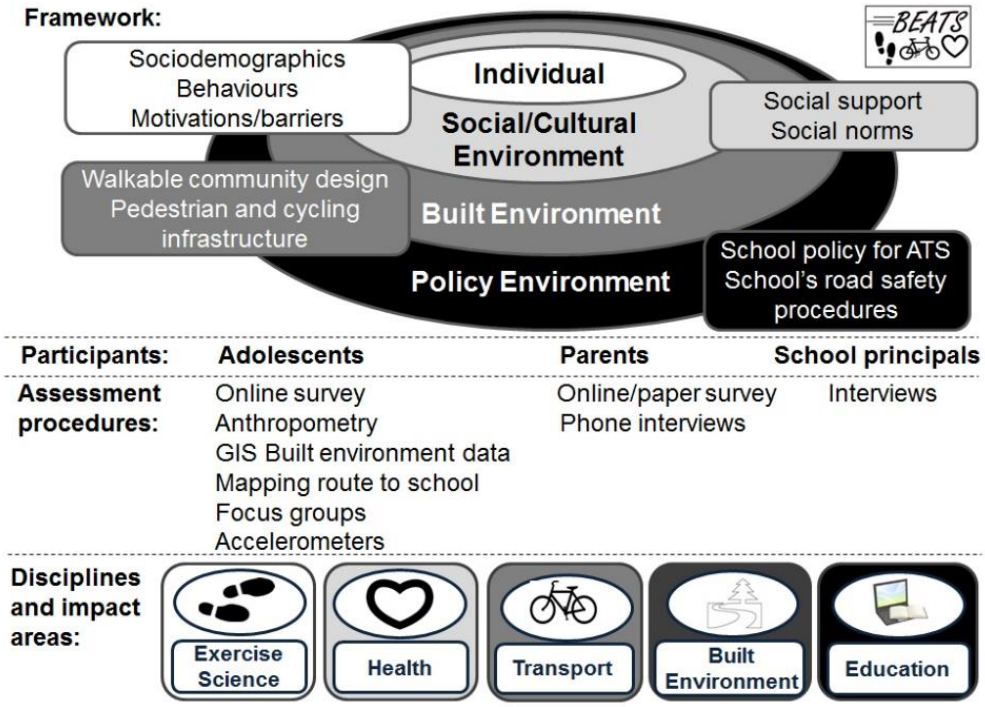

Figure 1. BEATS Rural Study: Conceptual framework, assessments and disciplines

Findings from the BEATS Rural Study will provide important information for designing future school-, neighbourhood- and town-wide interventions to encourage active transport among adolescents living in rural areas and use of active transport as a means of increasing physical activity in this age group.

BEATS Rural Student Survey

The main purpose of the BEATS Rural Student Survey is to examine the interaction between the transport choices, perceived and objective measures of the built environment around schools, physical activity levels and weight status in adolescents.

Student participants completed an online survey and anthropometric measurements during classroom time. Participants also had an option to participate in a physical activity assessment using activity meters (accelerometers; data not reported here), one focus group (data not reported here) and/or one mapping session (data not reported here). All participating adolescents signed consent for taking part in the study. Parental consent was not required. The study was approved by the University of Otago Ethics Committee (Reference: 17/178).

The online survey included questions on demographics, transport to school habits, motivations for and barriers to active transport, motorised transport, independent mobility, perceived school neighbourhood environment and route to school, health behaviours (physical activity, sedentary and dietary behaviours), perceptions of driving, mobile phone use and student's values and aspirations after secondary school. Students also completed a brief paper questionnaire about their school bag. All questions have been developed for use in school students, and most have been validated and successfully used in similar populations, including the BEATS Student Survey conducted in Dunedin in 2014/2015.

At the time of the survey, students' height, weight and waist circumference were measured by trained researchers in a private, screened off area of the classroom by trained researchers. School bag weights were also measured.

Data collection for the BEATS Rural Student Survey completed to date was conducted between February and July 2018. During this period, a total of xxx adolescents from xxx rural Otago secondary schools participated in the study. Data from xxx adolescents with valid surveys are presented in this report (mean age: xxx ± xxx years; xxx% boys).

All descriptions in this report refer to school specific data. The average Otago region data presented in this report are included for information only.

Summary of Key Findings for Sample High School

This report provides a summary of key results from the BEATS Rural Student Survey completed by 110 students from **Sample School** in February 2018. The report also provides the average data for the Otago region based on responses from xxx students attending xxx rural Otago secondary schools who participated in the BEATS Rural Student Survey during 2018.

Study Sample at Your School:

- A total of 110 students (50% boys; 64% New Zealand European; 21% Māori) from Years 9 to 13 participated in the BEATS Rural Student Survey. All students had valid consent and survey data and were included in data analysis for this report.
- 61% of students rated their health as “excellent” or “very good” and 78% were normal weight.
- On average, students lived with 2.0 adults and had 2.5 siblings, 3.1 cell phones, 2.6 vehicles, 2.1 televisions and 1.5 laptop computers at home. Overall, 42% of students had a television in their bedroom.

Transport to and from School:

- At your school, 63% of students usually travelled to school by school bus, 21% on foot, 14% by car, and 5% cycled to school. Overall, 70% of students reported that they used motorised transport to school, 21% used active transport (walking or cycling) and 9% used a combination of motorised and active transport to school.
- After school, transport modes included 61% by bus, 23% on foot, 14% by car, and 5% by bicycle. Overall, 67% of students reported that they used motorised transport from school, 19% used active transport (walking or cycling) and 14% used a combination of motorised and active transport from school.
- Overall, 88% of students liked the way they travelled to school.
- On average, students surveyed at your school lived 9.9 km from school.

Walking to School:

This section of the survey was completed only by students who were not eligible for school bus (i.e., lived within 4.8 km from school at the time of the survey).

- Students perceived walking to school as being healthy (100%), safe (100%), useful (90%), good (70%), pleasant (70%), interesting (60%) and stimulating (60%).
- All students agreed that walking to school was a great way to get some exercise (100%) and half of the students agreed that walking to school provided an opportunity to socialise with their friends (50%).
- Common barriers to walking to school included lack of interest or desire to walk to school (30%), being too tired (20%), getting too hot and sweating (20%), after-school schedule (20%), time constraints (20%), convenience of being driven to school (10%), and having too much to carry (10%). Environmental barriers for walking to school included hills (30%), cold and wet weather (20%), lack of good lighting (20%), distance (20%), lack of footpaths (20%), and one or more dangerous crossings along the route (10%).
- Friends (80%), parents (70%), and the school (60%) encouraged students to walk to school. More than three quarters of students wanted (80%) and intended (80%) to walk to school. One in ten students (10%) stated that they did not want to or did not like to walk to school.

Cycling to School:

This section of the survey was completed only by students who were not eligible for school bus (i.e., lived within 4.8 km from school at the time of the survey).

- Students perceived cycling to school as a great way to get some exercise (90%), being healthy (70%), good (60%), useful (50%), stimulating (50%), interesting (40%), pleasant (40%), and safe (50%).
- Common barriers to cycling to school included getting too hot and sweating (30%), lack of interest or desire to cycle to school (30%), having too much to carry (30%), safety concerns (20%), being too tired (20%), need for planning (10%), convenience of being driven to school (10%), after-school schedule (10%), and time constraints (10%). Environmental barriers for cycling to school included lack of bike lanes on the way to school (50%), hot and sunny weather in spring and summer (30%), cold and wet weather in fall and winter (20%), and hills (30%). One fifth of students (20%) were concerned with safety of cycling to school, while none of the students reported that their parents were concerned with the safety of cycling to school.
- Approximately one third of students received encouragement from their school (30%), parents (30%) or friends (30%) to cycle to school. A large majority of students perceived themselves as capable (80%) and confident (70%) to cycle to school. Only 10% of students wanted and 10% intended to cycle to school. Overall, 20% of students did not want to or did not like to cycle to school.

The questions below were answered by all students, irrespective of how far they lived from the school.

- In a total sample, 55% of students liked cycling for recreation but only one quarter cycled with their friends (26%) and less than one tenth cycled with their parents (7%).
- Of the students surveyed at your school, 29% perceived that cycle skills training would make them safer in traffic and 19% of students would take such training at their school. Over one tenth of students (15%) expressed interest in using a bike library if it was available in their area.
- Overall, students reported that they would cycle to school more often if they owned a bicycle (43%), were allowed to cycle without a helmet (33%), had a locker at school (33%), if buses provided bike racks free of charge (31%), if they had a cycle-friendly uniform (29%), had safer places to lock a bike (24%), or the traffic on the road(s) was slower (24%). Overall, 19% of students did not have a bicycle available for them to use to get to school.

School Bag Characteristics:

- The average school bag weight was 4.3 kg (equivalent to 7% of students' body weight).
- Items carried in students' school bags included: food or lunch (98%), sports gear (74%), water or a drink (63%), a mobile phone (58%), stationery (37%), and school books (30%).
- Most common types of school bag were a backpack (47%) and sports bag (44%).
- Students carried their school bags over both shoulders (35%), across the body (23%), on the side of the body (23%), or on one shoulder (16%).
- Most students at your school carried their school bags for less than 30 minutes during the day (77%).

Driving to School:

- Overall, nearly one fifth of the surveyed students at your school were driven to and from school every day (17% both to and from). Approximately half of students were never driven to and from school (54% and 51%, respectively).

- Students who were driven to and/or from your school (n=61) reported that the main reasons for travelling by car were the distance between home and school being too far to walk or cycle (67%), the weather being too wet or cold (54%), convenience for parent(s) or someone else to drive them on the way to somewhere else (50%), public transport not being available (46%), too many dangerous roads between home and school (38%) and too much to carry to school (38%).

Busing to School:

- Over half of students travelled to and from school by school bus every day (64% to school and 61% from school).
- Among students who were eligible for school bus (i.e., lived more than 4.8 km from school), the most commonly reported perceptions of travelling to school by bus were inconvenience due to other activities before or after school (39%), the bus trip taking too long (39%), the bus stop being too far away from home (18%) and living too close to school (7%).

Perceptions of Route to School and School Neighbourhood Environment:

- Among students who lived within 4.8 km of school (n=33), the route to school was viewed positively for the most part, with the exception of some students that perceived too many hills along the way (33%), poor lighting (25%), and too much traffic along the route (8%).
- Surveyed students who were not eligible for school bus (i.e., lived <4.8 km from school) and who were also familiar with the school neighbourhood (100%) reported that the school neighbourhood environment would be better if there were more cycle paths (50%) and more footpaths (25%) around the school, the maintenance of existing footpaths and cycle paths was improved (50% and 42% respectively), and there were more safe places to cross the roads around the school (33%).
- Students who were not eligible for school bus (i.e., lived <4.8 km from school) stated that they would walk or cycle to school more often if the school organized 'cycle to school days' or cycling clubs (25%), organized occasional 'walk to school days' or walking clubs (17%), created a car free zone to provide safe walking areas around the school (17%), and if the school encouraged students to wear helmets and other safety gear for cycling (17%). Among these students, one quarter perceived that the school already allows bicycles, scooters, rollerblades, and skateboards on school grounds (25%) and already encourages students to wear appropriate safety gear for cycling (25%).

Health Behaviours:

- The results on physical activity, screen time and fruit and vegetable intake presented here are based on self-reported data from the BEATS Rural Student Survey.

Physical Activity

- On average, surveyed students at your school participated in ≥60 min of moderate-to-vigorous physical activity on 5.2 days/week. Overall, 39% of surveyed students met current minimum physical activity guidelines for adolescents (≥60 min of moderate-to-vigorous physical activity every day).
- Among surveyed students, 51% participated in sports at school and 41% participated in sports outside school.

Dietary Habits

- More than half of students reported daily intake of fruit (56%) or vegetables (64%). Overall, 36% of students met guidelines for both fruit and vegetable intake (more than once a day for both fruit and vegetables).
- On average, 51% of students ate breakfast every day and 21% never eat breakfast.
- Overall, 49% of students consumed lollies and 33% consumed sugary soft drinks on two or more days a week. Ten percent of students consumed lollies and 10% consumed soft drinks every day.
- One in ten students (10%) consumed fast food on two or more days per week.

Screen Time

- On average, surveyed students at your school reported 5.4 hours per day of screen time outside of school hours (including the average of 2.2 hours per day of using a computer, 2.0 hours per day of television, and 2.0 hours per day of playing games on a computer, mobile phone, or games console).
- The average screen time was 4.9 hours per day during the school days and 6.5 hours per day on weekend days.
- Overall, 17.9% of students met screen time guidelines for adolescents (≤2 hours of screen time per day).

Meeting Recommended Guidelines

- Only 5% of surveyed adolescents at your school met all three health behaviours guidelines, 23% met two, 31% met one and 41% did not meet any of the currently recommended guidelines for physical activity, fruit and vegetable intake and screen time.

Driving Behaviours:

- Students' preferred transport modes in general were driving (43%) or being a passenger (30%) followed by walking (19%) and cycling (5%).
- Half of students reported that they could reach most destinations using active transport (54%).
- Among surveyed students at your school aged 16 or older, driving licence status was 53% "no licence", 20% "learners licence", 27% "restricted licence" and no student had their "full licence."
- Most students perceived that being able to drive brings independence (87%) and freedom (81%), would be necessary after leaving school (76%) and for visiting friends (54%) and that driving was bad for the environment (54%).
- Parents (89%) and friends (78%) encouraged students to learn to drive.
- Most students perceived that people who are similar to them were learning to drive (84%), and 49% were nervous about learning to drive.

Independent Mobility:

- Approximately half of surveyed students at your school were allowed to travel from home more than 10 km by themselves, either on foot (51%) or with a bicycle (46%). Overall, one in ten students were not allowed to travel alone at all, either on foot (11%) or with a bicycle (14%).

- More than half of students reported that they were allowed to walk more than 10 km with someone the same age (60%) or with an older teenager (54%) and cycle more than 10 km with someone the same age (60%) or with an older teenager (62%).
- On the way to school, 38% of students travelled alone, 27% travelled with a person the same age, 24% travelled with a parent or guardian, and 24% travelled with a younger person.
- Students most frequently travelled with a parent or guardian to relative's home (65%), shops, markets, or restaurants (62%), and somewhat less frequently to their friend's home (43%).
- Being driven by a parent or guardian was the most common mode of travel to a relative's home (60%), sports venues (54%), shops markets, or restaurants (51%) and to a friend's home (49%).
- Walking was the second most common mode of transport for students to destinations such as a friend's home (27%), parks or playgrounds (22%), sports venues (19%), and shops, markets, or restaurants (16%).

Technology Use and Perceptions:

- Overall, 97% of students had a mobile phone or other portable technology. Among surveyed students at your school, 76% of students had a portable technology device with Internet access (such as smart phone, tablet, iPad, etc.).
- Nearly half of the students with a mobile phone were spending less than $20 per month on their phone (44%) and nearly two thirds were paying for their own mobile phone costs (65%).
- Overall, 54% of students were talking to friends on phone or Internet on five or more days per week.
- Among surveyed students at your school, 32% agreed that they saw their friends less in person because they could speak to their friends on the Internet or phone.
- On average, students reported spending 4.5 hours per day on Internet. Nearly two thirds of students had unlimited access to Internet at home (62%).
- Most students reported that having Internet access (65.2%) and a mobile phone (60%) was "very important" or "essential" to them, followed by driving a car (51%), owning a car (47%), travelling overseas (37%) and having a computer (21%).

Students' Aspirations after Secondary School:

- After completing secondary school, 49% of students surveyed at your school intended to get a job, 16% intended to travel overseas (OE), 14% planned to continue education elsewhere in New Zealand and 5% planned to start learning a trade or begin an apprenticeship.
- By mid-twenties, most students surveyed at your school aspired that they would have likely left home (95%), begun a career (95%), obtained a full driver's licence (97%) and owned a car (97%). Approximately half of students aspired to have a degree or qualification (51%) by that time. Less than half of students indicated that they would have likely completed an overseas experience by mid-twenties (43%), while a quarter of students intend to have started their own business (24%). Less than one fifth of students indicated that they would likely be married (14%) and have a child (11%) by that time.

BEATS Rural Student Survey 2018: Detailed Results for Sample School

This section of the report provides detailed results from the BEATS Rural Student Survey completed by 110 students from **Sample School** in February 2018. Results are based on responses from students with complete consents and valid survey data. All descriptions in this report refer to school specific data.

The report also offers the average data for rural Otago based on responses of xxx students from xxx Otago region secondary schools that participated in the BEATS Rural Student Survey in 2018. Otago region data are presented for informative purposes only. No attempt was made to compare school-specific results with the average data for the Otago region.

Data from the following sections of the BEATS Rural Student Survey are included in this report:

- Sociodemographic characteristics
- Transport to school habits
- Attitudes towards walking, cycling, driving and busing to school
- School bags
- Perceptions of the route to school and school neighbourhood environment
- Health behaviours
- Driving behaviours
- Independent mobility behaviours
- Technology use and perceptions
- Students' aspirations after completing secondary school

For the purpose of this report, data were analysed using descriptive statistics. In each section, data were analysed only for students who had complete data for that particular section. **Results are reported as mean ± standard deviation for continuous variables and percentage for categorical variables.** Data analysis was conducted in March 2018 using SPSS statistical package Version 24.0.

Study Sample

A total of 110 students (50% boys; 64% New Zealand European, 21% Māori) from Years 9 to 13 participated in the BEATS Rural Student Survey at your school. All students had valid consent and survey data were included in the school-specific data analysis and results presented in this report (**Table 1**). On average students lived with 2.0 adults and had 2.5 siblings, 3.1 cell phones, 2.6 vehicles, 2.1 televisions, and 1.5 laptop computers at home. Forty-two percent of students had a television in their bedroom (**Table 2**). Among all students surveyed at your school, 21 students (19%) did not have a bicycle that they could use to get to school. Half of students (51%) rated their health as “very good” or “excellent” (**Table 2**). Weight status of the surveyed students (based on height and weight measured at the time of the survey and taking into account age and gender) was 52% normal weight, 9% overweight and 9% obese (**Table 1**).

Table 1. Socio-demographic characteristics

	School data n=110		*Otago region data n=*	
	n	%	*n*	*%*
Age (years) (mean±SD)	15.13 ± 1.48		*±*	
Gender				
Boys	55	50.0%		*%*
Girls	55	50.0%		*%*
Gender Diverse	0	0.0%		*%*
School year				
Year 9	22	20.0%		*%*
Year 10	22	20.0%		*%*
Year 11	22	20.0%		*%*
Year 12	22	20.0%		*%*
Year 13	22	20.0%		*%*
Ethnicity				
New Zealand European	70	63.6%		*%*
Māori	23	20.9%		*%*
Pacific	10	9.1%		*%*
Asian	2	1.8%		*%*
Other	5	4.5%		*%*
Boarders	22	20.0%		*%*
International students	6	5.5%		*%*
Weight status				
Underweight	10	9.1%		*%*
Normal weight	57	51.8%		*%*
Overweight	17	15.5%		*%*
Obese	10	9.1%		*%*
Missing data [n]	16	-	*n*	-

SD = standard deviation.

Table 2. Self-reported health, family structure and resources at home

	School data n=110 (mean±SD)	*Otago region data* *n=* *(mean±SD)*
How good is your health?		
Excellent	14.0%	±
Very good	46.5%	±
Good	25.6%	±
Fair	11.6%	±
Poor	2.3%	±
Family structure		
Number of people living at home (n)	4.02 ± 1.37	±
Number of adults at home (n)	1.98 ± 0.34	±
Number of siblings (n)*	2.49 ± 1.71	±
Resources at home		
Number of bikes available to use to get to school (n)	1.74 ± 1.42	±
Number of vehicles (n)	2.60 ± 1.05	±
Number of televisions (n)	2.12 ± 1.07	±
Number of desktop computers (n)	0.56 ± 0.67	
Number of laptops (n)	1.47 ± 0.96	±
Number of game consoles (n)	1.35 ± 1.17	±
Number of mobile phones (with or without internet access) (n)	3.05 ± 1.09	±
Resources in the bedroom		
Televisions	41.9%	%
A home computer	9.3%	%
Laptops	46.5%	%
Games consoles	37.2%	
Mobile phones (with or without internet access)	93.0%	%
Has a waterproof raincoat	83.7%	%

SD = standard deviation.

**Includes step-brothers/sisters and half-brothers/sisters, even those who do not live with the student.*

Transport Habits to and from School

When reporting on school transport behaviours, students were asked to report their use of each suggested mode of transport (driving [by self or others], school bus, public transport, on foot, by bike, combination of modes) to and from school, separately. Therefore, the proportion of students commonly using different modes to school ("most of the time" or "all of the time") does not add up to 100%.

At the time of data collection in February 2018, New Zealand secondary school students living within 4.8 km of school did not qualify for using the school bus.[24] Among students surveyed at your school, average distance to school was 9.9 km (**Table 3**), and 30% of students lived within 4.8 km from school. Among surveyed students, 67% of students estimated they could get to school within 30 minutes by bus, 30% could walk to school within 30 min and 28% could cycle to school within 30 minutes (**Table 3**).

Among surveyed students at your school, 63% of students usually travelled **to** school by school bus, 21% on foot, 14% by car, and 5% by bicycle (**Table 4**). Most students who lived within 4.8 km of school walked **to** school (61%). On the journey **to** school, 70% of students reported using only motorised transport, 21% used only active transport (walking or cycling) and 9% used a combination of motorised and active transport (**Table 7**).

Students' mode of travel **from** school was not very different from their travel to school habits, with students usually traveling **from** school by school bus (61%), on foot (23%), by car (14%), or by bicycle (5%) (**Table 5**). Most students who lived within 4.8 km of the school walked **from** school (69%). On the way **from** school, 67% of students used motorised transport only, 19% used active transport only (walking or cycling) and 14% used a combination of motorised and active transport (**Table 7**).

Students' transportation habits did not vary much between seasons for students travelling to school by school bus or a combination of school bus and walking. The rates of walking to school were higher in Term 1 (summer; 23%) and Term 4 (spring; 23%) compared to Term 2 (fall; 19%) and Term 3 (winter; 16%) (**Table 6**). In contrast, the rates of travelling to school by car were highest in Term 2 (fall, 14%) and Term 3 (winter; 16%) and lowest in Term 1 (summer; 9%) and Term 4 (spring; 9%). Among students who lived within 4.8 km of the school, the frequency of walking to school was higher in Terms 1 and 4 (summer and spring; 69% for both terms) compared to Terms 2 and 3 (fall and winter; 54% for both terms) (**Table 6**).

Most students (88%) liked the way they travelled to school. Decisions about how students travelled to school were most frequently made by students and their parents together (44%), followed by decisions made by students only (28%) or parent(s) only (23%) (**Table 7**).

Table 3. Distance to school and students' estimates of the time required to travel to school by different transport modes.

	School data n=110	*Otago region data n=*
Distance to school		
<1000 m	14.0%	%
1000-1999 m	14.0%	%
2000-2999 m	0.0%	%
3000-3999 m	2.3%	%
4000-4999 m	0.0%	%
≥5000 m	69.8%	%
Average distance (km) (mean±SD)	9.85 ± 7.71	±
Missing data (n)	0	*n*
Estimated time to walk to school		
1-5 minutes	11.6%	%
6-10 minutes	2.3%	%
11-20 minutes	11.6%	%
21-30 minutes	4.7%	%
31-59 minutes	7.0%	%
1-2 hours	18.6%	%
More than 2 hours	30.2%	%
Don't know	14.0%	%
Estimated time to cycle to school		
1-5 minutes	11.6%	%
6-10 minutes	7.0%	%
11-20 minutes	2.3%	%
21-30 minutes	7.0%	%
31-59 minutes	18.6%	%
1-2 hours	11.6%	%
More than 2 hours	16.3%	%
Don't know	25.6%	%
Estimated time to bus to school		
1-5 minutes	11.6%	%
6-10 minutes	14.0%	%
11-20 minutes	30.2%	%
21-30 minutes	11.6%	%
31-59 minutes	9.3%	%
1-2 hours	9.3%	%
More than 2 hours	0.0%	%
Don't know	14.0%	%

SD = standard deviation.

Table 4. Modes of transport **to** school.

	School data n=110			*Otago region data n=*		
	Never	Rarely / Sometimes	Most of the time / All of the time	*Never*	*Rarely / Sometimes*	*Most of the time / All of the time*
How do you usually travel **to** school?						
All surveyed students						
By car (driven by others)	20.9%	69.8%	9.3%	*%*	*%*	*%*
By car (driving myself)	88.4%	7.0%	4.7%	*%*	*%*	*%*
By school bus	27.9%	9.3%	62.8%	*%*	*%*	*%*
By public transport	100.0%	0.0%	0.0%	*%*	*%*	*%*
On foot	67.4%	11.6%	20.9%	*%*	*%*	*%*
By bike	88.4%	7.0%	4.7%	*%*	*%*	*%*
By bus and on foot	88.4%	4.7%	7.0%	*%*	*%*	*%*
By car and on foot	88.4%	7.0%	4.7%	*%*	*%*	*%*
Other modes or combinations	93.0%	2.3%	4.7%	*%*	*%*	*%*
Students living ≤4.8 km from school (n=33)						
By car (driven by others)	7.7%	61.5%	30.8%	*%*	*%*	*%*
By car (driving myself)	100.0%	0.0%	0.0%	*%*	*%*	*%*
By school bus	92.3%	7.7%	0.0%	*%*	*%*	*%*
By public transport	100.0%	0.0%	0.0%	*%*	*%*	*%*
On foot	15.4%	23.1%	61.5%	*%*	*%*	*%*
By bike	76.9%	7.7%	15.4%	*%*	*%*	*%*
By bus and on foot	100.0%	0.0%	0.0%	*%*	*%*	*%*
By car and on foot	84.6%	7.7%	7.7%	*%*	*%*	*%*
Other modes or combinations	92.3%	7.7%	0.0%	*%*	*%*	*%*

Table 5. Modes of transport **FROM** school.

	School data n=110			*Otago region data n=*		
	Never	Rarely / Sometimes	Most of the time / All of the time	*Never*	*Rarely / Sometimes*	*Most of the time / All of the time*
How do you usually travel **from** school?						
All surveyed students						
By car (driven by others)	27.9%	62.8%	9.3%	%	%	%
By car (driving myself)	88.4%	7.0%	4.7%	%	%	%
By school bus	27.9%	11.6%	60.5%	%	%	%
By public transport	100.0%	0.0%	0.0%	%	%	%
On foot	67.4%	9.3%	23.3%	%	%	%
By bike	90.7%	4.7%	4.7%	%	%	%
By bus and on foot	83.7%	7.0%	9.3%	%	%	%
By car and on foot	90.7%	4.7%	4.7%	%	%	%
Other modes or combinations	93.0%	4.7%	2.3%	%	%	%
Students living ≤4.8 km from school (n=33)						
By car (driven by others)	15.4%	53.8%	30.8%	%	%	%
By car (driving myself)	100.0%	0.0%	0.0%	%	%	%
By school bus	84.6%	15.4%	0.0%	%	%	%
By public transport	100.0%	0.0%	0.0%	%	%	%
On foot	15.4%	15.4%	69.2%	%	%	%
By bike	76.9%	7.7%	15.4%	%	%	%
By bus and on foot	100.0%	0.0%	0.0%	%	%	%
By car and on foot	92.3%	0.0%	7.7%	%	%	%
Other modes or combinations	92.3%	7.7%	0.0%	%	%	%

Table 6. Transport to school habits throughout the school year.

	School data n=110				*Otago region data n=*			
	Term 1	Term 2	Term 3	Term 4	*Term 1*	*Term 2*	*Term 3*	*Term 4*
All surveyed students								
By car (driving themselves or driven by others)	9.3%	14.0%	16.3%	9.3%	*%*	*%*	*%*	*%*
By bus	62.8%	62.8%	62.8%	62.8%	*%*	*%*	*%*	*%*
On foot	23.3%	18.6%	16.3%	23.3%	*%*	*%*	*%*	*%*
By bike	0.0%	0.0%	0.0%	0.0%	*%*	*%*	*%*	*%*
By bus and on foot	0.0%	0.0%	0.0%	0.0%	*%*	*%*	*%*	*%*
By car and on foot	4.7%	4.7%	4.7%	4.7%	*%*	*%*	*%*	*%*
Other mode(s)	0.0%	0.0%	0.0%	0.0%	*%*	*%*	*%*	*%*
Students living ≤4.8 km from school (n=33)								
By car (driving themselves or driven by others)	15.4%	30.8%	30.8%	15.4%	*%*	*%*	*%*	*%*
By bus	0.0%	0.0%	0.0%	0.0%	*%*	*%*	*%*	*%*
On foot	69.2%	53.8%	53.8%	69.2%	*%*	*%*	*%*	*%*
By bike	0.0%	0.0%	0.0%	0.0%	*%*	*%*	*%*	*%*
By bus and on foot	0.0%	0.0%	0.0%	0.0%	*%*	*%*	*%*	*%*
By car and on foot	15.4%	15.4%	15.4%	15.4%	*%*	*%*	*%*	*%*
Other mode(s)	0.0%	0.0%	0.0%	0.0%	*%*	*%*	*%*	*%*

Table 7. Multiple modes of transport to school, decision making and transport preferences.

	School data n=110	*Otago region data n=*
Frequency of active transport used as a part of a journey to and from school in the previous week (mean±SD)		
Walk from home to school (days; out of 5)	1.05 ± 1.98	±
Cycle from home to school (days; out of 5)	0.05 ± 0.31	±
Walk from school to home (days; out of 5)	1.07 ± 2.02	±
Cycle from school to home (days; out of 5)	0.0 ± 0.0	±
Usual transport **to** school habits		
Active transport	20.9%	%
Motorised transport	69.8%	%
Combination of active and motorised transport	9.3%	%
Usual transport **from** school habits		
Active transport	18.6%	%
Motorised transport	67.4%	%
Combination of active and motorised transport	14.0%	%
Who makes the decision about your travel to school?		
I do	27.9%	%
My parents	23.3%	%
My parents and I do together	44.2%	%
The school	2.3%	%
Other(s)	2.3%	%
Do you like the way you usually travel to school?		
Yes	88.4%	%
No	11.6%	%
Preferred way of travelling to school for students who did **not** like the way they usually travel to school:*		
By car (driven by others)	4.7%	%
By car (driving myself)	4.7%	%
By school bus	0.0%	%
By public transport	0.0%	%
By motor scooter	0.0%	%
By motor bike	4.7%	%
On foot	4.7%	%
On skateboard	0.0%	%
By bike	2.3%	%
On scooter	0.0%	%
Other	0.0%	%

SD = standard deviation.

**Students who did not how they travelled to school had an option to select one or more preferred modes of travelling to school.*

Attitudes towards Walking to School

At the time of data collection in February 2018, New Zealand secondary school students living within 4.8 km of school did not qualify for using the school bus.[24] Therefore, the BEATS Rural Student Survey section on attitudes towards walking to school was completed only by students not eligible for the school bus (i.e., lived within 4.8 km of school at the time of the survey).

At your school, 26 students who lived within 4.8 km of school completed this section of the survey. In the previous two weeks, 70% of students walked to school regularly ("every day" or "almost every day"), 18% walked occasionally ("sometimes" or "almost never") and 10% never walked to school (**Table 9**).

Students perceived walking to school as being healthy (100%), safe (100%), useful (90%), good (70%), pleasant (70%), interesting (60%) and stimulating (60%) (**Table 8**). All students agreed that walking to school was a great way to get some exercise (100%) and half of students agreed that walking to school provided an opportunity to socialise with their friends (50%) (**Table 8**).

Most frequently reported barriers to walking to school included lack of interest or desire to walk to school (30%), being too tired (20%), sweating (20%), after-school schedule (20%), time constraints (20%), convenience of being driven to school (10%) and having too much to carry (10%) (**Table 8**). Environmental barriers for walking to school included hills (30%), hot and sunny weather in spring and summer (30%), cold and wet weather in fall and winter (20%), lack of good lighting (20%), distance (20%), lack of footpaths (20%), the route being boring (10%), and one or more dangerous crossings (10%) on the way to school (**Table 9**). Student and parental safety concerns were not reported as a barrier for walking to school among students surveyed at your school (0% for both) (**Table 9**).

The majority of surveyed students perceived that their friends (80%), parents (70%), and the school (60%) encouraged them to walk to school (**Table 8**). Most students wanted (80%) and intended (80%) to walk to school. All students were confident in their ability to walk to school (100%), whereas only half of students perceived having complete control of whether or not they walk to school (50%). One tenth of students stated that they did not want to or did not like to walk to school (10%) (**Table 9**).

Table 8. Students' attitudes and perceptions towards walking to school: Motivations, barriers, and support (Data reported by students living ≤4.8 km from their school)

	School data n=26 Agree (%)	*Otago region data* *n=* *Agree (%)*
Attitudes: For me, regularly walking to school would be…		
Interesting	60.0%	*%*
Pleasant	70.0%	*%*
Stimulating	60.0%	*%*
Healthy	100.0%	*%*
Good	70.0%	*%*
Useful	90.0%	*%*
Safe	100.0%	*%*
Personal Motivations		
Walking to school is a great way to get some exercise	100.0%	*%*
I can chat to my friends on my walk to school	50.0%	*%*
Personal Barriers		
Walking to school takes too much time	20.0%	*%*
It involves too much planning ahead to walk to school	0.0%	*%*
I get too hot and sweaty walking to school	20.0%	*%*
I have too much stuff to carry to walk to school	10.0%	*%*
It is not convenient for me to walk to school because of my after-school schedule	20.0%	*%*
It is easier for someone to drive me to school, on the way to something else	10.0%	*%*
I often feel too tired to walk to school	20.0%	*%*
I often cannot be bothered to walk to school	30.0%	*%*
Parental Support and Role Modelling		
My parents or guardians think I should walk to school	70.0%	*%*
One or both of my parents or guardians walk frequently	60.0%	*%*
Peer Support		
My friends think I should walk to school	80.0%	*%*
No other students walk to school	10.0%	*%*
It is not considered cool to walk to school	1000.0%	*%*
Out of 5 friends, how many always or sometimes walk to school? (mean±SD)	1.50 ± 0.85	±
School factors		
My school encourages me to walk to school	60.0%	*%*
I would walk to school if I had a locker for storing my things	0.0%	*%*

SD = standard deviation.

Table 9. Perceptions of walking to school: Environmental factors, safety, intention and habits (Data reported by students living ≤4.8 km from their school)

	School data n=26 Agree (%)	*Otago region data* *n=* *Agree (%)*
Environmental Barriers		
It is too far to walk to school	20.0%	*%*
There are no footpaths along the way	20.0%	*%*
There are too many hills along the way	30.0%	*%*
The route does not have good lighting along the way	20.0%	*%*
There is too much traffic along the route	0.0%	*%*
There is one or more dangerous crossings along the route	10.0%	*%*
The route is boring along the way	10.0%	*%*
The weather is too cold and wet to walk to school in fall and winter	20.0%	*%*
The weather is too hot and sunny to walk to school in spring and summer	30.0%	*%*
Safety Perceptions		
It is unsafe to walk to school	0.0%	*%*
My parents think it is unsafe to walk to school	0.0%	*%*
Intention, Confidence and Control		
I want to regularly walk to school	80.0%	*%*
I intend to walk to school frequently	80.0%	*%*
I am confident I could walk to school	100.0%	*%*
I have complete control over whether or not I walk to school	50.0%	*%*
I do not want to or do not like to walk to school	10.0%	*%*
Habits		
How many times did you walk to school in the last two weeks?		
Never	10.0%	*%*
Almost never	10.0%	*%*
Sometimes	10.0%	*%*
Almost every day	20.0%	*%*
Every day	50.0%	*%*

Attitudes towards Cycling to School

As for the previous section on attitudes towards walking to school, this section of the BEATS Rural Student Survey was completed only by students who were not eligible for school bus (i.e., lived within 4.8 km from school at the time of the survey).[24]

At your school, 26 students who lived within 4.8 km from school completed this section of the survey.

Among all students surveyed at your school, students perceived cycling to school as being healthy (70%), good (60%), useful (50%), stimulating (50%), interesting (40%), pleasant (40%), and safe (50%). (**Table 10**). Most students agreed that cycling to school was a great way to get some exercise (90%).

Most frequently reported barriers to cycling to school included sweating (30%), lack of interest or desire to cycle to school (30%), having too much to carry (30%), need for planning (10%), being too tired (20%), convenience of being driven to school (10%), after-school schedule (10%), and time constraints (10%) (**Table 10**). Environmental barriers for cycling to school included lack of bike lanes on the way to school (50%), hot and sunny weather in spring and summer (30%), cold and wet weather in fall and winter (20%), lack of adequate lighting along the way (20%), and too many hills (30%) (**Table 11**). Overall, 20% of students expressed concerns about the safety of cycling to school. No surveyed students perceived their parents were concerned with safety of cycling to school (**Table 11**).

One third of students received encouragement from their parents (30%), friends (30%) or school (30%) to cycle to school (**Table 10**). Approximately three quarters of the students perceived themselves as capable (80%) and confident (70%) to cycle to school, and 80% perceived themselves as having complete control over whether or not they cycle to school (**Table 11**). Only one in ten students wanted (10%) and intended (10%) to cycle to school. One fifth of students reported that they did not want to or did not like to cycle to school (20%). None of the surveyed students cycled to school in the previous two weeks.

The following section of the survey was related to cycling in general and was completed by all 110 students surveyed at your school:

In the total sample, approximately half of surveyed students liked cycling for recreation (55%), one quarter often cycled with their friends (26%) and less than one tenth cycled with their parents (7%) (**Table 12**). Nearly one third of students perceived that cycle skills training would make them safer in traffic (29%) and 19% of students would take such training if it was offered at their school. Overall, 14% of students expressed interest in using a bike library if it was available in their area.

In the total sample, approximately one quarter to one third of students would cycle to school if buses provided bike racks free of charge (31%), schools had a cycle-friendly uniform (29%), safer places to lock a bike at school (24%), and the traffic on the road(s) was slower (24%). One third of students would cycle to school if they were allowed to cycle without a helmet (33%) or had a locker at school (33%). Forty-three percent would cycle to school if they owned a bicycle (**Table 12**).

Table 10. Students' attitudes and perceptions towards cycling to school: Motivations, barriers, and support (Data reported by students living ≤4.8 km from their school)

	School data n=26 Agree (%)	*Otago region data* *n=* *Agree (%)*
Attitudes: For me, regularly cycling to school would be…		
Interesting	40.0%	*%*
Pleasant	40.0%	*%*
Stimulating	50.0%	*%*
Healthy	70.0%	*%*
Good	60.0%	*%*
Useful	50.0%	*%*
Safe	50.0%	*%*
Personal Motivations		
Cycling to school is a great way to get some exercise	90.0%	*%*
I can chat to my friends on my bike ride to school	10.0%	*%*
Personal Barriers		
Cycling to school takes too much time	10.0%	*%*
It involves too much planning ahead to cycle to school	10.0%	*%*
I get too hot and sweaty cycling to school	30.0%	*%*
I have too much stuff to carry to cycle to school	30.0%	*%*
It is not convenient for me to cycle to school because of my after-school schedule	10.0%	*%*
It is easier for someone to drive me to school, on the way to something else	10.0%	*%*
I often feel too tired to cycle to school	20.0%	*%*
I often cannot be bothered to cycle to school	30.0%	*%*
Parental Support and Role Modelling		
My parents or guardians think I should cycle to school	30.0%	*%*
One or both of my parents or guardians cycle frequently	20.0%	*%*
Peer Support		
My friends think I should cycle to school	30.0%	*%*
No other students cycle to school	40.0%	*%*
It is not considered cool to cycle to school	10.0%	*%*
Out of 5 friends, how many always or sometimes cycle to school? (mean±SD)	0.10 ± 0.32	±
School factors		
My school encourages me to cycle to school	30.0%	*%*
I would cycle to school if I had a locker for storing my things	0.0%	*%*

SD = standard deviation.

Table 11. Perceptions of cycling to school: Environmental factors, safety, intention and habits (Data reported by students living ≤4.8 km from their school)

	School data n=26 Agree (%)	*Otago region data n= Agree (%)*
Environmental Barriers		
It is too far to cycle to school	0.0%	*%*
There are no cycle lanes along the way	50.0%	*%*
There are too many hills along the way	30.0%	*%*
The route does not have good lighting along the way	20.0%	*%*
There is too much traffic along the route	0.0%	*%*
There is one or more dangerous crossings along the route	10.0%	*%*
The route is boring along the way	10.0%	*%*
The weather is too cold and wet to cycle to school in fall and winter	20.0%	*%*
The weather is too hot and sunny to cycle to school in spring and summer	30.0%	*%*
Safety Perceptions		
It is unsafe to cycle to school	20.0%	*%*
My parents think it is unsafe to cycle to school	0.0%	*%*
Intention, Confidence and Control		
I want to regularly cycle to school	10.0%	*%*
I intend to cycle to school frequently	10.0%	*%*
I see myself as being capable of riding a bicycle to school	80.0%	*%*
I am confident I could cycle to school	70.0%	*%*
I believe that I have the ability to ride a bicycle to school	80.0%	*%*
I have complete control over whether or not I cycle to school	80.0%	*%*
I do not want to or do not like to cycle to school	20.0%	*%*
Habits		
How many times did you cycle to school in the last two weeks?		
Never	100.0%	*%*
Almost never	0.0%	*%*
Sometimes	0.0%	*%*
Almost every day	0.0%	*%*
Every day	0.0%	*%*

Table 12. Attitudes for cycling in general and potential removal of barriers for cycling to school

	School data n=107 Agree (%)	*Otago region data* *n=* *Agree (%)*
Attitudes towards cycling in general		
I like bike riding for recreational purposes	54.8%	*%*
I often cycle with my friends	26.2%	*%*
I often cycle with my parents	7.1%	*%*
Cycle skills training could make me safer in traffic [a]	28.6%	*%*
I would take cycle safety training if it was available at my school	19.0%	*%*
I would use a bike library if it was available in our area [b]	14.3%	*%*
Potential removal of barriers for cycling to school		
I would cycle to school more often IF…		
The traffic on the road(s) was slower	23.8%	*%*
Buses had bike racks free of charge	31.0%	*%*
There were safer places to lock up my bike	23.8%	*%*
I had a locker at school for storing my things	33.3%	*%*
I had a cycle-friendly uniform	28.6%	*%*
I was allowed to cycle without a helmet	33.3%	*%*
I owned a bike	42.9%	*%*
I lived closer to school	59.5%	*%*
Other conditions	4.8%	*%*

[a] *Cycle skills training is a short interactive course that teaches road awareness and how to cycle on the road.*
[b] *Bike library is a place in your area where you can borrow a bike for a set period of time.*

Characteristics of School Bags

Among students surveyed at your school, the average school bag weight was 4.3 kg (equivalent to 7% of students' body weight). Students' surveyed at your school typically carried the following items in their school bag: food or lunch (98%), sports gear (74%), water or a drink (63%), a mobile phone (58%), stationery (37%), and school books (30%). The most common types of school bag were a backpack (47%) and sports bag (44%). Students carried their school bags in different ways including over both shoulders (35%), across the body (23%), on the side of the body (23%), or on one shoulder (16%). Most students at your school carried their school bags less than 30 minutes per day (77%).

Table 13. School bag characteristics

	School data n=110	*Otago region data n=*
School bag weight (mean±SD)		
Absolute weight (kg) (n=92)[a]	4.30 ± 1.0	±
Relative weight (% of body weight) (n=77)[b]	6.8 ± 2.2	±
School bag contents		
School books	*30.2%*	*%*
Computer	*25.6%*	*%*
Stationery	*37.2%*	*%*
Mobile phone	*58.1%*	*%*
Food or lunch	*97.7%*	*%*
Water or drink	*62.8%*	*%*
Sport gear	*74.4%*	*%*
Other	*18.6%*	*%*
School bag type		
Backpack	*46.5%*	*%*
Single-strap back	*0.0%*	*%*
With wheels	*0.0%*	*%*
Shoulder bag	*7.0%*	*%*
Sports bag	*44.2%*	*%*
Other bag	*7.0%*	*%*
Way of carrying school bag		
On both shoulders	*34.9%*	*%*
On one shoulder	*16.3%*	*%*
In my hand(s)	*2.3%*	*%*
Across the body	*23.3%*	*%*
On the side of the body	*23.3%*	*%*
On wheels	*0.0%*	*%*
Part of books in hands or in separate bag	*2.3%*	*%*
Time spent carrying school bag during the day		
Less than 30 minutes	*76.7%*	*%*
30 minutes to less than 1 hour	*16.3%*	*%*
1 hour	*4.7%*	*%*
2 hours	*0.0%*	*%*
3 hours	*0.0%*	*%*
More than 3 hours	*2.3%*	*%*

SD = standard deviation.

[a]*Number of students with measured school bag weights at your school.*
[b]*Number of students with measured school bag weight and measured body weight.*

Table 14. Students' perceptions of school bag weight

	School data n=110	*Otago region data n=*
During the past 4 weeks, did you ever become tired while carrying your school bag?		
Never	76.7%	*%*
Sometimes	20.9%	*%*
Often	0.0%	*%*
Always	2.3%	
During the past 4 weeks, did you ever think your school bag was heavy while carrying it?		
Never	48.8%	*%*
Sometimes	39.5%	*%*
Often	11.6%	*%*
Always	0.0%	*%*
My school bag is too heavy for walking to and from school		
Strongly disagree	65.1%	*%*
Somewhat disagree	23.3%	*%*
Somewhat agree	9.3%	*%*
Strongly agree	2.3%	*%*
My school bag is too heavy for cycling to and from school		
Strongly disagree	58.1%	*%*
Somewhat disagree	18.6%	*%*
Somewhat agree	20.9%	*%*
Strongly agree	2.3%	*%*
The effect of carrying my school bag during the day is usually…		
Nothing	72.1%	*%*
Tiredness	0.0%	*%*
Back pain	4.7%	*%*
Shoulder pain	20.9%	*%*
Neck pain	2.3%	*%*
Other	0.0%	*%*
Do you have a locker at school?		
Yes, and I use it	*9.3%*	*%*
Yes, but I don't use it	*0.0%*	*%*
No	*90.7%*	*%*

Attitudes towards Driving to School

Overall, nearly one fifth of the students surveyed at your school were driven to and from school every day (17% both to and from). Approximately half of students were never driven to or from school (54% and 51%, respectively) (**Table 15**). Students who were driven to and/or from your school (n=61) reported that the main reasons for travelling by car were the distance between home and school being too far to walk or cycle (67%), the weather being too wet or cold (54%), convenience for parent(s) or someone else to drive them on the way to somewhere else (50%), public transport not being available (46%), too many dangerous roads between home and school (38%) and too much to carry to school (38%) (**Table 16**).

Table 15. Frequency of adolescents being driven to and from school

	School data n=105		*Otago region data n=*	
Driven to/from school (days/week)	**To** school	**From** school	***To*** *school*	***From*** *school*
None	53.7%	51.2%	%	%
1 day	14.6%	14.6%	%	%
2 days	9.8%	14.6%	%	%
3 days	4.9%	2.4%	%	%
4 days	0.0%	0.0%	%	%
5 days	17.1%	17.1%	%	%
Average (mean±SD)	1.34 ± 1.88	1.37 ± 1.85	±	±

SD = standard deviation.

Table 16. Reasons for adolescents being driven (by parents or someone else) or driving themselves to school

	School data n=61	*Otago region data n=*
My parents or someone else drive me to and from or I drive myself to and from school because...		
The distance between home and school is too far to walk or cycle	66.7%	%
The weather is too wet or cold	54.2%	%
It is convenient for my parent(s) or someone else to drive me to school on the way to/from work or elsewhere	50.0%	%
There are too many dangerous roads between home and school	37.5%	%
I have too much stuff to carry	37.5%	%
I am worried about personal safety issues	25.0%	%
My family is usually running short of time	33.3%	%
I do not enjoy walking or cycling	29.2%	%
I am not physically able to walk or cycle to school	25.0%	%
School bus is not available	37.5%	%
Public transport is not available	45.8%	%
There is public transport, but it is not suitable for me	12.5%	%
It's not possible for me to travel to school any other way	37.5%	%
Our family never really thought about how we travel	33.3%	%
The school does not allow cycling to school	4.2%	%
Other	12.5%	%

Attitudes towards Busing to School

Among students who lived >4.8 km of school and were eligible for a school bus, all students (100%) reported having a scheduled school bus available in their area (**Table 18**). Overall, 54% of students lived within a 10-minute walk from the closest school bus stop, 11% lived more than 30-minute walk and 18% did not know how long would it take them to walk to the closest bus stop.

On average, eligible students from your school took the bus **to** and **from** school 4.3 and 4.2 days per week respectively (**Table 17**). Overall, over half of eligible students took the bus to (64%) and from (61%) school 5 days per week and one tenth of eligible students never travelled to and from school by bus (7% for both)**.**

Among students who lived >4.8 km of school and were eligible for a school bus, most commonly reported perceptions of travelling to school by bus were inconvenience due to other activities before or after school (39%), the bus trip taking too long (39%), waiting at the bus stop not being pleasant due to wet or cold weather (29%), concern about being bullied on the bus (14%) and living too close to school (7%) (**Table 19**)**.**

Table 17. Frequency of adolescents taking the bus to and from school (Data reported for students living ≥4.8 km from their school)

	School data n=72		*Otago region data n=*	
Bus to/from school (days/week)	**To** school	**From** school	***To*** *school*	***From*** *school*
None	7.1%	7.1%	%	%
1 day	0.0%	0.0%	%	%
2 days	3.6%	3.6%	%	%
3 days	3.6%	7.1%	%	%
4 days	21.4%	21.4%	%	%
5 days	64.3%	60.7%	%	%
Average (mean±SD)	4.25 ± 1.40	4.18 ± 1.42	±	±

SD = standard deviation.

Table 18. Adolescents' access to a bus service (Data reported from students living ≥4.8 km from their school)

	School data n=72	*Otago region data n=*
Is there a scheduled bus service available in your area?		
Yes, school bus	100.0%	*%*
Yes, public bus	0.0%	*%*
Yes, both school bus and public bus	0.0%	*%*
No	0.0%	*%*
I don't know	0.0%	*%*
How far away is the closest school bus stop or public bus stop from your home?		
<1 minute walk	28.6%	*%*
2-5 minute walk	10.7%	*%*
6-10 minute walk	14.3%	*%*
11-15 minute walk	10.7%	*%*
16-20 minute walk	0.0%	*%*
21-30 minute walk	7.1%	*%*
>30 minute walk	10.7%	*%*
I don't know	17.9%	*%*

Table 19. Adolescent attitudes towards traveling to school by bus in students who are eligible for taking a school bus

	School data n=72	*Otago region data n=*
The bus stop is too far from home	17.9%	*%*
The bus trip takes too long	39.3%	*%*
The bus is too expensive	7.1%	*%*
I am concerned that I could be bullied on the bus	14.3%	*%*
I believe it is unsafe for me to walk to the bus stop	7.1%	*%*
I believe it is unsafe for me to wait at the bus stop	3.6%	*%*
It is not pleasant to wait at the bus stop when the weather is cold or wet	28.6%	*%*
My parent is already taking the car out, so it is more convenient to drive me to school	10.7%	*%*
I cannot take a bus to or from school because I have other activities before or after school	39.3%	*%*
We live too close to school	7.1%	*%*
The buses do not have bike racks for use free of charge	21.4%	*%*

Perceptions of the Route to School and School Neighbourhood Environment

Overall, 33 students surveyed at your school lived within 4.8 km of the school and 31 of these students completed the following section. Of these 31 students, 33% reported that there were too many hills and 25% reported poor lighting along the way. In addition, 8% of these students reported too much traffic along the route, 8% reported one or more dangerous crossings and 8% reported that the route to school was boring.

In this survey, school neighbourhood was defined as an area within a 10-15 minute walk in any direction from your school. Among surveyed students that lived within 4.8 km of school, 58% were very familiar, 42% were somewhat familiar and 0% were not familiar with the school neighbourhood (**Table 21**). Students who were familiar or somewhat familiar with the neighbourhood around your school reported that the school neighbourhood environment would be better if the maintenance of footpaths (50%) and cycle paths (42%) improved around school, if there were more safe places to cross the road (33%), if there was less traffic on the roads around school (25%), and if the traffic speed was slower (speed limit of 30 or 40 km/h) around school (17%) (**Table 21**).

Among surveyed students who lived >4.8 km of school, students reported that they would walk or cycle to school more if the school organized 'cycle to school days' or cycling clubs (25%), created a car free zone to provide safe walking areas around the school (17%), and if the school encouraged students to wear helmets and other safety gear for cycling (17%) (**Table 22**). Overall, one quarter of students (25%) perceived that the school already allows bicycles, scooters, rollerblades, and skateboards on school grounds, as well as already encourage students to wear appropriate safety gear for cycling (**Table 22**).

Table 20. Adolescent perceptions of the route to school and the ways to improve the route

	School data n=31	*Otago region data n=*
Route to school for walking and cycling		
There are too many hills along the way	33.3%	*%*
The route does not have good lighting along the way	25.0%	*%*
There is too much traffic along the route	8.3%	*%*
There is one or more dangerous crossings along the route	8.3%	*%*
The route is boring along the way	8.3%	*%*
It is easier for someone to drive me to school on the way to something else	25.0%	*%*

Table 21. Adolescents' perceptions of the school neighbourhood environment

	School data n=31	*Otago region data n=*
How well do you know your school neighbourhood?		
Very well	58.3%	*%*
Somewhat	41.7%	*%*
Not at all	0.0%	*%*
My school neighbourhood environment would be better if…		
There were more footpaths around school	25.0%	*%*
There were more cycle paths around school	50.0%	*%*
The maintenance of the footpaths improved around school	50.0%	*%*
The maintenance of cycle paths improved around school	41.7%	*%*
There were more safe places to cross the roads around school	33.3%	*%*
Traffic speed was slower (e.g. speed limit of 30 or 40 km/h) around school	16.7%	*%*
There was less traffic on the roads around school	25.0%	*%*
There were fewer cars stopping or parking near the main entrance to the school	16.7%	*%*
Other	0.0%	*%*

Table 22. Adolescents' perceptions of the school environment for walking and cycling to school

	School data n=31		*Otago region data n=*	
	Agree (%)	Already in place (%)	*Agree (%)*	*Already in place (%)*
I would walk or cycle to school if…				
The school had a map with safe routes to use for walking and cycling to school	8.3%	8.3%	*%*	*%*
The school created a ‘car free zone’ to provide safe walking areas around the school	16.7%	8.3%	*%*	*%*
The school allowed students to bring bicycles on school grounds	8.3%	25.0%	*%*	*%*
The school allowed students to bring rollerblades, scooters and skateboards onto school grounds	16.7%	25.0%	*%*	*%*
The school encouraged the use of helmets and safety gear for those who use bicycles to get to school	16.7%	25.0%	*%*	*%*
The school organised occasional ‘walk to school days’ or walking clubs	16.7%	0.0%	*%*	*%*
The school organised occasional ‘cycle to school days’ or cycling clubs	25.0%	0.0%	*%*	*%*
Other	8.3%	0.0%	*%*	*%*

Health Behaviours

Physical Activity

On average, students surveyed at your school participated in ≥60 min of moderate-to-vigorous physical activity on 5.2 days/week. Overall, 39% of the students surveyed at your school met current physical activity recommendations for adolescents (≥60 min of moderate-to-vigorous physical activity every day) (**Table 23**). Among surveyed students at your school, 51% participated in sports at school and 41% participated in sports outside school.

Table 23. Physical activity habits

	School data n=99	*Otago region data* *n=*
Physical activity habits		
Number of days per week with moderate-to-vigorous physical activity ≥60 min per day		
None	5.1%	%
One	0.0%	%
Two	2.6%	%
Three	10.3%	%
Four	17.9%	%
Five	15.4%	%
Six	10.3%	%
Seven	38.5%	%
Average (days per week) (mean±SD)	5.15 ± 1.95	±
Meeting physical activity guidelines		
Meeting physical activity guidelines (≥60 min moderate-to-vigorous physical activity on 7 days/week)	38.5%	%
Sport participation		
At school	51.3%	%
Outside school	41.0%	%

SD = standard deviation.

Dietary Habits

Overall, 51% students surveyed at your school had breakfast every day on school days, 28% had breakfast on 1-4 days and 21% never ate breakfast before school (**Table 24**).

More than half of students reported daily intake of fruit (56%) or vegetables (64%). Overall, 36% of students met guidelines for both fruit and vegetable intake (more than once a day for both fruit and vegetables) (**Table 27**). Among all surveyed students at your school, 49% consumed lollies, 33% consumed sugary soft drinks and 10% consumed fast food on two or more days a week (**Table 25**). Overall, 10% of students consumed lollies and 10% consumed sugary soft drinks every day.

On average, students surveyed at your school reported bringing their lunch to school almost every day (4.7 days/week), and bringing a bought lunch (e.g. takeaway, Subway, pizza, etc.) on 0.54 days/week (**Table 25**). On average, students reported buying and eating snack foods on their way to school to and from school on 0.44 days/week. In addition, students reported buying and eating soft drinks, energy drinks or fruit juices on 0.15 days/week on their way to school and 0.36 days/week on their way from school.

Table 24. Dietary habits

	School data n=99			*Otago region data n=*		
Breakfast	(Never)	(1-4 days)	(5 days)	*(Never)*	*(1-4 days)*	*(5 days)*
On school days	20.5%	28.2%	51.3%			
Food types	(Up to once a week)	(2-6 days a week)	(Every day)	*(Up to once a week)*	*(2-6 days a week)*	*(Every day)*
Fruit	2.6%	41.0%	56.4%	*%*	*%*	*%*
Vegetables	5.1%	30.8%	64.1%	*%*	*%*	*%*
Sweets (lollies or chocolate)	51.3%	38.5%	10.3%	*%*	*%*	*%*
Snack foods (chips, muesli bars, crackers, etc.)	15.4%	56.4%	28.2%	*%*	*%*	*%*
Fruit Juices	61.5%	25.6%	12.8%	*%*	*%*	*%*
Sugary soft drinks	66.7%	23.1%	10.3%	*%*	*%*	*%*
Fast food	89.7%	10.3%	0.0%	*%*	*%*	*%*

Table 25. Dietary sources

	School data n=99 (mean±SD)	*Otago region data n=* (mean±SD)
How often do you…?		
Bring your lunch to school (days/week)	4.67 ± 0.77	±
Bring a bought lunch to school (e.g. takeaway, Subway, pizza) (days/week)	0.54 ± 0.72	±
Buy and eat a snack food like sweets, chips, or ice creams on the way TO school (days/week)	0.44 ± 1.07	±
Buy and eat a snack food like sweets, chips, or ice creams on the way FROM school (days/week)	0.44 ± 0.91	±
Buy and drink soft drinks, energy drinks or fruit juices on the way TO school (days/week)	0.18 ± 0.51	±
Buy and drink soft drinks, energy drinks or fruit juices on the way FROM school (days/week)	0.36 ± 0.71	±

Screen Time

On average, surveyed students from your school reported spending 5.4 hours per day in front of screens outside of school hours (**Table 26**). This amount of screen time was composed of the average of 2.2 hours per day of using computers (for chatting online, Internet, emailing, homework, etc.), 2.0 hours per day of television, and 2.0 hours per day of playing games on a computer, mobile phone, or games console. The average screen time was 4.9 hours per day during the school days and 6.5 hours per day on weekends. It is important to note that screen time was assessed outside school time and included mobile phone use and time spent doing homework. On average, students reported doing homework about half an hour per day (0.57 hours). Overall, 17.9% of students met screen time guidelines (≤2 hours of screen time per day) (**Table 26**).

Table 26. Screen time habits outside of school time

	School data n=99 (mean±SD)	*Otago region data* *n=* *(mean±SD)*
Screen time		
Watching television (including streaming movies, videos or TV shows and DVDs) (hrs/day)	1.98 ± 1.85	±
Playing games on a computer, mobile phone or games console (hrs/day)	1.96 ± 2.17	±
Using a computer for chatting online, Internet, emailing, homework, etc. (hrs/day)	2.20 ± 2.16	±
Total screen time		
Weekday (hrs/day)	4.90 ± 3.31	±
Weekend (hrs/day)	6.53 ± 4.44	±
Average per day (hrs/day)	5.37 ± 3.48	±
Meeting screen time guidelines (≤2 hrs/day) (%)	17.9%	*%*
Doing homework (with and without screens) (hrs/day)	0.57 ± 0.95	±

SD= Standard deviation

Meeting Recommended Health Behaviours Guidelines

Overall, only 5% of surveyed students met all three health behaviours guidelines, 23% met two, 31% met one and 41% did not meet any of the currently recommended guidelines for physical activity, fruit and vegetable intake and screen time (**Table 27**).

Table 27. Meeting physical activity, screen time and fruit and vegetable intake guidelines

	School data n=99	*Otago region data* *n=*
Meeting guidelines		
Physical activity guidelines (≥60 min of moderate-to-vigorous physical activity on 7 days/week)	38.5%	*%*
Fruit and vegetable guidelines (more than once a day for both fruit and vegetables)	35.9%	*%*
Screen time guidelines (≤2 hrs/day)	17.9%	*%*
Number of guidelines met		
None	41.0%	*%*
One	30.8%	*%*
Two	23.1%	*%*
Three	5.1%	*%*

Learning to Drive and Driving Behaviours

Among students surveyed at your school, the preferred modes of transport in general were driving (43%) or being a passenger (30%), followed by walking (19%) and cycling (5%) (**Table 28**). Students reported that most destinations could be reached by active transport (54%) or bus (38%) (**Table 29**).

Among surveyed students aged 16 years and older, driving licence status was 53% “no licence”, 20% “learners licence”, 27% “restricted licence” and 0% “full licence” (**Table 29**).

Among all students surveyed at your school, most students perceived that being able to drive brings independence (87%), would be necessary after leaving school (76%) and for visiting friends (54%). Approximately half of students thought that driving was bad for the environment (54%) (**Table 29**). Parents (89%) and friends (78%) encouraged students to learn to drive. The majority of students reported that their parents drive frequently (87%) and enjoy driving (87%), and most students had friends who were learning to drive (84%). Half of students were nervous about learning to drive (49%).

Table 28. Adolescents' preferred modes of transport in general

	School data n=110	*Otago region data* *n=*
Transport habits in general		
Driving a car	43.2%	*%*
Driven by others	29.7%	*%*
Walking	18.9%	*%*
Cycling	5.4%	*%*
Skateboarding	0.0%	*%*
Scooter	0.0%	*%*
Public transport - Bus	2.7%	*%*
Taxi	0.0%	*%*

Table 29. Perceptions of driving and learning to drive

	School data	*Otago region data*
	n=95	*n=*
Driving licence status (only for students ≥16 years of age)	n=38	*n=*
No licence	53.3%	*%*
Learner's license	20.0%	*%*
Restricted license	26.7%	*%*
Full driver's license	0.0%	*%*
Data presented for all surveyed students:	n=95	*n=*
Learning to drive		
My friends think I should learn to drive	78.4%	*%*
My parents or guardians think I should learn to drive	89.2%	*%*
I have personal control over whether I learn to drive	75.7%	*%*
Most people who are similar to me learn to drive	83.8%	*%*
I am nervous about driving / learning to drive	48.6%	*%*
Perceptions of driving		
I will need a driving license when I leave secondary school	75.7%	*%*
I need my driving license to visit my friends	54.1%	*%*
When I can drive I can go wherever I want to go	81.1%	*%*
Being able to drive makes people more independent	86.5%	*%*
I like being driven around by other people	64.9%	*%*
Environmental concerns		
My transport mode choice can have an impact on the environment	54.1%	*%*
Cars are bad for the environment	54.1%	*%*
Parental influence		
One or both of my parents/guardians drive frequently	86.5%	*%*
My parents/guardians enjoy driving	86.5%	*%*
Availability of other transport options		
I am able to use public transport to get where I need to go	37.8%	*%*
I am able to use active transport (such as walking or cycling) to get where I need to go	54.1%	*%*

Independent Mobility

Surveyed students were asked to respond to a set of questions related to independent mobility. In this section of the report, data for your school and Otago region are presented in separate tables. Please note that in this section of the survey students could select multiple responses to each item. Therefore, the responses for individual items do not add up to 100%.

Approximately half of the students surveyed at your school were allowed to travel alone more than 10km from home either on foot (51%) or by bicycle (46%). In contrast, approximately one in ten students were not allowed to travel from home by themselves at all, either on foot (11%) or by bicycle (14%) (**Table 30**).

A greater proportion of students were allowed to travel more than 10 km from home on foot when accompanied by someone the same age (60%) or with an older teenager (54%), than when they were alone. Similar results were observed for traveling more than 10 km from home by bicycle, with 60% of students reporting being allowed when accompanied by someone the same age and 62% when accompanied by an older teenager (**Table 30**).

Overall, 38% of students surveyed at your school travelled to school alone, 24% of students travelled to school with a parent or guardian, 27% with a person the same age and 24% with a younger person (24%) (**Table 32**).

Students most frequently travelled with their parent or guardian to places such as a relative's home (65%), shops, markets, or restaurants (62%), a friend's home (43%), and sports venues (38%). Over one third of students reported not going to parks or playgrounds (38%) (**Table 32**).

Excluding the school-related travel, students reported travelling on foot most frequently to a friend's home (27%), parks or playgrounds (22%), or to sports venues (19%) (**Table 34**). For cycling, the most commonly reported destination was a friend's home (11%).

Use of a bus was only reported by surveyed students to get to a friend's home (5%), not including use for school transport (**Table 34**). Nearly half of students were usually driven by a parent/guardian to a friend's home (49%).

Table 30. Independent mobility: Distance allowed to travel from home – School-specific data

	School data n=95						
	Not allowed	Up to 500 m	500 m to 1 km	1 km to 3 km	4 km to 5 km	6 km to 10 km	>10 km
How far are you allowed to travel from home...							
ON FOOT when you are alone?	10.8%	5.4%	5.4%	8.1%	8.1%	10.8%	51.4%
ON FOOT when you are with someone the same age?	8.1%	8.1%	2.7%	8.1%	10.8%	2.7%	59.5%
ON FOOT when you are with an older teenager?	10.8%	2.7%	5.4%	5.4%	13.5%	8.1%	54.1%
With the BICYCLE when you are alone?	13.5%	5.4%	10.8%	5.4%	13.5%	5.4%	45.9%
With the BICYCLE when you are with someone the same age?	10.8%	8.1%	5.4%	2.7%	8.1%	5.4%	59.5%
With the BICYCLE when you are with an older teenager?	10.8%	0.0%	8.1%	2.7%	8.1%	8.1%	62.2%

Table 31. Independent mobility: Distance allowed to travel from home – Otago region data

	Otago region data n=						
	Not allowed	Up to 500 m	500 m to 1 km	1 km to 3 km	4 km to 5 km	6 km to 10 km	>10 km
How far are you allowed to travel from home...							
ON FOOT when you are alone?	%	%	%	%	%	%	%
ON FOOT when you are with someone the same age?	%	%	%	%	%	%	%
ON FOOT when you are with an older teenager?	%	%	%	%	%	%	%
With the BICYCLE when you are alone?	%	%	%	%	%	%	%
With the BICYCLE when you are with someone the same age?	%	%	%	%	%	%	%
With the BICYCLE when you are with an older teenager?	%	%	%	%	%	%	%

Table 32. Independent mobility: Company – School-specific data

	School data n=95						
	By myself	With a parent or guardian	With another adult	With an older teenager	With a person the same age	With a younger person	I do not go there
In a normal week, with whom do you usually travel to and from the following places with?							
School	37.8%	24.3%	2.7%	18.9%	27.0%	24.3%	5.4%
Friend's home	29.7%	43.2%	5.4%	0.0%	13.5%	2.7%	13.5%
Relative's home	16.2%	64.9%	2.7%	0.0%	0.0%	0.0%	18.9%
Parks or playgrounds	24.3%	18.9%	0.0%	2.7%	18.9%	5.4%	37.8%
Shops, markets, or restaurants	18.9%	62.2%	5.4%	5.4%	13.5%	2.7%	16.2%
Sport venues (e.g., soccer field, swimming pool)	21.6%	37.8%	16.2%	10.8%	18.9%	2.7%	21.6%
Faith places (e.g., church, mosque)	18.9%	13.5%	0.0%	5.4%	5.4%	2.7%	75.7%
Other	18.9%	8.1%	2.7%	0.0%	0.0%	0.0%	75.7%

Table 33. Independent mobility: Company – Otago region data.

	Otago region data n=						
	By myself	With a parent or guardian	With another adult	With an older teenager	With a person the same age	With a younger person	I do not go there
In a normal week, with whom do you usually travel to and from the following places with?							
School	%	%	%	%	%	%	%
Friend's home	%	%	%	%	%	%	%
Relative's home	%	%	%	%	%	%	%
Parks or playgrounds	%	%	%	%	%	%	%
Shops, markets, or restaurants	%	%	%	%	%	%	%
Sport venues (e.g., soccer field, swimming pool)	%	%	%	%	%	%	%
Faith places (e.g., church, mosque)	%	%	%	%	%	%	%
Other	%	%	%	%	%	%	%

Table 34. Independent mobility: Mode of travel to different destinations – School-specific data

	School data n=37								
	Walking	Cycling	Busing	Drive myself	Driven by a parent/ guardian	Driven by another adult	Driven by an older teenager	Driven by a person of the same	I do not go there
In a normal week, how do you usually travel to and from the following places?									
Friend's home	27.0%	10.8%	5.4%	13.5%	48.6%	5.4%	2.7%	0.0%	10.8%
Relative's home	10.8%	0.0%	0.0%	10.8%	59.5%	5.4%	2.7%	0.0%	16.2%
Parks or playgrounds	21.6%	0.0%	0.0%	10.8%	27.0%	0.0%	0.0%	0.0%	40.5%
Shops, markets, or restaurants	16.2%	0.0%	0.0%	10.8%	51.4%	8.1%	2.7%	0.0%	18.9%
Sport venues	18.9%	2.7%	0.0%	10.8%	54.1%	10.8%	5.4%	0.0%	24.3%
Faith places	5.4%	0.0%	0.0%	8.1%	13.5%	2.7%	0.0%	0.0%	73.0%
Other	13.5%	0.0%	0.0%	8.1%	8.1%	2.7%	0.0%	0.0%	78.4%

Table 35. Independent mobility: Mode of travel to different destinations – Otago regional data

	Otago region data n=								
	Walking	Cycling	Busing	Drive myself	Driven by a parent/ guardian	Driven by another adult	Driven by an older teenager	Driven by a person of the same	I do not go there
In a normal week, how do you usually travel to and from the following places?									
Friend's home	%	%	%	%	%	%	%	%	%
Relative's home	%	%	%	%	%	%	%	%	%
Parks or playgrounds	%	%	%	%	%	%	%	%	%
Shops, markets, or restaurants	%	%	%	%	%	%	%	%	%
Sport venues	%	%	%	%	%	%	%	%	%
Faith places	%	%	%	%	%	%	%	%	%
Other	%	%	%	%	%	%	%	%	%

Technology Use and Perceptions

Nearly all students surveyed at your school had a mobile phone or other portable technology (97%) and the majority of students' devices, such as smart phone, tablet or iPad, had Internet access (76%) (**Table 36**). Overall, 44% of the students with a mobile phone were on a contract that costs less than $20 per month. Approximately two thirds of students (65%) were paying for their mobile phone use (**Table 36**).

On average, students reported spending time after school with friends on 1.4 days per week and visiting friends on 1.4 evenings per week (**Table 37**). More than half of students talked to friends over the phone or Internet on five or more days per week (54%). Overall, 32% of students agreed that they saw their friends less in person because they could speak to them on the Internet or over the phone.

On average, students reported spending 4.5 hours per day on the Internet. Nearly two thirds of students had unlimited access to Internet at home (62%) (**Table 37**).

When asked about the importance of owning and driving a car, having a mobile phone, computer, Internet access and overseas experience, majority of students reported having Internet access (65%) and a mobile phone (58%) was "very important" or "essential" to them (**Table 38**). Approximately half of the students considered driving a car (51%) and owning a car (47%) as "very important" or "essential". Overall, 37% of students considered travelling overseas as being important ("very important" or "essential") and 21% of students considered it important to have a computer.

Table 36. Mobile phone

	School data n=95	*Otago region data n=*
Do you have a mobile phone or another portable technology (such as smart phone, tablet, iPad, etc.)?	All students	
Yes, I have access to one **without** internet access	21.6%	*%*
Yes, I have access to one **with** mobile internet access	75.7%	*%*
No, I do not have one	2.7%	*%*
How much does your mobile phone cost per month?	All students	
Less than $20	44.4%	*%*
$20-$29	27.8%	
$30-$49	11.1%	*%*
$50-$79	0.0%	*%*
More than $80	0.0%	*%*
I do not know	16.7%	*%*
Who pays for your mobile phone?	Only in students who had a mobile phone	
I do	64.9%	*%*
My parents do	35.1%	*%*
Someone else does	2.7%	*%*

Table 37. Virtual communications and Internet use

	School data n=95	*Otago region data n=*
Time spent with friends after school (out of 5 days) (mean±SD)	1.41 ± 1.28	±
Time spent out with friends in evenings (out of 7 days) (mean±SD)	1.35 ± 1.50	±
Time spent talking with friends on phone or Internet		
Never	5.4%	%
Rarely	18.9%	%
1 or 2 days a week	2.7%	%
3 or 4 days a week	18.9%	%
5 or 6 days a week	10.8%	%
Every day	43.2%	%
I see my friends less in person because we speak on the Internet or phone	32.4%	%
People my age get bullied or harassed via their mobile phone or device	51.3%	%
How many hours a day do you spend on the Internet (either on your phone or on a computer) including during school and/or doing homework? (mean±SD)	4.46 ± 2.59	±
What Internet access do you have at home?		
Limited access by data cap	8.1%	%
Restricted access by parents or guardians	13.5%	%
Unlimited access	62.2%	%
None	8.1%	%
Other	8.1%	%

SD = Standard deviation.

Table 38. Students' perceived importance of a car, mobile phone, computer, internet access and overseas experience

	Not important %	Fairly important %	Very important %	Essential %
School-specific data (n=110)				
How important is to you…?				
To drive a car	20.9%	27.9%	23.3%	27.9%
To own a car	20.9%	32.6%	23.3%	23.3%
To own a mobile phone	7.0%	34.9%	27.9%	30.2%
To own the latest mobile phone	67.4%	23.3%	2.3%	7.0%
To have a computer	30.2%	48.8%	14.0%	7.0%
To have Internet access	4.7%	30.2%	41.9%	23.3%
To travel overseas ("OE")	46.5%	16.3%	23.3%	14.0%
Otago regional data (n=)				
How important is to you…?				
To drive a car	%	%	%	%
To own a car	%	%	%	%
To own a mobile phone	%	%	%	%
To own the latest mobile phone	%	%	%	%
To have a computer	%	%	%	%
To have Internet access	%	%	%	%
To travel overseas ("OE")	%	%	%	%

Students' Aspirations after Secondary School

After completing secondary school, 49% of surveyed students at your school intended to get a job, 16% intended to travel overseas and 14% planned to continue education elsewhere in New Zealand (**Table 39**).

By mid-twenties, most students perceived that they would have likely left home (95%), begun a career (95%), have earned a degree or qualification (51%), and started their own business (24%) (**Table 39**). Approximately half of students indicated that they would have likely completed an overseas experience by that time (43%). Most students stated that by mid-twenties they would have likely obtained a full driver's licence (97%) and own a car (97%). Approximately one tenth of students indicated that by mid-twenties they aspire to be married (14%) and have had a child (11%).

Table 39. Students' aspirations

	School data	*Otago region data*
	n=95	*n=*
	%	*%*
When you finish at school, what do you intend to do?		
Get a job	48.6%	*%*
Continue education (in my town / area)	0.0%	*%*
Continue education (elsewhere in NZ)	13.5%	*%*
Continue education (overseas)	2.7%	*%*
Go travelling overseas (the OE)	16.2%	*%*
Have time off	0.0%	*%*
Start learning a trade/ start an apprenticeship	5.4%	*%*
Start my own business	5.4%	*%*
Move away from home	2.7%	*%*
Look after home or family full time	0.0%	*%*
Other	5.4%	*%*
By my mid-twenties, I will have…		
Have full driver's licence	97.3%	*%*
Own a car	97.3%	*%*
Have done an OE (overseas experience)	43.2%	*%*
Have a degree/ qualification	51.4%	*%*
Begun a career	94.6%	*%*
Started my own business	24.3%	*%*
Had a child	10.8%	*%*
Got married	13.5%	*%*
Left home	94.6%	*%*

Summary

This report provided detailed results from the BEATS Rural Student Survey completed by 110 students from **Sample School**. The report presented socio-demographic characteristics of the students surveyed at your school, detailed data on transport to school habits and perceptions of walking, cycling, driving, and busing to school, independent mobility and school bag characteristics. Moreover, the report included data on self-reported health behaviours of your students, including physical activity, dietary habits and screen time in comparison to the current recommended guidelines. Finally, the report presented data on students' perceptions of driving, mobile phone use and student values and aspirations after completing secondary school.

The report also provided the average data for Otago region based on responses from students from xx rural Otago secondary schools who participated in the BEATS Rural Student Survey in 2018. No attempt was made to compare school-specific results with the average data for the Otago region.

The BEATS Research Team hopes that this report together with the results of the overall BEATS-R Study that will be published in scientific journals in the upcoming years will provide your school with further insights into your current cohort of students. It is our hope that this information will assist your school's efforts in promoting healthy behaviours at your school.

Acknowledgments

The BEATS Study is a multi-sector collaboration between the University of Otago, the Dunedin Secondary Schools' Partnership and the Dunedin City Council.

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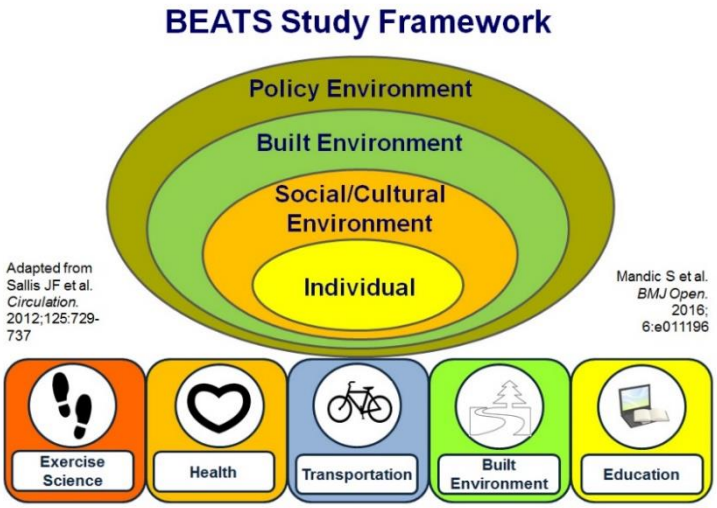
APPENDIX: BEATS Study Update 2017

BEATS Study Update 2017

Overview

The BEATS Study is based on contemporary ecological models for active transport (walking or cycling) that identify individual, social, environmental, and policy influences on behaviour. The study is designed to advance scientific knowledge and provide service to the government, local community and schools.

The BEATS Study spans the fields of exercise science, health, transportation, environment and education. The study is founded on a multidisciplinary approach and multi-sector collaborations between secondary schools, city council, community, and academia.

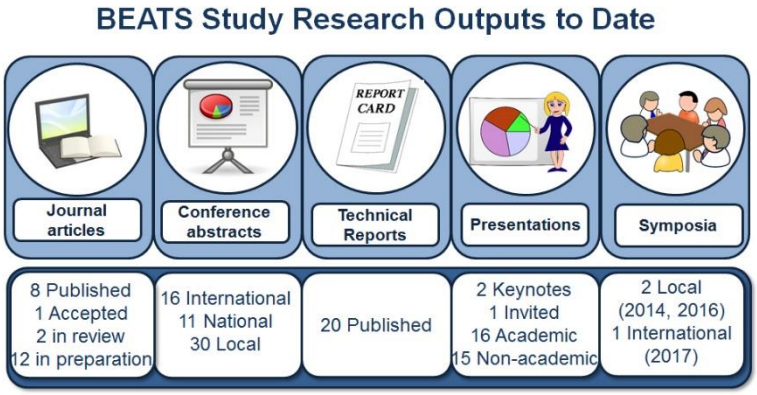


Progress to date

Completed data collection (2014-2017):

- Surveyed 1780 students from all 12 Dunedin secondary schools
- Surveyed over 350 parents of secondary school students
- Conducted 18 focus groups with students, parents and teachers
- Conducted 12 interviews with school principals

Comprehensive dissemination of findings



The links to publications are available on the BEATS Study website: **www.otago.ac.nz/beats/publications**

One dozen research articles reporting findings from the BEATS Study are currently in preparation.

Funding

University of Otago, Dunedin City Council, Health Research Council of New Zealand, Heart Foundation, Fulfil a lifetime, Lottery Grants Board

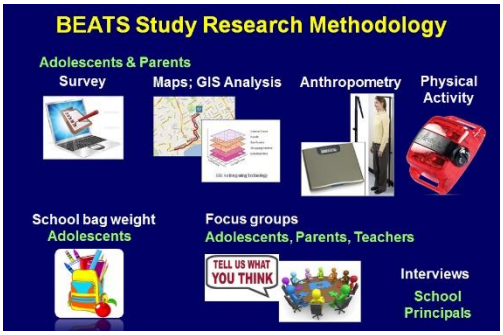
Report prepared by Dr Sandra Mandic on behalf of the BEATS Research Team. Dunedin, New Zealand, August 2017.

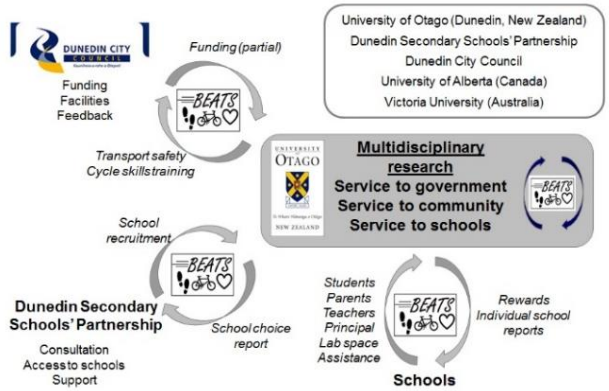
Research publications and findings to date

BEATS Study Protocol Article

This article describes research methodology for the entire BEATS Study.

Sandra Mandic, John Williams, Antoni Moore, Debbie Hopkins, Charlotte Flaherty, Gordon Wilson, Enrique García Bengoechea, John C Spence. Built Environment and Active Transport to School (BEATS) Study: Protocol for a cross-sectional study. BMJ Open. 2016;6:e011196. ***Full article***





Reprinted from Mandic S et al. Retos, 2015;28:197-202 (with permission from the Retos journal).

BEATS Study Planning and Implementation

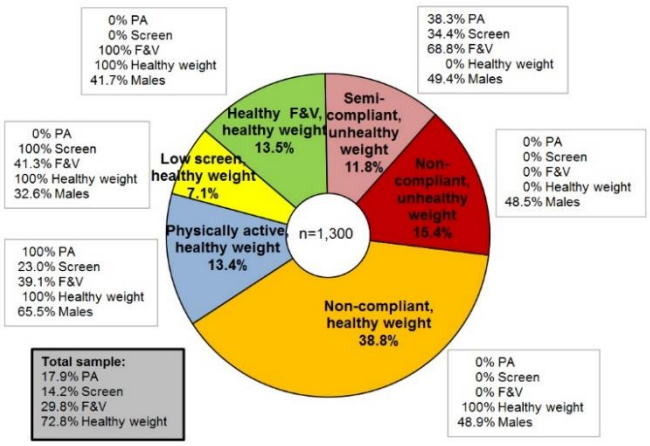
This article provides "a look behind the scenes" from vision to implementation of the BEATS Study: study design, the establishment of research and community collaborations, planning and preparation for data collection, study implementation and knowledge dissemination.

Sandra Mandic, Ashley Mountfort, Debbie Hopkins, Charlotte Flaherty, John Williams, Emily Brook, Gordon Wilson, Antoni Moore. Built Environment and Active Transport to School (BEATS) Study: Multidisciplinary and multi-sector collaboration for physical activity promotion. Retos, 2015. 28: p. 197-202. ***Full article***

Clustering of (Un)Healthy Behaviors in Adolescents from Dunedin, New Zealand

The findings from the BEATS Study show that few Dunedin adolescents met recommended health behaviour guidelines, yet two-thirds had a healthy weight. This study identified six clusters based on health behaviours and weight status. Clusters had distinct sociodemographic and lifestyle characteristics. These findings suggest that future public health strategies for adolescents should be comprehensive and consider socioeconomic structural factors.

Sandra Mandic, Enrique García Bengoechea, Kirsten J Coppell, John C Spence. Clustering of (un)healthy behaviors in adolescents from Dunedin, New Zealand. American Journal of Health Behavior. 2017;41(3):266-275 DOI: https://doi.org/10.5993/AJHB.41.3.6 **Full article**



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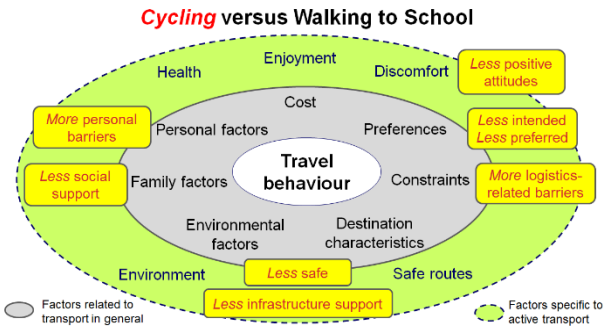


Reprinted from Mandic S et al. J Transp Health, 2017; 4:294-304 (with permission from Elsevier).

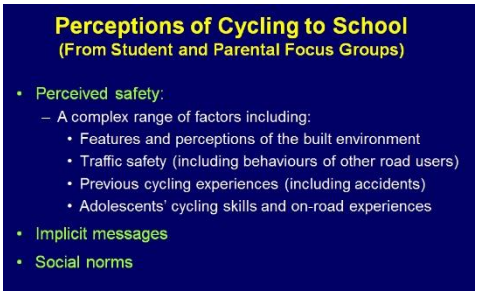
Adolescents Perceptions of Walking versus Cycling to School

The findings from the BEATS Study show that low rates of cycling to school in New Zealand adolescents may be context-specific. This article shows that compared to walking, cycling to school among Dunedin adolescents was less common and perceived as less safe. Cycling also received less social and infrastructure support. Therefore, more supportive physical and social environments are required for promoting cycling to school among Dunedin adolescents.

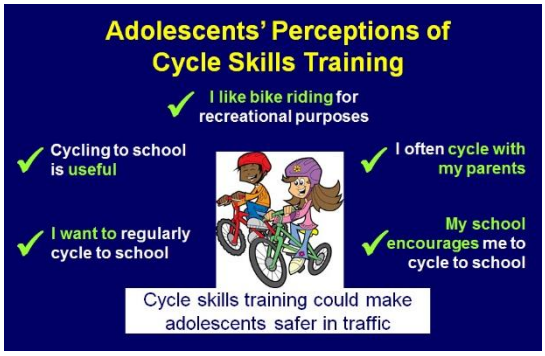
Sandra Mandic, Debbie Hopkins, Enrique García Bengoechea, Charlotte Flaherty, John Williams, Leiana Sloane, Antoni Moore, John C Spence. Adolescents' perceptions of cycling versus walking to school: Understanding the New Zealand context. Journal of Transportation and Health. 2017;4:294-304 DOI: 10.1016/j.jth.2016.10.007 **Full article**

Perceptions of Cycling among High School Students and Their Parents

This article presents findings from BEATS Study focus groups with adolescents and parents. Key findings relate to perceived safety, implicit messages, and social norms. A complex range of factors contributed to perceived safety of cycling, including features and perceptions of the built environment, traffic safety, previous cycling experiences and adolescents' cycling skills and on-road experiences. Overcoming concerns through behavioural and cultural interventions coupled with up-skilling and infrastructure changes may present a pathway to increasing rates of cycling.



Debbie Hopkins, Sandra Mandic. Perceptions of cycling among high school students and their parents. International Journal of Sustainable Transportation. 2017;11(5):342-356 DOI: 10.1080/15568318.2016.1253803 **Full article**



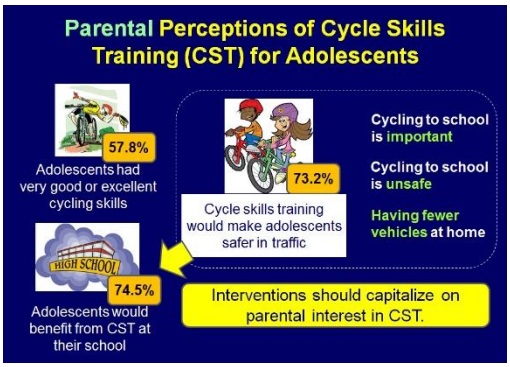
Attitudes Towards Cycle Skills Training in New Zealand Adolescents

Little is known about adolescents' attitudes towards cycle skills training. The BEATS Study results showed that over a third of adolescents perceived that cycle skills training could make them safer in traffic. Enjoyment, usefulness and desire to cycle were associated with a positive attitude. Parental cycling behaviour and school's encouragement were also important. Schools may be an appropriate setting for provision of cycle skills training to adolescents.

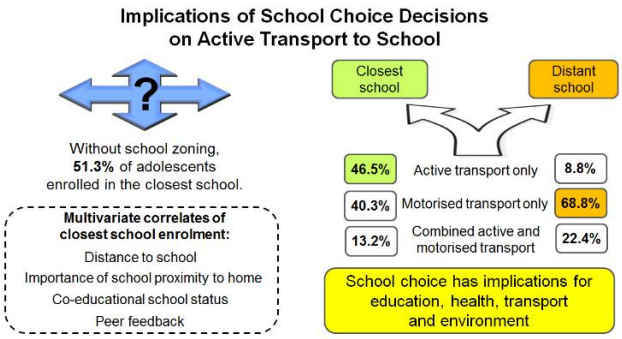
Sandra Mandic, Charlotte Flaherty, Tessa Pocock, Alex Mintoft-Jones, Jillian Frater, Palma Chillón, Enrique García Bengoechea. Attitudes towards cycling skills training in New Zealand adolescents. Transportation Research Part F: Traffic Psychology and Behaviour. 2016;42:217-226 DOI: 10.1016/j.trf.2016.08.002 **Full article**

Parental Perceptions of Cycle Skills Training

This article presents findings from the BEATS Parental Survey. Parents perceived cycle skills training would make adolescents safer in traffic. Parental perceptions of cycling to school as important and unsafe and having fewer vehicles at home was also associated with favourable perceptions of cycling skills training. Parents thought adolescents would benefit from such training at their school. Therefore, interventions should capitalize on parental interest in cycle skills training.



Sandra Mandic, Charlotte Flaherty, Tessa Pocock, Chiew Ching Kek, Palma Chillón, Christina Ergler, Enrique García Bengoechea. Parental perceptions of cycle skills training for adolescents. Journal of Transport & Health. [in press; Epub 24 Mar 2017] DOI: https://doi.org/10.1016/j.jth.2017.03.009 **Full article**



Mandic S et al. J Transp Health, [in press] (with permission from Elsevier).

Implications of School Choice Decisions on Active Transport to School

This article shows that without school zoning, half of Dunedin adolescents enrolled in the closest school. Distance to school and importance of school's proximity influenced school choice. Co-educational school status and peer feedback were also important. Adolescents attending their closest school had five times higher rates of active transport. These findings suggest that school choice has implications for education, health, transport and environment.

Sandra Mandic, Susan Sandretto, Enrique García Bengoechea, Debbie Hopkins, Antoni Moore, Judy Rodda, Gordon Wilson. Enrolling in the closest school or not? Implications of school choice decisions for active transport to school. Journal of Transport & Health. [In press] [Epub: 30 May 2017] DOI: https://doi.org/10.1016/j.jth.2017.05.006 **Full article**

Going Forward

The BEATS Research Team is currently planning and designing extensions of the BEATS Study.

BEATS-R (2018-2020)

The BEATS Rural Study (BEATS-R) will examine active transport to school in adolescents living **in rural Otago** using the published BEATS Study methodology and conceptual framework. This study will examine individual, social, environmental, and policy influences on rural adolescents' transport to school. BEATS-R will generate valuable rural-specific data to inform future interventions for built environment change, education campaigns, and policy development in rural areas.

BEATS-2 (2019-2021)

Collected BEATS Study data provide comprehensive baseline data on adolescents' and parental perceptions of active transport to school in Dunedin. During 2014-2017, several Dunedin neighbourhoods have been undergoing on-road and off-road cycling infrastructure construction, including neighbourhoods of several schools. BEATS-2 will use the original BEATS Study research methodology to examine the effects of the cycling infrastructure construction on active transport to school **in Dunedin** adolescents.

International Symposium in 2017

As a result of the BEATS Study work and collaborations, members of the BEATS Research Team have organized the International Symposium Active Living and Environment: Towards a Healthier and More Sustainable Future (Symposium website**:** www.otago.ac.nz/active-living-2017/).

The goal of this symposium is to facilitate and grow an international, multidisciplinary and multi-sector dialogue. Symposium themes include **Health**, **Transportation**, **Environment** and **Sustainability**.

This symposium has **18 invited speakers** (11 from New Zealand and 7 presenters from overseas including UK, Spain, Australia, Canada, & U.S.A.). The list of **invited speakers** is available online: www.otago.ac.nz/active-living-2017/programme-and-speakers/

Finalized Symposium Program is also available: www.otago.ac.nz/active-living-2017/otago644038.pdf
Registrations are now open: https://secure-www.otago.ac.nz/conferences/active-living-2017/

We invite you to join us!

BEATS Study Updates: Sign up for our newsletter

In 2016, we started a quarterly newsletter from the Active Living Laboratory to provide regular updates about our work and the BEATS Study publications. Previous issues of the newsletters are available on the laboratory website: www.otago.ac.nz/active-living/research/publications

Newsletter sign up is available online: www.goo.gl/jtqdAo

Acknowledgments

The BEATS Study is a collaboration between Dunedin Secondary Schools' Partnership, Dunedin City Council and University of Otago. We acknowledge great support and contribution of all members of our research team, advisory board, research personnel (research assistants, students and volunteers), and all participating schools, adolescents, parents, teachers and school principals.

The BEATS Research Team 2016/2017

www.otago.ac.nz/beats