Increasing Access to Cycling among Middle School Youth in the United States



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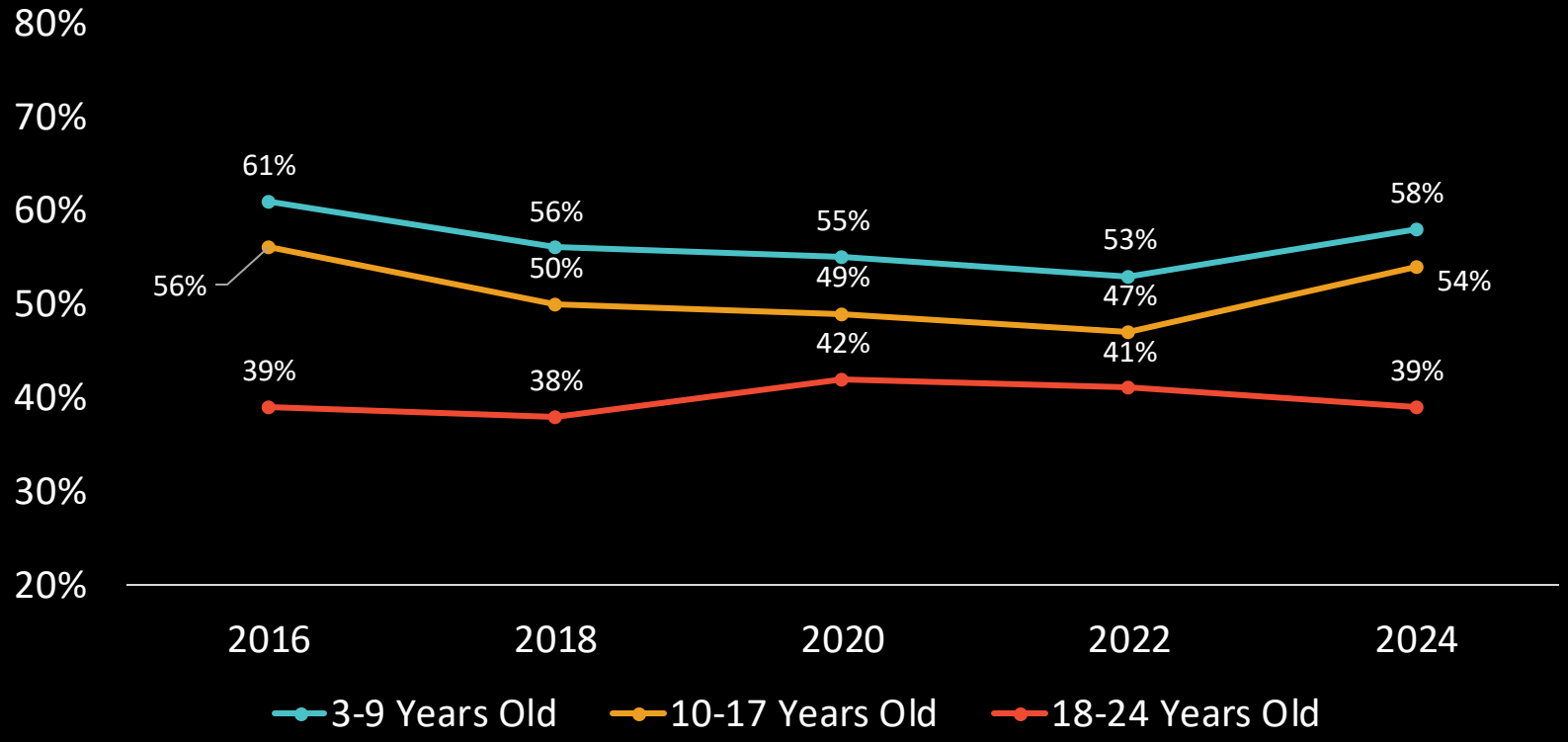
Outride

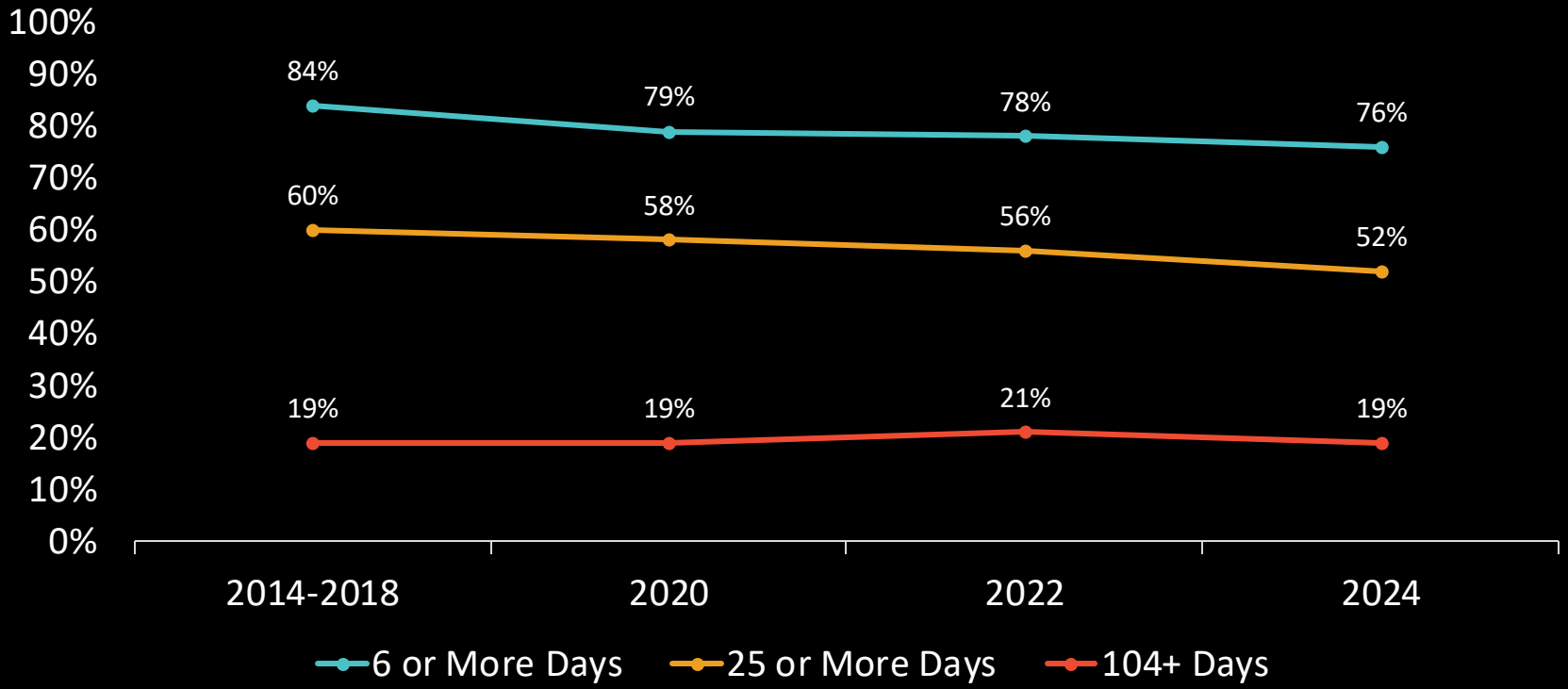
This work was funded in part by Specialized Bicycle Components.

Percentage of People Riding a Bike at Least 1 Day in the Past Year (United States)



Source: PeopleForBikes U.S. Bicycling Participation Study (2024)

Of youth who rode a bike in the past year, how often did they ride their bike?



Source: PeopleForBikes U.S. Bicycling Participation Study (2024)

SCHOOL-BASED CYCLING EDUCATION

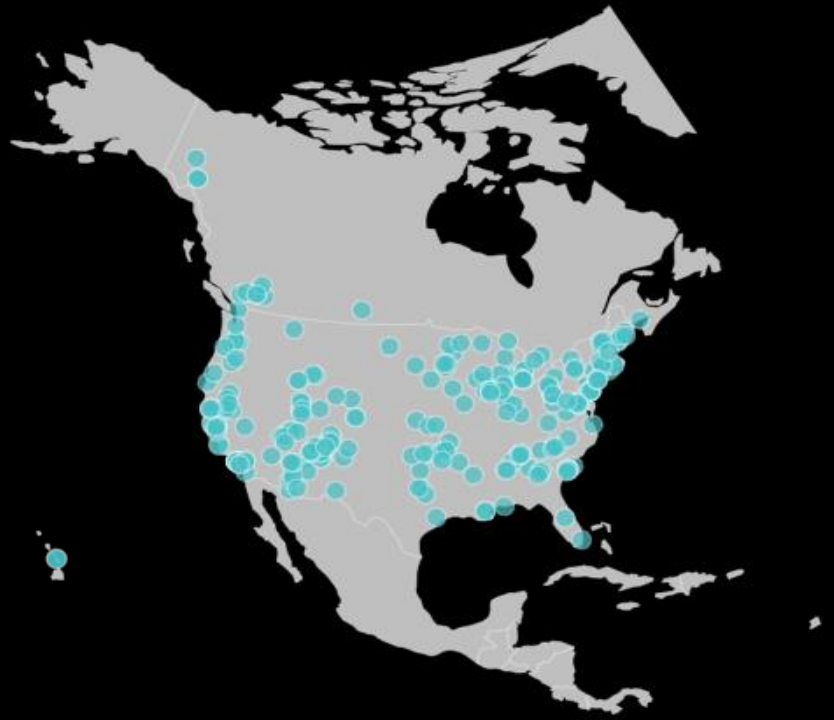
- Around the world, a wide range of school-based cycling education initiatives are offered (e.g. *Bikeability*), though may differ in the reach and consistency of programs offered.
- Programs often positively impact students' cycling safety knowledge and confidence cycling. (Montenegro, 2015; Mandic et al., 2018; Hatfield et al., 2019)
- Mixed results on increasing cycling frequency beyond the program (Sersli et al, 2019).
- School-based cycling training provides an opportunity to reach more students, particularly in underserved communities (Goodman et al., 2015).

THE RIDING FOR FOCUS PROGRAM

Riding for Focus (R4F) is a middle school cycling education program.

It aims to:

- Equip students with basic cycling handling and traffic safety skills
- Introduce activities that may help foster a lifelong love of physical activity
- Allow students to experience the joy and community that can come with cycling



THE RIDING FOR FOCUS PROGRAM

Grant Program Includes:

Fleet of bikes

Helmets

Teacher training

Curriculum

Age group:

Middle School (Grades 6-8; ~11-13 years old)

Recommended Implementation:

6 weeks

3 days a week

At least 20 minutes of riding time

Lesson Topics
Helmets and Routines
Pre-Ride Check and Start
Stop and Balance
Maintaining Control
Heart Rate and Zones
Weaving
Turning and Scanning
Hand Signals and Anticipation
Managing Hazards
Traffic Safety and Cycling Etiquette
Cycling Safety
“Road Ready” Certification

TODAY'S FOCUS

What impact does the program have on student cycling confidence, reported safety behaviors, cycling frequency, and wellbeing?

Do students enjoy it? Are they interested in continuing cycling after?

Do these outcomes differ based on student gender or socioeconomic status of community ?

How is the program received by teachers and what are considerations for long-term program sustainability?

DATA SOURCES

- Students participate in anonymous pre and post program surveys that include open and close-ended questions about their experience with and perceptions of bicycling, lifestyle activities, mental wellbeing (WHO-5), demographic information, and their program experience.
- Teachers complete implementation surveys at the conclusion of each unit.
- School-level locale (NCES) and *Social Vulnerability Index* (SVI; CDC) were joined by zip code.
- Schools were only included in this analysis if they had relatively balanced participation in both PRE and POST surveys.

School Year	Schools	Pre Responses	Post Responses
2021-2022	31	3924	3289
2022-2023	45	4673	4315
2023-2024	53	4367	3874
TOTALS	89	12964	11478

PROGRAM PARTICIPANTS

	PRE	POST
Female	43.4%	42.9%
Male	49.0%	49.0%
A Gender Not Listed	4.7%	5.0%
Prefer Not to Say	2.9%	3.1%
Asian	6.7%	6.5%
Black	10.5%	10.8%
Hispanic	20.3%	20.2%
More than one race	12.6%	13.7%
Native American	3.1%	2.8%
Native Hawaiian / Pacific Islander	.1%	.1%
White	39.0%	39.4%
A Race Not Listed	6.9%	6.0%

Social Vulnerability Index (SVI): Demographic + socioeconomic factors that adversely affect communities (CDC)

SVI Quartile	Schools	%
Low Vulnerability	--	--
Medium Vulnerability	9	10.1%
High Vulnerability	39	43.8%
Very High Vulnerability	41	46.1%

Locale Type	Schools	%
City	27	30.3%
Suburb	15	16.9%
Town	23	25.8%
Rural	24	27.0%

STUDENT OUTCOME SUMMARY

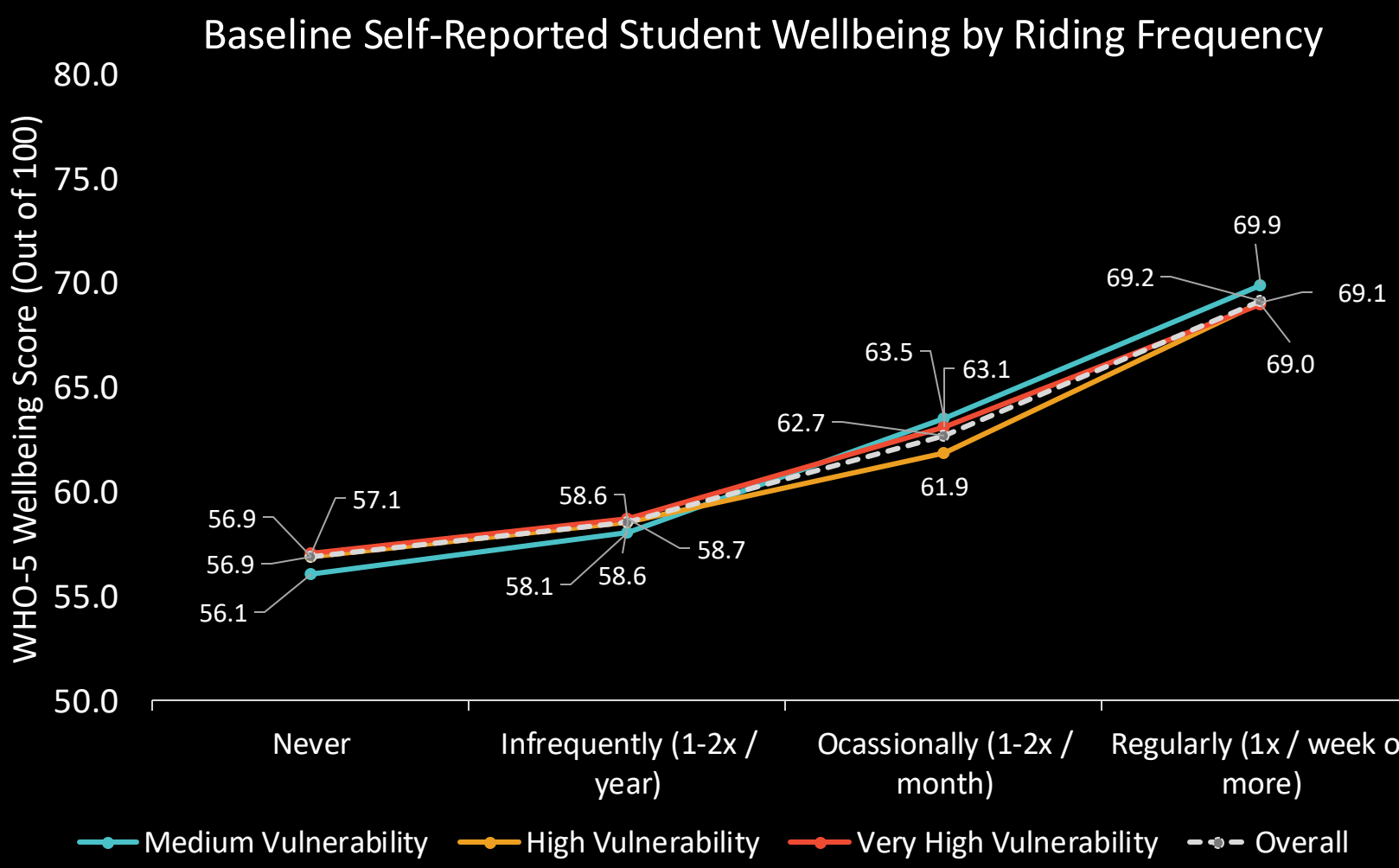
	% Have a Bike at Home		% Do Not Know How to Ride or Low Levels of Confidence Riding		% Reporting Regular Helmet Use		% Ride At Least Once A Week (Outside of School)		% Ride to/from School Regularly (At least weekly)		Student Wellbeing (WHO-5)	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
Overall	76%	76%	14%	9%	51%	58%	41%	40%	6.4%	6.3%	63.6	67.0

STUDENT OUTCOME SUMMARY: BY GENDER

	% Have a Bike at Home		% Do Not Know How to Ride or Low Levels of Confidence Riding		% Reporting Regular Helmet Use		% Ride At Least Once A Week (Outside of School)		% Ride to/from School Regularly (At least weekly)		Student Wellbeing (WHO-5)	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
Overall	76%	76%	14%	9%	51%	58%	41%	40%	6.4%	6.3%	63.6	67.0
Female	73%	74%	17%	11%	49%	57%	31%	30%	3.8%	3.7%	59.7	62.8
Male	78%	78%	10%	6%	52%	58%	51%	49%	8.5%	8.5%	69.1	72.9
A Gender Not Listed	75%	77%	21%	14%	55%	59%	38%	39%	8.2%	7.6%	48.1	53.2

STUDENT OUTCOME SUMMARY: BY SVI

	% Have a Bike at Home		% Do Not Know How to Ride or Low Levels of Confidence Riding		% Reporting Regular Helmet Use		% Ride At Least Once A Week (Outside of School)		% Ride to/from School Regularly (At least weekly)		Student Wellbeing (WHO-5)	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
Overall	76%	76%	14%	9%	51%	58%	41%	40%	6.4%	6.3%	63.6	67.0
Medium Vulnerability	81%	81%	12%	8%	69%	71%	42%	40%	5.6%	4.3%	64.2	68.0
High Vulnerability	80%	79%	12%	9%	51%	54%	43%	41%	4.9%	4.3%	63.6	66.6
Very High Vulnerability	69%	71%	16%	9%	44%	55%	39%	39%	8.2%	9.4%	63.2	66.9


Baseline Self-Reported Student Wellbeing by Riding Frequency
WHO-5 Wellbeing Score (Out of 100)
80.0
75.0
70.0
65.0
60.0
55.0
50.0
56.9
57.1
56.9
56.1
58.6
58.1
58.6
58.7
62.7
63.5
63.1
61.9
69.2
69.9
69.1
69.0
Never
Infrequently (1-2x / year)
Ocassionally (1-2x / month)
Regularly (1x / week or more)
Medium Vulnerability
High Vulnerability
Very High Vulnerability
Overall

STUDENT PERCEPTION OF THE PROGRAM: BY GENDER

	I had fun in R4F	After R4F, I better understand how my bike works	After the R4F program, I know how to ride my bike safely	After the R4F program, I am more interested in riding bikes outside of class
Overall	81.3%	78.8%	78.7%	61.0%
Female	79.8% *	80.8% *	79.9%	57.7% *
Male	* 84.0%	* 78.5%	* 78.9% *	* 65.4% *
A Gender Not Listed	72.1% *	67.4% *	69.3%	50.4%

STUDENT PERCEPTION OF THE PROGRAM BY SVI

	I had fun in R4F	After R4F, I better understand how my bike works	After the R4F program, I know how to ride my bike safely	After the R4F program, I am more interested in riding bikes outside of class
Overall	81.3%	78.8%	78.7%	61.0%
Medium Vulnerability	87.5%	84.0%	83.1%	60.9%
High Vulnerability	81.2%	78.0%	77.9%	65.3%
Very High Vulnerability	79.0%	77.6%	77.9%	59.3%

WHAT STUDENTS LIKED AND DIDN'T LIKE

JUST RIDING
- *"I get to ride a bike!"*

WHERE THEY RODE
- *"I liked riding bikes on trails"*

RIDING WITH CLASSMATES
- *"It was a cool experience riding bikes with friends and classmates"*

HAVING FUN
- "We got to do something that was actually fun for PE"

LEARNING
- *"Being able to practice riding a bike, since I do not have one at home"*

BEING OUTSIDE
- *"You get to go out side and just be free and enjoy what your doing"*
- *"Being able to go outside, get fresh air, and see new things"*

NOTHING THEY DIDN'T LIKE
- "Nothing, I loved it!"

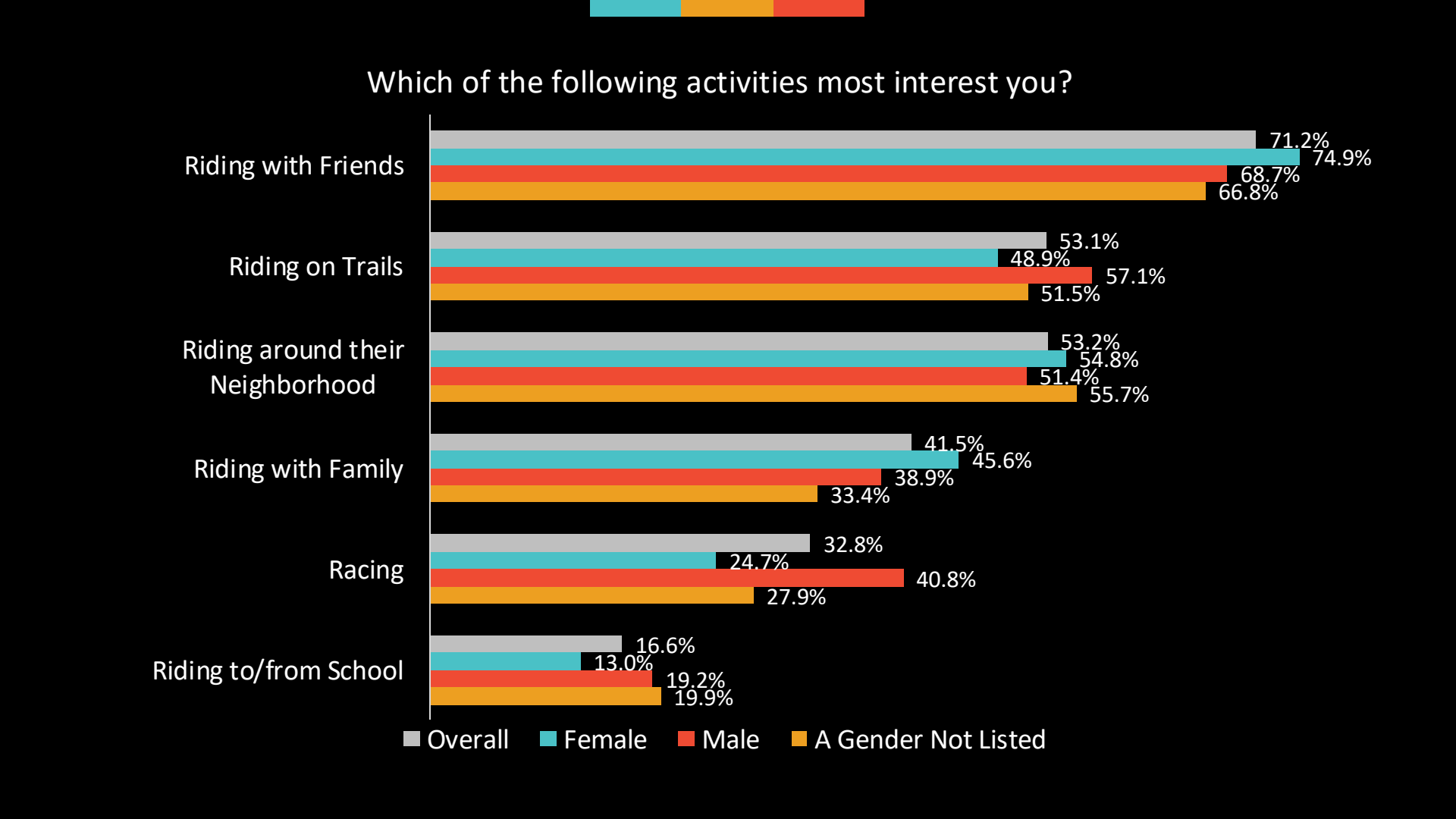
WEATHER
- "It was very tiring to ride the bike in the heat"; "The cold mornings"

PERCEPTIONS OF EQUIPMENT
- "Sometimes the helmet would feel uncomfortable but I still had to wear it for safety"

RIDING LOCATION
- "Riding the parking lot"

DIDN'T GET TO RIDE AS MUCH
- "I didn't like that the unit didn't go for a longer period of time"

RIDING TOO LONG / TOO OFTEN
- "I don't usually like going out of my comfort zone, and in this unit I had to"
- "My legs got tired"


Which of the following activities most interest you?
Riding with Friends
71.2%
74.9%
68.7%
66.8%
Riding on Trails
53.1%
48.9%
57.1%
51.5%
Riding around their Neighborhood
53.2%
54.8%
51.4%
55.7%
Riding with Family
41.5%
45.6%
38.9%
33.4%
Racing
32.8%
24.7%
40.8%
27.9%
Riding to/from School
16.6%
13.0%
19.2%
19.9%
Overall
Female
Male
A Gender Not Listed

RIDING TO/FROM SCHOOL

Only 6% of students ride to school (with many schools at 0%), but 16.6% indicate they are interested in doing so.

Top barriers students highlight:

Distance / Too Far	Cars / Traffic	Parent Permission
*"I **do** want to, but my house might be too far"* *"I'd have to wake up a lot earlier to bike all the way"*	*"I live not that far but it is scary to ride by myself to school on a bike with all the cars"* *"My house has a corner at the road and they swerve too fast and end up hitting people"*	*"My parents don't think it is safe"* *"My parents don't want me to ride by the freeway"* *"My mom thinks it is too far but I've ridden my bike farther"*

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TEACHER-REPORTED SUCCESSES + CHALLENGES

Student Benefits

- "The excitement of the students and those "aha" moments when they finally understand and can implement a skill"

Increasing Access

- "It gives an opportunity for students to ride who would have never done so without the program"

Uniqueness of Cycling

- "Students are excited to try something different and they have found another way to enjoy the local parks and trails"

Teacher Enjoyment

- "It is rewarding to see students do hard things and persevere"

Classroom Management

- "The gap between students that have never ridden a bike and students that are excellent riders"

Logistics

- "Time and figuring out efficient systems for storage, set up, etc."

Environmental Challenges

- "Definitely the weather. We struggled in December, January, and February"

Maintenance

- "To maintain the bikes – we had to deal with a lot of flat tires"

CONCLUSIONS

- Participating in the R4F program was associated with improved student cycling confidence and safety behaviors.
- Increasing cycling outside of school settings will require focus on safe routes, infrastructure.
- The program is well-liked by students, with opportunities for deeper engagement, particularly for girls and gender minorities and students at schools in highly underserved areas.
- We see a consistent positive relationship between cycling frequency and student well-being.
- School-based programs can be an effective way to ensure programs are reaching students from underserved communities.



THANK YOU!













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OUTRIDE

REFERENCES

1. PeopleForBikes. *Bicycling Participation Study: 2024 Survey of U.S. Residents*. Corona Insights; 2025. Accessed April 20, 2025. https://www.peopleforbikes.org/reports/us-bicycling-participation-report

2. Montenegro SA. Evaluating CYCLE Kids: a bicycling and nutrition health promotion curriculum delivered as a component of school based physical education. Published online 2015. https://open.bu.edu/server/api/core/bitstreams/c6057caa-db9e-4470-9943-704d5b362d6c/content

3. Mandic S, Flaherty C, Pocock T, et al. Effects of cycle skills training on children's cycling-related knowledge, confidence and behaviours. J Transp Health. 2018;8:271-282. doi:10.1016/j.jth.2017.12.010

4. Hatfield J, Boufous S, Eveston T. An evaluation of an innovative school-based cycling education program on safety and participation. Accident Analysis & Prevention. 2019; 127:52-60. https://doi.org/10.1016/j.aap.2019.02.021

5. Sersli S, DeVries D, Gislason M, Scott N, Winters M. Changes in bicycling frequency in children and adults after bicycle skills training: A scoping review. Transp Res Part Policy Pract. 2019;123:170-187. doi:10.1016/j.tra.2018.07.012

6. Goodman A, Van Sluijs EMF, Ogilvie D. Cycle training for children: Which schools offer it and who takes part? J Transp Health. 2015; 2(4):512-521. doi:10.1016/j.jth.2015.07.002

7. National Center for Education Statistics (NCES), Common Core of Data, https://www.nces.ed.gov/ccd

8. Centers for Disease Control and Prevention, Agency for Toxic Substances and Disease Registry Geospatial Research, Analysis, and Services Program. CDC/ ATSDR Social Vulnerability Index. https://www.atsdr.cdc.gov/place-health/php/svi/svi-data-documentation-download.html