Effects of Cycle Skills Training Programme on Children’s Cycling-Related Behaviours, Confidence and Knowledge

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Decline in Cycling for Transport

- Children are at high risk of cycling related accidents and injuries
- Parental confidence in a child’s cycle skills is a determining factor in whether that child cycles to school
Cycle skills training programmes aim to assist children to gain skills and confidence to cycle safely in traffic.
Purpose of the Study

To examine the effects of CST on:

• Rates of cycling for recreation and transportation in children
• Children’s cycling confidence and skills
• Children’s knowledge of road rules and cycling-related laws
Study Design

Cycle Skills Training

Pre-training survey

8-10 min

Post-training survey

Practical skills assessment (During training)

8-10 min

Follow-up survey

8-10 min

Follow-up rides

6-9 months later
## Surveys: Standard NZTA Questions

<table>
<thead>
<tr>
<th></th>
<th>Pre-training survey</th>
<th>Post-training survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographics</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Travel to school</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Cycling confidence level</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Cycle road safety</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Satisfaction with cycle skills training</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
## Surveys: Research-Specific Questions

<table>
<thead>
<tr>
<th></th>
<th>Pre-training survey</th>
<th>Post-training survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family resources (vehicle/bike ownership; bike equipment)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Estimated time to cycle to school</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Habits of cycling for recreation, transportation and sport</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Confidence, ability, intention, support &amp; safety of cycling to school</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Effects of cycle skills training on improving road safety skills</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Effects of cycle skills training on improving practical cycling skills</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
# Dunedin City Council Cycle Skills Training Programme

**Cyclist skills pre training survey**

1. What is your name?
2. How old are you? ___ years
3. Are you male or female? ☐ Male ☐ Female
4. Which ethnic group do you belong to? ☐ New Zealand European ☐ Māori ☐ Samoan ☐ Cook Island Māori ☐ Tongan ☐ Chinese ☐ Indian ☐ Other (please state): ___
5. What is the name of your school?
6. What year are you in at school?

7. How many cars (or vans, trucks, or utes) do you have at home? ☐ None ☐ One ☐ Two ☐ Three ☐ Four or more

8. Which of the following things do you have at home? (☐)
   - A bike that is in a good condition that you could use to get to school
   - A bike helmet that is in a good condition

9. How often do you ride your bike? (☐)
   - I don't have a bike
   - About once a month
   - Never
   - At least once a week
   - A few times a year
   - Every day

10. Have you ever ridden your bike on the road? Yes ☐ No ☐ I don’t know

11. How long would your journey take if you cycled from home to school? (☐)
   - 1-5 minutes
   - 5-10 minutes
   - 10-20 minutes
   - 20-30 minutes
   - 31+ minutes

12. How do you get to school on most days? (☐)
   - Car ☐ Bike ☐ Bus ☐ Walk ☐ Other

13. How would you like to get to school most days? (☐)
   - Car ☐ Bike ☐ Bus ☐ Walk ☐ Other

14. How confident do you feel riding your bike in parks/reserves or playgrounds? (Please circle)
   - 0 Not confident
   - 1 OK
   - 2 Very confident

15. How confident do you feel riding your bike on the road? (Please circle)
   - 0 Not confident
   - 1 OK
   - 2 Very confident

16. How confident do you feel riding your bike to school? (Please circle)
   - 0 Not confident
   - 1 OK
   - 2 Very confident
### Participants

<table>
<thead>
<tr>
<th>Children</th>
<th>n=442</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>11.0 ± 0.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender [n(%)]</td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>229 (52.2%)</td>
</tr>
<tr>
<td>Girls</td>
<td>210 (47.8%)</td>
</tr>
<tr>
<td>Primary School [n(%)]</td>
<td></td>
</tr>
<tr>
<td>Musselburgh School</td>
<td>15 (3.4%)</td>
</tr>
<tr>
<td>Tahuna Intermediate</td>
<td>299 (67.6%)</td>
</tr>
<tr>
<td>Tainui School</td>
<td>128 (29.0%)</td>
</tr>
<tr>
<td>Bike in good condition available to ride (%)</td>
<td>321 (72.8%)</td>
</tr>
<tr>
<td>Bike helmet in a good condition available to use (%)</td>
<td>362 (83.4%)</td>
</tr>
</tbody>
</table>
Effects of CST on Cycling-Related Knowledge

**Average knowledge score**

* *p<.001*

<table>
<thead>
<tr>
<th></th>
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<th>Post-training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor (&lt;50%)</td>
<td>0.2%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Fair (50-64%)</td>
<td>0.5%</td>
<td>5.2%</td>
</tr>
<tr>
<td>Good (65-79%)</td>
<td>6.6%</td>
<td>32.1%</td>
</tr>
<tr>
<td>Very Good (80-89%)</td>
<td>23.5%</td>
<td>41.2%</td>
</tr>
<tr>
<td>Excellent (≥90%)</td>
<td>69.2%</td>
<td>69.2%</td>
</tr>
</tbody>
</table>

Very Good (80-89%) 41.2%
Effects of CST on Cycling Confidence

In a park or reserve:
- Pre-Training:
  - Not confident: 0.9%
  - Ok: 25.2%
  - Very confident: 73.9%
- Post-Training:
  - Not confident: 2.0%
  - Ok: 13.4%
  - Very confident: 84.6%

On the road:
- Pre-Training:
  - Not confident: 10.7%
  - Ok: 47.5%
  - Very confident: 41.8%
- Post-Training:
  - Not confident: 10.6%
  - Ok: 39.5%
  - Very confident: 54.9%

To school:
- Pre-Training:
  - Not confident: 10.6%
  - Ok: 26.7%
  - Very confident: 62.8%
- Post-Training:
  - Not confident: 8.0%
  - Ok: 29.8%
  - Very confident: 62.2%

Significance:
- In a park or reserve: \( p < 0.001 \)
- On the road: \( p < 0.001 \)
- To school: \( p < 0.001 \)
**Effects of CST on Cycling Habits**

Transport to school habits and preferences

- Currently cycle to school
  - Pre-training: 7.70%
  - Post-training: 8.80%

- Would prefer to cycle to school
  - Pre-training: 40.20%
  - Post-training: 41.90%

- Situation-specific confidence is a good predictor of behaviour. (Bandura, 1986)

- Increase in confidence often does not immediately translate into actual changes in behaviour.
Effects of CST on Cycling Confidence

### In a park or reserve
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  - Very confident: 73.9%
- **Post-Training**
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### On the road
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### To school
- **Pre-Training**
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  - Ok: 26.7%
  - Very confident: 62.8%
- **Post-Training**
  - Not confident: 8.0%
  - Ok: 29.8%
  - Very confident: 62.2%

**p<0.001**
Study Strengths and Limitations

**Strengths**
- Large sample size
- One of the first studies to incorporate comprehensive assessment of cycling-related knowledge alongside relevant psychosocial and behavioural variables

**Limitations**
- Cross-sectional study design
- Potentially limited generalizability of study findings to other settings
Conclusions

CST:

• Improved knowledge of road rules and cycling-related laws

• Increased children’s confidence to cycle in parks/reserves/playgrounds

• Increased children’s confidence on the road

• Did not increase children’s confidence to cycle to school

• Had positive but small effects on changing cycling behaviours and preference for cycling to school.
Future Research

Examine whether additional interventions targeting parents, schools and built environment changes are necessary for increasing the rates of cycling to school among children.
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Kia ora!
Thank you!