

**THE ROYAL SOCIETY FOR THE PREVENTION OF
ACCIDENTS**

THE EFFECTIVENESS OF CYCLIST TRAINING

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1 A HISTORY OF CYCLIST TRAINING IN GREAT BRITAIN

Cyclist training began in 1947, although its roots stretch back to the 1930s when cycling organisations were pressing the Government to include cyclist training in the school curriculum. World War Two delayed matters and it wasn't until 7 October 1947 that the first Cycling Proficiency Test took place (indoors) at RoSPA's Road Safety Congress. Seven children took the Test that day. Half a century later, between 200,000 and 250,000 children receive some kind of cycle training each year.

In 1958, the Government funded the introduction of RoSPA's National Cycling Proficiency Scheme (NCPS). In 1974, Local Authorities assumed statutory responsibility for road safety, including the provision of child cyclist training. By this time, courses increasingly included practice on public roads, although the debate about this continues to this day.

During the 1980s and 1990s new courses were developed by RoSPA, by individual local authorities and by the Scottish Road Safety Campaign. Many were Cycling Awareness Courses based on a problem-solving approach rather than instruction approach of the NCPS.

All this meant that the type and nature of cyclist training courses varied considerably, and there has not been a standard, national course for many years. Although this had advantages, in that it allowed courses to reflect local policies and circumstances, it also meant that the quality and effectiveness of courses differed. Inevitably, some courses were more effective than others.

In view of this, RoSPA conducted a review of cyclist training in 1992, comprising a questionnaire survey and a series of regional seminars. As expected, wide variations in the type and nature of courses were found, including differences in:

- the minimum age for trainees
- whether or not on-road training was conducted
- the length of courses
- the recruitment, training and supervision of instructors
- whether a test was conducted.

This illustrated the need for guidance on minimum standards. In 1993, RoSPA, with the help of a Working Group, produced a Code of Practice for cyclist training. This was revised and published as "Guidelines for the Management and Operation of Cyclist Training" in 2000.

2 THE EFFECTIVENESS OF CYCLIST TRAINING

Does cyclist training work, and if so, what type of courses are most effective? Several studies have assessed the benefits of child cyclist training. Nearly all have examined whether it improves knowledge, attitudes and observed behaviour, rather than whether trained children have less accidents than untrained children.

2.1 "Children and Cycling: The Effects of the NCPS in the County of Hereford and Worcester", County of Hereford and Worcester, 1976

A parental questionnaire survey concerning children's cycling accident involvement and exposure to traffic. A control group of children who had not been trained had 3 to 4 times as many casualties as the trained group. Those who had been trained tended to:

1. cycle more
2. cycle on roads more than before training
3. cycle to school more than those in the control group.

Nearly all (97%) parents of the children who had been trained considered them able to cycle on their own. Over three quarters (79%) of the parents of untrained children also thought their offspring were able to cycle on their own.

2.2 "Comparison of On-road and Off-road Cycle Training for Children", TRRL Laboratory Report 902, 1979

Three groups of children were given practical cycling tests. One group had been trained entirely in the playground, one group on public roads and the third was a control group who received no training. Children aged 8, 9 and 10 years were trained separately.

Before training there were no significant differences between the three groups. Training, both on and off the road, resulted in a large reduction in errors made by all age groups, but the road-trained group performed significantly better than the playground-trained group. The control group showed no significant improvement. The improvements were still apparent 6 to 8 months later although not so marked. 8 year old children did not benefit from either playground or road training as much as the older children.

2.3 "Evaluation of a Cycling Proficiency Training Course Using Two Behaviour Recording Methods" , TRRL Laboratory Report 890, 1979

A small group of children received NCPS training entirely in the playground over three and half weeks. A control group received no training. The cycling behaviour of the two groups were recorded on the TRRL's road system and on public roads, before and immediately after training, and two months later.

The training improved the children's cycling behaviour. There was no improvement in the control group. The improvements in the trained group were greater on the TRRL's road system (where the children knew they were being observed) than on public roads. The results indicated that children may not transfer all of their training into practical use.

2.4 "Children and Cycling: A study into Various Methods of Training Child Cyclists" , County of Hereford and Worcester, 1981

Three groups of children aged 9 to 11 years were trained. One group received an NCPS course, one group received a mainly theoretical course and the third group received a combination of the two. Each group was given a practical test before their course, immediately afterwards and three months later.

Practical training on its own and in conjunction with theoretical work significantly improved the children's cycling performance, and the improvement was still apparent after three months. Theoretical work on its own did not improve cycling performance.

2.5 "An Evaluation of a Cycling Safety Scheme in Buckinghamshire Middle Schools" , Cranfield Institute of Technology ",1987

2.6 Two groups of children, one who had taken a cycling awareness course and one who had no training, completed a questionnaire about the way they cycle. The questionnaire was completed before the training course, and after its completion. The course improved the way children cycled, particularly their use of observation. The control group showed no improvement.

2.6 "Casualty Reduction Strategy for Child Cyclists" , Bedfordshire County Council (unpublished), 1991

The minimum age for cycle training was raised to 11 years in Bedfordshire, mainly because local studies found that children were not transferring what they had learned at one junction to other junctions, and some were making major errors. Subsequently, casualties aged 11 and over dropped, and there was a slight reduction in casualties aged under 11, possibly due to parents not allowing them to ride on the road until they had been trained.

2.7 "The Development and Evaluation of Two Instructional Methods for Young Cyclists", University of Groningen Traffic Research Centre, 1988

Two groups of children were trained using different methods on a traffic training ground. The first method comprised a one hour session in which the children practised skills and manoeuvres demonstrated by an adult cyclist. No explanation of the underlying rules was given. The second method involved an indoor theory session followed by an outdoor practical session in which the instructor corrected the children when they made errors.

The children were tested before and immediately after the course and one month later. The first method was deemed adequate for teaching basic skills but not for roadcraft. The second method appeared to have a negative effect on traffic behaviour. The report concluded "in interaction with other traffic, children seem to use their own, individually determined rules".

2.8 "Pedal Cycle Accidents - A Hospital Based Study", TRL Research Report 220, 1989.

A study of 772 accidents involving cyclists who attended the Accident and Emergency Department of the John Radcliffe Hospital in Oxfordshire. The study examined reporting rates, accident circumstances, injury patterns and other factors, including whether the injured cyclist had ever taken a training course. It found that trained children may be three times less likely to become a casualty than those who had not been trained.

2.9 "Young Cyclists and Moped Riders", University of Groningen Traffic Research Centre, 1990

Observational studies in which cyclists were covertly filmed, and further studies investigating the factors that influence their behaviour. The behaviour of young cyclists deviated considerably from the required norm, apparently because their knowledge of rules was insufficient and the task of controlling the bicycle required much of their attention.

Secondary schoolage children possessed the required knowledge and skills to ride safely but often did not follow the rules because they questioned their usefulness and relevance. Adult cyclists also deviated from the desired cycling behaviour, but usually only when they considered it safe to do so. The report concludes that traffic education has to be relevant for the target group and "practical training in the normal traffic environment is essential".

2.10 "Evaluation of the Council's Child Cyclist Training Scheme", London Borough of Bexley, 1992

A questionnaire survey of children who had attended the Bexley's cycling awareness course between 1987 and 1991. A control group of children who had not been trained also completed the questionnaire. Children who had been trained were more likely to ride on public roads, were more likely to ride on 'busy' roads and more likely to ride to school. Trained children were less likely to be involved in a cycling accident, whether on or off road.

2.11 "A Study of Cycle Training Methodology in Great Britain", Hertfordshire County Council, 1993

A questionnaire survey of Road Safety Units of County Councils and London Borough Councils in Great Britain found that those authorities who responded used either off-road training or on-road training. Counties were more likely to train on public roads. There was no variation in pass rates regardless of whether the training was on or off road. On road training required 50% more instructors than playground training. Whether on or off road, training had little effect on child accident casualty statistics in the 61% of authorities who supplied relevant statistics.

2.12 "Training Young Cyclists to Cope with Dynamic Traffic Situations", Accident Analysis and Prevention, Vol. 26 No 2, 1994

Two methods for teaching 8 and 9 year old children how to behave at traffic junctions were compared. The first involved a teacher demonstrating the required behaviour, after which the children practised it with the teacher and then on their own. The second method mixed theoretical teaching of safe cycling behaviour with practical training in which the trainees were corrected every time they made a mistake.

The children were tested before and immediately after training and one month later. Both methods improved general cycling behaviour and the improvements were still apparent one month after training. The second method also improved knowledge of junction rules although this improvement had disappeared within a month. Neither method improved children's decision-making at junctions. The report concludes that children develop their own informal (defensive) rules for dealing with other traffic and that training should be based on these 'rules' rather than on formal rules of 'prescribed' behaviour.

2.13 "The Effectiveness of Child Cyclist Training Schemes", TRL Report 214, 1996

A more recent and extensive research project into the effectiveness of child cycle training schemes which aimed to determine whether cyclist training had a positive and lasting effect on road safety knowledge and cycling skills of children and whether some schemes were more effective than others.

Eight different types of courses were assessed:

- NCPS, intensive (spread over a short time) with off-road training only
- NCPS, intensive and including on-road training
- NCPS, extensive (lasting several weeks) with off-road training only
- NCPS, extensive and including on-road training
- RoSPA Righttrack Cycling Awareness Programme
- Oxfordshire County Council Training Course: a variation on Righttrack
- London Borough of Croydon Scheme: a two-staged course
- The Scottish Cyclist Training Scheme: a three-staged course

Approximately 2,000 children, aged 12 to 13 years, took part in the study, half of whom had received one of the training courses described above and the rest of whom had not been formally trained. The children were interviewed approximately two years after taking cyclist training to assess its lasting effectiveness.

The children completed three different exercises:

1. a questionnaire about general road safety knowledge and risk-taking
2. a practical cycling test on a road near the school
3. a 'cycling log book' giving details about their cycling during one week.

Questionnaire Results

The trained children had a better general knowledge of cycling than the untrained children. Also trained children were less likely to report risky behaviour. Detailed analysis indicated that this was a consequence of training, rather than because inherently 'safe' children chose to be trained.

Practical Test Results

Significantly more trained children than untrained were assessed as 'safe' in the practical test.

Table 1. The Practical Test

	Safe	Unsafe
Trained	75%	25%
Untrained	53%	47%

Cycle Log Results

There was very little difference in the amount of cycling by trained and untrained children, although 60% of the trained children said they rode on the road more often after they had been trained.

Effectiveness of Different Types of Courses

Children who had been trained on cycling awareness courses generally performed better than those trained on an instruction-based course. The most effective courses were those which included on-road training and were conducted over several weeks rather than over one or two weeks. Multi-stage courses were especially effective. The report concludes that cycle training improves skills and knowledge, and the effects last for at least two years.

2.14 "School based Bicycle Safety Education and Bicycle Injuries in Children: A Case-Control Study", John Carlin, Injury Prevention, 1998

This study compared 148 children between 9 and 14 years old who attended an Accident and Emergency Department in Melbourne following a bicycle accident, with a control group of 130 children who cycled. The objective was to assess the effectiveness of "Bike Ed", the Australian cyclist training scheme which was launched in 1980 and is run in around one third of schools in Victoria. It comprises three stages:

1. basic traffic rules taught in the classroom
2. off-road cycling training to improve control skills
3. on-road cycle training.

This study involved interviewing the children and their parents to explore bicycle knowledge and practice, riding exposure, whether they had taken a "Bike Ed" course and what limits parents set on their children's cycling. Two-thirds of the accidents examined did not involve a motor vehicle. Almost half (42%) occurred when the children were playing on their bicycles. Most of the injuries were minor, although 16% required hospital admission. A higher proportion (36%) of children who had been trained had accidents than those who had not been trained (25%).

The report concludes that there is no evidence that the Bike Ed course results in a lower accident risk, and some evidence that children who have taken a course face a higher risk, possibly because some parents believed the "Bike Ed" course "immunised" their children against road safety risks.

3 CONCLUSION

Training is an important strand in the wider safety strategy for cyclists. It must go hand in hand with measures to create a safer cycling environment and measures to improve the behaviour of motorists.

It seems likely that courses will increasingly be organised as part of wider activities, such as Safer Routes to School projects or local policies to encourage cycling.

However, one area that has not yet been effectively addressed on a national basis is the management of instructors, tutors and examiners. A training course is as good as those who deliver it, and the training of cycling instructors and tutors varies widely, and very often consists of a novice instructor observing an experienced one for a short time.

RoSPA thinks that a national standard for instructor training, perhaps linked to an accreditation scheme or some form of register would significantly enhance both the quality of training and the status of the instructors.

Finally, although there is research showing the benefits of cyclist training, it would be very helpful to have research that compared the accident and casualty rates of trained cyclists to those of untrained ones.