

BikeEd "Kids-1" Cycling Class

by Fred Oswald, League Cycling Instructor #947
www.cycle-safety.com

Fitness
Health
Quiet
Commuter to work
Ride for errands
Bicycle Touring
Sport Cycling
Kids' Cycling
Fun
Clean air
Companionship
Reduced congestion

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Apr 2009

This program is intended as a seminar for parents of children age 4-12. We start with material about adult cycling because kids need to follow the same principles, adapted for their ability.

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For more information, see www.cycle-safety.com
Revised 15 Sep 2009.

What did your first bike mean to you?

- Freedom & Independence
- Fun
- Status
- Transportation
 - "Commuter" to school
 - Ride to friend's
 - Paper route



Will your children have similar memories?

Fred Oswald,
Mar 2005

"Entry" activity – let audience answer question at top. Allow a few moments before showing typical answers below.

In this course you will see how teaching your children the best practices will give them the opportunity for happy memories – with safety. The best practices may be very different from what you were taught when you were young.

Note: the boy is not wearing his helmet properly. It is too far back on his head

"Traffic Cycling" Classes:

- **TS 101** 9 - 12 hours, 3 sessions of 3-4 hrs
Principles of vehicular cycling, bicycle selection and fit, helmet use, bike handling skills, traffic rules and responsibilities, and minor maintenance.
- **TS 102** 12 hours, 3 sessions
Touring, paceline, etc. and bicycle maintenance. Road 1 is prerequisite.
- **Kids I** ½ hr. to 3-hour presentation.
For parents of young children (grades K-3): basic bicycle handling, bike fit, helmets, safety checks, and where to ride.
- **Kids II** 7-hour adaptable course.
For 4th/5th grade students — bike handling, bike fit, helmet use, basic traffic laws, safety checks, group riding techniques, and where to ride.
- **Commuting** 3-hour course.
Equipment, optimum routes, improving the commuting environment.
- **Motorist Ed.** 1-3 hour course.
Teach motorists to better understand and interact with cyclists.
- **Instructors Seminar** 3 Day camp
Train & certify instructors

To show where Kids-1 fits in –

TS 101 is the basic & most popular course
TS 102 covers touring & maintenance (rarely offered)

Kids-1 is parents' lecture (can be adapted for parents of older kids)

Kids-2 is similar to TS 101

Principles of Traffic Cycling

Cyclists fare best when they act and are treated as drivers of vehicles

**2 wheels or 4
the rules of the road are the same**



Fred Oswald, Mar 2005

These are principles behind the best practices of bicycle operation.

Bicycles are vehicles. Cyclists are NOT pedestrians.

Cycling is 3-5 times faster than walking (more downhill)

Bicycles turn like vehicles. Peds can step sideways & backwards

Bikes have brakes, stop slowly. Peds. Can stop in stride.

The Guiding Principle:
Cyclists fare best when they act and are treated as drivers of vehicles

SAME ROADS, SAME RULES, SAME RIGHTS following best practices	Operating by pedestrian methods and in unexpected places is often dangerous
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Fred Oswald Feb 2005

Comparing principles

The best practices of experienced cyclists is called Vehicular Cycling.

Pedestrian methods are (somewhat) safe only at very slow speeds. If you need to go faster, ped. methods become very dangerous.

Left photo shows experienced cyclist on good road. She is riding in right tire track – good lane position that deters motorist mistakes

Right photo shows bike path on wrong side of road ==> conflicts at intersections and driveways.

Who teaches our children “Bike Safety”?

Who taught us?
Compare “bike safety” with swimming

	Bike Safety	Water Safety
Qualifications	“Authority figure”	Certified instructor
Typical Skill/ Experience	None	Pre-class written & swim skills test
Instructor Training	None	36 hour class, master skills, written & swim exam.
Syllabus	None	Red Cross water safety program

Fred Oswald Jun 2002

Teachers

Typical "authority figure" is parent, teacher, policeman who make up “program” as they go with things that “sound good”.

Compare with Red Cross swim lessons.

“Bike Safety” perpetuates incorrect ideas. The misinformed teach the ignorant.

Beware of "GOOD" ADVICE

1. "Stay out of the way of cars"
2. "Always ride on the sidewalk"
3. "Ride as far right as possible"
4. "You could be dead right"
5. "Ride as though other drivers can't see you"

Don't repeat bad advice just because it "sounds good"

Fred Oswald
Mar 2005

WHY the advice is wrong ---

1. It is sometimes safer to obviously be in the way. If travel lane is not wide enough to share with passing traffic, move LEFT so drivers are not tempted to "squeeze by". At intersections, cyclists who try to stay out of the way "appear out of nowhere" and get hit. Experienced cyclists, stay in the travel lane, -- easily seen and avoided.
2. Sidewalk cycling at moderate speed has about double collision risk as the adjacent road. Risk goes up with speed. Drivers do not look for fast traffic on the sidewalk. Sidewalk cycling is moderately safe only at walking speed.
3. This is a misinterpretation of the law that actually says ride "as near to the right side as practicable" (practice+able). There are several situations where "hugging the curb" is not safe. These include where the right lane is not wide enough to share with a passing vehicle and if there are hazards at the edge of the road, or where other drivers can see you better if you move left. Always maintain a "safety zone" to your right.
4. You are more likely to be "dead-wrong". We don't teach swimming that way. When you have the right of way, use it. You are better off riding predictably and acting like you know what you are doing. Of course, defensive driving is always wise -- plan an escape route, just in case.
5. It is usually much better to make sure other drivers CAN see you. This means, use lights at night, wear bright clothes in daytime and ride in or near the travel lane where other drivers are looking for traffic.

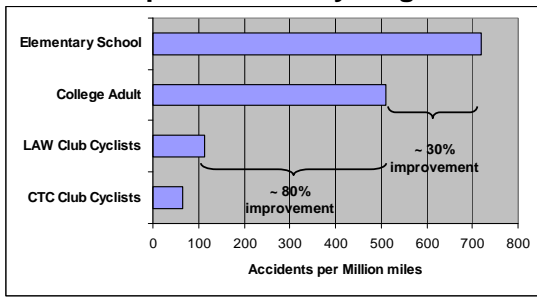
Break the cycle of misinformation



Why parents must teach their children proper cycling technique:

Photo shows wrong-way child cyclist – an inexcusable error. This is from the cover of the Safe Routes to School booklet from the National Highway Traffic Safety Administration.

Effect of Experience on Cycling Accidents



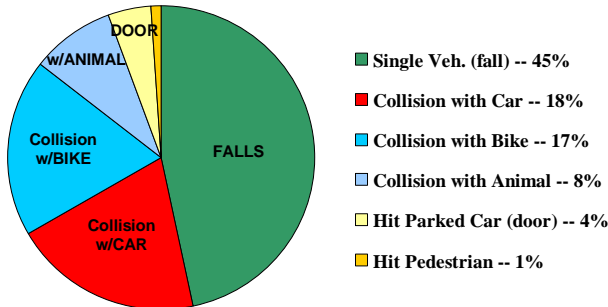
Experienced cyclists are ~ 80% safer than the average adult.

Adapted from: John Forester, Bicycle Transportation, 2nd Ed., MIT Press, 1994
 Orig. sources: Chiapecka, et al.; Schupack and Driessen; Kaplan; Watkins

Fred Oswald
 Nov 2000

Experience vs. Crashes
 Elementary school crashes ~700/million mi.
 College only 30% better.
 Club cyclists are 5 times better than college,
 7x than elementary
 Experienced cyclists have something to teach us about bike safety.
 (LAW is US club cyclists, CTC is British club cyclists)

Urban Bicycle Crashes



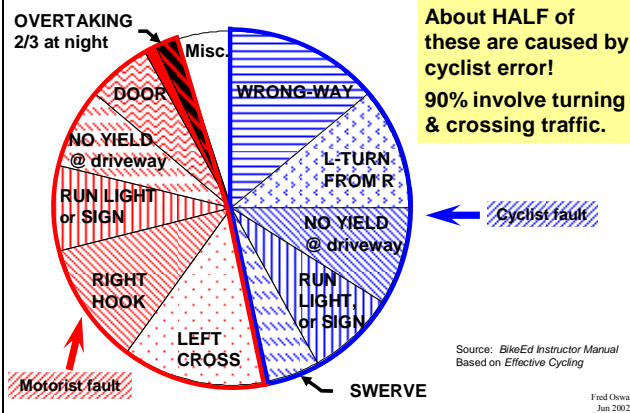
Most bike crashes do not involve cars!

Source: Kaplan, "Characteristics of the Regular Adult Bicycle User"

Fred Oswald
 Apr 2000

Almost half of crashes (causing injury or extensive damage) are from falls.
 Crashes w/cars are a distant 2nd.

Car-Bike Crashes, Who is at Fault?



**About HALF of these are caused by cyclist error!
 90% involve turning & crossing traffic.**

Cyclist fault

Motorist fault

Source: BikeEd Instructor Manual
 Based on Effective Cycling

Fred Oswald
 Jun 2002

Car-bike crashes, who at fault.
 Most people think hit from behind (overtaking) is #1 but it is smallest slice.
 About 90% are result of turning & crossing traffic.
 About half of adult crashes are fault of cyclist (blue outline), wrong-way riders is #1 cyclist cause.
 Making L turn from curb causes many crashes (taught in "bike safety")
 More child crashes fault of cyclist, especially under age 8 "driveway rideout".
 Note, many "motorist fault" crashes occur for sidewalk or bike lane crossing (preventable by riding in road).

Vehicular Cycling “Layers of Safety”

1. Don't CAUSE collision (follow rules of road)
2. Deter motorist mistakes
3. Drive defensively to escape hazards
4. Use safety equipment to prevent injury



Fred Oswald,
Jul 2004

Layers of Safety

- #1 About half of bike accidents are fault of cyclist (run lights, no lights, wrong way)
- #2 Motorists may underestimate your speed or misjudge space for passing. If you control the lane you can often prevent motorist mistakes.
- #3 Anticipate problems and leave room to escape.
- #4 Helmet may allow walking away from accident. Gloves protect hands.

Principles of Traffic Law

1. First Come, First Served
2. Drive on the Right
3. Obey Traffic Control Devices
4. Observe Speed Positioning
5. Follow Intersection Positioning

Cyclists fare best when they act and are treated as drivers of vehicles

Source: Effective Cycling & BikeEd Instructor Manuals

Fred Oswald
Jun 2002

Principles of Traffic Law

Rules of the road make the roadway an orderly place, a huge advantage for cyclists.

Effective Cycling 5 Rules:

- #1 First Come -- you have right to space you occupy plus safe dist. ahead (right of way). At intersections, yield to right. Yield to superior road.
- #2 Drive on right, not left or sidewalk
- #3 Traffic control devices supercede right of way rules
- #4 Speed positioning means stopped veh. at extreme right, slow veh. next, fast to left.
- #5 Intersection positioning means use correct lane for destination.

Sidewalk and Sidepath Hazards

Riding on sidewalk/sidepath compared to riding on road increases collision risk by a factor of:

- 1.8 (California; Wachtel and Lewiston 1994)
- 2.7 (Eugene, OR, 1979)
- 4.7 (California, 1974)
- 3.4 (Sweden; Linderholm 1984)
- 2.4-8.6 (Finland, Sweden, & Norway; Leden 1988)
- 3.9 (Denmark; Jensen, Andersen, Nielsen 1997)
- 1.7 to 5 (Germany; Schnull, Alrutz et al 1993)



Riding against traffic on sidewalk or sidepath is significantly more dangerous.

Paul Schimid, 2001
D. Gutierrez & B. P. DeSousa, 2003

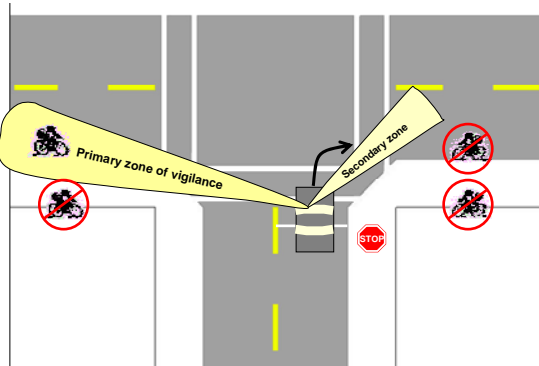
Sidewalk Accident Studies

Sidewalk about 2-9 times as dangerous as road (depends on speed, intersection density, etc.)

If falls & other accidents are included, sidewalk is 25x more dangerous than road.

Sidewalks may be the best bet for very young children or the elderly but only if they go slowly and avoid crossing cross streets and busy driveways.

Don't ride Wrong Way or on sidewalk! Stay in traffic lane to be seen



Fred Oswald, Jun 2003

Wrong Way Dangers

This is just one of many accident scenarios showing wisdom of following same rules of road as other drivers.

A driver is most likely to look in traffic lane to left. Less likely to look at sidewalk. Unlikely to look right on sidewalk. Will see cyclist in travel lane sooner.

Some people are taught to ride on the wrong side of the road to “see traffic coming”. This is illegal and dangerous. The accident rate for wrong-way cyclists is about 3½ times as high as for cycling properly.

Pedestrians walk facing traffic so they can sidestep off the road if necessary. You cannot sidestep on a bike.

Proper Lane Positioning

An essential skill for cyclists

Narrow Lane Road or Downhill – Control the Lane

Cyclists have legal right and safety obligation to use the full lane when too narrow to share with motor vehicles



Photo by R. Woodward



Photo by Wayne Pein

Fred Oswald
Aug 2003

This is the “secret” of experienced cyclists.

Note how red car is completely changing lanes to pass.

Beginners hug the curb then wonder why cars pass so close.

Note: we do not suggest that a young child ride on a street like this (or on the sidewalk either).

Teaching Children

- Don't abandon tricycle too early
- Start with small bike, seat low
- Take off pedals (use bike as scooter)
- Ride on the right
- Ride behind child to teach
- Teach bicycle *driving*
- Supervise your child



A bike is not a toy. It's a child's first vehicle.

Fred Oswald,
Mar 2005

Once child has mastered bike handling, raise the seat to the normal position (leg only slightly bent at knee with foot at lowest point.)

If you take off the pedals, note that the left pedal has a left-hand thread.

Ride on quiet road with child. Ride behind and slightly to left so child gets better clearance from passing traffic.

Teaching Children

- Most common collision is 'ride-out'.
- Kids are not small adults
 - lack experience
 - peripheral vision
 - coordination.
- Teach Skills
 - Ride on right.
 - Right of way & yielding (look left, right, left).
 - Scan behind & yield before lateral move.
 - Turn signals.
 - Merging to left turn lane position.
 - Pass parked cars outside 'door zone'.



A bike is not a toy. It's a child's first vehicle.

Fred Oswald,
Sep 2002

"Ride out" means child rides into street without looking & yielding. This is the most common crash for under age 8. (Often called "mid-block ride-out")

Young children should be taught to walk across major intersections until they can judge traffic speeds & range.

Teaching Children



A bike is not a toy. It's a child's first vehicle.

Fred Oswald,
Sep 2002

Photo shows dad teaching 7-yr. old to look (left-right-left) & yield before entering street. Start on quiet (low traffic) street.

Teaching Children

Children can be trained to ride properly - - -

- By age 8 – 2-lane residential street
- By age 10 – 4-lane road with moderate traffic
- By age 12 – almost anywhere

But ---

Are the teachers knowledgeable?



A bike is not a toy. It's a child's first vehicle.

Fred Oswald,
Mar 2005

Photo shows police at bike rodeo. A rodeo gives only superficial lessons.

Children were successfully taught in 15 hour summer program prior to grades 3, 5 and 7 in Palo Alto, CA. After a few years of this program, a famous accident study found a lower crash rate among kids than adults.

Teach your kids: 'Drive your Bike!'



A bike is not a toy. It's a child's first vehicle.

Fred Oswald,
Sep 2002

Photo shows a 7-year old learning to scan behind and signal before merging to position to make a left turn ahead. Note this is a quiet residential street.

Also note she has good position on the road -- not too close to the curb.

Avoid Mistakes

- Getting 2-wheel bike or handbrakes too soon
- Training wheels
- Bike too big (to "grow into")
- Helmet wrong fit
- Cheap brakes
- Riding wrong-way
- Setting a bad example
- Thinking bike is a toy



Photo from cover of National Highway Traffic Safety Administration,
"Safe Routes to School", DOT HS 809 497, Sep 2002.

A bike is not a toy. It's a child's first vehicle.

Fred Oswald,
Mar 2005

Disadvantages of training wheels

Allows riding fast before child is ready to use brakes correctly

Tipping hazard from turning too fast (can't lean)

Delays learning proper steering & balance

An oversize bike is very dangerous – both braking & steering are compromised

Many kids bikes have weak brakes (thin stamped metal). Expensive trick bikes often have bad brakes.

The photo shows a child riding on the wrong side of a road. This is from the cover of the "Safe Routes to School" booklet.

About Helmets

- Helmet is no substitute for riding correctly (Not crashing is better than "safe crashing")
- Helmet must fit properly
 - Get smallest that fits without pads
 - Use pads only to customize
 - Ears, Eyes & Mouth
- Set a good example
- Try a "Parents Pact" so kids wear helmets

A bike is not a toy. It's a child's first vehicle.

Fred Oswald,
Mar 2005

Ears, eyes & mouth means

Helmet straps join just below ears

Child can see helmet (low on forehead)

Strap is tight enough if child can open mouth but strap is then tight.

Summary

- Much of what we learned as kids is wrong.
- Most cycling accidents do not involve cars.
- Most collisions involve turning / crossing traffic.
- Proper lane position helps avoid trouble.
- A bike is a child's first vehicle.

Cyclists fare best when they act and are treated as drivers of vehicles

Fred Oswald,
Sep 2002