

A Parent's Guide to Safe Bicycling Essentials

*How to Help Your Child Become a
Confident and Competent Bike Rider*



Photo courtesy of Trent Campbell/ Addison Independent

A publication of



In collaboration with

CENTER FOR
**Health &
Learning**



In memory of Amelia Grace Sperry

*She loved riding her bike even in the rain.
It was often the first thing she did when getting home
from school. She especially liked biking to the park.*

Tyler and Karen Sperry

Dear Parent,

Riding a bike is one of the great joys of life. Every child should be able to hop on their bike and ride off to school, to visit friends, or to go to the park.

But many children lack the skills to bike safely on today's busy streets. **This booklet serves as a comprehensive guide to helping your child become a confident and competent bike rider.** You have a key role to play in helping your child develop the skills and confidence for a lifetime of bike riding!

This guide is a publication of Local Motion, northwest Vermont's active transportation and recreation advocates, as part of our Bike Smart program. Our mission is to help people and communities make it easy, safe, and fun to walk and bike. We are pleased to offer this guide in collaboration with our partner, the Center for Health and Learning, and with the generous support of the Sperry family of South Burlington.

Please consider joining Local Motion today! We are a member-supported organization, and our members are what make it possible for us to promote walking and biking across Vermont. Visit www.localmotion.org/give to join us online.

Thanks again, and happy trails!

Sincerely,

Local Motion

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All helmets sold in the United States must be certified by CSPC for impact resistance. This means that any helmet you buy will do an equally good job of protecting your child's head – IF it is properly sized and fitted.

SELECTING A HELMET

However, a higher-end helmet is much easier to adjust properly and does a much better job of staying in place than a basic helmet. This means that, under real-world conditions, a helmet with a few key features is more likely to protect your child's head than one without.

Here are some key features to look for in a helmet:

- The plastic shell should be fused to the styrofoam, not taped to it
- There should be a plastic size adjustment mechanism at the nape of the neck that tightens a plastic band running around the head
- The buckles that fall right under the ears should flip open to allow the straps to slide easily through them, then flip shut to hold them tight

It is also essential that your child's helmet be sized properly. Measure the circumference of your child's head at the widest point, then buy a helmet that is in the correct size range. Any bike shop can help with sizing.

Helmets lose their impact absorbing ability after about five years. Even if you can't see any damage, the styrofoam breaks down over time, becoming much more brittle and prone to splitting rather than crushing upon impact. **Check the date on the sticker inside the helmet, and throw it out (yes, throw it out!) if it is more than five years old.**

Finally, helmets only work once. **If your child is in a crash, get him a new helmet.**

FITTING A HELMET

Helmets only work if they are fitted properly. Just like a child's carseat, a helmet has to be correctly aligned, and it has to stay that way in the event of a crash. Many children (and adults!) do not wear their helmet

correctly – and unfortunately, that means their helmet will not do its job when they most need it to.

In order to fit a helmet properly, each component of the helmet has to be adjusted as follows:

1. Loosen the dial at the back of the neck and put the helmet on
2. Settle the helmet low on the forehead so it sits at most one finger's width above the eyebrows
3. Tighten the dial at the back of the neck until the band has a firm grip on the head
4. Adjust the buckles under the ears so that: a) the buckle falls right under the ear; and b) both straps are snug, with no slack
5. Adjust the buckle under the chin so that no more than two fingers fit under the strap
6. Slide the little rubber o-ring over *both* sets of straps and snug it up to the buckle (this helps keep the strap from coming loose)



A properly fitted helmet.

Helmet fit must be checked EVERY time the helmet is put on. Straps loosen themselves over time. Buckles slide. Once you (and your child) get used to it, the procedure outlined above only takes about 30 seconds. Do it every time.

A helmet should be your child's LAST line of defense. It reduces the risk of serious injury if he is in a crash. **But the safe biking skills and habits your child learns with your help are just as important as his helmet for keeping him**

BEING VISIBLE

safe. Here are a few low-cost items that make your child highly visible when he is out biking.

Reflective legbands. These do two things: they keep your child's pants from getting caught in the chain (a not-uncommon cause of crashes), and they dramatically improve her visibility in low-light conditions.

High-visibility vest. Safety vests of the kind worn by highway workers — day-glo yellow or orange with reflective striping — make your child the most visible thing on the road. Size the vest large enough that it can be worn over a backpack if she uses one.

Bike lights. A front white light and a rear red light are not only a good idea — in many places, they are required by law. Lights with LED bulbs are bright and long-lasting. Look for a set that includes both steady and blinking modes, and help your child learn to use them under low-light conditions or anywhere where extra visibility is warranted.

Reflective striping and decals. You can buy packets of self-adhesive reflective striping and decals at any bike shop. Clean your child's bike frame with rubbing alcohol, then apply the striping all over the bike to make it light up at night.

High-visibility clothing. While no color of clothing can compare to wearing a day-glo vest with reflective striping, wearing light-colored clothes while biking can make a difference. Encourage your child to wear light and bright clothes when biking.

SAFETY CHECK

Just like a car, a bike needs regular care and maintenance to keep it in safe working order. A **yearly tune-up (at a bike shop or do it yourself) is essential, or more often if the bike gets a lot of use.** Just as important,

though, is a daily check of the essentials: tires, brakes, chain, quick releases, and everything else that keeps a bike on the road.

Here is a step-by-step guide to doing an “ABC Quick Check” on your child’s bike. **Help your child get in the habit of doing this 60-second check regularly – ideally, every time he gets on the bike.** One day, it may well help him avoid a serious crash.

“A” is for Air. The recommended pressure for your child’s tires is listed on the sidewall of each tire. Inflate the tires to the higher end of the range listed and check the pressure regularly. **Low pressure makes a bike harder to steer, reduces efficiency, and can cause blowouts.** Don’t wait for a leak – tires lose air over time even if they do not have discernible leaks, as rubber is slightly pervious and air moves through the tube wall at a slow rate.

“B” is for Brakes. Brake cables for standard brakes stretch and slip over time, causing brakes to become too loose to be effective. (Coaster brakes generally do not need adjustment.) **Squeeze the brake levers – you shouldn’t be able to touch them to the handlebars.** If you can, they need to be tightened. You can make minor adjustments by turning the threaded adjustment device where the cable leaves the lever. For very loose brakes, loosen the nut that clamps the cable to the braking mechanism and pull more cable through. Be sure to tighten the nut well.

“C” is for Chain. Chains can underperform or fail in a number of ways. They can become dirty or rusty. They stretch over time, causing them to skip. And they can

break catastrophically. **If a chain squeaks, skips, or has any rust, it needs lubrication.** Use bike chain lube (such as “White Lightning”), NOT WD-40 or 3-in-1 oil. Chain lube both lubricates the chain and repels dirt, whereas other lubricants cause dirt to stick to the chain (which defeats the purpose of lubrication). Apply lube to each link while rotating the pedals backwards, then grip a rag around the chain and continue pedaling backwards to wipe off any excess. At least once a year, have a bike shop check the chain for stretching (any shop will have a gauge specifically for this task). The shop will tell you if the chain has stretched to the point where it needs to be replaced. Don’t wait to replace it if so! New chains are cheap, and accidents caused by broken chains are expensive and painful.

“Quick Check” is for Everything Else. There are relatively few things on a bike that can go catastrophically wrong. Quick releases are one of them. **If your child’s bike has quick-release wheels, help him learn how to check the levers to make sure they are in the “closed” position.** Then work with him to give the bike a once-over for anything else that might need attention: a loose seat post, wheels out of true (which makes the brakes rub intermittently), missing reflectors, bike lights that need new batteries, and so on. If in doubt, take the bike to a local shop. Most shops will give your bike a once-over at no charge, and most things that break on a bike are very economical to get fixed. Your child deserves a safe, well-maintained bike. Help him learn how to keep it that way – and get his bike fixed promptly when there is something wrong that he can’t handle himself.

STARTS & STOPS

Paradoxically, everyone focuses on helping kids learn the easy part of riding: pedaling along in a straight line. **The hard part of biking – making a powerful start and coming to a controlled stop – is often taken for granted.**

Learning how to start and stop smoothly and cleanly is a key part of what kids need to learn in order to bike safely.

Power Start. Everyone knows what a weak start looks like: the child straddles the seat, gives a few hopping pushes with her feet, and wobbles off as she scrambles for the pedals. This kind of start is problematic for two reasons. First, it often results in a weaving start, sending a child out into the middle of the street when she should be staying on the edge. And second, it distracts the child for several seconds, causing her to look at her pedals when she really should be looking around for cars and obstacles. This combination can be disastrous when a wobbly start puts her in harm's way just as distraction keeps her from noticing what is going on.



A child in the “power start” position.

The “power start” is a technique for getting up to speed as smoothly and as quickly as possible. This technique is often counterintuitive for kids in that it feels less stable to them than how they are used to starting on a bike, but once they get the hang of it, they are much stronger bike riders. **Help your child internalize the power start by**

making him use it every time he rides with you. Here is a step-by-step overview of how it works:

- 1. Raise your child's seat to the point where, when he is in pedal position and one pedal is all the way down, his leg is almost fully extended. *This is crucial!*** Power start will not work if the seat is down in "cruiser" position, where the child can sit on the seat and put both feet on the ground. Once the seat is in the correct position, he will not be able to touch the ground on both sides. He will complain that the seat is too high. Don't back down!
- 2. Have your child straddle the top tube of the bike.** The nose of the seat should be poking the bottom of his spine, too high to sit on.
- 3. Bring the child's dominant pedal around to halfway between horizontal and vertical (between 1 and 2 o'clock) – the "power pedal" position.** The dominant pedal is generally the right one for right-handed people and the left for left-handed people. Your child will let you know if the one you pick is the wrong one for him.
- 4. Tilt the bike away from the power pedal.** That is, if the right pedal is the power pedal for your child, tilt the bike a little to the left.
- 5. Have your child put his dominant foot on the power pedal.** He should still be straddling the bar, NOT sitting on the seat. The other foot should be flat on the ground.
- 6. Have your child push on the power pedal and, in one smooth motion, sit on the seat and start pedaling.** From power pedal position, he should get enough momentum from one push to coast smoothly for long enough to get up on the seat and get his other foot on the other pedal.

That's it! Once your child practices the power start a few times, this all takes about three seconds. Help him get there, and he'll never go back.

Anti-Lock Stop. Effective stopping on a bike is a bit of a tricky business. For bikes with hand brakes, the front brake provides a majority of the bike's stopping power – and it is also the brake that can send a rider flying over the handlebars. **Learning to harness and control the power of a bike's brakes is essential to safe riding.** The trick is to make the bike's brakes work like anti-lock brakes on a car: maximum stopping power without skidding – and, in the case of a bike, without allowing the tires to leave the ground.



A child in the “anti-lock stop” position.

First some background on how anti-lock braking works in principle. **The key is to counteract the tendency of the rear wheel to leave the ground when the front brakes are applied.**

Unfortunately, a child will often instinctively lean forward and down

when she is braking. This is the worst thing she could do, as it shifts her center of gravity past the front wheel – thereby compounding her forward momentum and sending her over the handlebars. **The single most important part of the anti-lock technique is learning to shift one's weight backwards as far as possible when braking.**

Essentially, the child should use all her weight to stick the rear wheel firmly to the ground. This allows her to squeeze the front brake much harder than she safely could if she

stayed in her seat (or, worse yet, hunched over the handlebars!). Here are a few pointers for helping your child take charge of her brakes:

- **Find somewhere with a big grassy field to practice on.** Chances are, your child will crash a few times while practicing stopping. (Of course, your child should be wearing her helmet!) It's better to practice after a rain when the ground is nice and soft.
- **Mark a "stopping line" with spray chalk or flour.** Your child will be motivated by the challenge of decreasing her stopping distance with practice.
- **Have her ride towards the line at a good clip, then gently apply just the rear brakes as she crosses the line.** She shouldn't skid this first time. Have her repeat several times using only the rear brakes, gradually applying more braking pressure until she skids. Then have her back off the pressure slightly. The idea is to help your child develop a muscle sense of how hard she can brake without skidding. Mark her shortest stopping point past the line.
- **Now add in the front brakes.** As with the rear brakes, have her apply them gently at first, then gradually increase the pressure. The stakes are higher here, as too much pressure could send her over the handlebars. Have her increase the pressure gradually until she feels the pull, but NOT until her back tire lifts. Again, mark her shortest stopping point. It should be considerably shorter than before.
- **Finally, have her start shifting her weight backwards when she brakes.** Her spine should be extended as far as possible out over the seat without losing her grip on the handlebars. What she will find is that she will be able to brake considerably harder without skidding if her weight is shifted backwards. Again, mark her shortest stopping point. This should be her best stop yet.

AWARENESS & COMMUNI- CATION

The final crucial element of safe biking is safe interaction with one's surroundings. **Many kids (and some adults) bike as if they were invisible, effectively operating on the assumption that cars never see them.** They shoot through gaps, go from street to

sidewalk to street, and turn suddenly with no warning. This is a very dangerous way to bike, and anyone who wants to stay safe needs to unlearn it.

There are two key skills that all bike riders have to learn if they are to interact safely with the road and its users. **The first key skill is awareness of one's surroundings.** An aware rider continuously scans the landscape for hazards – both physical dangers and potentially dangerous behaviors by others – and avoids them before they become critical. **The second key skill is communication with other users of the road.** A communicative rider operates his bike predictably, announcing his intentions in advance and riding in ways that give others time and space to react well.

The best thing you can do to help your child develop these skills is to model them, going for rides together and verbalizing your thought process as you identify and react to hazards. Here is an overview of essential awareness skills that all bike riders need to cultivate over time.

Stationary hazards. This includes both the obvious things – potholes, depressed storm grates, and the like – as well as things that are only hazards under certain conditions. For example, turning or accelerating as you cross a patch of sand can send you down really hard, but cruising across a patch of sand steadily is generally safe. Effective hazard avoidance requires that you scan at least 30 to 50 feet ahead at all times (depending on your speed) so as to give yourself enough time to check behind you for cars and then

either swerve around the hazard or slow down and wait for a gap in traffic.

Mobile hazards. Cars, pedestrians, animals, and other mobile hazards require more skill to avoid consistently, both because their movement makes good judgment more complex and because they can come from any direction. This means that a rider must scan 360 degrees for mobile hazards – ahead, to all sides, *and* behind. A few key principles are as follows:

- **When riding along a row of parked cars, ride far enough out (at least three feet) that you will not hit a car door if it opens suddenly.** This is called “getting doored,” and can result in a very serious crash.
- **When a car passes you on the left and there is a driveway or (especially) a street just ahead on your right, assume the car will make a right turn in front of you until it is clear that it is going straight.** Drivers often either fail to see cyclists as they overtake them or misjudge the cyclist’s speed and assume they have space to turn in front of them.
- **Similarly, if you are riding on the sidewalk, look back over your shoulder *every time* you cross a driveway or a road for cars that might be turning right.** Cars are even less likely to see a bike that they pass on the sidewalk than they are to see one they pass on the road.
- **Watch for cars in the oncoming lane that are going to turn left across your path.** Particularly on busy streets where motorists have to accelerate through small gaps in order to turn left, the motorist may not see a bike.
- **Be especially careful in circumstances where you might truly be invisible to a car.** For example, if you have the sun at your back in the late afternoon and ride through the shadow of a building, you will be

extremely difficult for a driver in the oncoming lane to see.

- **Don't assume a driver sees you just because his eyes are pointed in your direction!** In an age of constant distractions, a driver can easily look right through something in his direct line of sight. Wait for an active signal that the driver sees you: a wave of the hand, flashing headlights, or the like.

Riding on sidewalks and side paths. Many parents have their children (particularly younger ones) ride on bike paths or sidewalks rather than on the street on the assumption that they are safer there. What they forget is that cars cross sidewalks and paths every time there is a driveway or curb cut, creating a danger point that few kids pay attention to. **Drivers who are about to cross a sidewalk or path often fail to look back the 20 or 30 feet needed to see a child approaching on a bike.** It is essential that children unlearn the assumption that sidewalks and paths are inherently safe, and instead learn to ride defensively and avoid crashes before they happen. Here are a few essential skills for defensive riding on sidewalks and paths:

- **Slow down at all driveways and other car crossings.** Anywhere a car could cross your path, slow down to something fairly close to a fast walk. This gives you time to scan for hazards, and it also increases the likelihood that a driver will see you. On a sidewalk with multiple, closely spaced curb cuts, this means riding at a slow pace throughout.
- **Look BOTH directions before crossing any driveway.** Cars turning right into a driveway may or may not signal. Cars turning left are more likely to signal, but are also more likely to fail to see a bike rider and to enter the driveway at a higher rate of speed (as they are focused on getting across a lane of oncoming traffic). In either case, assume that a car is turning

and **DO NOT CROSS THE DRIVEWAY** until the car has clearly passed.

Signaling. Effective signaling is just one element of a sequence of moves that occur whenever you make a turn. The steps are as follows:

- **Scan for hazards.** About 30 to 80 feet (depending on speed) before your turn, start looking for anything that might pose a danger. The first thing to look for is cars whose path you will need to cross as you turn. Also look for patches of sand, potholes, or other physical hazards that are in your turn path. You are much more likely to go down if you hit a hazard while turning, so you will need to modify your path or reduce your speed to avoid such hazards.
- **Signal your turn.** Once you have determined that the coast is clear, signal what you intend to do. Extend your left arm straight out for left turns, and extend right arm straight out for right turns. (Pointing your left arm out and up to signal a right turn is debatably more visible, but may be less intuitive to non-bicyclists.)
- **Verify that the coast remains clear.** Look again for hazards that may have emerged or changed since you looked five seconds ago. Things change fast out on the street, and you can't assume that it is still safe to go just because it was a few seconds back.
- **Take your position.** Depending on what you are doing, this might mean shifting into a left-turn lane, taking the entire lane (if there is no turn lane), coming to a stop for a stop sign, and so on. Move into where you need to be to turn safely.
- **Make your turn.** Once you start, don't waver unless a critical hazard presents itself. Turn and move on.

Your child may be ready to make a turn as a vehicle (as described above) under some circumstances but not others.

For example, she may turn left from one neighborhood street onto another just fine, but not be comfortable moving into the left-turn lane on a busy commercial street. In such cases, she should dismount and take the turn as a pedestrian, walking her bike along the crosswalks until she is on the street she wanted to turn onto.

Predictable riding. There are quite a few things your child can do in addition to signaling that will make his behavior predictable to other users of the road. As noted earlier, predictability is essential to safety, as it allows drivers and others to anticipate your child's moves and make room for her on the road. Here are a few suggestions:

- **Ride by the rules.** Your child is safer (as well as less likely to get a ticket!) if he stops for stop signs, rides on the right, goes the right way on one-way streets, and so on. It should be obvious, but many riders ignore this basic fact. Help your child be the exception.
- **Use lights at night.** Riding at night is a relatively advanced skill in and of itself. Without lights, it is just plain foolhardy (not to mention illegal). Your child should have, at a minimum, a flashing red light on the rear and a flashing/steady white light on the front.
- **Ride in a straight line.** Children have a tendency to want to stick as close to the curb as possible. This means they often weave in and out through gaps in parked cars. They are more visible and much safer if they pick a course and stick with it.
- **Thank drivers for their courtesy.** When a driver yields to your child and lets him through, your child should wave a thanks to the driver. There is no proof that this increases safety, but it can't hurt.

Local Motion is dedicated to making streets safer and more welcoming for people on foot and on bike. Please feel free to visit our website at www.localmotion.org for more information, come visit our Trailside Center on the bikepath in downtown Burlington, or call us at 802-861-2700.





Our mission is to promote people-powered transportation and recreation for healthy and sustainable Vermont communities.

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