

# Superkids Multisport

## Bike Manual

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# Chapter 1 - Introduction

This manual is written for the Superkids triathlon team and is mainly aimed at the High Performance (HP) Team, SK Elite.

It is written somewhat simplistically so that it can be quickly digested by the team. The intent is not to cover everything or show how much the author knows, but more to simply convey the essentials.

It is the intent that the manual will be a work in progress and evolve with the team.

It can be used internally within the team, but is not for sale or distribution outside of the team.



## Chapter 2 – Bike Safety

In Superkids and SK Elite we will pride ourselves in riding as safe as possible. This will mean we will respect the safety of ourselves, our team mates, pedestrians, and motorists.

Core items are bike handling skills, communication with teammates, pedestrians and motorists, and conducting safe maneuvers. We will cover bike handling in another section. This section will cover communication and safe maneuvers. This section will also cover special team rules for riding on the trail or roads.

### Communication:

We will use two types of communication, visual and verbal.

#### Visual – Main Signals

Standard communication hand signals are used by cyclists in the USA. We will adopt those.

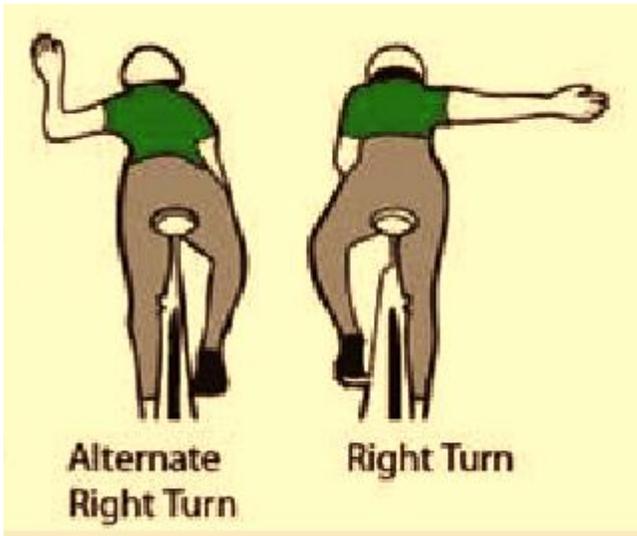
##### Left Turn



We will hold our left hand out, while keeping straight. We will do this well before the turn so people know we will be shortly slowing. We will signal again just before we make the turn.

At the same time as we make the signal the rider(s) at the front will yell "Left Turn".

## Right turn – two signals exist



We will hold our right hand out (or use the left hand for the alternate signal), while keeping straight. We will do this well before the turn so people know we will be shortly slowing. We will signal again just before we make the turn.

At the same time as we make the signal the rider(s) at the front will yell “Right Turn”.

## Slowing or stopping



Every time we slow or stop we will use this signal. At the same time the rider making the signal will “Slowing” when slowing and “Stopping” when stopping.

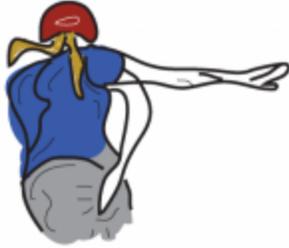
This signal is sometimes made with the hand placed near the back. In our team we will use the signal as shown above.

In the pace line, the rider at the front may also signal a slowing by raising the hand straight up so the riders at the back can see the signal.

## Visual – Special Signals

### Hazard on the right

If there is a hazard on the right side, such as a parked car, pedestrian, etc. we will use the signal below. This normally indicates that the rider in front will shortly move to the left to pass the obstacle. It should be accompanied by an appropriate verbal command, such as “parked car”.

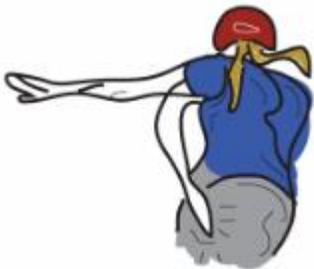


Hazard on right side

The signal is made correctly by raising the right hand and lightly slapping the butt a few times. It is important to make this signal so the riders behind have time to move around the hazard. It should be passed down the paceline.

### Hazard on the left

If there is a hazard on the left side, such as oncoming runner on the trail, etc., we will use the signal below. This normally indicates that the rider in front will shortly move to the right to pass the obstacle.



Hazard on left side

The signal is made correctly by raising the left hand and lightly slapping the butt a few times. It is important to make this signal so the riders behind have time to move around the hazard. It should be passed down the paceline.

## Potholes and Gravel

If there is a pothole, gravel on the left or right we will use a signals below. We will point out the pothole, crack, glass, etc. and shout "Hole" or "Gravel" or "Glass" at the same time we make the signal.



Potholes / Glass on right



Potholes / Glass on left

## General Warning

If something is not right ahead, such as motorists or trail users behaving unpredictably we will use a general caution signal to get the attention of other riders that something unforeseen might happen.



The signal is made correctly by wobbling the hand from side to side and giving a verbal warning of the hazard, such as 'car might pull out' or 'I don't like the look of those geese over there'.....

There are additional signals for advanced pace line riding not included here.

You also have the right to get creative with signals for unusual events, such as tap your head for low hanging branches, etc.

## **Verbal– Main Commands**

We will pride ourselves in communicating well with our teammates, motorists and pedestrians. This is especially important for SK Elite pace line riding. We will keep in contact with each other and tell each other what we are doing before we do it.

Some of the main warnings and commands are covered in visual above, however they are summarized here:

1. Right turn
2. Left turn
3. Gravel
4. Hole
5. Glass
6. Parked car

Additionally there are other warnings and commands. Some of these are covered below:

“Car back”: This warning is given by the riders at the rear of the pace line to indicate that there is a car behind the pace line that might want to pass. On hearing this signal, the pace line should tighten up and riders outside of the pace line should move to the right in a single file.

“Car up”: This warning is given by the riders at the front of the pace line to indicate that there is a car approaching from ahead. It is not necessary to give this signal on wide roads, it is more appropriate for narrow roads that could impact riders riding outside of the pace line. Like car back, riders wide of the pace line need to move to the right.

“Car passing”: On hearing this, riders must immediately move to the right if possible to allow the car to pass.

“Riders up”: This warning is given on the trail, when it is narrow, to warn the group that riders are approaching. On hearing this, riders must immediately move to the right to avoid colliding with oncoming riders.

“Runner up”: This warning is given on the trail or road when there is a runner that the group needs to pass on the right. It should be accompanied by the appropriate visual signal as sometimes the runner could be on the left.

Be careful when passing other riders. Check there are no cars behind you or if on the trail, that there are no oncoming riders or pedestrians.

## **Verbal– Talking To Each Other**

We will take pride in ourselves with excellent communication to each other. There are important aspects to this.

The first one is for the appropriate riders to call out the hazard or make the command, such as a turn signal.

The second aspect is passing the command down the line. This does not necessarily mean that in a pace line of 10, everyone needs to repeat “right turn” 10 times, however we need to be sensible about it recognizing that people at the back won't hear or see the signal and it needs to be repeated 3 or 4 times down the line to be effective.

We also do not need to be excessive with loud shouting out commands and warnings, otherwise the riding experience becomes a very unpleasant experience for us and other trail/road users. As an example, if the trail is wide and very busy, it is not necessary to shout at the top of your voice "rider up" every time there is a rider in the opposite direction if there is plenty of room. Common sense is needed. However it is entirely appropriate if the trail is narrow and riders 2 abreast are approaching or if you know that there are riders in our group riding 2 abreast and likely to collide. Additionally if the warnings are passed down the line properly, it can be done in a relatively quiet pleasant experience.

During racing, the paceline should communicate. See section on racing for a discussion on this. Reliance will be high on verbal with minimal hand signals.

## **Safe Maneuvers**

We will ride safely not imposing a hazard to ourselves, our teammates, motorists and pedestrians. This is especially important for SK Elite pace line riding. What does this mean?

**Predictable:** We will be predictable with our riding. This means that we will not do things that we don't expect to happen in the pace line or group riding. We will not: swerve, ride with no hands, bang our hands on gates, grab tree branches as we go past, slap signs, buzz other riders, etc.

**No sudden stops:** We won't suddenly stop when riding in the pace line. If we need to stop, e.g. we dropped something, we will not suddenly brake. We will move out of the paceline and reduce speed slowly giving the appropriate warnings. If we overshoot a turn, we won't slam the brakes on. It is OK to significantly overshoot the turn and ride back; better than scraping riders off the asphalt!

**No accelerating on the front of the paceline:** We won't move to the front position rested, then increase the speed dramatically dropping riders off the back.

**No decelerating on the front of the paceline:** when on the front, we will keep the same speed. We won't slow causing a 'disturbance in the force' of the paceline. If we can't keep the speed up, we will quickly move off the front and join the back of the paceline. Same rule applies if passing someone. Don't pass someone, then immediately slow down on the front.

**Overlap bike, not wheel:** We may ride 2 abreast, but we will do it safely. The basic rule here is overlap the bike not the wheel. If we find ourselves in a situation where the front wheel is overlapping the rear wheel of the bike in front, we will immediately remedy it by carefully slowing or increasing the speed to attain the 2 abreast position.

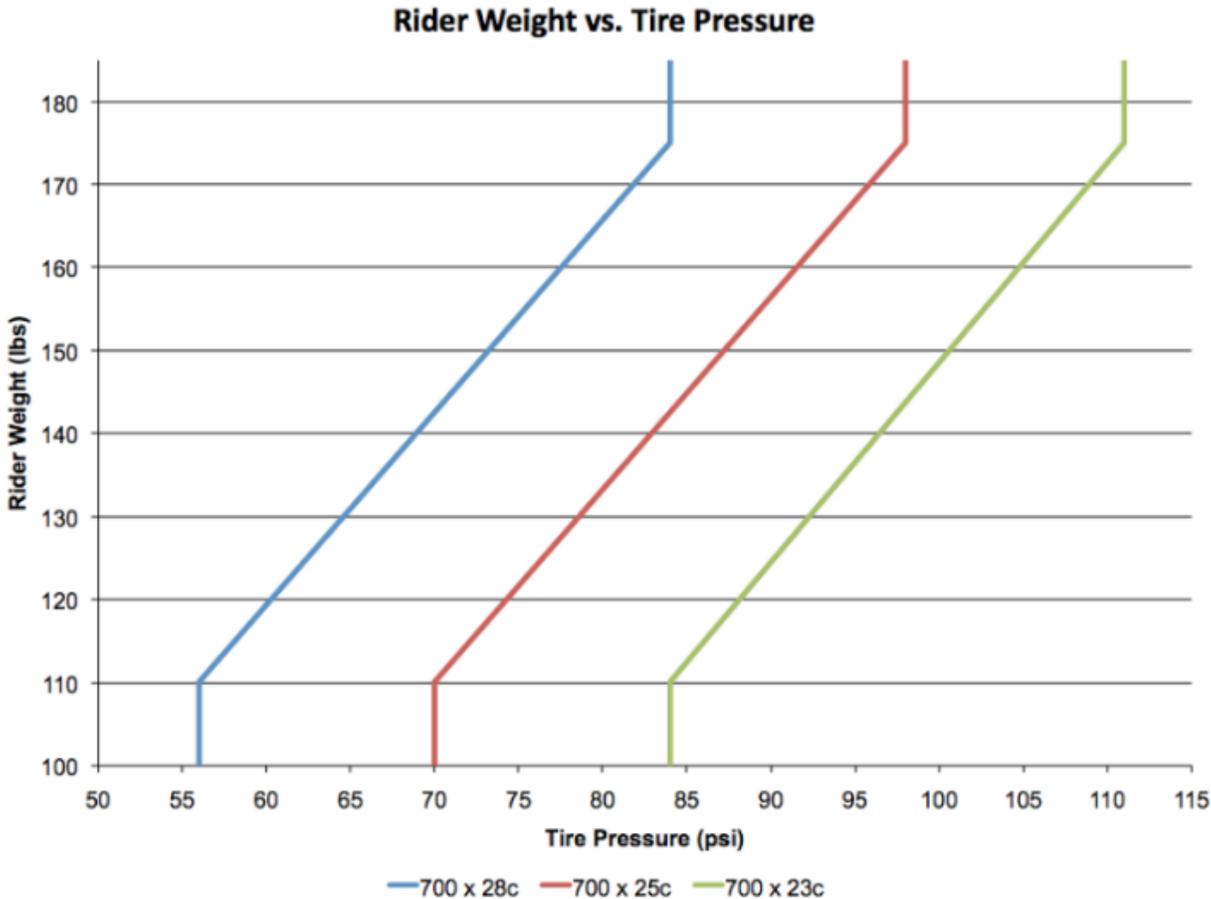
**No accelerating too fast:** Let's not do that unless its predictable. Like taking off too fast from junctions when it is a group ride. There may be times when it is appropriate, e.g. sprints or racing.

**Keep your line:** One of the most critical rules and part of being predicable. Whether you are on the inside, middle or outside, hold your line and don't change it without being aware of what other riders are doing. If you must make moves, give a warning such as "moving to inside", "pulling out", etc. One place where this often happens is hill ascents, when riders pull out to go around slower riders. Be aware what others are doing! If you are riding USA Cycling races, in final sprints in road races and criterion its against the rules to change your line.

# Chapter 3 - Bike Handling

## Tire pressure

Contrary to common belief, we should not pump our tires to the maximum pressure stated on the tire. Yes hard tires go faster with less effort, but in a straight line only and they bounce and loose traction! Tires need to give a little to provide traction on the turns. But if they give too much they are susceptible to increased rolling resistance and snake bites. In Superkids, we will teach this simple. Tire pressure is adjusted for the weight of the rider and whether the road is wet or dry. The table below gives an approximate guide.



In wet weather, you can take 7 to 10 psig off the tire pressure to increase the contact area with the road.

## Basic Bike Safety Checks

This section is not intended as a bike maintenance manual, but a shortcut for ensuring the bike is safe before riding. In Superkids, we will pride ourselves in ensuring our bikes are always safe to ride. Most times our bikes will be coming off a car bike rack or inside a car and sometimes partially disassembled. Brakes can be knocked out of align, wheels may need to be installed, etc.

Tires: We will check our tires before we ride each time. Checking that there is enough tread, the pressure is correct and our tires are free from foreign objects, such as thorns, glass, metal fragments, etc. Below is an example of an unsafe team member tire, which has also picked up a staple due to insufficient tread.



Brakes: We will check our brakes, ensuring that the wheels will spin freely without the brake touching the rim, that our quick releases are done up and that our levers cannot be pulled all the way to the bar tape.



Bolts: We will look over our bikes to ensure all the bolts are tight. Of particular importance is ensuring that the handlebar bolts are tight and that the front wheel cannot move from side to side when the handlebars are still. We check that by placing the front wheel between our legs and trying to move the bars while keeping the wheel still.

Bar end plugs: We will ensure that our bar end plugs are in, and we do not ride with open holes, see photo for a team member example. If we crash like this, it can skewer a hole in us!



Helmet: We will check our helmet by squeezing it to ensure it has no cracks. A loose chin strap is not much better than an undone chin strap. We should be able to easily slide 2 fingers between the chin strap and the chin, but no looser than that. Any looser, stop and tighten.



Gloves: We will not ride without gloves except in races, since they protect our hands from abrasions during crashes and increase grip on the bars.

Glasses: We will not ride without glasses, since they protect our eyes from wind and road debris. On cloudy dark days we will ride with clear glasses, not no glasses.

### Riding Styles

Soft pedal: This style is for when we are relaxed riding slowly or waiting for other riders to catch up. In this position we are up and attentive, but it will not be the primary riding style. We may hold the bars above the brake hoods here.

Pace line: Our normal position when we are focused and riding hard. Handlebars should be held low so that the body is low and moderately streamlined.

Time trial: When we are on the front of the pace line or riding hard on our own. We should position ourselves to be very streamlined.

## Hand Position

Although there are many different hand positions, in Superkids and SK Elite, we will teach 3 positions:

- Down in the drops. This should be the primary riding position since it is aerodynamic and easy to control the bike. This position adopts slightly different leg and torso muscles than holding on top of the brake hoods. Since we want to race like this, we will adopt this as the primary training position. We want to train our leg muscles to be strong riding in this position. Arms should be bent and the grip should be high up, just under the hoods. We will avoid holding the lower drops towards the bar ends with locked elbows.



- Top of the brake hoods – straight arms, fingers hooked under the hoods. We will use this position for soft pedal only or for ascending hills when we want to place more leverage on the bars. It is not to be used predominantly in training except occasionally at the back of the paceline when we are riding slow and you need to sit up. Although it is comfortable, we are using some of the wrong leg muscles when we sit upright in this position.



- Top of the brake hoods – bent arms, aero, fingers curled around the side of the hoods. This position may be used interchangeably with down in the drops when solo or on the front of the pace line. It is quite aero. We need to practice riding a lot in the position. It is commonly used by the professionals and a lot by the coach writing this manual. When the bike is fitted correctly, the back will be flatter and the elbows comfortably close to a right angle.



Other positions do exist, such as; time trial position, aero downhill, etc. But we will not teach these as standard so as not to complicate things.

## Turns

The type of racing we do involves a lot of tight turns at high speed when other riders are present. This introduces several hazards and opportunities too!

In volume training, we will be predictable and systematic. This means we will give lots of warning to our team mates and give signals and verbal commands. In racing, things are different. The riders will approach the turns at high speed, braking at the last minute before the turns and accelerating rapidly away. We will practice this in some training sessions too.

Body position: Corners should be approached with the outside pedal down and as much force as practical pushing down on that pedal. To counter that, additional weight should be placed on the inside hand, pushing down on the bars. Weight should be shifted as much as possible towards the inside of the turn, the simplest way being to direct the inside knee outwards. For sharper turns, the butt can be shifted slightly towards the inside. Eyes need to be looking where you are going, not down at the road! Looks at the road and around the corner before you enter the turn.

See this demonstrated in the picture below; note the eyes, outside pedal, knees and force on the inside bar (check muscle flex on arms).



Safety note: During training and open race courses such as in USA cycling and non drafting triathlon, we will not cross a double yellow line during the turns.

Braking: During turns, we should do all our braking before the turn not during the turns. Brakes should not be heavily applied during the execution of the turn itself, the speed needs to be correct before the turn. Both brakes should be applied. In dry conditions, most of the braking will be achieved with the front brake provided the wheel is mostly straight – figure this out soon! In racing, brakes will be heavily applied. In volume training, we will be less aggressive and kind to the people behind us.

During braking you can expect the bikes to become much more bunched up and distances will be less safe. Remember to look more than one bike ahead so you can anticipate – not just on the wheel in front of you.

Gears: We will change to the appropriate gear as we enter the turn and ideally before braking so we are not trying to brake and move the gears with the same lever!

Accelerating: After turns, we will accelerate away from the turn. There are two techniques for this and each rider will practice both and find their preference. One technique is a high gear and standing up with a lot of force on the pedals to rapidly accelerate. The other method is to change to a lower gear and spin moving up through the gears rapidly at a high cadence. Both are valid methods and each rider needs to find their safe technique. The first method is more taxing and tiring on the leg muscles and if this is done a lot, it can lead to muscle fatigue. The second method at high cadence is reliant on the aerobic capacity. In races cornering provides an opportunity to get ahead. See section on racing.

### Riding In Groups

Exit route / safety zone: Where possible an exit route should be planned and kept in mind in case of problems ahead. As an example when there are emergencies ahead; riding to the left into the main road (if there are no cars passing) or riding onto the shoulder or verge. Situations where no exit is possible, such as riders on both sides should be immediately recognized and if possible remedied.

# Chapter 4 Transitions

This section outlines some key things you need to know about bike transitions and things we have learned as a team. We cannot cover everything here.

## Passing inspection

On entering transition, you can expect your bike and helmet to be inspected. On the bike, they will check bar ends are in place, brakes are appropriately adjusted, wheels are legal and have at least 12 spokes, aero bars are legal design and not too long. They will check that the helmet is undamaged and has the certification sticker inside.

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**USA TRIATHLON**

**BIKE EQUIPMENT**

**NOTE:**  
Place bike number on the seat post or on top tube of the frame.

**NOTE:**  
Wheels must have at least 12 spokes. Disc wheels are not allowed.

**NOTE:**  
Disc brakes ARE allowed.

**NOTE:**  
Only traditional drop-style handlebars and brake levers are allowed.

**NOTE:**  
Aerobars may not extend beyond the handlebar brake levers and must be touching or bridged with a solid, factory bridge.

**NOTE:**  
The ends of both handle bars must be securely covered with bar-end plugs.

**NOTE:**  
Aerobars must touch or be bridged with a solid, factory bridge.

**NOT ALLOWED!**  
Handlebars with built in aerobars are not allowed.

**NOTE:**  
Helmet must be free from defects and within standards described on page 5. Place helmet number sticker on front. Aero helmets are not recommended.

Below you can see an official checking that the aerobars are legal. You can also check this at home the same way.



## Racking The Bke

Ask for help from officials if someone racked in your spot, there is no room, the bike does not fit under the rack or there are other problems. It might take more than one official to resolve the problem!



Rack your bike in the right place both before the race and when coming back into T2 to avoid penalties.

Racks are different designs. In this bar rack design you must rack at the start of the race by the seat, but may rack at the end of the race by the handlebars. A design becoming increasingly popular are floor racks which have slots where the rear wheel is placed. Place your running shoes next to your bike, put your helmet on your bars, put your glasses in your helmet, mount your shoes on the bike and you are done! Just like that...

Once you have racked you bike, walk back to the swim entry and run back to your bike so that you know exactly where your bike is and what it will feel like in the race.

## Mounting the shoes on the bike

Each bike is different and riders will have a preference which side of the bike they mount and which pedal will be forwards and which one will be back. Each bike has its own unique ways to fix the elastic bands to the back of the shoes; you can attach the front derailleur, the rear derailleur, the bottle cage, etc. Find your preference and practice it. The photos below show examples of how shoes can be mounted.



### Coming into T1

It is not the intent to cover this in detail, but you need to:

1. Run to your bike while watching out for other athletes.
2. Place your swim cap, goggles and wetsuit (if used) in the box.
3. Put your glasses on, if used.
4. Put your helmet on and buckle it before you touch the bike.
5. Grab your bike and run past the mount line before getting on the bike.

We will practice this many times as a team.

### Coming into T2

It is not the intent to cover this in detail, but you need to:

1. Dismount so that you have at least one foot on the ground before your front wheel crosses the dismount line.
2. Run your bike to your space.
3. Mount your bike in the correct slot by the seat or handlebars for bar racks or by the wheel for slotted floor racks.
4. Unbuckle and place your helmet in the bin after you have racked your bike.
5. Put on your running shoes and start the run.

The officials will be delighted to issue you a penalty for infractions. Check the rules at:

<https://draftlegalrules.com/>

And the USAT Junior Elite Series Guide for the current year.

## Chapter 5    **Bike Racing**

This section contains some tips on strategy for competing in draft legal bike racing. It is not meant to be comprehensive, but contains some key lessons that the team has learned.

The concept of cycling in a group when it is a race is somewhat a contradiction, in that you are helping and aiding people that you want to get ahead of. Knowing the strength and weaknesses of others is very helpful for this. In the initial years, you will probably work together with everyone, however as you get more experienced, you might be more selective who you help. E.g. if you are a good cyclist and average runner, you might not choose to help an average cyclist and good runner if the opportunity arises. Vice versa, you can choose to team up with a slower runner to form a breakaway.

### Break away from slower riders:

Slower riders slow the whole bunch down. They don't pull hard at the front and will prevent you reaching the next bike group. Worse case, they will allow groups behind to catch up. If you are a strong rider in a weak bunch, try to find another strong rider or two and break away. See below for opportunities. Of course if you are a weak rider in a fast bunch, watch out for these attacks and be prepared.

### Stay away from inconsistent or unsafe/dangerous riders:

It is obvious why, but when we are tired, it is tempting not to. Warning signs of inconsistent riders: not holding their line (especially in turns), swerving from side to side without checking if other riders are overlapping, braking sharply on the straights -instead of keeping everything smooth, can't mount/dismount safely, swerve when drinking water, etc.

### Bridge up:

If the rider ahead of you appears to be falling off the rider in front, pass this rider immediately after giving a warning "passing" and move to one or more positions ahead of that rider. If you let that gap open up more, you may fall off the group.

### Strategies to break away:

- During the straight: two or more riders can agree to attack. They simply accelerate and ride off the front. They should immediately start rotating so the pace of the attack can be maintained.
- During the corners: the back of the bunch can experience quite some whiplash effect in that small changes at the front of the bunch can result in big changes at the back. When leaving a corner, gaps will open up between the last few riders as they struggle to get ahead. This can be an opportunity for two or more riders at the front to attack if well planned. This is a great chance to drop a strong runner.
- During disruptions to the paceline: If some riders break away and are caught or you catch up riders ahead, this can also be a great chance to break away.

The key point here is that almost no one is strong enough to maintain a breakaway on their own. You need more than one and you must work together to sustain.

### Exiting the transition T1:

This is probably the most critical time in the whole race together with the swim start and the run finish. It can make or break a race. During the mount, you will normally form a group. If there are close riders ahead of you must bridge up to them immediately at all costs. This means rapid acceleration right at the time when you are fastening your shoes. Don't fumble around to fasten them – bridge up! Practice your mounts until it is just muscle memory. It is a great advantage if you can seamlessly put your feet directly into your shoes, rather than on top of your shoes. See video link for how to do that right and stills below.

<https://youtu.be/qcHprT-j3B4>



### When to drop back:

There are times when you might find yourself on your own. You need to figure out what to do when this happens, the circumstances can vary:

- You fall off the back of the group. If you fell off due to bad strategy or luck, put a superhuman effort to get back on! If you were struggling a while and the group was too fast, you will probably want to drop back to another group if there is one close and there are still several laps to go. Of course don't do that if there are no groups behind you or it is the last lap.
- You exit T1 and find yourself on your own. If there are riders ahead accelerate up to them. If there are riders close behind you, quickly form a group, get organized and speed up quickly before other riders can join.
- You ride off the front of a group. If they are that much slower that the speed you want to go, you might do this, but you had better quickly bridge up to the next group unless it's the last lap.
- You crash or get caught up in something. Find someone to ride with ASAP.

### Try not to be on the back at corners:

The whiplash effect is described elsewhere. If you are in a big group, try not to be on the back of a group greater than 5 going into a corner. You will have to brake harder and accelerate harder than everyone else in the group. There are not so many ways to influence this, but one obvious one is not to rotate off the front as you come into a corner.

### Don't be at the back as you come into T2:

Everyone wants to be on the front going into T2. It is a considerable advantage, since you will be seconds ahead of the people at the back. This is time saved on the run. Don't rotate off the front as you approach T2. It is probably worth an extra 30 seconds or more on the front to gain these few seconds coming into T2. See if you can work your way up to the front in the final lap. Work with a teammate if you can to be at the front.

### Spread out coming into T2:

At most races, the dismount line is quite wide. You don't need to be single file coming in. You are also less likely to get caught up in a dismount crash, see example below. If there are riders ahead of you, move to the side and accelerate to the side to get ahead. The middle is not always the best place. Don't unstrap and start coasting too early either. That's an easy way to lose places. Practice last minute unstraps outside of the race. Don't dismount too late, you will get a penalty.



### Paceline communication:

Talk to each other. In our experience, the girls do a better job than boys! Some examples where you should communicate:

- Forming a group after T1.
- Ask a rider on the front to rotate off.
- Change the speed of rotation.
- Ask a rider to close a gap or tell them you are going around them.
- Unexpected hazards, unexpected slowdowns, etc. But recognize that the group is not going to use the normal road signals we use on regular group rides. Only signal the unexpected. Keep your hands on the bars as much as possible, use verbal statements.

### If you get a flat

You coaches will put wheels into the wheel well. This can normally be found somewhere near the bike start, normally just after the start of the bike course. It will typically look something like this:



The coaches will put 3 wheels in; one front, one rear 11 speed and one rear 10 speed. Superkids wheels will be labeled and yes, you need to remove the labels before installing the wheels. They will be easy to rip off.

If you get a total flat and you are a long way from the wheel well, your race is done. Get off the course and walk your bike back to transition and hand in your chip to an official. If your tire goes soft, try to make it to transition and install a new wheel and continuing before getting lapped out. If you are riding slow due to a flat, ride off to the side out of the main flow. If you get a total flat close to the wheel well, move to the side of the course and try to run to the wheel well with your bike and install a new wheel before getting lapped out.

When entering the wheel well, you will need to tell the official or volunteer there that you would like a Superkids team wheel. If it is the front, no confusion. If it is the back, you need to know if you are riding 10 speed or 11 speed and ask for the right one! You will need to know how to change a wheel! If you do not know how to do this, practice before racing. The volunteers and officials are not allowed to help you. Tip, if the rear wheel is flat, change to your fastest gear just before entering the wheel well so its easier to remove the wheel.

## If you get a penalty

Almost all penalties are associated getting on or off the bike, so we will be including this in the bike manual. Although there can be other reason for penalties, in most cases you did something wrong in T1 when getting the bike ready or did something wrong at T2 when dismounting or racking the bike.

If you get a penalty in T1, it may be posted during the bike and be known by the coaches, so you might be able to serve it before you run. If you get a penalty in T2, it will not be posted until you have exited transition and you are on the run so you will have to serve it during or before the end of the run. So you need to keep an eye out for the penalty tent and specifically on the board. It looks something like this.



It may be moved by the officials during the race, subject to the course. However, you will always find it at or shortly before the run finish / turnaround.

What if you have a penalty. Firstly, it is your responsibility to look for your number on the penalty board and serve your penalty before you finish, not the coaches. However, your coaches will be looking at the board and doing their best to alert you to penalties. If you get a penalty in T1 and its posted while you are on the bike, the coaches will normally try and have you take it before the run for Youth and either before the run or after the transition end run turnaround for Juniors. If you get a penalty in T2, you are going to more easily see the board yourself and you will have to take it just before the run finish for Youth and at the transition end run turnaround for Juniors or just before the run finish.

Be alert for penalties. Best thing is to do things right the first time, or fix the problem at the time if you can, such as correctly racking your bike or putting things in the bins correctly.

## Chapter 6 Nutrition, electrolytes and water bottles

What we put in our bottles will vary with the length of the ride, intensity and weather. Additionally each athlete is different and there are a lot of personal preferences. This is an area of science, so this is a guide only, aimed at only the cycling leg.

### Bottles

#### Training rides less than 10 miles

Water should be fine. There is no need for anything more unless you worked out already earlier in the day, or are suffering from electrolyte deficiency. Examples? Try tap water!

#### Rides of greater than 10 miles and less than 30 miles

A blend of fast shorter chain complex carbohydrates and electrolytes should be sufficient for most weather conditions. If it is 90F or greater, additional electrolytes can be considered. Examples are: Hammer Heed (\$60 for 80 servings), Cytomax, Infnit Speed (\$40/packet)

#### Rides of much greater than 30 miles lasting several hours

The blend should be changed to include a balance of short and long chain complex carbohydrates plus additional electrolytes. As distance increases over 3 hours duration, protein should be added to support the muscles. Examples are: Hammer Perpetuem (\$50 for 32 servings), Infnit Go Far (\$40/packet),

What to use?

Its personal preference. Each brand claims to have found the optimum mix! Key issues are ensuring that the mix remains isotonic (in balance with the body) and that is not overloaded with carbohydrates or proteins so it is difficult to digest causing stomach (GI) upsets. Your body can only process a certain amount per hour.

The author recommends to stay away from Gatorade; it's a very sugary drink, can result in blood sugar swings (highs and crashes) and prone to giving athletes GI problems.

If you just want a weak electrolyte that's isotonic, easy to pallet, easy digest and not sticky and sugary, try electrolyte tablets on the bike. Examples are Hammer Endurolytes, Nuun, GU Hydration, etc.

There are many mixes available in packets that satisfy the mixes for high intensity short workouts and longer more sustained workouts. Read the packet and see what it is for; distance, short high intensity, etc.

If you want to make your own mix you can do this yourself by buying powders and mixing them at home; mix protein powder with short and long chain carbs, flavor, electrolytes, etc. This is complicated so brands such as Infnit (infnitnutrition.us) will allow you to select your own ratios, flavors, caffeine, etc. for about \$50 a bag.

### **Gels, Blocks, Capsules, Bars, etc.**

Sometimes you want to supplement what is in your bottles with additional calories or salts. For Superkids non HP, this should never be necessary. For SK Elite it can sometimes be necessary on longer rides or hot days.

Here is how they can be used:

Electrolyte capsules can be used on hot days or after several sustained days of training in hot weather to maintain levels. Eat a couple before you start riding and two per hour during riding. Be careful not to overload if you already have a lot of electrolyte in your bottles.

Gels and blocks can be used towards the middle or end of a long workout to prevent bonks. They are best used with water only in your bottles and in fact when consuming blocks and gels, most athletes find drinking sticky mixes from their bottles intolerable and prefer just water. In the authors opinion, blocks and gels have the best advantage of supporting you part way through the ride when you refill your bottles with just water.

Consume one every 15 minutes. Be careful not to overload if you already have a lot of carbohydrate in your bottles. Gels are sticky, hard to store and you have to deal with that sticky packet when you are done. Blocks have the same benefit as gels, but with less mess. A bit yukky, but if you lick them, blocks can be stuck to the top tube before the ride making them easy to get at and avoiding dealing with the packet.

Bars can be used anytime during the ride. They are harder to deal with than blocks and gels, and generally less instant in their effect. Examples are: Powerbar, Cliff Bar, etc.

### **Real food!**

The author is a big fan of real food on longer rides. Consider taking a banana in your back pocket, cakes, or even a sandwich. The author will very often be found eating a cheese sandwich while riding, which is longer lasting and has more sustainable carbs than blocks, bars and gels. Real food is not recommended for high intensity riding, but works well for volume training.

Consider adding a 'bento box' or similar holder to put all this in on longer rides, see image below.



Post ride, drink a protein drink such as muscle milk or make your own with protein powder and fresh fruit.

## **Race Food On The Bike**

See the excellent section on the Superkids website for race day food.

This section supplements just the bike portion of the race day food.

The bike is your only real chance to consume nutrition during a race. The basic point is that for these short races, to be competitive during normal moderate race heat conditions, all liquids and calories need to be consumed before the race or on the bike. Take advantage of this and do it in practice so its easy on race day.

No Superkid or SK Elite athlete should be racing for more than about 1 hour. So protein should never be used during the race in a bike bottle or consumed before the race on race day. All bike bottle race formulas should NOT be tried for the first time on race day!

## **Chapter 7    Where we train and our standard routes**

This section is under construction.

## Chapter 9                      **Bike fit**

Although there are many other methods, there are 3 basic ways we will teach for bike fit. Each one is more advanced than its predecessor. Correct height and seat position will help give the right pedal stroke. Correct reach to the bars can ensure the best position for safety, comfort and aerodynamics. For novices, we might start with seat lower for the first few rides and gradually move up to the set position.

Changes to seat height should be made slowly over several rides to avoid injuries.

### Method 1: Sit on the seat and put your feet on ground!

This is the simplest way and should only really be used for a quick setup on site and not really for anything else.

Sit yourself or your teammate on the seat and he/she should just be able to reach the ground with the toes. If the feet can go flat on the floor and anything close to that, it is too low. Experience has shown that in most cases, this method will lead to approximately the right knee bend. This set up should only be regarded as temporary and method 2 or 3 should be used soon after.

### Method 2: 109% of inseam for height and weighted string for seat position

This method is quite reliable and is something that can be done at home without advanced tools.

#### Seat height.

Take your shoes off. Then take a hardback book, such as an encyclopedia (does anyone still have one of these?) or a large cookery book and place it between your legs. Pull it up hard into your groin to simulate saddle pressure. Stand back against the wall. Use the wall to keep the book horizontal and have a friend or parent mark where the top of the book is on the wall. The difference between the floor and this mark will be the height of your inseam. Alternatively, same can be done with a spirit level, if you have one of those.



Multiply this by 109%.

Ensure the seat is level, then using a tape measure, measure the distance from the middle of the seat to the center point of the bottom bracket; when the pedal is at its furthest position from the saddle, slightly forward of the 6 o'clock position.



Adjust the seat position until it is correct.

### Seat Fore and Aft Position

First ensure that you cleats are centered under the balls of the feet. Then ensure that they are in line with the shoe.



To find the right seat position, sit on the bike with the pedals at the 3 o'clock and 9 o'clock position. Hold a plumb bob at the front of your forward kneecap and see where it hits in relation to the pedal spindle. The line should intersect the pedal spindle/axel. If it falls in front, adjust the saddle rearward and vice versa.



When this is complete, recheck the seat height and adjust if needed.

Reach to the handlebars should be comfortable. If not, the handlebar stem might need to be changed. Set up is best checked with video assessment.

### Method 3 - Video Assessment.

Your coach or third party may be able to video you and use computer tools to check knee position to determine the optimum fit.

# Chapter 10 Bike Clothes

This section is under construction.