

**Forest City Velodrome**

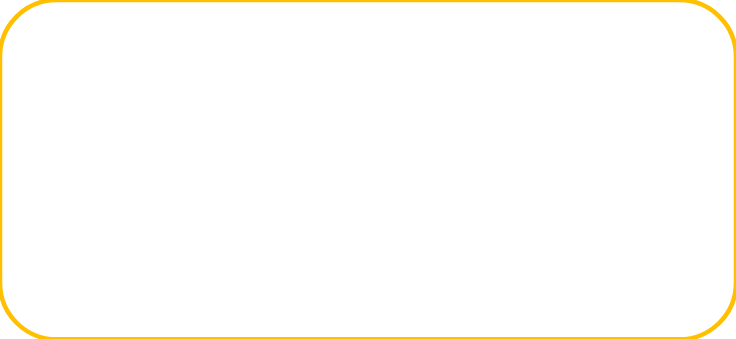


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**Operations**

**And**

**User Guide**





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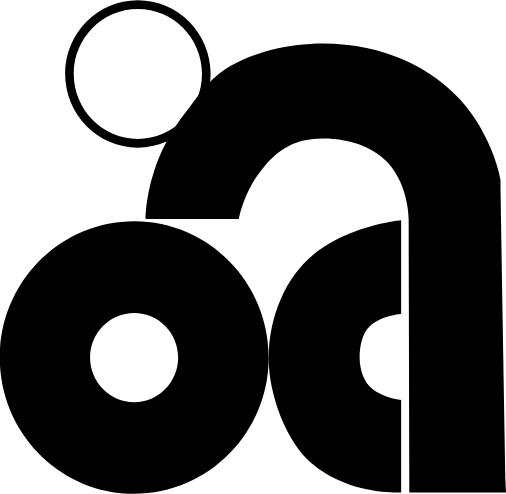
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**www.ontariocycling.org**

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**PREAMBLE**

The mission of the Forest City Velodrome Association is to expose and attract the public to high-quality, Olympic-style bicycle racing through the staging of track cycling races involving all categories from cadet to masters of both genders, and through offering the public the opportunity to participate in recreational and sportif riding, cross-training, and citizen racing.

The Forest City Velodrome Association also aims to develop the next generation of Ontario’s and Canada’s elite track cyclists, and contribute to the development of cyclists across all cycling disciplines.

The Velodrome offers the public a venue in which to ride recreationally, improve health and fitness, and develop cycling skills away from weather and traffic. The Forest City Velodrome Association is committed to attracting new people not just to the sport of cycling, but to the activity of cycling for recreational and utilitarian purposes through making its facility extensively available to non-competitive members.

The Forest City Velodrome Association aims to provide all who come to participate or watch an opportunity to learn the values of self-reliance, self-discipline, co-operation, and ability to cope with adversity that participation in sport has to teach, and to teach these values in a broadly inclusive context.

Above all, the Forest City Velodrome exists as a place for people to come out and have fun.

The operations in this manual are set out with these goals in mind

# **OPENING AND CLOSING**

Session leaders should know the locations of the first aid kit, the fire alarms, and the fire extinguishers. At least one cell phone should be available for use during the session. Please review the [emergency procedures](about:blank).

**Opening**

1. Arrive at least 30 minutes before your session is scheduled to begin.
2. Enter the building through the northwest set of doors. Only one of these doors accepts a key. You will be able to tell which one from the outside. Once you have unlocked the door and entered, be sure it is securely latched behind you.
3. You have 30 seconds to go to the alarm and disable it. This should be plenty of time.
4. Unlock the main doors.
5. Check the dehumidifiers and empty if necessary.
6. Turn on the parking lot, hallway, and track lights if it will be dark by the time you leave.
7. Remove the cables from the exit doors opposite the tunnel.
8. Turn on both the track lights and the perimeter lights.
9. If it is below 12-degrees inside, turn on the furnace (low setting) and the circulating pump (the circulating pump is on when the switch is pointing up). Do not turn on the heater fans until the furnace temperature rises above 120.
10. Go up into the gondola, turn on the ceiling fans, and plug in the floodlights.
11. On your way down to the track, turn on the sign above the tunnel.
12. Cross the track and turn on the sign above the opposite tunnel. Also turn on the visitor side floodlights.
13. Inspect the track for damage and repair if necessary (see [track repair](about:blank) page ##).
14. Turn on the computer, start Orbits, and start your session (see equipment\using Orbits pages ##).
15. If you turned on the furnace and the circulating pump at step 6, turn on the fans.

**Closing**

1. Turn off the furnace at least 30 minutes before your session ends.
2. Close the Orbits program and shut off the computer.
3. Cross to the visitor’s side of the track and turn off the floodlight and the sign above the visitor tunnel.
4. Cross to the home side and turn off the sign above the tunnel. Go up into the gondola and turn off the ceiling fans. Unplug the floodlights.
5. Check the washrooms in the change rooms.
6. Wind the aircraft cables around the exit doors opposite the tunnel and secure.
7. Starting at the doors opposite the change rooms, walk counter-clockwise around the building, checking that each entry door is secure.
8. As you pass through the electrical room turn off the heater fans.
9. As you pass the light switch, turn off the track lights and the perimeter lights.
10. If the overnight temperature will be over -10, turn off the circulating pump.
11. Empty any buckets you pass that are more than half full. If you notice drips, try to place buckets underneath them.
12. As you pass the handicapped washrooms, check inside that there are no leaks. On very cold nights, flush the toilets and run the taps for a few seconds.
13. Do the same in the main washrooms. Ensure that all toilets are flushed and repair if not functional. The most common problem is stuck floats, meaning the tank will not fill to flush. The second most common problem is plugged toilets. Plungers should be in the utility room.
14. On very cold nights ensure that the circulating pumps in the boiler room and the main men’s washroom are on.
15. Latch the main entry door.
16. Turn off the hallway and parking lot lights.
17. Set the alarm and exit the building within 30 seconds.

**EMERGENCY PROCEDURES**

Session leaders should have a cell phone or ensure that someone else is present for the duration of the session who has a cell phone.

A fire extinguisher is located on the pillars on the right as you exit the tunnel. Fire alarm pull stations are located on either side of the emergency exit doors opposite the tunnel. There are a number of other extinguishers and pull stations located throughout the building. Session leaders should familiarize themselves with their locations. Even small fires emit gases that can quickly render people unconscious. Small fires in enclosed areas emit gases that can explode at any moment. Do not attempt to extinguish a fire that is larger than a football. Evacuate the building immediately, using the emergency exits opposite the change rooms or directly opposite the change rooms on the other side of the track, and call 911. On your way out, pull the alarm.

If there is an audience in the stands, have them exit the building by the doors opposite the tunnel or by using the south west stairwell to the main entrance. Access to the north stands is prohibited and people should not be permitted to sit there. If anyone is there, do not allow them to use the north hallway behind the stands. They must exit through the north tunnel.

Session leaders must exercise discretion over the use of the track when only a few riders are present. At least two people ought to be available to respond to a serious accident, one to give assistance to the injured and one to check that the doors are open and guide paramedics to the scene. This may require having those present take turns using the track.

Most accidents result in only minor scrapes and sprains. There are first aid kits, a blanket, and a pillow on the infield opposite the entry.

If an accident results in serious injury, give first aid (if you know what you are doing) and call 911 immediately. Tell the operator that an ambulance is needed at the Forest City Velodrome, 2809 Roxburgh Road (Wellington just south of the 401). Mention whether the person is immobilized, unconscious, or not breathing. Get someone to go to the front doors, ensure that they are open, and guide the paramedics to the track. If someone is injured, do not attempt to treat them without their permission and continue to request permission for each subsequent investigation.

If someone is unconscious leave their treatment to those who know how to give first aid.

If no one is available your priorities are calling for medical assistance, ensuring that the person is breathing, and ensuring that the person has a heartbeat and is not bleeding profusely. Given the possibility of spinal cord injury, unconscious individuals should not be moved.

After the ambulance has arrived, call the emergency contact the person listed in the sign in book if they are unconscious. Otherwise, ask them if they would like you to call their contact.

Always request to inspect the helmet of anyone who falls on the track. If they refuse, or there is damage to the helmet, do not allow the person to continue riding.

Inspect the track after an accident and repair any damage (see track repair). Do not allow anyone up onto the track before repairs have been made.

Remind anyone involved in a crash to inspect their bicycles before getting back on the track. Also inspect them yourself.

Write up an incident report (*see Appendix A*). Hard copies of the report form are available in the envelopes that contain these procedures, posted in the change rooms and on the pillar by the track table. Or click on the link, fill out the report on the computer, and save the file on the desktop. Complete the OCA Accident Report form (*see Appendix B*), and file a copy with the OCA office as soon as you can fax/mail or email to them.

**TRACK REPAIR**

Deep cuts, scrapes or gouges in the track should be repaired. If needed, use the ladder that is behind the rail on the back straight (not the heavy ladder behind the rail on the front straight, which is for changing light bulbs). Always have someone brace the ladder.

You should find a scraper, brush, dustpan, and pot of filler somewhere on the floor in the vicinity of the track table. Clean out all the loose splinters from the damaged area and fill. For very deep holes, a second application may be necessary. People should be able to ride over the patch after 10 or 15 minutes.

Sweep all the debris down the track and clean it up before letting anyone on the track.

Replace the ladder, filler, and other tools where you found them.

For damage that cannot be repaired with filler, cordon off the affected part of the track and contact Bob Schelstraete at trackcycling@rogers.com

**MEMBERSHIPS**

**Memberships**

Membership application forms are located on the official’s desk in the green binder.

*Existing members*

A list of all existing members complete with their expiry dates and membership number is located at the front of the sign-in book in alphabetical order. The sign-in book is on the officials’ desk.

*New members*

* Give any new prospects a copy of the membership application form.
* Indicate the many plans available on the form and mention the web site www.ForestCityVelodrome.ca for the latest info on track schedules.
* Forms and payment may be mailed by the new member to the address at the bottom of the form.
* If the form is completed at the track, check to ensure all areas are filled out or checked marked.
* Check that the email address in particular is legible.
* Let them know that their membership number will be assigned and forwarded to them by email.
* If the member requests a transponder refer to that separate section of this manual.
* Put cash/cheque and membership form in the black box on the official’s desk and be sure to put the entire contents of the black box in the designated spot at the end of your session. DO NOT leave any forms with credit card numbers in the open.

NOTE: Completing the membership form does not entitle anyone to ride the track until they have successfully completed the Track 1 Learn to Ride course.

**SIGN-IN AND FEES**

**Sign In**

* Every person riding the track in your session must sign the sign-in book along with their membership number. The sign-in book is located on the official’s desk. Occasionally check that the number of riders reflects the number of signatures.
* If a person doesn’t remember their membership number, refer to the alphabetical list of all existing members at the front of the sign-in book.
* If they do not have a membership number yet they must have their signed track 1 card to prove they have taken the course and have signed the waiver.

**Fees**

Refer to the membership forms located in the green binder on the officials desk or the web site www.ForestCityVelodrome.ca for the latest fee schedule.

**RENTAL BIKE CHECK**

Everyone who picks up a rental bike check should be instructed to inspect it before riding it to ensure it is in good working order.

Copies of this inspection procedure are posted on all the bike racks. Be prepared to assist those who have difficulty with any of the steps.

Do not allow people to swap parts from one bike to another or do major disassembly or reassembly operations. The only allowable adjustment to rental bikes is an adjustment to saddle height (not tilt) and the installation and/or removal pedals. Remind people that pedals are only to be finger tight. Wrenches are not to be used to turn pedals on.

The most common difficulty is chains that are too tight or too loose. Be prepared to help people with this as renters are unlikely to have experience tensioning chains and the rental bikes can be very difficult to adjust. Loosen just the right side of the wheel. Always ensure that the left side of the wheel is tightened and “walk” the wheel by enclosing your hand around it and the seat stay and moving it between the chain stays to properly tension the chain. Then tighten the right side and loosen the left and straighten the wheel in between the stays. Repeating this operation may be necessary.

*Rental Bike Check*

Please perform this check before using your bike. Ask your session leader for assistance if you have problems with any of the steps.

1. Check tires to ensure they are well inflated. Inflate if necessary. Please bring your own pump. Commercial pumps are designed for personal use and fail in a matter of weeks when subjected to the constant use they would receive at the track. For this reason, expect others to be reluctant to lend you their pumps. Pumps that have been left by others at the track are likely to be defective.
2. Spin wheels to make sure they are true. If they are out of true look for another bike or ask your session leader for assistance.
3. Try to wobble the wheels back and forth in the drop outs to make sure they are securely bolted on and do not have loose hub bearings. Bang down on the front wheel to make sure it won’t drop out. Draw defects to the attention of your session leader.
4. Spin the handlebars to make sure they are turning smoothly. Bang the front wheel up and down to determine there is no rattling in the headset. Again, draw defects to the attention of your session leader.
5. Pick up the chain midway between the cog and chainring while the bike is stationary to verify it has just a bit of slack. Your session leader will be pleased to assist you to adjust your chain tension should that be necessary.

Please help us keep our fleet of rental bikes in good working order. Do not make adjustments or modifications to your rental bike other than adjustments to saddle height.

Pedals are self-tightening and should only be put on finger tight. Please do not use a wrench to put on or tighten your pedals. If you encounter difficulties installing pedals, speak to your session leader.

**CLEANING AND MAINTENANCE**

**Cleaning**

*Cleaning of the velodrome is done by volunteers*. During the Fall/Winter/Spring season (September to April) weekly cleaning of the public washrooms, mens & ladies change rooms (including toilette & shower), sweeping and mopping of the main lobby and lower hallway is done. During summer season (May to August) cleaning is done bi-weekly.

Infield of track, stairs, seating area, concession and upper hallway cleaned as needed. Through cleaning of all areas is done at the start of the fall season.

Wet floors are to be mopped up immediately and caution signs used to avoid slip and falls.

All garbage is emptied weekly or as required. All garbage is to be placed in the dumpster outside the main entrance. Plastic bottles and cans to be recycled into blue boxes on the infield. The recycled items are dumped into clear plastic bags and removed off premises by a volunteer.

Paper towel & toilette tissue dispensers in washrooms and outside dumpster require key access. Keys are kept on shelf in “Staff Only” room next to lower concession.

Supplies can be found in the following areas:

Infield: Broom & dust pan, dust mop, pails, garbage bags

Lower Main Hallway: Floor mop & janitor”s bucket just past entrance to velodrome

Bike Storage

(Off men’s dressing room): Spare brooms

Staff Only Room: Cleaning products, shop vac, garbage bags, pails, rubber gloves, broom & dust pan, mops & janitor’s bucket, sponges, sanitary napkin disposal bags, urinal pucks, hand soap, toilette paper, paper towels, Kleenex

**Maintenance**

Snow plowing of parking lots is done by contracted snow removal company. Volunteers shovel entrance way and salt as required.

Any repairs required for plumbing, heating, electrical, woodworking or painting are handled by volunteers with expertise in that field or a contractor is hired.

**VISITORS**

Session leaders should keep an eye out for strangers in the stands. Often people who are curious about the track will simply drop in to have a look. It is important to welcome these people and let them know what the track has to offer. Take a few minutes to go up to them, introduce yourself, and show them around. Explain what we do and what programs we have on offer. Let them know when they can come out to watch the next race or do a learn to ride.

**Comportment of Volunteers and Session Leaders**

People come to the track to have fun. Our job is to make sure that happens.

Be friendly and be upbeat about what you are doing. If people are making mistakes or riding dangerously, try to avoid criticizing them in front of everybody else. Do not criticize the group as a whole for something just a few are doing. In many cases, it is sufficient to simply ask someone to do something that will resolve the problem (e.g., “go a bit faster,” “come down to the red,” “slow down a bit”). If you want to tell someone not to do something, ask them to come off the track for a minute and speak to them quietly and out of earshot of others. Explain why it is important that they make the correction. Be sensitive to the fact that they may not be able to make the correction (e.g., some people just can’t go any faster) and think of ways to accommodate their limits (e.g., get them riding on the coté at points when others aren’t making heavy use of the track).

Try to prevent problems before they happen. If you have a crowded session with a lot of new people out, call everyone together before the session starts and remind them of the rules. It is counter-productive to say you are doing this because there are a lot of new people out, because there have been some recent problems, because some people don’t get it, etc. Just do it. Do it in a friendly way, as if it were a matter of course.

If something does go wrong, do not worry about laying blame. Focus on helping anyone who might be injured and try to get everyone else back up and riding as soon as possible. Most incidents are minor and should not be blown up out of proportion.

Do not initiate unsolicited physical contact, particularly with members of the opposite sex. Where contact is necessary (e.g., someone needs a push out of the start gate), always ask permission first.

**TRACK SCHEDULE**

Track 1 (Learn to Ride):

Saturdays at 11:00 and Sundays at 2:00, by appointment only.

Contact ForestCityVelodrome@live.com

Track 2:

Sundays at 2:00 or Tuesdays at 9:00, by appointment only.

Contact Rob@uwo.ca

Huff ’n Puff session for older or slower riders:

Wednesdays at 3:00

Velo Kids:

Saturdays at 2:00 – 3:00

Recreational Riding:

Mondays at 5:00 – 8:30

Tuesdays at 5:00 – 9:00

Wednesdays at 5:00 – 7:00

Saturdays at 9:00 – 11:00

Sundays at 12:00 – 2:00

Skills & Drills (low intensity work outs and skills training for general track riding)

Mondays at 6:30 – 7:30

Fridays at 6:00 – 7:30

Saturdays at 1:00 – 2:00

Skills & Drills II (mid-intensity drills)

Thursdays at 7:00

Winter Training (pursuit drills and motor pacing)

Fridays at 7:30

Structured Quality Workouts

Wednesdays at 7:00

Saturdays at 3:00 (priority to youth)

Racing:

Check [www.forestcityvelodrome.ca](http://www.forestcityvelodrome.ca) for updates

UP

**RECREATIONAL SESSIONS**

A recreational session is a session with no structured program of events. Participants should be free to enter and leave the track at their own initiative and should feel comfortable riding at a relaxed pace. Doing high speed intervals or riding in pace lines traveling so quickly that they must weave in and out around other riders should not be permitted. Politely ask people who are doing these things to go to a sport rec or training session instead.

Recreational session leaders should know the locations of the first aid kit, the fire alarms, and the fire extinguishers. At least one cell phone should be available for use during the session. Please review the emergency procedures.

At the start of each session, leaders should remind those present to sign in and pay their fees. Also ask people to please keep their pit areas clean and remove all debris when they leave.

**Track etiquette for recreational sessions**

Keep an eye on other riders and make sure they are observing proper track etiquette:

• enter and leave the track on the back straight

• maintain a speed of at least 30 km/h on the track

• shoulder check and signal prior to changing a line

• give other riders lots of room when passing and let them know where you are as necessary

• change the lead just ahead of turn 1

• when riding on the blue line, do at least two laps before changing the lead

• do not do laps on the cote, between the red and the blue lines, or on the yellow

• no passing underneath riders who are riding in the pole lane (passing underneath those on the blue line is acceptable)

• ride in the appropriate pace line — faster riders on the blue, slower on the black

• note: riders should be discouraged from using the words “rail” and “underneath” to alert others that they are passing by the rail or passing underneath. Experience has shown that this is ambiguous and may be interpreted as an instruction to move up to the rail or down the track. Riders wishing to alert others that they are passing overtop should shout “stick down,” those passing underneath “stick up”

During recreational sessions, people should be riding either below the red line or just above the blue line. Politely ask people who are riding for extended periods between the red and the blue lines to move out of that space.

As a general rule, riders on the black line should be traveling at 30-33 km/h, those on the blue at 35-38. Riders on the black line may change the lead as often as once every lap. Riders on the blue should not change the lead more often than once every second lap as it is more difficult and there is less room for error.

Changes should occur in turn 1. Riders should be discouraged from changing elsewhere on the track to minimize possibilities of collision with riders passing over top. Riders should be reminded to shout “stick” when passing at close quarters, particularly on the approach to turn 1. They should also be reminded to shoulder check and signal before changing their line.

If individual riders are riding incorrectly, wait for an opportunity to take them aside and speak to them in an encouraging, non-confrontational manner about how they should be riding. If groups of riders are riding incorrectly, you may need to ring the bell, call everyone off, and explain the rules and why it is necessary to follow them. Again, it is important not to scold or berate people or single out individuals for criticism. Keep the tone positive.

**Protocol with low numbers**

Recreational sessions can attract riders with a wide range of abilities. As long as numbers are low and the abilities of all the riders is high, session leaders can afford to be lax about enforcing protocol. But as numbers of riders of varying abilities increase, it becomes more important that everyone follow protocol.

**Protocol with large numbers or riders of varying ability**

As numbers increase it becomes increasingly dangerous for people to pass over other riders. The track can hold the most people the most safely if everyone rides in pace lines, two on the black and two on the blue, each line ½ lap apart. However, if there are too many people who cannot hold the speed of the pace lines, or who cannot change the lead in pace lines, it may be necessary to divide the participants into groups who will use the track for 5 or 10 minute intervals.

If pace lines split up, avoid asking people to ride faster or switch off the lead. They may not have these abilities. Your best recourse is to divide the participants into groups. Keep in mind that people will quickly get chilled in cooler weather, so groups will need to be changed with some frequency.

**INTEGRATING YOUTH AND NEW RIDERS**

It is particularly important to welcome and accommodate newer riders and youth. When someone arrives at a session whom you do not know, be especially concerned to make them feel at home. Introduce yourself and ask them what sort of experience they have. If they are fresh out of track 1 or have only a little experience, be prepared to spend one or more sessions helping them find their way. Note that some riders will require less assistance than others. If someone does not want any help, do not force it on them just because they are new. They may in fact not need it.

If observation shows that a new rider does need assistance, avoid shouting or complaining of the person’s mistakes in front of others. It is particularly dangerous to command a new rider to get off the track. This can cause them to attempt to leave the track too quickly, producing a crash that would otherwise not have happened.

The one exception is when people go too slowly. Then do shout to get them to speed up or move down on the blue band. Always use the person’s name, so that they know you are talking to them, and say something unambiguous, like “faster!” or “speed up!” Note that many people will not understand phrases like “pick it up.”

For other problems, get the regulars to give the person a lot of room, quietly and calmly get them off the track as soon as possible, and speak to the person politely and out of earshot of others. If the person is only making minor mistakes, it is best to wait until they come off the track for a break and then approach them, explain what they have done wrong and why it constitutes a danger, and ask them to try to avoid making that mistake again.

Most new riders will appreciate any assistance you are willing to give them. Newer riders will not be able to hold a wheel, so you will have to follow them instead. Guide them up onto the track, look at how they are riding, talk to them about what they need to do to get more comfortable, and get them to start doing exercises like shoulder checking while holding a line, riding out of the saddle, and riding one handed. If a number of new riders show up, ask a regular for assistance, or take them up in groups of two or three. Most people need to get a number of laps in before they can ride comfortably enough to manage the drills in track 2. After Track 1, rec. sessions are their main opportunity to do that. Rec session leaders have an important role to play in ensuring that they get that opportunity in a supportive, welcoming environment.

Newer riders also need practice getting on and off the track safely. Getting off is particularly challenging, as most will either come off the track at too high a speed to turn on the concrete, or stay on at too low a speed to stick to the track through the turns. They need someone behind them telling them to stay on the track or get down onto the blue band as the occasion warrants. It is important to make newer riders understand that while we want them to get on and off on the back stretch, we don’t want them to crash in the attempt. Better to stay on the blue band through turns three and four if you are going too fast or drop down onto the blue band through 1 and 2 if you are going too slow. Getting off smartly on the back stretch takes practice, and newer riders need to have an opportunity to get that practice. Keep following and advising them until they can manage it.

New riders should not be riding at or above the blue line, changing the lead in pace lines or passing over top of other riders. As soon as they are comfortable doing laps, they should be sent to Track 2 or skills and drills to acquire those abilities. In the meantime, they may encounter difficulties if there are riders of varying speeds traveling on the black line. If you notice newer riders slamming on the breaks as they encounter slower riders on the black line, you may need to lead them around the track yourself, showing them how to signal, shoulder check, use the stick word, and pass over when it is safe to do so. Since you can’t do two things at once (follow the newest rider and lead a group of newer riders around the track) you may need to have the new riders come on and off the track in groups.

**Integrating Youth**

Younger riders should also be made welcome. As with new riders, introduce yourself and ask the rider what experience they have. If the rider has been to velo kids and was advised to start attending recreational sessions, treat them as you would any other new rider. Often, these riders will have a great deal of experience and will mix in well with others, though they may not be as fast.

Some youth may not be able to ride fast enough to get up to the black line. In this case they should be advised to come to velo kids. If there are not many people on the track, and those who are there are experienced, having a young rider do laps on the blue band may be acceptable. Otherwise they will have to be limited to riding on the concrete. They can weave around cones, practice track stands and riding one handed or without hands, try riding on rollers, or pick up and drop off bottles as they ride. Take a few minutes to explain these drills to their parents and leave it to the parents to keep them amused. If the parents are unable or unwilling to do this, advise them that they will need to bring their child to velo kids instead.

**Sport Rec. and Training**

A sport rec. session is a session designed for people who want to ride at speeds significantly faster than those permitted in recreational sessions (38 km/h +). As with recreational sessions, there is no structured program of events. Participants should be free to enter and leave the track at their own initiative. Sport rec. sessions are not for people who cannot maintain a pace of over 35 km/h for extended periods or are not able to change the lead in pace lines, particularly when the track is crowded. Such people may be tolerated when there are only a few others on the track, but for the safety of all when numbers increase they must be asked to come down from the track and return to the next recreational session. Many riders can fall into this category as the session progresses. Keep an eye out for riders who look weary (start weaving, start needing to slam on the brakes because they are not concentrating on how others are riding in front of them) and ask them to come off the track.

Sport rec. sessions are of two types: sport pace line, and sport interval. The two types of session may alternate over one time period. In a sport paceline session, there is a warm-up/cool-down pace line on the black traveling at 35-38 km/h and a training paceline on the blue traveling at 40-43 km/h. Riders change the lead every 1-3 laps on the black and every 2-3 on the blue. In a sport interval session there is a single pace line on the blue traveling at 30-32 km/h. The lead rider either changes the lead every 2nd lap or accelerates down to the black to do an interval at 45 km/h+. 2-4 riders can do intervals at the same time, either by going down as a group or by waiting until just after a rider has passed underneath on the black and dropping down to chase them.

A variation on the sport interval session is the pursuit drill, which is mandated when the track is crowded. In this drill there are two pace lines on the blue on opposite sides of the track traveling at recovery speed (30-32 km/h) and 1-2 pace lines (max 5 riders in each) on the black traveling at pursuit speed (45-50 km/h). As a black pace line approaches a blue line, the lead rider has the option of going up the track to join the back of the blue line. As a black pace line with 3 or fewer riders passes underneath a blue pace line, the lead riders in the blue line have the option of dropping down onto the back of the black line, to make a maximum of 5 riders on the black. It is important that the pace lines on the black maintain a ½ lap separation. Likewise for those on the blue.

A recurrent problem with sport pace line sessions is riders who maintain a tempo of over 43 km/h on the blue. Because few can maintain that speed for any number of laps, this causes most riders to drop down to the black, overcrowding that lane. In this case, it is advisable to call everyone off the track and convert the sport pace line session into a sport interval session. The fast riders, in particular, can then be encouraged to do individual intervals at sprint speed (50+ km/h) until they blow, which should only take a minute and a half at most. Once the fast riders have done 2-3 such efforts in succession, riders can be called back down to the black and the sport pace line can resume at a slower pace. Alternatively, riders can do pursuit drills with the stronger riders putting in more efforts for longer periods.

**Track etiquette for sport pace lines**

• warm up on rollers, not on the coté, between the red and the blue, or on the yellow

• enter and leave the track on the back straight

• shoulder check and signal prior to changing a line

• change the lead just ahead of turn 1

• join the blue line by coming onto the back from the black, not by going up to the yellow and waiting for the line to pass underneath

• maintain a speed of 35-38 km/h on the black and 40-43 km/h on the blue

• ride in pace lines and change the lead every 2-3 laps

• no riding so slowly that others on the line have to pass you. If this happens, get off the track.

**Track etiquette for sport intervals**

• enter the track on the back straight just after a person who is doing an interval has passed. Be at the blue at 30 km/h by turn 1. Do not attempt to enter the track less than ½ lap in front of someone who is doing an interval. Shoulder check before moving up the track and be prepared to “stick down” if someone is coming up behind you. It is the responsibility of the approaching rider doing the interval to instruct riders coming up on the track where they should go. The rider doing the interval will normally want to go over top of you and should shout to the other rider to stick down. In cases where the other rider is already part way up the track, the rider doing the interval may shout to the other rider to sick up, which means “whatever else you do, don’t drop down any further”

• join the blue pace line by riding up to it, not by riding on the yellow and waiting for the line to pass by underneath

• leave the track when your turn to do an interval comes up. If you must exit quickly, drop down just behind someone who is doing an interval.

• shoulder check and signal prior to changing your line

• if you are not prepared to do an interval, change the lead every 2nd lap

• change the lead just ahead of turn 1, not elsewhere

• if you are prepared to do an interval, wait until those currently on the black have finished their efforts or drop down just behind a group doing an interval and maintain a ¼ - ½ lap separation

• once you have completed an interval signal to any who may be behind you well in advance of moving up the track to join the group on the blue. Move up above the red line to allow any faster riders to pass underneath you. Decrease your speed before joining the group on the blue but do not move up to the blue too soon or you will have to work to close a big gap. If you approach the group at too high a speed, always pass over them, rather than underneath. The appropriate warning to give is “stick down,” not “rail.”

**STRUCTURED SESSIONS**

A structured session is comprised of a number of drills. Structured sessions work best when the drills are not set in advance, but made up on the spot, taking into account the number and abilities of the riders present and the temperature. Skills drills can be mixed with more intense drills to provide a bit of a break, but people may get too cold doing some of the lower intensity skills drills in winter. Drills that put only a few people on the track at a time may likewise be inappropriate for cold weather. They are obviously inappropriate for sessions that have a high turn-out. Drills also need to be selected taking into account the numbers and abilities of the riders who show up. It is inappropriate to have a roll-up with a sprint finish or intermediate sprints when large numbers of inexperienced riders are present, though there are ways to finesse this (e.g., by extending the length or increasing the speed of the roll up until the inexperienced riders drop out). A number of the drills discussed here are appropriate only for more experienced riders, others are best for beginners. This is noted in discussion of most drills.

Structured session leaders should know the locations of the first aid kit, the fire alarms, and the fire extinguishers. At least one cell phone should be available for use during the session. Please review the emergency procedures.

At the start of each session, leaders should remind those present to sign in and pay their fees. Also ask people to please keep their pit areas clean and remove all debris when they leave.

**Roll-Ups**

Structured sessions will typically start with a roll-up. The purpose of a roll-up is to get everyone warmed up. In passing, roll-ups also teach people the moves around which a mass-start race is built.

Roll-ups start out slow, at 32 km/h, and slowly pick up the speed. Everyone rides on the black line. Once there get to be more than 12-16 people in a line, the line should be split into two roughly equally sized groups, maintaining a ½ lap separation. During the roll-up riders will change the lead quite frequently. How frequently they change the lead, and how high they go, should be determined by the abilities of the least experienced riders.

**Training New Riders**

No one should be allowed to join a pace line if they have not first done a square and diamond drill at FCV (see “Squaring and Diamonding” in the Skills drills section).

When the group consists of a large number of new riders, place the new riders between more experienced ones and have the group start off changing every two laps. As people get comfortable, have them switch to changing every lap, then every half lap.

Stand on the infield at the start of turn 1 and teach the less experienced people how to change the lead properly. To begin with, get them to just go up to the blue. Make sure they are signalling and shoulder checking. Also make sure they are not taking too sharp a line up the track. Starting at the beginning of turn 1, newer riders should not rise to the blue before the mid-point between 1 and 2. At sharper angles, they risk losing speed and control. Above all, make sure that they are maintaining 30 km/h while up on the blue. When less experienced people are involved in a roll up, it is best to get the group moving at a higher speed. Inexperienced people will want to slow down to get to the back of the group. If the group is only traveling at 30 km/h, this can have unfortunate consequences.

As people get more comfortable, work on getting them to go up and down in the right places. Riders should ascend from the black to the red a few paces in front of the point where the black line starts to curve around the turn. This skirts the dip that the black line takes as it goes around the turn. They should then rise gradually from the red to the blue over the distance between the point where the red line starts to bend and the blue line midway between turn 1 and 2. While up on the blue, they should attempt to time their descent so that they come down just on the rear wheel of the last rider, but do so on the steep banking through the turns rather than the shallow banking in the straights to take advantage of the greater acceleration provided by the banking. This takes a lot of practice to master and most people do not appreciate that it is an important skill to have (it is what makes changing the lead an opportunity to rest rather than an effort finished off by a sprint to catch the wheel of the last rider). They need to be told that it is what they should be aiming for.

As people get yet more comfortable, work on getting them to go higher. With 4 or more people in a pace line traveling at over 36 km/h, riders should be touching the yellow line midway between turns 1 and 2 and then dropping either dropping down immediately onto the wheel of the 4th or 5th rider (as in team pursuit) or doing a half or full lap before dropping back down.

Even riders with a fair amount of experience may not be very good at dropping down right onto a wheel. And even those who are will eventually tire and open a gap in the pace line. Relief riders will commonly drop down into these gaps. The bigger the gap, the more likely it will be filled by a relief rider. This is a good thing. When a gap has been filled, the rider who was struggling to close it has less of a gap to fill. And the rider who closes the gap avoids the job of having to sprint behind the gapped rider to try to close the gap with them as well as the risk of getting dropped with the gapped rider. However, newer riders can find it disconcerting when a relief rider drops down into a gap they are trying to close. For this reason it is good to point out the newer riders to the group before the roll-up starts and ask the others to cut them a bit of slack. But also advise the newer riders that if they leave gaps that are too big, relief riders will drop into them.

Advise newer riders that when a relief rider drops down to fill a gap in front of another rider who is sprinting to close that gap, the second rider should shoulder check and move up the track towards the rider who is dropping down. The shoulder check is necessary because gapped riders may be being passed by stronger riders behind them. Moving up the track is wise because it slows you down (moving up the track is like putting on the breaks). Aim to rider up to the wheel of the rider who is dropping down the track and then drop down the rest of the way behind them. Experienced riders employ this as a race tactic when they don’t want to pull through in a pace line or want to get on a certain person’s wheel. When they are at the back of the pace line and they see a relief rider coming back on the blue, they ride up the track to get on the relief rider’s wheel and then follow the relief rider down the track. Then they do the same for the next relief rider. They try to make themselves invisible to the relief riders so they don’t even know they are there.

**Tired and Dropped Riders**

Typically, a roll up will take 20-30 minutes with only the last five minutes or so being at very high speeds. As the speeds increase, riders will tire. It cannot be too often repeated that tired riders need to stay on the black line. They should not move up the track to make way for those behind them. This only puts them in the way of other riders wanting to make exchanges and may block or crash riders behind them who are trying to get around them. As soon as following riders see someone in front of them start to tire and open a gap, they will ride over top. Advise everyone that the protocol for tired riders is to stay on the black line. Advise riders who are passing over a tired rider to shout “stick down” as they approach.

Tired riders should descend to the coté and exit the track. They should not ride up to the blue and wait for the pack to come by and try to get on again. Be careful to distinguish between tired riders and riders who may have gotten caught behind tired riders and gapped. These riders may ride up to the blue and wait to rejoin the pack.

**Finishes**

There are many ways to finish a roll up.

• Attrition. The roll up continues at ever-increasing speed until no one is left. This is the type of roll-up that is most common when warming up for training. The purpose of this roll-up is to get warm, not to do an effort. People want to leave the roll-up ready to race, not tired, and they will drop out when they reach that point.

• Individual sprint. The roll-up continues to a pre-set point (e.g. 30 min. or 60 laps). Coming out of turn 2 the lead rider jumps to do a 1 lap sprint and then goes up to the blue. The next time the pace line comes around, the next rider goes, and so on until no one is left. This is a good roll-up when you have large numbers of newer riders

• Mass sprint. The roll-up continues to a pre-set point with a sprint to the finish at that point. A roll-up with a mass sprint is almost like a scratch race, the difference consisting just in the fact that race tactics only come into play in the final few laps. These finishes are only advisable for more experienced riders, but they can be modified so that riders who are moving up in skill can also participate. See below.

• Controlled mass sprint. The roll up continues until 5 laps to go to the end of the drill. Up to this point no one is allowed to use race tactics. Riders must change the lead when their turn comes up and move normally to the back of the pace line, not sprint off the front or hang out high on the track and close to the front. Attacks are forbidden, though riders are allowed to rider over those in front of them if those in front of them are getting gapped. With 5 laps to go, there are no more lead changes. Whoever is in front must stay in front, but others can attack over them. This is a good roll up for riders with intermediate experience. It is still best to use it with smaller groups. If the group doing the roll-up is large, add on extra laps and make people go faster and do not permit the sprint before the weaker riders have been dropped and left the track.

**After the finish**

Before the roll-up starts, remind everyone that it is important that they hold their lines after the finish and not move up or down the track. As the roll up finishes, shout to everyone to hold their lines. Congratulate everyone on a job well done.

**Skills Drills**

The skills drills listed here are generally lower intensity activities that can be sandwiched between more strenuous efforts. They build from drills that develop skills all riders should have to those developing skills that are primarily important for match sprinters. With new people, skills drills are best run from the infield. Before the drill starts, collect everyone together and explain what you will be asking them to do. Stress the following 4 rules:

1. if you get tired, drop down onto the coté and come off. Those behind you will ride over you (to your right)
2. if you don’t feel in control doing something, work up to it slowly. E.g., if you don’t feel comfortable taking a hand off the bars, take just one finger off and work up. Or just do the thing on the straights and not in the turns
3. do not feel compelled to do what you are asked to do immediately (but for two important exceptions: when you are told to speed up, and when you are told to get down onto the coté). Take the time you need to be in control. This includes taking the time you need to get off the track.
4. ride slightly higher on the track than the rider in front of you. If the rider in front of you slows or crashes, always ride over them (up track, to the right of them) and maintain or increase your speed

Many of the drills listed here can be combined in one exercise. Get people up on the track and, watching from the infield, ask them to do first one, then another of the drills described here. Keep your eye on how people are doing and modify or stop the drill if they look to be having problems. Learn people’s names and if a specific person is doing something wrong (usually going too slow) use their name. If people are going too slow, don’t ask them to “pick it up” — too many don’t understand what this means. Give clear, loud instructions, like “faster!”

Keep in mind that it will be hard for people to hear you. You will need to shout in your loudest voice as people are coming towards you. They will not hear you if you shout at them from behind.

Don’t panic. People will only get better at what they are doing as the drill progresses, so things are bound to look worst at the start and improve from there. If it seems that havoc is about to ensue, calmly ask people to ease back into doing something everyone can handle and work back to the problem activity more gradually. Crashing is most likely when people are leaving the track so be particularly careful to get them to do that gradually. Get everyone up to the red. Then have the last 3-4 people in the line drop down to the black, slow and get off while the others continue to ride around. Repeat until all are off. If there is a crash make sure everyone still on the track stays high and maintains their speed until the track is cleared.

**Braking and accelerating**

Get people up on the coté in groups of 4-5, riding at 15-20 km/h. The lead rider unpredictably accelerates and unpredictably slows down. The job of the following riders is to not get dropped in the accelerations and to manage the situation of having someone slam on the brakes in front of them by breaking and moving slightly up track. Every 4 or 5 laps the lead rider drops down onto the apron, and the rider on the apron moves onto the back of the group. Continue until everyone has had a chance in front. As the drill progresses get people to make harder and harder accelerations and do harder and harder backpedaling. As a variation, have people do the drill while up out of the saddle.

**Slaloming the coté**

Get people up on the apron about 3-5 bike lengths apart, riding at 18-25 km/h. In the turns have people go up onto the coté and then back down. Tell them that the drill is to take a line up onto and down off the coté that is gradual enough that they do not feel a bump when the bike makes the transition from or to the apron. Begin by having them go up once onto the coté at each end of the track. Then up, down, and up and down again at each end of the track, making two transitions before leaving the steep banking. Then aim for three transitions at each end. Also weave up and down between the coté and the apron on the straights.

**The “oh shoot” drill**

When people can slalom three times on and off the coté between the start of turn 1 and the finish of turn 2 with no bumps or thumps, they are ready for the “oh shit” drill. Two riders at a time, on opposite sides of the track, accelerate to 30 km/h on the apron and move up onto the track in the corner without going above the black line and without feeling a bump at the transition from the apron to the coté. Those who are expert at doing this attempt it at increasingly high speeds, up to a maximum of 35 km/h. If, for whatever reason, you ever find yourself down off the track on the straightway traveling at over 35 km/h towards the turn, this is the drill you want to have mastered.

**Tipping the bike/riding slow**

Starting on the black line 3-5 bike lengths apart at 30 km/h, riders practice tipping the bike away from the track in the turns. When you tip the bike our body moves up track and the bike moves to the side beneath you away from the track. The left arm should be straight, the right arm bent, and the hips tilted so the right hip is down, forcing the saddle and the bike to the left. This gives more clearance between the track and the right pedal, permitting you to ride at slower speeds without clipping a pedal. Once they have mastered the technique, riders slowly decrease their speed. The lead rider in the group should not decrease speed below 24 km/h because following riders will always be slower. Speeds below 20 km/h are not recommended. Once riders are comfortable doing the drill at the black line, move it up to the red. With very experienced riders, move it up to the blue.

**On/Off Drill**

Everyone rides around in the roll-around. Two at a time, one behind the other, riders exit the roll-around at mid-track, check that there is no oncoming traffic, go up onto the apron, accelerate hard without standing up, and while continuing to accelerate through turn 3, take a smooth, gradual line up onto the track, making sure that they feel no bump when moving between the apron and the coté and not going any higher than the black line. The goal is to be on the black line traveling 30 km/h by the exit of turn 4. Then, at the 500m start line, the effort stops and the rider slows down along the straight, drops down onto the coté between turns 1 and 2, and exits the track on the black exit line to rejoin the group in the roll-around. This drill gets people entering and exiting the track properly and is good training for jump starts. Caution riders not to start their accelerations while still on the concrete. As an add-on, get riders to tip the bike to the right to keep it upright as they make their turns on the concrete. The body should lean out to the left (left arm bent, right arm straight) and they should steer the bike around the turn.

**Shoulder checking and lane changing**

On the red line about 3-5 bike lengths apart have people do shoulder checks without deviating from their line. Start with one shoulder, then go to the other. Start on the straights, then move to checking in the turns as well. Then combine right shoulder checks with a move up the track and left shoulder checks with a move down the track. Instructions: “left shoulder check, hold your line,” “shoulder check to the black,” “shoulder check to the red,” “shoulder check half way to the blue,” etc.

**Riding one-handed**

Start off by getting them to ride with their hands on the tops. Then get them to take one hand off the bar in the straights. Then the other hand. Then take the hand off the bar through the turns. Then the other hand. Then do laps with the hand off the bar. Work up to doing laps with the hand behind your back. Next, have people move their hands to the drops. Then move back them back to the tops. Then back to the drops. Then do laps alternating their hand positions: left to the top, then right to the top, then left to the drop, then right to the drop and repeat. Finally, with their hands on the drops, have them drop one hand down beside their heel in the straights. Then the other hand. Then first one hand and then the other through the turns. Work up to doing laps with one hand behind the back and the other on the drops. Instructions: “hands on the tops,” “hands on the drops,” “left hand off the bars,” etc.

**Riding out of the saddle**

Before this drill starts explain to people how it should be done: weight pressing down on the bars to almost lift your feet up off the pedals so you can dance on the pedals. As with riding one handed, first get them to stand up on the straights, then stand up in the turns, then do laps standing up. Combine this with asking them to shoulder check and change lanes. This is a good drill to do if you have people out who are full of themselves and riding too fast for others. Standing out of the saddle for lap after lap in a little gear tires people out quickly. Do a pyramid drill: 1 lap up, 1 lap down; 2 laps up, 1 lap down; 3 laps up, 1 lap down, etc. Work up to 5 laps up. Then work back down to 1.

**Wheel Banging**

The purpose of this drill is to get people comfortable riding close to one another in a pace line. We do this by showing them that even if they bang into one another, they should be able to handle the situation. In pairs one behind the other on the concrete rolling around inside of the apron, have the following rider ride up so close to the lead rider that their wheels bump. If the following rider’s wheel overlaps to the one side or the other, they flip the front wheel to bang it against the side of the leader’s rear wheel. After the bang, re-establish a gap and close it again. Change the lead after a couple of laps.

**Using the track to brake and accelerate**

This is another drill to help people get comfortable riding close on a wheel by giving them a sense of how they can use the track to slow down if the rider in front of them slows. Riding in pairs at the red with 5-8 bike lengths between pairs, the following rider uses the track to brake and open a gap on the rider in front, doing so by riding slightly up the track. The following rider then closes the gap by riding down the track to pick up speed and run up to the leader. This effect is more dramatic on the steeper banking in the turns. Have riders practice on the straights first and then in the turns. After a few efforts the riders switch position.

**Squaring and Diamonding**

The square and diamond drills get people going up and down the track properly in the turns. Begin by getting people to diamond from the black to the red. Instruction: “black on the straights, up to the red in the turns.” Then get them going half way to the blue. Finally get them going to the blue. Be sure they are not taking too steep a line up the track. Starting from just before turn 1, riders should reach the blue line no sooner than half way between turns 1 and 2. Likewise for 3 and 4. The same holds for going back down. Riders should begin their descent from the point on the blue line halfway between turns 1 and 2 and be back at the black line just at the point where it straightens out. Likewise for 3 and 4. When ascending to or descending from points below the blue line, riders should follow the same path they would take if they were going to or from the blue.

Be sure to also keep an eye on riders’ speed. Get them to work on the way up the track and slow the bike down on the way down. Have them stand up on the way up the track and sit down on the way down as a way of ensuring they do this. Once they have mastered the technique, have them sit down on the way up and stand up on the way down.

Riders who have mastered going up to and down from the blue are ready to begin squaring. Have them do a few laps on the blue (Instruction: “up to the blue, stay on the blue”), and then begin squaring from the blue to the red. Instructions: blue on the straights, half way to the red in the turns,” “Blue on the straights, red in the turns,” “Blue on the straights, “black in the turns.”

Riders will wait too long to square. They should be squaring from the point on the blue line just before it starts up to climb uphill to make the transition to the steep banking. This is a point about three paces behind the place where the blue line starts to curve. Stand at this point and give the instruction to start going down here.

Riders who can square from the blue to the black will have little problem rising higher on the track to square from the yellow to the black.

If you have a group of experienced and competent riders, you can get them to square down to the coté. Instruction: Blue on the straights, top half of the coté in the turns — no bumps, no thumps. The drill is only done properly if the rider does not feel a bump either on the transition from the track to the coté or that from the coté to the track. Otherwise they took too steep an angle. Again, if they can manage this, they can do the same from the yellow.

Only riders who have fully mastered squaring and diamonding from the blue should be allowed to take the steeper line that would bring them from the black up to the yellow halfway between turns 1 and 2. This is the steepest line anyone should ever take on the track.

On the straights any line up or down the track is acceptable. But in the turns, turning too sharply up the track is tantamount to running into a wall. A rider turning too sharply up the track feels a bump and loses a lot of speed. Taking too sharp a line can result in a fall. It is therefore very important to keep an eye on the speed and the angle people are taking through the turns. Instructions: “Faster on the way up, slower on the way down,” “Too steep! No bumps, no thumps. Gradual on the way up, gradual on the way down.” While standing just before turn 1 and pointing: “Start going up here.” while standing exactly between turns 1 and 2 and pointing “Start going down here.” Before the drill starts, talk to everyone who is new and make sure that they understand that the goal is to always take a gradual line up the track. If they feel a bump, they know they have taken too steep a line up or down the track.

**Follow-the-leader**

The follow-the-leader drill combines many of the drills already mentioned. You use this drill when you are with a group of people who already know how to ride and don’t need to be watched. Get them up on the track following the leader and doing what the leader does: going up track, going down track, standing up, taking a hand off the bars, shoulder checking, etc. This drill can get disorganized when too many people are in a line. Split groups of more than 8 up into two on opposite sides of the track. Group leaders need to be careful to maintain separation by taking their group up high if they are gaining on the other group or down load if they are falling behind the other group. A variation on this drill has people change the lead periodically. A further variation makes the drill a challenge. In groups of two or three at about a bike length separation, the lead rider tries to surprise and drop the following rider by moving up track, moving down track, speeding up, or slowing down.

**Pace line at the black**

No one should be allowed to join a pace line if they have not first done a square and diamond drill at FCV (see “Squaring and Diamonding” in the Skills drills section).

When the group consists of a large number of new riders, place the new riders between more experienced ones and have the group start off changing every two laps. As people get comfortable, have them switch to changing every lap, then every half lap.

Stand on the infield at the start of turn 1 and teach the less experienced people how to change the lead properly. To begin with, get them to just go up to the blue. Make sure they are signalling and shoulder checking. Also make sure they are not taking too sharp a line up the track. Starting at the beginning of turn 1, newer riders should not rise to the blue before the mid-point between 1 and 2. At sharper angles, they risk losing speed and control. Above all, make sure that they are maintaining 30 km/h while up on the blue. When less experienced people are involved in a roll up, it is best to get the group moving at a higher speed. Inexperienced people will want to slow down to get to the back of the group. If the group is only traveling at 30 km/h, this can have unfortunate consequences.

As people get more comfortable, work on getting them to go up and down in the right places. Riders should ascend from the black to the red a few paces in front of the point where the black line starts to curve around the turn. This skirts the dip that the black line takes as it goes around the turn. They should then rise gradually from the red to the blue over the distance between the point where the red line starts to bend and the blue line midway between turn 1 and 2. While up on the blue, they should attempt to time their descent so that they come down just on the rear wheel of the last rider, but do so on the steep banking through the turns rather than the shallow banking in the straights to take advantage of the greater acceleration provided by the banking. This takes a lot of practice to master and most people do not appreciate that it is an important skill to have (it is what makes changing the lead an opportunity to rest rather than an effort finished off by a sprint to catch the wheel of the last rider). They need to be told that it is what they should be aiming for.

As people get yet more comfortable, work on getting them to go higher. With 4 or more people in a pace line traveling at over 36 km/h, riders should be touching the yellow line midway between turns 1 and 2 and then dropping either dropping down immediately onto the wheel of the 4th or 5th rider (as in team pursuit) or doing a half or full lap before dropping back down.

Even riders with a fair amount of experience may not be very good at dropping down right onto a wheel. And even those who are will eventually tire and open a gap in the pace line. Relief riders will commonly drop down into these gaps. The bigger the gap, the more likely it will be filled by a relief rider. This is a good thing. When a gap has been filled, the rider who was struggling to close it has less of a gap to fill. And the rider who closes the gap avoids the job of having to sprint behind the gapped rider to try to close the gap with them as well as the risk of getting dropped with the gapped rider. However, newer riders can find it disconcerting when a relief rider drops down into a gap they are trying to close. For this reason it is good to point out the newer riders to the group before the roll-up starts and ask the others to cut them a bit of slack. But also advise the newer riders that if they leave gaps that are too big, relief riders will drop into them.

Advise newer riders that when a relief rider drops down to fill a gap in front of another rider who is sprinting to close that gap, the second rider should shoulder check and move up the track towards the rider who is dropping down. The shoulder check is necessary because gapped riders may be being passed by stronger riders behind them. Moving up the track is wise because it slows you down (moving up the track is like putting on the breaks). Aim to rider up to the wheel of the rider who is dropping down the track and then drop down the rest of the way behind them. Experienced riders employ this as a race tactic when they don’t want to pull through in a pace line or want to get on a certain person’s wheel. When they are at the back of the pace line and they see a relief rider coming back on the blue, they ride up the track to get on the relief rider’s wheel and then follow the relief rider down the track. Then they do the same for the next relief rider. They try to make themselves invisible to the relief riders so they don’t even know they are there.

**Bump and Grind**

The purpose of this drill is to prevent riders from panicking if they rub shoulders or knuckles. In pairs side by side on the concrete rolling around inside of the apron with their hands on the drops, have people ride up close to one another and bump shoulders, head butt, and use their knees and elbows to push off of one another. It is very important for this drill that at least one rider in each pair have their hands on the drops to avoid interlocking handlebars. After a number of laps have the riders switch position, rider on the outside going inside. Experienced sprinters can practice this drill up on the track.

**Red/Black Drill**

Riders who have gotten comfortable with the bump and grind drill are ready for the red/black drill. The purpose of this drill is to get people comfortable riding in a close formation. Riders start off with their hands on the drops on the black line. Going into a turn, the lead rider moves up track just to the red, maintaining the same speed as the group but going just slightly more slowly due to the greater distance the red line takes around the track. As the next rider to lead on the black comes clear of the rider on the red, he or she moves up the track to the red line, just in front of the rider who moved up previously. This continues until eventually half the riders are on the black and the other half are beside them on the red. As the black line continues to pass underneath the riders on the red, the last rider on the red line drops down onto the wheel of the last rider on the black. The drill continues with the riders cycling clockwise in this way, along the black line underneath a line of riders on the red, up to the red, then back along the red until the last rider on the black has passed underneath, and then down to the back again. Riders strive to maintain a tight formation, with no gaps anywhere. If riders are nervous, have the second group rise to the first set of rivets above the red rather than to the red. As a variation on this drill has the riders on the black line take their right hands off the bars. Riders on the red keep their hands on the drops to prevent the possibility of entangling handlebars. As a further variation, riders on the black touch riders on the red as they pass by.

**Pace Line at the Blue**

Only riders who are comfortable doing the red/black drill and able to maintain a constant speed while squaring and diamonding should be permitted in pace lines at the blue. The lead should not change more often than once every two laps and riders should not be moving up track more than a bike width when on relief.

**Looking Back**

On the red about 3-5 bike lengths apart get people to do laps while looking back over first one shoulder and then over the other. Move up to the blue and repeat. At first people should just turn their heads to the side while keeping their eyes turned forward. Then they work at doing laps while shifting the eyes forward and to the side. Finally they try to do laps while looking just to the side.

**Going to the Rail**

Get people riding around in the roll around. From the roll around just ahead of turn 4 and comfortably on the finishing straight, have them ride decisively up track to the rail and grab it. Then hop the bike to get it lined up and get the pedals in a good starting position (one pedal just below the down tube). Riders must not attempt to grab the rail while riding past it on the track, but must go up to it from the infield. They should be careful not to go up too close to turn 4 or they will clip a pedal.

**Starting from the Rail**

Novice riders should be instructed to drop down on to the apron before entering turn 1. A common mistake is staying on the track at too slow a speed and crashing, bringing down everyone behind you. They should also be warned not to go to the rail ahead of the start/finish line. There is too great a risk of clipping a pedal when proceeding down track in that position.

**Advanced Rail Drills**

Get people to go to the rail at a two bike length separation. Then get other people to go to the rail in between the gaps. Decrease the separation to a bike length and a half. Explain to riders that when there is no more room at the rail they can come up beside other riders and grab their top tubes or stems or reach across to the rail. Get them to practice doing this. As a final drill, get everyone to line up at the start line, the first rider grabbing the rail, the second rider grabbing the first rider, and so on down to the bottom of the track. From this position riders start in order from the lowest to the highest.

**Track Stands**

On the concrete, get people to ride as slow as they can go. Then get them to stop briefly and restart without dropping a foot. Then get them to turn the wheel in the direction of the forward pedal while they are briefly stopped. Then get them to rock back and forth by back and forward pedaling while stopped. Once they can do a track stand they can work up to one handed track stands and no handed track stands. Then they can ride slowly around the cote, go up onto the track in the straights, and try to do the track stand there. Make sure they are back down off the track before entering the turns. This is one of the most important skills drills. The ability to do a track stand builds confidence and control at lower speeds and enhances bike handling skills.

**Rollers**

People who have worked on track stands with even limited success are ready to attempt riding on rollers. This is something they are best left to themselves to master, but stress that it is important for developing confidence, control, and smooth pedaling. Once people can ride rollers with both hands on the bars, get them to practice holding a line while shoulder checking and looking around, riding one handed, riding without hands, and riding out of the saddle. Also get them to practice unclipping one foot while riding, pedaling with just one leg, and then changing legs.

**Rolling Starts**

People who have developed some facility with standing still (or at least riding very slowly) are ready to attempt rolling starts, an important drill for developing jump, speed, and strength. From the roll around riders go up on the apron before turn 3, stay on the apron to the finishing straight, go slowly up onto the finishing straight, stop or slow at the 500m start line and then do a jump start. Starts can be done seated or standing. Usually, a certain number of seated starts are followed by a certain number of standing starts. They must be maximal efforts that leave riders out of breath after just one lap. They should be followed by enough rest to return to resting heart rate. In standing starts, the rider stays standing until the entry to turn 3. Riders do just ¾ lap and then shut the effort down, riding over other riders starting their efforts, and coming down and back off the track when it is safe to do so.

**Standing Starts**

Standing starts are done with a holder or with the gate at the 500m line between the black and the red. With a lot of riders, it is better to have a holder and not use the countdown timer. With fewer riders, a holder and the countdown timer. With fewer riders yet, the gate and the timer. When the gate is on the track make sure that riders know it will not come off and that they must ride up the track in turn 3 to go around it. Riders must have an adequate degree of strength to attempt a standing start. Be particularly careful with master women, who of all categories tend to have particularly weak jumps. They may need a push or they will fall over before managing to get the bike in motion. As always, be careful to ask for permission before any physical contact.

**Scary Standing Starts**

At the 500m line and using a holder, start the rider increasingly high up on the track. Then move to the start/finish line at the black, the red, half way to the blue, and the blue. The aim is to be going fast enough by turn 1 to be able to hold the line through the turn without dropping down the track. This is a drill only for experienced riders, who know how fast they need to be going to stick to the turn through the corners and how to get down to the coté if they are not managing the task.

**Speed Drills**

Many of the drills listed here are will work from either a seated or a standing start. Let riders know which they are to do.

**Popcorn Sprints**

Get riders on the blue traveling in two pace lines ½ lap apart at 30 km/h. On the whistle the lead rider in each group does a full-on sprint (maximal effort with maximal jump), shutting the sprint down just in time to be able to comfortably join the back of the next group. Riders who shut it down too late should be instructed to ride higher on the track to pass above the group. As always, taking the longer, steeper line up track is the way to slow down. Riders who make the mistake of passing underneath the group take too fast and too short a path to get behind. They must drop down to the coté and stop to rejoin the group. Be sure the riders in the pace lines do not pick up the pace in anticipation of their efforts and maintain the ½ lap separation. Blow the whistle at random intervals so they cannot anticipate when their effort will come up. Be sure, however, that both of the riders who have just done an effort are close to being back in place in the pace line. It is not good to have one rider coming up fast and having to go over the top of the group just as the earlier rider is dropping back from having ridden over the group. Note that this drill becomes inappropriate with larger numbers of riders due to the lack of distance between the two groups. Riders should be able to get a 6 second effort in. Where numbers do not permit that and riders are experienced, mass sprints off the blue are mandated.

**Mass Sprints off the Blue**

Get riders on the blue traveling at 30 km/h at about 5 bike lengths apart. On the whistle everyone dives down to the black doing a maximal effort with maximal jump. Faster riders ride over top of slower ones. The sprint continues until a second whistle, when everyone returns to the blue to recover. Aim for 6 second sprints with the remainder of a minute to recover.

**Intervals off the Blue**

Get riders on the blue traveling at 30 km/h in a pace line. On the whistle the lead rider dives down to the black doing a maximal effort with maximal jump. The effort continues until the rider approaches the back of the group on the blue. The effort should be shut down just in time to be able to rise comfortably to rejoin the group without either leaving a gap or approaching so fast as to have to pass over. This will take most riders 9-10 seconds. As riders tire, they will tend to ride up the track too soon, leaving a large gap between themselves and the rest of the group. Remind everyone before the drill starts that, however tired you get, riding up to the blue too soon will only prolong your effort because it lengthens the distance away from the group. The more exhausted you are, the longer you should stay on the black before rejoining the group. Conversely, riders who shut it down too late should be instructed to ride higher on the track to pass above the group. As always, taking the longer, steeper line up track is the way to slow down. Riders who make the mistake of passing underneath the group take too fast and too short a path to get behind. They must drop down to the coté and stop to rejoin the group. Be sure the riders in the pace lines do not pick up the pace in anticipation of their efforts. Blow the whistle at random intervals so they cannot anticipate when their effort will come up.

**Variations on Intervals off the Blue**

Have riders continue their effort for a second lap, riding underneath the group on the black and rejoining the back of the group only on their second approach. This will take 20-30 seconds and is almost like doing a flying 500. With large numbers, blow the whistle every time a rider passes underneath to do their second lap to get a new rider off. Another alternative is to have riders go off in pairs (or triplets, or higher). You can blow the whistle twice or more in quick succession to send a number of riders off after one another. Or riders can be instructed that on the whistle the following rider is to take their time and choose a point to attack over the lead rider. The lead rider is not allowed to jump before the attacker comes alongside. Another alternative is to have the following rider attack underneath on the whistle and the lead rider to jump just as the attacker draws alongside. For this purpose it is best to arrange the riders by abilities or instruct the stronger rider to stay on the blue for their sprint. Riders attempt to pass one another during the interval, but both must shut it down in time to arrange themselves to safely rejoin the group.

**Chariot Races**

Get riders side by side in a double pace line, one on the black, one on the red moving at 30 km/h. On the whistle the two lead riders do a full-on sprint (maximal effort, maximal jump) until they get within ¾ lap of the back of the field, at which they shut it down and get on the back, switching positions so the rider who was on the red is now on the black. This should be a race between the two, so riders who are closely matched should be set against one another. Make sure the two lead riders do not anticipate the sprint and pick up the pace.

**Intervals off the Black**

Get everyone in a pace line on the black at 30 km/h. On the whistle, the last rider sprints over top of the others, laps the field, goes over top a second time, and drops down just in front of the lead rider. This is a long effort and the sprinting rider should be quite tired and ready to rest by the time it is over. The rider should be slowing the second time over the group and the rider who is currently the leader should talk the approaching rider in so the approaching rider drops down in front without creating a gap. Variations on this drill have the sprinter do just ¾ of a lap and have subsequent sprinters pull in front, but if the riders are not tired enough they will still be going too fast as they come in and gaps will form.

**Flying Laps**

When fewer riders are out and the weather is warmer these can be done from the roll-around. Riders exit the roll around just ahead of turn 4, at which point they are shown 3 laps to go. The final lap is done on the black and timed. As one rider flies by to complete their timed lap, the next one gets on the track immediately behind them to start their effort. When more riders are out or the temperature is cooler, get everyone up on the blue at 30 km/h. The lead rider is then given 3 to go, with the final lap being timed. After completing the effort, the next rider is shown 3 to go and the rider who has just finished off goes back up to the blue somewhere behind the group.

**Flying 500’s**

Get everyone up on the blue at 30 km/h. The lead rider is given 3 to go to start. Unlike with flying laps, the effort does not start at 1 to go, but at 0. Efforts are timed from the 500m start line. The first time past the 500m finish line the rider has three laps to go to the finish of the effort. This effort should be timed. As one rider finishes, the next rider in line is given 2 to go to start. The rider who has just finished will have enough time to either get off the track or return to the back of the group on the blue. When there are a lot of people out, put a stronger rider ahead of a weaker one and have them go two at a time. The job of the weaker rider is to stay in the stronger rider’s slipstream and, if possible, pass over in the final lap.

**Sprints**

Riders go to the rail two or three at a time and are shown 5 or 6 laps to go. This is a match sprint, governed by UCI rules. Variations on this drill ask riders to follow a script in order to practice specific moves. E.g., the lead rider slows the pace on the black. When the following rider starts to come over, the lead rider forces the following rider up the track and tries to keep them pinned by the rail, blocking until it is safe to initiate a sprint. Or the lead rider gradually picks up the pace on the black while the following rider moves high up the track in one of the turns, opening a gap, and then dives down into the gap to run up to and pass the lead rider. Sprints with restrictive scripts can be a good way of introducing new riders to the activity. Once the riders have mastered the script, a new or less restrictive script should be set.

**SPEED ENDURANCE AND ENDURANCE SKILLS**

**Points Roll-Up**

This is run like a normal roll-up drill except there are intermediate sprints of a fixed duration (usually 1-3 laps). The sprints can be surprises, announced by the ringing of a bell, or can be announced ahead of time to occur at a certain lap or at a certain time on the count-down clock. In the latter case, some riders will typically attack ahead of time. This is normal and something other riders must learn to deal with.

It is important that weaker and tired riders stay on the black line and not attempt to move up track to get out of the way of the sprinters. Announce this repeatedly, as however often you say it, some just will not understand. Faster riders will be attacking one another in the sprints, sometimes two or three at a time, each going over the other, meaning that the fastest moving riders are going to be highest up on the track. They do not want to see slower riders going up the track blocking their progress.

Be sure that there is time for full recovery between sprints – at least 5 minutes, but more normally 10.

**Pursuit Drill**

Depending on numbers, riders form one or two groups on the blue, riding on opposite sides of the track at 30 km/h. The lead 4 riders from each group descend to the black line, maintaining a ½ lap separation and riding at pursuit speed (not an all effort, but faster than time trial speed on the road — 45-50 km/h). Upon catching up to the group they left from, the lead rider in each black group goes up to join the back of the group and get a rest. Meanwhile, the lead rider from each blue group waits for the remaining 3 riders to pass underneath and then drops down to join the line.

As the drill progresses, each rider does 4 laps at pursuit speed, the last one being out front. Riders should avoid sprinting when they get to the front of a group as this tires everyone out too soon. This should be a long drill at an even, though high tempo. It is permitted for stronger riders to do more than one lap in front and for weaker riders to go up early. Indeed, riders ought to go up to the first group they reach once they tire as the effort will have to be repeated many times and this will not be possible if they tire themselves too much any one time. Riders do not have to go up to join the group they left from but they should not go up between groups. Remind everyone before the drill starts that, however tired you get, riding up to the blue too soon will only prolong your effort because it lengthens the distance away from the group, and the slipstream it provides to help you recover. The more exhausted you are, the longer you should stay on the black before rejoining the group. Conversely, riders who shut it down too late should be instructed to ride higher on the track to pass above the group. As always, taking the longer, steeper line up track is the way to slow down. Riders who make the mistake of passing underneath the group take too fast and too short a path to get behind. They must drop down to the coté and stop to rejoin the group, being careful not to interfere with the riders doing intervals on the black. With lower numbers it may be necessary to reduce the number of riders on the black to one group, or to groups of two or three. Conversely, with higher numbers, put up to five riders on the black in two opposed pace lines if necessary.

**Go ’till you Blow**

Get everyone up on the blue traveling at 30 km/h. Then give the lead rider a count down. At the end of the count, the lead rider descends to the black line to do as many laps as they can at a pre-set time, stopping when their lap times fall off by more than .5 sec. Riders should know their pre-set times. If they don’t have them do a flying kilo at maximum effort and use their average lap time as their pre-set. 20 minutes rest/rollers between efforts.

**Team Pursuit**

Get two teams of 4 riders on opposite sides of the track. (When turn-out is low, go with just one because teams need to rest between efforts.) Give the riders some laps to get comfortable. As they ride make sure they are doing their exchanges correctly. Riders should be going up to touch the yellow line mid-way between the turns and coming down right on the wheel of the last rider in the line. Coming down too soon is better than coming down too late. Riders should also be coming down on the steep banking, which maximizes the speed they can pick up and so gives them more of a rest.

The brief period changing the lead should give the rider a rest, not result in an additional effort required to sprint onto the back of the group. This takes practice. As the teams get comfortable, have them slowly pick up the pace to pursuit speed. Again, it is important that no one sprints. The group has to stay together, and no one should tire too soon. This means picking up the speed gradually.

Once the riders reach pursuit speed, have them hold it and keep doing laps until people start to tire and drop off. When the first rider drops off, everyone who notices, including the rider dropping off, should shout “three.” This alerts the remaining riders that they should only be going up to the blue on relief. Likewise for when only two remain, in which case the relief rider only goes up to the red. The drill ends when the 2nd last rider drops out. As a variation, riders can do a pre-determined number of laps and practice a proper pursuit finish.

As they come out of turn 4 on the final approach to the finish, the lead rider moves up track to just below the blue, the second rider moves up to just above the red, and the third comes by underneath. The three riders try to cross the finish alongside another, but this should not be done by anyone slowing down. Riders 2 and 3 need to catch up to 1.

**Madison**

This is a drill for experienced riders only. Riders need to have graduated from the Madison drill program.

A Madison requires matching jerseys for team members. Do not attempt this drill unless each team has distinctive, identical jerseys!

It is not necessary for riders to start from the rail except in a race. Riders simply get up on the track, one team member on the blue, the other on the black, and start exchanging as they come up to one another. Eventually, a pace line will form composed of riders on the black.

Be sure that relief riders are spread out around the track and that they ride at the first set of rivets above the blue. Also be sure that they are in the right order if they are within only a few bike lengths of one another. If there are riders out doing their first madisons, remind them of the 4 main rules:

• if riding close to others while on relief, be careful to be lined up in the same order as your partners on the black line, try to maintain good separation from other relief riders and good distance above the blue line,

• look at people’s jerseys and don’t come between team members about to make an exchange,

• ride over top of riders who have just thrown their team mates into the race (above all do not stay on the wheel of a rider about to throw his partner into the race!)

• get down on the coté after an exchange and wait until all racing riders are past before moving up to the blue.

**Drills for High Turn-Out**

When turn-out is high, it is not appropriate to do drills that put just a few people up on the track at a time, particularly in cooler temperatures, but even aside from that consideration. Use of the start gate is impractical, as are sprints, starts of all types, flying laps and flying 500’s (unless done in groups). Popcorn sprints are not practical because of the small distance between the groups, as are chariot races because of the small distance between the front and the back of the pace line. The best drills are skills drills that get everyone up on the track in pace lines on opposite sides of the track (for very high turn outs, have 4 pace lines, 2 each on the black and the blue), roll-ups (2 pace lines ½ lap apart), and pursuit drills (two pace lines on the blue, two groups riding hard on the black).

**Drills for Low Turn-Out**

When turn-out is low focus on sprints, starts, and individual efforts like flying 500’s, team pursuits, and go ’till you blow drills. If the temperature is cool, try to keep everyone up on the track rolling around between efforts.

**Cold Weather Drills**

In cooler temperatures avoid anything that would involve having people stand around for any length of time like sprints and starts. Keep the breaks short and choose drills that get everyone up on the track rolling around, like intervals off the blue.

**Madison Drills**

People who want to ride in a Madison should first be able to do laps with either hand off the bars. Once they are comfortable doing that, they need to get comfortable doing laps on the black with their right hand off the bars and someone beside them on the red. They also need to get comfortable doing laps on the red with their left hand off the bars and someone beside them on the black. Laps done on the black should be done with the left hand on the top right beside the stem and the index finger curled around the front of the stem. Laps done on the red should be done with the right hand in the drops. The student’s partner should be careful to have both hands in the drops.

As the student becomes comfortable, they should move to putting the free hand on the partner’s back, up to the point of reaching around to the far shoulder.

Next, get the student on the black, with the right hand grabbing the partner’s jersey or jamming tool. Have the student experiment with pushing the partner around the track, pushing the partner forward (without letting go), and pulling the partner back. Also have the student reverse positions and experience what it is like to have these things done to them while they ride with their hands on the drops.

For the next drill, the student goes up to the blue and the partner takes a position some distance behind the student on the black. The partner rides up to the student and the student practices taking a decisive line down the track to be at the red line just ahead of or just alongside the partner as the partner rides up. At this point, the partner can push the student forward and get them to go up the track and repeat the drill. No handslings yet.

Once the student is competently coming down the track to join the partner, the student and partner should switch positions and the student should practice slinging the partner forward, using the jamming tool.

This is enough for one session. Send the student away and have them watch a Madison in progress. Point out the main things the student will have to practice while in a Madison:

• ride in order while on relief and maintain good separation from other relief riders and good distance above the blue line,

• look at people’s jerseys and don’t come between team members about to make an exchange,

• ride over top of riders who have just thrown their team mates into the race (above all do not stay on the wheel of a rider about to throw his partner into the race!)

• get down on the coté after an exchange and wait until all racing riders are past before moving up to the blue.

**MOTOR PACED DRILLS**

Motor paced intervals start either with riders waiting at the rail or with riders riding around the yellow waiting for the motor to pass underneath.

Be sure riders know how to change the lead behind the motor before the drill starts. With the motor up on the blue, the lead change starts midway through turn 1-2 or 3-4, taking advantage of the downhill coming out of the turn. The lead rider tries to pull up alongside the motor on the right. Those behind the lead rider follow the lead rider up the track and then drop down behind the motor when the lead rider’s rear wheel draws level with the motor. This ensures the maximum slipstream effect for all.

Falling out of the slipstream is very taxing during motor pacing. Keep an eye on riders. For the sake of the integrity of the drill, those who cannot ride close on a wheel must be excused from the drill.

**Motor Paced Intervals**

Get the motor up to 38-40 km/h on the blue. On the whistle, the lead rider drops down to the black and laps the field. After each rider has had 6 turns, rest 20 minutes.

**Motor Paced Endurance**

Riders line up at the rail and get on the motor as it passes by. Those not on the rail when the motor starts must get on the back of the group from the black, not the yellow, as riders will be changing the lead between the blue and the yellow.

No rider may stay behind the motor for more than 1 ½ lap. They may not pass the motor except when changing the lead.

The drill continues for an unknown time of between 10 and 30 minutes. During this time the motor will occupy various positions on the track, doing laps on the blue or the black. Riders will work for position in behind, focusing on avoiding being on the wheel of a slower rider.

At the end of the drill, the motor should be up on the blue. The motor accelerates away from the pack, the whistle blows, and everyone descends to the black for a scratch race of between 10 and 40 laps. Announce exactly how many laps in advance and have someone show lap cards.

A variation on this drill has the motor pacing a Madison on the black line.

**Motor Paced Keirin**

Riders line up at the rail and get on the motor as it passes by. Those not on the rail when the motor starts must get on the back of the group from the black, not the yellow, as riders will be changing the lead between the blue and the yellow.

No rider may stay behind the motor for more than 1 lap. They may not pass the motor except when changing the lead.

The drill continues for 3-6 minutes, the time being either unknown or announced in advance. During this time the motor will occupy various positions on the track, doing laps on the blue or the black. Riders will work for position in behind, focusing on avoiding being on the wheel of a slower rider.

At the end of the drill, the motor should be up on the blue. The motor accelerates away from the pack, the whistle blows, and everyone descends to the black for a sprint of between 2 and 4 laps (announce exactly how many in advance and have someone show lap cards).

**Timed Intervals**

Do timed intervals differently depending on how many people are out. With just a few people, riders can take turns getting up on the track, doing a few warm up laps, doing their effort, cooling down, and coming off. This takes too much time when more than five or six riders are out. With more than five or six, get everyone up on the blue line. Whoever is in the lead on the blue gets a countdown, does their effort, and gets onto the back of the group on the blue to cool down. If they get back to the front of the line too soon, they simply change the lead and go to the back.

Only integral lap efforts can be chip timed. If people are doing 500’s or do not have a chip, they must be timed with a stopwatch. Only the person doing the effort needs to be told their time. Riders should be advised to go home for the day after their times start to fall off by any significant amount.

**Flying Laps**

Proceeding from the infield, riders get up on the track on the front straight and should aim to be up at the yellow by the back straight. Climbing the track out of the saddle is a good idea as it uses different muscle groups differently, leaving the sprinting muscle groups less work to do. The rider then rides easily along the yellow through turns 3 and 4 and along the front straight, gradually picking up speed on the downhill out of turn 4. At this point the rider should be shown 2 to go. At some point between turn 2 and 3 the rider should initiate a full on sprint. The bell should be rung while the rider is on the back straight to alert everyone that a rider is coming down for an interval. The rider should aim to be on the yellow and accelerating through turns 3 and 4 and to be spun out on the finishing straight before dropping down the track to do the timed lap.

The next rider up should get up on the track immediately after the previous rider has passed by to finish their lap.

Proceeding from the blue line, riders can be assumed to be warmed up already. Tell the first rider in line “next time by” as they come out of turn 4. The rider gets out of the saddle to accelerate gradually to the yellow and climb the hill going into turn 1. At some point between turn 2 and 3 the rider should initiate a full on sprint. The bell should be rung while the rider is on the back straight to alert everyone that a rider is coming down for an interval. The rider should aim to be on the yellow and accelerating through turns 3 and 4 and to be spun out on the finishing straight before dropping down the track to do the timed lap. Upon finishing the lap, riders should attempt to rejoin the back of the group on the blue as soon as possible while getting out of the way of the next rider to do an effort. This may require coming off the track to ride in the roll-around until an opportunity arises to rejoin the group, or riding up to the blue well behind the group and then dropping back down after the next rider has passed by and rejoining the group by following that rider.

The next rider in line on the blue should be told next time by the first time the group comes out of turn 4 after the previous rider has completed their lap.

**Flying 500’s**

Proceeding from the infield, riders should be given 5-8 laps to warm up on the blue, followed by a countdown. Make sure riders understand that, unlike with a flying lap, timing does not start with 1 to go, but at the end of the countdown. Emphasize this by saying “3 to start,” “2 to start,” “next time by,” when giving the countdown. With flying 500’s the roll up should be steady right to almost the very end of the countdown, with the sprint starting only on the exit from turn 4. Start the stopwatch as the rider crosses the 500m start line and walk across the infield to the 500m finish line. By the time you get there the rider will most likely have passed by. On the rider’s next approach, show them 2 laps to go. Lap cards and a bell with 1 to go are nice, but finger signals suffice.

Proceeding from the blue line, riders can be assumed to be warmed up already. Tell the first rider in line next time by as they come out of turn 4. The rider should pick up speed just a bit and take their time getting up to the yellow, reaching it only on the back straight where they aim to be a few bike lengths ahead of the pack and moving faster, with the sprint starting on the exit from turn 4. Start the stopwatch as the rider crosses the 500m start line and walk across the infield to the 500m finish line. By the time you get there the rider will most likely have passed by. On the rider’s next approach, show them 2 laps to go. Lap cards and a bell with 1 to go are nice, but finger signals suffice.

Tell the next rider in line that they have two to go to start the first time the pack passes the 500m finish line after the last rider has completed their effort.

Longer intervals are done like flying 500’s.

**STRUCTURE SESSIONS:**

**Track 1 (Learn To Race)**

Everyone who comes to Track 1 wants to be there and is looking forward to the experience. It is important for the future of the track that they not be disappointed. Many people who come out will have limited strength and limited bike riding abilities. Others will want to show off and race. Providing a supportive, encouraging experience for those in the former group while controlling those in the second is a challenge that must be met.

Keep in mind that you are teaching a skill, not a collection of facts. The ability to ride track is an ability governed by the lower processing centers of the brain and central nervous system, below the level of consciousness. This means that you can’t expect people to be able to do the things you ask them to do. Even if they understand what you are saying and want to do it, consciousness is not in control, and the best will in the world will not make them able to do what you say.

Rather than tell people things they won’t be able to do, get them to do simpler things that will help them develop the skills they need. Don’t waste a lot of time talking to them. When you do talk, reduce what you have to say to a few, simple rules. If people don’t seem to be able to do what you are asking them, reduce the task to something less challenging and get them to work up from there, or look for something they are doing wrong and ask them to correct it. For example, if people are weaving on the track or riding above the red line, don’t ask them to hold their lines or ride below the red. In most cases, if they could do those things they would. They aren’t doing them because they can’t. To help them get control, ask them to slow down, to keep their chins up or to wiggle their fingers. Do not allow people to progress before they are ready. If people have trouble slaloming around the cones on the infield they will have trouble riding on the track. Keep them working on the necessary preliminaries until they get the hang of it. At the same time, try not to single them out in a way that could be embarrassing. Without announcing why you are doing so, get some people going on to do the next exercise while keeping others back to work more on the previous one.

Just because you can ride a bike, it does not mean you can ride the track. People who know how to ride a bike, even a fixed gear bike, have learned from experience that if you turn too sharply, you will fall over. This is not something they consciously appreciate. It is a powerful instinct, very difficult to overcome. When people go down the black line for the first time and approach the turn, that instinct kicks in and makes them think that they are going too quickly to manage the turn on the black. They then do one or other of two things: slow down, until they are going too slowly to stick on the track; or increase the radius of the turn, which causes them to ride up the track to the blue or higher, sometimes taking such a sharp line that they bump into the track in the process, lose speed because of the bump and uphill, stall, and fall down. Even people who have learned to ride the track at 30 km/h will still have this instinct, and it will lead them to encounter the problem again the first time they try to stick the black line at 35 km/h, at 40 km/h, and so on. This is why it is important not to allow people to go too fast. At 30 km/h on the black line, a crash usually results in only minor scrapes and bruises. At 45 km/h on the blue or yellow, the consequences can be more severe, both for the person involved and those in their path on the way down.

People do not need to know any of this, and the sequence of instruction laid out here should prevent it from happening. We first get people comfortable getting on and off the bike, then teach them how to slow it down from speed, and then work on turning and cornering. When people do go up on the track we have them do it gradually, by climbing just a little way up the banking in turn 1 (just part way up the coté) and then coming back down before the exit of turn 2, then increasing the height on each subsequent trip. In effect, we get them diamonding, which replicates the natural instinct to want to climb up the track, stall, and tumble down — but at low speeds and low heights where they are able to keep in control of the bike and ride through the turn. Every new lap builds confidence and helps develop a new set of instinctive mechanisms that will eventually kick in to guide the learner safely around the track.

Instructors must at all costs refrain from expressing frustration or disappointment. They should never make negative comments about learners’ performance, even quietly amongst themselves. They should not even allow themselves to think along those lines. Above all they should not make negative comments about learners within ear shot of other learners.

Once a year, take a moment to ride clockwise around the track. This is a good way of reminding yourself what it is like for people getting up on the track for the first time.

***Track 1.0: Set-up and preliminaries***

Set-up:

* Arrive at the velodrome 30 minutes before the session begins.
* Know where the pedals and helmets are in case people need them. Arrange pedals in left/right pairs.
* Get out rider registration and waiver forms, passports, and information package for graduates.
* Place cones in the straights of the roll-around, 3 paces apart.

Preliminaries:

As people arrive make sure they know where the washrooms and change rooms are and advise them that they are to wear their street shoes to cross the track and carry their cycling shoes to the infield with them. Cleats chew the track up and socks are too slippery on the incline.

Have new riders to velodrome fill out rider registration and waiver forms and put their names on passports.

* Staple passports to graduate information package.
* Collect money for session & bike rental $20.00 + $10.00, making a note of who has paid on the waiver/registration form.
* Select a properly sized bike for each rider. Tell everyone that pedals are only to be put on finger tight. Remind them of this repeatedly.

Have early arrivals riding on the concrete stopping (back foot out) and starting on centre ice or slaloming around the cones.

***Track 1.1: The track bike***

Gather everyone on the infield with their bikes. Grab a bike yourself and, using it as illustration, go through a bike check and introduction.

1. Introduce yourself and welcome everyone to the track. Before doing anything else, be sure everyone understands where the washrooms are and appreciates that they are not to attempt to cross the track in socks or cleats. Cleats chew the track up and socks are too slippery.
2. Explain that the first part of the session consists of an introduction to the use of the track bike. Draw people’s attention to how a track bike differs from other bikes: one gear fixed to the hub (so that you must pedal while the wheel is turning), no brakes, and dropped bars.
3. Why one gear fixed to the hub? Because you don’t need multiple gears on the track, and when you don’t need multiple gears you don’t need a freewheel mechanism, which compromises efficiency and control.
4. Why no brakes? Because with one gear fixed to the hub you can brake by resisting the pedal motion and because on the track there is no need to brake. Everyone is going in the same direction and there are no intersections. Braking would only cause havoc for following riders.
5. Why dropped bars? Because riding on the drops maximizes control. Through almost all of this session people will be expected to ride with their hands on the drops.
6. Tell people that they should be standing on the side of the bike opposite the chain. Point out that it is important that nothing get in the spaces between the chain and the chain ring or cogs. Clothing or fingers caught in this space could be crunched or torn.
7. Tell people that removing their feet from the pedals while the bike is in motion is not a good idea. The pedals will keep turning and could smack you.
8. Get everyone to do a quick bike check. Check tires to ensure they are well inflated. Spin wheels to make sure they are true. Try to wobble the wheels back and forth in the drop outs to make sure they are securely bolted on and do not have loose hub bearings. Bang down on the front wheel to make sure it won’t drop out. Spin the handlebars to verify they are turning smoothly. Bang the front wheel up and down to determine there is no rattling in the headset. Pick up the chain midway between the cog and chainring while the bike is stationary to verify it has just a bit of slack. Help people get their tires pumped and adjust their chains. Rental bikes can be difficult to tension and this job should not be left to learners. You will obtain the best results if you always keep one side or the other tightened. With the left bolt tightened and the right bolt loose, “walk” the wheel to the correct chain tension. With the right bolt tightened and the left bolt loose, “walk” the wheel to center it between the stays. Repeat as necessary.
9. Demonstrate the proper technique for getting on and off the bike. Straddle the bike, reach behind you, and lift the rear end to spin the back wheel until the chain side crank is just below the down tube. Sling a leg over, stand on the crank, pick up your other leg and move off. To dismount, slow the bike down by resisting pedal motion and remove the back foot, tipping the bike slightly to put that foot on the ground.
10. Get people practicing getting on and off the bike by riding around the infield and stopping at center ice. As they are doing this, ensure that they have their hands on the drops and that their chins are up. Also check their bike fit. Adjust their saddle height or give them larger or smaller bikes as necessary. Legs should be just slightly bent at the bottom of the pedal stroke and arms should be a bit ahead of perpendicular to reach the handlebars. As long as people can stop and start and get in and out of the pedals without crashing they are ready for the next step. Those who have difficulty doing this need to be kept back for extra practice. If they still have difficulty, someone may have to be deputized to push them on their way and catch them on the way off.
11. Move everyone up onto the apron, 3-5 bike lengths apart. Get them to experience braking by having them accelerate down the straights and slow the bike down just before the turns. Have them do this drill standing as well as seated. Check that they have their hands on the drops and their chins up. The purpose of this drill is just to get people acquainted with how to slow the track bike down. The idea is not to be able to accelerate to high speed over a short distance.

***Track 1.2: Turning and cornering***

Get people to ride around the roll-around and slalom around the cones. Do not bother trying to get people to “turn” rather than “lean” their bike around the cones. When they are up on the track they will need to lean their bikes more than their bodies when going around the banking at low speeds, and lean their bodies more than their bikes when turning right, uptrack. It all gets just too complex for learners at this stage and it is better left to subconscious balancing mechanisms in the brain than assigned to consciousness. Just get them slaloming as best they can and work at getting them to do it briskly. Again, ensure that they have their chins up and hands on the drops. As a variation, get them to do this drill while standing up out of the saddle. While it is possible to work around an inability to get on or off the bike, it is absolutely necessary that people be able to slalom around the cones before being allowed to proceed. Those who cannot do this will not be able to stick to the track in the turns. They need to be kept back to keep practicing.

Gather everyone on the infield with their bikes. Introduce them to the names you will be using for the different parts of the track.

Explain to everyone that while on the track they must hold to their line (explain that a “line” is any line parallel to the lines drawn on the track). They may only deviate from a line if they signal (with a flip of the appropriate elbow) and shoulder check (over the appropriate shoulder). Emphasize that shoulder checks should not involve a full turn of the head, but just a brief tilt and glance sideways.

Put down 3 cones along each straight, two at the black well away from the turns, one at the black at the middle of the straight. Get everyone up on the apron 3-5 bike lengths apart. Have them go under the first cone, over the second, and under the third, descending back to the apron to go around the turn. Have them signal and shoulder check before changing their lines. This is not a speed drill. Do not let them go fast. Check that their hands are on the drops and their chins are up.

Over the next 15 minutes, slowly move the center cones on each straight higher and higher on the track. As you move the cones up, vary laps done out of the saddle with laps done seated. Also ensure that people are maintaining a constant speed, working on the way up and slowing the bike down on the way down.

The extreme cones (the ones they go under) are placed to ensure that they do not ride too close to the banking before going down and clip a pedal. It is best to stand up on the track in front of the banking to help prevent this. Point riders down the track. As a further exercise, hold your arm out and have them duck under it as they pass.

If time permits, add a 4th and 5th cone to each straight. Riders go under the first cone (which is there to prevent them from going up the track too soon), over the second cone, which is set only part way up the track, under the 3rd, which is on the black line, over the 4th, which is set high up on the track, and under the 5th, which is again placed to prevent them from riding too close to the steep banking. As they do this, they practice tipping the bike away from the track at all times (so, tipping it to the left both while turning left, down the track, and while turning right, up the track). To tip left while turning right, riders must shift their weight well out to the right while moving the bike sideways underneath them. The tipping is necessary to help keep the pedals clear of the track while turning. Bike tipping is always away from the track (to the left).

***Track 1.3: First Laps***

The most important thing that people doing their first laps need to know is not how to get on, but how to get off. This is something that should be explained to them before they get on.

Gather everyone together, tell them they are going to go up on the track, and explain how they are to get off once they are up there. They get off by reducing their speed, dropping to the coté and then to the apron as they do so. It is best to reduce speed on the finishing straight (tell them this can be identified by the presence of the start/finish line), descend down to the coté through turns 1 and 2 (explain that these are the turns following the finish line), and exit the track following the black line from the back straight.

Tell people the two most important rules of track riding:

• don’t get up on the track if you are going too slow

• don’t come off the track if you are going too fast

We want to see people get on and off the track quickly from the back straight, but this is a skill that takes practice to develop and that learners cannot be expected to have. It is better that they get off the track in the turns or the front straight than that they try force an exit on the back straight by riding too slowly through turns 1 and 2 to get there, or get off there at too high a speed to be able to avoid slipping on the concrete or crashing into the track on the approach to turn 3.

Stress that being properly positioned on the track for the speed you are traveling is more important than exiting smartly on the back stretch.

Tell everyone that when they go to get off the track for the first time we will shout “stay up” at them if they are going too fast through turns 1 and 2. They will have to stay up on the track for another lap and try again to slow on the finishing straight the next time around.

Likewise, tell everyone that when they go too slow we will shout “speed up” or “get down.” “Get down” means, do not go above the coté (or get down onto it). “Speed up” means either get your speed up or get down onto the coté until you can.

Most people want to be alone on the track for their first laps, but it is too time consuming and often too cold to do this. As a compromise, get two people up on opposite sides of the track. Explain to everyone that this is not a race. If one person catches up to the other, they are to slow down, come back down onto the apron (without worrying exactly where they do so), wait to re-establish distance, and then resume the effort.

Riders start by going easily around the apron, maintaining a ½ lap separation. Then get them to increase their speed and move up onto the coté. Then get them to increase their speed along the straights, let the bike rise up the track in the turns, and bring it back down to be on the coté in the straights. Tell them that there should be no bumps and no thumps. The bike should rise gradually up and down the track in the turns. If it doesn’t, they need to slow down and work on getting the line right.

As riders get comfortable, get them to go faster and rise higher on the track. Once they are touching the black line, have them stay on the black and continue to do a few laps, then come off.

***Track 1.4: Group Ride***

Once everyone has done their first laps, assemble them for a group ride. Work up to this slowly by first lining up two groups of 4 people on the apron, ½ lap apart. Line them up so that the faster, more confident riders are in front.

Before the riders are sent off, say a few words. Riders are to maintain a 3-5 bike length separation. If they come up behind someone who is going too slow, they are to slow down themselves and come off the track (don’t worry about where you do so, just do it). Once distance has been re-established, they can shoulder check for other riders coming up from behind and get back on the track when it is safe to do so. When the time comes to come off, riders will exit the track in groups of 3 or 4 from the back to the front. Other riders should maintain their speed and keep doing laps until they are in a left over group. As before, exiting occurs by slowing on the finishing straight, dropping to the coté through turns 1-2, and coming off on the black line. Stress again that while this is the ideal, it is not something that absolutely has to be done.

If you are going too fast, stay on the track for a while longer. If you are going too slow, get off sooner. Those exiting the track should signal (left arm down) and shout “off” before slowing to exit.

Riders are to go off by riding around on the apron for at least one lap at a low speed, to ensure everyone in the group is started and lined up behind them. Once that has happened the lead rider in each group shouts “on” and goes up on the track, picking up speed as they do so. Riders should get on at the start of one of the straightaways and pick up their speed smartly.

As riders go around the track, check that they have their hands on the drops and their chins up. Their arms should be relaxed. Get them to loosen their grip on the bars and wiggle their fingers as they pass by you. Let them put in a good number of laps to get comfortable. If one group catches up to the other, don’t worry. After about 5 minutes, have the lead 4 riders ride up to the red line and give the trailing 4 a countdown from 2 laps to get off. Once they are off, get the remaining riders off. Then get the next groups up on the track.

After a rest, get the whole group up on the track for a ride, starting in two groups ½ lap apart on the apron, as before.

If there is time, as a final exercise, have riders go up on the track one after another by riding around the infield and getting up on the track on the back straight when there is a gap in traffic.

Explain that from now on, riders are to get on and off the track only in the back straight and should aim to be up on the black by the start of turn 3.

This concludes the course. Congratulate everyone on a job well done. Complete and distribute their passports and their information packages and invite them back to the track. Be sure to explain the introductory membership and let them know the times for our recreational sessions. Tell them that at this point they can go to any rec. session, but are not allowed to ride above the red line or overtake other riders before they have been to skills and drills and/or track 2.

Note: Riders may ask to be allowed to go up to do a few fast laps or a few laps on the yellow before leaving. This seldom has good results. Tell them we have to give them some reason to keep coming back and wish them a good day.

**STRUCTURED SESSIONS:**

**Track 2**

Split the session up into two groups of 4-6 riders each. To begin, have the two groups start in the most efficient way for beginners: by lining up on the apron on opposite sides of the track, doing one or two slow laps until everyone is together, and then getting up on the track at the exit of turn 2, lead riders shouting “on” to alert those behind of their intentions.

Let the riders get comfortable on the red and ensure they are maintaining a separation of 3-5 bike lengths. Then get them to work on some skills:

• stand up on the straights, sit down through the turns

• stand up through the turns, sit down in the straights

• stand up for one lap

• stand up for two laps

• ride with hands on the tops

• ride with hands on the drops

• ride with one hand on the tops and the other on the drops

• ride with the other hand on the tops and the first one on the drops

• ride switching hand positions

• hands on the tops, ride with one hand off the bars in the straights

• hands on the tops, ride with the other hand off the bars in the straights

• hands on the tops, ride with one hand off the bars in the turns

• hands on the tops, ride with the other hand off the bars in the turns

• hands on the tops, do laps with first one hand, then the other behind your back

• repeat the last 5 exercises with hands on the drops, reaching down to your ankle with the free hand

• do quick right shoulder checks while holding your line

• do quick left shoulder checks while holding our line

• shoulder check and change lines to the black (make sure they check over the correct shoulder)

• shoulder check and change lines to the red (make sure they check over the correct shoulder)

• slow down and ride on the coté, divide into 3 groups of 4. Lead rider accelerates and slows without warning. Followers attempt to hold on, not allowing a gap to form in the accelerations, and backpedaling and riding higher on the track in the decelerations

Take a break. When riders are recovered, get them up on the track as before, ½ lap apart, riding on the black. On the whistle, the last rider in each line moves up to the red and accelerates over top of the group, slowing just past the lead rider to drop back down in front of the group. Keep repeating until all riders are comfortable passing over. You will have to explain this drill to them ahead of time, and tell them what to do if the overtaking riders come over too fast and create a gap: the following riders will have to sprint to catch up. To prevent this from becoming onerous, the following riders should be shouting to the overtaking riders to slow down as they pass over if it looks like they are passing over too quickly.

Take a break. When riders are recovered, tell them that they are going to be going up and down the track in the turns. When they do so, it is important that they take a gradual line up the track and a gradual line back down. If, when turning up the track, they feel a bump and notice the front wheel jerking up, they have turned too sharply up track. Explain to them what they must do if there is an accident: maintain their speed and ride over the fallen or slowed riders, as they have just been taught to do.

Get the two groups up on the track as before, ½ lap apart. Begin by getting people to diamond from the black to the red in both turns. Instruction: “black on the straights, up to the red in the turns.” Then get them going half way to the blue. Finally get them going to the blue. Be sure they are not taking too steep a line up the track. Starting from just before turn 1, riders should reach the blue line no sooner than half way between turns 1 and 2. Likewise for 3 and 4. The same holds for going back down. Riders should begin their descent from the point on the blue line halfway between turns 1 and 2 and be back at the black line just at the point where it straightens out. Likewise for 3 and 4. When ascending to or descending from points below the blue line, riders should follow the same path they would take if they were going to or from the blue.

Be sure to also keep an eye on riders’ speed. Get them to work on the way up the track and slow the bike down on the way down. Have them stand up on the way up the track and sit down on the way down as a way of ensuring they do this. Once they have mastered the technique, have them sit down on the way up and stand up on the way down.

Riders who have mastered going up to and down from the blue are ready to begin squaring. Have them do a few laps on the blue (Instruction: “up to the blue, stay on the blue”), and then begin squaring from the blue to the red. Instructions: blue on the straights, half way to the red in the turns,” “Blue on the straights, red in the turns,” “Blue on the straights, “black in the turns.”

Riders will wait too long to square. They should be squaring from the point on the blue line just before it starts up to climb uphill to make the transition to the steep banking. This is a point about three paces behind the place where the blue line starts to curve. Stand at this point and give the instruction to start going down here.

Take a break. When riders are recovered explain to them how a pace line works. Get the two groups up on the track as before, ½ lap apart, on the black line. Get a bike length separation between riders and get the riders moving to between 33-35 km/h. (When less experienced people are involved in a roll up, it is best to get the group moving at a higher speed.

Inexperienced people will want to slow down to get to the back of the group. If the group is only traveling at 30 km/h, this can have unfortunate consequences.) Then get them changing the lead every second lap. Make sure they are signalling and shoulder checking. Also make sure they are not taking too sharp a line up the track. Starting at the beginning of turn 1, newer riders should not rise to the blue before the mid-point between 1 and 2. At sharper angles, they risk losing speed and control. Above all, make sure that they are maintaining 30 km/h while up on the blue.

As people get more comfortable, work on getting them to go up and down in the right places. Riders should ascend from the black to the red a few paces in front of the point where the black line starts to curve around the turn. This skirts the dip that the black line takes as it goes around the turn. They should then rise gradually from the red to the blue over the distance between the point where the red line starts to bend and the blue line midway between turn 1 and 2. While up on the blue, they should attempt to time their descent so that they come down just on the rear wheel of the last rider.

Continue by getting the riders to change every lap and then every half lap.

Time permitting, have the groups do a pace line on the blue. Do this only if the groups have become expert changing the lead on the black. On the blue the lead should not change more often than every second lap.

**VELO KIDS**

Track bike and Infield introduction.

1. If the child is here for the first time, have their parents sign a waiver. Adopt a low key approach over fees. Bike rental fees for kids are waived. If the parents plan on bringing the child back regularly, there is a $100 velo kids membership fee that should be paid. It is okay if they take a few sessions to decide.

2. Fit child to suitable bike. For seat height, heel on pedal at bottom point with slight knee bend is good place to start. Check for pant cuffs that are not tied in. Duct tape ankle if necessary, pay special attention to right (chain) side. Tuck loose laces into shoes. Supply helmet from bin under table make sure strap fits well.

3. Explain briefly direct drive concept for slowing down and controlling bike, how to start off with pedal up and forward, pushing down to get going and up onto seat. Explain no need to use toe clips to start just ride bike around infield to get the feel of how it is different from their regular bike.

4. Watch kids as they ride around and as they become more comfortable, have them try to get feet into toeclips by flipping the pedal on the way down. Avoid looking down too much as this will result in possible crashes into the boards!

5. Those that show they have mastered getting feet in should be encouraged to weave the bike in and out of a line of orange cones placed in a line on one side of the infield oval. Cones should not be too close together at this point as some will find toeclip overlap very disconcerting and get scared if they are not that confident.

6. For those that look comfortable and safe put out the pop bottles with water in them. Explain that they should try to pick them up and put them down again without them falling over. If they have trouble grabbing a bottle, suggest they start just knocking it down with the palm of their hand to start. This gets them putting the hand in the right place without losing too much control as concentration is taken away from steering. After knocking a few over they will naturally progress to the pickup. Putting the bottle down is always more difficult. It must be placed on the floor as any drop distance will cause it to fall over. Try to place it slightly in front of you and steadily on the floor as you ride by it in a smooth motion.

***First Laps***

1. Get kids into manageably sized groups. If a lot are out split them up into 2 groups. Likewise, if there is a large difference in skill levels leave those who are not yet ready to move up on the track on the infield to gain more confidence with their bike handling exercises. Switch groups later.

2. Take the group to the edge of the track, minus bikes. Stand a couple of feet up on the straight so that you are higher than them. Then explain what they are going to be doing next. Show the cones on the red line. Explain that they will be riding OVER the cones as they are moved up the track on both straights.

3. Pay special attention to the issue of shoulder checks. Shoulder checks are fundamental to the safety of all riders on the track at all times, in all situations. Demonstrate how the shoulder check is performed by walking along the Cote towards the cone, looking over the right shoulder to go up onto the track and then over the left shoulder to come down or exit the track.

4. Place three cones on the straights both sides of the track, with help from a second volunteer. Place the centre cone on the red line. Place the other two on the black line before transition one and after transition four so that riders have plenty of space to enter and exit the track over the cones without having to negotiate a steep incline. Riders should be able to come on and off at a low angle safely on the straight without getting close to the banking.

5. With the second volunteer mimicking the actions on the opposite side, stand in the centre of the track before the first transition to prevent anyone from going too far. The riders should be heading down to the Cote underneath you and before they get into the banking at too low a speed.

6. As the riders come around the Track riding 3-4 bike lengths apart, call instructions about controlling the bike on the uphill and especially the downhill part of the straight. They should be able to control their speed so that they maintain their distance from each other. Watch carefully for shoulder checking and remind those who forget as they come by.

7. As you see the progression of the procession, have them do a lap out of the saddle every so often, to change the dynamic and enhance the skill level. At appropriate points as you see the confidence increasing move to raise the cones on the straight. Leave the end ones in place and move the centre one up, Halfway to the blue, on the blue, halfway to the yellow and at the yellow line. Add one or two cones to define the line up and down the track.

8. At the yellow line after a few laps have them take a hand off the bars and touch the rail. This will really show who has the highest comfort levels regarding bike control. Time on this exercise will be dictated by number of riders, groups and speed of learning. If more than one group, switch over and send first group back to infield for water, rest and more skills ie, bottle pickup toeclip/strap practice etc.

9. Once all participants have done the exercise it should be apparent if there are any who are not ready to go onto the track. If so talk to them and ask them to come back next week for sure and go through the process again as you don’t want them to get hurt by falling off. Some kids need a little longer than others, but all can do it if they keep trying. Have them stay on the infield and keep practicing.

10. Take the others to the start line area explain that they are now going to get the chance to ride individually on the track and they must listen very carefully to instructions given. Ask for a volunteer or choose the most accomplished individual in the group. Tell them to ride on the Cote until you say otherwise. Remind them to get their feet in the clips before leaving the concrete area of the track.

11. As they ride the Cote tell them to pick up the speed/pedal faster, correct grip positions, hold the drops for a more stable ride. When the rider is going fast enough tell them to stay on the black line, all the time giving encouragement. Make sure the rider keeps the speed high enough to stay on the track. Give them 5-6 laps of looking comfortable, then ask them to come down onto the Cote and slow down and come off. They will tire fairly quickly at this point with all the nervous energy expended anyway. As soon as the rider is off the Cote get the next one up and go through all the participants.

12. If time permits do a second run on the track with each rider and make it a flying lap at the end. Give them the time when they come off and tell them that they should be able to improve this time significantly if they come back next week and do it again, now that they are beginning to get the hang of it.

13. Be sure to thank everyone for coming to the FCV and tell them that they can come every week and as they get better and better we will teach them how to ride Higher and faster as they develop their skills. If there are any racers at the track while the group are still there have the experienced rider demonstrate a flying lap from the yellow line for them explaining the reason for the line taken etc.

14. Leaving the track with an image of speed in their heads should give them something to think about and hopefully talk about over the next week before they return for another go at the most fun you can have on two wheels. Ask them to bring a friend next time too if they can!

**RACE MANAGEMENT**

The watchwords of track cycling are safety, speed, and show. While “show” comes after “safety” and “speed” its importance must not be underrated.

Unlike road events, which are staged for racers who have paid an entry fee and are open to the public to watch for free, track racing is a show, put on for a paying audience. Racers commonly pay no fee and receive prize money drawn from ticket revenue. Both the race manager and the racers have to be cognizant of this difference. A race has to be a good show for the audience. Races must be fast, they must be short, they must be easy for the audience to understand, and they must be exciting to watch. Finishes must be close, and racers need to appreciate this. (It is, for example, a sign of incompetence in a match sprinter to win a race by more than a bike length, particularly when racing against a much weaker opponent.) Attacks must be frequent. Clowning around and a hamming it up with the audience enhance the spectacle, if done in moderation. Unsportsmanlike behaviour absolutely cannot be tolerated.

It costs tens of thousands of dollars to keep the velodrome open for a year. Revenue from audiences is indispensable and should be the principal source of revenue for operations. All members of the velodrome need to understand this and do what they can by coming out to race or watch. Good participation in races by junior and elite men is particularly important since races in those categories will be the fastest and most aggressive. These racers need to be compensated accordingly. Elite women and masters who can handle the speed should be included in the junior or elite men categories. In general, all categories should be ability based rather than age or gender based. It is entirely appropriate, for example, to have 70+ men race with peewees, squirts, and minimes. (Not to mention that such races demonstrate that anybody can ride track and send an important message about accessibility and inclusiveness to the audience.)

Provincial and national championships are an exception to the rule. These events are put on for the racers and serve as an important measure of their progress and training for similar events at the national and international level. At championships, the time trials are not audience friendly events and the categories are in many cases too small to provide entertaining mass start racing, a problem that is further compounded by the natural desire of racers to specialize in those events they do best. These races are staged at a loss, with racer entry fees only able to feasibly cover a portion of operating expenses. Some audience revenue can be generated by staging the sprint competitions and junior and elite men’s Madison, scratch, and points races in the evenings.

###### **Equipment**

***Using Orbits (chip timing software)***

* Open Orbits by clicking on the Orbits 4 SP1 icon on the desktop. Note that the computer is set up to work with single clicks.
* When Orbits first comes up, check the Timeline Status box in the middle of the screen. You should see a red decoder icon with the notation Connected decoder. If the decoder icon is grey, refer to decoder freeze-up.
* If the decoder icon is red, click on the Timing tab.
* Near the top left, click on the down arrow button beside the Select a Run box.
* Mouse over your session and then click on it. If your session is not listed refer to starting a new run.
* Click on the green flag.
* If the green flag is greyed out so you cannot click on it, check to make sure that the last person closed their session. If they didn’t there should be a button in the left hand column that says Switch to active run. Click on this button. Then click the stop sign. Click Yes to confirm you are sure you want to stop timing the run. Click on the down arrow button beside the Select a Run box. Mouse over your session and then click on it. Now the green flag should appear in the passings screen when you click on it.
* If the green flag is greyed out so you cannot click on it and the Switch to active run box is not present, a run may be active in a different event. Click on the Registration tab. Click on the down arrow under Select Current Event in the left hand column. You will need to check for the presence of an active run in each of the events listed. You do this by clicking on the event name and then going back to click on the timing tab and see if the Switch to active run button is present. Once you find the run close it, return to your event, and start your session.
* At the end of your session, hit the stop sign.
* Click Yes to confirm you want to stop the run.
* Close Orbits and turn off the computer.

***Starting a New Run***

* Warning: Do not go to the registration or the events tab! Do not set up a new event! Runs that are created under unapproved events will not be published on MyLaps!
* Be sure you are still on the Timing tab.
* Under Timing Tasks in the left hand column, select Create a new run.
* In the pop-up box that appears, mouse over and then click on All.
* Fill in the information requested in the fields of the pop-up box. If your session is a recreational session select Race for the type box (race ranks people by the number of laps they have done). If it is a training session select Practice for the the box (practice ranks people by their fastest lap). Start method should be staggered start. Minimum lap time should be 00:07. First passing: None. Auto finish: do not use auto finish. Qualification requirements: none.
* Click on OK to close the box.
* Now, when you click on the down arrow beside the Select a Run box, you will see the run you have just created on the list.
* Mouse over your run and click on it.
* Click on the green flag.

***Restarting Orbits***

If the computer stops registering laps, check that the decoder is still operational by clicking on the Events tab and seeing if the decoder icon in the Timeline status box on the middle of the screen is red. If it isn’t, refer to restarting the decoder.

If the computer is frozen up and you can’t move the mouse or get a screen, the Orbits decoder will continue registering laps. These laps can be downloaded to the computer after a restart. While the decoder’s memory is significant (it will remember hundreds of passings) it is not unlimited. With heavy track use, it will only remember 5-10 minutes worth of passings. Check the computer from time to time and make sure everything is still working.

* If the computer stalls, shut it down by holding down the power button on the tower.
* Restart the computer.
* When asked, choose to start Windows normally.
* Refer to Using Orbits for instructions on how to restart Orbits.
* Once you are back at the timing tab (perhaps before) a pop up box will appear informing you that the computer has detected the presence of unregistered laps on the decoder and asking you what to do. Do not close this box!
* Ignore the box for now. You can keep working behind it. If it gets in the way of your view, carefully click on the box title, well away from the x that closes the box, and drag the box to the side.
* Restart your run and click (see the introduction for instructions on how to do this).
* Now, in the pop-up box, choose the option to download the passings.
* The pop-up box will disappear and the missing laps will be downloaded to the computer.
* Refer to unidentified transponders if some or all riders’ names no longer appear on the list of results.

***Restarting the Decoder***

Go to the Events tab, if you are not already there. If the decoder icon in the Timeline status box at the middle of the screen is red, the decoder is connected and working and does not need to be restarted.

If the decoder icon is grey, or if you see a pop-up window informing you that the connection to the decoder is lost, you need to reconnect to the decoder.

Close the pop-up window if you still see it.

Ensure that the decoder is plugged in and that all connections between the decoder and the computer are secure.

If the icon is grey, double click on it.

On the window that comes up, click on the ChpX Decoder option. This is the one with the decoder icon beside it. (Not the network or COM port options.) Click on Next.

Wait.

If nothing appears to be happening after about a minute, close the window and repeat the operation.

The decoder should come back online and show you a red icon.

## **Unidentified Transponders**

If the computer is listing transponder numbers without names, make a note of the transponder numbers.

Click on the Registration tab.

Under the Select a group or run tab at the middle of the screen, click on your session. Be sure you have selected your session and not a different one. If this troubleshooting procedure does not work, it is likely because you have selected the wrong session.

Under Competitor tasks in the left hand column, click on Show competitor database.

If the Competitor database window that comes up is maximized, mid-size it and shrink and move it until you can see both it and the middle, right hand box on the registration tab, where names and transponders of people in your session are listed. (To resize a window, click and drag on its borders. To move it, click and drag the title bar.)

In the Competitors box of the Competitor Database window, click on the Transponder column heading. This will order all the competitors by transponder number.

Identify the people with the transponders numbers you previously made a note of. If the transponders you have made a note of are not listed, they have not yet been registered. Refer to registering new riders.

If the transponders are listed, click and hold on these people’s names and drag their names out into the middle, right hand box on the registration tab, where names and transponders of people in your session are listed. This adds them to the session.

Close the Competitor Database window and return to the timing tab. The transponder numbers should now be replaced with the names of their owners.

## **Registering New Riders**

If someone purchases a transponder, or shows up at the track with a transponder that is not registering as having an owner (see unidentified transponders), click on the Registration tab.

Under Competitor tasks in the left hand column, click on Show competitor database.

In the window that pops up, under competitor tasks, click on new competitor.

In the competitor settings window that comes up, fill in all the data requested. It does not matter what number you assign. The class should correspond to the person’s racing category as defined by age and gender, which you select from a list by hitting the down arrow. You can leave 2nd transponder, bib, and points blank. Collect their club name and OCA UCI race license number if they have them.

Click on OK.

In the competitor database window, scroll down to the name of the person you just added. You need to drag this name both into the All group and into the registration list for your current session.

If the competitor database window is maximized, mid-size it and position it in the lower left corner of the screen. Shrink it if necessary so you can see the top half and the right half of the registration screen behind it. To shrink a window, mouse over one of its borders, click, and drag. To move a window, mouse over its title bar, away from the x that closes it, and click and drag the title bar.

Under the Select a group or run column in the middle of the registration screen, click on the name of the group you created (not the run). The group has a file folder icon beside it. The run has a clock beside it. You want to click on the group.

Click and drag the name of the competitor you just created from the competitor database window into the middle right hand box of the registration screen.

Under the Select a group or run column in the middle of the registration screen, click on the name of your session. Click and drag the name of the competitor you just created from the competitor database window into the middle right hand box of the registration screen.

Close the competitor database window and click on the timing tab.

## **Creating a new event**

Unless you have specific authorization, you should not be creating new events. Refer to the instructions for setting up new runs instead. Each new event is listed separately on MyLaps, complicating the process for people wanting to look up their results. Our protocol is that all sessions happening in the same month should be listed as different “runs” all happening as part of the same event, named by that month. If you create a new event for your session your results will be deleted from MyLaps.

If you are sure you are entitled to create a new event (e.g., a new month has just started and yours is the first session in the new month), click on the Event Setup tab.

In the left hand column towards the top, click on the down arrow under Select Current Event to verify that an event for this month has not already been created. If it has, mouse over it and then click on it. Then click on the Timing tab and proceed as usual.

If you do need to create a new event, click on Create a new event under Event tasks in the lefthand column.

Fill in the information requested and click next.

Click on the Select system setup that was used at previous events radio button and then click on the down arrow below it.

Click on any of the events listed.

Keep clicking on next and/or finish until the pop-up boxes disappear.

If the event you created is not now listed in the box under Select Current Event in the left hand column, click on the arrow beside on the box, select it from the list, and click on it.

Click on the Registration tab.

Under Group and run tasks in the left hand column, click on Create a new group.

Give the group a name. Click Next.

Create an initial run for the group by filling in the information requested. Click Next.

Click on the Finished creating groups and runs radio button. Click Finish.

Under the Select a group or run column in the middle of the screen, click on the name of the group you created (not the run). The group has a file folder icon beside it. The run has a clock beside it. You want to click on the group.

Under competitor tasks in the left hand column, click on Import competitors.

Click on the copy competitors from database radio button. Click Next.

Click Next again.

Click Finish.

## **Setting up Orbits for Flying Laps**

* For a flying lap competition, create a practice run. (See new runs.)
* Drop the green flag before the first rider gets up on the track.
* Hit the stop sign after the last rider finishes. Click Yes to confirm that you want to end the run.
* Orbits will automatically produce a ranked list of competitors ordered by their fastest lap.

## **Setting up Orbits for Scratch Races, Miss & Out, and Match Sprints**

***Create a race run. (See new runs.)***

* While the riders are going up to the rail, hit the purple flag.
* When the whistle goes to start the race, hit the green flag. At the same time, make a note of the bib number or name of the first rider to cross the line at the start of the first lap.

If necessary, go to the passings window (the middle one) and click on and drag on the green flag so that it is positioned just before the name/number of the first rider to cross the line. This is important if everyone’s laps are to be counted correctly. Positioning the green flag after the first rider will mean that rider doesn’t have a lap counted. Positioning the green flag before a rider who crossed the line ahead of the whistle will mean that rider is credited with an extra lap. Move the flag to the right position!

During a miss and out, watch out for riders who have been eliminated but are continuing to ride around the track. When such a rider passes over the detector, right click on their passing in the passing window and choose the option to delete it.

On the last lap, just before the lead rider crosses the finish line to end the race, click on the checkered flag. Do not click on the stop sign! If you end up putting the checkered flag in the wrong place you can always click and drag it to where it belongs. If you click on the stop sign, no subsequent passings will be registered and you won’t get a complete list of results or be able to move the flag lower down if necessary.

Adjust the checkered flag if necessary. In case of a close finish, the rank order of names and the time of day column will tell you which rider in the group passed the line first.

Well after the race has ended, click the stop sign. Click Yes to confirm that you want to end the run.

Orbits will automatically produce a ranked list of finishers.

## **Setting up and using Orbits for Points races**

***Create a race run. (See new runs.)***

* While the riders are going up to the rail, hit the purple flag.
* When the whistle goes to start the race, hit the green flag. At the same time, make a note of the bib number or name of the first rider to cross the line at the start of the first lap.

If necessary, go to the passings window (the middle one) and click on and drag on the green flag so that it is positioned just before the name/number of the first rider to cross the line. This is important if everyone’s laps are to be counted correctly. Positioning the green after the first rider will mean that rider doesn’t have a lap counted. Positioning the green flag before a rider who crossed the line ahead of the whistle will mean that rider is credited with an extra lap. Move the flag to the right position!

As each sprint for points occurs, drop the checkered flag just before the leader of the pack crosses the line. Check to ensure that the flag is in the right position. If riders have lapped the field, or the leader of the pack was lapped earlier, Orbits will not consider the leader of the pack to be the winner of the sprint. You want the flag just before the name of the actual leader of the pack, not the person Orbits considers to be the winner. Click and drag it to the correct position if necessary. In case of a close finish, the rank order of names in the middle passings screen (not the right hand, results screen) and the time of day column will tell you which rider in the group passed the line first.

Once you have the finish flag correctly positioned, right click on it and delete it. The deleted flag remains on the screen as a marker, showing where the intermediate sprint finish occurred.

On the last lap, just before the lead rider crosses the finish line to end the race, click on the checkered flag. Do not click on the stop sign! If you end up putting the checkered flag in the wrong place you can always click and drag it to where it belongs. If you click on the stop sign, no subsequent passings will be registered and you won’t get a complete list of results or be able to move the flag lower down if necessary.

Adjust the checkered flag if necessary. In case of a close finish, the rank order of names in the middle passings screen (not the right hand, results screen) and the time of day column will tell you which rider in the group passed the line first.

Well after the race has ended, click the stop sign. Click Yes to confirm that you want to end the run. Orbits will not give you accurate results at this point, except in the case where no riders lapped the field.

Either after the race is over or as it is in progress (if you have time), make a written record of points gained on each sprint. Begin by looking at the placings on the middle (timing) screen just after the first deleted checkered flag you put down. Award 1st – 5 points; 2nd – 3 points, 3rd – 2 points, 4th – 1 point. In making these awards, do not consider who is laps up or down. It is only position in the pack that counts. Do also look at the lap count for riders as of the end of each intermediate sprint. Some riders may have gained laps on the field; others may have lost laps on the field. Orbits only reports how many laps a rider may have lost on the winner of the sprint, not on the field. It is a commissaire’s decision where the field is and who is laps up or laps down on the field. For this reason, it is good to make notes as the race progresses on who has been declared laps up or down.

In the absence of declarations, the timer must make this decision. Riders who are laps up as of the end of an intermediate sprint are awarded 20 points for each lap up; riders who are laps down are deducted 20 points. Now go to the marker for the next intermediate sprint and repeat this process. Be careful not to penalize or award riders a second time for laps they may have already been rewarded or penalized for gaining or loosing. A good way to prevent yourself from doing this is to delete all the passings from the green flag down to the marker for the previous sprint. This has the effect of treating everyone as being on even laps as of the end of the previous sprint, so you can easily see who may have gained or lost new laps between one sprint and the next one.

Once you have calculated and totalled points, check whether a points column is present in the right hand, results box. If it isn’t right click anywhere in the box, highlight and click on choose columns, and put a checkmark beside points, which you find in the competitor list. Click close. A points column will be added. (You may need to use the lower scroll bar to see it.).

Starting from the top of the results list in the right hand box, right click on each rider’s name. Mouse down to highlight corrections and penalties and then click on edit selected. Enter points in the box that comes up. For each lap a rider gained on the field, assign a 1 lap penalty (-1) in the laps box and a 20 point award (+20) in the points box. For each lap a rider lost a lap on the field, assign a 1 lap bonus (+1) and a 20 point penalty (-20). Manually add points earned by each rider in their points sprints (1st-5; 2nd-3; 3rd-2; 4th-1). Once you have done this for each rider, you should have a correct results list on the results screen.

## **Using Orbits for a Madison**

Follow the same procedure you would use for a scratch race (see scratch race), with the following modifications:

Before the race starts, ensure that the race number everyone has been assigned in the registration database is identical to their bib number.

As the race continues have an assistant or assistants call out and produce a paper record of the number or name (whichever works best for you) of each rider who passes over the detector loop while riding on relief. (If a team is making an exchange while passing over the loop, just pick one team mate or the other; it doesn’t matter which.) Make sure your assistants aren’t just watching the blue line, but also looking for relief riders on the coté, waiting for racers to pass over them.

As the passing for each relief rider appears on the middle, passings screen, right click on it and delete it.

Finish the race as usual being careful to end it with the checkered flag, not the stop sign, and to move the flag to the right spot.

Hit the stop sign only well after the race is ended. Be sure to have your assistants keep recording the names/numbers of relief riders until you hit the stop sign or you may not get an accurate finish order for the last few teams.

In the passings screen, right click on the name of one of the racers. Select the option to modify the racer’s registration data. Change the racer’s name to their team name.

Now right click on the name of that racer’s partner. Change all of the partner’s registration data, except for the transponder number to make it identical. Click on OK.

Now right click on any occurrence of the team name. Again select the option to modify the registration data. One of the team’s transponders will be listed. Enter the transponder number of the other team member as a 2nd transponder.

Click OK. When the dialogue box comes up asking you if you really want to do this, click OK again.

Repeat this procedure for each team.

Orbits will now generate accurate race results for the Madison.

If there are intermediate sprints during the Madison you will need to record passing numbers (not bib numbers) of the winner of each sprint and go back and generate points as you would during a points race (see points race).

If the Madison is interrupted for intermediate sprints or intermediate miss & out races, it is best to stop the race, start a new run for the sprint or miss & out, and then resume the Madison after the intermediate race ends. You do this by going back to the Madison event you stopped and hitting the green flag, then confirming that you want to restart the race. Be sure to do this as soon as possible, as the Madison might resume with an attack from one of the teams and you will want to have the race restarted before that happens. You can always drag the green flag down if you start too early. There is no remedy for starting late.

## **Publishing Race Results**

Before the race starts, ensure that all riders who register are registered in the Orbits database and that the database contains all the requisite data:

• bib number

• transponder number

• race license number

• first and last name

• team

• category

* Click on the Processing tab.
* In the Select a run or merge column on the middle of the page, click on the run you want to publish.
* Right click in the big box on the lower right.
* Select and click on Choose columns. The column settings dialogue box appears.
* Check off the columns you would like to include on the results.
* Click Close.
* You can reorder columns by clicking on their headers and dragging them to where you want. You can also resize them by clicking on the boundary lines and dragging them.
* Under Publish tasks in the left hand column select click on export results to file.

In the Export pop-up window, click on the Browse button. Navigate to the place where you want to save the file and give the file a name.

Click on the down arrow beside the save as type dialogue box. Selecting .csv will create a file that you can edit in Excel. Selecting .html will create a file that you cannot edit, unless you know how, but that you can put up on the web. If editing is not necessary, the second option is preferable as it gives a nicer, more official-looking result. Protocol for national level events is to generate a separate .pdf file for each race rather than list all races together on one spreadsheet. The results for the different races are accessed from an .html index file, which can be easily generated in Word. Just make a list of all the races, highlight each one, hit ctrl+k, navigate to the name for the .html file for that race, click on it, and click OK. After you have done this for each race, choose the option to save the Word file as a web page.

Click save.

Click the current selected columns radio button.

Click next.

If you wish, choose the option to open the newly created file.

Click finish.

Repeat for each race. Note that publishing intermediate results for points races will require going back and forth between the timing tab and the processing tab. Move to the timing tab to define and produce results for the first section of the race (see points races), then go to the publishing tab to publish. Then move back to the timing tab to define and produce results for the second section, and so on.

## **Downloading Laps to MyLaps**

Click on the Processing tab.

Under Publish tasks in the left hand column, click on Publish results on MyLaps.com.

Click Next in the pop-up window that comes up.

In the Upload Wizard window that comes up, hit the button to deselect all and then check the boxes for the sessions you want to upload (be sure someone has not uploaded them already).

Click Next.

A window comes up informing you that no internet connection is available. Follow the instructions on the screen to save a file to your portable memory device. Once you have done so a new screen informs you how to download the data from your home computer.

## **Getting Help**

Click Help on the menu bar at the top of the Orbits screen.

Click contents.

Navigate to the topic you want to learn about and read up on it.

## **Clock Setup and Programming**

### ***Setup***

Connect the phone cable to the RX jack on the clock (bottom left looking from the back) and the TX jack on the timer (leftmost looking from the back).

Connect the AC adapter cord to either the timer or the clock and plug it in.

### ***Setting the time of day***

Press and hold down the “Clock” button.

Press the Min/Sec button. Turn the dial to select the hour (24 hour clock).

Press the Min/Sec button again. Turn the dial to select the minute

Press the clock button twice (ignore seconds).

### ***Changing the time display***

Press the “Clock” button (do not hold it down). The display time will switch from 24-hour clock to 12 hour clock to min/sec. display (only on the timer), and back to 24-hour clock with repeated presses of the button.

### ***Turning on/off the Beep***

Press and hold down the Mode button.

Turn the dial to “60” to turn the beep off. Turn it to any other number to turn it on.

Press the Mode button again.

#### *Setting the clock to count time up from 00.00*

Hit preset #1 (blue button). 00.00 should show, the Beep light should be off, and the “Up” light should glow. If all these things don’t happen, someone has altered the preset and you will have to follow the instructions below. If they do, just hit “Start/Stop” to begin the timing. Hit “Start/Stop” again to stop timing. Hit “Reset” to set the timer back to 00.00

Note: the clock lags almost a second behind the timer!

***Setting the clock to count time up from 00.00 (alternate method)***

Turn off the beep (see instructions above)

Hit the “Beep Up/Dn” button until the “Up” light glows.

Hit the “Reset” button. If the display does not show “00.00” turn the dial to adjust. Hitting the “Min/Sec’ button will give you the option to adjust the hours, minutes, and seconds with the dial.

Once the display is set to 00.00 hitting “Start/Stop” will begin the timing. Hit “Start/Stop” again to stop timing. Hit “Reset” to set the timer back to 00.00

### ***Setting the clock to count time down***

Turn on the beep (see instructions above) if you want to hear a beep at the end of timing. Note that the clock will keep beeping until someone presses the reset button unless you adjust the beep mode (see below).

Hit the “Beep Up/Dn” button until the “Up” light turns off.

Hit the “Reset” button. If the display does not show the time you want to count down from turn the dial to adjust. Hitting the “Min/Sec’ button will give you the option to adjust the hours, minutes, and seconds with the dial.

Once the display is set to the time you want hitting “Start/Stop” will begin the countdown. Hitting “Start/Stop” again will interrupt the countdown and hitting it again will resume it. Hit “Reset” to set the timer back to the beginning.

### ***Adjusting the beep mode***

Press down and hold the “Start/Stop” button.

Turn the dial to select from the following options:

1. at the end of the count, the beep will keep sounding until someone hits the reset button
2. at the end of the count, the beep will sound once and the “done” light will flash until someone hits the reset button
3. at the end of the count the beep will sound once and the clock will reset and start counting down again
4. at the end of the count the beep will sound once and the clock will start counting up from 00.00 (if counting down) or keep on running (if counting up)

### ***Blue Preset Buttons***

Holding down a preset button will store the current settings in memory so that when the button is pressed again that program will be loaded. I have set the following programs:

1. count up from 00.00. No beep
2. count down from 00.16, beep once, go back to 00.16 and repeat (beep every lap)
3. count down from 10.00, beep once, go back to 10.00 and repeat (for sprints every 10 min.)

**Motor Bike**

Remember to turn the motor bike off after you have used it. Otherwise the batteries will drain. Like car batteries, once drained they will have to be replaced. Plug the bike in and let it charge overnight after use. If at all possible, plug it in and charge it a few hours before use.

The charger is located under the track table. Make sure it is turned on and plugged in.

Check the air pressure in the tires and inflate before use if necessary.

Only those who have had 100’s of hours of track riding experience, including experience doing pace lines on the blue and flying laps under 10 seconds should be allowed to operate the motor bike.

Wear a helmet while riding the motor bike.

If you have not used the bike before, get a few practice laps in while the track is empty. Be sure you can hold a line at 55-60 km/h (just because you can ride the track at 45 does not mean you can hold a line at higher speeds) and that you can maintain a constant speed. Do not attempt to pace others until you are comfortable doing these things.

Begin drills by riding around the blue at 30 km/h. Wait until others have assembled behind you.

Get off the track by accelerating away from the pack, establishing a good distance, dropping down on the apron just ahead of turn 2, and applying the brakes. This should be the only time you ever touch the brakes! Alternatively, wait until everyone is exhausted and has already left the track.

**MOTOR PACED DRILLS**

## **Start Gate**

The start gate and the countdown timer use lead acid batteries. Like car batteries, these batteries must be kept fully charged. Do not leave the gate or the timer turned on! (They are on when the “|” side of the button is pressed down.) Plug them in after each use. Do not unplug them unless you are sure they have been fully charged and that they are not turned on. Plug in at least once a week for a day or so when not in use.

Someone must stand on the start gate whenever a rider is climbing on their bike or getting ready to set off. The gate is not heavy enough to hold a rider on its own.

Use of the start gate is time consuming. Follow these steps to get people through as quickly as possible.

## **Strip Timing**

The timing strips, tape, cables, and handheld timer are in one of the boxes under the track table.

Always check a day or two before use to ensure there is enough tape. Duct tape is only to be used on the concrete. Use masking tape to tape the timing strips to the track, coté, and apron.

Note that the two timing strips are of different lengths. Use the shorter one on the straight at the start/finish line.

Place the strips on the entire length of the track. Any portion of the strip that is off the track is could be pressed by someone walking by or riding around the infield. Since the strips are pressure sensitive, this could confuse the timing result. Keep this in mind when installing the strips. You may need to place cones to divert traffic away from exposed parts of the strips on the concrete. Using the short strip by the start line is particularly important as officials, gatekeepers, coaches, and timers will be walking around in this area.

You will need to use a ladder to set the strip at the 1,000 m and 3,000 m finish lines.

Set up a timing table on the infield before the finish line. The wires are of different lengths. Run wire of the shortest usable length from the timing strip to the timing table. Connect red to red and black to black.

Also run a power cord from an outlet under the track table to the timing table.

Get the handheld timer, A/C adapter, and jumper cables out of the red bag. Use the jumper cables to connect the wires from the strips to the timer. Note that one of the receptacles on the timer is labelled “Start.” Connect the strip from the start line there.

Plug in the A/C adapter and connect it to the timer. Sometimes just plugging the timer in will turn it on.

If it doesn’t turn on and set the timer. Note that the keys are sticky, so repeated presses may be required. To turn on, hold down the Enter key and press the start/stop key while holding Enter down. Wait a few seconds for the machine to warm up.

Your first task it to turn off the printer, which should not be running when there is no paper in the machine.

* Go down to Initialization using the arrow keys.
* Hit Enter.
* Go down to printer.
* Hit Enter.
* Go down to printer (again).
* Hit enter.
* Go down to off.
* Hit enter.
* Now you can get down to business. Hit Esc until you are back at Initialization.
* Go up to Timekeeping.
* Hit Enter.
* Go down to non-lane mode.
* Hit Enter.
* Go down to heat.

At this point hitting Enter will arm the timer. Be sure everyone at the start line is ready and knows not to step on the timing strip. The cyclist should be in the gate or being held, ready to start. Hit Enter. The timer will start with the first press on the start strip, which hopefully will be caused by the cyclist’s front wheel passing over the strip.

At this point, the timer will ignore subsequent hits on the start strip. However, every time the finish strip is hit, it will display a time. Unfortunately, it does this not only when the cyclist’s front wheel goes over the strip, but also when the back wheel goes over the strip. This means that for every passing, the timer will display two times. You may not see these times, but they are stored in the machine. To see each time as it comes up, you need to hit the down arrow. This will scroll down through the list of times as it is created. I do not know how many times the machine will remember. It will, however, remember enough for a 4K time trial (43 passings).

Experience has shown that the best way to keep the lap count accurate is to have someone at the timing table recording each lap time as it comes in. For a 500m time trial, the first time the rider passes the 500m finish line there are 3 laps to go. For a 1K time trial the first time the rider passes the 1K finish line there are 7 laps to go. For a 2K time trial, the first time the rider passes the 2K finish line, there are 14 laps to go. For a 3K, the first time the rider passes the 3K finish line there are 21 laps to go. And for a 4K time trial the first time the rider passes the 4K finish line there are 28 laps to go. Note that you are taking times from passings of the front wheel over the timing strip. This means all the odd numbered passings. So there should be two people, one scrolling down through the list of passings as they appear and reading out the odd numbered ones, and the other one recording the times on a list of laps. For example, in a 2K time trial, the first time the rider passes over the finish line, passing 1 will come up on the screen, giving the time from the start lap to 14 to go. This will be followed by passing 2 for the rear wheel, which you ignore. The next time the rider passes by, passing 3 will come up, giving the time with 13 to go. Again ignore passing 4. Keep going to passing 27, which is gives you the final, cumulative time for the 2K.

If someone steps on the finish line, don’t panic. Just add 1 to the number of each subsequent passing you record as a lap time. Likewise, if an unauthorized bike rides over the strip, add two.

Once the race is over, be sure you have recorded all the data you need. You can still scroll up or down to catch any you might have missed. After the next few steps, that will no longer be possible.

* At the end of the race, hit Esc.
* Go down to reset
* Hit Enter.
* To arm the start strip for the next event, hit enter again

After all the riders are done, shut down the timer by hitting Esc until you are back at Timekeeping

* Go down to off.
* Hit enter.

## **Ladders**

The long extension ladder kept between the rail and the South stands is for use changing infield light bulbs.

The short extension ladder kept between the rail and the North stands is for use repairing the track and mounting timing strips.

There is a short ladder in the hallway just East of the tunnel.

If you cannot find these ladders, you will have to go on an expedition. When you do find them, please return them to their proper place. Do so as well if you come across them by accident.

**APPENDIX A**

**FOREST CITY VELODROME**

**LONDON ON**

**Incident Report**

*Incident Dates and Details:* Time: \_\_\_\_\_\_\_\_\_\_\_\_\_am/pm

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_

*Name and contact information of individual completing this form:*

Name:

Address:

Phone:

Email:

*Names and Contact of individuals involved:*

Name:

Address:

Phone:

Email:

Name:

Address:

Phone:

Email:

Name:

Address:

Phone:

Email:

*Description of incident:*

Actions taken: (did individual receive health care? Ambulance called?)

Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Add appendix b – oca accident report form

Add a page noting the new rule book availability

Add a sponsors/recognition page**CONTACTS**

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