

SMC Curve course

Advice & Guidelines v 3



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About Advice & Guidelines «Curve Course»

This document describes the different ways of training in curve technology, in the context of SMC School's activities.

The document consists of suggestions on how we can use the various exercises described in the basic book. This document does not describe the exercises in depth, only the order in which we deliver it depending on what type of training courses we are running and how much time we have to carry out the course. «Stage Training», preferably on a designated race track and/or when there are plenty of time, or «Thematic training», preferably in shorter courses.

All exercises look the same regardless of location, the difference is the implementation. The practice site works in different ways for different types of exercises. Just the fact that the size of the curves affects the speed also makes the feeling in the motorcycle different depending on where you drive.

The document «Curve Course» is intended to be used regardless of geographical location, race track, large or small kart racing track, airfield or just a large parking place.

The «Basic Book» contains the background and facts related to the SMC School. The «Curve Course» contains the order in which and how we will conduct courses in curve technology.

Everything related to organization and administration is available in the course leader's guide book that can be downloaded from SMC's website.

Step Training

Purpose and Objectives

The purpose of the SMC's motorcycle training is to create a thought process among participants regarding attitude and risk awareness and increase the participants ability to manage their motorcycle in different situations.

The purpose of a multi stage education is to try to attract participants to return to SMC's courses and to give participants a broadened range of courses and course sections. With several natural educational steps, we also get many opportunities to influence the participants attitudes, self-awareness and risk awareness, and to present a well-thought-out structure throughout the educational concept.

Step training shall also give the course leader the freedom to adapt the training to the instructors special skills and the design/lay out of the practice area. The courses will promote quality, creativity and development in the business.

The aim is to create motorcyclists who think and to reduce the number of seriously injured and killed motorcyclists in traffic, in guideline with the SMC's declaration of intent.

Background

Driving a motorcycle is complex and far from all MC drivers are really aware of how they control and steer their bike. Motorcycle driving is a combination of human-machine interaction and the environment where the motorcycle is performing. The environment can be anything from traffic to a race track or off road. For the curve courses we will focus on the environment in traffic and on the motor runway, where the training is preferably located.

This gives a natural breakdown of the first three training steps according to the table below. In order to promote development, we created a «step four» which is individual coaching where we largely adapt the training to the participants own needs, wishes and expectations.

Training steps

1. Motorcycle (Machine)
2. Placement (the road/exercise site)
3. The Rider. (Human behavior)
4. Individual coaching (individual custom-tailored education.)

These educational steps also link to traffic requirements such as risk awareness, self-awareness and attitudes.

Soft values

All exercises begin with conversations and discussions about:

1. Risk awareness, self-awareness and attitudes
2. Potential risk situations
3. Human survival reactions
4. Human physical and mental constraints

Generally

The goal is to give the organizers and instructors a great freedom within the framework of the educational concept. This is to promote creativity and further development of the courses. The courses should also be able to be individualized to suit all kind of riders and also so that the instructor's special skills can be used more easily. The courses should also be able to be adapted to the practice area.

Three exercises are compulsory for each step of education but the organizer is free to supplement these with other exercises. The three compulsory exercises are otherwise sufficient for a whole day if the organizer chooses to work more in depth. The organizer is also free to use any number of riding sessions that he/she find sufficient within the various stages as long as the organizer meets the learning outcomes and the examination requirements for each step of education. It is also free to mix the exercises if necessary, for example, to adapt to different conditions or for safety reasons.

All participants start at Step 1 and the participants are free to go about the same step several times. It is a benefit if the organizer makes a connection to the next step at the end of a course day to reinforce the «Red line» for the students and motivate them to educate further.

Examination requirements are very general and basic to ensure a great freedom both for organizer/instructor and also to meet the participants specific needs and wishes. Common to all steps are that the student actively will participate in the training and show good judgement, both on theory and on the riding sessions. An approved student may move on to the next step.

Theory and Practice

The instructors must press the road safety coupling in the theory parts for the skills exercises. This by starting each pass with any kind of accident statistics, event related to the exercise or just a dossier for a discussion that can then be diverted to the exercise itself.

The theory parts must have clear links to the place of exercise so that the participants fully understand why they should make a certain exercise.

The exercises are organized as follows;

- Theory, with or without presentation material
- Exercises in the practice area
- Feedback

The participants first get a theoretical introduction to the exercise, then practice in the practice area. The exercise ends with a reflection and feedback together with the other participants within the group where the instructors acts as moderators. The plan is intended to start the participants thinking process and to encourage awareness of riding and road safety.

The organizer can with advantage inform the participants that the theories behind this particular riding skills exercises are based on the books «Total control» (Full Kontroll) and «A Twist of the Wrist». The division between theory and practice should be about 50/50 of active time during the course.

To have a backup if someone gets sick, at least two instructors should always be prepared to step in each theory class.

Advice & Guidelines and Full control can be downloaded for free from

<http://www.svmc.se>

A Twist of the Wrist Vol 2 can be ordered from:

<http://www.superbikeschool.co.uk>

or:

<http://www.adlibris.com>

Course Syllabus for Stage Training

Step 1, The Motorcycle

Learning outcomes

In this step, the aim is to give the participants an insight into how the controls affect the motorcycle and how they can use them in the best way to increase safety margins, both in traffic and on a track.

A motorcycle has four controls that may affect the handling; Throttle, handlebars, brakes and clutch.

In step 1, the focus will be on:

- Throttle control
- Counter steering
- Braking in front of a curve.

The practical exercises will be complemented with soft values in the form of discussions on awareness, self-awareness and attitudes.

The goal is to give the driver an understanding of how the controls work and how they affect the motorcycle. Participants shall also be given a reflection on their own risk behavior, self-awareness and attitude.

Try the track

The recommendation is that each new course starts with a «Try the track» pass. First, it is an excellent opportunity to use the first theory session to «start» the group, get the discussions going, get the participants to relax and to reduce stress.

It is also a great way for instructors to get a picture of the participants in the group, see how they behave on their motorcycles and look for attitude and behavioral problems. The main advantage of the pass, however, is that it calms down the stress, especially among beginners. Many cannot listen to the instructors because they are fully focused on the fact that they have to «perform» at the practice site. To ride out on the track and show that it is easy to get around in one piece takes the sting out of the stress. It will also be a good prelude for the rest of the day.

Suggested Traffic connection

Talk about accidents in general and consequences in particular and the purpose of the SMC School and our courses.

Throttle Control 1

Goal

Participants should understand how to handle the throttle in such a way that they don't disturb (upset the bike's handling) the motorcycle. They should remember three things:

- 1) Roll on.
- 2) Roll off.
- 3) Be smooth on the throttle.

Purpose

Give participants an understanding of how different ways of using the throttle affect the dynamics, stability,

suspension and grip. Further, the exercise will give an understanding of how the survival reaction to «shut off the throttle» when the rider becomes unsafe or unsecure actually can contribute to – or de facto – cause a crash.

Practice Description

The instructor leads a discussion with the participants on how the throttle affects the stability of the motorcycle and how important it is that we use the throttle smooth by both rolling on and rolling off without any sudden pullings or jerks that interferes with the bike's balance – and above all the driver's balance.

Important to talk about Survival Reaction 1, that you shut the throttle when you get scared.

Suggested Traffic connection

Start the exercise by asking participants about the most common fatal accident for motorcycle riders. Talk about curves on a road where the speed limit is 70 km/h. Let the discussion on speed lead in to how to control your bike with the gas and build on with practicing throttle control.

Practice Tips

Let the participants try to run a lap with «clumsy» throttle control, turn it on and off quickly, both on the straights and in turns. The rest of the pass they get to work with smooth throttle. The task is to analyze how the motorcycle is affected and how the rider is affected. After the pass they get to explain what they learned.

Throttle Control 2

Goal

Participants should be able to understand **when** and **why** to go on gas in a curve. They shall be able to have the two basic rules:

Rule number one is: I do not start throttling until I have turned in, reached the right lean angle, the suspension has settled and above all, **I see where I'm going to go.**

Rule number two is: that **once I start to roll on the throttle, the throttle should be rolled on, evenly, smoothly and constantly throughout the remaining of the turn.**

Purpose

Participants should gain an understanding of how the use of throttle in curves influences the turn entry (by setting the right entry speed), apex (placement mid corner) and turn exit. The exercise will give an understanding of how the survival reaction of «shutting the throttle» can contribute to, or even cause a crash.

Practice Description

The instructor leads a discussion with the participants about when to start rolling on throttle after turning and how this choice affects how the motorcycle behaves in the turn and where you exit the turn. Talk about how a sudden or abrupt closing of the throttle affects the motorcycle and consequently the driver.

Suggested Traffic connection

Continue the discussion from Throttle Control 1 and build on accidents in curves, talk about how Survival Reaction 1 may come into play when you become insecure, when the throttle is turned off, the motorcycle straightens up, becomes unstable and the driver becomes even more uncertain and may stiffen up on the bike (Survival Reaction 2). Also discuss how all the other Survival Reactions might «take over» if you do not perform the right task at the right time.

Practice Tips

During the two or three initial laps let the participants test consequences of going on gas excessively early and excessively late. In the rest of the riding pass let the students seek for the «optimal» point. What they find and/or is a good starting point for a discussion during post-workout feedback.

Counter Steering

Goal

The goal of the exercise is to give the participants an understanding of what counter steering is, and how it can be applied and used.

Purpose

The exercise shall give participants an insight into how a motorcycle turns and that in many cases it may be better to counter steer than to apply breaks in a hazardous situation. They should also understand the difference between active (aware) and passive counter steering.

Practice Description

The instructor leads a discussion with the participants on how counter steering works and how and why the motorcycle turns in a curve. The instructor also highlights the advantages the rider has when being able to turn in quickly.

Suggested Traffic connection

Ask participants about their own experiences where a quick change of course was important. If anyone avoided accidents, motorists, potholes or other obstacles along the way. If no one has experience with this, the instructor should the discussion and tell about things that happened where a quick change of course solved the problem or was desirable. Counter Steering might be easy to perform when the rider has a lot of time, but can be very difficult to perform when the rider doesn't have that amount of time and Survival Reaction 2 occurs. (The rider stiffens up and prevents effective maneuvering).

Practice Tips

Participants are allowed to practice counter steering with one hand on the handlebars to make them aware that they are already using it. This they can do the first lap. After that they go back to a normal riding position with both hands on the handlebars and train effective counter steering.

Braking ahead of a curve

Goal

Increase the rider's ability to slow down the motorcycle in a fast and safe way to achieve **the right corner entry speed for a curve.**

Purpose

Participants should understand the difference between the front and rear brake, the advantage of having the gyro effect from the rear wheel if the front wheel locks up. The students should also understand the basics of a good seating position under braking, how to use their eyes as a tool for steady braking and the initial application of brakes. They should also know about how ABS and combi brakes work, and that these systems also require a good braking technique to be fully functional.

Practice Description

The instructor is physically illustrating, as well as leading a discussion with the participants, about his body position, gaze and the initial application of brakes before a turn. It is important to talk about stability in order to reduce the risk of survival reactions. Talk about relaxation and how Survival Reaction 2 (the driver stiffens) affects everything negatively.

Suggested Traffic connection

The discussion should be guided so that the participants themselves can tell how difficult it is to slow down and that we do not train enough on this important skill. Let the participants talk about an event or anecdote related to the subject and guide the discussion towards body position, a solid «anchoring» (lock in) on the motorcycle and the importance of stability. Connect this to Survival Reaction 1 and the throttle control exercises, and talk about how survival reactions take effect and how they affect us as riders.

Ask about how much time the participants need to prepare themselves to make a good deceleration and ask about how they'll go about to create that time. Also mention the other survival reactions so the participants become accustomed to hear about how it and how it works and how closely connected this is to riding a motorcycle.

Practice Tips

Because we have problems calculating the correct entry speed into curves and have a history of accidents caused by this same problem, the proposal for the exercise is to run the entire pass on one to two gears and not to use brakes at all. We run the rest of the day with the brakes, but by doing this we get the participants to think about what the purpose of braking really is; namely to adjust speed into a curve.

Brake in Curve

Goal

Increase the rider's ability to brake the motorcycle in an efficient and safe way when he or she are in a turn at a lean angle.

Purpose

Many accidents occur when riders don't dare to apply brakes in a turn because he or she does not believe it is possible. The purpose of this exercise is to show that with the right technique brakes can be applied safely and effective even if the bike is at lean angle, and to give participants the opportunity to practice this.

Practice Description

In a curve it is not recommended to use the rear brake because of the high risk for a rear wheel slide. When you brake with the front brake in a curve, the bike will try to stand up, it becomes more «heavy» to steer and wants to go straight instead of following the curve. To keep the line you must therefore continuously counter steer at the same time. It is worth mentioning that when you come down to lower speed, you should lighten the pressure on the handlebar moment before releasing the brake, otherwise the risk of a crash is imminent. Talk again about relaxation and how Survival Reaction (SR)2 (rider stiffens) affects everything negative.

Suggested Traffic connection

Talk about how common it is that accidents occur when the rider does not dare to slow down/brake with a lean angle that many accidents begins as a single accident that becomes a meeting accident because we do not dare to brake in a curve.

Practice Tips

Find a curve you know well on the practice site, preferably a large and flat curve. Choose a comfortable speed so you have good traction and large margins. Brake gently with the front brake. Note that the bike tries to raise up and go straight ahead when braking. It becomes heavier on the handle bars and thus turns reluctantly. Once you familiarize yourself with this reaction you can practice to counteract the rising tendency by simultaneously counter steer to get the bike to follow the curve. Practice until you feel familiar with balancing the rising tendency with increased pressure on the handlebars. You will get good control when braking in the curve when find the right balance between brake pressure and counter steering so that the bike both brakes and steers while in balance. This is the best way to make a controlled deceleration in a turn.

Checklist Step 1, the motorcycle

Approval requirements for next steps

The participant shall;

1. Actively participate in the education
2. Have shown good judgement both in theory class and in practice

The participant must understand;

1. Throttle control
 - A. The importance of rolling on, rolling off and being gentle on the gas.
 - B. What the benefits are to start rolling on throttle early in a curve.
2. Counter steering
 - A. What counter steering is, and how we can use it.
 - B. What the advantages are of being able to turn quickly with precision.
3. Brake
 - A. What a good insertion of the brake is, as well as the benefits of this.
 - B. How to anchor on the motorcycle in the event of a hard braking and why.
 - C. How to use your eyes, and why.
 - D. How to distribute the braking action between the front and rear wheels and understanding the gyro forces positive impact on stability when breaking hard.

Step 2, The Road

Learning outcomes

In this step, the aim for participants are to learn how to utilize the road and adapt their driving techniques to the existing conditions. It is important to give participants an understanding on how they can use the road (the environment in which they ride) optimally in order to increase their safety margins. The aim is also for the participants to have a solid insight into how they can deliberately use their vision to better plan their journey, as well as the advantages and disadvantages using body weight to balance and control the motorcycle.

The practical exercises are sprinkled with soft values in the form of interactive discussions about potential risk situations in traffic.

The aim is to give participants an understanding of how an early and a late turn in point directly controls their location in the remaining part of the curve and at the turn exit and how this affects their margins in traffic. They should also understand how the turn in point is connected to the throttle control.

The goal is also to get an understanding of how they can detect hazards in time and plan their journey better, through consciously use their vision. Participants shall also be aware of potential risk situations in traffic.

Look 1: Lift your vision

Goal

The aim of the exercise is to make the participants look further ahead and actively use their vision to plan their riding.

Purpose

Participants shall increase their understanding and ability to detect and avoid incidents and accidents in advance. This is achieved with the help of actively looking further ahead.

Practice Description

The instructor leads a discussion with the participants, about what the benefits are of raising your head and looking further ahead and how they can use this to plan their riding. The participants are given the task of exercising this.

Suggested Traffic connection

Most accidents are due to too high speed in relation to the surrounding traffic. Many accidents occur due to

bravado/overestimating own ability in combination with poor utilizing of vision. We also find it difficult to judge speed and we become easily speed blind. All these factors create poor planning.

Talk about vision related Survival Reactions and how the brain filters what it sees according to the rules that it prefers what is large, moving and dangerous before small, slow and harmless objects.

Also, talk about the fact that we sometimes try to look too far away, we collect more information than we really need. This steal focus from what we are going to do right now.

The important thing is that we plan the near future, the upcoming turn, the curve we find ourselves in, the curve after it and maybe some more. Also, if, in that situation, I can see even further ahead, that information will only interfere with my planning. Ask the question about what is the best information right now, at this moment?

Practice Tips

The «Glove Drill». Put a glove a few meters in front of the participants and ask them to look at the glove. Objects that are beyond the glove is not seen or very blurry. If you look far away you can see both distant and near objects, such as the glove.

Look 2: Active vision control

Goal

The aim of the exercise is to get participants to use their vision to «look into the future» and understand how they can control the motorcycle with the help of good vision control.

Purpose

Participants shall increase their understanding and ability to use active vision control to position the motorcycle, anticipate where they will be a few seconds into the future and avoid falling into the trap of Survival Reactions.

Practice Description

The instructor leads a discussion with the participants about how they can use active vision control and use it to position their motorcycle and where, when and how to turn to ride a curve in an efficient and safe way. The participants are given the task of exercising this.

Suggested Traffic connection

Continue the discussion from the previous practise. Talk about how easy we look at dangerous things, lock our vision on those dangers and thereby also steers straight to it. Ask participants about experienced events that can be linked to how we use vision in an incorrect way.

Practice Tips

«The bottle exercise». Build a large square (4-5m side) of bottles or cones. Let the participants walk around with their eyes locked on each bottle/cone. When they turn around a bottle, they should keep their eyes on that bottle after they have turned. Do the same exercise once more, but let the participants run around the square instead. Point out how their position in each turn varies quite a lot and that they are never in the same place in the turns.

Now they have to do the same exercise a third time but now they should move the eyes to the next turn (bottle or cone) one meter before they turn so they always see where they are going. Now point out how they place themselves exactly in the same position in the same turn in every turn and that the accuracy is higher if you use your eyes correctly.

When they ride on the track, they get to do the same exercise on the motorcycle.

Turn point

Goal

Give participants an understanding and opportunity to reflect on what is the difference between early and late turn in point, and the consequences of this entering and exiting curves.

Purpose

Participants should be given an insight into why drivers tend to choose an early turn in point when, for example, they feel they enter a curve too fast. The aim is also to give participants an understanding that a late turn in point makes them have a better oversight of the curve and also makes the rider more visible for oncoming traffic. And that this also provides better margins at the end of the curve.

Practice Description

The instructors will conduct a discussion with the participants on how an early the turn point, and then

a late turn point affects the rest of the curve. Focus on the benefits of seeing more earlier and get seen easier by oncoming traffic in a curve if they have a late turn point, and that they get better margins at the end of the curve.

Also connect the turn point with the previous exercise, vision control, about how we affect the accuracy of where we exit a curve by planning where to turn in, and how vision control should be used to get this to work.

Suggested Traffic connection

Talk about that most of the meeting accidents take place in curves and how easy the single accident becomes a meeting accident. Discuss the fact that in 8 of 10 meeting accidents the motorcycle are on the wrong side of the road.

Practice Tips

The task of the participants is to test the extremely early and extremely late turning point during 2 laps and reflect on how it affects their lines and margins at the exit point. In the rest of the pass they may try to find optimal turn points for different curves and curve combinations.

Riding position

Goal

Give participants an understanding of how they can use body movement to control the motorcycle and provide better traction and stability through a curve.

Purpose

Give participants an understanding and sense of how much body weight affects the motorbike, especially in and out of a curve.

The aim is also to get participants to understand how much it impairs the rider's ability to make a evasive action if the rider has misused body movements.

Practice Description

The instructor illustrates and leads a discussion with the participants about how body movements before and in a curve affects the motorcycle and its advantages and disadvantages in traffic, and the importance of always to anchor the lower body in the bike when moving. Point out and illustrate the importance of always doing body movements when the bike is stable; meaning BEFORE braking, BEFORE turning in etc.

Suggested Traffic connection

Talk about Survival Reactions, how we tend to be stiffen and how it prevents the motorcycle to keep the balance and move steadily on the road. Also discuss how body movement can be used on different types of motorcycles and how important it is to get to know their own bike fully.

Practice Tips

Let participants try large and small body movements and learn to feel how just a slight movement of weight influences the turning and stability in a turn. Let them also try to move by pulling the handlebars and how it affects stability.

Step 2, placement

Approval requirements for next step

Look

Theory and Practice

1. Lift your vision/eyes
2. Active Vision Control

Approval Requirements Glance

The participant must **understand**;

1. Why it is advantageous to lift your eyes and look far ahead
2. What active vision control is, and be able to explain how they can use it in traffic

Turn point

Theory and Practice

1. Early Turning Point
2. Late Turning Point

Approval Turn point

The participant must have an understanding about;

1. What early and late turn point is and its advantages and disadvantages
2. Why riders tend to turn in early and pull toward the inside of a curve when they feel unsafe

Driving position

Theory and Practice

1. Anchoring
2. Body movement

Approval driving position

The participant must understand;

1. What are the advantages and disadvantages of large-scale body movements when riding a motorcycle
2. How they can actively use body movements.

Step 3, The Rider

Learning outcomes

In this step, the aim for the participant are to gain an understanding of how they can use their minds more actively in their motorcycle riding. Focus will be on feeling (relaxed driving position), vision (wide view) and how the brain is acting intuitive (survival reactions), after a predetermined pattern when the driver gets into a stressed or constricted situation. These indirect reactions can in many cases impair our ability to cope with a risk situation.

The practical exercises are complemented by soft values in the form of deeper interactive discussions regarding human survival reactions and what we can do to counteract them.

The goal is to give participants an understanding of how their minds, feelings and vision, and brain makes us lose concentration and act wrong in stressed and constricted situations. The aim is also to give the participants a reflection on how their minds perceive and interpret the outside world. The rider should also gain knowledge of the importance of having a relaxed riding position to get the feeling for what the motorcycle does.

Relaxed driving position

Goal

The goal is to give the participant an understanding of the importance of having a relaxed riding position

Purpose

To get the motorcycle stable, which makes the rider calm, does not get tired as fast and gets a better feeling for how the motorcycle behaves.

Practice Description

The instructor leads a discussion with the participants on what the benefits are with a relaxed riding position and the benefits of this on both short and long journeys.

The participants are tasked with training on riding with a relaxed driving position.

Suggested Traffic connection

Continue discussions about the various Survival Reactions, especially those that allow a rigid rider (SR2) to prevent the motorcycle from placing it self where the driver wants to be.

In a turn you will also be easily worried by several different causes, such as a slide, that the bike is leaned over, you see a meeting car or other unforeseen events, and driving too fast for your own ability and stress limits.

Practice Tips

Participants practice holding the handlebars with the thumb and two fingers while shaking lightly on the forearms to ensure that they are relaxed in shoulders, arms and hands. Immediately after the workout, they should check heart rate and breath. High pulse and sweating suggest that you have not been relaxed.

Wide View

Goal

The goal is to give the participant an understanding of what target fixation is, and how they can counteract target fixing in stressed and constricted situations. Participants will also gain an understanding of how they can use peripheral and focus-vision more actively to detect hazards, both in the traffic environment and on the race track.

Practice Description

The instructor leads a discussion with the participants about the target fixation and what it means in real life situations. It also discusses how participants actively can work with wide view to avoid being hit by tunnel vision and target fixation.

Participants are given the task of practicing wide view and reflect on how much they can use peripheral and focused vision actively in their riding.

Suggested Traffic connection

Ask how the participants work with their eyes when riding in traffic, how it feels when they come to a traffic situation, if it feels stressful when many things happen at the same time. Discuss how consciousness can be used by moving focus instead of eyes/vision.

Inform about how different situations in traffic have different difficulty levels. Riding a race track is very easy as everybody rides in the same direction, there are no obstacles and the situation is at all time expected.

On the other hand: If you come to a junction with a lot of traffic, many signs, many rules and a lot of stress, that is a more difficult situation. The difficulty rating is thus higher.

Practice Tips

Let participants ride around the track and discover things, count something, cones, trash bins, phone booths or what's on hand. They should practice using vision for the actual riding but at the same time move as much of attention as possible to the surroundings.

Survival Reactions

Goal

Throughout the course we have talked about Survival Reactions (SR). The goal of this pass is to give the participant an even deeper, practical understanding on how the survival reactions are linked to; Throttle control, Counter Steering, Braking entering a curve and Vision.

Purpose

Reconnect to steps 1 and 2 and the exercises Throttle control, Counter Steering, braking before turn entry, vision drills and riding position to clarify the importance of knowledge and counteraction Survival Reactions in all forms of driving with vehicles.

Practice Description

For the participants to have a theoretical background, the organizer must ensure that there is time to talk about soft values in the form of human survival reactions.

For the practical exercise, the instructor shall conduct a discussion with the participants on how Survival reactions are linked to the exercises gas control, counter steering, brake and vision, and how these Survival Reactions complicates the rider's ability to cope with a stressed or constricted situation.

Suggested Traffic connection

This whole exercise should be connected to traffic situations. The only drawback is that we probably are on a race track of some kind and it might be difficult to connect to traffic situations when riding on smooth tarmac, everybody riding in the same direction, curves are smooth with painted curbs. We need to connect the practice site to the street and lead the discussions into Survival Reactions and how these exercises affect how we deal with traffic.

Practice Tips

Participants are allowed to practice putting together throttle control, counter steering, braking before turn entry and vision to a whole, and at the same time reflect on how the survival reactions affect them in their riding and whether they have knowledge and behaviors to counteract these.

Survival reactions listed in chronological order;

1. Shut the throttle
2. Hold tightly in handlebars
3. Shrinking field of view
4. Target fixation
5. Steering against what you are fixated on
6. Do not control or steer too slowly
7. Brakes too much or too little

Throttle Control

To prevent the rider from shutting the throttle (SR1), we have created the conditions for opening the throttle as early as possible, and to this we have worked with active vision control and wide view for the rider to be able to plan their journey and to not encounter surprises that create stress.

Counter Steer

To prevent the rider from holding too tightly in the handlebars (SR2), we have created conditions for relaxed riding position. In the exercise counter steering participants have learned the technology and the benefits of being able to turn in quickly which prevents riders from not steering at all or steering too little (SR6).

To prevent the rider from steering onto the target for his fixation (SR5), participants have practiced wide view to increase their margins to prevent target fixation. Participants have been taught to only counter steer once per curve to counteract unnecessary steering inputs that can affect traction and stability.

Braking before turn entry

Participants has also been practicing braking before turn entry to understand how much time they need to anchor themselves on the motor-cycle, apply the brakes and use visual skills to increase the possibility of not braking too much or too little (SR7)

Vision

The participant has been given a tool in active vision control and wide view to counteract tunnel field of view (SR 3), Target fixation (SR4) and that the rider steers for what he/she is fixated on (SR5).

Approval for next steps

The participant **shall**;

1. Actively participated in continuing education
2. Have shown good judgement, both in theory class and in practice class.

The participant should **understand**;

1. Relaxed riding position
 - A. What are the advantages of relaxed driving position
 - B. How they can deliberately use it in traffic and on the race track
2. Wide View
 - A. What target fixation is, and when it occurs
 - B. How they can work with wide view and its benefits
3. Survival reactions
 - A. How they react in a stressed or unforeseen situation with
 1. Throttle
 2. Counter Steering (Steering)
 3. Brake ahead of curve
 4. Vision

The participant must have knowledge of what the human survival reactions are and what usually triggers them, and that they usually impair the rider's ability to cope with the situation.

Step 4, individual coaching

Learning outcomes

In this step, the aim is for the participants themselves to identify their weaknesses and develop a study plan for the course in collaboration with his or hers instructor. The focus will be on the individual and level customized rider development where the instructor acts as a coach to the participant. The aim of stage four is also to promote a high quality and a lifelong development as bikers. Participants should be able to go step four several times and feel that each time they develop as individuals and riders.

In addition to individually tailored exercises, the instructor shall carry out an individualized discussion about risk awareness, self-awareness and attitudes with the participants.

The goal is to give participants an understanding that they are responsible for their development as individuals to be safer and more risk aware bikers. The training must be strongly tailored for each individual and level customized, where the participant himself develop their syllabus in consultation with the instructor. The aim is for participants to feel that they can control the training according to their own preferences to promote a continuous rider development, ie the driver can go step Four several times and still feel that he continues to evolve.

However, there is a limit to the number of step 4 that the participant should do. We should start talking at an early stage about Step 5 (license training) and step 6 (Track day riding and training to race).

When the participant have completed Step 4 a few times, and above all participants that we noticeably see that they use step 4 as a disguised training to ride fast, we should ask them to take the license and start exercising for real.

Individual exercises

Learning outcomes

The aim is to give the participant an understanding that they themselves must take responsibility for their training and that the instructor will be available as a coach and advisor to promote continuous development and quality in the education. The goal is also to tie together all the exercises they have done in the previous steps.

Purpose

Give participants an understanding of and create a reflection on their own approach to risk awareness, self-knowledge and attitude.

Practice Description

The participant is given the task of identifying what their training needs are and then develop a syllabus for the day together with the instructor. The participant shall justify why their choice of exercises makes them more skilled and safer bikers. The instructor has a discussion about the participant's exercise before every training sessions, as well as a reflection and feedback after the session.

Suggested Traffic connection

Reconnect to the previous steps in discussions, talk about the fundamental exercises as throttle control, counter steering and look and reconnect all that the participant has done in the past. Repeat a lot and often. The participant has also been riding pretty much since they did Step 1 and have acquired a lot of experiences. Let them talk about these experiences and tie together events with different exercises.

Tips for the exercise

The instructor can work as an «off track» instructor during some of the training sessions. i.e. he walks to an interesting section of the practice area to get a different perspective on how participants run and to be able to provide constructive feedback. The instructor must ensure that there are other instructors who can cover the safety of the course, should an accident occur.

Proposals for discussion issues;

- Is it possible to plan your riding in the same way in traffic as at the practice site?
- How do I read the traffic? Do I look straight ahead, or do I see what is happening around the road?
- How far ahead in the traffic do I watch? Do I attach my eyes to the car in front of or far forward to create a larger Safety Zone for me, if it would be necessary to make a deceleration?
- How do I choose my location in traffic?
- What are the risks I am prepared to take in traffic versus on the practice site?
- What does it mean to have oncoming traffic on and off the road compared to the practice site and what do I need to take into account?
- Do I have any control over what other road users can do on the public road or at the practice site?

Approval requirements after completion of stage training

The participant **shall**;

1. Actively participated in continuing education
2. Have shown good judgement, both in theory class and in riding

The participant should **understand**;

1. That they are responsible for their own development
2. The exercises they performed from Steps 1 to 4

The participant shall also **have knowledge** of and reflect on his own values of risk awareness, self-knowledge and attitudes.

Alternative to step training

Within the SMC school framework, we have many different exercises for both asphalt and gravel. All these exercises are puzzle pieces to build a whole in a well-trained motorcyclist. It is important that we understand that it is precisely the whole and the combination between these exercises that make it a difference.

We have a number of exercises that are about skills and we have a number of exercises dealing with reflection, human behavior and limitations of the rider. It is important that we understand the purpose of every single exercise and that we learn what the exercise does and what it creates with the participant. The purpose of learning this is that we can then be creative and mix the exercises in a way that suits that particular situation and the course that we are about to present.

When we have a full day or even several days in a row on a race track, usually the traditional Step training is most suited. It is designed specifically for this type of practice site where you can use the speed to get to know how the motorcycle reacts when the mass forces are at play. Exercises such as counter steering and «clumsy throttle control», with abrupt rejection in long curves, is best suited when we have a little higher speed. The main tracks usually bring with them a little longer travel times for the participants and then it is good to have a lot of track time to give participants «bang for the buck» and value for travel time and costs.

If we are on a small track, kart racing or a large parking lot where the course usually is a bit shorter, maybe only two to four hours, and the participants are close to there, we can vary the type of exercises we want to run to tailor such a course. Then we can build a course on a theme instead of specific steps.

KNIX Course

Runs on a small, twisty (knixy means twisty/cumbersome in Swedish) course/practice site where speeds are relatively low but as it turns all the time it becomes physically hard.

At KNIX, the passes are shorter precisely because the participants are quickly tired and the more tired they are, the greater the risk of an accident. If you have a big and heavy motorcycle it is hard to lever around it in tight turns – and this we have to think about when we design and decide the exercises for the course.

The point of a theme training is that there is no template, we can adapt it to the conditions. We can e.g. run parts of the step training but splitting the steps into shorter pieces over several days – or we can have a theme eve-

ning with, for example, only throttle control or eye exercises, depending on what suits best.

Let your imagination run wild but learn the exercises properly, how the exercise affects the driver's attitude and how the consequences of the exercise will be used in traffic.

Suggestion Theme: Throttle control, time: 3h

Goal

Participants should understand how to handle the throttle so as not to interfere with the motorcycle, to remember to roll on, roll off, roll gently, be smooth on the bike. Participants should also understand where to roll on the throttle after turning.

Purpose

Give participants an understanding on how different ways of using the throttle affect the dynamics, stability, suspension and traction. Further, the exercise will give an understanding of how the survival reaction to «shut off the throttle» when they feel unsafe may contribute to, or even cause a crash.

Practice Description

The instructor leads a discussion with the participants on how the throttle affects the stability of the motorcycle and how important it is that we use the throttle gently, smoothly by both rolling on and rolling off without any sudden or abrupt twitches that interferes with the bike and riders balance.

Important to talk about Survival Reactions, such as shutting off the throttle when you get scared.

In three hours we also have three exercises. Start by a «test run» on the course to control how everybody rides, attitudes and behaviors. Then run two sessions with throttle control with varying degrees of difficulty. With experienced participants you can instead run a third session throttle control to hone everything.

Suggested Traffic connection

Ask the participants about the most common accidents for motorcyclists. Talk about curves at 70 km/h-road and speed. Let the discussion about speed lead into how you control the bike with good throttle control and build on that with throttle control exercise. If the day is filled with recurring, experienced riders you can do a deeper discussion about how it feels with a «near crash» experience, or how it actually feels lying in the ditch. Use the participants' own experiences and let them share.

Practice Tips

Let the participants run a lap with «clumsy» throttle control, turn it on and off quickly, both on the straights and in curves. The rest of the session they get to work with soft throttle. Let them analyze how the bike and rider is affected. For session two their task is to reflect on where to roll on throttle after turning in.

Suggestions Theme: View/Look, time 3h

Goal

The aim of the exercise is to lift your eyes (look further ahead) and deliberately use it to control the motorcycle and to plan your riding.

Purpose

Participants shall increase their understanding and ability to detect and avoid incidents and accidents and understand that they are steering the bike with good use of vision.

Practice Description

Session 1: Start by a «test run» on the course to control how everybody rides, attitudes and behaviors.

Session 2: The instructor leads a discussion with the participants about what the benefits can be of looking further ahead and how they can use this to plan their riding.

Session 3: The instructor leads a discussion with the participants about the benefits of **“look where to go”** and how they can use this to control where the motorcycle are heading. Also, connect this to the opposite, i.e. **“target fixation”** (don't look where you don't want to go).

With experienced/known participants you can change your Session 1 to an additional vision exercise.

Suggested Traffic connection

Most accidents are due to too high speed in relation to the surrounding traffic. Accidents occur due to bravado in combination with poor use of the rider's vision. Most people find it difficult to assess speed and we are easily going speed blind.

Talk about vision related Survival Reactions and how the brain filters what it sees according to the rules that it prefers what is large, moving and dangerous before small, slow and harmless objects. Also talk about how difficult it is to assess speed and distance the faster we ride.

Practice Tips

«The Glove Exercise», «Run the Bottle», «Ride with your eyes attached a few meters in front of the motorcycle» (Details on these exercises will be found in section on Step Education).

Suggestion Theme: «Small» Step training 4h

Some districts run a little longer KNIX courses of 4h or more, e.g. a weekend on a kart course. Then you have time to do some extra sessions and will be able to vary more.

A thought when we have some more sessions is not to lock yourself only to the traditional exercises. Why not go outside tarmac? Placing a brake exercise on a gravel road is an excellent opportunity to teach new pedagogical ways for participants to get into the sense of how it feels when they lose grip or that the ABS system intervenes, and that you have to work with relaxation and anchoring.

Another example of flexibility is a district that had a course with only participants from a Custom bike club. Already at the first session the instructors noticed how the motorcycles started to touch the tarmac in the curves and the risk of crashes increased significantly. For safety reasons, the Instructor team decided to add an exercise in good riding position, and how to move on the motorcycle to increase ground clearance already in session two. The point is that the district, the course leader and the instructors together decide which exercises fit participants, time, place and occasion. Think freely outside the box and be flexible and above all have fun so that the participants want to come back to learn more.

Practice Schedule Example

Here are some examples on how to mix some exercises. We have several course days but spread over several weeks or even a season, we can also spread the exercises as a simpler step training.

KNIX Day 1

Session 1: Feel the track

Facts: Talk about accidents in general and consequences in particular and the aim of the SMC School.

Session 2: Throttle control, roll on and off, smooth motion, do not disturb the bike.

Practice: Harsh roll off.

Facts: Talk about single accident, curves at 70km/h roads, too high speed.

Session 3: How to anchor yourself on the bike before braking. Show on different types of bikes.

Practice: Switch between poor and good anchoring for hard braking.

Facts: The driver is unable to stop in time. Too high speed combined with poor riding/braking technique and lack of space.

Session 4: See further ahead, lift your vision, «The glove drill».

Practice: Look one meter in front of the motorcycle.

Facts: Many accidents are due to too high a speed in relation to the surrounding traffic. Many accidents occur due to bravado in combination with poor vision skills. We generally find it difficult to assess speed.

Talk about Survival Reactions, that we tend to look too close to the bike and fixed vision.

KNIX Day 2

Session 1: Try the course. Repeat KNIX 1 for those who were in. Talk about throttle control, where to roll on throttle and how to roll on throttle.

Practice: Jerky and smooth throttle control, late and early on the throttle

Facts: Talk about Survival Reactions, how we stiffen on the bike when getting scared.

Session 2: Vision steering. «Run the bottle».

Practice: «Run the Bottle», hold on to the turn point with your eyes after passing it.

Facts: In 8 out of 10 meeting accidents, motorcycles are in the wrong lane.

Session 3: Placement/lines, where do you want to be, «SMC-turn».

Practice: Late and early turning point.

Fact: Most of the meeting accidents take place in curves. For high speed, the driver stiffens (SR2), cannot turn, you go into oncoming lanes instead and meet oncoming traffic.

Session 4: Multi step vision. Repeat «The bottle» but let your vision «flow» in front of you from bottle to bottle Talk about reaction distance + braking distance + the fact that most of us are not as good at braking as we like to think.

Practice: Drive by actively exaggerating with your vision and put all focus on finding turn point, the center of the curve, the exit of a curve etc the entire session.

Facts: Crossing accidents. The car driver is faulty but the motorcyclist is driving too fast.

Car drivers at an intersection are looking for the speed that applies on the road which makes bikes driving too fast indirectly «helps» to create misunderstandings which in turn may create an accident.

Basic rule in traffic: Show consideration! This means; take into consideration other people's mistakes.

KNIX Day 3

Session 1: Rep KNIX 1 and 2. Throttle control, forward planning, where do you roll on throttle?

Practicing: Jerky and smooth throttle control, late and early on the throttle.

Facts: Talk about accidents in general, consequences in particular and the objective with SMC School. Repeat from KNIX 2 and single accident/meeting accident

Session 2: Active riding position. Use body movements to help the bike. Show this on different types of motorcycles.

Practice: Ride stiff and with excessive movement. Check breathing and heart rate.

Facts: All bike models do not fit all bike riders, which may limit maneuverability. Set the riding position/suspension and adjust the bike to fit the rider – if possible.

Session 3: Vision exercises. Repeat «The glove drill» and target fixation.

Practice: Stare/look one meter in front of bike during two laps

Facts: Too high speed into a curve, target fixing on the roadside where you will run off. If you meet a car this «fix» will change from roadside to car and a single accident becomes a meeting accident.

Session 4: Round Up. Connect the dots with eyes and throttle control.

Practice: One hand on the handlebars during two laps.

Facts: You have to train on riding your vehicle so that you can do things you normally don't dare.

Talk about risk assessment, how to create consequences for the surroundings and for your fellow riders. If time and opportunity talk about equipment, helmets, gloves, boots, body protection.

This is a book that supplements «The advice & guideline basics book». The book on «Curve Training» is a collection volume so you as an instructor should be able to do a plan of a course or just get suggestions for different exercises. The document is also a «quick check» on e.g. the next exercise or if you just want to remember a tip on what to talk to the participants about.

All the facts about and around the exercises can be found in the basic book.