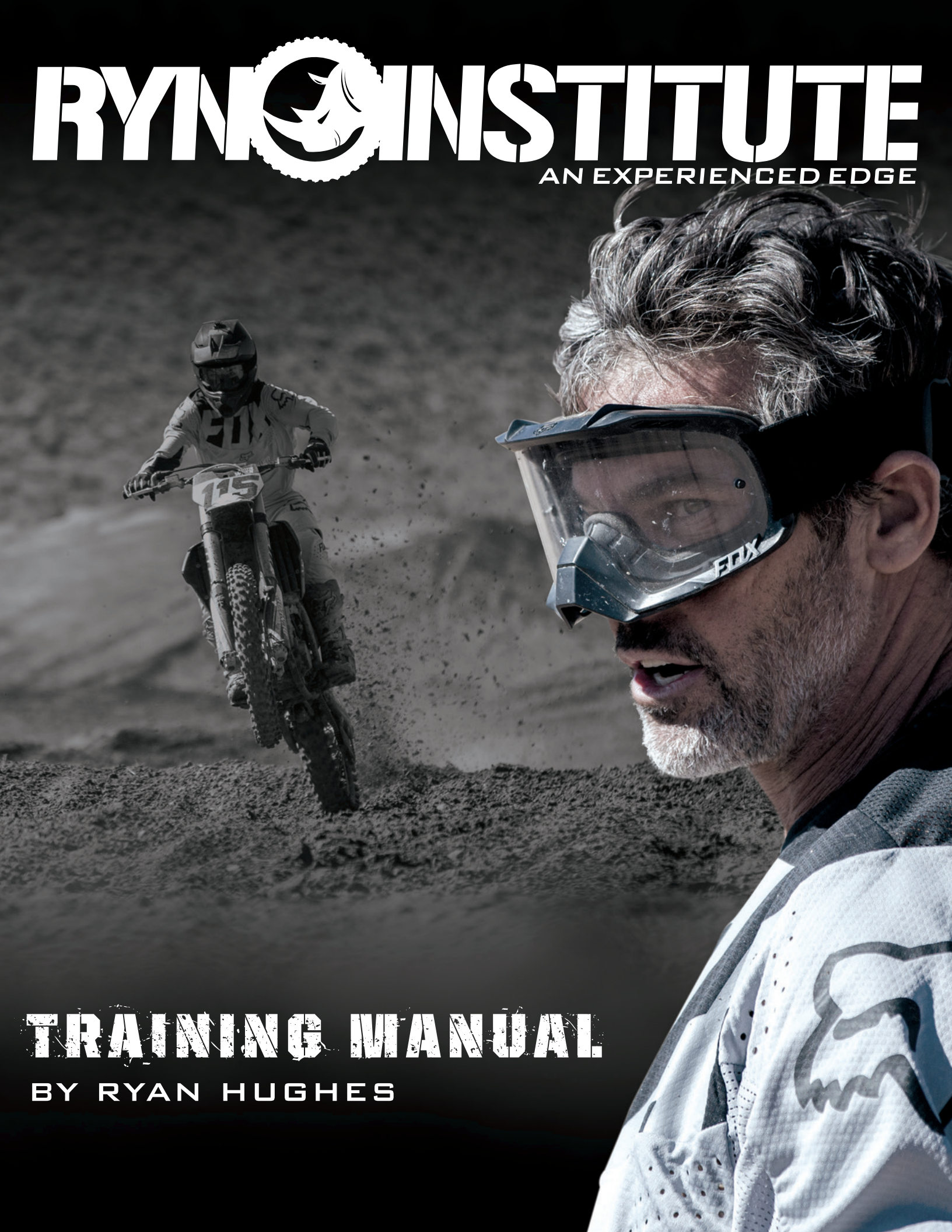
RYN INSTITUTE

AN EXPERIENCED EDGE



TRAINING MANUAL

BY RYAN HUGHES

MASTER TRAINER
Ryan Hughes

> "My goal is to teach you how to be safer on a motorcycle by focusing on yourself. I'll teach you how to be in the strongest, most stable, coordinated and efficient position on a motorcycle; producing positive changes you'll be able to see immediately."

CERTIFICATION

- Level 1 CHEK Certified Holistic Nutrition and Lifestyle Coach
- CHEK Certified Program Design
- Certified Kettlebell Instructor

EXPERIENCE

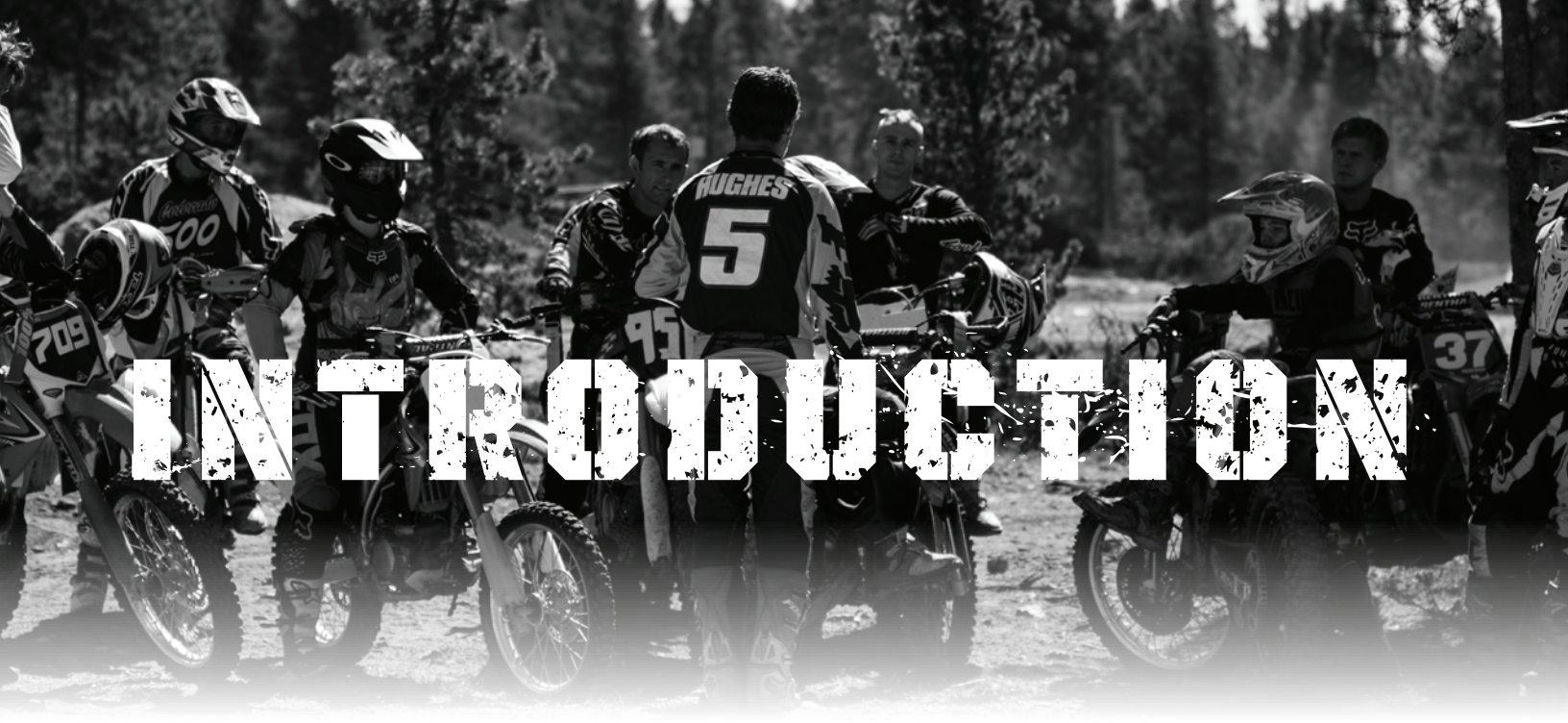
- Professional Motocross Athlete for over 25 years
- 15+ years as coach and trainer
- Training Professional Athletes all over the world in Motocross, Rally Cars, Skateboarding, Mountain Biking, Baseball, BMX
- Enduro MTB National Champion, 2016
- MX Des Nations: 1995, 2nd; 2001, 1st; 2003, 2nd 125; 2012, 7 wins & Man of the Meeting
- 1990 10 Amateur Titles
- 1994 3rd 125 SX & MX
- 1995 2nd 125 SX & MX, 2nd World SX
- 1996 4th 250 SX, King of Bercy SX Paris, FR
- 1998 2nd US Open SX
- 1999 4th MX World Championship
- 2004 1st Endurocross
- WORCS series: 2006 4 Wins, 2007 3 Wins
- 2007-2011 6 Time Vet World Champion
- 2009-2011 Mammoth MX Vet Champion

DEVELOPER
Douglas Ninneman

- Masters: Adult Education & Training
- NASM Certification
- CPR Certified
- RADAR Instructor Certified
- Training development for McFarland Police Department, Erie Construction, & more.
- Owner, MOTOvation MX Training Facility & MOTOvation Fitness
- Board Member, Youth Off-Riders Association

NUTRITIONAL COUNSELOR
Rebecca Konkol

- Registered Dietician & Nutritioinist
- Certified Dietitian



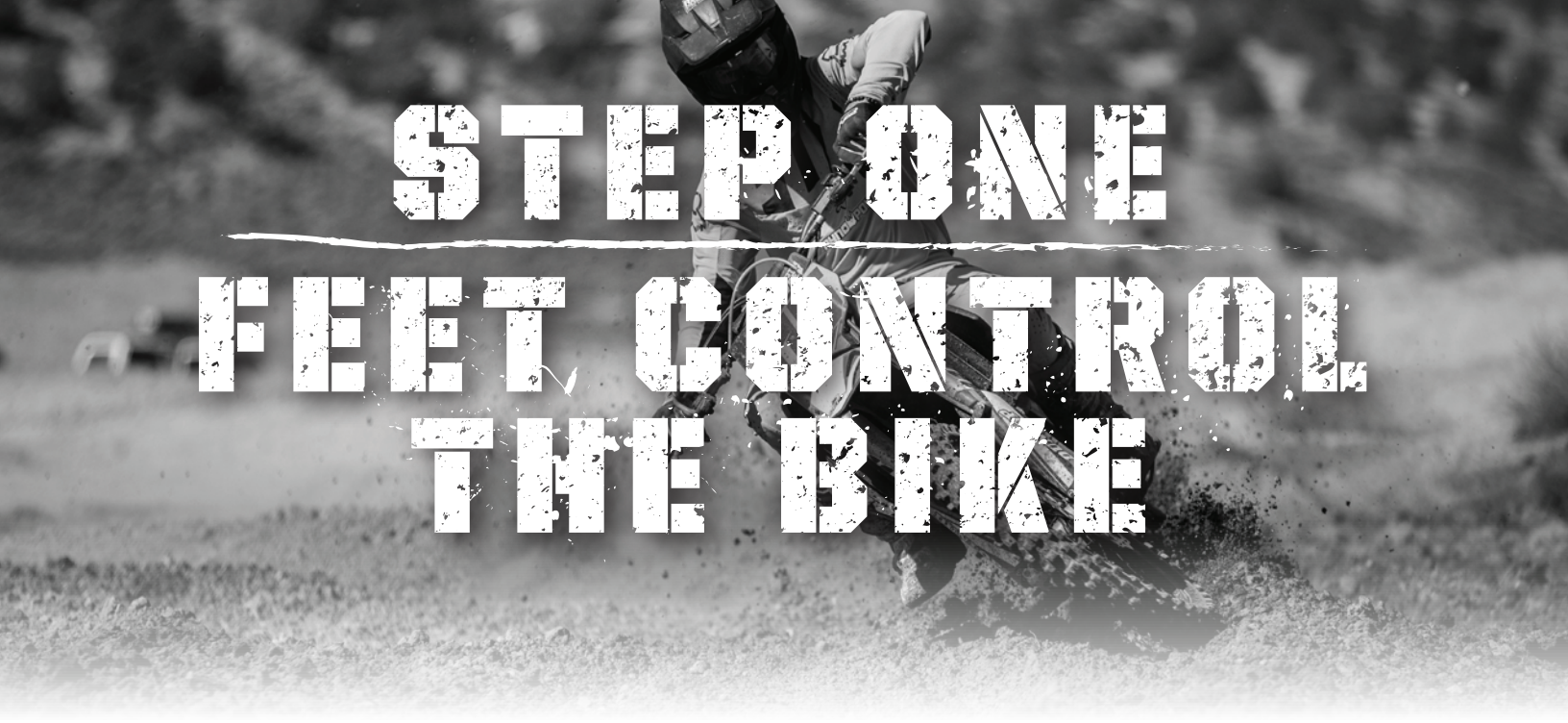
INTRODUCTION

We are honored to have you in our class and welcome you to our family of coaches. Our philosophy is simple: teach our youth to ride correctly and they will be a safer rider/racer. We have been working through racing, coaching, technique development, training websites, motocross specific equipment, and motocross specific supplements for over 30 years. We are excited to be able to share our knowledge with you and offer the first true Off-Road Motorcycle Instructor certification course based on functional position and motocross fundamentals. This course not only covers motocross but all the off-road motorcycle categories, such as woods riding and hare scrambles.

Level 1 of the Ryno Institute Fundamentals incorporates a continuum of control to help you learn the strongest, most stable body position while maintaining a high level of coordination and efficiency. We will employ several different approaches to help with your learning: in the classroom; hands-on with a Ryno Equipment Trainer; through videos; on-track demonstration, practice, and evaluation. Through these varied mediums, we will help you learn the 6 key points to motocross and off-road motorcycling.

Each of the chapters focuses on a specific skill in controlling your motorcycle. With discussion, practice, and correction, each section can be mastered to make you a safer, more efficient, and more successful rider. Each chapter starts with objectives and an outline, focusing on the specific skill point and practice. Pictures accompany each section to give you an understanding of how to improve your technique.

We want to thank you for your interest in a technique and approach to Off-Road Motorcycling. You are going to be on the front lines to a new approach with over 30 years of racing and coaching experience behind it. Forget everything you know about Off-Road Motorcycling and be ready to learn the fundamentals that will improve every rider at every level of experience anywhere in the world. Welcome to the Institute.



OBJECTIVE

The student will learn the proper foot position on the bike, understand the importance of foot/leg position and then demonstrate proper foot/leg position.

a. Control at the lowest point
b. Foot position-Stand on balls of feet
c. Control bike with feet/ankles
    a. Tree system-strong base and loose up high
d. Hanging on with feet causes the knees to grip bike
e. Causes weight transfer to rear wheel

Incorrect foot position

a. Causes lower body to push forward
b. Toes point out-injury
c. Examples
    a. Dungey - loss of control of rear of bike under power
    b. Stewart rides flat-footed and out of control

Discussion points:

c. Villopoto - move legs only just like a skier

Demonstration:

a. Pictures
b. Equipment trainer
c. Off-track
d. On track

Practice:

a. Equipment trainer
b. Off-track
c. On track

Assessment:

a. Toe location
b. Ankle location
c. Knee position

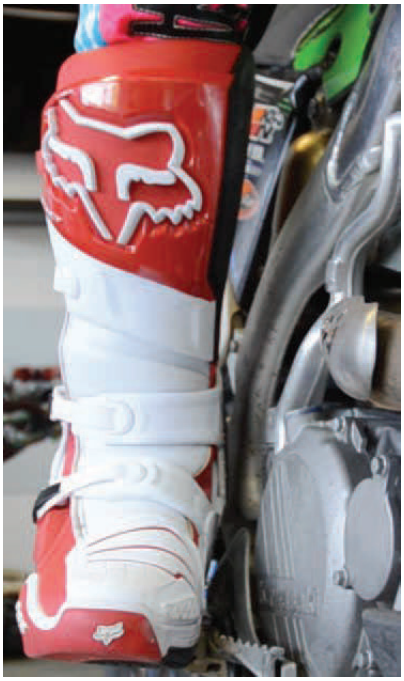
STEP ONE
FEET CONTROL THE BIKE

The first point we are going to talk about is where and how you physically control the bike. This is the first point of contact from the body to the bike. I am referring to the placement of feet on the footpegs. The footpegs are the closest point from the bike to the ground. The lower you put the weight of the bike to the ground, the better it will handle. The same goes for controlling the bike. In the middle of the bike, you can control both the front and the rear of the bike by doing one thing; control the bike with your feet. By doing this, you will have control of the most important facet of the bike; horsepower and torque. We all know that 90% of our crashes come from the rear wheel. Controlling the bike at the lowest point will allow you to ride fast as well as be smooth at the same time.

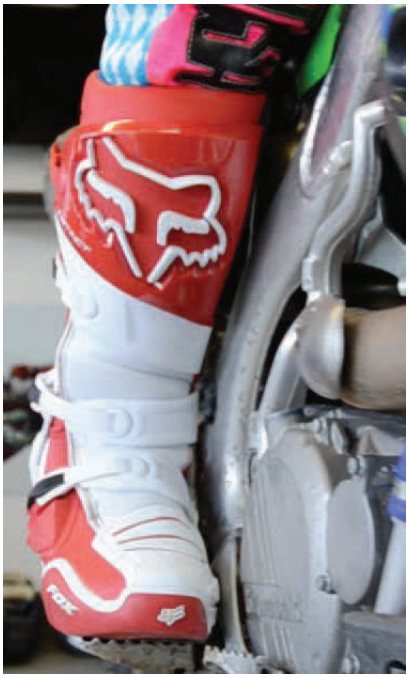
If your arms are tight when you ride, then the bike rides you. You will exaggerate everything the front end does, causing you to always play catch up. If you are only controlling the bike from the highest point (handlebars-farthest from the rear wheel) you will have no control over the rear end. Controlling the bike from the highest point will put you in a situation of the bike controlling you. There will be a point or speed where your technique simply will not allow you to improve on speed and flow.

As the new bikes get faster, weigh less and have more traction, it will become more important to control the rear end of the bike. The rear end is on the ground approximately 50% more than the front end, meaning the front wheel is always, light or off the ground. All the weight is on the rear end when landing off a jump and accelerating. The front needs to be controlled by loose arms so you can ride with the bike and not be ridden by the bike. When your arms are tight, every move/mistake is now magnified, and the bike is riding you or it appears that you are over-riding the bike. Riding is like dancing; sometimes you lead, sometimes you follow. You lead with your feet and follow with your arms. Keep the feet and legs tight and let the arms stay loose.

INCORRECT POSITION



CORRECT POSITION

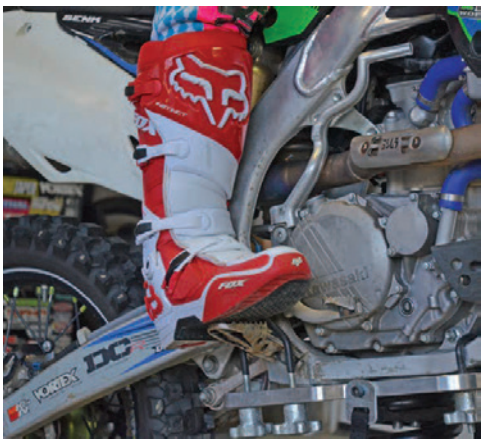


STEP ONE
FEET CONTROL THE BIKE

Let's think of it this way: the first point of contact from the bike to the ground is the wheels. All movement comes through the wheels to the suspension, which gives the bike softness. Now imagine no suspension. Everything would transfer through the bike to the rider. On the body, your feet and ankles are the first points where the body meets the bike. The suspension of the body would then be the ankles. If there are any tight spots anywhere in the body, it is usually caused by an incorrect foot position. Riding flat-footed will affect you at the lowest point all the way up to the highest point. It is a chain reaction through the body and how energy is released.

How often do you see a tree that when the roots are not strong and there is a big rain, the tree will fall over or pull the roots from the ground? Or we can look at the other end of the spectrum where the top of the tree may blow over during a strong wind storm, but the root system and trunk are still intact. This is how we should be riding: strong like a tree with a strong base and straight in the middle, yet loose enough at the top to flow with the energy. We need a strong base and core system with a flexible upper body.

POSITION



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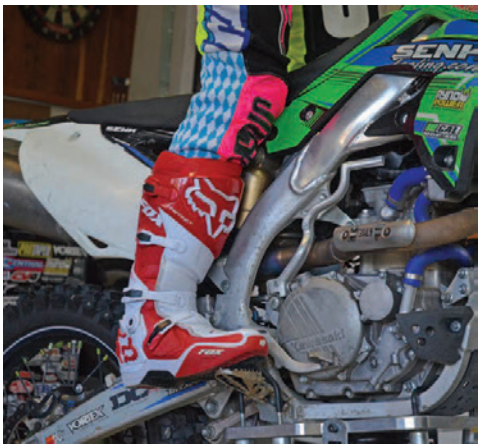


CORRECT POSITION

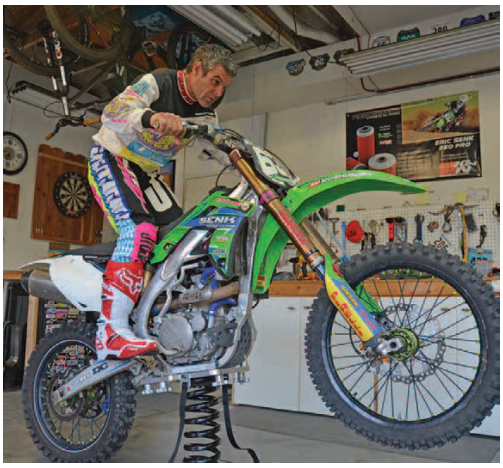
How do we do this? First, you must be on the balls of your feet. No other way works. If you are riding flat-footed, you will point your toes and you will not hit your rear brake lever or shifter. If your toes are pointed out, you will not be able to control the rear of the bike. Again, this is forcing the arms to control the bike from the highest point. Riding flat-footed will also limit your ability to use your ankles to control the bike.

When you ride on the balls of your feet, you will be able to grip the bike with your ankles which in turn will allow you to use your entire leg to the grip bike. I know you have heard everyone say to hang on with your knees, which you need to, but if you are only hanging on with your knees, you will be at the top of your seat. When you hang on with your feet, you will automatically hang on with your knees.

Riding on your toes will allow the weight to be put in the places it needs to be directed. Your lower body is for the rear end and the upper body is for the front end, so riding on your toes will transfer weight to the rear end. This will allow more traction and keep the rear wheel on the ground more. is also allows the weight that is supposed to go forward - to go forward. When done correctly, you will be able to be more aggressive with the throttle as you are now going with the bike and not against it.

STEP ONE
FEET CONTROL THE BIKE

INCORRECT POSITION



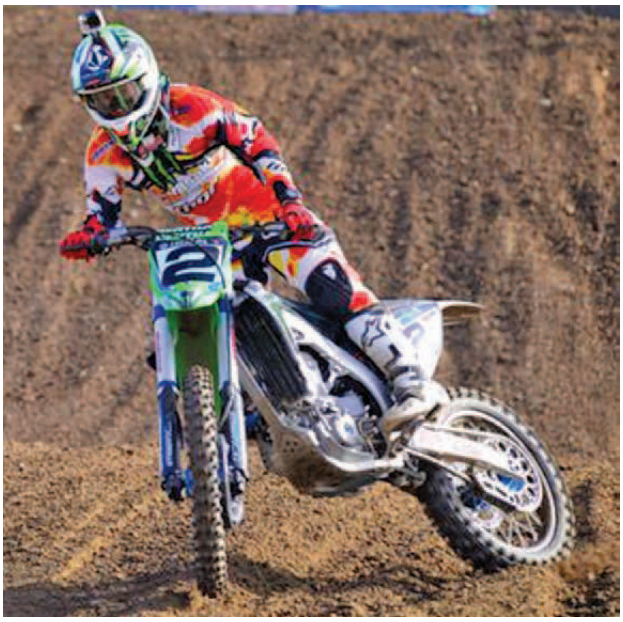
CORRECT POSITION

Riding flat-footed will put the weight in the wrong places. Your feet are too far forward, which makes your lower body push forward and causes your lower body to go backward. Your energy is now opposite to where you should be, causing you to lose aggressiveness and control. Riding flat-footed footed also causes your toes to point out while riding. Riding with the toes pointing out can be disastrous and cause severe injuries. You are increasing your chances of possibly catching your foot on a rock, tree root, or a bump and getting your feet ripped off the pegs. The resulting injuries can be severe, so it is important to keep the toes in by standing on the balls of your feet.

Everything starts at the base, just like a tree or skyscraper. If your base is not strong, you will fall or be in a state of constant counterbalance at the highest point. If you start off ugly then you will end up ugly, especially when you are ugly at the higher points. Being on your toes when standing or sitting will allow you to be able to put weight to the rear of the bike for traction. Your upper body can now go forward with the bike, allowing you to be more aggressive with the throttle. As you become more aggressive with the throttle, you will go faster. You will be tracking in a straight line, getting ultimate traction, all without trying to go faster with the throttle alone. In whoops, sand, mud, hard pack, rocks, roots, and ruts, riding on your toes is a must because the track causes the bike to get sideways or kick-up. Control the bike from the lowest point and you will have complete control!

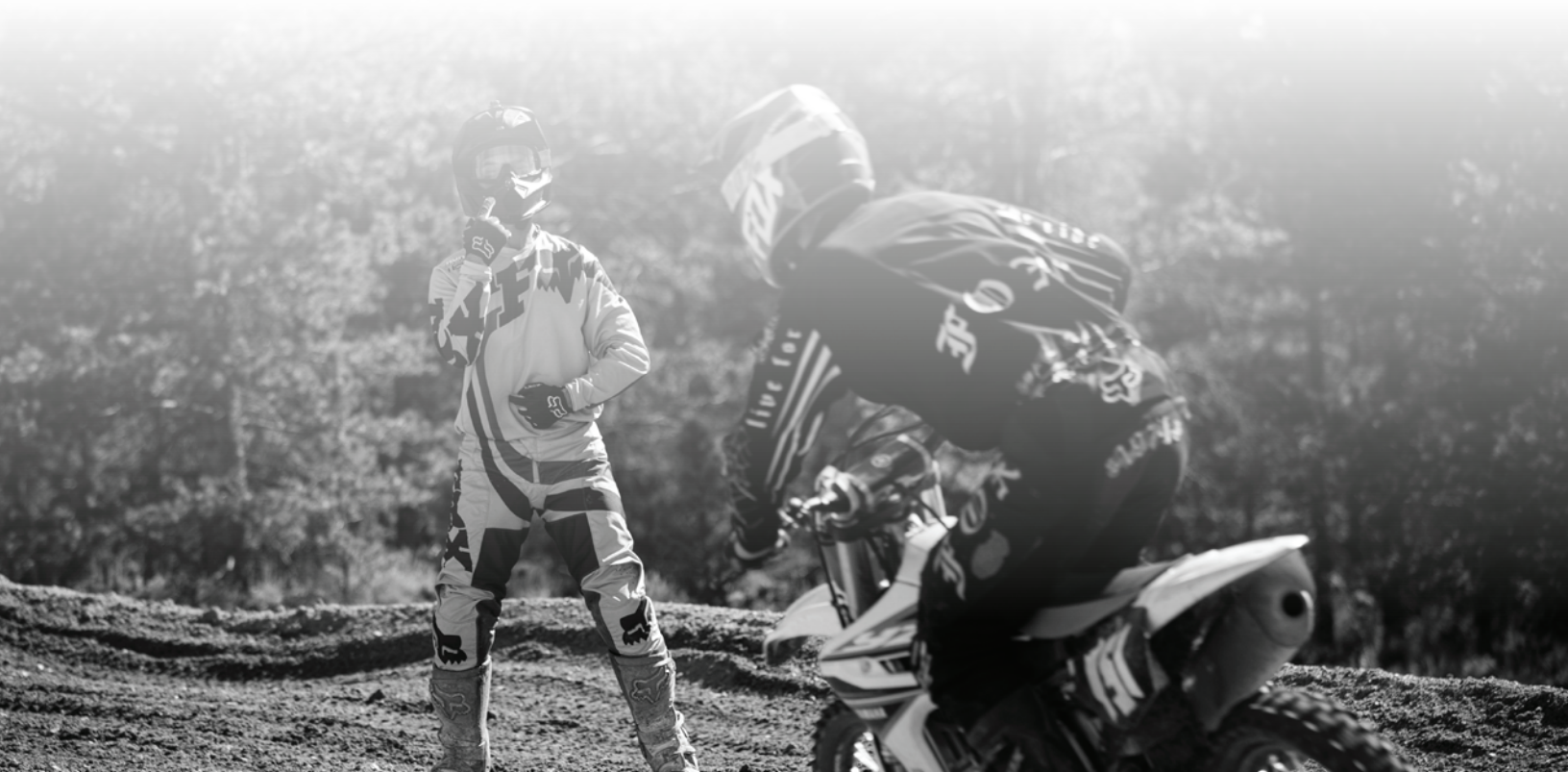
The four best racers ever to race in this new era: Carmichael, McGrath, Everts, and Villopoto with Villopoto taking it to a new level of aggressiveness. Just like a skier, only his legs move. You will notice that Bubba and Dungey both ride flat-footed. While they may be fast, Bubba is on the verge of crashing. He is affected at the lowest point and there is no softness to him. Dungey cannot make up that little extra time because every time he tries to be more aggressive with the throttle, he loses control of the back of the bike. He also struggles in the ruts in supercross and the mud in motocross because he does not control the bike from the lowest point.

STEP ONE
FEET CONTROL THE BIKE



As for shifting and braking, you must move your feet! Many riders refuse to move their feet. The bike is constantly moving in all directions due to the constant change in track conditions, meaning that you should be moving with the bike. Just like dancing, you are constantly moving your feet.

In summary, ride on your toes, grip with your ankles! If you are not shifting, braking, or putting your leg out for a corner, then the balls of your feet should be on the pegs and gripping with the ankles. You will be amazed at what you feel. This is one of the most important steps that I practice and teach to help become a better, safer, and faster rider. Remember, speed and safety are only as good as your technique will allow.



STEP ONE
FEET CONTROL THE BIKE

DISCUSSION

STEP TWO
UNLOCK THE HIPS

OBJECTIVE:
The student will understand unlocking the hips along with being able to demonstrate correct hip position while riding.

Discussion:

a. Unlocked vs. locked-pic
b. Separate upper body from the lower body, tucked butt causes the body to lock up
c. Lower half of body controls the rear of the bike
d. Knees should be behind shoulders
e. All lifting done with legs - NOT back
f. Butt tucked forces the arms to control bike and not legs – because lower body shifts or leans forward
g. Butt tuck will force the bodyweight to go away from bike on acceleration

Exercise

Partner with someone, one person sits on bike with hands on handlebars, second person push on the top of the rider's chest. Now try it without the persons hands on the handle bars, butt tucked. Lastly - get in proper position, hands on handle bars, butt untucked, shoulders in front of knees and try pushing rider back.

Discussion points:

a. Stewart - butt out
    a. Fastest in whoops
    b. Flat-footed
    c. Lower body is "soft"
b. Carmichael - straight back butt out
c. Villopoto
    a. On toes
    b. Butt out
    c. Rear wheel weighted - allows rear to flow

Demonstration:

a. Pictures
b. Equipment trainer
c. Off-track
d. On Track

Practice

a. Equipment Trainer
b. Off-track
c. On track

Assessment

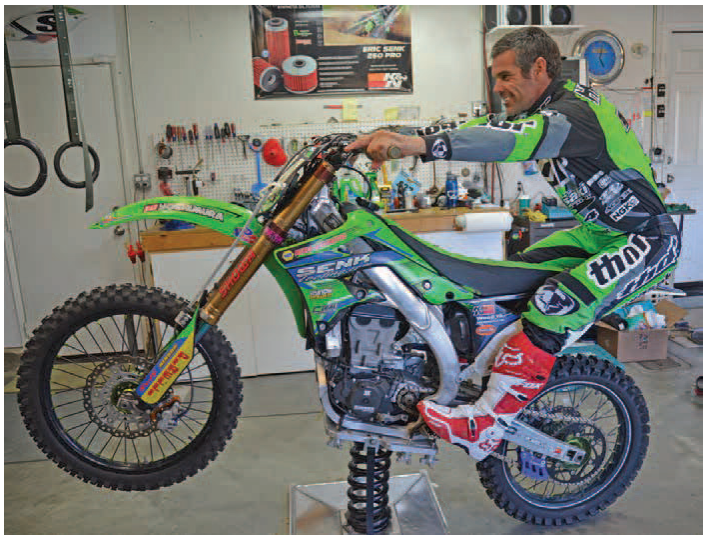
a. Butt/hip location/position

STEP TWO
UNLOCK THE HIPS

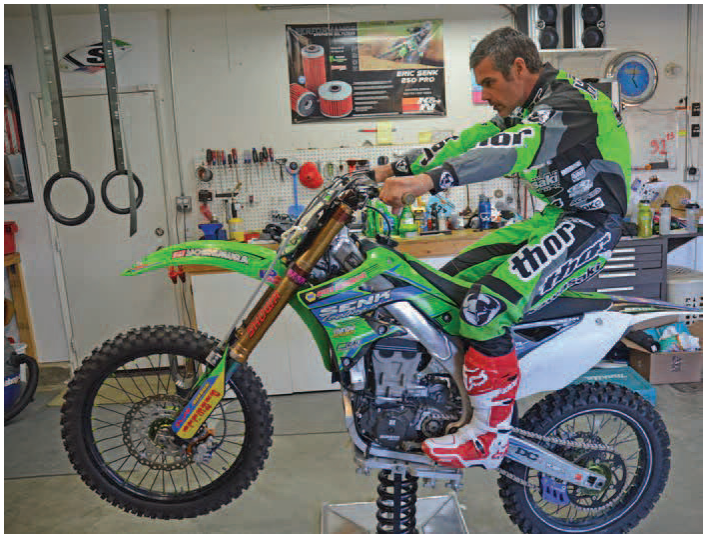
The second step of the six points is to unlock the hips. The bike is one piece but made from two separate parts, the two parts being the front and the rear. Each is separate but in the end, they are brought together as one in the front. This allows the bike to go side to side and turn right and left without affecting each section. If you welded the front end to the rear end so there would be no turning of the front end. You must have a pivot point on the bike so that you can steer the front without steering or affecting the rear.

Given the idea of a pivot point, let's apply to the body. You have an upper and lower body with a pivot or hinge in the middle. This middle pivot/ hinge or linkage is your hips. The hips can go up and down, left and right, just like the front and rear of the bike. If you are riding with your butt or hips tucked, you have essentially welded the upper and lower body together and making it very difficult to control.

The three most dominant riders in the last era of four-stroke are Carmichael, Stewart, and Villopoto. They all ride with their hips or butt out, allowing that separation and pivot point to work as described. If you look at Villopoto, his legs and feet control the bike, with a very quiet upper body. The bike moves over the track but stays below his upper body, so he is unaffected at the highest point. So much is absorbed into his body that he doesn't have to counterbalance or react to nearly anything the bike does.



INCORRECT POSITION



CORRECT POSITION

STEP TWO UNLOCK THE HIPS

Stewart is a different subject. He is the fastest rider we have seen on two wheels so far and it comes from his hips. He has swapped out more than any rider out there but he has also saved it more than any rider out there, all because of the separation in his mid-section allowing his upper body to do its thing and the lower body to do its thing. You can see the number 7 on the front and side plate at the same time, showing that loose flexibility needed for control. Stewart is the fastest in the whoops because his style is key, with his hips unlocked and butt out. This allows the bike to go side to side, up and down and not affect the upper body.

If there is no softness in the lower part of the body then you, just like the bike, will be affected by whatever the track throws at you. It would be like taking the rear suspension off and still trying to ride. The energy or end of each movement would flow through your body and out at the top of you, forcing you to stabilize movement with your arms. the bike would kick up and push the whole body forward. If this were the case, what do you think you would have to use to stop that movement? You guessed it, your arms.

If the bike throws you side to side and your hips are locked, then your upper body will follow the rear end of the bike. This will force you to stabilize the bike with your arms and, that my friend, is a sure ride to the hospital.

The lower half of the body is for the rear of the bike and the upper half of the body is for the front. Let's look at what happens when the rear end swaps. To get out of a rear-end swap, you want to keep the front end as straight as possible. It is not the bike that swaps out but the rider! The body winds up and then releases suddenly, pulling the bike with it again and again, and after three or four swaps, the rider gets thrown to the ground.

The reason Bubba swaps so much is because he rides flat-footed. Remember the first point of contact from the bike to the ground is the wheels. From the wheels, there is softness. The same is true for the first point of contact from the body to the bike when sitting. If there is no softness present at this point, then this is the point that is most affected. The only way to ride as fast as Bubba does, WHILE riding flat-footed, is to have your hips unlocked or butt out.

There is no other way physically possible to ride the bike if you don't keep the hips unlocked. I have personally tried to ride flat-footed and I felt as though the bike was trying to ride me. Once I

STEP TWO UNLOCK THE HIPS

really focused on mimicking Bubba (with flat-feet but hips unlocked, butt out), I felt better. However, it is still not as good as being on my toes with hips out. It felt like less control.

Now if you look back, we all thought Carmichael had a crazy style with his straight back and butt out and no, it was not because he was heavier back in the day. His style helped him ride to a level no one had ever seen before, as well as get away with so many “almost” crashes. Carmichael and Stewart had a very similar technique, which allowed them to go so much faster and farther ahead of everyone else.

Over the last 10 years, bikes have changed and progressed dramatically. To keep up with these changes, riders’ techniques must be improved to follow suit. The bikes are heavier and have more torque and horsepower than two strokes, and it is inevitable that these changes require a new way to ride the bike.

Let’s look at the body again. The human body has been around for millions of years and its primal movements are twisting, pulling, pushing, lunging and squatting. These movements require your hips to be unlocked or in other words, your butt needs to be out. is will allow you to be strong and stabilized in any one of these movements.

Think about sitting in a chair, butt out. How do you twist when you swing a bat or a golf club, butt out? If you are pulling or pushing an object/weight, is it better to lead with the back or the legs? You should push out with the butt, guiding with the legs rather than the back. The back is not meant to stabilize the body, leave the stabilization to the core. Always lift with the legs and put the weight into your lower body, never use your back.

If you examine sports in general, you will see that NONE of them require you to tuck the pelvis or butt. Being in a position with a tucked butt and rounded back is like being in the fetal position. It is a very safe and comfortable position. About 90% of all riders I see on a day-to-day basis are in a “scared of what might happen” position. They want to feel safe and comfortable. But as I have said before, start in a bad position, end in a bad position. Sports, as well as everyday life, require a hip out stance or technique. They require good posture to excel and motocross is at the top of the list. In motocross you are riding a heavy, fast and dangerous machine.

STEP TWO
UNLOCK THE HIPS

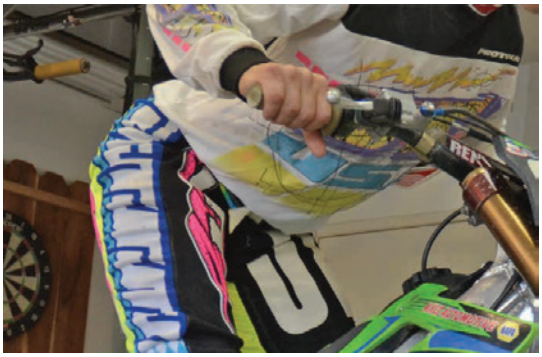
Why would you do the hardest, most dangerous sport, in a stance or technique that will put the body into a terrible position for strength, power, stability, balance, flexibility and efficiency? Think about this: when scared, what does a dog do? It tucks it tail! When you are riding in that tucked up position, you are a bit backwards. The lower half of the body is now going forward, and the upper half is going backwards. In that position, there is no weight on either end of the bike, and your body is now going away from the bike. If this is the case, how aggressive can you really be with the throttle? I see this horrible technique so much now since the neck brace has come out. The rider's knees are in front of the shoulders which causes them to tuck their butt, all while the brace is pushing their head down. Thus, forcing the rider to round their back just so they can see up.

STEP TWO UNLOCK THE HIPS

Exercise: StabilizIng Yourself on the Bike

When you are standing and riding, you almost want to look like a horse jockey with your legs straight, butt out, back straight, and head over the bars. This will allow your rear to do its thing by going up and down, side to side without affecting the upper body. This will help you stay in the direction you want to go, more like Villopoto in a squat position with the legs and butt out on the back of the bike. In this position, it is very important to have the hips unlocked because now you are on the back of the bike. If the hips are locked, you will be mimicking everything that the back end of the bike is doing, instead of flowing with the bike.

To me, Villopoto's style is the next step and when applied to my own riding, I can see the difference. By putting weight to the rear end of the bike for traction while having the hips unlocked, this allows you to be one with the bike and not get thrown around. This style will allow you to control the back of the bike, being that this is where about 90% of the control comes from while riding. This technique takes practice as well as a lot of strength. You will want to be on your toes, in a squat position with your butt out and holding on tightly with the legs. Remember you must slow down to try a new technique. You must first feel it before you can identify the "wow" factor. Once you have identified that feeling, you can begin to recreate that feeling over and over until it becomes a learned experience. When practicing, I often ride at 85% of my ability just to practice new ideas and work on my weak points. When it is time to go fast, my technique will be able to handle the speed in the window that I have now opened to allow for more speed.

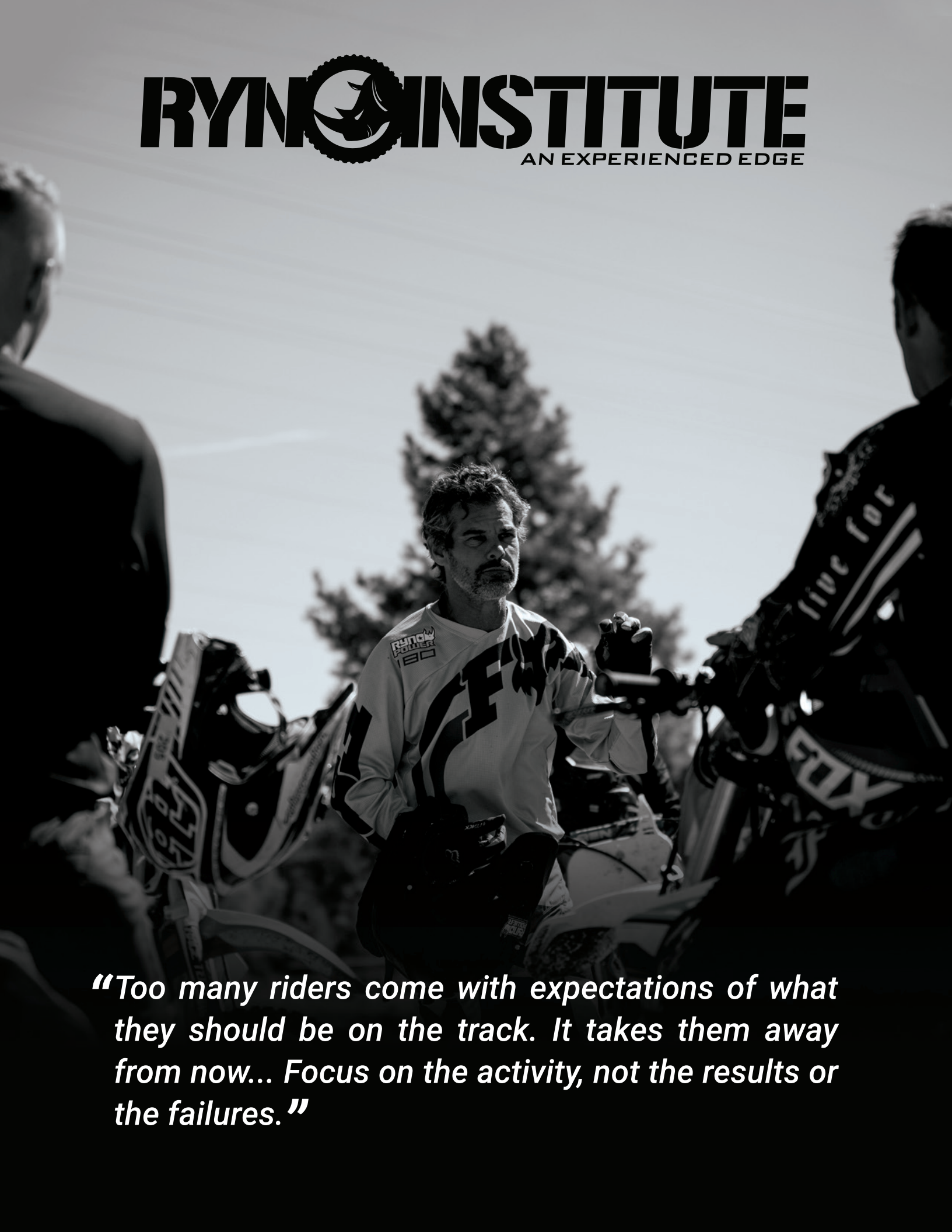


Being locked over the seat means that you will get all the bumps transferred into your body for a rough ride.

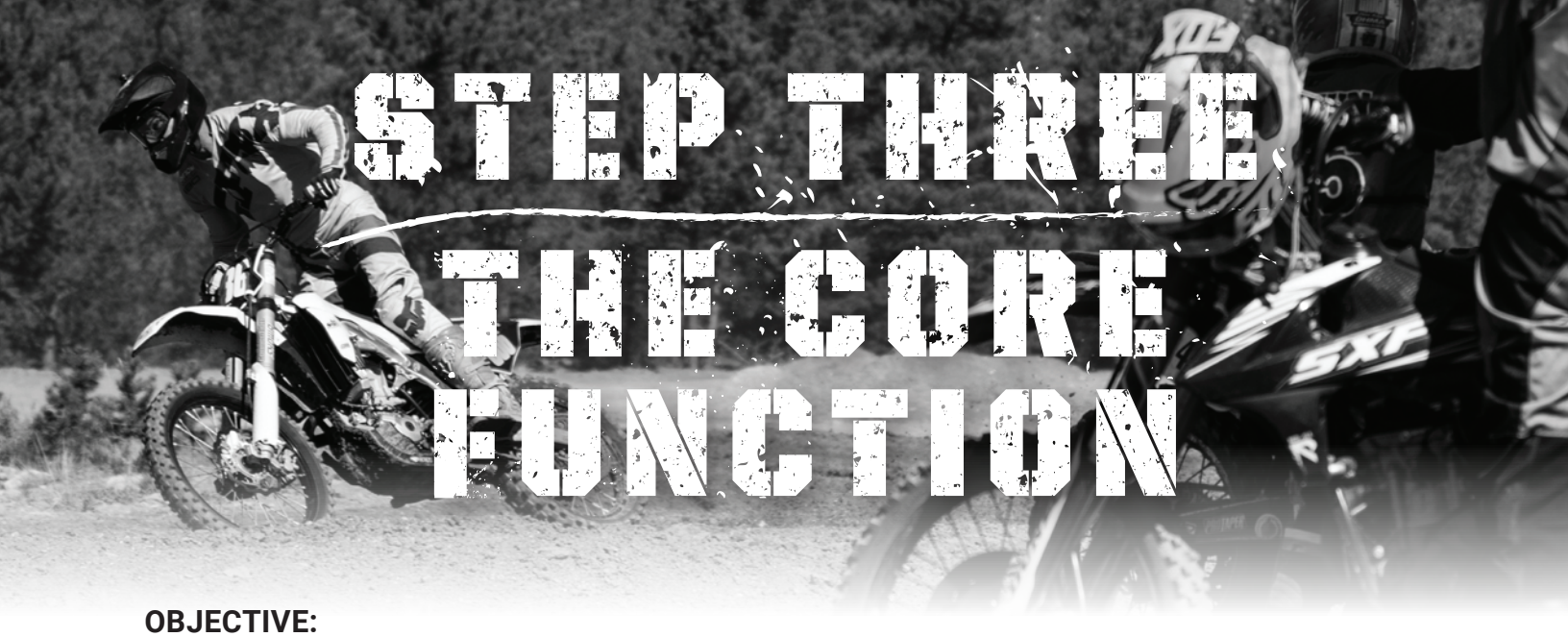
Notice how far back and how unlocked Villopoto is and how much more traction he has.

STEP TWO
UNLOCK THE HIPS

DISCUSSION



"Too many riders come with expectations of what they should be on the track. It takes them away from now... Focus on the activity, not the results or the failures."



OBJECTIVE:
The student will understand how the core affects riding and can demonstrate the correct position on the bike as it relates to the core.

a. Correct body posture - creates a balanced or strong core
b. Upper half of body is for the front of bike
c. Keep chest high and lead with it
d. Back straight-butt not tucked, will engage core
e. Rounded back will inhibit diaphragm function

Discussion

a. Dungey - great posture sitting on bike
b. Sits more than most
c. Fast through corners

Demonstration

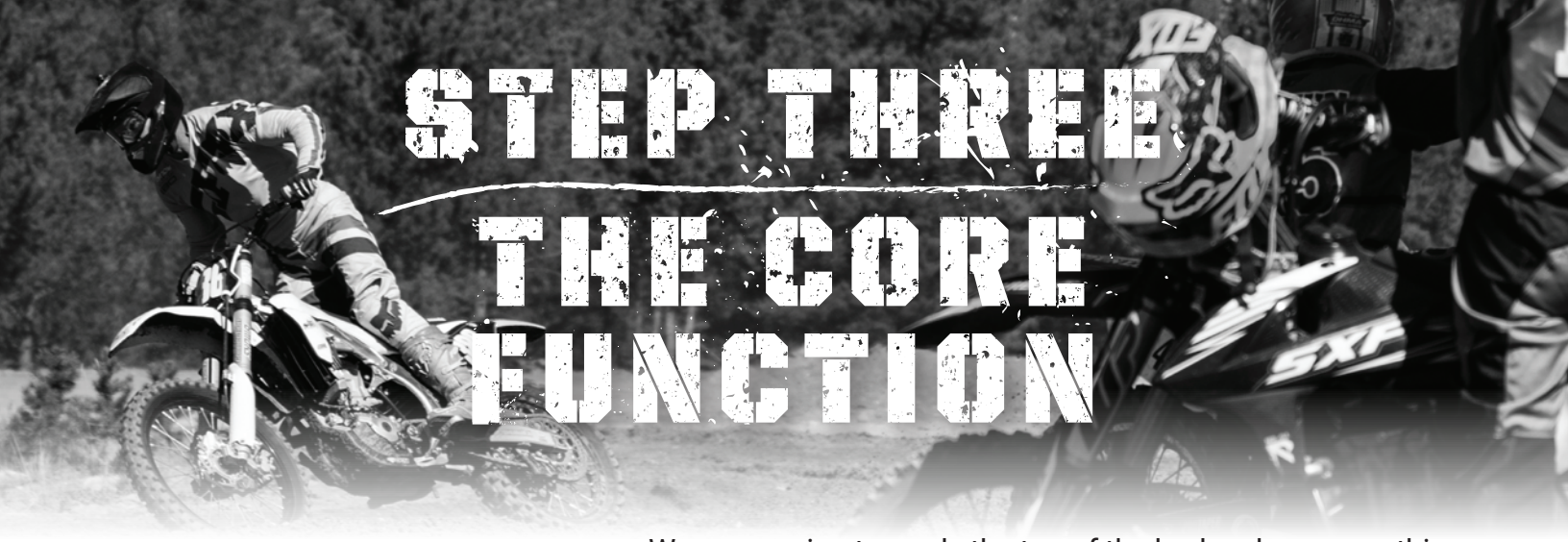
a. Pictures
b. Equipment Trainer
c. Off-Track
d. On Track

Practice

a. Equipment Trainer
b. Off-Track
c. On Track

Assessment

a. Back position
b. Chest position



STEP THREE
THE CORE FUNCTION

Dungey's posture

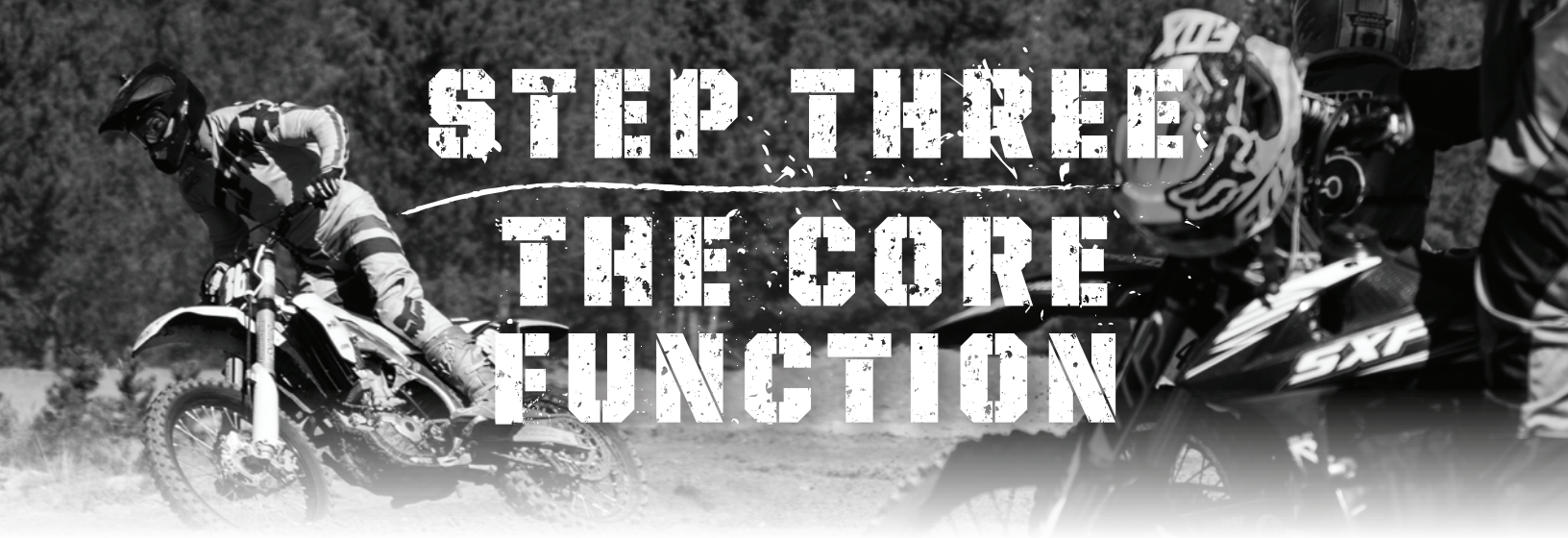
We are moving towards the top of the body, where everything happens! We are referring to the core or mid-section. The core consists of three sections: where the core attaches to spine, where the core attaches to pelvic region and then where the core attaches to the extremities i.e.; arms and legs. The core is like the chassis of a motorcycle where all the parts connect.

Everything starts and ends at the core. If you have an imbalance or dysfunction in the body, you must start at the core to fix the problem. The better posture you have, the stronger, more balanced, stable, coordinated, faster, and more efficient you will become. You will also have more energy because your body won't be constantly trying to stabilize itself. It takes subtle energy throughout the day if your body is in a state of imbalance.

Add up how much you sit around, drive, and stand with a rounded back or shoulders. Now add a tucked tailbone and we are talking about a lot of energy that goes out the window trying to create balance! Just think if your chassis was that unbalanced, how would your bike handle? How much more energy would it take to ride that death trap? It wouldn't matter how good your engine or suspension are if they are still attached to an unbalanced chassis, just like your arms and legs attached to an unbalanced core. If your core is weak and uncoordinated, and you have been training with a faulty technique in the gym and/or bike, how strong and stable will your arms and legs be? What controls your bike? You arms and legs hold onto the bike, but your core ultimately provides the strength to connect them all.

If you look at Dungey, you see a rider that has perfect posture on the bike. I believe that's why he can sit down so much while he rides and why he has smooth turns. If you look at all the top riders now, they ride with straight backs so their cores are always functioning. This is a must in order to ride the bikes they do while going as fast they go.

With this technique, there are still riders that are just a little faster than the rest: Carmichael, Stewart and Villopoto all ride with a straight back like the rest but with the bonus of unlocked hips. Herein lies the magic combo for their speed.



STEP THREE
THE CORE FUNCTION

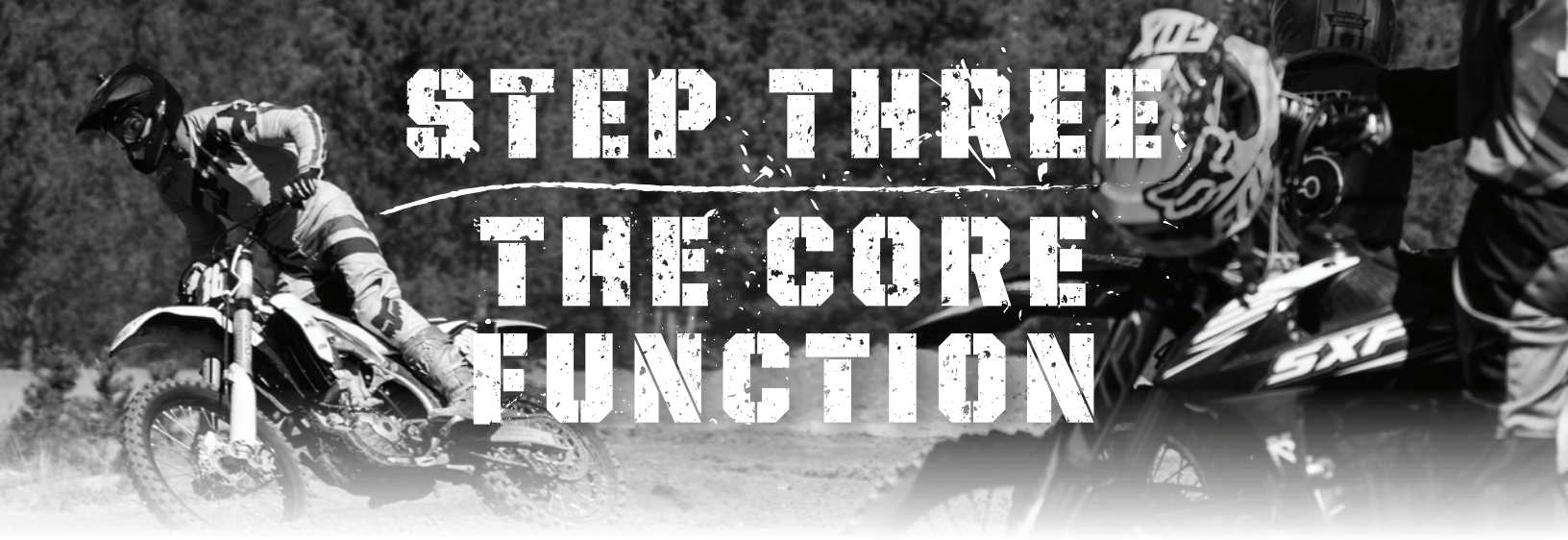
Something else to think about: When you are hunched over while riding, what are you doing with your breathing? Your diaphragm is now being compressed, limiting your inhalation and exhalation. These short, quick breaths force you into oxygen depletion and exhaustion.

In summary, tucking your hips and/or rounding your back will take away so much potential and efficiency from the body. The key is to straighten your back. You have eight functional regions of the core, all with nerves so look at that area as having eight brains, and all of that is an intelligent part of the body. You must use it correctly.

If you have core weakness or imbalance, make sure you are doing gym movements with proper form and light weights until you have good strength and function of the core. This is the primary way to help you in your riding and giving you the skills to be able to handle, stabilize, balance and withstand what the track is giving to the bike and to you. Remember the upper half of the body is for the front of the bike, so keep your chest high and lead with it whenever you twist the throttle. Do this and everything will follow. The hips will follow by unlocking the head and the eyes will follow.

INCORRECT POSITION

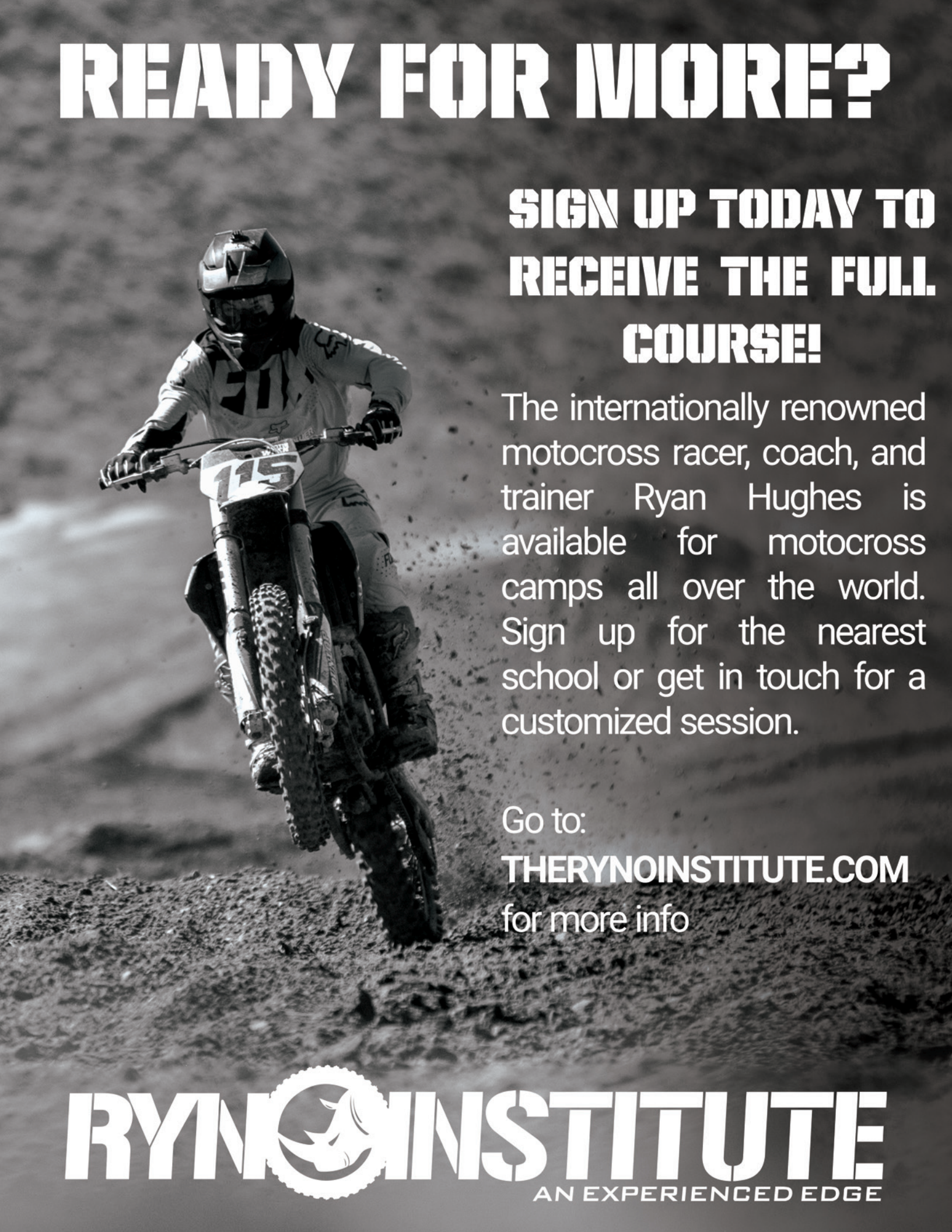
CORRECT POSITION



STEP THREE
THE CORE FUNCTION

DISCUSSION

READY FOR MORE?



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