WHISTLER BLACKCOMB

BIKERAD

Bike Ready & Avoid Damage Manual



Back in Action
physiotherapy whistler

Back In Action Physiotherapy
119-4368 Main St, Whistler BC, V0N 1B4
Ph: 604 962 0555, fax: 962 0554 email: info@backinactionphysiotherapy.com
Web: www.backinactionphysiotherapy.com

A Complete Program to Reduce Injuries

Disclaimer - The information provided in this document is educational in nature and is not intended to diagnose, treat, cure, or prevent any disease or health condition. You and your health care provider must make any final decisions as to what's best for you. See your health care provider for a diagnosis and treatment of any medical concerns you may have, and before performing the BIKERAD exercises.

TABLE OF CONTENTS

INTRODUCTION pg 4
STRUCTURE OF THE BIKE READY AVOID DAMAGE (BIKERAD) Manual pg 5
KEY ELEMENTS OF INJURY REDUCTION pg 5
HOW TO LEARN THE BIKERAD pg 6
BASIC BIKE FIT TIPS pg 6
THE BIKERAD EXERCISES:
PART 1: WARM UP (DYNAMIC MOBILITY & STABILITY) pg 9

1) LATERAL LUNGES
2) KNEE STRAIGHTNERS
3) FIGURE 4 SQUAT
4) ITB SIDE BEND
5) KARATE KICKS
6) WARRIOR REACH
7) BUM KICKS
8) TUCK TO TILTS
9) NECK ROTATIONS

PART 2: STRENGTH, ENDURANCE, BALANCE & POWER pg 17

10.1) STATIC TO MARCHING PLANK
10.2) BICYCLE PLANK
10.3) REVERSE BICYCLE PLANK
11.1) SIDE PLANK BENT LEG
11.2) SIDE PLANK STRAIGHT LEG
11.3) SIDE PLANK STAR
12.1) WALL FRONT SQUATS
12.2) SPLIT SQUATS
12.3) SINGLE LEG SQUATS
13.1) STEP BACK LUNGE
13.2) JUMP LUNGE
13.3) SINGLE LEG FORWARD/BACKWARD BOUNDS
14.1) SUPERMAN SWIM
14.2) TUCK TO TILT
14.3) SINGLE LEG DEADLIFT
15.1) HIP EXTENSION MARCHING BRIDGE
15.2) HIP EXTENSION BRIDGE SINGLE
15.3) SINGLE HIP EXTENSION BRIDGE STRAIGHT KNEE

PART 3: STRETCHES & FOAM ROLLER pg 55

16.1) LYING EGYPTIAN
16.2) COBRA
16.3) THREAD THE NEEDLE TWIST
16.4) ITB FIGURE 4
16.5) WALL QUAD
16.6) ½ BUTTERFLY
16.7) SITTING PIRIFORMIS
16.8) PIGEON STRETCH
16.9) CORNER WALL STRETCH
16.10) WALL ANGELS
16.11) NECK TUCKS
16.12) BACK BENDS

17) FOAM ROLLER MUSCLE RELEASE pg 58

APPENDIX: FREQUENTLY ASKED QUESTIONS pg 60
SUMMARY pg 62

INTRODUCTION

The physical component of biking is unlike many sports in that you are powering a machine. Cyclists use wheels and gears to amplify their ability, their power and strength enabling people with a wide range of fitness levels to participate. Many cyclists know the risks that cars, people, other cyclists and trails present and hopefully all wear a helmet to protect their head from a fall or collision.

Traumatic injuries associated with falls or collisions are more prevalent in downhill riding, followed closely by cross country riding, while repetitive/overuse injuries are more common in road cycling due to the more static nature of riders. Riders that follow the simple guidelines of riding for conditions and within ability often reduce the risk of traumatic injury, however the nature of riding will always have some inherent risk associated with participation. Repetitive/overuse injuries often develop over a period of time and are often related to poor bike fit/set up, increased unaccustomed training mileage, poor recovery strategies and muscle imbalance.

The targeted injury reduction strategies offered in the BIKE READY & AVOID DAMAGE (BIKERAD) Manual are effective in reducing repetitive/overuse injuries with appropriate education and exercise strategies. Injury reduction strategies for riders include dynamic mobility warm-up, strength and conditioning and counter-balance exercises and recovery strategies including foam roller and hold type stretching.

The aim of the BIKERAD Manual is to educate riders on how to reduce repetitive/overuse injuries by providing bike fitting tips, exercises and recovery strategies. The clinical directors, all sport physiotherapists at Back in Action Physiotherapy, Whistler have developed the BIKERAD based on general exercise principles and years of clinical experience working with all types and levels of riders.



Bianca Matheson
Titled Sports and Manipulative Physiotherapist
Canadian Ski Cross Team Physiotherapist
Canadian Triathlon Physiotherapist



Mike Conway
Titled Sports and Manipulative Physiotherapist
Canadian Ski Cross Team Physiotherapist



Therese Leigh
Titled Sports and Manipulative Physiotherapist
Canadian Ski Cross Team Physiotherapist

STRUCTURE OF THE BIKERAD

The BIKERAD has three parts with a total of 47 sports specific exercises: Part 1 should be performed in the specified sequence at the start of each riding activity or following rest periods prior to resuming riding, while parts two and three are best done after riding. All three parts could ideally be done on days off also.

PART 1: WARM UP (DYNAMIC MOBILITY & STABILITY)
Nine exercise streams aimed at taking joints and tissues through functional range, while facilitating muscle activation, muscle balance and stability.

PART 2: STRENGTH, ENDURANCE, BALANCE, PLYOMETRICS & AGILITY
Six exercise streams, each with three levels of increasing difficulty, aimed at developing specific performance and injury protection strategies.

PART 3: STRETCHING & FOAM ROLLER
20 exercises aimed at recovery following work or exercise and to keep tissues and joints healthy and mobile.

KEY ELEMENTS FOR INJURY REDUCTION

The key elements of effective injury reduction programs for riders include appropriate bike fit/set up, mobility, core strength, posterior chain strength and recovery.

Bike Fit/Set Up

A bike is mechanically symmetrical and we are not. We contact the bike at the saddle, pedals and handles bars which can and should be adjusted to ensure an optimal fit.

Mobility

Joint mobility is defined by the degree to which a joint (where two bones meet) is allowed to move before being restricted by surrounding tissues (ligaments, tendons, muscles). It is not uncommon to have reduced joint mobility, however increased mobility loss leads to local tissue strain and overload of other areas.

Core Training

The “core” is a functional unit which includes the muscles of the trunk (abdominals, back extensors) but also the pelvic–hip region. Maintaining appropriate “core strength” is essential for optimal functioning and effective load transfer of the upper and lower extremities.

Posterior Chain Strength

The “posterior chain” is the group of muscles at the back of the body, which include the calf’s, hamstrings, glutes and lower back. These muscles are important in balancing the often more sport related dominant anterior muscle groups of the quads/thigh muscles and abdominals.

Although it is difficult to prevent all injuries, especially contact injuries, there is undeniable efficacy in injury reduction for repetitive/overuse injuries with regular performance of specific exercises. Quality rather than quantity is the key as it takes roughly 300 repetitions to instill a new movement pattern, and at least 3,000 repetitions to break a bad one.

Recovery

Recovery is the strategy of assisting muscle recovery after completing the activity. Recovery helps reduce muscle fatigue, and muscle tightness while helping to restore muscle performance.

HOW TO LEARN THE BIKERAD

The key to efficient learning is to follow the instructions detailed in the three parts of the BIKERAD. For Part 2 exercises start with Level 1 exercises and focus on performing them correctly, while carefully correcting all mistakes and ensuring good body position (using a mirror for feedback is often helpful). It is essential that quality is stressed over quantity. When the exercise can be performed without difficulty for the specified number and repetitions, the athlete may progress to the next level of the exercise.

BASIC BIKE FIT TIPS

Bikes are symmetrical, while the human body is not, thus a bike should be fine tuned to maximise comfort and performance while reducing the incidence of injury. It is at the 5 contact points: the saddle, feet and hands that adjustments need to affect to ensure comfort and perfoamnce.



Fitting a bike works best when you start with the right size bike; or at a minimum a bicycle that is close enough to your individual body damensions.

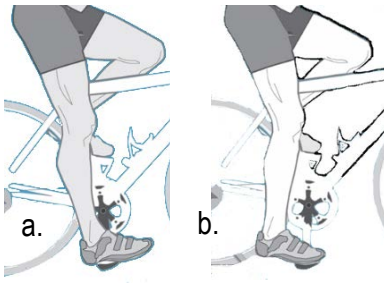




BASIC BIKE FIT TIPS

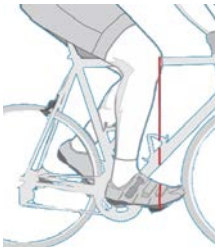
1) DETERMINING SADDLE HEIGHT

a. With cleat unclipped you should be able to just reach pedal with heal and be able to pedal without losing contact or sliding off the seat. Most appropriate for XC and road, less for DH.
b. Once clipped in your knee should now have a gentle bend at any where from 30-40 degrees knee bend depending on preference at the end of the down stroke.



2) OPTIMAL FORWARD/BACKWARD POSITION OF SEAT

- At the 3 O'clock position (crank arms parallel to ground) position the front of the knee should directly line up with the pedal spindle. This can be measured by dropping a ruler or plumb bob down from the front of knee and where it contacts the foot is your measure.



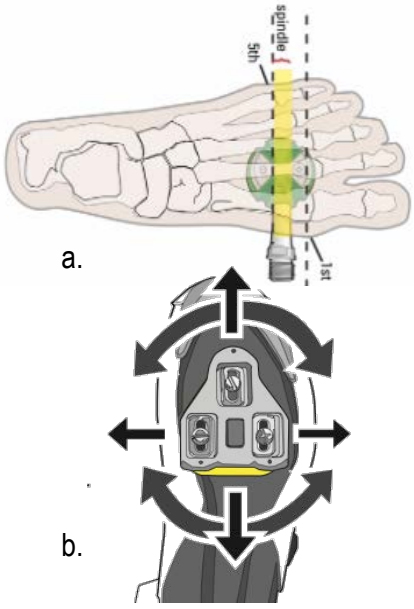
3.) OPTIMAL REACH

- The shoulder angle should be around 90 degrees with 15 degrees elbow bend. If you can lift your hands just off the bars and maintain the position for 10 sec then your reach is likely within the bulls eye range.



4.) OPTIMAL CLEAT POSITION

a. Basic cleat position should start with marking the base of the inside (big toe) and outside (little toe) and placing the cleat on the average between the marks.
b. Further cleat adjustment can be made for side to side and up and down fine-tuning.



BASIC BIKE FIT TIPS

Common Pain Areas & Adjustments

PAINFUL AREA	POSSIBLE ADJUSTMENT
Neck or Shoulder	Handle Bars ↑ (higher) – using spacers or → (closer/backward) – may need shorter stem or Saddle ← (forward)
Back	Handle Bars ↑ (higher) – using spacers or → (closer/backward) – may need to shorter stem or Saddle ← (forward)
Front of Knee	Saddle ↑ & → (backward)
Back of Knee	Saddle ↓ & maybe ← (forward)
Outside Knee (lateral)	Foot away from frame (cleat in)
Inside of Knee (medial)	Foot closer to frame (cleat out)
Achilles	Foot Forward (cleat back)
Pressure on Bottom of Foot	Foot Forward (cleat back)
Saddle pain	Bars ↑ (higher) Saddle adjusted so its flat New saddle for better fit

THE BIKERAD EXERCISES:

PART 1 | WARM UP (DYNAMIC MOBILITY & STABILITY)

1. LATERAL LUNGES
2. KNEE STRAIGHTNERS
3. FIGURE 4
4. ITB SIDE BEND
5. KARATE KICKS
6. WARRIOR REACH
7. BUM KICKS
8. TUCK TO TILTS
9. NECK ROTATIONS

The movement/mobility streams in the warm up dynamically take your major joints, muscles and nerves through range preparing them for activity. These are both activation and mobility exercises designed to prime your body for biking as well as during rest periods during the ride to counter stiffness. It is common to want to hold these movements; however prolonged stretches may increase your risk for injury if tissues are not yet warm. Hold-type stretches are better left for post exercises as they also increase muscle relaxation and promote recovery.

These particular mobility movements were selected in order to cover all the basic joint/muscle movements related to the activity of biking to maximize unrestricted range and muscle activation, but by no means are they the only ones.

1. LATERAL LUNGES

A. With feet wider than shoulder width apart, hands supported on ground in between legs
B. Bend knee and shift to same side
C. Bend opposite knee and shift to that side

Repeat each movement for 10 repetitions

2. KNEE STRAIGHTNERS

A. Bend knees and lean forward until your hands are comfortably resting on the ground
B. While hands remain on the ground, slowly straighten your knees until a gentle stretch is reached and then release the stretch and repeat.

Repeat each side for 10 repetitions

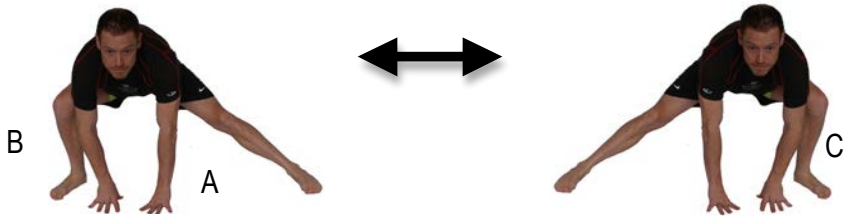
3. STANDING FIGURE 4

A. Standing on one leg, cross the other ankle over the top of your knee and hold
B. Lower yourself into a squat while holding your ankle and pushing down on the raised knee until you feel a stretch while maintaining a low back arch. Release and repeat.

Repeat each movement for 10 repetitions

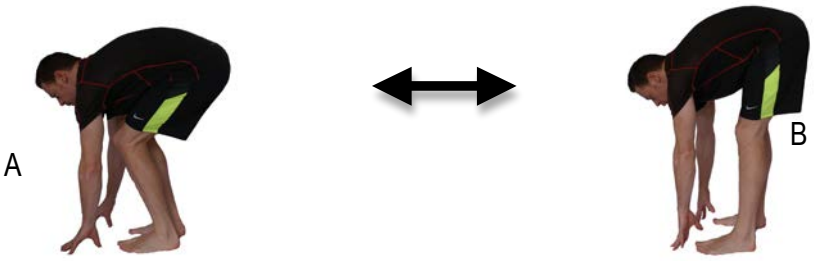
1.) LATERAL LUNGES

i) ii)



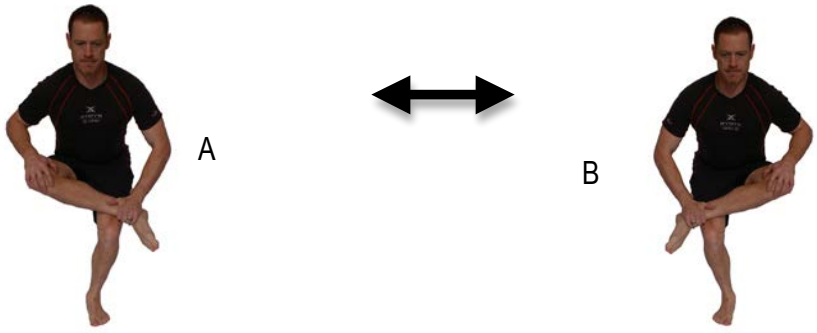
2.) KNEE STRAIGHTNERS

i) ii)



3.) STANDING FIGURE 4

i) ii)



4. ITB SIDE BENDS

A. Standing on one leg, cross your other leg as far as you can behind
B. While maintaining balance, side bend and reach down the initial standing leg as far as you can until a stretch is felt and then return and repeat.

Repeat each movement for 10 repetitions

5. KARATE KICKS

A. Standing on one leg with other bent to 90 degrees with arms over head
B. Kick your foot out maintaining thigh parallel to floor while keep your balance

Repeat each side for 10 repetitions

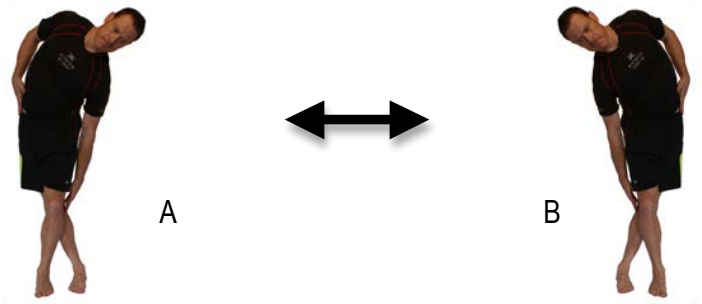
6. WARRIOR REACH

A. Standing in a lunge position, reach over your head and slowly lean back until a gentle stretch is felt at the front of the back leg
B. To ensure stretching the front of the back leg, tuck your pelvic/tail under or flatten your lower back and extend the knee while lowering the heel.

Repeat movement for 20 repetitions

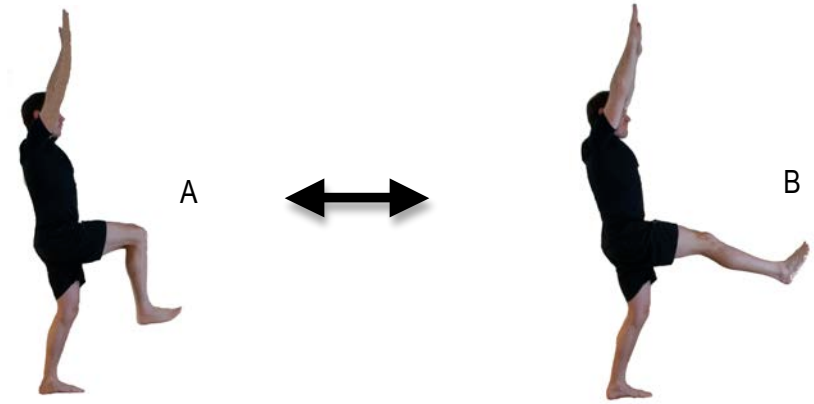
4.) ITB SIDE BENDS

i) ii)



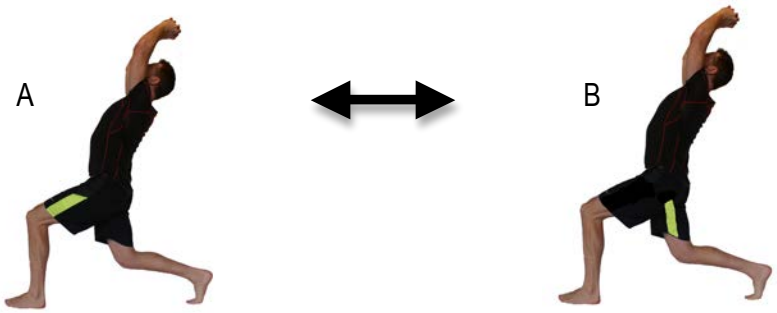
5.) KARATE KICKS

i) ii)



6.) WARRIOR REACH

i) ii)



7. BUM KICKS

A. While running on the spot, attempt to kick your bum while maintaining hip extension

Repeat each side for 10 repetitions

8. TUCK TO TILTS

A. In an athletic position, feet shoulder width apart and hands on thighs initially
B. Perform pelvic tilts without moving upper body
C. Attempt to perform the same pelvic tilts with your hands off to advance exercise

Repeat movement for 10 repetitions

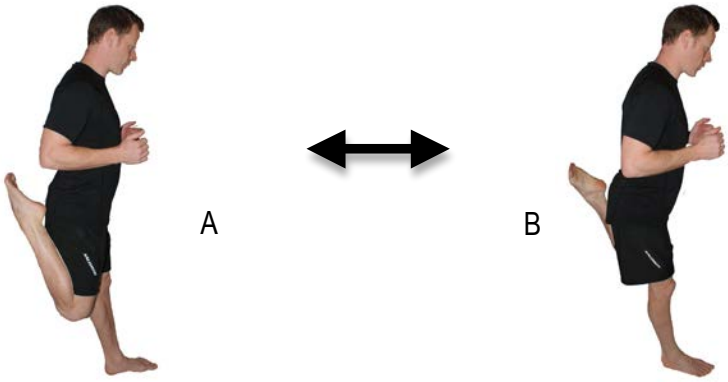
9. NECK ROTATIONS

A. Standing upright with your chin to your chest, gently roll your chin to one shoulder while keeping it in contact with your chest
B. Then roll your chin to the other shoulder maintaining contact with your chest.

Repeat movement for 10 repetitions

7.) BUM KICKS

i) ii)



8.) TUCK TO TILTS

i) Modified ii) Advanced



9.) NECK ROTATIONS

i) ii) iii.)



PART 2 | STRENGTH, ENDURANCE, BALANCE & POWER

10.1) STATIC TO MARCHING PLANK

10.2) BICYCLE PLANK

10.3) REVERSE BICYCLE PLANK

11.1) SIDE PLANK BENT LEG

11.2) SIDE PLANK STRAIGHT LEG

11.3) SIDE PLANK STAR

12.1) WALL FRONT SQUATS

12.2) SPLIT SQUATS

12.3) SINGLE LEG SQUATS

13.1) STEP BACK LUNGE

13.2) JUMP LUNGE

13.3) SINGLE LEG FORWARD/BACKWARD BOUNDS

14.1) SUPERMAN SWIM

14.2) BACK FUNDAMENTALS TUCK TO TIILT

14.3) SINGLE LEG DEADLIDT

15.1) HIP EXTENSION BRIDGE BENT KNEES

15.2) SINGLE HIP EXTENSION BRIDGE BENT KNEE

15.3) SINGLE HIP EXTENSION BRIDGE STRAIGHT KNEE

10. 1) LEVEL 1: STATIC TO MARCHING PLANK

BENEFITS

Develops abdominal, shoulder, and spinal stabilizer strength and stability as well as "core" muscle endurance which helps decrease low back pain. Alternating legs in marching fashion challenges rotary stability strength across the spine.

DESCRIPTION

A. Support on elbows, shoulders at 90 degrees
B. Support on toes, ankles at 90 degrees
C. Maintain straight line though body: neutral spine or curve
D. If can maintain position for 30 sec, can make more difficult by lifting one foot, then the other

REPETITIONS

- Work up to 3 sets of 30 secs -1 min holds or while marching

WHEN TO ADVANCE

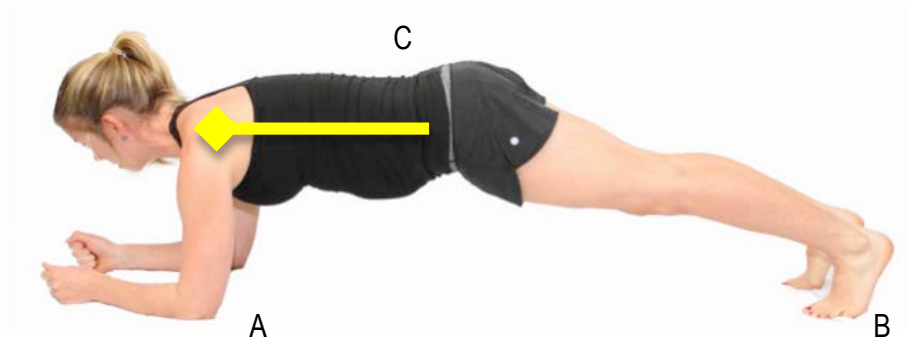
- 1 continuous set for up to 1 mins, alternating from 1 foot to the other with good form

AVOID

- Lifting head
- Poking bum too high and losing straight line position
- Not maintaining shoulders at 90 degrees
- Excessive arching of the low back beyond the neutral spine position

10.1) LEVEL 1: STATIC TO MARCHING PLANK

i.) Moderate



ii.) Advanced



10.2) LEVEL 2: BICYCLE PLANK

BENEFITS

Develops abdominal, shoulder, and spinal stabilizer strength and stability as well as "core" muscle endurance which helps decrease low back pain. Alternating legs in climber fashion further challenges rotary stability strength across the spine.

DESCRIPTION

A. Support on elbows with shoulders at 90 degrees
B. Support on toes with ankles at 90 degrees
C. Maintain neutral spine thought-out exercise
D. Lift one leg and attempt to touch to same side elbow, alternate each leg
E. Advance by speeding up movement (jumping from one leg to other) as if pedaling a bike

REPETITIONS

- Repeat each side for 10-20 reps, 3 sets

WHEN TO ADVANCE

- 1 continuous set of 20 repetitions on each side with good form

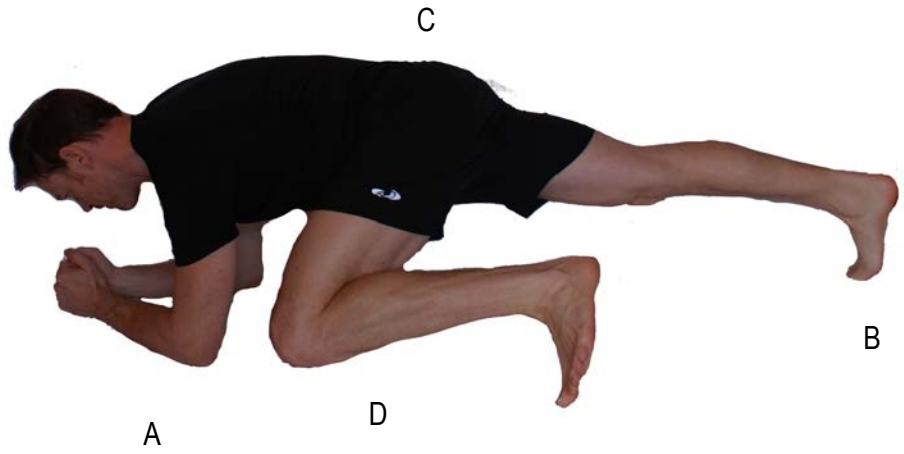
AVOID

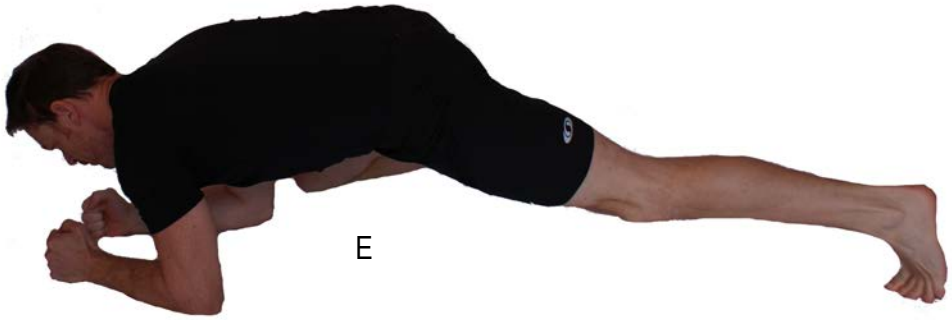
- Lifting head
- Poking bum too high and losing the straight line position
- Not maintaining shoulders at 90 degrees
- Excessive arching of the low back beyond the neutral spine position

10.2) LEVEL 2: BICYCLE PLANK

i.) MODERATE: slowly alternating one leg at a time

ii.) ADVANCED: quickly jumping from one leg to the next





10.3) LEVEL 3: REVERSE BICYCLE PLANK

BENEFITS

Develops abdominal, spinal stabilizer and hip strength and endurance, which helps decrease low back pain.

DESCRIPTION

A. Sitting up with neutral spine (gentle low back curve) with hand support and hips and knees bent to 90
B. Lift legs off and straighten or pedal one then the other while maintaining low back arch
C. Advance to taken away hand support when able

REPETITIONS

- Repeat side to side for 1-2 mins for 3 sets

YOU'RE ADVANCED

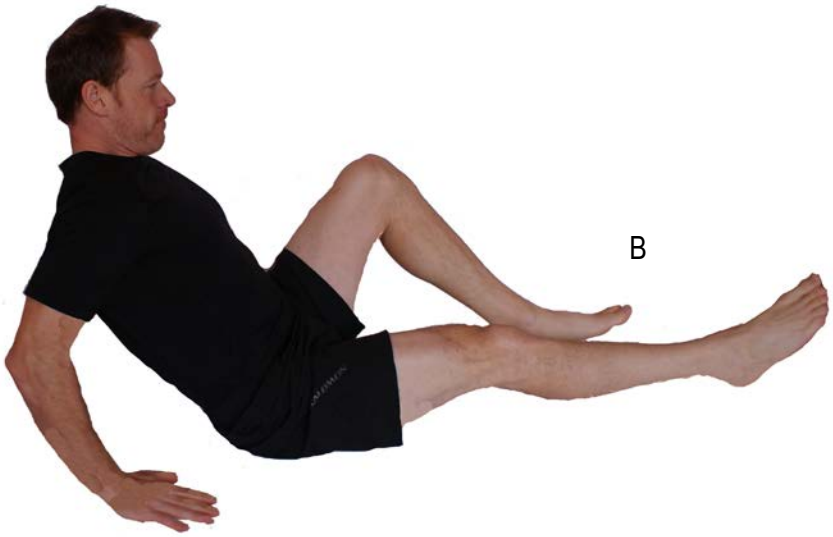
- When you can perform for 2 mins without support and with good form

AVOID

- Losing neutral spine (gentle low back arch)

10.3) LEVEL 3: REVERSE BICYCLE PLANK

i.) MODIFIED: support through arms and lift legs while alternating or pedaling one leg then the other



ii.) ADVANCED: no support while pedaling or alternating legs without touching the ground



11.1) LEVEL 1: SIDE PLANKS BENT LEG

BENEFITS

Develops abdominal, shoulder, hip and spinal stabilizer strength and stability as well as "core" muscle endurance, which helps decrease low back pain.

DESCRIPTION

A. Support on elbow, directly under shoulder
B. Support on bent knees
C. Raise hips off floor until body is straight, then lower to floor and return

REPETITIONS

- Repeat 10-20 reps on each side for 3 sets

WHEN TO ADVANCE

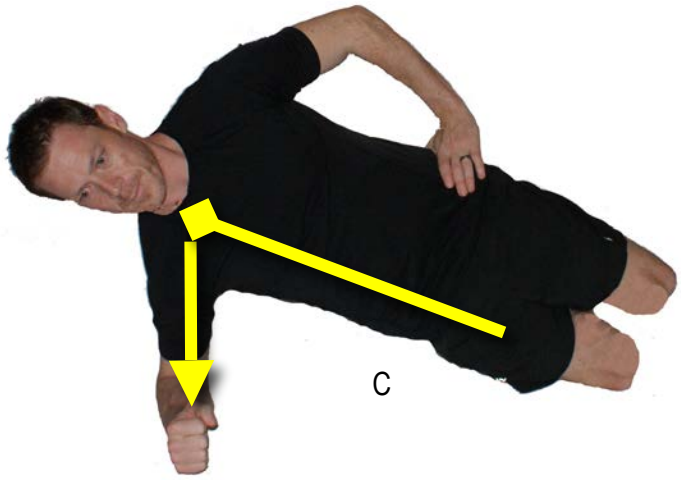
- When you can do 3 sets of 20 repetitions on each side with good form

AVOID

- Rotating through body or losing straight line through body
- Not maintaining elbow under shoulder

11.1) LEVEL 1: SIDE PLANK BENT LEG





11.2) LEVEL 2: SIDE PLANK STRAIGHT LEGS

BENEFITS

Develops abdominal, shoulder, hip and spinal stabilizer strength and stability as well as "core" muscle endurance which helps decrease lower back pain. Performing with straight legs further challenges spinal and hip stabilizing muscles.

DESCRIPTION

A. Support on elbow, directly under shoulder
B. Support at feet with bottom leg in front and top leg behind
C. Raise hips off floor until body is straight, then gently lower to floor and return

REPETITIONS

- 3 sets 10-20 reps on each side

WHEN TO ADVANCE

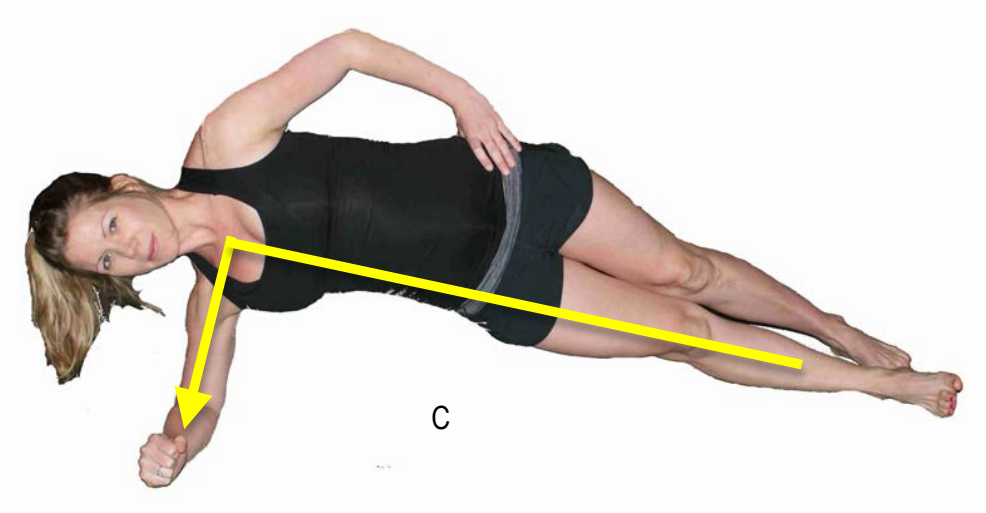
- When you can do 3 sets of 20 repetitions on each side with good form

AVOID

- Doing exercise if you can not get body off floor to straight line position
- Rotating through body

11.2) LEVEL 2: SIDE PLANK STRAIGHT LEGS





Back In Action Physiotherapy
119-4368 Main St, Whistler BC, V0N 1B4
Ph: 604 962 0555, fax: 962 0554 email: info@backinactionphysiotherapy.com
Web: www.backinactionphysiotherapy.com

11.3) LEVEL 3: SIDE PLANK STAR

BENEFITS

Develops abdominal, shoulder, hip and spinal stabilizer strength and stability as well as "core" muscle endurance which helps decrease low back pain. Performing plank and lifting top leg further challenges spinal and hip loading/stabilizing muscles.

DESCRIPTION

A. Support on elbow, directly under shoulder
B. Support at feet with bottom leg in front and back leg behind
C. Raise hips off floor until body is straight and hold
D. Raise top leg off support leg and then gently return legs together

REPETITIONS

- Repeat 3 sets, 10-20 reps of leg raises on each side

YOU'RE ADVANCED

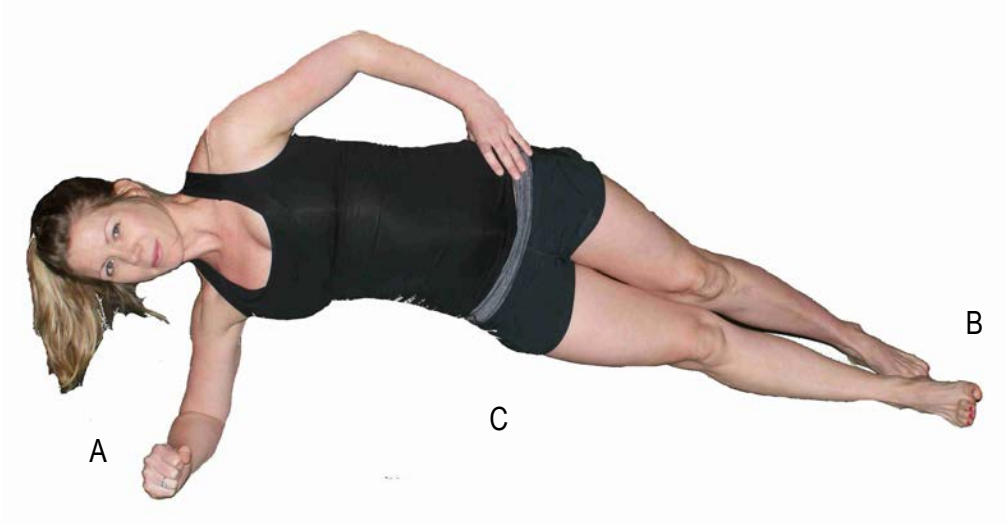
- When you can hold side plank position while performing leg raises for 2 mins with good form

AVOID

- Doing exercise if you can not get body off floor to straight line position
- Rotating through body

Back In Action Physiotherapy
119-4368 Main St, Whistler BC, V0N 1B4
Ph: 604 962 0555, fax: 962 0554 email: info@backinactionphysiotherapy.com
Web: www.backinactionphysiotherapy.com

11.3) LEVEL 3: SIDE PLANK STAR





Back In Action Physiotherapy
119-4368 Main St, Whistler BC, V0N 1B4
Ph: 604 962 0555, fax: 962 0554 email: info@backinactionphysiotherapy.com
Web: www.backinactionphysiotherapy.com

12.1) LEVEL 1: FRONT WALL SQUATS

BENEFIT

Develops integral squat pattern, requiring coordination and alignment of ankles, knees, hip and back while maintaining balance. Performing this correctly ensures efficiency in movement with optimal muscle recruitment strategies essentially minimizing muscle overuse and reducing injury risk. In addition to coordination and balance, this exercise also helps with lower limb strength and endurance.

DESCRIPTION

A. Hands on the wall with body at an appropriate distance to be able to squat so that thighs achieve parallel to the ground
B. Advance closer to wall while maintaining squat technique as able

REPETITIONS:

- 3 sets, 10-20 reps

WHEN TO ADVANCE

- When you can maintain good control and perform 20 continuous repetitions for 3 sets, your foot width from the wall

AVOID

- Losing neutral spine
- Letting knees turn in or loosing hip and knee alignment

Back In Action Physiotherapy
119-4368 Main St, Whistler BC, V0N 1B4
Ph: 604 962 0555, fax: 962 0554 email: info@backinactionphysiotherapy.com
Web: www.backinactionphysiotherapy.com

12.1.) LEVEL 1: WALL FRONT SQUAT

i.) MODIFIED: step back from wall until you can achieve thighs parallel while not falling backwards





ii.) ADVANCED: Attempt to perform one foot width from wall



12.2) LEVEL 2: SPLIT SQUAT

BENEFIT

Develops integral squat pattern, requiring coordination and alignment of ankles, knees, hip and back while maintaining balance. Performing this correctly ensures efficiency in movement with optimal muscle recruitment strategies essentially minimizing muscle overuse and reducing injury risk. This exercises further challenges balance and coordination as well as single leg loading.

DESCRIPTION

A. Step forward until leading leg is 90 degrees at knee, without knee going over toes
B. Keep chest and head forward over foot to challenge front leg maintaining neutral spine
C. Gently lower back knee down to ground and then return and repeat
D. Hip, knee and foot alignment essential to feel this exercise in glutes

REPETITIONS

- Repeat, 3 sets of 10-20 reps

WHEN TO ADVANCE

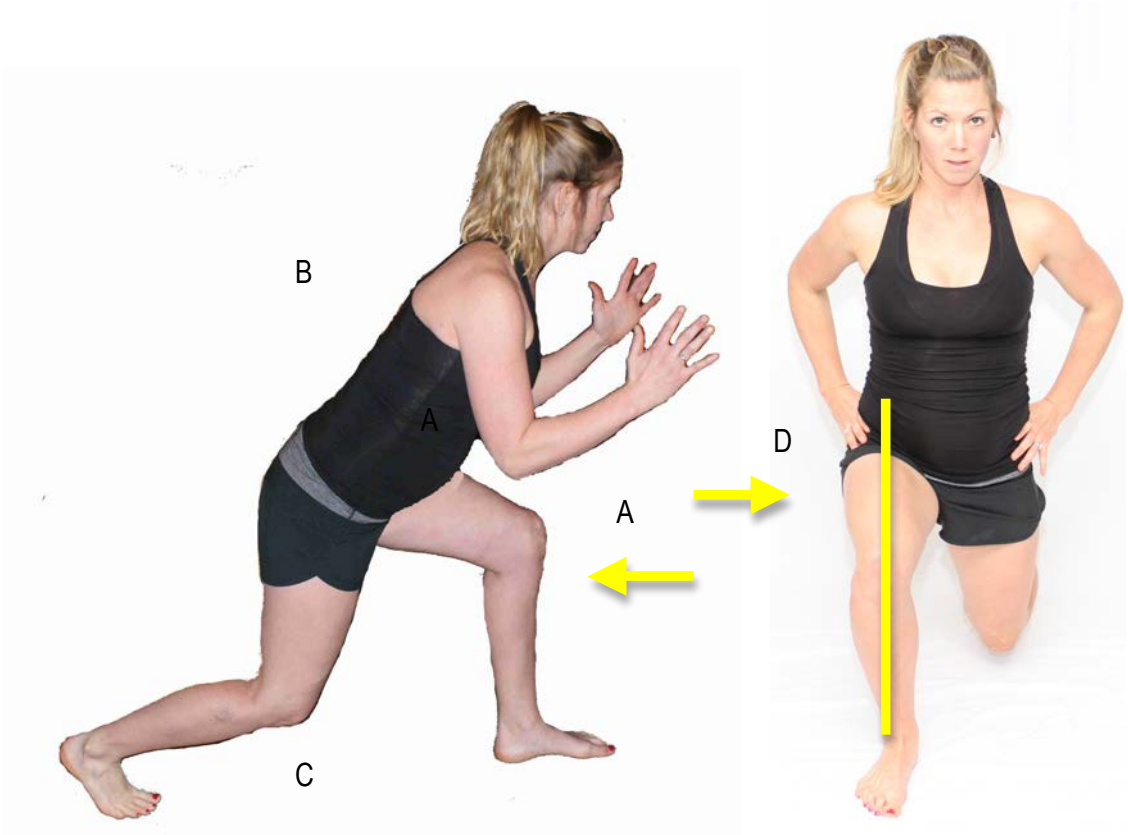
- When you can maintain control for 3 sets of 20 repetitions
- If not feeling through the glutes then you are doing it incorrect (tuck hip under torso–refer to D in picture and bring knee back away from toes)

AVOID

- Turning knee in, and hip poking out on front stance leg
- Losing neutral spine

Back In Action Physiotherapy
119-4368 Main St, Whistler BC, V0N 1B4
Ph: 604 962 0555, fax: 962 0554 email: info@backinactionphysiotherapy.com
Web: www.backinactionphysiotherapy.com

12.2.) LEVEL 2: SPLIT SQUAT



12.3) LEVEL 3: SINGLE LEG SQUAT

BENEFIT

Develops squat pattern, requiring coordination and alignment of ankles, knees, hip and back while maintaining balance. Performing this correctly ensures efficiency in movement with optimal muscle recruitment strategies essentially minimizing muscle overuse and reducing injury risk. This exercises further challenges balance, coordination and strength through single leg loading.

DESCRIPTION

A. Stand on 1 leg and maintain hip, knee and foot alignment
B. Squat to 90 degrees touching your bum lightly to a chair as a reference point while keeping your knee behind your toes
C. Maintain neutral spine while performing the squat

REPETITIONS

- Repeat 3 sets of 10-30 repetitions

YOU'RE ADVANCED

- When you complete 30 repetitions with good form

AVOID

- Losing hip and knee alignment or standing straight up through stance leg (full knee extension)
- Losing neutral spine position

Back In Action Physiotherapy
119-4368 Main St, Whistler BC, V0N 1B4
Ph: 604 962 0555, fax: 962 0554 email: info@backinactionphysiotherapy.com
Web: www.backinactionphysiotherapy.com

12.3) LEVEL 3: SINGLE LEG SQUAT





13.1) LEVEL 1: STEP BACK LUNGE

BENEFIT

Develops integral squat pattern, requiring coordination and alignment of ankles, knees, hip and back while maintaining balance**.** Performing this step back lunge version preferentially loads the back leg helping to increase quadriceps tendon strength, which is a common injury area for riders.

DESCRIPTION

A. Step backward so that back leg is at 90 degrees at knee and attempt to lightly touch ground
B. Maintain neutral spine throughout movement then return to start position

REPETITIONS

- Repeat, 3 sets of 10-20 reps

WHEN TO ADVANCE

- When you can maintain control for 3 sets of 20 repetitions

AVOID

- Turning knee in, and hip poking out on loaded leg
- Losing neutral spine

Back In Action Physiotherapy
119-4368 Main St, Whistler BC, V0N 1B4
Ph: 604 962 0555, fax: 962 0554 email: info@backinactionphysiotherapy.com
Web: www.backinactionphysiotherapy.com

13.1) LEVEL 1: STEP BACK LUNGES



13.2) LEVEL 2: JUMP LUNGE

BENEFIT

Develops integral squat pattern, requiring coordination and alignment of ankles, knees, hip and back while maintaining balance. Performing this step back lunge version preferentially loads the back leg helping to increase quadriceps tendon strength, which is a common injury area for riders.

DESCRIPTION

A. Step backward so that back leg is at 90 degrees at knee and attempt to lightly touch ground
B. Maintain neutral spine throughout movement
C. Jump from one leg to the other landing softly

REPETITIONS

- Repeat, 3 sets of 30-60 sec

WHEN TO ADVANCE

- When you can maintain control for 3 sets of 60 sec

AVOID

- Turning knee in, and hip poking out on loaded leg
- Losing neutral spine

Back In Action Physiotherapy
119-4368 Main St, Whistler BC, V0N 1B4
Ph: 604 962 0555, fax: 962 0554 email: info@backinactionphysiotherapy.com
Web: www.backinactionphysiotherapy.com

13.2) LEVEL 2: JUMP LUNGE



13.3) LEVEL 3: FORWARD/BACKWARD BOUNDS

BENEFIT

Develops integral squat pattern, requiring coordination and alignment of ankles, knees, hip and back while maintaining balance**.** Performing this step back lunge version preferentially loads the back leg helping to increase quadriceps tendon strength, which is a common injury area for riders.

DESCRIPTION

A. Standing on one leg
B. Hop forward then backward repetitively landing softly while maintaining hip, knee control and balance

REPETITIONS

- Repeat, 3 sets of 30-60 sec

YOU ARE ADVANCE

- When you can maintain control for 3 sets of 60 sec

AVOID

- Turning knee in, and hip poking out on loaded leg
- Losing neutral spine

Back In Action Physiotherapy
119-4368 Main St, Whistler BC, V0N 1B4
Ph: 604 962 0555, fax: 962 0554 email: info@backinactionphysiotherapy.com
Web: www.backinactionphysiotherapy.com

13.3) LEVEL 3: FORWARD/BACKWARD BOUNDS



B

A

14.1) LEVEL 1: SUPERMAN SWIM

BENEFIT

The nature of riding requires prolonged flexion/bent postures in the shoulders and spine and so to ensure balance, exercises that promote back and shoulder extension are advised to minimize risk of back and shoulder stiffness and pain.

DESCRIPTION

A. On tummy, raise both legs and arms off the ground
B. Maintain legs off the ground while raising arms overhead and above the ground. Return and repeat

REPETITIONS

- 3 sets 30-60 sec holds

WHEN TO ADVANCE

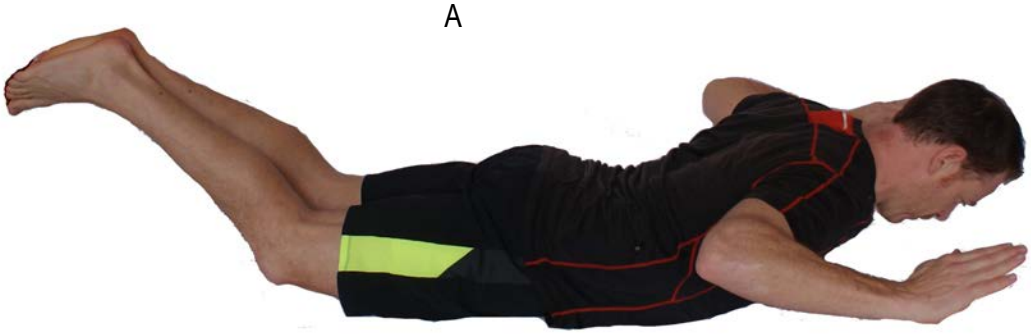
- When you can perform 3 set of 60 sec holds

AVOID

- Touching arms or legs down if possible

14.1) LEVEL 1: SUPERMAN SWIM

A



B



Back In Action Physiotherapy
119-4368 Main St, Whistler BC, V0N 1B4
Ph: 604 962 0555, fax: 962 0554 email: info@backinactionphysiotherapy.com
Web: www.backinactionphysiotherapy.com

14.2) LEVEL 2: TUCK TO TILT

BENEFIT

The nature of riding requires prolonged flexion/bent postures in the spine causing diminished muscle endurance and strength. To ensure strength endurance is maintained in the low back, being able to perform a pelvic tilt without the mid back moving can help to protect from back pain

DESCRIPTION

A. In athletic ready stance starting initially with hands on knees
B. Perform pelvic tilts (weak to power position) while avoiding movement in chest
C. To advance take hands off knees to increase the load to the back

REPETITIONS

- 3 sets 30 pelvic tilts

WHEN TO ADVANCE

- When you can perform 1 set of 30 repetitions

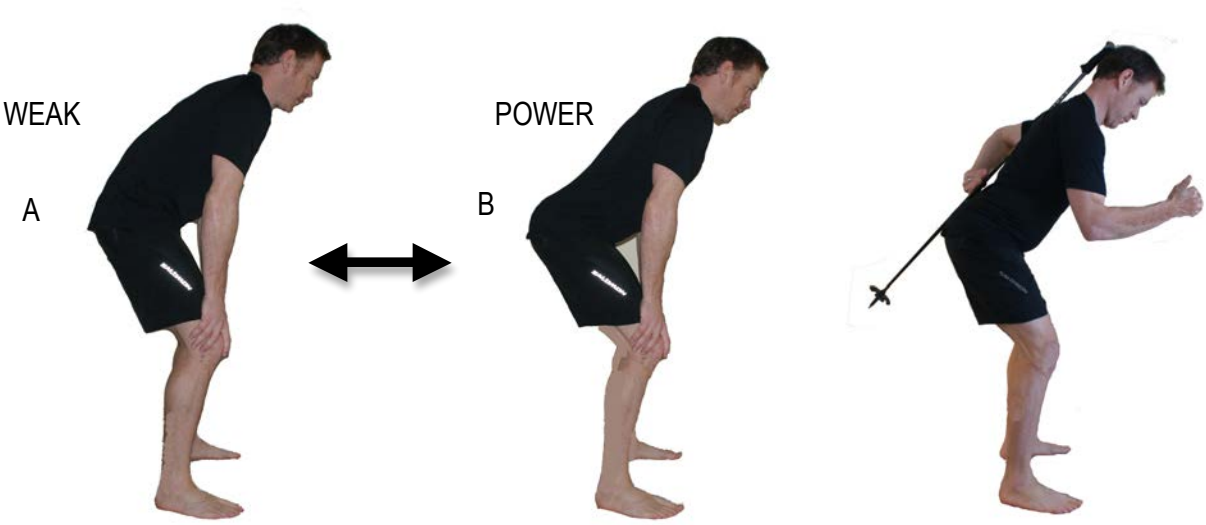
AVOID

- Moving through chest

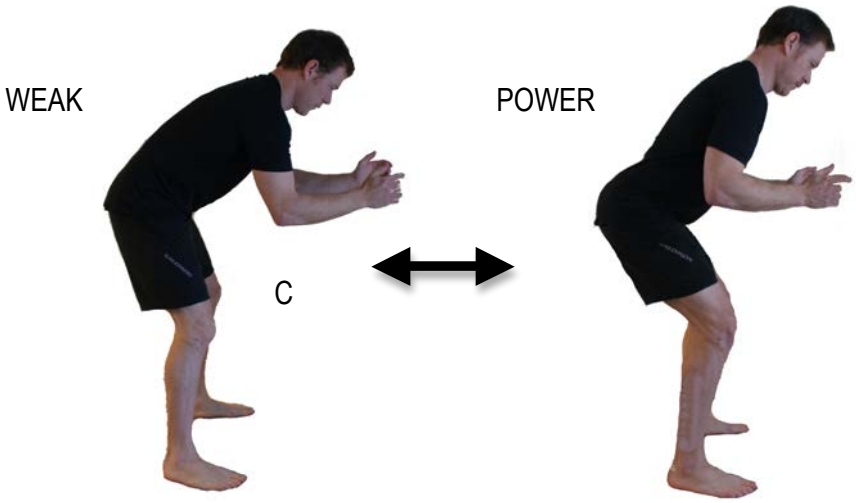
Back In Action Physiotherapy
119-4368 Main St, Whistler BC, V0N 1B4
Ph: 604 962 0555, fax: 962 0554 email: info@backinactionphysiotherapy.com
Web: www.backinactionphysiotherapy.com

14.2.) LEVEL 2: BACK FUNDAMENTALS TUCK TO TILT

ii.) MODIFIED: hands on Knees or using pole for assistance of movement awareness



i.) ADVANCED: able to pelvic tilt (WEAK to POWER) without support or movement of upper body



14.3) LEVEL 3: SINGLE LEG DEADLIFT

BENEFIT

The nature of riding requires prolonged flexion/bent postures in the spine causing diminished muscle endurance and strength in the posterior chain. To facilitate strength endurance in the back, glutes and hami, stability and optimal bending mechanics, it is important to be able to hinge from the hips while maintaining neutral spine position. This ability and type of training can help to protect from back pain

DESCRIPTION

A. Stand on 1 leg and maintain hip and knee alignment
B. Hinge through the hips and gently bend through the knee as you reach for the ground.
C. Keep a neutral spine (may need to bend knee further to maintain back alignment) while reaching to ground

REPETITIONS

- Repeat 3 sets 30-60 sec

YOU ARE ADVANCED

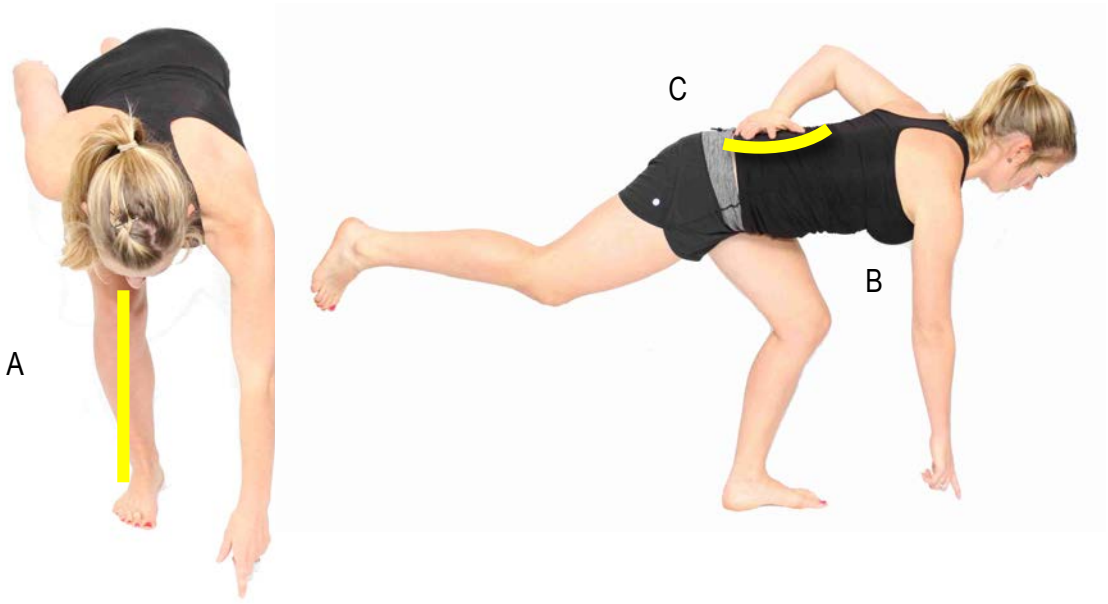
- When you can maintain control while performing for 60 sec

AVOID

- Losing hip and knee alignment on stance leg
- Losing neutral spine

Back In Action Physiotherapy
119-4368 Main St, Whistler BC, V0N 1B4
Ph: 604 962 0555, fax: 962 0554 email: info@backinactionphysiotherapy.com
Web: www.backinactionphysiotherapy.com

14.3) LEVEL 3: SINGLE LEG DEADLIFT



15.1) LEVEL 1: HIP EXTENSION MARCHING BRIDGE

BENEFIT

Improves the posterior chain muscle strength (calfs, hamstrings, glutes and low back) which is important for maintaining muscle balance, namely to counter the sport related dominance of the quads

DESCRIPTION

A. On your back knees and hips bent to 90 degrees with feet flat on the floor
B. Raise both the hips off the ground,
C. March from 1 foot to the other

REPETITIONS

- Repeat 3 sets, 30-60 sec

WHEN TO ADVANCE

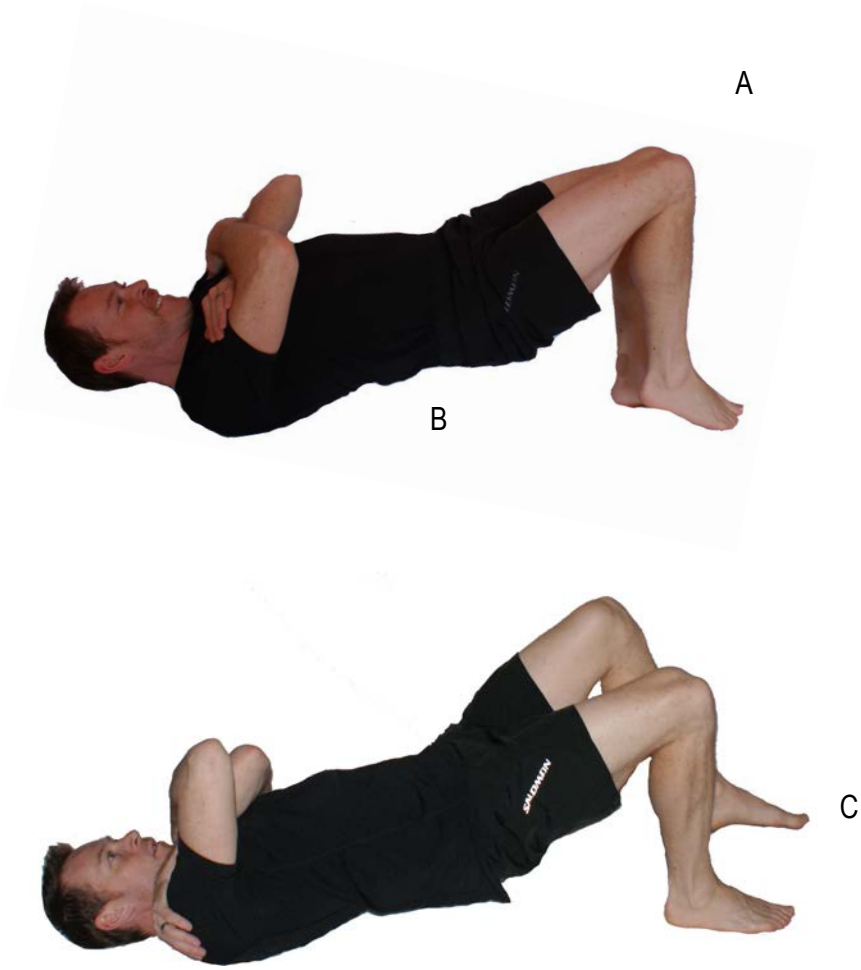
- When you can perform for 60 sec

AVOID

- Letting your bum drop or hips rotate while alternating legs

Back In Action Physiotherapy
119-4368 Main St, Whistler BC, V0N 1B4
Ph: 604 962 0555, fax: 962 0554 email: info@backinactionphysiotherapy.com
Web: www.backinactionphysiotherapy.com

15.1) LEVEL 1: HIP EXTENSION MARCHING BRIDGE



15.2) LEVEL 2: HIP EXTENSION BRIDGE SINGLE

BENEFIT

Improves the posterior chain muscle strength (calfs, hamstrings, glutes and low back) which is important for maintaining muscle balance, namely to counter the sport related dominance of the quads

DESCRIPTION

A. On your back bend one knee to 90 degrees while the other leg is lifted off the ground
B. Raise hips off the ground, drop raise and repeat

REPETITIONS

- Repeat 3 sets, 30-60 sec

WHEN TO ADVANCE

- When you can perform for 60 sec

AVOID

- Letting your bum drop or hips rotate while alternating leg

Back In Action Physiotherapy
119-4368 Main St, Whistler BC, V0N 1B4
Ph: 604 962 0555, fax: 962 0554 email: info@backinactionphysiotherapy.com
Web: www.backinactionphysiotherapy.com

15.2) LEVEL 2: HIP EXTENSION BRIDGE SINGLE



15.3) LEVEL 3: STRAIGHT LEG BRIDGE

BENEFIT

Improves the posterior chain muscle strength (calfs, hamstrings, glutes and low back) which is important for maintaining muscle balance, namely to counter the sport related dominance of the quads

DESCRIPTION

A. On your back progressively straighten leg (goal to achieve near straight leg bridge) while the other leg is lifted off the ground
B. Raise hips off the ground, drop raise and repeat

REPETITIONS

- Repeat 3 sets, 30-60 sec

WHEN TO ADVANCE

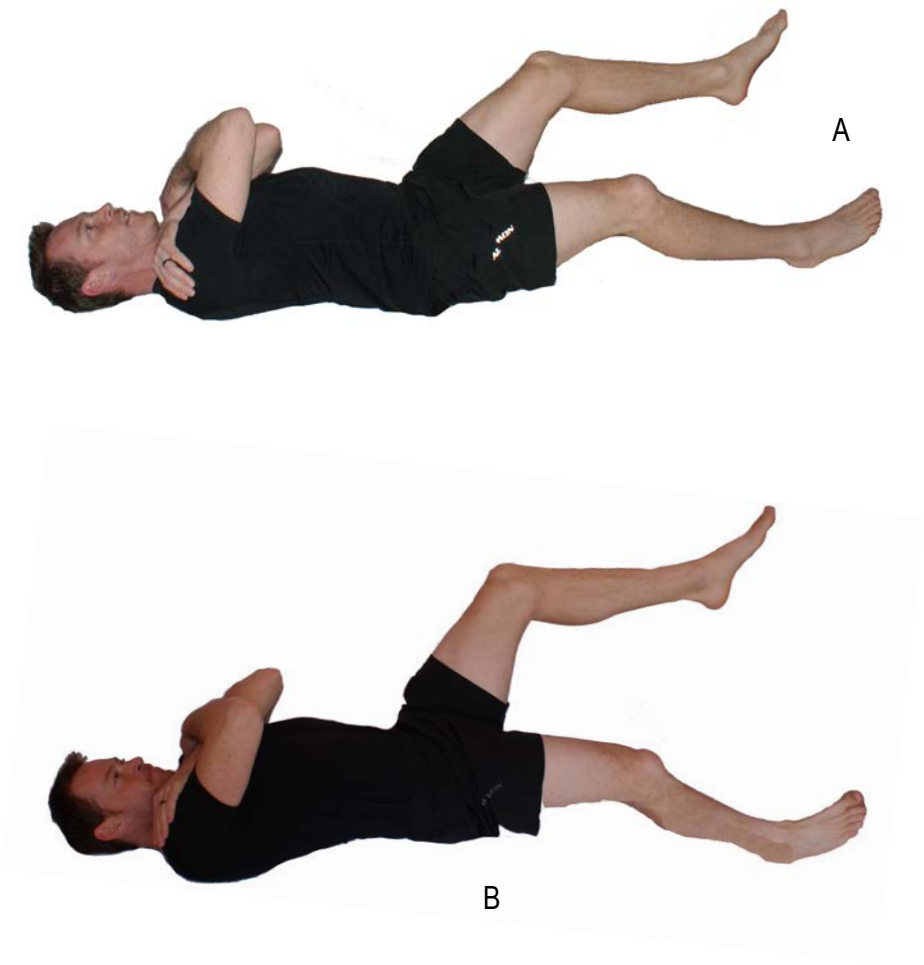
- When you can perform for 60 sec

AVOID

- Letting your bum drop or hips rotate while alternating legs)

Back In Action Physiotherapy
119-4368 Main St, Whistler BC, V0N 1B4
Ph: 604 962 0555, fax: 962 0554 email: info@backinactionphysiotherapy.com
Web: www.backinactionphysiotherapy.com

15.3) LEVEL 3: STRAIGHT LEG BRIDGE



PART 3 | STRECHES & FOAM ROLLER

16.1) LYING EGYPTIAN

16.2) COBRA

16.3) THREAD THE NEEDLE TWIST

16.4) ITB FIGURE 4

16.5) WALL QUAD

16.6) ½ BUTTERFLY

16.7) SITTING PIRIFORMIS

16.8) PIGEON STRETCH

16.9) CORNER WALL STRETCH

16.10) WALL ANGELS

16.11) NECK TUCKS

16.12) BACK BENDS

17) FOAM ROLLER MUSCLE RELEASE

16.1) **LYING EGYPTIAN**
- On your back, pull one leg over attempting to touch knee to surface
- Pull bottom ankle back attempting to touch bottom
- Work to bring top shoulder back and down to surface to feel full stretch

16.2) **COBRA**
- On tummy hands under shoulders press up keeping hips on floor while trying to straighten elbows

16.3) **THREAD THE NEEDLE TWIST**
- On tummy leg bent up and under while reaching under and across body with opposite arm

16.4) **ITB FIGURE 4**
- Lying on your side pull ankle back until heel to bum
- With opposite heel place on the outside of knee and push to floor

16.5) **WALL QUAD**
- In standing position pull ankle back so that heel is to bum and then press against a wall/tree and lean back

16.6) **½ BUTTERFLY**
- In sitting position bring one heel in while letting knee drop to surface – work to touch knee to ground
- While keeping other leg straight, lean forward reaching to touch foot

16.7) **SITTING PIRIFORMIS**
- In sitting position take one leg and place ankle on opposite thigh
- Lean forward as far as you can without rounding lower back – work to get chest on knees

16.8) **PIGEON STRETCH**
- With one leg bent underneath and across body attempt to bring your chest to the floor

16.9) **CORNER WALL**
- In a corner with forearms on wall and elbows above shoulders, lean in attempting to touch your nose to the wall

16.10) **WALL ANGEL**
- Standing back to the wall, attempt to keep your arms flat while raising them above your head

16.11) **NECK TUCKS**
- With your head against the wall attempt to flatten your neck. Should be able to pinch pen against wall

16.12) **BACK BENDS**
- Standing with your back against the wall slowly bend forward trying to peel one vertebrae off at a time. Should be able to reach past knees without low back lifting off wall

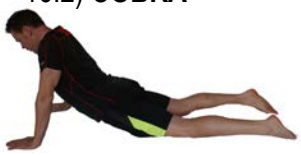
* IT IS IMPORTANT ALL STRETCHES CAUSE NO PAIN, HOLD FOR 30-60 SECONDS
* Hold-type stretching exercises are best done after exercising or sufficient warm-up. Part 1 warm-up exercises can also be done first to help increase or maintain joint and soft tissue mobility prior to static stretches.

PART 3: STRETCHING

16.1) **LYING EGYPTIAN**



16.2) **COBRA**



16.3) **THREAD THE NEEDLE TWIST**



16.4) **ITB FIGURE 4**



16.5) **Wall Quad**



16.6) **½ BUTTERFLY STRETCH**



16.7) **PIRIFORMIS STRETCH**



16.8) **PIGEON STRETCH**



16.9) **CORNER WALL STRETCH**



16.10) **Wall Angel**



16.11) **NECK TUCKS**



16.12) **BACK BENDS**



17.) **FOAM ROLLER MUSCLE RELEASE**

DESCRIPTION

- With all 8 exercises, find tight/tender muscles and gently roll back and forth to release
- 1 set for 30-60 seconds

Back In Action Physiotherapy
119-4368 Main St, Whistler BC, V0N 1B4
Ph: 604 962 0555, fax: 962 0554 email: info@backinactionphysiotherapy.com
Web: www.backinactionphysiotherapy.com

PART 3: FOAM ROLLER MUSCLE RELEASE

CALF



SHIN



ADDUCTORS



IT BAND



QUAD



PIRIFORMIS



HAMI



GLUTE



BACK



NECK



APPENDIX

COMMONLY ASKED QUESTIONS:

WHAT IS THE BIKERAD?

The BIKERAD is a complete warm up program that aims to reduce the most common injuries in bike sports.

WHO DEVELOPED THE BIKERAD?

The BIKERAD was developed by the Clinic directors at BACK IN ACTION PHYSIOTHERAPY: BIANCA MATHESON, THERESE LEIGH & MIKE CONWAY based on their extensive experience working with all levels of riders.

WHY USE THE BIKERAD?

This is a simple but effective manual of exercises that do not require equipment to perform. It is a complete bike specific program designed with different levels of intensity, which effectively train several aspects of the body related to bike sports. It includes a warm-up, which should be part of everyone's routine prior to riding. There is good clinical and scientific evidence to support the efficacy of the selected exercises in the goal of injury reduction.

WHO SHOULD DO THE BIKERAD?

The BIKERAD is specifically designed for amateur and recreational athletes and for both male and females at all levels of play.

WHEN SHOULD YOU DO THE BIKERAD?

The BIKERAD should be performed as a warm up prior to biking activities (Parts 1). Parts 2 and 3 should be done after participating in riding sports or on days off so as not to overly fatigue muscles required for activity.

HOW OFTEN SHOULD YOU PERFORM THE BIKERAD?

The BIKERAD should be performed before every biking activity for Part 1 and/or at least 2 times per week with Parts 1-3 if not on the bike.

HOW LONG DOES IT TAKE TO DO THE BIKERAD?

If people are familiar with the exercises it should take about 15-20 minutes.

HOW LONG DOES IT TAKE BEFORE THE BIKERAD HAS AN EFFECT?

Depending how often people perform the BIKERAD, any where from 6-12 weeks, but doing the warm up even once will activate and limber up your joints and muscles for that days riding!

WHEN CAN PEOPLE STOP PRACTISING THE BIKERAD?

As long as an people participate in biking activities, they should perform the BIKERAD as the effects will diminish once training stops.

WHAT ABOUT OTHER PREVENTATIVE MEASURES?

Other preventative measures are encouraged.

DO PEOPLE NEED TO WARM UP BEFORE THE BIKERAD?

No the BIKERAD includes a complete warm up program.

CAN THE BIKERAD BE PERFORMED IN ANY ORDER?

No, the sequence was chosen to provide a deliberate warm up and progression.

WHEN SHOULD PEOPLE PROGRESS TO THE NEXT LEVEL?

People should begin with level 1 and only when they can complete the required sets and repetitions comfortably with good technique should they progress.

SUMMARY

The BIKERAD is a complete program to reduce injuries among people that partake in biking activities.

The program was developed by the clinical directors of Back In Action Physiotherapy and is based on years of clinical experience working with recreational and elite level riders.

The program should be performed as a standard warm up (Part 1) at the start of every on biking activity. Part 2-3 should be performed after riding activities or on days off, with all 3 parts being performed at least 2-3 times per week for general improvement and/or maintenance.

For all exercises, correct performance is essential.

Back In Action Physiotherapy
119-4368 Main St, Whistler BC, V0N 1B4
Ph: 604 962 0555, fax: 962 0554 email: info@backinactionphysiotherapy.com
Web: www.backinactionphysiotherapy.com