

Mastering MOUNTAIN BIKE Skills

Second Edition

- cross-country
- all-mountain
- downhill
- racing
- pump tracks
- dirt jumping



Brian Lopes
Lee McCormack

◦ SECOND EDITION ◦

Mastering MOUNTAIN BIKE Skills



BRIAN LOPES
LEE MCCORMACK



Human Kinetics

Library of Congress Cataloging-in-Publication Data

Lopes, Brian.

Mastering mountain bike skills / Brian Lopes, Lee McCormack. -- 2nd ed.

p. cm.

Includes index.

ISBN-13: 978-0-7360-8371-3 (soft cover)

ISBN-10: 0-7360-8371-5 (soft cover)

I. Mountain biking--Training. I. McCormack, Lee. II. Title.

GV1056.L66 2010

796.6'3--dc22

2010012431

ISBN-10: 0-7360-8371-5 (print)

ISBN-13: 978-0-7360-8371-3 (print)

Copyright © 2010, 2005 by Brian Lopes and Lee McCormack

All rights reserved. Except for use in a review, the reproduction or utilization of this work in any form or by any electronic, mechanical, or other means, now known or hereafter invented, including xerography, photocopying, and recording, and in any information storage and retrieval system, is forbidden without the written permission of the publisher.

The Web addresses cited in this text were current as of January 2010, unless otherwise noted.

Acquisitions Editor: Justin Klug; **Developmental Editor:** Anne Hall; **Assistant Editor:** Cory Weber; **Copy-editor:** Patsy Fortney; **Indexer:** Dan Connolly; **Permission Manager:** Martha Gullo; **Graphic Designer:** Bob Reuther; **Graphic Artist:** Tara Welsch; **Cover Designer:** Keith Blomberg; **Photographer (cover):** Manfred Stromberg; **Photography (interior):** all photos appear courtesy of Lee McCormack—see page 245 for individual credits; **Photo Asset Manager:** Laura Fitch; **Visual Production Assistant:** Joyce Brumfield; **Photo Production Manager:** Jason Allen; **Art Manager:** Kelly Hendren; **Associate Art Manager:** Alan L. Wilborn; **Illustrator:** Lee McCormack, unless otherwise noted; **Printer:** Versa Press

Human Kinetics books are available at special discounts for bulk purchase. Special editions or book excerpts can also be created to specification. For details, contact the Special Sales Manager at Human Kinetics.

Printed in the United States of America 10 9 8 7 6 5 4

The paper in this book is certified under a sustainable forestry program.

Human Kinetics

Web site: www.HumanKinetics.com

United States: Human Kinetics
P.O. Box 5076
Champaign, IL 61825-5076
800-747-4457
e-mail: humank@hkusa.com

Canada: Human Kinetics
475 Devonshire Road Unit 100
Windsor, ON N8Y 2L5
800-465-7301 (in Canada only)
e-mail: info@hkcanada.com

Europe: Human Kinetics
107 Bradford Road
Stanningley
Leeds LS28 6AT, United Kingdom
+44 (0) 113 255 5665
e-mail: hk@hkeurope.com

Australia: Human Kinetics
57A Price Avenue
Lower Mitcham, South Australia 5062
08 8372 0999
e-mail: info@hkaustralia.com

New Zealand: Human Kinetics
P.O. Box 80
Torrens Park, South Australia 5062
0800 222 062
e-mail: info@hknewzealand.com

◦ *SECOND EDITION* ◦

Mastering MOUNTAIN BIKE Skills

CONTENTS





Choose Your Weapon 7

Buy the Right Bike	8
Hardtail or Full Suspension?	8
Choose the Right Bike for Your Riding Style	11
Understand the Bike's Geometry	18
Customize Your Bike for Your Riding Style	21
Bike Setup	24



Become One With Your Bike 43

Learn How to Touch Your Bike	44
Get Into Attack Position	46
Optimize Your Sense of Balance	49
Stay Between Your Wheels	50
Loading and Unloading	55
Mounting and Dismounting	59



Make Great Power 61

Build a Perfect Pedal Stroke	62
Make Mad Power With These Tips	66
In the Saddle	67
Out of the Saddle	67
Sprinting	68
Spin to Win	70
Shift Like a Champ	70



Brake Better to Go Faster 73

Know Your Stopping Distance	76
Control Your Excess Braking	78
Battle Braking Bumps	79

5

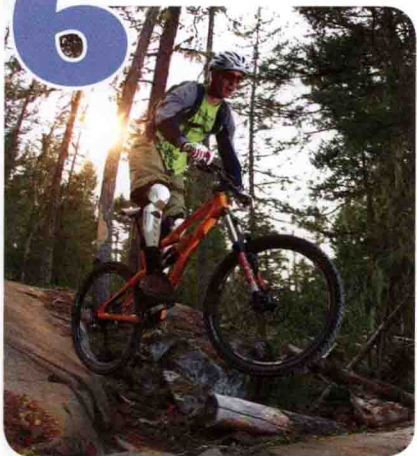


Carve Any Corner

81

Master the Basics of Every Turn	82
Follow the Right Lines	85
Lean to the Right Degree	88
Rail Berms	93
Carve Flat Turns	95
Survive Off-Camber Turns	96
Conquer Switchbacks	97
Skid Into Loose Corners	98
Pump Berms for Free Speed	99
Deal With Drift.	99

6

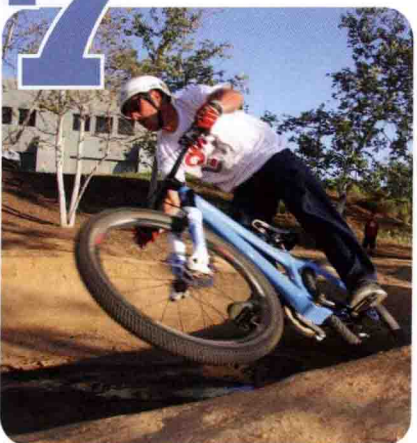


Wheelie and Hop Over Anything

103

Lift That Front Wheel.	104
Lift Your Rear Wheel.	109
Get Over Small Obstacles	111
Hop Over Large Obstacles	112
Pedal Hop.	116
Lunge Onto a Ledge	117

7

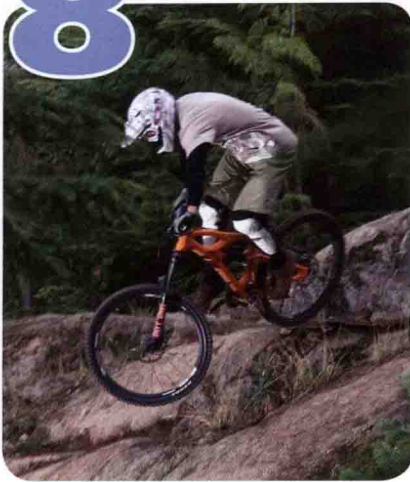


Pump Terrain for Free Speed

119

What is Pump?	120
Where Can You Pump?	120
Why Should You Pump?	121
The Continuum of Pump.	122
Gaining Speed Over a Single Bump	122
Maintaining Speed Over a Single Bump	123
Pump-Manualing Across Two Bumps	124
Pumping a Turn	125
Applying Pump on Real Trails	126
And Keep in Mind.	126

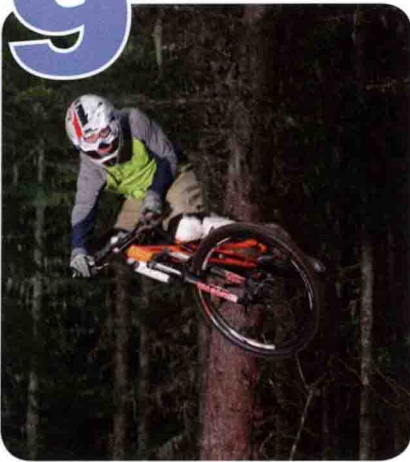
8



Drop Like a Feather 131

Land Smoothly	132
Fast Drop to Downhill	133
Slow Drop to Flat	135
Half-Pipe Drop-In	137

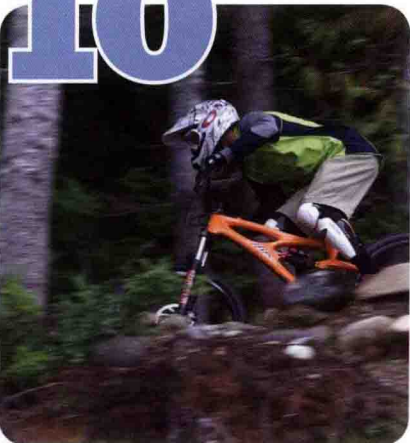
9



Jump With the Greatest of Ease 139

Learn to Jump	140
Dial Your Jumping Style	147
Handle All Sorts of Jumps	151

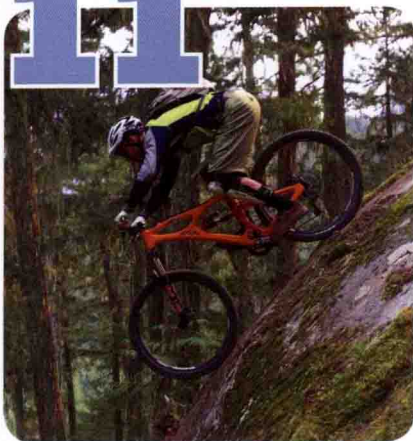
10



Flow on Any Trail 163

See Better to Go Faster	164
Pick Great Lines	166
Dial In Your Speed	168
Ride With a Reserve	169
Commit	169
Find a State of Flow	171
Know Why You Ride	175

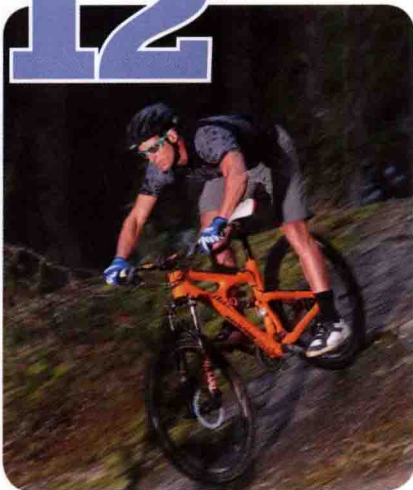
11



Handle Crazy Conditions **177**

Unnecessary Roughness	178
Slippery When Wet	180
Soft, Deep, and Loose	182
Avoiding the Rut	184
Riding the Skinnies	185

12



Avoid Injuries **189**

Chronic Injuries	190
Acute Injuries	191
Stay Out of Trouble	191
Common Mistakes and Their Fixes	194
So You're in Trouble	199
Top Five Training Exercises—or—James Says, “Do These Exercises”	202
Rip It for a Lifetime	204

13



Race Like a Champ **205**

Strengthen Your Mind	206
Bikercross	213
Dual Slalom	219
Downhill	222
Cross-Country	227
Super D	230
24-Hour Races	233

INTRODUCTION

Would you rather repeat old failures or create new successes? If you're satisfied with your riding, keep doing what you're doing. If you want to ride better/safer/faster, you must consciously practice the skills that will get you there.

One thing at a time. Whenever you're out riding, concentrate on one skill or component of a skill. Look ahead in the corners, stay low over the jumps, weight your outside pedal, or whatever. Think about executing the move perfectly. Soon you'll be doing it without thought, and then you can move on to the next thing.

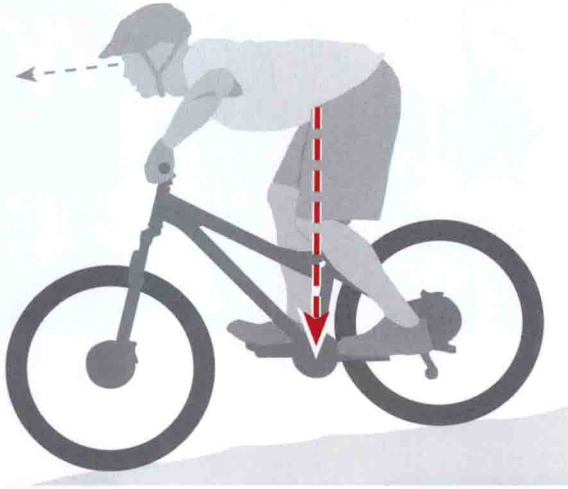
Don't let bad habits take over. It's OK to make some mistakes while you're learning. But when you keep making the same mistake, it becomes a bad habit.

Research by Wendy Wood, a psychologist at Texas A&M University, provides some tips for overcoming bad habits. Wood no doubt had habits like smoking and Xbox in mind, but these tips apply to bad bike habits as well. Let's say that as you do a big double jump, you stare into the gap and abort the mission.

- Make it difficult to continue the bad habit. You could attach a blinder to the mouthpiece of your full-face helmet, so you can't look down. If you tend to grab the brakes for no reason, wrap your fingers around the grips until there's a reason to brake.
- Change your environment. After you stop on the lip a few times, you probably will not go for it. Come back later or try a similar jump elsewhere. When your mind gets caught in a rut, a new situation can shake it free.
- Enjoy the short-term rewards. When you finally get that double, or at least take off without staring into the gap, give yourself a Lemon Zest Luna Bar. Yummy.



For additional info, refer to www.duke.edu/~wwood/Ouellette.Wood.1998.pdf.



Practice your attack position. See page 46.

Think about what you want to do rather than what you're trying to avoid. If you think “don't stare into the hole,” where do you think you'll stare? Many coaches recommend repeating a positive mantra: “I will fly over there. I will fly over there.”

Precision now, speed later. Don't make yourself a human missile and hope you learn something before you explode. When you're working on a new skill, do it slowly on easy terrain. We want to train effective habits here. Going too fast will introduce errors and greatly increase the danger. Stick this to your refrigerator: *Smoothness first. Speed later.*

CONSIDER GETTING SOME COACHING

You will learn a lot from this book, but there's no substitute for a qualified skills instructor. By having a coach, you will be able to:

- Learn in your own style. A good instructor reaches you using words, demonstrations, and on-bike doing.
- Get immediate feedback. It might feel perfect the first time, but it rarely is. A good coach zeroes in on what you're doing well, and what you can do better.
- Improve much faster. Avoid wasting time on bad habits. Build perfect new skills, and the confidence that goes with them.

Time and money spent on skills gets you higher performance—and more fun—than any equipment upgrade. We encourage you to learn at least the basics from a qualified instructor. For information on Lee's coaching programs, check out www.leelikesbikes.com.



Lee demonstrates the fine points of braking at a clinic in Nathrop, Colorado.

Step Up to a Higher Level

When you become a mountain biker, you begin a never-ending journey of self-improvement and good times. You have the most fun when your skills match the current challenge. When you step up your skills, you step up the challenge, and vice versa. Beginners and experts enjoy the same stoke. When you nail your first little double jump, you'll be just as stoked as Brian was when he won his fourth world championship.

As your skills evolve, so does your relationship with terrain. You get more confident and you learn to work a trail the way a surfer works a wave. Although your kung fu changes with the situation (you might be a confident trail rider but a sissy jumper), you probably spend most of your time at one of the following three levels.

Level 1: The Trail Works You

Your bike feels new and strange, and you have little faith in your ability to survive a trail. You keep all of your muscles tense, all of the time. You drag your brakes whenever your bike points downhill. You creep slowly over obstacles and frequently stop dead or flop over your handlebars. You don't lean enough in turns, and your constant braking keeps your bike from cornering smoothly.

Riding at level 1 is herky-jerky and, to be honest, not all that fun. You hear experienced riders talk about flow and groove and flying over stuff, but you have no idea what they're talking about. Heck, you might even think they're crazy.

Unfortunately, most people who own mountain bikes never get out of this stage. They either wallow in beginnerdom forever, or they just plain give up and stick to the road. If you're at level 1, don't give up. This isn't what mountain biking is about. The real fun is still to come.

LEAP FROM LEVEL 1 TO LEVEL 2

1. Relax. This is so important, we'll keep beating you over the head with it. If you find yourself tensing up, stop what you're doing and return with a fresh mind. If the tension remains, go work on something that doesn't scare you. Fear and tension make riding unproductive and unfun.
2. Lay off the brakes unless there's a specific reason to slow down. "I'm going really fast right now" is not a valid reason to brake. When it's time to brake, do it like you mean it.
3. Try carrying more speed into rough sections. Get light on your bike to get through more smoothly.
4. Have faith in your bike's ability to roll. That's what bikes do. They roll.
5. Dial in your attack position. This is key!

Level 2: You Survive the Trail

Now mountain biking becomes fun. You've learned to relax a bit. You coast between corners. You roll, clatter, and fly straight over obstacles. In corners you lay off the brakes, lean, and carve like a butcher.



You've become a competent rider. On a smooth, curvy trail you enjoy the sensations of speed and flow. When things get gnarly, you tend to tense up. You bog down in rough terrain, and you get bucked out of control when you hit obstacles at speed. You have trouble making corners when traction is iffy.

The majority of satisfied mountain bikers ride happily somewhere in level 2, blissfully unaware of the next level. When they see pros whiz by with utmost speed and control, they just shake their heads and assume superhero powers are involved. Truth is, being born on Krypton has little to do with achieving ultimate skill (but it can't hurt).

LEAP FROM LEVEL 2 TO LEVEL 3

1. Relax. Yes, even more than ever.
2. Commit. The ups and downs of porpoiseful riding require snap.
3. Scrutinize the trail. Not just any line will do. Look for banks to turn on and downslopes to pump.
4. Don't bash into stuff. It's no longer good enough to point your wheel downhill and let it run into whatever's in the way. Instead, try to unweight, wheelie, hop, or jump over the obstacles. When you stop crashing into things, you'll immediately increase your speed and control.
5. Pump backsides. Anytime the trail turns downward, press down for some free speed. We're talking any surface here: rocks, stumps, mounds, washing machines, anything. Pumping is the key to that flowy world you've been hearing about.
6. Develop your own style. Experiment to learn what works best for your skills, body type, and equipment. For example, if you can't muscle your bike through rough sections but you rail corners, you might tend to ride around gnarly rocks, which is fine. What isn't fine is thinking you rule at rocks but actually sucking, then bashing into the business end of a boulder. Know yourself.
7. Dial in your attack position. Yes, even more. More automatic. More fluid.

YOU'RE ONLY AS GOOD AS YOUR HABITS

When you're under stress—in a race, on a new trail, with a potential mate—you'll always revert to your habits. Do you usually ride stiff and upright? If so, you'll do the same under pressure. So take the time to build good habits!

Level 3: You Work the Trail

This is the ultimate. You ride with relaxed aggression. You never let your front wheel hit a rock, and you never let a backside go by unpumped. The trail is a piece of clay, and you sculpt it to suit your fancy. Your line is as vertical as it is horizontal. You unweight or fly over obstacles, and you press hard into corners. You porpoise through rough sections, gaining speed and control the whole time.

When you reach level 3, be proud—you're in small company. But just because you can hop a boulder's face and pump its backside doesn't mean you're all that. As you get stronger and better at reading terrain, you'll learn to manipulate trails in even better ways.

FIND YOUR STYLE

Although the core riding skills shown in this book are pretty constant, the way you apply them is up to you. Definitely practice the key moves, but, as you master them, relax and rock them in your style. Are you compact like a road racer or upright like a motocrosser? Do you stay low or go for the big air? Do you turn around boulders or bash right over them? It's all good. Just find the style that works best for you.

Disclaimer

Mountain biking is dangerous. You can break your equipment, and you can hurt yourself. That's what makes it so exciting. Ride within your abilities, and always wear the proper protective gear for the type of riding you're doing. Always wear a helmet and gloves. If you're anywhere you expect to crash, consider elbow and knee pads, body armor, and a full-face helmet. We also suggest eye protection.

The best technique and gear will not prevent all crashes or injuries. If you go out and hurt yourself, it's your own fault. Ride hard and take chances, but don't be an idiot.

Welcome to the exciting, gratifying world of high-level mountain biking. Remember that becoming a great rider is a long-term process. Be patient, take it one step at a time, and have fun! But before you go out and rip, let's make sure your bike is up to the task.

Choose Your Weapon



If you're reading this book, you're serious about ripping on a mountain bike. (Right on!) Buy a quality bike that matches the type of riding you do, and set it up to match your body and your style. Your bike is an extension of your body—you wouldn't settle for off-the-shelf arms and legs, would you?

Buy the Right Bike

Aside from your house and your car, your bike is probably your biggest investment. Actually, if you're a hard-core mountain biker, you'll probably spend less on your car than on your bike. So, aside from buying a house, buying a bike is the most important purchase of your life.

Spend as much as you can afford. Higher-level frames and components work better and last longer than low-end ones. You don't need the ultra-high-end Shimano XTR group to have fun, but it will outlast and outperform XT, just as XT destroys LX, and so on down the line. If you buy a cheap department store bike, you'll get what you pay for. It will fight your attempts to ride well, and you'll end up soured on the whole experience.

Buy from your local bike shop. You can find great deals online, especially on accessories, but a local bike shop will help you select the right bike, get you fitted, and keep your rig dialed. If you find a shop with knowledgeable staff and the parts you need, establish a relationship with the staff. You might pay a bit more than you would online, but the experience and convenience will more than make up for the difference. Try bringing your mail-order bike to a shop for a night-before-the-ride repair and see how it goes.

Take it easy on the upgrades. Don't sweat the components on your bike. Just ride the thing. Here are the most important upgrades:

- ◉ Saddle. It's hard to have fun sitting on a plastic anvil.
- ◉ Stem and handlebars. They should fit your body and riding style.
- ◉ Tires. Choose ones that match your riding conditions.

Run everything else stock until it breaks or wears out.

Hardtail or Full Suspension?

Back in the day, there was no choice because everything was rigid. When suspension forks first came out, downhillers gobbled them up, but the weight weenies stayed rigid in their ways. Now, almost every mountain bike comes with a suspension fork. In the same way, when rear suspension first became available, only downhillers went for it. As the designs got better and lighter, rear suspension appeared on all bikes from the high end on down—for hard-core downhill and for epic cross-country.

Hardtails are still lighter and cheaper than suspension bikes with the same components, and they can perform better in two particular conditions: cross-country riding on smooth trails and **dirt jumping** and **bikercross** on smooth courses. The lighter, stiffer bikes transmit more power to the ground. That's why some racers almost always race on a hardtail.