



RUNNING REWIRED

REINVENT YOUR RUN
FOR STABILITY,
STRENGTH & SPEED

JAY DICHARRY

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INTRODUCTION

Setting Yourself Up for Success

There's that feeling that you get after you crush a workout, hit a new PR on race day, or beat your friend to the top of the local hill or high alpine peak. It's a feeling of success . . . and it feels good, really good. We thrive on challenge, and train in pursuit of this feeling of success. Every runner knows that it takes a lot of hard work to get there. But a lot of runners get confused by this concept: They end up interpreting "a lot of hard work" to mean "a high volume of work." In the quest to log the miles it's easy to lose sight of the quality of those miles. First place isn't awarded to the person who racks up the highest weekly mileage or trains the hardest. Instead, medals adorn the necks of those who nail the fundamentals, which in turn allows them to train consistently and successfully. You've got

to put in the miles to get fit, but how can you be sure that your training is setting you up for success? Put simply, there are things that all runners of all abilities should be doing outside running to improve their running. If you want to run better, you need to move better.

Discussions about "running better" invariably seem to lead to the topic of form, but before we go there let's take a step back and look at reality. How you run is an expression of you and your experience. You probably aren't a Tarahumara Indian and you probably aren't a Kenyan. We all envy the perfect posture, leg drive, and effortlessly springy gait of these runners. That idealized stride wasn't a result of being born at elevation or bestowed with great genetics—it was built through skilled movement. It was

lifestyle that wired these runners' bodies for postural alignment and efficient muscle recruitment, first as children playing in the field, later working in those fields, and eventually through a lot of hard training that led them to beat the entire field. If we consider how a lifestyle structured around physical activity and progressive running factors in, it's not the case that the Kenyan and Tarahumara cultures are "born to run"; rather, their bodies have "adapted to run." Conversely, it should come as no surprise that our own lifestyle, built around modern conveniences and topped off with a bunch of running, doesn't produce the same results.

Training to move better

Movement skill is critical. Athletes competing in ball sports spend the bulk of their time training their bodies to move better. Through practice they build a strategy that can be put to use every time they step onto the turf, field, or court. They know how to execute good form before the first ball is put into play. Fighter pilots refine their reflexes until they reach a point where they can fly intuitively. Your 105-pound neighbor can nail yoga poses you've only seen in pictures, not because she's strong, but because she's skilled. You don't step into the huddle, into a cockpit, or into a one-handed handstand on the yoga mat until you have a baseline of skill preparation. Likewise, highly efficient runners have mastered the skill of running.

The legendary running coach Joe Vigil once said, "It's hard being a running coach

because the kids who show up for practice are highly motivated, but they are the same kids that lacked the athleticism to make the team in [insert sport-of-choice]." These kids are steeped in the promise that work ethic can beat talent given enough time and determination—they get out of bed, lace up their shoes, and run. Sometimes they run easy, sometimes hard, and sometimes even harder. Many of them end up running themselves into the ground, missing peak potential, or worse yet, missing training due to injury. But harder doesn't mean better and volume doesn't make champions.

There are specific skills that you should have in your running toolbox. The repetitive nature of running means that many of us take a body that really doesn't know how to move at its best and rack up the mileage. Through years of repetition you wire your body to move one way and run one way. Then when someone comes along and tells you that you need to improve your form, or move a different way, you can't simply do what they are saying. You haven't built the muscle memory to move differently. Even subtle changes to your running form feel awkward and hard. You can't help but notice that your form still looks nothing like that of the Kenyans. And your times aren't improving. A lot of runners have conducted this experiment and failed, concluding that focusing on form is a waste of time. Well, there is a better way to run better.

It starts with this little secret: Your body drives your running form. The old adage says

“form follows function.” Likewise, running form follows body function. Running better requires you to move better. Under stress. Under fatigue. And under the hot sun with your archival breathing down your neck. In these moments, you don’t have the luxury of going over an eight-point mental checklist on running form and body awareness. You should have learned that routine a long time ago. If not, that time begins now.

Think about where you are right now as a runner, and where you’d like to be. Everyone wants running to feel smooth, efficient, and less stressful. To hit that goal requires you to train in a way that is more well rounded and more *athletic*—but always with the intention of specifically improving your running. We are all busy, and adding more to what you are already doing can seem like a big ask. But this process will be fun, because you’ll feel yourself improving in ways you’ve never experienced. We’ll explore specific strategies to improve your movement and re-invent your run.

A study of one

The science of training is evolving. It’s only been in the past 20–30 years that we have had access to the tools and technology to further our understanding of the body and create progress in sports science. Now we have labs to do research, people with lots of letters behind their names, and coaches who are hungry to find better ways for their athletes to train. And what difference has it made? Records are falling faster

than rain. Look at any sport and you’ll see a sharp spike in performance gains over the past three decades. Decades ago, people just ran. When we found out how effective intervals are at improving physiological performance capacity, they became standard practice. Theory changes. Science changes. And if you harness this knowledge and change your training, ultimately your running times can change.

There are a few things you need to know to get more out of the science on training. First, it remains the case that most of the research on running is focused on injury prevention, and there’s been a definitive evolution in how we treat running injuries in recent years. We have better information, which means you can have better results. But when we survey the research on running performance, we face a harder task. Most of the running performance studies involve either elite runners or college kids who play video games for several hours a day and get bonus points for showing up to be a research subject. Unless you are an elite runner or a couch-potato college student, these results may not accurately apply to you. To evolve running performance, we need to look comprehensively at the research being done both inside and outside of running. The fields of biomechanics research, motor control, generalized strength and conditioning research, and yes, even bodybuilding make up a vast body of research that translates to running performance. We will draw on this science to learn how to move better.

To be effective, research needs to be translated to your individual needs. In my work as a physical therapist and researcher, I consider each runner as a unique case study. I begin by asking a simple question: How can I set up this runner for success? It's my job to pinpoint problems that cause those running ouches and plug the holes in a runner's performance potential. I've conducted musculoskeletal examinations and high-tech gait lab assessments on thousands of runners in my career. While this book is no substitute for a one-on-one running gait lab examination, there is a pattern to the problems that plague runners. I can say with confidence that you will benefit from fixing your own imbalances to ensure that you put the best you into every run. I've taken advantage of the research that's out there, along with my own observations, and conducted some of my own tests in the lab to see what kind of efforts build more durable and better runners. I know that if I can give you the tools to create a more durable body that can resist the stress of running, you can push the boundaries of your own physical performance.

Running versus practicing

It obviously takes time and practice to refine your craft. In his book *Outliers*, Malcolm Gladwell explains the theory that it takes 10,000 hours of practice to be the best. It's human nature to zero in on the total amount of time practiced and start logging the hours. This is a big mistake, particularly when it comes to

running. Practicing the same thing over and over again just reinforces your current movement patterns. Adding more volume of less-than-perfect movement means you get really good at moving poorly. What you practice and how you practice it makes all the difference. To run better we have to realize that running is a skill. And skilled running stems from practicing skilled movement.

Gladwell's book was largely based on the work of psychologist Anders Ericsson, who categorized practice as purposeful and deliberate. Purposeful practice is kind of like running. Your training plan tells you to run, so you run. You keep logging more volume, heartbeats, and mileage in your black box in pursuit of a certain goal, but the target is usually set on a specific time or distance. This approach doesn't exactly make you a better runner. You don't get better at running in a way that avoids injury. You don't optimize your stride to your full performance potential. Instead, you keep turning up the volume, hoping to hear that magic song that inspires you to a new PR. Most runners just want to run, but that's not likely to make you better at running. And that's where a different type of practice comes in.

Ericsson describes deliberate practice as doing a specific task with the intent of improving performance. To get better at running, you must first understand the sport so you can identify the sport-specific skills that are critical to improving. Then, you need a formal plan of attack to develop those skills. And then there's

ongoing work to continue to improve and refine those skills. For a runner, deliberate practice entails taking specific actions to improve durability and economy, and this doesn't always involve running.

Instead of asking you to run more, I'm asking you to start a plan to move better. With deliberate practice the neurophysiology in your brain will adapt and rewire its strategy for running. We'll tackle the what, why, and how to change your body and improve your movement so you can be a more durable runner and increase your capacity to run efficiently. We will build your proficiency at these skills, effectively rewiring how your body moves so you can run better. It's a big promise, and it does require a commitment from you: You will need to fit at least two additional workouts into your weekly training schedule.

I know your time is valuable. If a lack of time is your primary obstacle, I will reassure you that

it's well worth the investment. Virtually every runner I've ever met would be better served dropping one run a week and adding some skill work. If you've got the time, simply add this plan on top of your running.

Maybe you are still unconvinced. But what if I told you that it's possible to craft a body that moves well, under control, in the most efficient way possible? Imagine what it would feel like to develop a running gait that is more symmetrical and less stressful. The promise of improved joint health and faster running times is hard to resist. There are no shortcuts to get you there. But if you are ready to invest some hard work and be consistent with your training, this plan will bring you success. Research shows us that people stick to plans when they understand "the why." Let's learn more about what happens to you as you run, and how the Running Rewired program will take you and your running to the next level.

About the Author

Jay Dicharry is one of America's leading physical therapists and a board-certified Sports Clinical Specialist. He is known for his expertise in diagnosing and rebuilding injured endurance athletes at his REP Lab in Bend, Oregon. Having first made his reputation as an expert in biomechanical analysis as Director of the University of Virginia's SPEED Clinic, Jay blended the fields of clinical practice and engineering in an innovative way to better understand and eliminate the causes of overuse injuries in endurance athletes. His unique approach works outside of the traditional model of therapy to correct imbalances before they affect performance and crack the code on athlete performance. He brings this expertise to numerous footwear companies as a consultant on product development.



Dicharry is the author of *Anatomy for Runners* and a regular contributor to numerous magazines and professional journals. He has been interviewed or featured in *The New York Times*, *WIRED*, *ESPN*, *Outside*, *The Atlantic*, *Runner's World*, *Competitor*, *Running Times*, *Men's Health*, *Men's Fitness*, *Shape*, *Military Times*, *Reader's Digest*, and others. He is the cofounder and codirector of the University of Virginia Running Medicine Conference and he teaches industry professionals across the US in an effort to improve the standard of care of for today's athletes and patients.

Dicharry is a certified coach through USA Track and Field and USA Cycling. He has coached professional and amateur athletes, ranging from local standouts to national medalists. He has also worked closely with the US Air Force and USA Track and Field. Dicharry's

own athletic pursuits have led him to compete nationally in swimming, triathlon, cycling, and running. In his free time, he enjoys exploring the outdoors on foot, wheels, surfboard, and skis, savoring the days until his kids are faster than he is.

BECOME A FASTER, MORE DURABLE RUNNER

Sports physiologist and biomechanics expert Jay Dicharry will rewire your body and brain for better running. From the track to the trail, sprints to ultras, Dicharry's Running Rewired program has proven successful in equipping athletes for the demands that running puts on the body.

Get started this season with 15 workouts to develop the precision and performance that will transform your run. By adding just two workouts a week to your regular training, you will develop the strength, stability, and speed that lead to faster, more efficient running.

For better or worse, your body drives your form. Old injuries, mobility problems, fatigue, wear and tear—these reveal themselves in how you move when you run. The Running Rewired program addresses these blocks, strengthens you, and trains you to run better for the miles ahead.

“Jay is, simply put, the best. His program prepared me for success in my training for the Rio Olympics.”

Kate Grace, OLYMPIC MIDDLE-DISTANCE RUNNER

“Jay Dicharry integrates the science of how the body moves with his extensive knowledge of runners and their problems to improve your mechanics and make you a better runner.”

Jonathan Beverly, AUTHOR OF
RUN STRONG, STAY HUNGRY AND YOUR BEST STRIDE

“With Jay's methodical plan I was able to go from being unable to run to setting a course marathon PR at the Ironman World Championships.”

Linsey Corbin, 5-TIME IRONMAN® CHAMPION

JAY DICHARRY is one of America's leading physical therapists and a board-certified Sports Clinical Specialist. His REP Lab is known for rebuilding injured endurance athletes through accurate diagnosis, education, and treatment.

