

strength training for ultra runners

Strength training for ultra runners is no longer an optional extra; it's a fundamental pillar for success and longevity in the demanding world of endurance racing. This comprehensive guide delves into why building a robust musculoskeletal system is paramount for tackling distances beyond 26.2 miles. We will explore the specific benefits strength training offers ultra athletes, dissect the essential movement patterns that should form the core of any program, and outline effective strategies for integrating strength work into a demanding running schedule. Understanding how to build resilience, prevent injuries, and enhance overall running economy through targeted resistance exercises is key to reaching the finish line stronger and healthier. This article will provide actionable insights and practical advice for every ultra runner looking to unlock their full potential.

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Why Strength Training is Crucial for Ultra Runners

The unique demands of ultra-marathon running extend far beyond mere aerobic capacity. While cardiovascular fitness is undeniably the bedrock, the sheer duration and often technical terrain of these events place immense stress on the entire musculoskeletal system. Without adequate strength, the body becomes more susceptible to fatigue, inefficient movement patterns, and ultimately, injury. Strength training acts as a vital countermeasure, fortifying muscles, tendons, and ligaments to withstand the relentless pounding and repetitive motions inherent in ultra-endurance events.

Consider the prolonged periods of eccentric loading - the muscle-lengthening contractions that occur when descending hills. Without strong quads and hamstrings, these muscles are forced to absorb excessive impact, leading to rapid fatigue and potential damage. Similarly, maintaining good posture and efficient gait mechanics over many hours requires a resilient core and supporting musculature. Strength training directly addresses these vulnerabilities, building a more robust and resilient athlete capable of maintaining performance and avoiding common ultra-running ailments.

Key Benefits of Strength Training for Ultra Distances

The advantages of incorporating dedicated strength work into an ultra runner's training regimen are

multifaceted and significant. Beyond simply "getting stronger," these benefits translate directly to improved performance and a reduced risk of sidelined injuries. For athletes pushing their bodies to the absolute limit, every advantage counts.

Injury Prevention and Resilience

One of the most compelling reasons for ultra runners to prioritize strength training is its profound impact on injury prevention. Repetitive stress injuries, such as stress fractures, tendonitis, and muscle strains, are common in endurance sports. Strengthening the muscles surrounding joints provides better support and stability, absorbing shock more effectively and reducing the strain on connective tissues. This enhanced resilience allows the body to better cope with the cumulative stress of high mileage and varied terrain, keeping runners on track for their goals.

Improved Running Economy and Efficiency

A stronger athlete is often a more efficient athlete. Muscle fatigue is a primary driver of decreased running economy in the later stages of an ultra. By building stronger muscles, particularly in the posterior chain (glutes, hamstrings, calves) and core, runners can maintain better form for longer, requiring less energy for each stride. This improved efficiency means that more of the generated energy is converted into forward propulsion, allowing for a stronger finish and a more sustainable pace throughout the race.

Enhanced Power and Speed

While ultra running is primarily about endurance, bursts of power can be crucial for navigating challenging ascents, technical downhills, or maintaining pace in the final miles. Strength training, especially exercises focused on explosive movements, can improve a runner's ability to generate force quickly. This translates to a more dynamic stride and the capacity to tackle varied terrain with greater confidence and less effort.

Better Posture and Form Maintenance

As fatigue sets in during an ultra-marathon, maintaining good running form becomes increasingly difficult. A weak core and underdeveloped postural muscles lead to a breakdown in biomechanics, resulting in wasted energy and increased injury risk. A strong core acts as a stable platform, allowing the limbs to move more efficiently. Targeted strength work helps ultra runners maintain an upright posture and a more controlled gait, even when utterly exhausted.

Essential Movement Patterns for Ultra Runner Strength

A well-rounded strength training program for ultra runners should focus on compound movements that mimic the demands of running and build functional strength across the entire body. Neglecting certain muscle groups can lead to imbalances and increase the risk of injury. The goal is to create a resilient and powerful system capable of enduring the rigors of ultra-distance racing.

Core Strength and Stability

The core is the engine that drives efficient running. It encompasses not just the abdominal muscles but also the obliques, lower back, and glutes. A strong and stable core is essential for transferring power from the lower body to the upper body, maintaining an upright posture, and preventing excessive rotation that can lead to wasted energy and injury.

- **Planks (and variations):** Essential for building isometric strength and endurance in the entire core musculature.
- **Dead Bugs:** Excellent for improving proprioception and controlled limb movement while maintaining core stability.
- **Bird-Dog:** Develops contralateral limb control and reinforces core engagement to prevent lumbar extension.
- **Pallof Press:** A powerful anti-rotation exercise that builds functional core strength essential for resisting unwanted twisting forces during running.

Lower Body Strength and Power

The legs are the primary movers in running, and their strength and resilience are paramount for ultra distances. Focus should be on exercises that build both strength and endurance in the key muscle groups used during running, including the quads, hamstrings, glutes, and calves.

- **Squats (and variations like goblet squats, front squats):** Builds strength in the quadriceps, hamstrings, and glutes, crucial for uphill propulsion and downhill control.
- **Deadlifts (conventional, Romanian):** Targets the posterior chain – hamstrings, glutes, and lower back – building powerful hip extension and overall strength.
- **Lunges (forward, reverse, lateral):** Improve single-leg strength, balance, and hip flexor mobility, mimicking the staggered gait of running.
- **Glute Bridges and Hip Thrusts:** Specifically target the glutes, which are often underdeveloped in runners but critical for hip extension and preventing lower back pain.
- **Calf Raises (standing, seated):** Strengthen the calf muscles, vital for ankle stability and the final push-off in each stride.

Upper Body and Core Integration

While the focus is on the legs, a strong upper body and the ability to integrate it with the core are vital for balance, posture, and maintaining an efficient stride, especially on varied terrain or when carrying a pack. This integration prevents the arms from becoming dead weight and allows for a more coordinated and powerful movement.

- **Push-ups:** Develops chest, shoulder, and triceps strength, contributing to arm drive and upper body posture.
- **Rows (bent-over, single-arm dumbbell):** Strengthens the upper back and biceps, essential for counterbalancing the forward motion of running and maintaining an upright posture.
- **Overhead Press:** Improves shoulder strength and stability, important for maintaining an active arm swing and balance.
- **Farmer's Walks:** A functional exercise that builds grip strength, shoulder stability, and core endurance, mimicking carrying a pack or navigating uneven terrain with load.

Designing Your Strength Training Program

Creating an effective strength training program for ultra runners requires careful planning and consideration of individual needs, training volume, and recovery capacity. A haphazard approach can lead to overtraining or insufficient stimulus, hindering progress. The goal is to build a program that complements, rather than compromises, running performance.

Frequency and Volume Considerations

For most ultra runners, incorporating strength training two to three times per week is sufficient. The key is to find a balance that allows for adequate recovery between sessions and between strength work and demanding running workouts. Beginners might start with one session per week and gradually increase. The volume should be challenging enough to stimulate adaptation but not so high that it leads to excessive fatigue or muscle soreness that impedes running.

When determining volume, consider the number of sets and repetitions. For building muscular endurance, which is often paramount for ultra runners, higher repetitions (12-15+) with lighter to moderate weights are effective. For building maximal strength, lower repetitions (4-8) with heavier weights are more appropriate. A combination of both can be beneficial, depending on the phase of training.

Exercise Selection and Progression

Prioritize compound exercises that engage multiple muscle groups, as outlined previously. Start with simpler variations and focus on mastering proper form before progressing to more complex or heavier loads. Progression can be achieved in several ways:

- **Increasing weight:** The most common method for strength gains.
- **Increasing repetitions:** Beneficial for muscular endurance.
- **Increasing sets:** Adds overall volume.
- **Decreasing rest periods:** Increases metabolic stress and endurance.
- **Improving form and range of motion:** Essential for maximizing muscle activation and

preventing injury.

- **Introducing more challenging exercise variations:** For example, progressing from bodyweight squats to goblet squats, then to barbell squats.

It's crucial to listen to your body and adjust the program based on how you feel. If a particular exercise causes pain, it should be modified or replaced. The goal is consistent progress, not pushing through pain.

Periodization for Strength Training

Periodization involves strategically varying training variables over time to optimize performance and prevent burnout. For ultra runners, this means aligning strength training with different phases of their running season.

- **Base Building Phase:** Focus on building a solid foundation of strength and muscular endurance with higher repetitions and moderate weights.
- **Build Phase:** Introduce more strength-focused work, perhaps incorporating some heavier lifting with lower repetitions, alongside endurance running.
- **Peak Phase (leading up to a race):** Reduce the volume and intensity of strength training significantly. The focus shifts to maintaining strength and power while prioritizing recovery for peak running performance. Strength sessions might become shorter, less frequent, and lighter.
- **Off-Season:** This is an excellent time to focus on addressing weaknesses, building a significant strength base, and experimenting with new exercises or techniques.

The specific periodization strategy will vary based on the runner's goals, race schedule, and individual response to training.

Common Pitfalls to Avoid

Even with the best intentions, ultra runners can fall into common traps when integrating strength training into their regimen. Recognizing these pitfalls is the first step to circumventing them and ensuring that strength work contributes positively to their ultra-running journey.

Overtraining and Under-recovery

Perhaps the most common mistake is attempting to do too much, too soon. High mileage combined with multiple intense strength sessions without adequate rest can lead to excessive fatigue, decreased performance, and an increased risk of injury. It's vital to prioritize recovery strategies such as sleep, nutrition, and active recovery.

Neglecting Form for Weight

Chasing heavier weights without proper technique is a recipe for disaster. Poor form not only reduces the effectiveness of the exercise but significantly elevates the risk of acute injuries like muscle tears or strains, and chronic issues related to joint stress.

Ignoring Weaknesses or Imbalances

Focusing only on exercises that feel easy or neglecting muscle groups that feel underdeveloped can lead to significant imbalances. These imbalances can manifest as poor biomechanics, inefficient running form, and ultimately, injuries. A balanced program addresses the entire kinetic chain.

Training Too Close to Key Running Sessions

Performing heavy strength training the day before a long run or intense speed workout can compromise performance in those crucial running sessions. Strategic scheduling, placing strength work on easier running days or rest days, is essential.

Not Progressing Appropriately

Sticking with the same exercises and weights week after week will lead to plateaus. While consistency is important, progressive overload – gradually increasing the demands placed on the muscles – is necessary for continued adaptation and improvement.

Integrating Strength Training with Running

The art of ultra-marathon training lies in the harmonious integration of different training modalities. Strength training should not be an isolated pursuit but rather a complementary element that enhances running performance and resilience. Effective integration requires thoughtful scheduling and attention to recovery.

A common approach is to perform strength training sessions on days that are otherwise lighter in terms of running volume. For instance, if you have a long run scheduled for Saturday, you might perform a strength workout on Wednesday or Thursday, allowing ample recovery time before your key running session. Alternatively, strength training can be done after a moderate-intensity run, provided that fatigue levels are manageable and recovery is prioritized.

It's also wise to consider the overall training load. If you are in a high-mileage phase or have a particularly taxing long run planned, you may need to reduce the intensity or volume of your strength training, or even take a brief break from it. Conversely, during lower-mileage phases, you might have more capacity to focus on building strength.

Listen to your body. If you feel excessively fatigued or sore from your strength training, it is likely impacting your running. This is a signal to reassess your schedule, intensity, or recovery strategies. The goal is to create a synergistic effect, where each training component supports the other, leading to a stronger, more capable ultra runner.

Recovery Strategies for Strength and Running

In the world of ultra-endurance, recovery is as critical as the training itself. For athletes balancing demanding running schedules with strength training, optimizing recovery is paramount to prevent overtraining, promote adaptation, and ensure consistent progress. Effective recovery strategies allow the body to repair muscle tissue, replenish energy stores, and adapt to the stress of training.

- **Sleep:** Prioritizing 7-9 hours of quality sleep per night is non-negotiable. This is when the majority of muscle repair and hormonal regulation occurs.
- **Nutrition:** Adequate intake of protein is essential for muscle repair and growth, while carbohydrates are crucial for replenishing glycogen stores. Consuming a balanced diet rich in whole foods will support recovery.
- **Hydration:** Proper hydration is vital for all bodily functions, including muscle recovery and nutrient transport.
- **Active Recovery:** Light activities like walking, gentle cycling, or swimming on rest days can help improve blood flow to muscles, reducing stiffness and promoting healing.
- **Foam Rolling and Stretching:** Regularly using a foam roller and incorporating dynamic and static stretching can help improve flexibility, reduce muscle soreness, and increase range of motion.
- **Rest Days:** Scheduling dedicated rest days is crucial. These days allow the body to fully recover without the added stress of training.
- **Listen to Your Body:** Paying attention to signs of fatigue, soreness, and reduced performance is key. Adjusting training intensity or volume, or taking an unscheduled rest day, can prevent a minor issue from becoming a significant setback.

By implementing these recovery strategies diligently, ultra runners can maximize the benefits of their strength training and running programs, ensuring they arrive at the starting line ready to perform at their best.

Q: How often should an ultra runner incorporate strength training into their weekly schedule?

A: For most ultra runners, incorporating strength training two to three times per week is ideal. The frequency can be adjusted based on the runner's overall training volume, their experience with strength training, and their individual recovery capacity. During intense running phases, reducing frequency to once a week might be necessary, while during lower-mileage periods, an increase to three sessions is manageable.

Q: What are the most important muscle groups for an ultra runner to focus on strengthening?

A: The most critical muscle groups for ultra runners include the core (abdominals, obliques, lower back, glutes) for stability and power transfer; the posterior chain (glutes, hamstrings, calves) for propulsion and injury prevention; and the quadriceps and hip flexors for managing descents and maintaining posture. Strong upper body and shoulder muscles are also important for balance and arm drive.

Q: Can strength training negatively impact my running performance if done incorrectly?

A: Yes, if done incorrectly, strength training can negatively impact running performance. Overtraining, poor form, insufficient recovery, and scheduling strength sessions too close to demanding runs can all lead to fatigue, decreased running economy, and an increased risk of injury, ultimately hindering performance.

Q: What are some beginner-friendly strength exercises for ultra runners?

A: Beginner-friendly exercises include bodyweight squats, lunges, glute bridges, planks, bird-dogs, and push-ups (on knees if needed). These exercises build a foundational strength in key movement patterns without requiring complex equipment or advanced technique. Starting with these ensures proper form is established before progressing.

Q: When is the best time to perform strength training relative to my long runs?

A: It's generally best to perform strength training on a separate day from your long run, or at least several hours after a moderate-intensity run. Ideally, place your strength sessions on lighter running days or rest days. Avoid heavy lifting the day before a long run to ensure you have sufficient energy and recovery for your primary running focus.

Q: Should I focus on lifting heavy weights or doing higher repetitions for ultra running strength training?

A: A combination of both can be beneficial, but for ultra running, muscular endurance is often prioritized. This means incorporating higher repetitions (12-15+) with moderate weights for exercises like squats, lunges, and core work. However, also include some lower-rep (6-10) sets with heavier weights for key compound movements like deadlifts and squats to build maximal strength and power.

Q: How does strength training help prevent common ultra-running injuries like IT band syndrome or Achilles tendonitis?

A: Strength training helps prevent these injuries by addressing underlying muscular imbalances and weaknesses. Strengthening the glutes and hips can alleviate pressure on the IT band. Developing strong calf and foot muscles improves ankle stability and shock absorption, reducing strain on the Achilles tendon. A strong core also contributes to better overall biomechanics, reducing compensatory stresses elsewhere in the body.

Q: Is it necessary to use weights, or can bodyweight exercises be sufficient for strength training for ultra runners?

A: While bodyweight exercises are an excellent starting point and can be highly effective for building muscular endurance and foundational strength, most ultra runners will benefit from incorporating external weights (dumbbells, barbells, kettlebells) as they progress. Progressive overload, which often involves adding weight, is crucial for continued strength gains beyond what bodyweight alone can provide.

Q: How does strength training contribute to maintaining running form during long ultras?

A: Fatigue leads to a breakdown in running form, characterized by a slumped posture, inefficient arm swing, and improper foot strike. Strength training, particularly core work and exercises that strengthen the back and glutes, builds the muscular endurance and stability needed to resist these postural collapses, allowing runners to maintain a more efficient and controlled gait for longer durations.

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view by integrating sports psychology, exercise physiology, and nutrition science. This makes it unique, offering actionable advice, training plans, and nutrition guidelines applicable to runners and coaches alike.

strength training for ultra runners: *So you want to run an Ultra* Andy Mouncey, 2014-11-30 So you want to run an Ultramarathon. It all looks a very long way, doesn't it? It can't be good for you, it can't be fun and surely you have to be some kind of super-athlete to be able to run that far? This book shows that it is a very long way, that it can be good for you, and that you most certainly don't have to be super-human to finish one. It also goes further by inspiring you to get started and by guiding you each step of the way. So, whether you're just curious to know more about this fast-growing global sport or searching for the right answers to your own ultra-running breakthrough, this book will prove as valuable as your favourite running shoes. Includes advice on making the transition from marathon or triathlon; strategies for winning the mental battle; keeping your feet intact; maintaining the right fuel intake; how to build strength and endurance and, finally, how to deal with running in the dark. Andy Mouncey writes from the heart, combining great insight and knowledge with a knack for making the complicated seem simple. Throw in a healthy dose of dry humour and case-study contributions from real people at various stages of their ultra-running journey and you have a book that redefines the 'How To' style of sports training guide. Illustrated with 93 colour photographs.

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strength training for ultra runners: Minimalist's Guide to Running an Ultramarathon Terry Gebhardt, 2017-11-26 Why do so many runners who start an ultramarathon not finish? How can you give yourself the best chance of finishing a 50 or 100 mile race? Do you really need to run 50-100 mile weeks to finish an ultramarathon? The Minimalist's Guide to Running an Ultramarathon answers these questions and gives you the blueprint you need to finish your ultramarathon. It dispels the myth that you need to run lots of miles to finish an ultramarathon. Understanding that every runner has different abilities and goals, this book does not provide a one size fits all training program. It gives you key principles and guidelines that will allow you to create the best training program that meets your needs. Regardless of whether you are a seasoned ultrarunner looking for more tools to improve your performance or are new to the sport and want to know the minimum amount of training needed to finish an ultramarathon, this book will give you the framework for the optimal training program. It follows the 80/20 principle and focuses on the most efficient training program to minimize your training time while providing maximum benefit. The optimal training program for running an ultramarathon includes much more than just running. If you ask anyone who has completed an ultramarathon, many will tell you much of the race is mental. Research continues to show how important strength training is to running performance and injury prevention. Additionally, your running form or technique can be a key factor in determining whether or not you finish your ultra. This book has all the key training variables you need to consider when training for an ultramarathon. In addition to how to create a basic running program, this book goes in depth with tools to improve your running technique. It also includes key strengthening and mobility exercises that will make you a stronger, more resilient runner. Dr. Gebhardt recognizes mental training is one of the most important things to include in your ultramarathon training plan. He gives

you specific steps to train your mental toughness that go far beyond just telling you to push through it and keep moving. This book will also help you understand why so many runners get injured and how you can become a stronger runner. Becoming a stronger runner doesn't mean you need to spend several hours per week in the gym. The Minimalist's Guide to Running an Ultramarathon provides the foundation for any training program because it gives you the minimal amount of training needed to complete your ultra by giving you the training concepts that will give you the most benefit. You can tailor the principles learned in this book to fit with any ultramarathon training program. Dr. Gebhardt also helps you understand the importance of an off-season and why you must commit to strength training during this time if you want to have a successful running season. This book also includes access to videos of specific exercises that will make you a stronger runner and reduce your risk of injury and access to videos of simple drills that will improve your running technique. About the author: Dr. Terry Gebhardt is a physical therapist, running coach, and ultramarathon runner who is passionate about keeping runners physically and mentally strong and injury-proofing their bodies so you can run strong through middle age and beyond. He believes any runner can run forever with the right training program. Having the experience of completing several ultramarathons and being both a physical therapist and running coach makes him uniquely qualified to give you all the tools you need to finish your ultramarathon!

strength training for ultra runners: ACSM's Foundations of Strength Training and Conditioning Nicholas Ratamess, 2021-03-15 Developed by the American College of Sports Medicine (ACSM), ACSM's Foundations of Strength Training and Conditioning offers a comprehensive introduction to the basics of strength training and conditioning. This updated 2nd edition focuses on practical applications, empowering students and practitioners to develop, implement, and assess the results of training programs that are designed to optimize strength, power, and athletic performance. Clear, straightforward writing helps students master new concepts with ease, and engaging learning features throughout the text provide the understanding and confidence to apply lessons to clinical practice.

strength training for ultra runners: UltraRunning Jeff Grant, 2019-12-01 Coach Jeff Grant's UltraRunning program is the product of 25 years of racing and coaching athletes to finish extreme ultra endurance events. It's a guide for training, racing and perhaps even changing your life by proving to yourself that you can reach the finish line of a run longer than a marathon. You'll learn about efficient running technique, how to consistently win the mind game required to go long, and how to go from a 1-hour run to your first 5+ hour ultramarathon finish. Included in the program Training Plan: 20-week training plan designed to take runners from a 1-hour run to the finish of a 50KM or 50 Mile Ultramarathon, along with guidance for expanding the program to finish even longer races. Racing Handbook: a deep dive immersion on race selection, race plan creation, pre- and post-race rituals, race day motivation, logistics, crewing, support teams and post-race recovery. This includes stories and insights into the real world of ultramarathon running. Education: how to train, how to avoid the common pitfalls in training and racing, how to prevent overuse injuries and burnout and how to win in your mind to overcome the adversity of training and racing over ultra distances. Mind Training: a powerful collection of Mind Hacks and training tools to support you in ultramarathon training and racing, as well as motivation to push through adversity and get out to train even when you don't feel like it. Running Technique: lessons of efficient running technique, as well as a supporting set of drills.

strength training for ultra runners: Fitter for Life Ed Mayhew, 2005-07 Discover the Secrets of the Masters of Fitness: How a 54-year-old man who struggled to jog a single quarter mile got in good enough shape and summoned the energy to run 109 miles at the 24Hour Endurance Run National Championships ? at age 77. How a 40-year-old, full-time working mother with four young children made time to train as a 2-sport national champion ? all the while keeping her family priority one. How a lifelong heavy smoker and self-proclaimed couch potato in her forties transformed herself into an Ironman triathlete in her fifties. How a 59-year-old man just four and a half months removed from a near-fatal heart attack and double-bypass surgery was able to complete one of the

most grueling races ever run. How a 64-year-old with a cholesterol reading of 385dl/mg, arrhythmia (an irregular heart beat) and no background in competitive swimming was able to turn herself into a World Champion age-group swimmer. How a woman crippled by arthritis was able to beat the disease without resorting to drugs. Why most weight-loss and exercise programs fail and how the Masters of Fitness avoided this common pitfall and how you can, too. Which foods, drinks, supplements and herbs played the greatest role in the amazing athletic feats of the Masters of Fitness. Think these thoughts and you will age slower, but think THESE thoughts and you'll age faster. How the Masters of Fitness get their bodies to release more youth-enhancing Human Growth Hormone (Hgh) naturally and how you can, too.

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strength training for ultra runners: Hurdling the Challenges of the 2019 IAAF World Championships Olivier Girard, Sebastien Racinais, 2020-03-09

strength training for ultra runners: Running Science Owen Anderson, 2013-07-05 More than 50 years ago, New Zealand's Arthur Lydiard started using terms like base training, periodization, and peaking. His U.S. counterpart, Bill Bowerman, brought Lydiard's term for what until then had been called roadwork, or jogging, to the States. Soon after, the 1970s running boom started, spurred by exercise-advocating research from the growing fields of exercise science and sports medicine and from enthusiasts such as Jim Fixx, author of The Complete Book of Running. One of Bowerman's former runners at the University of Oregon, Phil Knight, saw to it that those millions of new runners had swoosh-adorning footwear designed specifically for their sport. The pace of knowledge enhancement and innovation has, in fact, been so brisk through the years that even highly informed runners could be excused for not keeping up, but no longer. Running Science is a one-of-a-kind resource: • An easily comprehended repository of running research • A wealth of insights distilled from great sport and exercise scientists, coaches, and runners • A do-it-right reference for a host of techniques and tactics • An array of the most credible and widely used training principles and programs • Perhaps most of all, a celebration of the latest science-based know-how of running, now truly the world's most popular sport Running Research News and Training Update editor Owen Anderson presents this comprehensive work in a compelling way for runners. A PhD and coach himself, Anderson has both a great enthusiasm for sharing what scientific studies offer the running community and a keen sense of what's really important for today's informed runners to know.

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effective, and environmentally conscious adventures in the great outdoors.

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