

MANY OF THE FITTEST AND FASTEST MOUNTAIN ATHLETES IN THE WORLD ACHIEVE THEIR GOALS WITHOUT LIFTING A SINGLE WEIGHT IN A GYM.  
ARTICLE BY UPHILL ATHLETE.

# MOUNTAIN STRONG VS. GYM STRONG

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To begin, we must first answer a crucial question: **what is strength?** Putting aside the history and various ways to develop it, we define strength as an ability to perform the most work with the least amount of effort. Under this, we can account for a broad swath of applications, from the Olympic weightlifter who can snatch 300lbs, to the mountain runner who runs a marathon with 8,800 feet of climbing in 3:45 (as Kilian Jornet did in July 2017). In both cases, a significant load is placed on an athlete and they in turn leverage an ability (their “strength”) to accomplish that load with great efficiency.

Let’s go further: **strength is also speed.** When a track sprinter like Usain Bolt steps to the line of a 100m sprint, his muscles and tendons tension with incredible potential energy, and at the moment the gun goes off his brain communicates a nearly-instantaneous signal to those muscles to contract with tremendous power, propelling him off the blocks and into a world-record performance. In this example, we can identify Bolt’s strength in two capacities: the contractile force of his muscles, and the neuromuscular efficiency which his central and peripheral nervous systems use to command function from those muscles at incredible rates. That too, is strength.

The above example leads us into an important distinction: that of the person who exercises in a gym with lifting weights as an end unto itself, versus the athlete who uses gym strength training PLUS other means in order to develop their full performance potential for their mountain sport. An athlete who is interested in maximizing their performance should first look at what component parts make up their “ideal” of fitness.

Taking the mountain runner as an example, we can identify the following pieces of this puzzle:

**Aerobic efficiency:** Essentially this is a metabolic ability of the body to utilize fat as fuel while running (or skiing or climbing) at a given power output.

**Speed:** This is an expression of strength.

**Muscular Endurance:** The ability to produce a high work output of the muscles over longer durations and in a predominantly-aerobic state – another form of strength.

**Form/Technique:** Proficiency at moving quickly over terrain. Including an ability to avoid injury and maintaining good form despite accumulating fatigue – yet another form of strength!

Our hypothetical running athlete now may look at those pieces and decide how to train each one, first individually and then gradually combining them into complex, very specific workouts as they approach their most important performance or event of the year. The correct strength training workouts in a gym will in turn help you on the trail or at the crag by directly increasing your performance and hone your fitness to a knife’s edge of specificity for your sport.

Interested in learning more on the subject of mountain strength? Check out the full series of articles:

- Mountain Strong. Part 1: What is strength to you?
- Mountain Strong Part 2: General vs Specific Strength
- Mountain Strong Part 3: Assessing Strength
- Mountain Strong Part 4. Muscular Endurance: The Money Workout

This article was written by the professionals (Sam Naney) at Uphill Athlete. Uphill Athlete is a platform for openly sharing proven training knowledge for the sports of alpinism, mountaineering, rock and ice climbing, ski mountaineering, skimo racing, and mountain running. They offer free educational resources, sell well-designed training plans, and coach amateurs and experienced athletes to maximize their fitness and succeed in the mountain sports they love.

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