



Are you maximizing your winter training for cycling?

Did you know that muscle mass is compromised when endurance training is performed more than three times per week for more than 20 minutes? Over the long-term, muscle is lost if strength training is not performed and nutrition is poor.

MOST cyclists would benefit greatly from strength training 1-3 times per week, depending on the time of year. The program should focus on improving maximal strength and power output, with a focus on free-weight, bodyweight, and multi-joint exercises. The winter season (off-season) is the most common time to devote to a strength training block.

HOW TO DO IT:

1. Look ahead to the upcoming season. Do you have any **specific training goals**? Define your goals.
2. Establish **training objectives** that will support your goals.
3. Consider annual training hours. How much time can you devote to training off-season and in-season?
4. Divide your annual training into **block phases**. These will consider rides or races in the upcoming year. Use shorter training phases (3 to 6 week blocks). Perform highly concentrated training loads of greater than 50% of regular training volume. This block is followed by reduced volume and intensity to allow for optimal recovery.
5. Look at your schedule. You should not have the same schedule year-round. Take planned rest and time-off to **enhance recovery**. It will actually make you STRONGER to have recovery built into your training schedule.
6. Train to **develop endurance and strength**. Balance these within your block training program. Note that strength training to failure and endurance training should be performed on separate days with recovery maximized on each of these days.
7. Consider **nutritional guidance** to enhance recovery and performance on the bike. Optimal recovery is largely under our control. Proper nutrition requiring protein for sustained muscle repair, carbohydrates to replenish glycogen, maintain hydration status and provide micronutrients to combat oxidative stress and balance cortisol.

WANT TO LEARN MORE? READ ON FOR THE 'TECHIE' EXPLANATION OF HOW STRENGTH TRAINING WILL HELP YOU ON THE BIKE:

Many Cyclists do NOT lift weights. Most believe they get enough resistance training by climbing hills and performing high intensity interval rides. This ultimately results in cyclists believing that to be a better cyclist they must spend more time on the bike. This results in constantly hitting the same performance ceiling year after year. Other reasons cyclists tend to overlook training are time constraints with long hours spent on the bike and the fear of gaining muscle mass or bulking up. Strength training combined with an endurance program rarely results in a huge increase in muscle mass, but the benefit of a couple of extra pounds of muscle can result in more force applied to each pedal stroke resulting greater power outputs and improved riding performance.

It is a **common error** of endurance athletes to perform endurance exercise work with light loads and high repetitions, which has little benefit on endurance performance. Instead, heavy lifting with the correct form with lower repetitions will:

- Increase muscular efficiency so the athlete can sustain faster speeds for longer.
- Maximal strength work will produce superior work capacity by reducing the degree of type 2 muscle fiber exhaustion. Lactate threshold increases and neuromuscular coordination is enhanced.

STRENGTH TRAINING BENEFITS INCLUDE:

- Increased recruitment and stamina of slow-twitch muscle fibers. Strength training also increases maximum strength of these slow-twitch fibers resulting in increased endurance.
- Heavy strength training develops fast-twitch muscle fibers more effectively than light weight high repetition training.
- Strength training improves how quickly one can produce force.
- Combined strength and endurance training has been shown to increase concentrations of fast energy yielding substrates (eg. Phosphocreatine and glycogen) as well as lower concentrations of lactate produced after a 30 min 70%VO₂ max effort. This equates to more energy produced with less discomfort.
- Positive gains in strength are associated with increases in cycling endurance performance.
- Greater strength from weight lifting has been correlated with higher lactate thresholds. Anything increasing lactate threshold is beneficial.
- Protection against injury. Increasing the load capacity of muscle-tendon unions decrease the risk of muscle strains/injury during quick accelerations or sprints. Strength training can also address muscle imbalances leading to future injury.

STRONGER MUSCLES ARE MORE EFFICIENT MUSCLES

As maximal strength increases, the amount of activated muscle fibers required to produce the same maximal force decreases. This means you will generate the same force with less effort.

Power is the performance variable that is compromised the MOST by endurance exercise.

Power is defined as the force multiplied by the velocity of a movement. Maximal power output is paramount to performance when the aim is to increase maximal power output on the bike. It is necessary to follow training programs that can improve power across the force velocity curve but also important to incorporate velocity-specific training (associated with specific sport) prior to the in-season competition phase in order to elicit the greatest power output to that specific phase of training.

You spend a lot of time and money on your bike. Energy put into the strength component of your training will give you huge bang for your buck. Contact cyclist and strength coach Jessica Gjertsen to learn how you can use your extended health benefits to prevent injury and improve your performance at the same time.

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