

Components of fitness trained through structured spinning

VO2max training

One measure of fitness is the volume of oxygen you can consume while exercising at your maximum. VO2max is the maximum amount of oxygen in millilitres, you can use in one minute per kilogram of body weight. Those who are fit have higher VO2max values and can exercise more intensely than those who are not as well conditioned. Numerous studies show that you can increase your VO2max by working out at an intensity that raises your heart rate to near maximum levels, as high as 95% of your working heart rate. VO2max decreases with age and is determined by genetics but most cyclists, even highly trained individuals, rarely reach their maximum genetic ability, mainly because it's very hard work and you need to push yourself to almost maximum effort for up to 5 minutes at a time – in short IT HURTS. However, training your VO2max is critical for optimum race fitness.

Improving your VO2max

Cycle at maximum speed for 3-5 minutes, pushing your heart rate to upwards of 95%+. There is no cheating with VO2 max training, it's just a case of head down and go hard. It's important to judge the intensity and not go too hard at the start and you should be able to just about maintain the pace for the full set. Practice will help you determine your optimum working level but the minimum time you should work for is 2 minutes with an aim to increasing the time to 5 minutes.

When and how often do you train your VO2max

It is suggested that in the winter one session is done weekly, and in the race season one session every 2 weeks will be fine.

Although it would be convenient to use a power or watt meter to see if your output is increasing with each spin session, most spin bikes don't have one but you can do the same session on a turbo trainer or on a flat stretch of road if you have one fitted to your bike. In a spin class you can use a heart rate monitor to ensure you are working at the right level but with this session, a good measure is if you're maxed out all the way. That usually means you are working close to your heart rate maximum anyway, so you should get the desired effect.

The recovery times between the repetitions should be strictly adhered to. These workouts make a refreshing change from repetition cycling. After a month of VO2max sessions, you should see a substantial improvement in performance. It's not advisable to train VO2max in the week before a race.

Short interval training

Short interval training is used to improve cycling efficiency, improve leg speed and prepare your body for high intensity bursts, often experienced in a race. Multiple short intervals will also train your VO2max.

Short intervals explained

Short intervals usually last no more than one minute. For example, a typical session would be 15 x 1 minute with 30 seconds rest or 20 x 1 minute with 1 minute rest. You can do 30 to 45 second intervals but a minute usually works best. The intensity for short intervals should be what you can just sustain for the interval period i.e. you should be maxed out at the end of the interval and not be able to keep up that pace for much longer.

When and how often do you do interval training

In the winter season one session can be done weekly, and in the race season one session every 1 to 3 weeks will be fine. It's okay to do some intervals in the week before a race but it's advisable to keep the intensity a little lower than normal or shorten the time to 30 seconds.

Tempo training

Tempo training is very important for cyclists and can be achieved quite easily on a spin bike. Tempo sessions train your body to deal with high levels of lactic acid and blood acidity, particularly blood acidity. When you push your body hard, you create lactic acid and your blood becomes more acidic (this is why you feel a burning sensation in your legs). Lactic acid is not the bad guy as it's recycled and used by the muscle cells to produce more energy. However, blood acidity, which rises roughly in line with lactic acid levels, is the main cause of muscle fatigue and damage, which inevitably slows you down. Therefore, when you exceed a certain intensity level, your lactic acid and blood acid levels increase at a greater rate that your body can deal with them, which is why you have no choice but to slow down. Your ability to deal with high levels of blood lactate and blood acidity, is your lactate threshold or anaerobic threshold. It's not advisable to do lactate threshold training in the week before a race.

Improving your lactate threshold

To improve your lactate threshold, you have to train just below the point where you can't sustain your current speed. By doing this you enhance your ability to deal with lactate and blood acid, which essentially means you can pedal harder for longer. Unlike VO2max you can continue to improve your lactate threshold year in year out.

When and how often do you train your lactate threshold

In the winter season one session should be done weekly, and in the race season one session every 2 to 3 weeks will be fine.

Tempo pace is a pace that you can just sustain for an extended period of time. The pace is important so you train your lactate threshold properly. You need to really focus to keep the intensity constant at race pace (usually your 10 mile time trial pace) or just below. If you're on the road, it's best to keep your ride as flat as possible so you can maintain the right intensity.

A typical tempo session can be a continuous hard effort for up to 45 minutes but you can still get a benefit from 2 x 10 minutes with a 2 minute recovery in between. Tempo sessions are

extremely important leading up to a key road race or time trial. Tempo training prepares you for race day effort by ensuring your body is well adjusted to race effort.

Strength, power and speed training

Power and strength are important components of your overall cycling fitness, however, they are partly determined by muscle makeup and genetics. Power is the ability to exert maximum muscular contraction in an explosive burst of movement. Therefore, power is essential for sprinting or jumping off the front of the pack for example. Strength is the ability to exert force against a resistance. Therefore, strength is important for sprinting and climbing. Strength and power can be developed through specific resistance training at the gym but they can also be developed on a spin bike.

Leg speed, particularly when sprinting, can also be improved on a spin bike and is closely linked to power and strength i.e. maximum power transfer through the pedals at maximum speed.

Improving strength and power on a spin bike

Strength and power can be improved by doing short and extended hill climbs on the spin bike at various intensities and speeds. Transition from an intensive climb to a full on sprint will also help develop the muscles and allow maximum contraction for maximum power and speed. Sprinting at high resistance is also shown to develop power and strength.

Improving leg speed on a spin bike

Leg speed can be developed through long and short sprints and a transition from a hill climb to a sprint and vice versa. Leg speed can be gradually improved over time with specific training but like strength and power, it is somewhat determined by muscle makeup and genetics.

When and how often do you train strength, power and speed

It's usually okay to do strength, power and speed training once or twice a week all year round but it's not advisable in the week before a race.