

# Spinning

## **Proper bike set up**

The Spinner bikes are designed to fit all shapes, sizes, and abilities. The bikes allow you to tailor your seat and handlebar height to create a perfect fit, and this is important. With proper bike set up, you reap the full benefits of the Spinning movements and minimize the risk of injury.

## **Seat height**

Standing next to your bike, the seat should sit evenly with your hip. Sit on the bike seat and place the ball of your foot over the center of the pedal. Make sure that your shoelaces are tucked in and your feet are securely attached to the pedals. Rotate the pedals until one leg reaches the bottom. There should be a slight bend in the lower knee.

## **Fore/Aft Position**

The seat also adjusts forward and backward, which helps keep your upper body and knees in the correct position. To start, make sure that you can reach the handlebars comfortably, maintaining a slight bend in the elbows. Then move both pedals until they are even with each other (think 3 and 9 on a clock). Your seat is in the right position when your front knee cap is directly above the center of your foot.

## **Handlebar Height**

Adjustment of the handlebars is up to the rider. Adjust the handlebars to a position that is comfortable and limits unnecessary strain on your back and neck. If you have lower back pain, a higher handlebar position should be used.

## **Foot Position**

Place your toes securely in the toe cages, over the center of the pedals. As you pedal, focus on keeping your feet flat. This will help create a powerful pedal stroke while removing stress from your ankles and knees.

## **Emergency Brake**

Each bike comes equip with an emergency brake. If at any time during the class, you feel as if you are losing control of the bike, you may push the resistance lever all the way up and it will stop your legs.

## **Core Positions and Movements**

An indoor cycling program is designed to stimulate real cycling terrain, conditions, and techniques using three hand positions and five core movements. Using the correct hand positions will ensure correct body posture and help eliminate shoulder, wrist, and elbow fatigue.

Hand position one is used for warm-up, cool-down, and seated flats. In this position, the sides of the hands rest on the handle bars. Your elbows and shoulders should always be relaxed. Hand position 2 is used for running, jumping, sprinting, and seated climbs. This position opens up the lungs to facilitate breathing and provides stability during out-of-the-saddle movements.

Hand position 3 is used for out of the saddle climb. Lightly grasp the ends of the handlebars, wrap your fingers and place thumbs over the ends.

Seated flat (hand position 1): The most basic movement in the cycling program, the seated flat helps build strength, stamina and a strong fitness base.

Seated climb (hand position 2): The seated climb challenges your lower body, targeting the gluteals and hamstrings for strength, toning, and definition.

Standing flat (hand position 2): The standing flat is an upright, standing run performed with light to moderate resistance. Running uses core muscle groups to stabilize the body, improve leg speed, and increase endurance.

Standing climb (hand position 3): The standing climb is an out-of-the-saddle hill climb used to strengthen and define leg muscles, particularly the quadriceps.

Jumps (hand position 2): Jumps are performed by transitioning in and out of the saddle (in smooth controlled movement). Jumps develop overall strength, timing and balance by shifting muscles utilization from a seated to a standing position.

## **Basic Anatomy and Physiology**

To gain a better understanding of how the spinning program benefits the body, it is important to have a basic understanding of how our muscles function. The human body contains over 600 skeletal muscles. They are known as voluntary muscles and are attached to bones and move the skeleton. These are the muscles we are most familiar with, such as the triceps, biceps, quadriceps, and pectorals.

### **Muscle Types**

There are two other types of muscles in the human body: smooth muscle and cardiac muscle. Smooth muscles are involuntary; we cannot directly control these muscles. They are found in most blood vessels and in most internal organs.

Cardiac muscle is found only in the heart and is also an involuntary muscle. Cardiac muscle is also known as the myocardium. The thickness of the myocardium will depend on how much stress is placed on the wall of the heart. Aerobic exercise will place stress on the heart, specifically the left ventricle. The cardiac muscle, like skeletal muscle, will increase in size and grow stronger and more efficient.

### Structure and Function of Skeletal Muscle

We often think of every muscle as a single unit, but a muscle actually contains many layers. The base of the muscle is fibers known as fasciculi. Each fasciculus is surrounded by protective layers that serve to hold the muscle together. The muscle fibers are also known as a single muscle cell. Each muscle cell produces large amounts of energy or adenosine triphosphate (ATP) that you need to contract muscles.

### Slow and Fast Twitch Muscle Fibers

Now that we know the basic structure of skeletal muscles, we must look closer at how a muscle functions during exercise. Skeletal muscle contains two major types of muscle fibers, slow twitch (ST) and fast twitch (FT), which are differentiated by their speed of action.

Generally, ST muscles have a greater capacity for aerobic endurance. These are the muscle fibers utilized in recovery and endurance rides. In aerobic exercise, energy is produced from the oxidation of carbohydrates and fats. ST fibers are used for activities requiring low intensity endurance or any long sustained effort.

One primary benefit of endurance training is an increase in the number and size of mitochondria, the “energy factories” in our cells. Energy production and fat oxidation occur in the mitochondria. Therefore, the more mitochondria you develop, the more efficiently your body will burn fat.

FT fibers have poor aerobic endurance and are recruited during activities requiring short bursts of energy such as sprints.

### The Three Energy Pathways

#### ATP-Creatine Phosphate Pathway

This energy pathway is anaerobic (without oxygen) and can only sustain your muscles’ energy requirements for up to 15 seconds during an all-out sprint. Thus, muscles will rely in the next two pathways for additional production of ATP.

### The Glycolysis Pathway (Lactic Acid)

This pathway can also generate ATP anaerobically. Glycolysis is the way the body breaks down glucose for energy. An inadequate amount of oxygen in glycolysis produces lactic acid. The Creatine Phosphate and glycolysis pathway contribute to energy during the first two or three minutes of high intensity exercise.

### The Aerobic/Oxidative Pathway

The oxidative pathway can utilize glucose, fat, and amino acids (protein) for energy (ATP) production but is reliant on a steady supply of oxygen. The more efficient your breathing, the greater the amount of oxygen is delivered to working muscles to produce consistent energy for long-term activities. Fat and glucose are the preferred sources of fuel for this pathway. The body spares protein use as source of energy, so that protein can be used for repairing and rebuilding the body, one of the body's most vital functions.

### Base Training

Aerobic base building is an integral part of any successful training program, and the spinning workout is no different. To build an aerobic base, you must exercise in the aerobic range which is 60-85% of your max heart rate. A strong aerobic base conditions the lungs and heart by increasing the oxygen available to the body and by enabling the heart to use oxygen more efficiently (also known as increasing aerobic capacity). A strong aerobic base will enable your body to better adapt and benefit from anaerobic training when that type of exercise is introduced. Other benefits of aerobic exercise include improved fat metabolism and body composition, better performance, stronger immune system, increased resistance to fatigue, lower risk of heart disease, decreased tension and aid in sleeping, increased general stamina, psychological benefits, increased cardiac output, and increased quantity and size of blood capillaries.

### Spinning Energy Zones

#### Recovery

The objective of the Recovery is to create a balance in your training plan. Think of your body as an ocean that builds and crests and then crashes on the shore. Peaking and recovery are part of your body's natural rhythm, and ignoring this flow can lead to health problems. Your heart rate on the recovery ride falls between 50-65% of your max heart rate. People who engage in healthy recovery will have lower resting heart rate, respiratory rate, blood pressure, muscle tension, stress; and have increased positive outlook.

## Endurance

Endurance training is the heart and soul of any successful training program. Endurance training should make up the largest percentage of your total training time and it is the foundation upon which you build your fitness and performance goals. Endurance training provides the ideal environment in which to improve cycling economy, or the efficiency at which one rides. It is important to practice diaphragmatic “deep” breathing while riding. A rider should NEVER hold his or her abs tight. An excellent way to learn how to breathe properly is to breathe in through your nose and out through your mouth. Not only will this breathing technique improve respiratory efficiency, but also create a more relaxing ride. Most of the riding in the endurance zone is in-the-saddle within 65-75% of max heart rate with an average RPM of 80-110.

## Strength

The strength training improves muscular endurance as well as mental strength. The typical definition of strength is the ability of the muscle to generate force. In cycling terms, “strength” is defined as muscular endurance-the ability of the muscles to perform repeated contractions for a long period of time. Strength developed by a cyclist is cardiovascular strength, meaning that the heart and lungs become stronger and are able to pump more blood, oxygen, and nutrients to the working muscles and clear waste products quickly. The primary physical component of the strength energy zone involves working between 75-85% maximum heart rate maintaining 60-80 RPM. Benefits of the strength energy zone include an increase in muscular strength, power, and tendon and ligament capabilities.

## Interval

Interval training is a form of endurance training and is essential to anyone interested in improving their fitness level, enhancing their performance or even changing their metabolism. It is a form of training in which short to moderate periods of hard (to very hard) work are alternated with short to moderate periods of rest or reduced activities. For the purpose of this class, interval training will be incorporated into our endurance and strength training session.

## Stretching

When it comes to stretching- don't skimp! Incorporating flexibility into your training plan doesn't take a lot of time, and the benefits are a bonus.

- Always stretch slowly
- Take the stretch to the point of mild discomfort
- Hold each stretch 30-60 seconds
- Breathe deeply through the nose
- Avoid bouncing
- Always stretch off of the bike

- Key muscles to stretch involved with the spinning workout; hamstrings, quads, calves, hip flexors, lower back, glutes, and the iliotibial band.

### **Hydration 101**

One of the most important fuels you need for Spinning class is water. Exercising indoors decreases your body's ability to cool itself down through convection (air flowing over the body), which means you sweat more—and that sweat stays on your skin, creating a sauna-like environment. To replenish the water that your body's losing, stabilize your core temperature, and help pump blood to those hard-working muscles you need to hydrate, hydrate, hydrate!

**The following guidelines will help ensure that you're getting enough:**

- For a 40-minute indoor cycling session, drink at least 40 oz. of fluid: 8 oz. within 30 minutes before class, 24 oz. during class (the average water bottle holds 16-24 oz.) and 8 oz. within 30 minutes after class.
- Look for energy drinks that are 7 percent carbohydrate or less. They provide the same hydration benefits as plain water. Most sweetened fruit juices, sodas and commercial sports drinks have a higher sugar content, but this delays the gastric emptying process and makes them ineffective hydration sources. Finally, avoid caffeine and alcohol before a workout; they're diuretics and can actually dehydrate you.
- Check your urine. It should be clear. Dark or cloudy urine can indicate you're dehydrated.
- Watch your weight. Weigh yourself before and after exercise; you should weigh the same. Any weight lost during exercise is water (from sweat) and you should be replacing that continuously.

## Nutrition

A proper diet is key to proper muscle recovery and overall health. Here are some tips to keep in mind.

- Know the difference between serving size and portion size. The serving size is listed on the nutrition label. The portion size is what you actually eat. Make sure to check the food label to determine how big your portion size should be.
- Whole foods are better than alternatives. By choosing whole fruits and vegetables instead of juices, our bodies will also get the fiber they need to maintain a healthy digestive system.
- The only way to know what is in a product is to read the ingredients. If a product contains partially hydrogenated oil (trans fat) put it back and try to find a better choice.
- To avoid high and low blood sugar levels, try to eat small meals more often, ideally every 3-5 hours. Also, avoid concentrated sweets such as soda, cookies, candy, etc as these will spike blood sugar level and quickly cause a crash.
- Some fat is necessary in the diet. Monounsaturated fats such as olive oil and canola oil are heart healthy. Omega-3 oil found in fish is also heart healthy. By replacing some saturated fats (those found in animal and animal product such as butter), you can better your heart without sacrificing on flavor. Avoid products with trans fat. Studies have shown that it can increase bad cholesterol and decrease good cholesterol levels.
- Dairy products contain calcium, a vital mineral in bone development and muscle contraction. Since dairy is an animal product, it contains cholesterol and saturated fat. Look for low fat and fat free versions of milk and yogurt.
- Carbohydrates have received a horrible reputation in the past. The body prefers to use carbohydrate for fuel, so eliminating them from the diet is a poor decision. The important thing to look for when buying grains and pasta is the word whole. You want to buy whole grain products to get all the nutrients and benefits of fiber.

- Most importantly, moderation is the key. You can have your cake and eat it too. Just make sure that you are consuming a small portion and balancing your daily caloric intake with a healthy amount of exercise.