# TRAINING FOR THE MS BIKE TOUR®


**ADVISORY BOARD**

**Bob Anderson** – Author of *Stretching*, one of the best-selling exercise books of all time (www.stretching.com), and co-author of *Getting In Shape*.

**Kimberly Brown, R.D**. – Well-known sports nutritionist. (kjmuell@hotmail.com). Staff sport nutritionist for *Triathlete* magazine and a top-level amateur endurance athlete.

**Alison Dunlap** – World cross-country mountain bike champion in 2001 and U.S. Olympian in 2000.

**Matt Fitzgerald** – Managing editor of PoweringMuscles.com.

**Fred Matheny** – A career cycling journalist, author and co-producer of RoadBikeRider.com, a Web site packed with "how to" info.

**Ed Pavelka** –Journalist and author of numerous books on cycling, including *The Complete Book of Long-Distance Cycling*.

**Andy Pruitt, Ed.D.** – Founder and director of the Boulder Sports Medicine Institute (www.bch.org/sportsmedicine). Author of *Andy Pruitt's Medical Guide for Cyclists*.


The adventure of the MS Bike Tour® experience begins not on the first day of the event but the moment you begin training for it. The training process is a journey unto itself that will reward you with better health and fitness, greater calmness and energy in your daily life, more self-confidence and more fun in the ride itself.

This training module is designed to provide all the information you need to prepare for this event in an easy-to-understand format. It covers essential gear, cycling technique, building fitness, sports nutrition and other important topics. It was created by the MS Bike Tour® Advisory Board, a team of leading experts in cycling and related areas.

You will find this module to be an invaluable resource in your preparations for the ride. Get ready for the experience of a lifetime!

## INITIAL FITNESS ASSESSMENT

The starting point of the training process is different for individual cyclists. For example, a 25-year-old who has exercised consistently since childhood will begin the training process at a higher level than a 45-year-old who recently quit smoking. Before you begin this or any other training program, it is important that you assess your present state of health and fitness so that you may begin with a level of training that is tailored to your current capacity.

Consult a doctor before beginning your cycling program if you are pregnant, older than 65, sedentary, or overweight, or if you have diabetes, high blood pressure, a heart condition, or any injury or health condition or risk factor that may affect your ability to safely handle the rigors of a cycling program.

# ESSENTIAL GEAR FOR CYCLING

If you're doing an MS Bike Tour® you probably own a bike or will borrow one. Now let's go down a short checklist to make sure the bike is up to the challenge. After all, an MS Bike Tour® puts a demand on your equipment just as it does on your body.

**Does the bike fit you?**
The key is not so much the specific frame size but whether you can obtain the correct riding position. There are two main considerations:

1. Saddle height. First, make sure the saddle is level, not tilted up or down. Put on your riding shoes, then climb on with the bike beside a table or wall so you can hold yourself up. Put your heels on the pedals, using the bottom side if toe clips and straps are attached. Pedal backwards. When seat height is correct, your knees will straighten at the bottom of each stroke but you won't have to rock your hips to keep your heels in contact. Move the saddle up or down accordingly. Of course, when really riding you should have the ball of each foot on the pedal. This will produce the proper knee bend for efficiency and comfort.

2. Handlebar height. On most bikes, the bar height can be adjusted up or down. When viewed from the side, if the handlebar isn't the same height as the saddle or within two inches of being that high, raise it. Conventional quill stems have an expander bolt that holds the stem inside the bike's head tube. Caution: Never raise the stem above the "maximum height" line engraved on its side.

**Are the wheels in good shape?**
1. Check the rims. Pick up one end of the bike at a time and spin the wheel. Watch where the rim passes a brake pad. If a rim wobbles or even brushes the pad, you should have it professionally trued. A wobbly rim that's ignored can eventually lead to broken spokes and an unridable wheel.

2. Check the tires. There should be plenty of tread with no cuts or bare spots. The tire sidewalls should be free of cracks or other damage. Replace suspect tires before the ride for your safety and peace of mind.

Consider buying new tires if you'll be riding a mountain bike that currently has knobby treads. Off-road tires rumble on pavement and are very inefficient, requiring lots more pedaling energy each mile. Check at a bike shop for so-called "slick" or "treadless" tires. You'll be thankful you did.

Once your wheels are in great shape, inflate the tires to the pressure recommended on the sidewall. Firm tires handle better, roll easier and protect the tube and rim from damage if you should ride into something sharp, like the edge of a pothole.

**Are the chain and cables lubed?**
The chain should neither be dry nor dripping with oil. Buy the lube recommended by a local shop for your climate, apply some to each link as you turn the chain slowly, then wipe off the excess with a rag. Lube belongs inside the links, not outside where it will attract dirt and sand.

Using a product like WD-40, spritz into each place where brake and gear cables enter and exit sections of housing. Hold a rag behind to catch overspray, and avoid getting lube on the rims or brake pads. Also spritz the front- and rear-derailleur pivot points.

> **QUICK TIP**
>
> *Apply enough bicycle chain lubricant to thinly coat the chain while spinning the pedals backward with your hand. Wipe off the excess with a rag.*

If you don't have the materials or confidence to do these things, take the bike to a shop at least a couple of weeks before the ride. Tell the mechanic what you're up to (there may even be a discount for MS riders) and ask for a general service. They may even offer to check your riding position.

Likewise, if you are treating yourself to a new bike for an MS Bike Tour®, talk to the salesperson and explain the type of riding you intend to do *after* the big event. Shop personnel are trained to delve deeply into your needs to make sure you buy a bike that'll make you happy for years to come. Proper gearing is a big part of this. It depends on your fitness, objectives, riding style and the terrain where you'll be riding most.

**Accessories**
Here's another checklist. By purchasing the necessary items well in advance, you'll have time to use them on training rides. A classic mistake is to buy something brand new and wear it or put it on your bike for the MS ride, never having tested it. Make this your motto: No surprises!

**Helmet** – of course! You should wear one every time you ride, and when you ride in a National Multiple Sclerosis Society bike tour it's mandatory. Modern helmets are lightweight, airy and stylish as well as protective (they must meet government impact standards). Visit a shop to try on various models in your price range. A snug but comfortable fit is essential.

**Shorts** – cycling shorts are not a gimmick. They are key to minimizing chafing and other discomforts when sitting on a saddle for any length of time. Good shorts have a large, smooth, lightly padded liner ("chamois"). If you don't care for the skintight look of Lycra,

opt for the “baggie” mountain bike style that looks like casual shorts but still has a liner. Being a loose fit, though, means they could bunch uncomfortably during long rides.

**Jersey** – a cycling jersey with three rear pockets is handy for carrying snacks, your wallet and other items. Summer jerseys are usually made from a material such as CoolMax® that lifts moisture way from the skin, keeping you drier and more comfortable. Plenty of casual riders simply pull on a T-shirt, but realize that sweat (or a rain shower) makes cotton heavy and clammy.

**Gloves** – short-finger cycling gloves absorb perspiration for a safer grip, protect against raw spots and blisters, and pad your palms to reduce road shock. Most have a terry back that gives you a way to wipe sweat from your eyes or energy drink from your chin.

**Shoes and socks** – dedicated cycling shoes, either for road riding or mountain biking, are the best choice. The reason? Very firm soles that let you press as hard as you want without feeling uncomfortable pedal pressure. You can use mountain bike style shoes with or without toe clips and straps, or with clipless pedal systems. Plenty of casual riders simply wear running shoes, but their softness makes them less suitable for longer distances. Socks are important for comfort and sweat absorption. Choose the low-cut style if you’re worried about a funny tan line.

**Sunglasses** – it’s best to use a sports model with unbreakable lenses that have 100% UV protection. The wraparound style will reduce bothersome wind, a boon if you wear contacts.

**Sunscreen** – your eyes aren’t the only things that need sun protection. On an MS Bike Tour®, your skin may be exposed to burning rays for 10 or more hours. Apply a sweat-resistant sports sunscreen before getting on the bike each morning, and carry a tube in your jersey pocket or seatbag so you can apply more at rest stops. Choose SPF of at least 30 (45 is better). Don’t forget your ears and behind your knees. For lips, use a lip balm that has SPF protection.

**Food and drink** – have two cages on your bike and use tall, 28-ounce bottles. Any experienced cyclist will tell you that a key to successful long rides is staying well fed and well hydrated. MS rides have plenty of snacks and drinks at aid stations, but don’t wait until you stop. Nibble and sip every few minutes while riding for maximum sustained energy.

**Repair kit** – your under-seat bag should contain at least one spare tube, a tube repair kit and levers for prying the tire off the rim. You’ll need a pump, too, unless you’re riding with a friend who carries the right kind for your valve stems. Pack a compact multitool made for bikes, plus a $10 bill and some coins for emergencies. Be sure to carry an ID card, too, with any essential medical information.

**Six Easy Steps for Tube Replacement**

A repair kit won't do you any good if you don't know how to replace a punctured tube. On second thought, the rider who stops to help you will appreciate it! But don't leave it to chance. Learn how to fix a flat by practicing these simple steps:

> **QUICK TIP**
>
> *Practice repairing flat tires before you begin doing long rides. It's not as hard as you might think!*

1. Stop in a safe place. Open the brake's quick-release to spread the pads. Remove the bad wheel. If it's a rear, first shift the chain onto the smallest cog to keep the derailleur out of the way.

2. Use tire levers to remove one side of the tire all the way around. Pull out the bad tube. Using your fingers or a rag, gingerly feel around the inside of the tire to find anything still stuck through the tread. Remove it completely or the new tube will be punctured, too.

3. Add a little air to the new tube, put the valve through the rim, and feed the tube into the tire all the way around. Avoid kinks and folds.

4. Starting at the valve stem, put the tire into the rim. Work in opposite directions with both hands, using your thumbs to force the edge of the tire up and over.

5. If the last several inches of tire are hard to force on, let all air out of the tube. Pinch the tire all the way around the rim so both sides are in the deep center of the rim. Use your palms and thumbs to force the stubborn section into place. Avoid prying with the levers unless there's just no other way, because it's easy to pinch a hole in the tube.

6. Push the valve stem up into the tire, then pull down firmly. As you inflate, watch both sides of the tire to be sure it's staying firmly seated in the rim. If a section bulges, the tube is caught under the tire's edge. Deflate and massage that area to help work the tube inside, then pump again.

## BIKE SAFETY

Here's a classic truism for cyclists: Do things the way drivers expect you to do them. Be predictable. Then they will be less apt to make a mistake that puts you in danger.

Anytime you're riding your bike, think about whether your next move is something you'd do in your car. If the answer is no, don't do it. This includes things like riding against the traffic flow, riding the wrong way on a one-way street, rolling through stop signs or red lights, darting across lanes of traffic and not signaling. In short, obey all traffic laws.

You can do a lot to limit traffic risks by riding on roads that have bike lanes or shoulders. Many roads do. These can often be used in urban areas to take you to the outskirts of town, where congestion is less and cycling is at its best. Try not to be on your bike during the busy, rush-hour times of day. Drivers are more apt to be distracted then, driving fast with their minds on the workday.

Always signal turns. Use your left arm straight out for a left turn, your left hand down with palm rearward for a stop, and your left arm up at 90 degrees for a right turn. May riders prefer to signal a right turn with their right arm straight out and that's become accepted.

**QUICK TIP**

To be safe in traffic, you have to act like traffic.

Use these same signals when changing lanes, then glance behind to be sure the way is clear. Like traffic, move into the turn lane to go left. Don't wait till the last moment and dart across from the far right lane. Bike mirrors are also very useful. They can easily be attached and they enable you to see what's behind you.

Ride defensively and always be ready to brake. Be especially vigilant when an oncoming car could turn left across your path. The driver may not see you or may misjudge your speed. Another danger is when a driver passes from behind and then immediately turns right. (Sometimes you just can't understand what these people are thinking!) In either situation, your best reaction may be to make a tight right turn in parallel with the vehicle.

Another nervous moment happens when you see a driver waiting on a side street, ready to pull out. The best way to tell if the car is actually moving forward is to watch the front wheels. If they're turning, get ready to brake.

When an emergency stop is necessary, remember that weight transfers forward. Your front brake becomes much more effective than the rear. To prevent the bike from tipping up, extend your arms to push yourself to the back of the saddle as you brake hard. Stay low and the bike will stop quickly and safely.

To help drivers notice you, wear colorful clothing. Jerseys and helmets of red, yellow, orange or bright blue are much more likely to catch the eye than shades of natural colors – brown, black, gray, green. White isn't a bad choice and is actually the best if you ride at night.

## BUILDING FITNESS

The MS Bike Tour® is a fun recreational ride, not a race. So let's make preparing for it fun, too.

There's no need for a strict training program. Your main objective should be to ride your bike five times a week, with two well-spaced days off. How long you ride depends on your fitness and experience. Ideally, you'll be able to start riding regularly at least eight weeks before the big ride.

Here's how a good training week might look. Feel free to make adjustments based on your work schedule, available time and other interests and responsibilities.

**Monday** – Day off. Why start the week by resting? Wait till you see Saturday and Sunday!

**Tuesday** – 60 to 75 minutes with periods of brisk riding. Start easy to warm up, then find ways to push yourself harder and raise your heart rate. You could ride some hills, decide to time trial in five minutes three times (a time trial is how much distance you can cycle in a fixed amount of time), do accelerations between every other telephone pole, sprint for a minute each time you see a silo or yellow mailbox. Be creative and make it fun. The undulating heart rates build fitness better than steady riding, and you'll develop riding skills by climbing hills, sprinting and settling in to extended periods of fast riding. Be sure to leave time for easy spinning to cool down on the way home.

### QUICK TIP

Try to ride consistently five days a week, doing your longest weekly ride on Saturday.

**Wednesday** – If your schedule allows, make this your second or third longest ride of the week. Try for as much as two hours at the same pace you plan to keep in the MS ride, a steady aerobic effort. Even if you can't go very long, keep it steady. This aids recovery between the more spirited workouts on Tuesday and Thursday.

**Thursday** – 60-75 minutes with periods of brisk riding. Remember what you did Tuesday? Don't do the same thing today! Physically, you want to tax yourself in a similar way, but mentally it helps to use a different approach. The variety will keep your riding fresh and fun.

**Friday** – 45-minute spin or day off if you're feeling sore or tired. Remember, active recovery in the form of an easy ride is often more beneficial than plopping on the couch. Just don't give in to the temptation to up the effort. If you decide to do a 45 minutes spin, make sure that the pace you ride is slower than the pace that you anticipate doing the MS Ride. Just enjoy being out on your bike.

The weekend is where you accomplish two important objectives. First, improve your endurance and ability to be comfortable on the bike for several hours. Second, get accustomed to the back-to-back long rides that the MS 150 and TRAM require.

**Saturday** – This should be your longest ride of the week. Scheduling it for Saturday gives you the option of switching to Sunday if bad weather or something unexpected intervenes. Begin at the level that's right for your present fitness level, then add about 15-20 minutes each week. If you start at 2 hours, for example, you will build to 3-4 hours on the sixth Saturday. Strive to ride in a terrain similar to the course you'll be riding. Eat and drink for energy and to accustom your stomach to digesting food while riding.

**Sunday** – Do about 80 percent of Saturday's time. It's best to go with your bike club or another group, especially if you do most of your other riding alone. You'll be sharing the road with hundreds of other riders during the MS Bike Tour®, so you need to be comfortable in the midst of all those wheels. It's also a refreshing change to ride with a group instead of going out alone again. The miles will go by faster and there's apt to be beneficial pace changes, particularly if some riders like to push the climbs.

As you train, remember this maxim: You grow stronger when you're resting, not when you're riding. Adequate recovery is essential. Always err on the side of doing a little too little. If you're feeling fatigued, not sleeping well and getting grouchy, take an extra day or two off. Do a short recovery ride on a Tuesday or Thursday instead of a spirited workout. You are an experiment of one. Listen to what your body is telling you and adjust your riding accordingly.

We recommend that you record your training in a training journal for two reasons. First, the best results will come if you hold your week-to-week increases to 10 to 15 percent (whether keeping tabs by miles or riding time). Bigger increases will be tempting, but before long you could suffer fatigue and worsening performance instead of the gains you're striving for. You can't boost your training a safe amount unless you know how much you did the previous week.

Second, you'll have a better preparation plan for next year's MS Bike Tours! By writing down what you did each day for eight weeks, what felt right and what didn't, what worked well and what didn't seem to help, you'll know what to repeat and what to avoid. It's often said that a training diary is the most helpful book a cyclist can own. Start writing yours after the next ride.

For more about cycling visit www.RoadBikeRider.com, a Web site packed with “how to” info for road cyclists. Sign up to receive the free weekly e-mail newsletter with riding tips and training advice and get a bonus eBook, *29 Pro Cycling Secrets for Roadies*.

## STRETCHING

It is important that you stretch your muscles regularly throughout the training process. Stretching can prevent the tightening of certain muscles that often results from repetitive activities like cycling, which is important because tight muscles lead to overuse injuries.

Stretching should be done slowly without bouncing. Stretch to where you feel a slight, easy stretch. Hold this feeling for five to 20 seconds. As you hold this stretch, the feeling of tension should diminish. If it doesn't, just ease off slightly into a more comfortable stretch. The easy stretch reduces tension and readies the tissues for the developmental stretch.

**QUICK TIP**

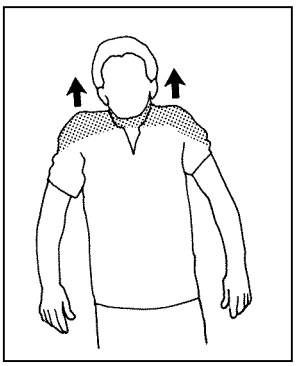
*For the best results, warm up for several minutes on the bike before your stretch.*

After holding the easy stretch move a fraction of an inch farther into the stretch until you feel mild tension again. This is the developmental stretch, which should be held for five to 20 seconds. This feeling of stretch tension should also slightly diminish or stay the same. If the tension increases or becomes painful, you are overstretching. Ease off a bit to a comfortable stretch. The developmental stretch reduces tension and will safely increase flexibility.

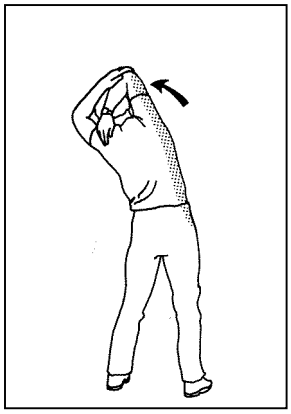
Hold only stretch tensions that feel good to you. The key to stretching is to be relaxed while you concentrate on the area being stretched. Your breathing should be slow, deep and rhythmical. Don't worry about how far you can stretch. Stretch relaxed and limberness will become just one of the many by-products of regular stretching.

Do a light warm-up of easy spinning for several minutes prior to stretching. The dotted areas are those areas of the body where you will most likely feel the stretch. If you have had any recent surgery, muscle or joint problems, please consult your personal health care professional before starting a stretching or exercise program.

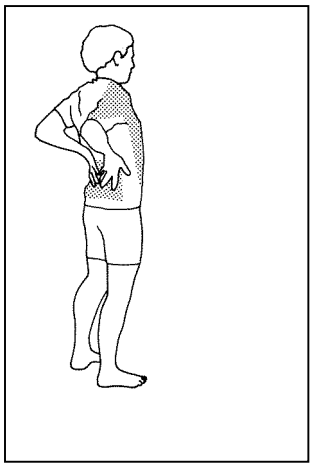
**Stretches for Cyclists**



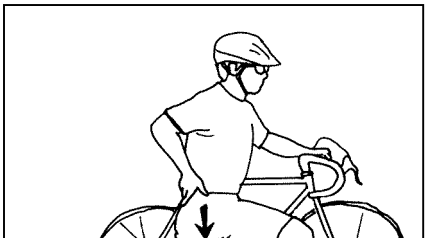
***1.*** Shoulder Shrug: Raise the top of your shoulders toward your ears until you feel slight tension for three to five seconds, then relax your shoulders downward into their normal position. Do this two to three times. Good to use at the first signs of tightness or tension in the shoulder and neck area.



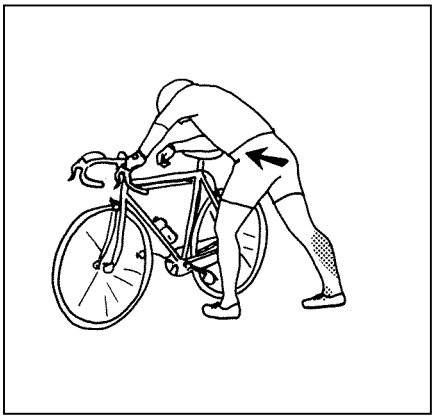
***2.*** With arms overhead, hold the elbow of one arm with the hand of the other arm. Keeping knees slightly bent (1”), gently pull your elbow behind your head as you bend from your hips to the side. Hold an easy stretch for 10 seconds. Do both sides. Breathe rhythmically. Keeping your knees slightly bent will give you better balance.



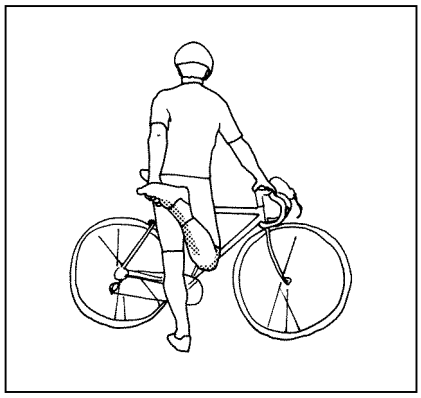
***3.*** Standing with knees slightly bent, place palms on lower back just above hips, fingers pointing downward. Gently push your palms forward to create an extension in the lower back. Hold comfortable pressure for 10 to 12 seconds. Repeat twice. Do not hold your breath. Use this stretch after sitting for an extended period of time. Stretches lower back and chest.



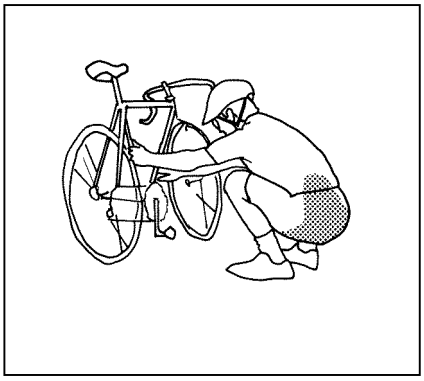
***4.*** As shown in the drawing above, move one leg forward until the knee of the forward leg is directly over the ankle. Your other knee should be bent behind you. Using your bike for balance, lower your body downward to create an easy stretch in the front of your hip and quadriceps. You may also feel this stretch in your hamstrings and groin. This will help



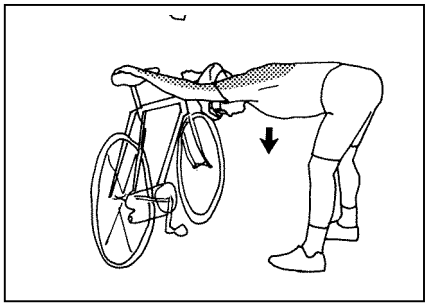
***5.*** To stretch your calf, stand a little ways from your bike and lean on it with your arms, keeping your balance. Bend one leg and place your foot on the ground in front of you leaving the other leg straight, behind you. Slowly move your hips forward until you feel a stretch in the calf of your straight leg. Be sure to keep the heel of the foot of the straight leg on the ground and your toes pointed straight ahead. Hold an easy stretch for 30 seconds, each leg. Do not bounce.



***6.*** Hold top of the left foot (from inside of foot) with right hand and gently pull heel moving toward buttocks. The knee bends at a natural angle in this position and creates a good stretch in knee and quads. Hold for 15 to 20 seconds. Do both legs. Breathe deeply. This stretch can also be done using same hand to same foot, with hand holding on top of foot, if preferred.



***7.*** With your feet shoulder width apart and pointed out to about a 15 degree angle, heels on the ground, bend your knees and squat down. Hold onto your bike for support. It is a great stretch for your ankles, Achilles tendon areas, groin, lower back and hips. Hold stretch for 20 to 30 seconds. Be careful if you have had any knee problems. If pain is present discontinue this stretch.



***8.*** Place both hands shoulder width apart on your bike and let your upper body drop down as you keep your knees slightly bent (1“). Your hips should be directly above your feet. To change the area of the stretch, bend your knees just a bit more. Find a stretch that you can hold for at least 30 seconds. Stretches upper back, arms and shoulders. Breathe easily. (Remember to always bend your knees when coming out of this stretch.)

For more information about stretching or for a free catalog of Stretching Inc. publications contact www.stretching.com or call 1-800-333-1307.

The material in the stretching section is copyrighted by Bob Anderson, Stretching Inc. and reprinted with permission. Illustrations are by Jean Anderson

# FUELING YOUR MUSCLES FOR CYCLING

Exercising muscles need fluid and energy to perform at their best. With every pedal stroke you complete, a small amount of body fluid is lost through sweating and a little bit of energy fuel is burned inside your muscle cells. The more fluid you lose and the more energy your muscles burn, the more tired you become. So it is important that you consume fluid and energy during all of your rides. By consuming these vital nutrients for muscle performance during all of your training rides and during the MS Bike Tour® itself you will feel better and ride better than you would otherwise.

The two main causes of fatigue are dehydration and depletion of energy stores in the muscles. Sweat is the body's coolant. During an intense workout, the muscles generate heat, which is carried by the blood through capillaries near the surface of the skin. Sweat glands release sweat (made up of water and electrolyte minerals) that evaporates, cooling the skin and the blood just underneath. Cooled blood then flows back to cool the body's core.

**The Importance of Hydration**

Sweating is therefore an essential mechanism for regulating body temperature. However, the loss of water that comes with perspiration limits the capacity of the blood to carry vital nutrients, such as glucose, fatty acids and oxygen to working muscles. The capacity of the blood to remove the byproducts of metabolism, including carbon dioxide and lactic acid, is compromised as well. The result is an increased demand on the circulatory system, which is approximately 70 percent water. As little as a 2 percent loss in body fluids will negatively impact cardiovascular performance.

In addition to water, sweat contains minerals called electrolytes that serve important functions in the body. For example, sodium helps regulate fluid balance and potassium assists muscle contractions. Excessive loss of electrolytes through sweating can cause problems such as dizziness and muscle cramping.

The problem becomes even more complicated because athletes can't depend on their normal thirst mechanism to replace the fluid they lose during exercise. We call this phenomenon involuntary dehydration. That's one reason why sports drinks that contain electrolytes are beneficial. Not only do they restore electrolytes lost in sweat, but salt also stimulates thirst, resulting in continual consumption of fluids.

It's best, however, to drink on a schedule. Specifically, you should drink four to six ounces of water or a sports drink every 12 to 15 minutes during workouts. The heavier you are, the higher the air temperature, and the faster you ride, the more fluid intake you need. Carry at least one full fluid bottle in a frame-mounted cage on all of your rides and refill it as necessary. Another option is to wear a fluid bladder backpack such as a CamelBak, which holds a large volume of fluid and allows you to drink hands-free through a hose.

The second component of exercise nutrition is carbohydrate. Carbohydrate is the primary fuel that powers the muscles during exercise. But carbohydrate is available in only a limited supply in the body – enough to fuel a couple of hours of moderate-intensity activity in the average rider. When carbohydrate fuel runs low, fatigue sets in. However, by consuming carbohydrate in a quickly and easily absorbed form during exercise, cyclists can delay fatigue much longer.

**Water is Not Enough**

Drinking water during workouts is much better than drinking nothing. But sports drinks are preferable. A quality sports drink can supply the fluid, electrolytes, and carbohydrate riders need to maximize their endurance. Drinking water alone will not do the job, because it does not replace the electrolytes lost in sweat or the carbohydrates burned for energy. Studies have repeatedly shown that exercisers who use a sports drink during workouts are able to go faster and longer than those who drink plain water.

Most sports drinks are very similar. The ideal carbohydrate level for a sports drink is 6 to 8 percent, and most sports drinks are formulated accordingly. Also, a majority of sports drinks contain electrolytes in amounts adequate to replace what is lost through sweating.

However, a new generation of sports drinks based on breakthrough research may change our idea of what constitutes the ideal sports drink. These new drinks contain a small amount of protein, which can make a big difference in performance.

**QUICK TIP**

- Be sure to drink 12 to 18 oz of water per hour of exercise.
- Sports drinks are more effective than water since they replenish energy.
- Sports drinks that contain protein in addition to carbohydrate are even better.

In a University of Texas study, during moderate and high-intensity workouts athletes were given either water, a conventional carbohydrate sports drink without protein, or a sports drink containing carbohydrate and protein in a four to one ratio. The results were quite dramatic. The athletes consuming the carbohydrate protein sports drink had a 24 percent improvement in endurance as compared to those who used the carbohydrate

sports drink and a 54 percent improvement as compared to athletes who only drank water.

Consuming a sports drink containing both carbohydrate and protein during your rides will also leave your muscles feeling less sore the next day. Post-exercise muscle soreness is related to muscle tissue damage. Drinking a sports drink that contains protein during exercise reduces muscle tissue damage and accelerates muscle tissue repair after the workout.

**Sports Drink Comparison**

| Goal | Water | Carbohydrate Sports Drink* | Carbohydrate/Protein Sports Drink (Accelerade®) |
|---|---|---|---|
| **Replace Fluids** | X | X | X |
| **Replace Electrolytes** | | X | X |
| **Provide Energy to Muscles** | | X | X X |
| **Reduce Muscle Damage** | | | X |

During your longest rides you will probably get hungry. The best solid foods to carry with you and eat during long rides are energy bars. Choose a bar that has approximately the same four to one ratio of carbs and protein that you should also look for in a sports drink, and avoid bars that have more than a very small amount of fat.

## NUTRITION FOR RECOVERY

Nutrition is the foundation of post-exercise recovery, because it provides the raw materials with which your body can make physiological adaptations in response to training. If you take in the right nutrients, in the right amounts, at the right time after workouts, you will recover far more quickly and thoroughly than you will if you don't practice proper nutritional recovery.

*Conventional sports drinks such as Gatorade® or Powerade® only contain carbohydrate and electrolytes

**The Importance of Timing**
Timing is essential with regard to post-exercise nutrition because your body is primed to sponge up needed nutrients at this time. For example, synthesis of muscle glycogen – a form of stored carbohydrate that serves as the body's primary energy source during endurance exercise – proceeds two to three times faster in the two hours immediately following exercise than it does at any other time.

There are three main components of post-exercise muscle recovery. First, it is necessary to restore fluids lost during exercise. When a cyclist sweats heavily, he or she loses a lot of water and electrolytes. Drinking a sports drink during rides can slow the rate of fluid loss, but can't stop it completely. So it's important to make up the deficit by continuing to use a sports drink with electrolytes after exercise. If you do not rehydrate properly before the next workout, you could experience overheating, muscle cramps, and other problems.

The second component of muscle recovery is putting carbohydrate fuel back in the muscles. Again, carbohydrate is the muscles' main fuel source during moderate-intensity exercise. The longer a workout lasts, the lower your muscle fuel supplies become. By using a sports drink containing carbohydrates during rides, you can slow down this process. But it's impossible to take in carbohydrate during intense exercise as fast as it's burned. So you need to continue taking in carbohydrate after exercise, as well. If you don't get your muscle fuel levels back to normal in time for the next ride, you'll be sluggish and sloppy.

**QUICK TIP**

*Consuming carbohydrate and protein within 45 minutes after you exercise will help you recover faster.*

**Repairing Muscle Damage**
Finally, the third component of muscle recovery is fixing the damage done to muscle tissue during exercise. High-intensity physical activity can cause small tears in muscle tissues. In addition, some muscle proteins are broken down for energy during hard exercise. Also, hard exercise produces damaged molecules known as free radicals, which attack muscle cells. In order to undo all this damage, you need to consume protein after each ride. You should also get antioxidants such as vitamins C and E, which help protect the muscle tissues against damage from free radicals.

The most convenient way to get all of the nutrition needed for recovery is to continue drinking the same carbohydrate-protein sports drink that was used during the workout. These drinks contain exactly what is needed and the right proportions without anything

extra that might slow down the recovery process. Most cyclists also find them easier to swallow and keep down than solid food immediately after a workout.

If you are hungry after your rides, eating is fine. Just make sure you get all the same nutrients you would get in a quality sports recovery drink without a lot of extra stuff (fat, excess protein) that might slow down the delivery of nutrients to your muscles. Some energy bars are good recovery foods. In any case, you will need to drink some form of fluid to meet your body's hydration needs after workouts.

For more information visit www.poweringmuscles.com

## PREVENTING AND TREATING INJURIES AND AILMENTS

The most important thing you can do to prevent injuries is to make sure your bike is properly fitted to you. Bike fitting is not as easy as many beginning riders assume. A small error in setup can lead to problems down the road. To be sure of proper fitting, take your bike to your local high-end bike shop and get a professional fitting. This service will cost about $35 but will be more than worth the cost if it keeps you from developing back or knee problems.

Following are additional tips for preventing and treating common cycling injuries and ailments.

**Saddle Sores**
Saddle sores are areas of irritation in the perineum that sometimes become infected. They are caused sometimes by the pressure of bearing weight on this area and sometimes by friction between the perineum, shorts and seat. To prevent saddle sores, first of all always wear cycling shorts that provide protection for the perineum. For additional protection, apply a lubricant to the area before each ride. Even with such precautions, however, there will be a period of adjustment. You will experience some tenderness and irritation as you adapt to this unfamiliar pressure and friction. In order to get through this period of adjustment comfortably, you need to ramp up gradually. Don't do too much too soon. To prevent infection, remove your cycling shorts immediately after completing each ride.

**Knee Pain**
Among cyclists, knee pain is often caused by poor fitting. If you feel pain in the front of the knee, your seat is probably too low. Raise the seat and it should go away. If you feel pain in the back of the knee, your seat is probably too high. Lower the seat and the pain should go away. When your bike is set up correctly there should be a slight bend in your knee at the bottom of the pedal stroke.

Another common cause of knee pain is pedaling in too high a gear. If you develop knee pain despite correct setup, try pedaling faster in a lighter gear. Trying to do too much too soon can also cause knee pain, so here's another reason to ramp up gradually in your training.

Between rides, ice your knees and use anti-inflammatory medications as needed to treat pain and swelling.

**Lower Back Pain**

Lower back pain is the most common complaint among cyclists. The hunched-over position that is maintained during rides strains the muscles of the lower back, especially in beginners. Performing strengthening and stretching exercises for the lower back, as well as strengthening exercises for the abdomen, will reduce this strain and the pain that comes with it.

Poor setup can contribute to lower back pain too. Positioning the handlebar too low or two far forward often leads to problems. If you develop lower back pain during the MS Bike Tour® itself, or during any other long ride, you can effect a quick fix by moving your saddle forward. Stop to stretch out your lower back may also help.

**Hand Numbness**

Hand numbness can result from riding in a setup that has you bearing too much weight on your hands, as when your seat is too high or your handlebar is too low or too far forward. Adjust your bike (or have it adjusted) so that approximately 60 percent of your weight is on your seat and 40 percent on your hands. Wearing cycling gloves and double taping your handlebar can also reduce hand numbness or discomfort.

**Muscle Soreness**

Strenuous exercise causes microscopic tearing in muscle fibers that can result in soreness a day or two later. Hence this condition is called delayed-onset muscle soreness (DOMS). Delayed-onset muscle soreness is a normal side effect of training, but it should never be excessive. The best way to prevent extreme soreness is to build your training volume gradually and never to do a ride that is more than slightly harder than any ride you've done recently.

Using a sports drink such as Accelerade that contains a balance of carbohydrate and protein can also reduce later muscle soreness by reducing the number of muscle proteins that are broken down during rides. Continuing to use this drink immediately after completion of the workout will accelerate the muscle repair process. When your muscles are sore, treat them by stretching, massaging and elevating your legs.

For more information on cycling injuries, visit www.roadbikerider.com, where you can order the book *Andy Pruitt's Medical Guide for Cyclists*.

## STAYING MOTIVATED

The mental aspect of preparing for the MS Bike Tour® is just as important as the physical aspect. Any experience that challenges the body challenges the mind as well. It is likely that the biggest mental challenge you will face in your training is staying consistently motivated to stick to your program. Here are some suggested ways of keeping your motivation level high.

- **Train with others**. Sharing the training experience with others is a powerful motivator for most cyclists. The National MS Society will notify you of training rides in order to afford you the opportunity to meet fellow participants and practice long-distance cycling. The National MS Society will be with you every step of the way! We also encourage you to ride with friends who may or may not be training for the MS Bike Tour®.

- **Get objective feedback.** There's nothing like experiencing the results of hard work to motivate more hard work. There are many ways of gathering feedback on your progress as a rider. One way is to do an occasional timed ride wherein you see how far you can ride during a designated period of time (say, one hour). As you become more fit, you will be able to ride farther and farther in the same amount of time.

- **Stay goal-focused.** Most of us are goal-oriented and are highly motivated when important goals are prominent in our mind space. Effective ways of staying goal-focused include keeping a daily exercise journal and visualizing yourself participating in the tour.

- **Change it up.** Sometimes it's not the hard work of cycling but rather the monotony of doing the same ride every time that causes motivation to sag. When this happens, change the workout: drive to a different location and ride, do an alternative cardiovascular workout instead, or do fast-paced "intervals" instead of a steady ride. Any of these options beats blowing off the ride altogether!

## KEEP ON RIDING

Cycling is one of the best forms of exercise and also a very enjoyable activity. It carries a long list of physical and mental benefits. We hope that the experience of training for and completing the MS Bike Tour® gets you "hooked" on cycling so that it becomes a lifelong habit. Who knows where it will take you next?

The National Multiple Sclerosis Society is proud to be a source of information. Our comments are based on professional advice, published experience and expert opinion. Such names appear here solely because they are considered valuable as information. The National Multiple Sclerosis Society assumes no liability whatsoever for the use or contents of any product or service mentioned.

© PacificHealth Laboratories 2003