PERFORMANCE CYCLING CONDITIONING

A Newsletter Dedicated to Improving Cyclists

Volume 16, Number 1

Do You Stress Your Athletes Too Much?

Joe Friel, author of *Cyclist's Training Bible, Cycling Past 50, The Triathlete's Training Bible* and *The Mountain Biker's Training Bible* has said, "the most common mistake I see (coaches make), especially with younger coaches, is that they put too much stress on the athlete. Young coaches see themselves as being paid to stress the athletes, so that is what they focus on. This is likely to lead to overtraining the athletes. My own approach is to find the least amount of stress the athletes need to accomplish their goals."

Over-stressing athletes appears to be on the rise with 2 or 3-a-days leading the way. Over-stress leads to abuse, which may create legal concerns. Here are some examples we have come across just in the month of August!

The Associated Press reported that the McMinnville (Oregon) High School Grizzlies opened fall football practice on Monday while three of their teammates remained hospitalized with a mysterious condition that caused intense swelling and pain in their arm muscles. Nineteen football players required treatment after the condition surfaced last week, including three who required surgery. The football players were taking part in an immersion camp organized by a new coach to get ready for the season. Many of the teenagers had also participated in a weight training session in the school's wrestling room. The players described an intense drill in the high school's wrestling room, where the temperature reached 115.

From one of our author coaches: While in the gym yesterday I overheard a football coach telling someone else that they had their team on the field from 9-4 and he was not referring to two-a-days...this was straight through. I actually witnessed this team a few weeks ago running through drills and I remember NOT being able to pick one kid out of 60 or so with proper form. So how many hours were spent grooving bad form/patterns?

Here's another: One of my collegiate players just emailed me. They are doing 3-a-days, but soon will be 'tapering' down to 2-a-days. For some strange reason they have had several pulled quad muscles, a dislocated shoulder and a sprained ankle.

Want more?: After a one goal loss in a collegiate soccer game Saturday or Sunday, the coach conducted a 3-hour practice and ran them because they aren't 'fit' enough. My athlete had been conked in the head during practice and was feeling dizzy during the running. The coach told her 'tough', keep on going and gut it out. YIKES, a possible concussion and tough it out??

Finally, Chris West the soccer strength and conditioning coach at the University of Connecticut quantifies workload as follows: "When I came to U. Conn the team was doing 3-a-days during preseason, which are huge training loads, but difficult to quantify. So I started using the Polar Team System to measure the training load and found that over the course of 4 days some players had training loads of over 2500 points; but what did this mean? We then looked at the load for a competitive game to put it on a scale. We found that a game was 350 training load points. Seeing this, we realized that the training load in the first 4 days of preseason was equivalent to playing 7 games!"

Here's a comment from a volleyball coach. "We do a 2-mile run when we come into camp to see where we are at." I ask, why? I might be more concerned about where they are in the vertical jump.

I think you get the picture-overuse leads to abuse. But how does a coach under stress, reduce stressing their athletes so that the athletes can develop based on sound periodization principles of planned progressive overload. The following is a new principle that will help you.

Plan Recovery Before you Plan Workloads. Planning now consists of scheduling competitions, then workouts/practices with recovery/rest in whatever time is left over. Why not plan rest/recovery first and build practice/workouts around it. You will know when the athletes will be able to make meaningful gains based on timely workload increases. This includes the preseason where abuse is at its worst. It may seem counterintuitive but the results will be peaking physically and mentally at the most important time with healthy athletes free of overuse injuries and abuse.

Something to think about,

Ken Kontor, Performance Conditioning

WHAT'S INSIDE?

When it comes to cycling performance does pedaling technique really matter?

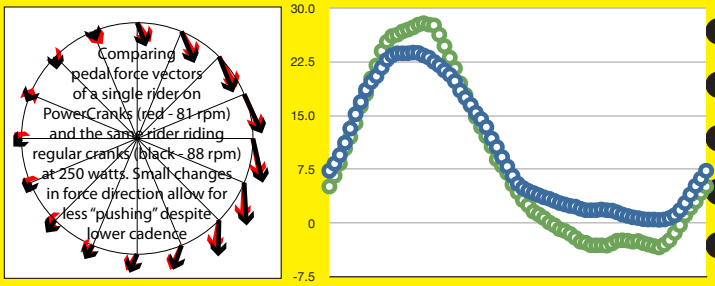
Of course it does. To say otherwise is like saying that cycling is the only sport in the world where the technique of the major component of the sport doesn't matter. But this myth persists. It persists simply because pedaling technique has been almost impossible to measure (requiring expensive pressure plate pedals generally available only in university research labs) and pedaling technique is almost impossible to change making it "impossible" to study. ***If something is hard to measure and even harder to change it is easy to conclude it doesn't matter.***

So, what is the optimum pedaling technique?

Now, there may be many different techniques possible and no one knows for sure exactly what is optimum but the one technique that many coaches talk about as being "optimum" is "pedaling in circles". But, what does "pedaling in circles" mean? It does not mean applying equal pressure around the entire circle, as is thought by many, as equal pressure around the circle is impossible because of the effects of gravity. What "pedaling in circles" really means is spreading the work out around more of the circle and doing no negative work on the upstroke — increasing the power at the top and bottom of the stroke and minimizing or eliminating the losses on the upstroke. Such a technique is exactly the technique Lance Armstrong has been trying to perfect since 1993, see: www.powercranks.com/Lance.html. There is now a tool (PowerCranks, Walnut Creek, CA - www.powercranks.com) that can teach this technique to your clients so you can concentrate on other things. Not a gimmick, a serious training tool actually used by the last three Olympic road race champions and many other Olympic, World, and National champions in a wide variety of cycling disciplines including track, cyclocross, mountain biking, and triathlon. You may not have heard about this use as it is a training tool and easily kept from others. Why would an athlete want to share an advantage with the competition?

What are the advantages of pedaling using this "full circle" pedaling technique?

1. It uses more muscle mass, increasing peak power potential.
2. It distributes the work around more of the pedal circle which means using more muscles, allowing any one muscle to be further away from its lactic threshold for any given power.
3. These changes together have the potential to greatly improve both pedaling efficiency[1], VO_2max[2] and sustainable power. Many studies support this approach.[3]



See the diagrams comparing actual pedaling forces changes seen in a single rider between regular cranks and PowerCranks. It is clear these are relatively small and subtle changes but these small changes in the direction of the applied force results in large changes in the resultant power to the wheel for any given muscular effort. **Note that when on PowerCranks the negative forces are completely eliminated and the forces across the top and bottom of the stroke are substantially larger over regular cranks. With these changes this rider is actually "pushing" less hard to generate the same power despite the fact he is riding at a lower cadence.** Can there be any doubt that as the rider changes their natural way of pedaling to this more efficient and powerful technique that performance will improve?

In the past (before PowerCranks) coaches and riders didn't have to worry too much about pedaling technique because it was pretty much impossible to know how a rider was actually pedaling (you needed pressure plate pedals, only available in the research lab) and, even if you got that information there were not any good tools to effectively change pedaling technique. Ignorance was bliss. But, this is about to change with the soon-to-be-released Metrigear Vector pedal (see: www.metrigear.com/products/). Soon, pedal force data will be affordable and available to everyone and your clients are going to be asking you for advice as to how to improve this aspect of their game. Better start planning how you are going to approach this now. Such changes do not come easily. You can set your clients on the 17 year path taken by Lance Armstrong or you can set them on the 6-9 month path allowed by integrating PowerCranks into their training. What are you going to choose? There is simply no more effective way than PowerCranks to effect this change.

In the near future, if you ignore this aspect of the cycling game we predict you will be seen by your ex-clients as "old fashioned" and "irrelevant". Prepare now. PowerCranks will help you teach this skill to your clients with maximum efficiency and if you become an associate, we can even help out your bottom line. Check us out,

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[1, 2, 3] studies that show cycling efficiency improvement, VO_2max improvement in trained cyclists, and many other studies related to pedaling technique (including those studies that many say "prove" that pedaling technique doesn't matter) are available here: www.powercranks.com/studies.html

PERFORMANCE CYCLING CONDITIONING

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FROM THE SUMMIT

Coaching Quick Reference Guide: Common Injury Conditions for Cyclists-Low Back Pain

Bernard Condevaux, PT, CSCS, Select Physical Therapy, Colorado Springs/Denver

Bernard has been directly involved in cycling since 1992, providing medical coverage at local road and mountain bike races through BRAC and the Avalanche Off-Road series. He also provided coverage at the Cyclocross State and National Championships in Golden, CO in 1992. Bernard worked his first Mountain Bike World Championship in Métabief, France with the New Zealand national team and then worked in staging at the 1994 Tour DuPont. At the 1994 MTB Worlds, he worked for the French national team as a team liaison, assistant trainer and translator.

In 1995, Bernard created a junior development program and traveled around the country speaking to juniors and their parents about training, nutrition, goal-setting and establishing a training schedule. He began a two-year stint as soigneur for Team Dirt at the Redlands Classic in 1995 and later that year joined USA Cycling for the TB Worlds at Kirchzarten, Germany. He has worked with USAC at every MTB Worlds since. In 2003, Bernard was a member of the USAC Pan Am Games team in the Dominican Republic and the 2007 Pan Am Games in Rio de Janeiro. He was a staff member at the 2004 and 2006 Cyclocross World Championships. He has also worked with the U-23 national team since 2004 and was PT/soigneur for the MTB team at the 2004 Olympics in Athens and all cycling disciplines at the 2008 Olympics in Beijing. Recently he worked with Team Quick Step at Tour of California!

Bernard Condevaux

The following is some of the information presented at the 2008 USA Cycling Coaching Summit last October. [Ed.]

Chain Link: Attend this year's Summit, October 13-17th click **HERE!**

BEG INT ADV MSR MTB

Fifty to sixty percent of low back pain can be attributed to poor posture. Here's a little test to see if your posture is an issue: When you get into the car to drive, sit up properly and adjust your rear-view mirror. Do you need to start adjusting the rear view mirror again after about 10 minutes? That is because you let your back fall into poor posture by losing your lordosis (inward curve of the lumbar spine). Instead of adjusting the mirror again, for a change try adjusting yourself to the posture that fits the mirror and you'll find out how weak your back is.

Another low back pain source can be attributed to tight hip flexors, specifically the psoas muscles. This is very common in cycling due to the position needed and the practice of "pulling up" on the pedals. Hamstrings can also be a factor. Other sources of potential low back pain include training errors (too many hills early on, for example), disc or joint pathology, and poor bike fit.

Symbols to Success
Articles preceded by

BGN indicates author believes content is for beginning-level athletes with training age of 0 to 2 years.

INT indicates author believes content is for sport (intermediate)-level athletes with training age of 2 to 4 years.

XTP indicates author believes content is for expert-level athletes with training age of over 4 years.

MSR indicates author believes content is for master-level athletes over 30 years of age.

MTB indicates author believes content is for mountain biking.

NOTE: Training age year is continuous year-round conditioning.

R following articles indicates the content has been reviewed by the editorial board.

O following articles indicates the content is the sole opinion of the author.

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One VERY important thing to remember is that symptoms radiating into legs, weakness or bowel/bladder changes indicate that it's time to seek the aid of a qualified medical professional. Do not try to "work through it". Early intervention can reduce the likelihood of requiring surgery or injections.

What to Do

In the case of an acute low back pain the first thing to do is apply ice and begin anti-inflammatory medication. In the case of a subacute issue, one can handle it with heat or ice. Stretching is another thing that can be employed. I would say that 50 percent of back pain on the bike is related to tight iliopsoas and hamstring muscles (hamstrings especially in time trial/ aero position). Finally, be aware of your sitting posture as noted in the car example above. Alf Nachemson's research back in 1980 found that disc pressures in the 3rd lumbar disc during unsupported sitting (no back support) were 1/3 greater than in standing. With leaning forward or slouch sitting, these pressures increase another 30%! Add to this that in sitting, the psoas muscle stabilizes and compresses the disc (increasing the pressure): with the common tightness in this muscle with cyclists, this would increase the pressure even more.

In regard to bike fit strategies the first thing to consider is making sure the saddle is level. This is a frequently missed area, and a tilted saddle also tilts the pelvis and low back, and thus changes the mechanics during riding. Many times cyclists will find themselves leaning forward when, in fact, it's better to keep the back more neutral. Next adjust the bar/stem from a long or low reach. The difference in being on the hoods of the bike rather than the drops changes the forces placed on the back. Have someone see if the rider position looks good (in the drops and on the hoods) and is comfortable. If the cyclist rocks the hips excessively while in the drops, it may be due to hamstring tightness, and the fit will need to accommodate this tightness through saddle height.

Leg length difference is another consideration in bike fit, as this affects the force placed on the pelvis from one side to another. Shims, cleat positioning, and/or orthotics can address this.

Training and Exercises

An important focus for cyclists is to remember the core. Performing core stability exercises are not only important in the prevention of lower back pain but also in the rehabilitation process. Core stability program go to Chain Link click **HERE**. The next strategy is to stretch the iliopsoas and hamstring muscles, especially after training. Learn more on the hamstring go to Chain Link click **HERE**. The iliopsoas may benefit from frequent stretching throughout the day (every 2-3 hours) if it is particularly tight. Do not stretch beyond a comfortable stretch, as this will actually result in the muscle tightening more: ease into the stretches. Changes in flexibility take time.

In training, a common error I see is an unrealistic training progression-it's the old "too much, too soon". When using big gearing, leverage comes from the lower back as the rider sits back and cranks. So if the back is starting to act up and become painful, use smaller gears as a strategy. Having a strong core will provide a strong counter balance to the pedaling forces, too. A final training idea is to use a wider tire and avoid filling the tires up to the maximum inflation level, maybe 90 psi vs. 110 psi or more: this softens road forces that will be transmitted through the frame to your back. Remember… it is TRAINING!

Low back pain is no fun, and certainly can make hours on the bike a real chore. I hope these ideas will help readers ride pain free. O

Photo Credit: Long Photography

Chain Link: Contact the author at **bernard.condevaux@selectmedicalcorp.com**.

Issues and Questions in Youth Cycling Development #7 - Rewarding Your Athletes

Ralph Frazier and Kelli Rogan- Frazier Cycling

Frazier Cycling's Atlanta-based Junior Development Program was developed by Ralph Frazier and Kelli Rogan. Ralph has over 35 years of cycling experience as an endurance and marathon racer and a coach. Kelli has 10 years experience of coaching juniors and masters as well as an impressive track and race racing career. Frazier Cycling has a mission to develop the next generation of cyclists with an appreciation for the sport, life-long physical fitness, sportsmanship, teamwork and commitment. As the southeast's largest junior development program, they have been recognized by USA Cycling News as "an excellent model for other junior development initiatives"...focusing on "character as much as athletic ability." The 2008 Frazier Cycling Juniors team holds 9 state championships and 9 national medals, including 2 national championship titles.

BEG INT

Since our columns have appeared in this newsletter, we continually receive questions about how to keep kids in cycling. Early on, we had so many inquiries that we devoted our third column, "Issues and Questions Youth Cycling Development #3, Keeping the Team" to the topic. In that article, we pointed out how we surveyed our team and discovered the number one reason that they remained on our team was because of "friends, teammates, and the social aspects". Bonding among members is very important in keeping the team intact; however there is another factor that is nearly as important and it involves you, their coach, to a greater degree: giving rewards and recognition. Read the entire article **HERE**.


Ralph Frazier

As the coach of a junior cycling team, you definitely have influence with team building. You can set up a positive environment, you can put a team together, and you can coordinate activities, but friendships and bonding are really out of your control. On the other hand, giving rewards and recognition is wholly under your control and thereby, you have more control in keeping your juniors.

Up to this article, we have mentioned rewarding and recognizing your juniors, but we have not discussed the topic at length. For example, in our first article, "Creating and nurturing a Youth Cycling Pipeline - Starting a Program", we stated: " Kids are attracted to programs that offer popularity, tradition, identity, routine practice schedule, skill development, competition, and recognition." Furthermore, we stated: "Coaches should be aware that youth cyclists need encouragement, acknowledge, and recognition more than adults." Read the entire article **HERE**.

In this article, we will discuss recognition in more depth. Indeed, we will discuss some of the aspects of our rewards and recognition system. Having dealt with juniors over the past eight years, we learned a few things and we have modified our program with regards to recognition and rewards.


Kelli Rogan

Once more we refer to "Creating and nurturing a Youth Cycling Pipeline - Starting a Program". We listed report cards among the things you can do to keep the team together during the off season. Report cards are an element of our recognition and reward system that we have instituted since the beginning. The report cards are used to give recognition and feedback to team members and parents. The reports cards are a means to report how an individual team member performs according to certain attributes that we emphasize in our program. These attributes are the basis for our recognition and rewards system. We insure that each individual and parents are aware of these attributes and their importance. Here is the list of the attributes:

Attitude - subjective assessment; most important attribute of our recognition and reward system.
Cycling Skills - objective assessment; based on scoring comparisons for age groups and self improvement. Until an adequate skills level is achieved, this attribute is considered the second most important attribute ahead of teamwork.
Teamwork - subjective assessment; based on actions during rides, practices, and races. This attribute ranks initially ranks third, but becomes the second most important attribute once the junior as attained a certain level of ability such that he/she can affectively contribute to the team during a race, ride, or practice.
Attendance - objective assessment; not weighted as importance as attitude, cycling skills, or teamwork; however, attendance has a direct bearing on all other attributes.
Speed and Performance - objective assessment; based on rides, practices, and races; self improvement is highly considered. This is the least important attribute of our recognition and reward system.

Each junior is scored based on our criteria for each of the attributes listed above. At the end of each year, we hold individual conferences with each junior and their parents to discuss the report card scores. We set up an "end of year " party to for these discussion. From our experience, we can assure you that juniors of all ages truly look forward to the annual report card event. The Report Card Party, itself, is considered a reward by the team.

Although we issue report cards only on an annual basis, we use the attributes for recognizing juniors throughout the entire year. Before most rides and at the beginning of each junior practice, we gather all those in attendance and we give positive recognition to individuals for recent past efforts according to the attributes described above. In particular, following a race weekend, these recognitions generate the most enthusiasm and excitement. But we don't limit these recognitions to races. We include occurrences from practices and our club rides, too. Again, we give priority to the attributes in the same manner that is reflected in the descriptions above. Just a few words of recognition will go far - not just for the junior, who is recognized, but also the parents and the rest of the team, too. Pride should not be underestimated in its significance for keeping kids in your program.

Rewarding your athletes for their achievements has many benefits. It is an important part of building a good report, keeping their interest, building their self-esteem, and we could name several other benefits; however, there are some cautions that we have discovered the hard way.

Be very careful that you don't overdo it. Praise successes but don't build up an individual or the team too much. (Unfortunately, you'll probably find out you've gone too far when it's too late.) This is especially true with regards to successful race results. Even following the brightest successes, there will be races where outcomes will fall short of expectations and disappointment will quickly replace elation. These situations can crush the hardest of egos and damage the best attitudes.

Be careful not to create a "monster". If an individual or the entire team is having success winning races - it can "go to their heads". Success and achievements will bring recognition by outsiders including race announcers, officials, teammates, parents, spectators, and competitors. Almost exclusively, this recognition will be due to performance - rarely have we seen attitude generate monster-dom. Be careful not to add fuel to this fire. It will be a battle not to join the bandwagon, yourself. You need to temper the situation and prioritize the attributes for the individual and the team. As you are aware, things can change very abruptly in cycling - success takes leave to failure. In general, adolescents' emotions are unstable at best. They are dealing with "raging hormones" and changes in self-awareness, that awkward stage, having braces, all of the identity issues, and changes in their whole beings. You need to temper adulation by instilling humility, humbleness, and long term perspective.

Be careful and do not promote your juniors too rapidly. Promotion to a higher category is a de facto reward as arranged by the structure of racing. Naturally, our juniors are trying to improve and reach for the next level. Of course, we want the same for the kids. You must be sure your juniors are ready for the promotion because if they aren't truly ready, it is not only disheartening, it may take a long time for them to become capable at the new level. Indeed, you risk losing them from the sport. We recommend is to promoting at least two or more at a time. Unless your junior is forced to the next Category by officials, we have found it works best to wait until you can promote more than one junior together.

Be careful and do not reward your junior or team by skipping practices, rides, or races. Find other ways and means to reward your juniors. Practices, rides, and races should be planned. Rest days are rest days. Rewarding juniors by giving them a day off in place of a training day sends the wrong message. We don't want to program in the minds of our juniors that training is optional. Their training should be systematic and planned - it should become a part of their lifestyles. You want your juniors to develop good habits. You need to keep rewards separated from training. Rewarding juniors with parties, celebrations, medals, trophies… but do not give them a day off. We know that a successful program stresses the importance of developing a good attitude, work ethic, discipline, teamwork, and learning.

Besides the ongoing recognitions and Report Card Party, we schedule other group parties, events, and outings. These are important ingredients to our recognition and rewards system. We will reward the team with a party or outing following a successful race or team event. Recently, we rewarded several team members who participated in a local junior track race. We rewarded them with a team dinner. This outing was not to celebrate winnings or places, but for their superb attitude at the event. The team had completed a tough multi-day road race event during the previous week. It was the nearly the end of summer break and the kids were looking forward to their last few days of "freedom" to enjoy. The race competition included a few junior national track medalists on their fine machines. Although our juniors had spent a few Sunday afternoons on the track during the year, they had not trained to race. None of our kids own a track bike, so they used the machines provided by the velodrome. Despite what could have been a thousand excuses, none complained and they raced hard and they had fun. All deserved the reward because of their attitude!

During the year we will have a few impromptu parties and events to recognize and reward the team. Of course, we have recognition and reward events on the schedule, such as our annual Report Card Party. Our most popular recognition event is our annual awards party held at the conclusion of the season. During this party, we give awards to the juniors who best performed according to our attributes during the past season. Again, the party, itself, is a reward that all team members. The juniors and their parents enjoy the recognition and awards for themselves and their teammates. We suggest that you do the same sort of activities for your junior team. By doing so, you can have a huge influence in keeping your juniors in cycling. O

Georgia State Championship Crit Winners cross the finish line together; Juniors 17-18 David Goodman, 13-14 Philip O'Donnell, 15-16 Andrew Macrae

Got a Youth Development Question?

If there is a particular topic you'd like us to discuss or if you would like to share a junior coaching experience or ask a question, contact us at 770-513-8640 or **info@fraziercycling.com**. We will publish your requested information in the next issue as space allows.

Conditioning Psychology For Early Race Season

The Key to Well Rounded Racers: Training What You Don't Want to Train

Sean McCann, Ph.D., Sport Psychologist

USA Cycling Continuing Education Unit (CEU) #44

This program is designed to augment the clinics and seminars offered by USA Cycling and other organizations such as American College of Sports Medicine (ACSM) or National Strength and Conditioning Association (NSCA). Each test in Performance Conditioning for Cycling is eligible for 0.1 CEU in category. A maximum of 0.5 CEU from PCC self-tests can be accumulated in a calendar year toward re-certification.

Instructions: Read the article and choose the answer that best answers the question.

In order to receive .1 CEU you must answer 6 of 8 questions correctly. A candidate will be allowed one "retry" submitting answers a second time. You may pay for and take the online self test through your MYUSACYCLING function and pay $15 or send in a hard (or fax) copy with a payment of $25 (after 1-1-10). Each self-test is worth 0.1 CEU. To send in a hard (fax) copy of the self test and payment information to either 719.434.4224 or mail to:

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CEU Value=.1 unit

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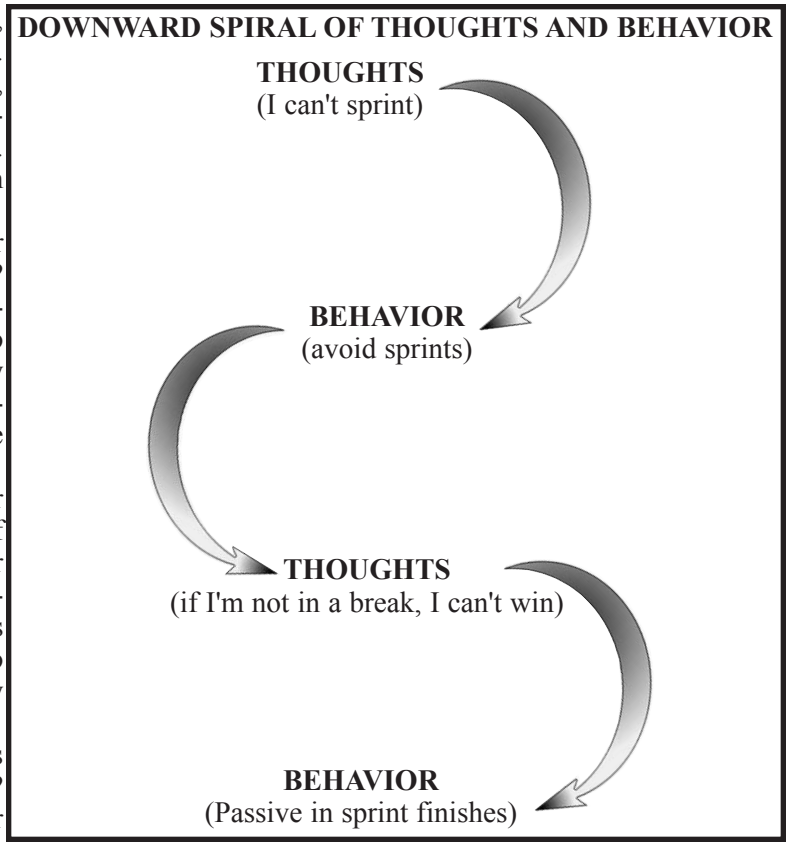
One of the most common reasons elite athletes walk into my sport psychology office is that they feel that their performances don't match their ability. When cyclists come in, they often report that their races are all starting to look alike. Field sprinters are winning races that end in a bunch, but getting dropped on harder courses. Climbers are getting smoked in criteriums. Despite knowing that they need to become more well rounded, they keep using the exact same strategy in race after race. Additionally, some riders report that in certain race situations, such as scary short-straightaway sprints in a big pack or criteriums in slippery conditions, the "ride themselves off the back". While these problems may sound different, there is a common solution to all of them: Training what you don't want to train.

What does the great field sprinter like to train?- their sprint. What does the time trial monster do on training rides? He typically rides big gears at a steady pace. Some riders justify this training behavior by calling it "specific training", but do what they are already good at, and they tend to avoid things they feel less competent in. People don't like to experience frustration or failure, so they avoid situations that may produce these experiences.

OK, so what? What's wrong with avoiding failure, or working on your strengths? There are actually a number of answers to those questions: The problem with focusing on your strengths is that you can become a one-dimensional rider, predictable and easy to beat. The problem with avoiding failure is that you get worse and worse at a skill, until your inability to sprint becomes a self fulfilling prophecy, and you become easy to beat.

Another problem with focusing only on your strengths involves a question: How do you know what your strengths are? Is your data current? How many first year seniors consider



themselves "climbers" based on their junior race careers, even though they now are twenty pounds heavier and may now be strong enough to be "sprinters"? Just because you had a hard time in your first few criteriums doesn't mean you are a bad crit rider. Do you really have a scientific basis for classifying yourself, or are your self-imposed labels simply limits that you place on yourself?

A final problem with avoiding certain training is that avoidance may be maintaining specific race fears. Some typical race fears we see among National Team riders include:

1) Fear of racing criteriums in the rain.

2) Fear of sprinting in a large pack.

3) Fear of high speed descents.

While these fears may be natural (especially if you have had a nasty crash in one of these situations), avoiding these situations will maintain or even strengthen those fears. Almost all of the research on fear and anxiety can be summarized in two principles:

First: Avoiding fears makes the fears stronger.

Second: Overcoming fears requires exposure to the things you fear. Thus, if you have developed specific race fears, you need to safely expose yourself to those race situations.

There is one obvious parallel between being a predictable, one-dimensional racer, and having specific race fears. The solution for both is to expose yourself to the training or race situation you generally avoid. For example, racers afraid in criteriums often slide to the back of the pack. Force yourself to ride in the first twenty riders, and you will expose yourself to riding in tight quarters, and it will actually be safer. We have riders commit to a specific race goal of riding at the front. It is actually safer at the front, the riders get involved in more breaks, and they get comfortable and confident again in a criterium situation.

Expand this philosophy to other areas, particularly in this early season training phase where group rides are often easier to find. If you hate field sprints, arrange training rides which include sprinting in a group (and it doesn't count if you attack for the town line one kilometer away!). If you always lose ground in long descents, get a training partner who handles bikes well and find a hill and stay on his wheel (you may need him to initially back off his usual speed).

All these solutions sound simple but the simple fact is this: most riders don't use these solutions. Most riders DO become predictable and easy to beat. Most riders can't get themselves to train what they don't want to train. If YOU can, you will begin to change your race behavior and give yourself an opportunity to make it to the next level of racer.

Beginning Tip: Many beginners train too much on their own. By finding a group ride, you will develop physical and mental skills you need for races.

Intermediate Tip: Be careful not to limit yourself in early season races. Just because you haven't done a solo breakaway before doesn't mean you can't successfully do it in a race. Give every race strategy a number of trials before you convince yourself that "I'll never win a race that way."

Expert Tip: Be honest with yourself. If you are a strong sprinter, are you willing to take a risk by going with a break that might get swallowed up and leave you in bad shape for a sprint finish? Great riders are willing to accept a poor finish in one race if the strategy gets them closer to winning more races overall. Are you able to take that kind of intelligent risk?

Mountain Bike Tip: If you are a great climber but a poor descender, be honest with yourself about how much time you gain versus lose in races, if you do hours of climbing on jeep trails and forest roads and don't get sufficient practice with single track descents. O

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Coaching Education Manager
USAC
210 USA Cycling Point Ste 100
Colorado Springs, CO 80919

1. According to the author, the biggest issue cyclists seek his support and advice as a sport psychologist is:

A. Their abilities are in excess of their performance.

B. Their off-season performance activities and result where below their expectations so they want to immediately start to over train at the start of the season.

C. Their abilities start to erode soon after the start of the season creating a high level of anxiety going into the key season.

D. Their performance doesn't match their abilities.

2. From a sports psychology point of view the most common mistake that a cyclists will make in training is:

A. Training their weaknesses and avoid training their strengths.

B. Training their strengths and avoid training their weaknesses.

C. Training their strengths and weaknesses on an equal basis.
D. Over training weaknesses and under training strengths.

3. The problem with focusing on your strengths in training as it relates to racing is that:
A. You become predictable and therefore easy to beat.
B. You can over train too easily.
C. You become over confident.
D. You loose interest in racing.

4. In the downward spiral of performance:
A. Bad thoughts lead to bad behavior leading to more bad thoughts and leading to more bad behavior.
B. Bad behavior lead to bad thoughts leading to more bad behavior and leading to more bad thoughts.
C. Bad thoughts and behavior happen at the same time.
D. Bad thoughts lead to changed behavior leading to training error which lead to poor planning based on the changed behavior.

5. Fear and anxiety can be summarized in two principles:
A. First: Avoiding fears makes the fears more manageable.
Second: Overcoming fears requires exposure to the things you fear.
B. First: Avoiding fears makes the fears stronger.
Second: Overcoming fears requires positive thinking to the things you fear.
C. First: Avoiding fears makes the fears stronger.
Second: Overcoming fears requires exposure to the things you fear.
D. First: Avoiding fears makes the fears stronger.
Second: Overcoming fears requires avoiding exposure to the things you fear.

6. To overcome racers afraid in criteriums the coach should recommend that the rider:
A. Have the rider slide to the back of the back.
B. Have the rider ride in the first group of twenty riders.
C. Have the rider visualize moving to the first group of riders.
D. Have the rider hink about how they will handle tight situations as they move to the first group.

7. A common mistake done by beginning riders is that they:
A. Train too much on their own.
B. Do too many group rides.
C. Work on weaknesses too much in the beginning.
D. Fearing that working their strengths will make them over trained.

8. Give another example of a downward spiral.

Answer Sheet and CEU Application Form

Question #1_____ Question #2_____ Question #3_____ Question #4_____ Question #5_____ Question #6_____
Question #7_____
Question #8 (please limit to 250 words) _____
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NOTE: This Answer Sheet is Valid for Volume 16 Number 1 ONLY!

1. Was the material ___new ___review?

2. Was the material: Presented clearly? ___(Y/N) Covered adequately? ___(Y/N)

3. Suggestions: _____
_____
_____

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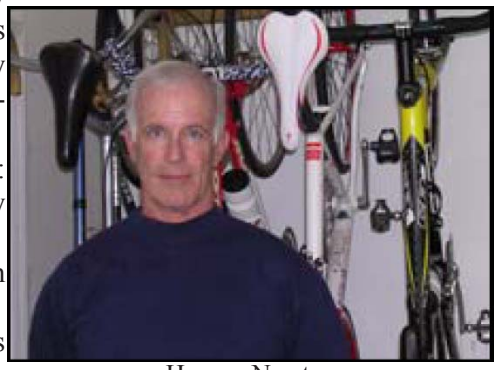
Elite CYCLING Performance Digest

Off Bike Jump Training for On-Bike Jump Success # 1

Harvey Newton, Cycling Conditioning Specialist, Ormond Beach, FL

Races are most often determined by a rider's ability to rapidly accelerate the bike over relatively short distances. Whether this happens as a finishing sprint or creating a successful breakaway earlier in a race, this ability to execute an explosive jump is a crucial quality to develop.



Harvey Newton

This is a prime example of power, which consists of two qualities: strength and speed. There are several ways for a rider to improve their ability to jump:

1. First and foremost must be a dedicated amount of sprint training, which can improve both speed and strength.

2. Secondly, a rider can improve his/her strength by such well-known means as over-gear training, time trialing, and climbing. Off-bike, the easiest way to improve strength is in the weightroom, provided the rider's training is focused on actual strength development. Not all effort in the weightroom transfers to improved strength.

3. Once strength is developed, off-bike power training consists of advanced explosive weight training (where appropriate) and/or plyometric (off-bike jump training) drills that train explosiveness.

In the coming months this *Performance Conditioning Cycling* column will focus on the third training modality, off-bike jump training. Each month we will offer readers plyometric training advice.

General Guidelines

1. Plyometric training, like all other forms of training, can be simple or complex. Start easy and proceed in a progressive manner, raising intensity as your training age increases.

2. Masters should seek medical approval to engage in plyometric training, especially if there is a history of knee issues.

3. Educate yourself on this form of advanced, high-intensity training. Check the references at the end of this column.

4. Be sure footwear and landing surfaces are safe, secure, and well designed.

5. Riders should confirm they have adequate lower body strength established through a full range of motion before attempting off-bike jump training. While the often-mentioned strength criteria of being able to successfully parallel squat 1.5 (or 2.0) times your own bodyweight are probably too restrictive, an adequate level of strength is vital to success.

Chain Link: For more information on plyometrics training chick here.

Exercises for Introducing the Cyclists into a Plyometric Program

Starting at a simple level of plyometrics, we will introduce two movements: jumping rope and in-place vertical jumps. These introductory exercises will provide the training background for more "traditional" ploymetric exercises that will be cover in future issues.

Jump Rope:

- Jumping rope takes practice, at least in order to do so for a meaningful length of time. This is a good way to transition into plyometrics, since the impact is small and the repetition load is fairly high.
- Start by jumping rope in a simple 2-leg format. Don't get carried away with too fast a tempo, but aim for consistent performance up to five minutes.
- For more information on jumping rope, be sure to see the companion article in this issue.

Vertical Jump:

- Stand straight with feet no wider than hip width.
- Initially, position hands on hips (arms are not involved in this basic form of jumping).
- Keeping feet flat, rapidly lower your body 4-6 inches, and then rapidly reverse direction by blasting off the floor and leaping upward. There is no horizontal movement.
- Land evenly on both feet and in an absorbed semi-squat position. Land softly.
- Return to the standing start position, take a breath, and repeat the jump process. (See Figure 1)
- Start off with about six repetitions per set, initially performing only one set. Gradually increase to three sets, with about 90 seconds rest between sets.

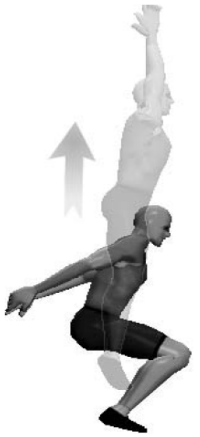


Figure 1

Variations:

- Increase volume upwards to 20 repetitions per set.
- Shorten or eliminate the recovery between attempts, so that you rebound upward as soon as possible after landing from the previous repetition.
- Eventually include a coordinated two-arm action, reaching upward while airborne. This should increase jump height versus keeping hands on hips.
- Cyclists should not become dependent on jumping with arm action, as inactive arms is much more sport specific.

Putting It Into Practice

Jump training may be performed either pre- or post-workout, so experiment and find what works best. Strive for quality, not quantity, jump training. Don't jump immediately after your legs are shot from a long ride, hard intervals, or after a grueling weight workout.

Measure volume by foot contacts or total time devoted to jumping. When starting out with this first stage, set as a goal to jump rope continuously. Most people have trouble jumping without stopping, mostly due to rope jumping technique. Technique improves with practice.

If you falter along the way, pick up immediately and start over. During Week #1 of plyometric training jump rope for a total of five minutes. In succeeding weeks raise the volume towards 10 minutes of continuous jumping. Remember, you are starting plyometric training simply, moving later to more complicated or intense efforts. All of your rope jumping in the initial stages is done two-footed. Remember, you are using this as a means to simply introduce low-level jump training.

After a few weeks of two-foot jumps, move to alternating single jump/landing foot action. Develop a new tempo for this style of jumping.

As in all plyometric training, aim to spend the least amount of time on the ground after you land the jump.

On days when you work stationary vertical jumps, focus on maximum effort for each jump. This is not plyometric, since you are not immediately jumping upward after landing from the previous vertical jump. Do a jump, settle into the landing (without sinking downward), stand up, and then jump again. Maintain a jump tempo of about six jumps prior to taking a one-minute rest, and then move onto something else. After your first introductory session or two, perform another set of six jumps. Between sets rest, hydrate, record your efforts, etc. Eventually progress to three sets of six jumps, and then increase the number of jump efforts. Look to about 20 continuous vertical jumps in place as a goal, repeated in three sets. ●

Chain Links:

Click **HERE** to order Strength Training for Cyclists (DVD & Quick Series Guide)

Contact Harvey at: **harveynewton@newton-sports.com**

HIGH SPEED JUMP ROPE TRAINING SYSTEM FOR THE TRACK CYCLIST

By Buddy Lee, US Olympian Wrestler
The Nation's Leading Jump Rope Expert and Author of "Jump Rope Training"

BEG INT ADV

My motto is "train with the jump rope the way you want to perform in your sport." In order to get the best training effect from the use of the jump rope, jump rope training should be done at high intensity. High intensity in rope jumping is equated to high speed. The jump rope allows the athlete to train for speed, power and agility while developing the anaerobic energy system and the fast twitch muscle fibers. This type of high intensity is specific to most sports.

Why Rope Jumping Works: Rope jumping requires the coordination of several muscle groups to sustain the precisely timed and rhythmic movements that are integral to the exercise. It's the coordination of these muscle groups that increases the athlete's capacity for dynamic balance-the ability to maintain equilibrium while executing complex, vigorous, and omnidirectional movements. Rope jumping increases dynamic balance because the athlete must make numerous neuromuscular adjustments to the imbalance created by each of the hundreds of jumps per training session. These adjustments also force the athlete to balance the body weight on the balls of the feet, reinforcing the universal athletic position.

Jumping rope can be done year round. To attain the desired training effect it should be tailored to accommodate the intensity and duration of your sport. It can be performed in 5 to 10 minutes sessions as a warm up, active rest during sports play, in Hyperformance programs as a skill developer and as a way to increase aerobic and anaerobic conditioning.

Selecting the Right Jump Rope

In order to benefit from the Hyperformance programs the coach or athlete has to select the right jump rope. It is necessary to have a rope that is capable of producing 180 to 300 revolutions per minute (RPM) or 3 to 5 revolutions per second (RPS). The concept is to move the hands and feet in coordination with the rope swing at a high rate of speed. Conventional ropes create a lot of drag and no matter how fast you turn the rope you can't get any faster than 2 RPS. There are few ropes on the market today that can produce the high speeds required to perform these programs. I use the Hyperformance Jump Ropes (see figure 1). These ropes are designed with a patented swivel ball bearing system to allow maximum speed and control in all directions, no matter which movement the athlete is doing such as cross overs, double, triple and even quadruple jumps. The rope cord is also perfectly weighted in relation to the handles, which makes it aerodynamic. Long handles are great for versatile jumping (longer handles make it easier to extend when doing arm cross over for example). Shorter handles are great for straight on speed and power jumping techniques.

Figure 1

Getting Started (Basic Considerations)

Surface

The best jump rope surfaces provide sufficient rebound for the take off phase of each jump and sufficient absorption for the landing phase of each jump. These hard surfaces generate quick rebounds and develop speed, quickness and explosive power. However, avoid jumping on concrete, as it will increase the risk of lower body injuries.

- Wooden floor
- Rubberized gym floor or mat
- Sport court

Foot wear

Choose a pair of cross trainer shoes with ample forefoot padding because jumping rope requires bouncing and balancing body weight on the balls of the feet.

Proper Hand Grip (see figure 2)

1. Grip handle with thumb and index finger on neoprene.
2. Wrap hand around handle.
3. Keep a comfortable but firm grip.
4. Make small circles with wrists

Figure 2

Rope Measurement (see figure 3)

A rope adjusted at the standard shoulder height will clear the head by 10-12 inches, sufficient for execution of basic jump rope movements. As athletes become more proficient at jumping, the rope should be adjusted to a shorter

Figure 3

length so that it clears the head by approximately five inches. A shorter length produces a faster turning rope and allows athletes to train at a higher intensity for optimum results.

1. Stand on center of rope with one foot.
2. Pull handles along the side of the body until the tip of the handles extend to shoulders.
3. Adjust rope to this height.

Correct Jump Rope Form

1. Look straight ahead to maintain balance.
2. Keep body upright and balanced with the weight on the balls of the feet.
3. Jump only high enough to clear the rope (1 inch off the ground).
4. Land lightly on balls of your feet.
5. Hold elbows close to sides at a 45-degree angle.
6. Never sacrifice good jumping form for speed.

Getting Ready for Hyperformance Jumping (4 Step Conditioning Program)

Jumping rope should be learned in stages. The athlete cannot begin to learn techniques before mastering the basic techniques. The athlete also needs to have a period of training to pre-condition themselves to gain full benefit of the high intensity programs and how to jump at high speeds. I call this the 4 Step Conditioning Program and it is best done in the off-season. Here's why this pre-conditioning is so important:

1. Safely improves their jump rope proficiency.
2. Gradually increases their jump rope capacity to 5-10 minutes.
3. Gradually increases rope speeds from 120-200+ RPM.
4. Incorporates sports specific training jumps.
5. Provides an easy transition to the Hyperformance jump rope programs.

Phase One: Preparation Phase (1.5 wks)

Learn the skill of jump rope

Rope jumping is a skilled movement and requires proper timing and coordination of the rope swing with each jump. When turning the rope make small circular movements (the size of a quarter) and let the wrists do most of the work, keep body erect and look straight ahead landing on the balls of the feet. Jump only high enough to clear the rope. Keep the arm close to the sides with a firm grip. Start at a natural jump rope speed until the fundamental motor pattern becomes automatic. Remember practice improves the coordination and speed of the rope swing with every jump.

During the preparation phase you must first master the two basic skills before learning the other sports training techniques. Emphasis should be placed on technique, not speed. Practice the Basic Bounce Step and Alternate Footstep up to a total of 5-10 min. twice a day. Depending on your current skill level, begin with as few as 1 to 5 or 5 to 25 jumps per jumping bout. Try and add 10 jumps a session. Jump and rest in a 1-2 ratio (ex. jump 30 sec, rest 60 sec.). As your technique and jumping capacity improves add 10-20 jumps to each jumping bout. Jump and rest at a 1-1 ratio (ex. jump 60 sec., rest 60 sec.). By the end of 1.5 weeks, you should be able to reach a **jump rope proficiency of 160 jumps** without a miss. Remember to focus on skill and continuous jumping, while you are progressing at a comfortable rope speed. Stretch before, during and after each session, calves especially!

Phase Two: Intermediate Phase (2.5 wks)

Increase Jump capacity

Work up to a total of **500 continuous jumps at a rope speed of 140-160 RPM** to reach a basic jump rope capacity. Keep jumping 3-5 times per week. Depending on your motivation, this phase can take as little as two weeks. Add the Side Straddle, Forward Straddle, Bell Jump, and Skier's Jump to the jump rope repertoire. Alternate between the Bounce Step, Alternate Foot Step and these new movements during each jump rope set.

Phase Three: Conditioning Phase (1.5 wks)

Increase Jump capacity

By the end of the conditioning phase, athletes should be able to jump rope for **5 minutes at an intensity level of 160-180 RPM** without a miss or catch of the rope. Meanwhile, athletes should work in combinations of jumps, and increase continuation durations until they reach this 5-minute goal. Jump 3 times per week. In this phase the intensity is started to be measured by the rpm's performed by the athlete.

Phase Four: Sports Training Phase (2.5 wks)

Increase Rope Intensity

Work up to ten minutes of jumping incorporating all of the sports training jumps, 3 times per week. This phase may take up to 2.5 weeks. **Perform 10 min. of non-stop jumping**; with 15-30 sec. interval at rope speeds of **200+ RPM**. The rope speed must never fall below 160 RPM. Upon completing this phase, you are ready for the sports specific jumping programs to follow.

Establishing A Baseline for Measuring Jump Rope Intensity-Goal Setting

Once an athlete has established a basic jump rope capacity and practiced jumping rope at anaerobic intensity levels, they're prepared to take a performance-based pre-test to establish an anaerobic baseline. *It's a critical training benchmark that is based upon how many jumps the athlete can make in a set period of time.* The athlete's goal is to meet or exceed this benchmark during each jump rope session. When this happens the athlete has established a new baseline.

The pretest consists of jumping as many times as possible in 30 seconds using the alternate footstep and power jump. This performance-based measurement captures the *physical and proficiency* demands required to deriving the maximum benefits from jump rope training. Find your baseline score for the Sprint and Power Programs below. Start with at end of the off-season and repeat baseline testing in the pre-season and the in-season. This baseline is important. Athletes are goal oriented and establishing a training baseline provides them with motivation when doing the sports specific programs.

Example:

Sprint - Alternate Foot Step Power - Power Jump

Count Right Foot Only and Multiply by 2

Time	Reps Fill in	Baseline Score Add reps of all sets. Divide by 3
30 sec.	100	306 / 3 = 102
30 sec.	104	
30 sec.	102	

Time	Reps Fill in	Baseline Score Add reps of all sets. Divide by 3
30 sec.	25	90 / 3 = 30
30 sec.	35	
30 sec.	30	

Baseline for Late Off Season

Sprint - Alternate Foot Step Power - Power Jump

Count Right Foot Only and Multiply by 2

Time	Reps Fill in	Baseline Score Add reps of all sets. Divide by 3
30 sec.		
30 sec.		
30 sec.		

Time	Reps Fill in	Baseline Score Add reps of all sets. Divide by 3
30 sec.		
30 sec.		
30 sec.		

Baseline for Pre Season

Sprint - Alternate Foot Step Power - Power Jump

Count Right Foot Only and Multiply by 2

Time	RepsFill in	Baseline Score Add reps of all sets. Divide by 3
30 sec.		
30 sec.		
30 sec.		

Time	Reps Fill in	Baseline Score Add reps of all sets. Divide by 3
30 sec.		
30 sec.		
30 sec.		

Baseline for In Season

Sprint - Alternate Foot Step Power - Power Jump

Count Right Foot Only and Multiply by 2

Time	RepsFill in	Baseline Score Add reps of all sets. Divide by 3
30 sec.		
30 sec.		
30 sec.		

Time	Reps Fill in	Baseline Score Add reps of all sets. Divide by 3
30 sec.		
30 sec.		
30 sec.		

Warming Up With The Jump Rope

One way to reduce risk of injuries in soccer is by warming up properly before training and matches. Because rope jumping incorporates all muscle groups, it serves as an excellent warm up, active rest and cool down activity. Rope jumping will quickly raise the heart rate while increasing blood circulation throughout the body. There are three main methods you can use to warm up with the jump rope before sports play:

1. Jump rope to elevate the body temperature as a total body warm up to stretching exercises.
2. Jump rope as a transition into full speed sports activity.
3. Jump rope as a warm up to advanced jump rope training programs.

Sample programs for the basic to advance level programs to include the warm up programs can be found in table 1 - 3. How to jump in the soccer seasons can be found in table 4. Instructions for learning the different jump rope techniques can be found in table 5.

Table 1-Sample Programs Basic Level

Warm Up Program	No pictures
Techniques:	**Basic Bounce Step, Alternate Foot Step, Side Straddle, Forward Straddle, Skier's Jump, Bell Jump**
Training Routine:	**1.** 4 reps of Basic Bounce Step. **2.** 4 reps of Alternate Foot Step (count right foot 2 times). **3.** Repeat for a total of 2.5 min. **4.** 4 reps each of: Side Straddle, Forward Straddle, Skier's Jump, Bell Jump **5.** Repeat for a total of 2.5 min.
Duration:	5 min.
Intensity:	50 - 60% of MHR (Maximum Heart Rate).
Goal:	Move forward, backwards and lateral, while jumping.
Seasonal Implementation:	Early Off Season - Late Off Season.

Sprint Program	
Techniques:	**Alternate Foot Step**
Training Routine:	**1.** 100 reps Alternate Foot Step (count right foot 50 times). **2.** 30 - 60 sec. rest. **3.** Repeat x 5 sets.
Duration:	2.5 min. jump time, 2.5 min. rest time.
Volume:	30 sec. x 5 sets.
Intensity:	Jump as fast as you can without catches of the rope or at 160 - 200 RPM = 85% - 95% of MHR.
Goal:	Strive for continuation and no catches of the rope.
Seasonal Implementation:	Late Off Season.

Power Program	
Techniques:	**Alternate Foot Step Power Jump**
Training Routine:	**1.** 8 reps Alternate Foot Step (count right foot 4 times). **2.** 2 - 6 reps consecutive Power Jumps. **3.** Repeat this routine for 30 sec. **4.** 30 - 60 sec. rest. **5.** Repeat x 5 sets.
Duration:	2.5 min. jump time, 2.5 min. rest time.
Volume:	30 sec. x 5 sets.
Intensity:	Jump as fast as you can without catches of the rope or at 160 - 200 RPM approximately 85% - 95% of MHR.
Goal:	Strive for continuation and no catches of the rope.
Seasonal Implementation:	Strive for continuation and no catches of the rope. Increase total number of power jumps for each set. Maintain same speed from alternate foot to power jump.

Table 2-Sample Programs Intermediate Level

Warm Up Program	No pictures
Techniques:	**Basic Bounce Step, Alternate Foot Step, Side Straddle, Forward Straddle, Skier's Jump, Bell Jump, X Foot Cross, Twister, Arm Cross Over, Side Swing to Jump**
Training Routine:	**1.** 8 reps of each technique. **2.** Repeat for a total of 5 min.
Duration:	5 min.
Intensity:	60 - 70% of MHR (Maximum Heart Rate).
Goal:	Move forward, backwards and lateral, while jumping.
Seasonal Implementation:	Late off Season - Pre Season.

Sprint Program	
Techniques:	**Alternate Foot Step**
Training Routine:	**1.** Perform Alternate Foot Step for a total of 60 sec. **2.** 60 sec. rest. **3.** Repeat x 5 sets.
Duration:	5 min. jump time, 5 min. rest time.
Volume:	60 sec. x 5 sets.
Intensity:	Jump as fast as you can without catches of the rope or at 200+ RPM = 85% - 95% of MHR.
Goal:	Each set should equal or increase baseline score.
Seasonal Implementation:	Late Off Season - Pre Season.

Power Program	
Techniques:	**Alternate Foot Step Power Jump**
Training Routine:	**1.** 8 reps Alternate Foot Step (count right foot 4 times). **2.** 2 reps consecutive Power Jumps. **3.** Repeat this routine for 60 sec. **4.** 60 sec. rest. **5.** Repeat x 3 sets.
Duration:	3 min. jump time, 3 in. rest time.
Volume:	60 sec. x 3 sets.
Intensity:	Jump as fast as you can without catches of the rope or 200+ RPM approximately 85% - 95% of MHR.
Goal:	2nd set perform 3 power jumps. 3rd set perform 4 power jumps. Maintain same speed from alternate foot step to power jump.
Seasonal Implementation:	Late Off Season - Pre Season.

Table 3-Sample Programs Advanced Level

Warm Up Program	No pictures
Techniques:	**All 15 Sports Training Techniques.**
Training Routine:	**1.** 12 reps of each technique. **2.** Repeat for a total of 5 min.
Duration:	5 min.
Intensity:	70% of MHR (Maximum Heart Rate).
Goal:	Move forward, backwards and lateral, while jumping.
Seasonal Implementation:	Pre Season - In Season.

Sprint Program	
Techniques:	**Alternate Foot Step**
Training Routine:	**1.** Perform Alternate Foot Step for a total of 90 sec. **2.** 60 sec. rest . **3.** Repeat x 5 sets.
Duration:	7.5 min. jump time, 5 min. rest time.
Volume:	90 sec. x 5 sets.
Intensity:	Jump as fast as you can without catches of the rope or at 220+ RPM or 95% of MHR.
Goal:	Each set should equal or increase baseline score.
Seasonal Implementation:	Pre Season - In Season.

Power Program	No pictures
Techniques:	**Power Jump, Power Side Straddle, Power Forward Straddle**
Training Routine:	**1.** 2 reps of each technique. **2.** Repeat for a total of 30 sec. **3.** 30 sec. rest. **4.** Repeat x 5 sets.
Duration:	2.5 min. jump time, 2.5 min. rest time.
Volume:	60 sec. x 3 sets.
Intensity:	Jump as fast as you can without catches of the rope or 220+ RPM approximately 95% of MHR.
Goal:	Perform as many jumps as possible in 30 seconds.
Seasonal Implementation:	Pre Season -In Season.

MHR (Maximum Heart Rate) = 220 - Your Age.
Warm up zone: 50-70% of MHR. Aerobic training zone: 70-85% of MHR. Anaerobic training zone: 85-95% of MHR.

NOTE: For the purpose of understanding the jump rope training programs, one repetition (1 rep.) consists of at least two movements. **Example 1. High Step:** lift first your right knee, then your left knee. This constitutes 1 rep. of High Step. **Example 2. Side Straddle:** first jump with feet together, then with feet shoulder width apart. This constitutes 1 rep. of Side Straddle.

Table 4. Jump Rope Program During The Baseball/Softball Seasons

Early Off Season:	Jump 3 - 5 times per week as an **aerobic conditioner** for durations of 10 minutes total at 70 to 85% of the MHR. - Master the skill of jumping (see the Preparation Phase) - Develop a jump rope capacity (see the Intermediate and Conditioning Phase)
Late Off Season:	Jump 3 - 4 times per week as an **aerobic and anaerobic conditioner** for durations of 5 - 10 minutes total at 70 to 85% of the MHR - Continue on the Conditioning Phase if not completed - Increase jump rope intensity (see the Sports Training Phase) - Establish a baseline for measuring Jump Rope Intensity - Implement the Basic and Intermediate Level Programs
Pre Season:	Jump 3 times per week **as aerobic and anaerobic conditioner** for durations of 5 - 10 minutes at 85 to 95% of the MHR - Establish a new baseline for measuring Jump Rope Intensity - Implement the Intermediate and Advanced Level Programs
In season:	Jump 2 - 3 times per week **as Anaerobic Conditioner** for durations of 5 minutes at 95% of the MHR - Establish a new baseline for measuring Jump Rope Intensity - Continue using the Advanced Level Programs

Table 5. Jump Rope Training Techniques

Starting Position: Feet shoulder width apart, body weight gently balanced on balls of feet. With rope resting behind calves, swing it around to form an even arc.

Basic Bounce Step
Jump with feet together.

Alternate Foot Step
Swing rope around and jump over with right foot. On 2:nd swing jump over with left foot. Alternate feet (**lifting knees slightly forward as if jogging in place**). Do not kick feet back, as the rope will catch.

High Step
Same as Alternate Foot Step. Bring knees up to waist level. Keep back straight.

Side Straddle
Begin with Basic Bounce Step. On 2nd swing jump with feet shoulder width apart. Alternate.

Skier's Jump
Jump a few inches to the right, then a few inches to the left. Alternate. Keep feet together and torso straight. Looks like a skier's slalom.

Bell Jump
Jump a few inches forward, then a few inches back. Alternate. Looks like the clapper of a bell.

X Foot Cross
Jump to Side Straddle on first jump. Cross one leg over the other on second jump. Then jump with feet landing shoulder width apart again on third jump. Cross opposite leg over other. Alternate.

]

Forward Straddle
Jump with one foot forward in a straddle position. Alternate. Move feet only a few inches.

Forward Shuffle
Extend one foot forward a few inches with knees straight, alternate feet and keep upper body straight

Backward Shuffle
Extend feet back, bending knees at 90 degrees angle, alternating feet. Movement resembles a low kicking motion.

Full Twister
Bounce jump and twist lower body to the right. Jump and twist lower body to the left. Alternate.

Side Swing to Jump
Swing rope to the right, then swing rope to the left. Now, open rope by extending right arm to the right. Jump through the loop.

Power Jump
Jump a little higher than Basic Bounce. Turn wrists quickly so rope turns twice in one hop. Focus straight ahead and keep torso relaxed for good form. O

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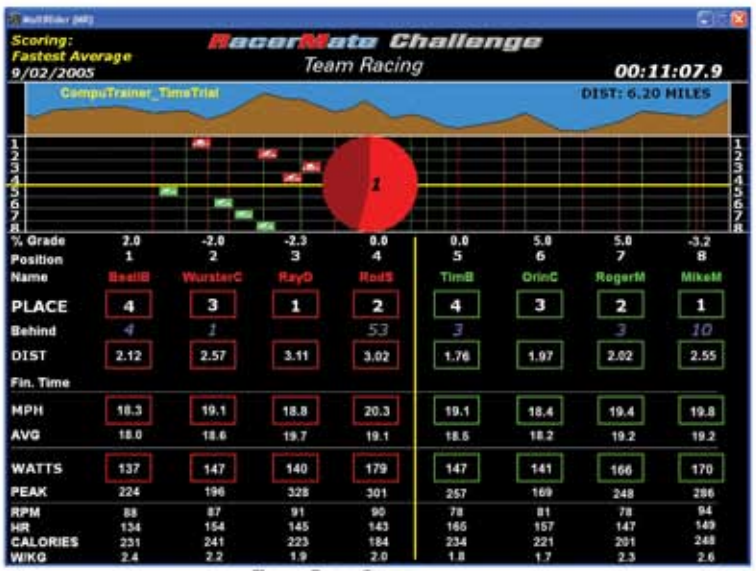

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Dave Nerrow
Fast Splits Multisports

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From the USAC Coaching Education Department

If you are not currently a USA Cycling certified coach but would like to become one, you can find the answer to many of your questions on the USA Cycling website (**www.usacycling.org**) in the Coaching Program area. The entry level (USAC Level 3) is a home study course that includes the newly developed Introduction to Coaching Cyclists.

USA Cycling offers further certification and educational opportunities. The next level of certification is level 2. The level 2 certification clinics are held several times a year throughout the country. Information on the agenda and schedule can be found at the above referenced website. In addition to the certification clinics, USA Cycling offers a Power Based Training Clinic.

A recent addition to the USA Cycling Education program is webinars. These web-based seminars take advantage of computer and internet technology. The webinars cover a variety of topics. Information on the webinars can be found on the Coaching Program page of the USA Cycling website. Webinars are open to anyone. Some webinars are free; most webinars have a fee.

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