Mark Kovacs, Ph.D.

FACSM, CTPS, MTPS, FITPA, CSCS*D, ACSM HFS, USPTA, USATF Level II

Dr. Kovacs is a world renowned performance physiologist, researcher, author, speaker and coach with an extensive background training and researching athletes and elite performers in many fields. His unique skillset has made him one of the worldwide leading performance experts in the area of optimizing human performance through the application of cutting edge, evidence-based information.

PROFESSIONAL BACKGROUND

- PhD in Exercise Physiology
- Fellow, American College of Sports Medicine
- Fellow, International Tennis Performance Association
- Certified Fitness Trainer
- Certified Strength and Conditioning Specialist
- Certified Tennis Coach
- Certified Tennis Performance Specialist
- NCAA Champion Tennis Player
- All-American and National Player of Year
- Author of five books
- University Professor in Exercise Science & Sport Health Science
- Director of leadership performance for a management consulting firm
- Directed the Sport Science, Strength & Condtitioning and Coaching Education Departments for the United States Tennis Association
- Director of the Gatorade Sports Science Institute
- Director of Long Term Research and Innovation, PepsiCo
- Director of Sports Performance Training Center
- Worldwide presenter in areas including: nutrition, performance enhancement, physical training, performance psychology, talent identification & development and sports performance
- Keynote presenter on six continents
- Judge and tester for the Baldrige Quality Award for Performance Excellence
- Over 10 years experience training world class athletes, elite performoers and recreational fitness enthusiasts. Athletes have included NFL, NBA, ATP, WTA, NCAA elite athletes as well as many Olympians. His athletes have included John Isner, Sloane Stephens, Taylor Townsend among many others.
- Written over 50 peer-reviewed academic/scientific articles and abstracts
- A media expert for dozens of outlets including print, television, radio and online.

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MEDIA CONSULTING AREAS OF EXPERTISE

- Coaching Education
- Talent Identification and Development
- Fitness Myths
- Increasing Energy
- Weight Loss
- Sports Performance
- Warm-Up and Cool Downs
- Sports Nutrition
- Lifestyle Nutrition
- Senior Women Wellness
- Dealing with Stress
- Coping Strategies
- Long and Short Planning for
- Reducing Sport Injuries
- Productivity
- Women's Fitness
- Men's Fitness
- Youth Fitness
- Athletic Development
- Golf Fitness
- Tennis Fitness
- Executive Performance
- Long Term Athlete Development
- Sport Specific Growth and Development
- Overtraining and Recovery
- Integrating Medicine, Fitness and Wellness

Please send Mark an email with your topic and deadline:
markkovacsphd@gmail.com

MARK KOVACS, PH.D.

FACSM, CTPS, MTPS, FITPA, CSCS*D, ACSM HFS, USPTA, USATF LEVEL II

RESUME

Dr. Mark Kovacs

Education:

Doctor of Philosophy (Ph.D.), Exercise Physiology – The University of Alabama
Master of Education (M.Ed), Exercise Science – Auburn University
Bachelor of Science (B.S.), Exercise Science – Auburn University

Writing Experience (Written 5 books and over 100 articles):

Editor

- USTA Mental Skills and Drills Handbook (co-editor)
- Tennis Recovery: A Comprehensive Review of the Research (co-editor)

Author

- Dynamic Stretching: The Revolutionary New Warm-up Method to Improve Power, Performance and Range of Motion
- Tennis Anatomy
- Tennis Training: Enhancing On-Court Performance (co-author)

Scientific Editing Responsibilities

- Assistant Editor-in-Chief – Strength and Conditioning Journal
- Associate Editor – Strength and Conditioning Journal
- Editorial Board – Journal of the International Society of Sports Nutrition, NSCA Performance Training Journal, International Journal of Exercise Science
- Journal Reviewer – multiple scientific and academic peer-reviewed journals

Magazine and Lay Articles/Publications

- Over 100 magazine and/or lay articles

Presented and Consulted For:

- NSCA – National Strength and Conditioning Association
- ACSM – American College of Sports Medicine
- ISSN – International Society of Sports Nutrition
- United States Track and Field
- United States Tennis Association
- Harvard University
- IDEA Conference
- Professional Tennis Registry
- United States Professional Tennis Association
- Intercollegiate Tennis Association
- International Tennis Federation
- COSAT – South American Tennis Confederation (El Salvador)
- International Olympic Committee
- United States Olympic Committee
- International Fitness Professionals Association
- United States Lacrosse

Mark Kovacs, Ph.D.

FACSM, CTPS, MTPS, FITPA, CSCS*D, ACSM HFS, USPTA, USATF Level II

RESUME

- St. Thomas University
- Jacksonville State University
- The University of Alabama
- Auburn University
- LTA - Lawn Tennis Association (England)
- Alabama State Association for Health, Physical Education, Recreation & Dance
- FAST - Florida Acceleration and Speed Training
- Sunstone Leadership
- Strength Power Hour
- New York Times
- SouthCity GP Services (Australia)
- Giles County, Tennessee
- Kentucky Teaching and Learning
- Tennessee Performance Excellence
- International Convention on Civic Education
- Australian Track & Field Coaches Association (Australia)
- Gatorade / PepsiCo
- New York University
- Princeton University
- University of Southern Carolina
- WTA
- The Aspen Institute
- UNC Chapel Hill
- University of Pittsburgh

Appeared, Featured or Quoted:

- New York Times
- Play Magazine
- Tennis Magazine
- ESPN
- Shape Magazine
- Tennis Channel
- Fit to Hit TV Show
- United States Tennis Association Magazine
- Florida Tennis Magazine
- Personal Fitness Professional Magazine
- The Psychologist
- Jaycees Magazine
- Addvantage Magazine
- TennisPro Magazine
- US Open Program
- Monster Muscle Magazine
- Gridiron Strategies
- Men's Journal
- The Washington Post
- Wall Street Journal
- BBC
- The Tennis Recruiting Network
- Sports Illustrated Kids
- Personal Trainer Network Magazine (Australia)
- Tennis Recruiting Network
- Scholarship For Athletes
- JuniorTennis.com
- SPHour.com
- Fit-pro.com
- The Best Personal Trainer's Radio Show
- Muscle & Performance Magazine
- PTR
- USPTA
- Self Magazine
- The Star-Ledger

Mark Kovacs, Ph.D.

FACSM, CTPS, MTPS, FITPA, CSCS*D, ACSM HFS, USPTA, USATF Level II

RESUME

Certifications:

- Certified Strength and Conditioning Specialist (CSCS), National Strength & Conditioning Association
- Certified American College Of Sports Medicine (ACSM) Health & Fitness Specialist
- Certified United States Track & Field (USATF) Level I & II Sprints Coach
- Certified Endurance Sports Trainer, National Exercise and Sports Trainers Association (NESTA)
- United States Professional Tennis Association (USPTA - P1) Certified Tennis Coach
- Examiner, TENNESSEE CENTER FOR PERFORMANCE EXCELLENCE - Measuring Baldrige award criteria for the state of Tennessee
- CPR & First Aid Certification, Red Cross
- Healthcare Provider Certification (CPR & AED), American Heart Association (AHA)

Awards / Honors:

- 2012 International Tennis Hall of Fame Educational Merit Award (youngest ever recipient)
- 2010 Plagenhoef Award for Sport Science Excellence (youngest ever receipient
- 2009 Guest Editor – Strength and Conditioning Journal
- 2008 Editorial Excellence Award – Strength and Conditioning Journal – National Strength & Conditioning Association
- 2002 All-American at Auburn University (Tennis)
- 2002 NCAA Doubles Champion (Tennis)
- 2002 ITA Doubles Player of Year

Mark Kovacs, Ph.D.

FACSM, CTPS, MTPS, FITPA, CSCS*D, ACSM HFS, USPTA, USATF Level II

TESTIMONIALS

Mark Kovacs, Ph.D.

"Mark Kovacs is a true scientist who is able to communicate effectively with today's athlete. His ability to take scientific information and make it work for the athlete and coach is excellent. His understanding of the biomechanics involved in sport make him a unique individual in a world of trends and fads. "He is the real deal."

— Don Chu, Ph.D, PT, ATC, CSCS
Past President of the National Strength & Conditioning Association
Author of the best selling book on Plyometrics (Jumping Into Plyometrics)
Author of Power Tennis

"I have had the privilege to collaborate with Dr. Kovacs on a number of clinical projects, and his expertise in the sports sciences is unmatched. Mark's passion for enhancing athletic performance through evidence-based training and conditioning, proper nutrition, and coaching education shines through in all of his endeavors. A world renowned and respected leader in the sports sciences community."

— Michael A. Yorio, MD
Director, Player Medical Services for the US Open Tennis Championships (2008-2013)
Team Physician, Jacksonville Jaguars (NFL) (2014- present)

"Mark Kovacs is one of a kind. For years I knew he was an amazing theoretical resource, but working side by side with him opened my eyes to his incredible practical knowledge and application as a sport scientist and coach. I have been lucky to have him as a close resource."

— Todd Martin

CEO, International Tennis Hall of Fame
Former Coach to Novak Djokovic and Mardy Fish
Former Davis Cup star and achieved a career high ranking of #4.

"Mark Kovacs is an industry leader in tennis sports performance. His simple, practical approach with players and coaches as well has made Mark a major force in American Tennis and a very valuable resource for me personally in my quest to become a better, more informed coach!!"

— Tom Gullikson
US Davis Cup Captain (1994-1999) Captain to Andre Agassi,
Jim Courier, Pete Sampras, Todd Martin
Former Director of Coaching for the United States Tennis Association (1998-2001)
Former top 5 ATP professional doubles player)

Mark Kovacs, Ph.D.

FACSM, CTPS, MTPS, FITPA, CSCS*D, ACSM HFS, USPTA, USATF Level II

CLIPS

US OPEN

2009 US OPEN CHAMPIONSHIPS

AUGUST 31 – SEPTEMBER 13 • NEW YORK CITY

USTA

THE USTA

SERVING UP TENNIS IN THE 21st CENTURY

The USTA is the national governing body for the sport of tennis in the U.S. and the leader in promoting and developing the growth of tennis at every level—from local communities to the highest level of the professional game. A not-forprofit organization with 730,000 members, it invests 100% of its proceeds in growing the game.

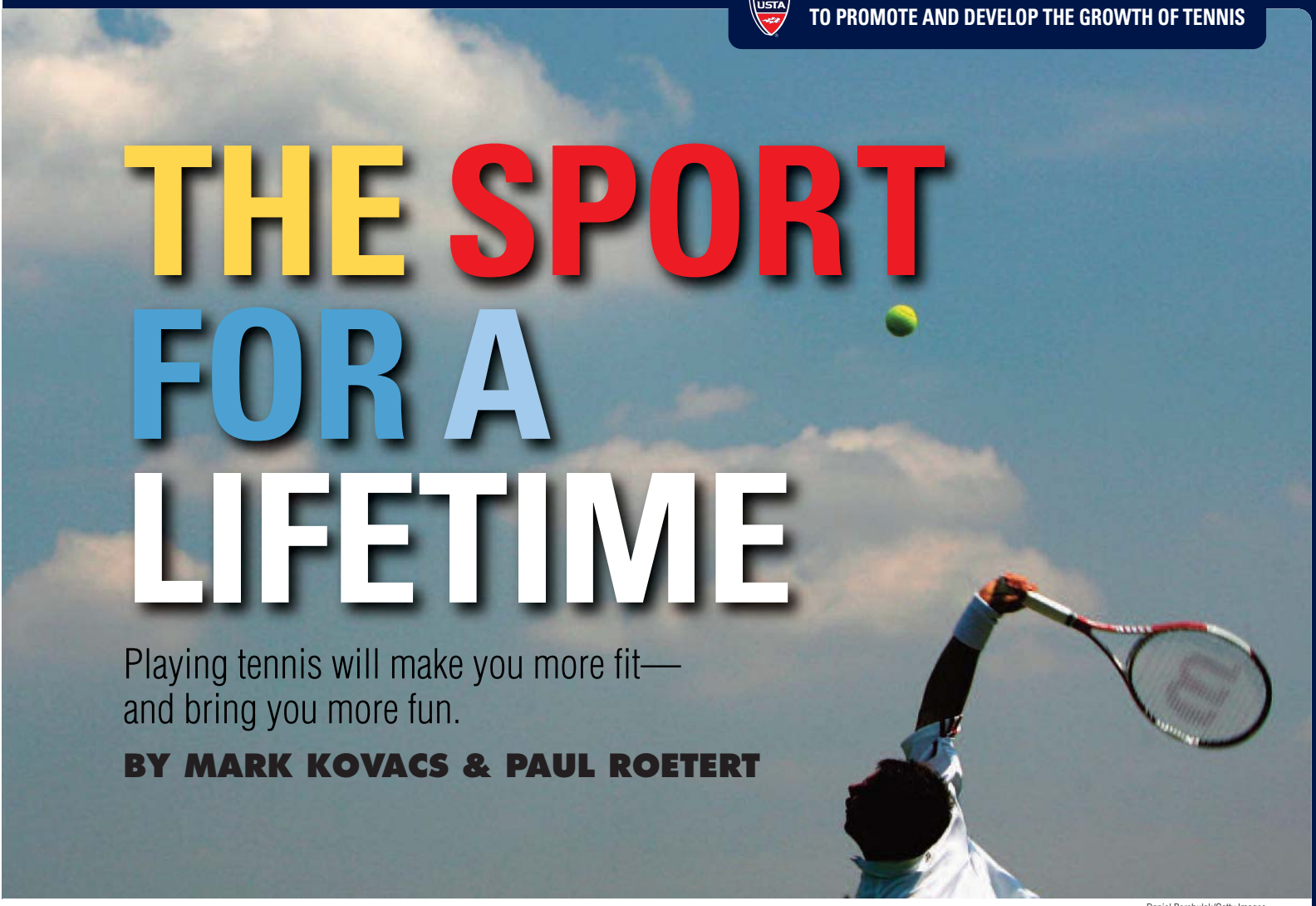
The USTA owns and operates the US Open, the highest attended annual sporting event in the world, and launched the Olympus US Open Series linking 10 summer tournaments to the US Open. In addition, it owns the 94 Pro Circuit events throughout the U.S., is a minority owner and promotional partner of World TeamTennis and selects the teams for the Davis Cup, Fed Cup, Olympic and Paralympic Games.

The USTA philanthropic entity, USTA Serves, provides grants and scholarships and through tennis, helps underserved youth and people with disabilities to improve academics, build character and strive for excellence.

THE SPORT FOR A LIFETIME

Playing tennis will make you more fit—and bring you more fun.

BY MARK KOVACS & PAUL ROETERT



Daniel Berehulak/Getty Images

Even though you may never play tennis at the same high level as Roger Federer or Serena Williams—you can certainly enjoy the sport for the fun, social and competitive benefits it provides, regardless of whether you are young or old, male or female, a beginner or an advanced player. Tennis is arguably the greatest sport there is to improve health, wellness and an overall healthy lifestyle.

Tennis' popularity is clearly on the upswing again, and equipment manufacturers have produced racquets, strings and balls that make the game easier to play: for kids as young as 6 years old (using the QuickStart Tennis play format); for college students outside the varsity game; for men and women seeking the camaraderie of team play; even for those competing in the 90-and-over age division in the USTA National Championships. The American College of Sports Medicine and the American Heart Association both recommend physical activities, such as tennis, to reduce risk factors for disease and improve overall health.

The cardiovascular benefits of tennis have been well documented. Tennis players reduce their likelihood of heart disease—including heart attacks—by 30 to 50 percent. This is one of the most potentially life-changing aspects of regular tennis play from an overall health and longevity perspective. You will burn more calories in an hour of singles tennis than nearly any other physical activity. Singles tennis play produces heart rates typically between 70 to 90 percent of your maximum heart rate, which results in burning 300 to 800 calories per hour in a fun and psychologically enjoyable environment. Tennis competition can also have positive effects on brain function, mental acuity and logical thinking.

As you age, most physical functions diminish, including aerobic capacity (endurance), muscle mass, positive hormone production, power production, bone strength and a reduced metabolic rate resulting in unwanted body fat. Tennis can have an anti-aging effect on all of these functions. For example, researchers have found that three days per week of tennis play improves endurance capacity by 5 to 7 percent; this improvement can carry over into everyday activities, providing more energy for enjoying life. Similarly, playing tennis as little as two times per week will help reduce body fat by 3 or 4 percent, which translates into as much as 10 pounds of unwanted and potentially harmful body fat. Meanwhile, bone health (specifically, the deterioration of bone such as osteopenia or osteoporosis) can be significantly reduced by playing tennis. Tennis players show between a 7- to 20-percent increase in bone strength in both the upper and lower body by playing regularly.

Hitting the courts consistently improves good cholesterol (by elevating the HDL level) and can help reduce the risk of heart disease and stroke. Tennis play also helps lower resting glucose (sugar) levels in the blood, and that's important because—due to poor diets and the amount of hidden sugar in most foods, including breads and even frozen vegetables—you either have, will have or know a family member who has diabetes. Diabetes is a combination of genetic and environmental factors, but regular tennis play and improved dietary habits can result in noticeable improvements.

Every professional tennis player's goals are to be the best and win Grand Slam titles. All of their intense training and preparation is completed with these goals in mind. Although you may not be winning the US Open anytime soon, tennis can help you win in the game of a healthy life. And that's one ranking which may be the most important of all.

FRENCH OPEN PREVIEW

TENNIS

CHANG VS. LENDL 20 YEARS LATER

Gael Monfils

Can This Acrobatic Frenchman Win Roland Garros?

(He has a better chance than you think.)

4 Secrets To Better Footwork

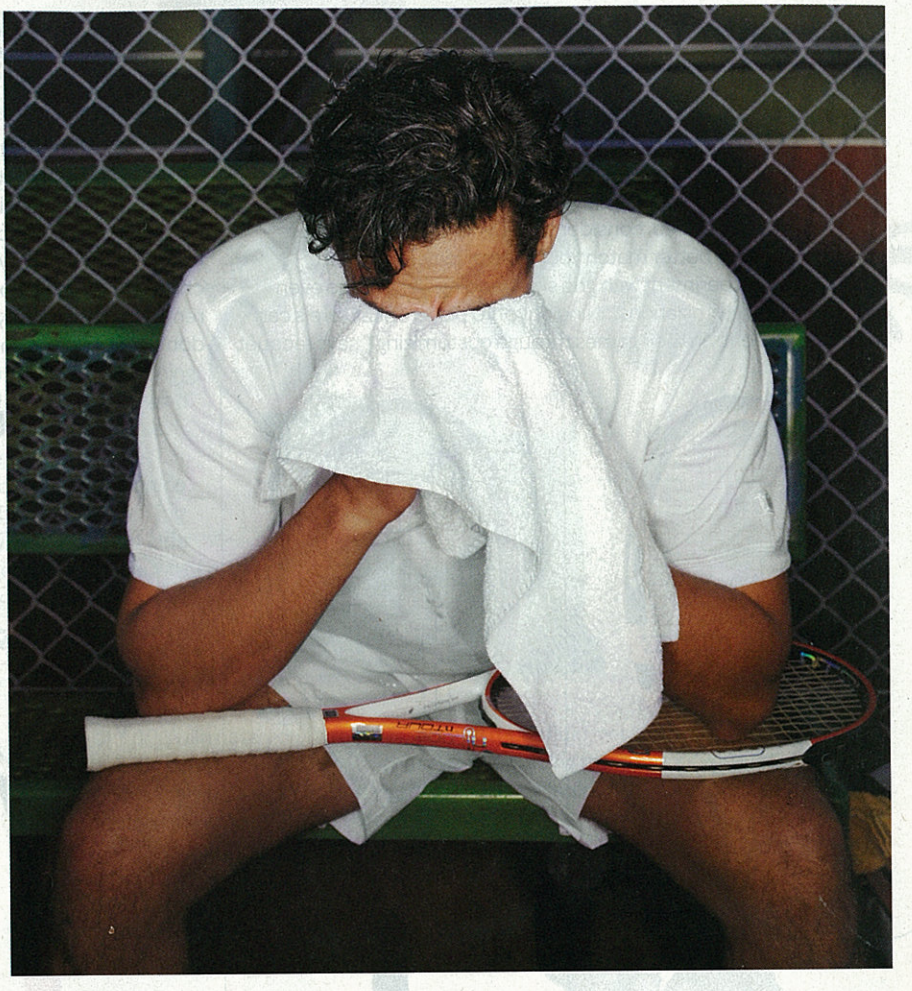
Fight Fatigue On Court

Dare to Hit the Swinging Volley

Fight Fatigue

Try these tips to avoid exhaustion in the third set.

BY BOB CONDOR



Late in the third set of a tough match you hear it. Your body is talking to you: "I'm *tired*. I don't think I can go on."

Truth is, it's your brain talking, not your body. "The brain controls the body," says Mark Kovacs, senior manager of sport science for the USTA and a Ph.D. in exercise physiology. "If the brain senses you have fatigued a certain area of the body, maybe your serving shoulder, it senses you have fatigued the whole body."

Once that happens, Kovacs says, you think about your compromised condition rather than the ball zinging toward you, and you lose concentration and start making unforced errors.

Researchers are debating what fatigues the muscles during strenuous exercise. A 2008 Columbia University study showed that a tiny calcium leak inside muscle cells might be what makes us tired rather than the long-held theory of lactic acid overload. The calcium leaks were discovered in study subjects after three straight days of intense cycling workouts. Calcium seeping into the cells theoretically weakens the force of the muscle and activates an enzyme that effectively eats away proteins that are the foundation of muscle fibers.

Researchers have yet to develop therapies or drugs that put this finding to use to relieve muscle fatigue, so for now, as Kovacs says, you have to rise above your brain's messages. Here are tips to stave off third-set exhaustion.

Before the match

TRAIN THE TWITCH We have two basic types of muscle fibers, slow twitch and fast twitch. Fast-twitch fibers help with explosive movements such as a serve or a full-speed running forehand, while slow-twitch fibers help a tennis player resist fatigue over a three-hour match. Kovacs says that to develop fast-twitch fibers you must work at a high intensity, whereas slow-twitch fibers are trained by exercise that's longer in duration and less intense.

Phil Campbell, a Tennessee-based speed coach who trains high school, college and pro athletes, recommends you do interval workouts three times a week on nonconsecutive days for fast-twitch muscle development. After a short warm-up, alternate all-out effort for 30 seconds and a recovery pace for 90 seconds for 20–30 minutes.

CLEAR YOUR HEAD If your day has been mentally challenging, a recent study shows it may be a good idea to grab a power nap or find another way to clear your mind before a match. The British study, published this year in the *Journal of Applied Physiology,* showed that subjects who performed a mentally arduous test before a tough workout reached exhaustion quicker than a control group who watched documentaries instead. The groups didn't show much difference in performance of the muscles or heart; what felt different was the "perceived exertion," or whether the brain convinces you to feel fatigued.

EAT UP You need to eat before matches, nerves or not. Most sports nutritionists recommend five to six small meals daily. Time your meals so you eat a moderate amount of protein, carbs and healthy omega-3 fats about 90 minutes to an hour before hitting the courts, says Susan Kleiner, a Seattle-based nutritionist who has worked with pro football players and Olympians. Some ideas include half a turkey sandwich with an apple and peanut butter, a tuna or chicken tortilla with avocado, or oatmeal with almonds, milk and brown sugar.

DRINK COLD WATER A British study published in the September 2008 *Medicine and Science in Sports and Exercise* journal shows that drinking cold water in the half-hour before exercise and during the activity reduces physiological strain and helps you tire less than those drinking the same

If your day has been mentally challenging, find a way to clear your mind before a match.

amounts of water at body temperature. Cold water before and during exercise lowered core body temperature, heart rate and sweat levels during the first half-hour of exercise. Drink 16–20 ounces of cold water leading up to play, then 4–8 ounces of a cold beverage on changeovers as you compete. That way you can conserve energy for later in the match.

During the match

DOCTOR YOUR WATER If you're going all out on court, you may need something besides just water in your bottle, says John Ivy, chairman of the department of kinesiology at the University of Texas in Austin. He says that we need to replenish electrolytes when exercising intensely. The American Dietetic Association recommends you drink 5 ounces of a sports beverage every changeover in place of water when you're sweating hard. And make it a cold one.

PACK IN PROTEIN Kovacs says you need in-match protein if you're playing for two hours or more. That's because your muscles need protein to repair, so it may help reduce muscle fatigue during long matches. One option is to add a small amount of protein powder to your sports drink or eat an energy bar with 10 to 15 grams of protein. "Just be careful not to consume too much protein during a match," Kovacs says. "It can cause gastric problems."

After the match

DRINK A SMOOTHIE ASAP Ivy is adamant that you have a recovery drink as soon as you finish a strenuous workout. That's when your muscles are most receptive to insulin and nutrients, which facilitates muscle-fiber recovery. "You have a window of about 30 to 45 minutes," Ivy says.

Your target number of carbohydrate grams should be about 40 percent of your body weight in pounds, Ivy says, and you should have 1 gram of protein for every 3 grams of carbs. Try chocolate milk or juice with ice, a generous amount of frozen or fresh fruit and a scoop of whey protein. Whatever your smoothie preferences, have it as soon as possible. Ivy says waiting two to three hours for a recovery drink can reduce the rate at which muscle glycogen (muscle fuel) is stored by about half, and result in muscle damage.

DON'T FORGET DOWN TIME Columbia University's study on muscle fatigue showed that a few days of rest can stop calcium leakage in muscles. So you might be best served to lay low in the days following a tough tournament rather than immediately going back to work on your game.

FROM LEFT: WHIT PRESTON/GETTY IMAGES; KEN KARP

MOVE OF THE MONTH

Pilates Spine Twist

Gain strength and flexibility with this simple exercise

Core strength and flexibility are two keys to injury prevention for tennis players. That's why Pilates can be so helpful. It gives you more power in the midsection and lengthens all the muscles in your body. "Pilates works your body 360 degrees around, developing strength as well as complete range of motion, which is so important for tennis players," says Ellen Barrett, a Pilates instructor and former college tennis player who created the *Slim Sculpt* DVD. Try this move to strengthen your core and increase flexibility in your lower back.

1. Sit upright with your spine tall and your legs straight (bend your knees slightly if your hamstrings are tight). Raise your arms straight out to your sides at shoulder height. Lower your shoulder blades away from your ears.

2. Inhale to prepare, then as you exhale, twist your torso to the right without shifting your hips.

3. Take another deep breath and twist further as you exhale. Inhale and return to center. Repeat to the left and return to center. Repeat 10 times.—KATE HANLEY

2009 RACQUET GUIDE

TENNIS

OUR COMPLETE AUSTRALIAN OPEN WRAP-UP

Jelena Jankovic
Tries to Make A Major Move

PLUS

5 Keys to Rafa's Backhand

Get Stronger By Stretching

Is Tennis' Doping Policy Too Harsh?

Stretch Your Power

Increase your muscle capacity with a dynamic warm-up.

BY KATE HANLEY

You've got a match in 30 minutes. Time to touch your toes, stretch your calves, and loosen your quads, right? According to recent studies, the answer is no. Researchers at the University of Nevada, Las Vegas, have found that holding stretches temporarily weakens muscles, reducing performance.

When it comes to preparing for physical exertion, there's a new regimen in town: dynamic stretching. While static stretching requires you to assume a position and hold it, dynamic stretching lengthens muscles as you perform whole-body movements.

"Dynamic stretching before activity improves strength, power and speed, which are three of the most important physical attributes a player can have," says Mark Kovacs, Ph.D., manager of sport science for USTA Player Development. Although research hasn't conclusively shown why dynamic stretching is effective, Kovacs says that stretching as you move is uniquely suited to preparing for exertion because it increases the body's core temperature, which warms muscles and boosts blood flow.

"The complexity of the movements also stimulates communication between the brain and the muscle fibers, which results in better speed, accuracy and power," Kovacs says. The exercises improve balance and coordination as they help correct muscle imbalances that playing a one-sided sport like tennis can create. Dynamic moves also improve what Kovacs refers to as functional range of motion, meaning you can reach for those wide balls and your legs and arms will still be strong, even in an extended position.

Static stretching has its time and place: immediately after a match or workout or in the evening when your strenuous activity for the day is over. "Holding a stretch increases your flexibility and your range of motion, which are both good things," Kovacs says. "You just don't want to do it before exerting yourself." He recommends spending 10–30 minutes stretching post-workout and a few times a week in the evenings.

Here are five of Kovacs' favorite dynamic stretches. Try a couple the next time you hit the court (some are a bit awkward, so you may want to do them in the locker room). You can also do the exercises on their own as a workout. Before you start, Kovacs advises that you do 5–10 minutes of cardio to warm up your body, such as riding a stationary bike, jumping rope or jogging around the courts, which will raise your core temperature and make the exercises more effective.

Spiderman (above)

How to do it: Get in a crouched position on all fours with your knees off the ground. Staying as low to the ground as possible, crawl forward and step your right foot to the outside of your right hand. Pause briefly in that position before moving your hands forward and stepping your left foot to the outside of your left hand. Keep your hips low and continue crawling forward for approximately 36 feet, or the distance from doubles sideline to doubles sideline.
What it does: Stretches the hips, glutes and inner thighs as it strengthens the upper body.

Side lunge

How to do it: Stand with your feet together. Move your left foot straight out to the side and bend your left knee to 90 degrees, keeping your right leg straight and right foot flat on the ground. Lower your backside until it is level with your left knee and keep your chest upright, spine tall and shoulders down. Push off your left leg to come back to the starting position. Repeat to the right. Do 5–10 on each side.
What it does: Stretches the inner thighs and builds balance and coordination in the hips.

Straight leg march

How to do it: Stand with your arms straight out in front of you at shoulder height. Keeping your back and legs straight, walk forward by kicking one foot out in front of your body on each step, trying to touch your toes to your fingers. Draw your belly button in as you walk, keep your shoulders back, and look straight ahead. Go approximately 36 feet, or the distance from doubles sideline to doubles sideline.
What it does: Stretches the hamstrings, strengthens the core and improves balance.

Inchworm

How to do it: Bend forward and put your hands on the floor. Keeping your arms and legs as straight as you can, walk your hands in front of you until you are in a push-up position. Now walk your feet up to meet your hands. Repeat. Aim to travel approximately 36 feet this way, the distance from doubles sideline to doubles sideline.
What it does: Stretches the hamstrings and builds strength in the shoulder girdle.

Scorpion

How to do it: Lie face down with your arms straight out to your sides. Bend your right knee, lift your right leg up, and, rotating your lower back, move your right heel as close to your left elbow as possible. Keep both shoulders on the ground and your upper body as still as possible. Do 5–10 on each side.
What it does: Stretches and increases range of motion in the lower back and hips. Improves range of motion in the obliques (the muscles that run along the sides of your abdomen), which can increase power on your serve and ground strokes.

QUICK CARDIO

Interval Training

Improve your stamina with this aerobic workout

Want to boost your endurance? Try interval training, an aerobic workout where you alternate between intense effort and recovery. By adding intervals, you can gain all-around cardiovascular fitness and—bonus—improve your body's ability to burn fat. "The argument for interval training is that when you work at a higher level and really push your system harder and harder, you get a better training effect overall, and you get a lot more done in a lot less time," says Mark Kovacs, Ph.D., manager of sport science for USTA Player Development in Boca Raton, Fla. "For tennis players, interval training has the added benefit of mimicking the kind of effort you make on the court."

Kovacs recommends that players try two interval workouts per week, in addition to two lower intensity cardio workouts. If you're training hard and playing a lot of matches, drop one of the interval sessions.

Here's a sample 30-minute workout from Kovacs (as a reference for your effort level, 1 is a walk in the park; 10 is your all-out maximum). Always allow a day of rest between sessions. "Within two weeks you'll notice that you can run harder during long points and recover more quickly between points," Kovacs says. You can do this workout with any exercise that will keep your heart rate up, whether it's walking, running, biking or on an elliptical trainer, though you'll get the greatest benefit with running. As you get stronger, decrease the recovery period from 120 seconds to 90 so that you're working at a 1-to-3 sprint-to-recovery ratio. Remember that interval training, done right, is very challenging and shouldn't be started without a physician's OK. If you feel light-headed or short of breath, stop immediately.—DANA SULLIVAN

Walk, run, bike or do the elliptical to this routine

Time	Effort	How you feel
5 minutes	3	You could go at this pace for more than an hour
30 seconds	7	The pace is challenging but not uncomfortable
120 seconds	4	You can carry on a conversation
30 seconds	7	The pace is challenging but not uncomfortable
120 seconds	4	Recovering at conversation pace
30 seconds	7	The pace is getting more difficult
120 seconds	4	Recovering at conversation pace
30 seconds	8	You are working so hard that you're on the verge of discomfort
120 seconds	4	Relieved
30 seconds	8	Really hard effort, you couldn't go for much more than 30 seconds
120 seconds	4	Relieved
30 seconds	8	You can barely make it to 30 seconds
120 seconds	4	Relieved
30 seconds	7	Pace is challenging but you can feel the difference between this interval and the last sprint
120 seconds	4	Recovering at conversation pace
30 seconds	7	You are able to go for one last round at a challenging pace
120 seconds	4	Recovering at conversation pace
5 minutes	3	Like you could walk for 30 minutes