



ENDURANCE AND SPORTS MEDICINE

The Journal of the International Institute for Race Medicine

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In this Issue:

- Updates on IIRM Membership
- Recommendations for Protein Intake
- Experience with Overcoming a Charlie Horse
- Embracing Swimming After Injury
- Million Athlete Project

Endurance and Sports Medicine

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The mission of the International Institute for Race Medicine (IIRM) is to promote the health and safety of athletes participating in endurance events through education, research, and the development of medical best practices.

Opinions expressed in *Endurance and Sports Medicine* are not necessarily endorsed by the IIRM.

Address editorial, membership, and advertising information to Barbara Baldwin, MPH, IIRM (Satellite Office), 14520 Clopper Road, Boyds, MD 20841, Email: membership@racemedicine.org, TEL: 240-271-1657, www.racemedicine.org.

IIRM NEWS

Membership Drive Coming Soon!

Membership renewal notices will be sent in mid-December to all members who have expired in 2017 and to those who will expire through January 31, 2018. Annual dues for the Individual Membership in the IIRM are \$75 and membership is renewed one year from the date you join/renew.

IIRM individual members receive:

- *Endurance and Sports Medicine* delivered via email 3x/year
- Discounted registration for IIRM-hosted sports medicine conferences
- Access to password-protected materials on the IIRM website including:
 - Archived issues of the *AMAA Journal* and *Endurance and Sports Medicine*
 - The 92-page IIRM Medical Care Manual, developed by experts from the IIRM and Loughborough University
 - Video presentations from AMAA and IIRM conferences focusing on race medicine and general sports medicine topics

In addition, IIRM members are part of a dedicated group of professionals working to innovate and share ideas on best practices in the field of endurance race medicine. Together we will also strive to educate our patients, clients, and the general population of runners about hydration, nutrition, training, and injury prevention and rehabilitation. IIRM also provides event memberships. Read more on page 5.

To renew your IIRM annual membership now, go to www.racemedicine.org and click on "Join/Renew."

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LETTER FROM LEADERSHIP

Dear IIRM Members and Former AMAA Members:

Welcome to the first issue of *Endurance and Sports Medicine*! We are excited to be carrying on the tradition of the *AMAA Journal* by continuing our familiar columns containing broad subject matter in our "Talking About Training," "Experience Tells Us," and "Book Reviews." These columns will contain pieces reporting on subjects that are of current interest to sports and race medicine professionals and/or athletes, with an emphasis on articles based on the results of our 2016 AMAA survey. If you are interested in writing an article for any of these columns, please contact Dr. Doug Munch (dfmunch@aol.com) for more information.

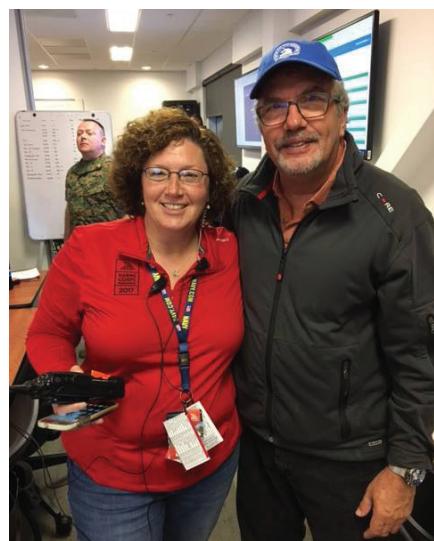
In addition, we will be pursuing relevant research articles reporting analysis based on primary data collected from scientific studies of patients or subjects. Although this current issue does not include a research article, we plan to introduce that particular content as we move forward. We are seeking submissions for the spring and summer journal issues (see guidelines on page 15). If you have original research data that you would like us to consider for publication, please contact Dr. Fred Miller (fmiller@huntington.edu) for more information.

Since the IIRM and AMAA came together on July 1, we have been busy working on a myriad of tasks involving such things as organizational structure, membership continuity and services, continuing education activities, and educational outreach. We also continued the tradition of holding the annual sports medicine symposium in conjunction with the Marine Corps Marathon and upheld the partnership with MedStar Sports Medicine by working closely with its vice president and key physicians.

The symposium, now called the IIRM Sports Medicine Conference Series: Washington, DC, was a great success. Over 100 attendees participated in



Dr. Craig Goolsby shows how to use a tourniquet in a workshop on managing acute incidents at mass-participation events.



Marine Corps Marathon Medical Operations Coordinator Shelly Weinstein and Chris Troyanos inside the Race Course Operations Center at the Pentagon.



Drs. John Jardine (center) and Doug Casa (standing to immediate right) lead a workshop on treating exertional heat stroke.



Dr. Cole Taylor shows how to use ultrasound to image the foot.



Conference participants listen to lectures at the IIRM Sports Medicine Conference in the W. Proctor Harvey Clinical Teaching Amphitheater which, similar to old teaching environments, has seats facing down to the center floor from both sides of the room.

the two-day event which featured various lectures and introduced a new team approach to case-based learning through interactive workshops. Working as groups, participants moved through stations to practice skills needed to manage exercise-associated collapse, cardiovascular arrest, exertional heat stroke, exertional hyponatremia, exercise-associated muscle cramping, and acute emergency situations such as those where tourniquets are needed. We also offered a second set of workshops of varying topics where attendees selected two sessions based on their interest of the subjects. As a result of the positive feedback received, we hope to reproduce this type format in other locations as we expand our educational outreach programs.

As most of you know by now, the IIRM Executive Board decided to not hold the Boston symposium in April 2018. It was not an easy decision to make but after carefully reviewing our current resources, we knew it just wouldn't be wise to plan it for this spring. Over the next year we will work toward building revenue through membership development and will seek to secure a partnership with one of the local educational institutions in the Boston area for additional meeting venue options. We did obtain a room block at The Colonnade for this coming April to support members running or volunteering in the Boston Marathon; many of you have already made reservations. The rate is \$379 per night (two-night minimum), plus 14.45% taxes. The rate for triple occupancy is \$409 and quad is \$439. If you are interested in reserving a room, please contact Barbara Baldwin at bbaldwin@racemedicine.org to receive the reservation link.

We also anticipate holding continuing education activities at other locations throughout the US, and eventually globally, but this is dependent on such things as developing partnerships with race organizers and securing support from local members who can assist

We hope to reproduce this type format in other locations as we expand our educational outreach programs.

We are seeking submissions for the spring and summer issues (see guidelines on page 15).

with planning. If you have suggestions for races you'd like to see the IIRM visit and/or have ties to races and would like to get involved, please contact Barbara Baldwin at the email shown in the previous paragraph.

In addition to offering live continuing education opportunities, we are also still exploring the ability to provide credit hours for the member videos shown in the "Education" section of our website at www.racemedicine.org (and we are continuing to build this section with content added from AMAA and IIRM presentations). We will keep you posted regarding this endeavor.

Finally, we have been creating committees to enable us to engage our members and more effectively move toward goals set forth by the IIRM Executive Board. Please take the time to view information about the committees on page 17. We hope you will consider becoming involved.

We look forward to working with you to further the cause of race medicine and its standards of care, educate runners, and grow an organization to best serve your needs!

Best wishes,



Chris Troyanos, ATC
IIRM Executive Director



Cathy Fieseler, MD
AMAA Former President



Dr. Eliot Hu shows how to use ultrasound to image the knee.



All hands on deck! Chris Troyanos, Katie Powers, and Barbara Baldwin fire up the breakfast griddle in Alpha tent at the Marine Corps Marathon.

IIRM Event Memberships

The IIRM offers an Event Membership with an annual dues rate of \$500 for multiple races and \$250 for a single race. AIMS and RRCA members receive a membership discount (which can be viewed on the membership registration page by following the "Join/Renew" link from www.racemedicine.org).

IIRM event members receive everything that individual members receive (shown on page 2), as well as:

- Unlimited access to the password-protected section of the IIRM site for all event medical volunteers, public safety personnel, and hospitals
- The ability to network with and receive advice from other medical professionals who manage medical care at races
- Recognition of the event(s) on the IIRM website with a link to the event(s)

If you are a volunteer of a race that joins the IIRM as an Event Member, you will receive your one-year membership for free. To receive more information on this opportunity, please write to membership@racemedicine.org.

TALKING ABOUT TRAINING

Do I Need More Protein for Training and Competition?

By Fred L. Miller III, PhD, ACSM EP-C, CSCS, NCSF-SNS

How often have you heard or perhaps said, "I need to eat more protein" or "I need a protein shake"?

How often have you been shopping and noticed on the front of a food label the word "Protein" or the phrase "Great source of Protein!"? I am guessing more than a few times. Protein has become a very popular topic over the last few years and food and beverage companies are jumping on the bandwagon by adding this labeling to many common foods. Why? To persuade you to buy their product instead of one that does not advertise protein on the front label. Does it work? Normally, yes. Or at least it gets you thinking about purchasing the protein-advertised product.

Media has done a good job persuading us to think protein is the answer to helping achieve health and fitness goals. Thus, you may purchase the product thinking, "If I consume more protein, I will lose weight, build more muscle mass, perform better in competition, have more energy, and/or I will be healthier." The issue with this assumption is that each of these goals requires more than just protein consumption. Often times, the extra protein does nothing additional for one's health and/or helping one reach his/her goal(s).

Losing weight, building muscle, performing better in training or competition, having more energy, and being healthier are not achieved just by consuming more protein. In fact, most people consume sufficient protein in their normal diet (1,2) and do not need to add supplemental protein. What happens when "extra" protein is consumed? Through digestion proteins are broken down into their constituent amino acids. If not needed for energy production in the Krebs cycle, catabolism converts the unused amino acids to glucose via gluconeogenesis or fat via lipogenesis; it is then stored as glycogen or fat (3). Our bodies can only store limited amounts of glycogen but, unfortunately, have the capacity to store unlimited amounts of fat (4). This can, of course, translate to weight gain.

How do you figure out your daily protein needs and whether or not consuming more in high protein foods or in supplements, such as protein shakes



and gels, is really necessary? Actually, it is relatively easy to figure out and will be explained later in this article. First, let us better understand protein and its relation to carbohydrates (carbs). Next we will review briefly the functions of protein and, finally, we will determine how to calculate daily protein needs. Then you can decide whether you really need to consume more protein in your diet and whether spending a few extra cents or dollars on that "protein" food, gel, or shake is really necessary.

What is protein's relationship to carbs and fats?

For some, counting calories is an important component of helping them reach their health-related goals, which often include weight loss. Other reasons for counting calories include trying to build muscle, maintaining weight, and/or making sure one has enough "energy" to complete a workout and/or competition. Recently I have noticed more individuals are replacing counting calories with counting macros. A macro is simply an abbreviation for macronutrient. There are three macronutrient classifications: carbs, fats, and proteins. Typically, individuals count macros because it is easier and they are interested in managing protein intake. The major difference between counting macros instead of calories is the units used for measurement.

Calories and macros are related mathematically as seen in Table 1.

Table 1.
Conversions from grams to calories.

Macro	Calories per Gram
Carbohydrate	4
Protein	4
Fat	9

When a person counts or keeps track of their macros, they typically do so using grams (a unit for measuring weight). For example, a person counting macros may decide to only eat 300 grams of carbs, 50 grams of fat, and 100 grams of protein per day. They keep track of how many grams consumed of each macro by reading food labels and counting grams of each macro per serving. Once they reach their predetermined macro intake (e.g., 100 grams for protein), they stop consuming foods from that macro group for the day.

When someone counts calories (a unit of energy), they too read the food label; however, they are mostly focused on calories per serving and not how many grams are associated with each macro. "Calorie counters" want to know how many servings they can eat based on calculations for their total caloric consumption. What these type of counters usually miss is that if they know the gram of weight for each macro consumed then they can also easily calculate the total number of calories by using a conversion factor.

Knowing this conversation allows one to calculate the equivalent calories for a given number of grams of each macro. Table 2 is an example of the equivalency between both measuring units for a person with a daily intake of 2050 calories.

Table 2.
Example breakdown of a one-day intake of 2,050 calories.

Macro	Grams	Calories
Carbohydrate	300	1,200
Protein	100	400
Fat	50	450

So, which method is better? Most will say counting macros; however, it depends on your goal (which is a topic for a future article). One advantage of counting macros as compared to counting calories is that when you count macros, you can then determine both types

of information—you will know how many grams come from carbs, fats, and proteins, as well as how many total calories are consumed of each nutrient. With this added nutritional information, you can better adjust your diet to meet specific needs and goals.

What are the functions of protein?

Most people hear the word "protein" and associate it with bodybuilding or lifting weights because of its role in repairing and building muscle tissue. But this is only one of many functions of protein. Protein is also needed for transporting various substances in your blood (lipoproteins carry triglycerides), functioning of various hormones (i.e. insulin) and neurotransmitters (i.e. serotonin), functioning of the immune system, maintaining fluid balance and optimal pH in your blood, and releasing energy (5). Without sufficient amounts of protein consumption, the body would struggle to function optimally, resulting in suboptimal levels of training and competition.

When people talk about protein, amino acids (AA) often enter the conversation. These are the compounds that make up protein; 20 amino acids with different chemical properties combine and link together in different quantities to form the protein molecule. Nine of these 20 AAs are essential, meaning you need to consume them in your diet because your body cannot synthesize them in sufficient amounts. Due to their role in muscle growth, the branch-chain amino acids (BCAAs) Isoleucine, Leucine, and Valine are the most well-known essential AAs in the exercise/bodybuilding world. Therefore, they are often marketed to active individuals interested in muscle development. Discussing each AA is a topic for another article; for the purpose of this one, the question that needs to be answered is, "What is your daily protein requirement and are you consuming enough protein daily?"

How do I calculate my daily protein needs?

Calculating your daily protein needs is simple. The method described below will give you a good ballpark estimate. To precisely determine your daily protein needs, you would need to visit a lab with expensive measuring equipment (6,7), but most studies (4,5) find the method described below to be accurate enough. Using this simple method requires measuring your body weight and determining your physical activity level and/or goal(s). Once you know your body weight (BW) and physical activity level, you can then calculate your daily protein needs. Table 3 shows the range of protein required per day

for every kg body weight for several activities.

Table 3.
Daily Protein Requirements Based on Physical Activity Level

Physical Activity Level	Grams of Protein/kg BW/Day
Sedentary/No Exercise	0.8
Strength Training, Gain Muscle	1.6 – 1.7
Endurance Training	1.2 – 1.4
High Intensity Interval Training	1.4 – 1.7

As determined by a person's body weight (68 kg) and physical activity level (endurance training), one should strive to consume 82 to 95 grams of protein per day. Just follow the example shown in Table 4, by converting your body weight from pounds (lbs) to kilograms (kgs) using the formula 1 kg = 2.2 lbs. Then multiply by the correct physical activity level.

Table 4.
**Calculation of Protein Requirements:
150 lb Person Training for a Triathlon**

Calculation Steps	Grams of Protein/kg BW/Day
1) Convert body weight from lbs to kg	$150/2.2 = 68 \text{ kg}$
2) Calculate protein needs based on physical activity level (i.e. endurance training)	$68 \times 1.2 = 82 \text{ grams}$ (lower range) $68 \times 1.4 = 94 \text{ grams}$ (upper range)

Once you know your recommended protein needs, you then can decide if you really need to consume more protein in your diet by comparing your average daily intake to your calculated requirements. You may, in fact, find that you are currently getting enough protein in the foods you regularly eat diet without needing to ingest more from a protein bar, gel, shake, and/or other high protein source. Remember, if you consume more protein than your body can process, it will be converted to glycogen or, more likely to fat, and then stored.

Conclusion

As indicated, there is debate regarding the need for supplemental protein intake and many individuals believe protein may be the answer to help reach

health and fitness goals. However, the deciding factor regarding the amount of protein needed by an individual should be determined by measurable factors such as overall caloric and macronutrient intake, body weight, and physical activity level. Additional factors such as the presence of injury or illness can also help determine the need for protein. Instead of blindly purchasing high-protein items, you should first do your homework to decide if they are really needed. For the general population, I would conclude the answer is "no."

Dr. Fred L. Miller, III is an Associate Professor of Exercise Science, Department Chair, and Head Cross Country Coach at Huntington University in Indiana. He is a long-time distance runner who has completed over 500 races ranging in distance from the 5K to the Marathon. He has completed 20 marathons (19 of those under 3 hours), winning the October 2015 Indianapolis Marathon in 2:41. Dr. Miller is an American College of Sports Medicine member, Certified Exercise Physiologist (ACSM C-EP), National Strength and Conditioning Association (NSCA) member, Certified Strength and Conditioning Specialist (NSCA-CSCS), National Council for Strength and Fitness (NCSF) member, and a certified Sports Nutrition Specialist (NCSF-SNS).

In a follow-up article on protein, Dr. Miller will address requirements in relation to fitness goals, the role of amino acids, and will answer the question, "When is the best time to consume protein for training and competition?"

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EXPERIENCE TELLS US

Introducing Charles Horse

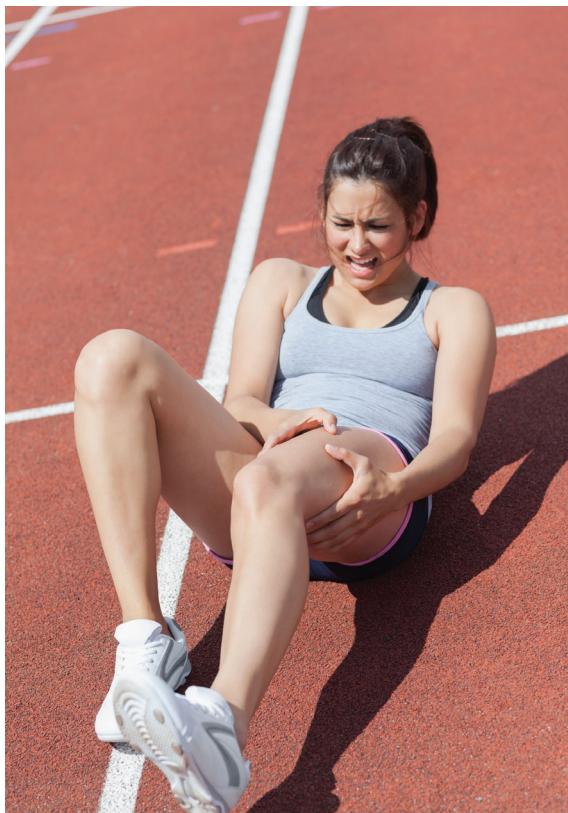
By Douglas F. Munch, PhD

Any athlete or aspiring athlete is likely to eventually meet "Charles." He likes to lurk around the corners of intense physical activity. One day you are running or cycling or swimming your normal workout. Then during your workout, later that day, or by the next morning, you have developed a muscle spasm and pain so excruciating that you just can't move. It can take your breath away. This pain may last a few minutes, hours, or if you are particularly unlucky, several days. Say hello to charley horse.

A few weeks ago, I was following my normal routine of rotating between cycling, swimming, and lifting. My workout that day was an outdoor bike ride of about 40 miles. It was hot and humid at 11:00 in the morning here in New Jersey. The temperature reached 90 degrees and the humidity felt like 90%. I knew at the beginning of my ride that I would need extra hydration so I had two full water bottles stashed on my bike, and unlike rides on cooler days, this time I drank the water throughout my ride. Halfway through, I stopped at a small deli for coffee, as my body was craving caffeine, and a brownie. I knew I needed some sugar to prime my flagging metabolic pump, and a brownie seemed to be just the right thing. I even refilled my water bottles with nice cold water from the refrigerator in the deli, you know, that ultra-purified stuff sold in a bottle. My ride home was uneventful other than hot and much sweatier than usual. The contents of both water bottles eventually disappeared as I engaged the challenging hills and valleys of western New Jersey. Everything felt fine and normal after my workout. I even rehydrated when I got home with Endurox R3®, a muscle recovery supplement

drink that contains a mix of protein, carbohydrates, vitamins, and electrolytes. Throughout the rest of the day and evening I experienced no unusual symptoms nor signs that something was about to happen. So I went to bed excited for the prospects of swimming the next day. But by the morning, well, that was a different story. I could hardly move and standing upright was extremely painful.

My first thought was that I had pulled a muscle in the iliac fossa in the proximity of the right anterior superior iliac spine and also in the right hip. A quick trip to my ancient copies of *Cunningham's Textbook of Anatomy* and *Grant's Atlas of Anatomy* reminded me that several prominent muscles were likely in play here. By now I'm thinking the iliopsoas group of iliacus and psoas major which act together in hip flexion were the main problem. From my symptoms and location of the muscle spasms, the gluteus minimus and medius were



also involved. The gluteus medius is extremely important in the dynamic stabilization of the pelvis and lower extremity during walking and running. Beneath it is the gluteus minimus. It also stabilizes the hip and the pelvis when stress is applied to the opposite hip. This muscle is used in hip abduction and is a primary muscle used for internal rotation, such as getting in and out of a car. But that was not all. I also experienced some numbness and tingling in my right thigh. That unsettling sensation would likely originate from the lumbar spine and involve possible irritation to the lateral cutaneous nerve to the thigh. These symptoms were easily confirmed by the pain I experienced in trying to stand from a sitting position, and subsequent few steps required

to stand upright. It also makes sense from a cycling standpoint when pushing and pulling on the pedals in a highly repetitive motion while bent down over the handle bars.

First, let's review a little about a charley horse. I'm sure most of you reading this article are personally familiar with the causes of this form of muscle cramp. A charley horse is simply a muscle spasm, generally in the legs, but can occur in other muscle groups as well. In my case, the muscles involved were knotted up to the point that I could feel the bulging lump of contracted muscles just by palpating around the pelvis and hip causing, you guessed it, more pain. My muscle spasms were particularly bad in the quadriceps and at times I could see the muscles twitching uncontrollably. Dehydration is a common cause of a charley horse because it is also associated with loss of electrolytes such as calcium, sodium, and potassium as is likely to occur when exercising in excessive heat. Overuse of the muscle, muscle fatigue or injury, and inadequate stretching, may also be involved. For many of us, muscle fatigue is just a normal consequence of working out, otherwise, what's the point?

Other causes of pain in the iliopsoas and hip muscles may be as a result of referred pain from ongoing hip pathology, such as degeneration of the cartilage in the joint. Pain and spasms to the lateral thigh and gluteus medius and minimus may also originate from ventral and dorsal nerve compression in the lumbar spine resulting from disc pathology or vertebral slippage such as spondylolisthesis. Clearly, the diagnosis is complicated. Except in the case of significant underlying pathology, it really didn't matter so much which specific muscles were involved; I had to do something about it because missing training too many days in a row is just too hard to recover from at my age.

This charley horse took much longer to resolve itself than I expected. They typically may last from a few minutes to a day or so. Mine took more than a week to completely resolve itself. Some of you may say, that the long recovery time may just be related to my seven decades of life. Others may say that it was related to the exercise routine I used in getting back in action too soon. So I'll share with you the "at home" therapy that I employed to find a path to recovery without missing too many workouts.

The most important thing on my mind was to practice good "home medicine." I wanted to get a

good balance of rest and just enough exercise to stretch out, but not exhaust the muscles involved; it was hard enough to just walk during the first few days and sleeping was equally uncomfortable.

On the day of the injury, I was oblivious to any problems. I had my bike ride and thought I did all the right things to stay hydrated and replace spent electrolytes. On the first day after my ride, it was clear that something was significantly wrong. Any form of exercise was out of the question. Given the symptoms I decided that ice was the first reasonable treatment. Twenty minutes on, 20 minutes off throughout the day and evening seemed to help intermittently. If you have never used a Styrofoam cylinder or a lacrosse ball to roll out crampy muscles, this might be something to consider. I tried the lacrosse ball but the pinpoint pressure applied by the ball was too much to bear. Using the Styrofoam cylinder was perfect. Gradually, the crampy muscles relaxed. I laid face down to maximize the pressure and could feel the knotted muscle bulge relax as the roller repeatedly passed over it. The roller became part of my routine through the first four days. I also self-medicated with OTC Ibuprofen to take the edge off and reduce the inflammation. Standing and walking were still very painful.

My day two regimen was a bit different. While it felt like the pain level was about the same, there was a glimmer of hope. I broke out the heating pad and it followed me around like a spoiled puppy. I alternatively applied ice and heat, approximately 20 on and 20 off throughout the day, augmented by a similar use of Ibuprofen. By evening, the pain started to subside. I thought that if the morning was somewhat better it was time to exercise in a way that would not overly stress and inflame the muscles. So, on day three I was off to the pool for an easy 1600m swim. I used a pull buoy for at least half of the swim, then into the spa for about 10 minutes. At least for a little while, the spasms were nearly gone after my workout, but gradually returned as the day wore on. Day four was rest with applications of ice, heat, and Ibuprofen at bed time. Things were definitely getting better. I could walk with reduced discomfort and I was also able to stand upright after three or so steps forward and gradually stretching the iliopsoas muscles. By the morning of day five I knew that full recovery was near so I was off to the pool intent on extending my swim to 2000m. I again swam both with and without my pull buoy followed by a nice soak in the hot whirlpool spa. I continued to

use the Styrofoam roller throughout the day and by now the pain was almost gone, but not quite normal. Day six was another rest day, inserted so that I didn't overdo the exercise. By now all the therapeutic interventions were complete. On day seven I felt good enough to get back on my bike for a 27-mile ride with 1200 feet of elevation. My pace wasn't bad and I felt good afterwards. Things were pretty much back to normal.

My full recovery took just over a week. The combination of consistent and diligent home care and intermittent light exercise was, for me, a perfect way to balance my rehabilitation without dramatically compromising my training routine. It worked. Perhaps my recovery might have been a little faster without exercise. But I believe that the exercise helped produce a better and much more active recovery by gently stretching the muscles and adding some hydrotherapy. Who doesn't like to sit in a hot tub for a while with those water jets directed at the sore muscles?

If I'm unfortunate to meet Mr. Horse again, I'll try using a similar regimen. As the saying goes, "If it ain't broke, don't fix it." Now, it's back to the gym for another workout. Life is good.

A postscript from our resident sports trivia historian, Dr. Paul Kiell, reminds us of the derivation of charley horse as told to him by late AMAA member Peter Jokl, MD. Charley the Horse worked at Yankee Stadium in the 1920s pulling the screen to smooth the infield dirt [Chicago, in the 1880s, is also found among the many legends]. When he got old, he looked all bent over as he slowly pulled his screen around the infield. Later, when someone on the team was injured and bent over with a sore back and muscle spasms, his teammates would say, "You look like Charley the Horse."

Dr. Douglas Munch is a medical consultant and longtime competitive athlete in track and swimming. Munch is editor of Endurance and Sports Medicine's "Talking about Training" column. He received his doctorate in medicine and biomedical engineering from the Johns Hopkins University School of Medicine in Baltimore, Maryland.

When someone on the team was injured and bent over with a sore back and muscle spasms, his teammates would say, "You look like Charley the Horse."

The Million Athlete Project

The International Institute for Race Medicine is proud to support the research of Executive Board Member Martin Schwellnus, MD, Professor and Director of the Sport, Exercise Medicine and Lifestyle Institute at the University of Pretoria in Gauteng, South Africa. He recently submitted an application to the International Olympic Committee (IOC) to receive support and funding through their IOC Medical and Scientific Research Fund for the protection of athletes' health.

The purpose of the research includes four components. Its first aim is to determine the incidence of, and risk factors for, medical complications that may occur in athletes, specifically those participating in endurance sporting events. The risk factors to be investigated include intrinsic (age, gender, body composition, training parameters, race experience, past and current medical history, medication use, pre-race acute illness, psychological traits, and genetic factors) and extrinsic risk factors (including route characteristics, equipment, and environmental conditions).

Secondly, the research will determine the incidence of, and risk factors for, injuries that may occur in athletes, specifically those participating in endurance events. Risk factors will include intrinsic and extrinsic risk factors. Thirdly, the researchers will aim to determine if a pre-event screening and educational intervention program reduces the risk of acute medical complications in athletes participating in sports events, mainly endurance events. Lastly, the purpose is to determine if a pre-event screening and educational intervention program reduces the risk of injuries in endurance athletes participating in sports events,

This study will have both a retrospective (records reviewed from 2008-2017) and a prospective (2018-2027) component. The retrospective component will take the form of a clinical audit and will be conducted in collaboration with mass participation events where race medical directors and event organizers have comprehensive data of race participants (demographics, race entry information, race starters, race finishers, finishing times), race medical care data (participants that accessed medical care at events, details of the diagnosis and management of medical complications and injuries),



and race day environmental data (temperature (start and end of the race), relative humidity, WBGT index, mean altitude).

To collect data prospectively, pre-designated participating events will require that entrants complete a web-based pre-event medical screening, undergo risk stratification, and participate in a web-based educational intervention as part of the compulsory components of race entries. The research group will work with numerous sports events organizers, clubs, medical teams at events, and others at international endurance sports events to involve athletes worldwide.

The motivation for this research came from an initial series of studies undertaken by Professor Schwellnus and his colleagues between 2008 and 2011 (SAFER studies I-III), which exposed a relatively high rate of medical complications in a group of 65,865 runners participating in 21.1km and 56km races over the period under investigation. Following development and implementation of their web-based platform to do pre-event screening and dissemination of targeted education at the Two Oceans Marathon races in Cape Town, South Africa, from 2012 to 2015, the research team saw significant reduction in the incidence of medical complications in all runners (19% for 21.1km and 39% for 56km). More importantly, serious/life-threatening medical complications were reduced by 64%. Professor Schwellnus received the 2017 ACSM International Clinical Scholar Award for this work.

If you are interested in learning more about the Million Athlete Project and/or would like to get involved with this research project, please write to membership@racemedicine.org.

Lookin' Good: A Former Runner Embraces Swimming

By Paul J. Kiell, MD

This article is dedicated to slowing and aging swimmers and injured runners seeking the refuge of swimming.

I was once a runner, an endurance athlete completing marathons. Like most runners (and swimmers) I was passionate about my sport and constantly feared the possibility that something might happen to permanently derail my ability to run. Such a fear is not uncommon among runners as we often seem to be running and racing in between injuries. Injury is a frequent companion and permanent injury, an utmost dread.

That greatest fear, the one of permanent injury, materialized for me. I had to stop running and it was not due to a common running injury such as knee trouble. Instead, I learned I had an inborn tendency to clotting in the veins; running was no longer advised. Luckily I had swimming to turn to. So, I am writing now to suggest to runners, particularly those who are injured, that swimming can be a viable alternative to pounding the pavement.

I know your reluctance. You have to travel somewhere, park your car, change clothes, etc.,

whereas in running you merely have to don your running attire, open your front door, and you're all set. Swimming also seems to be less efficient in terms of time. Most critically, it is not a "natural" sport. While running feels natural, for most, swimming is unnatural. In fact, just about every proper move you make in swimming is counterintuitive while every intuitive move you make happens to be improper. It's infinitely harder to learn and seemingly inefficient in terms of both time and effort.

Overcoming that seeming difference in efficiency is the key to swimming. As for endurance in swimming, it's all about that British expression from *Chariots of Fire*: "Economy of Effort." Learning technique equals economy of effort which, in turn, generates swim endurance and stamina. Swimming short distances (25-50 yards intervals) with good technique is one excellent way to train.

"Chariots" was a movie about running. In it there was an issue of running mechanics. Abrahams is told by his coach to lift his knees to shorten his stride to, thereby, get one more foot plant and push off in the 100m run. But this attention to mechanics or



technique in running is not the norm. In swimming, however, learning proper mechanics becomes just about everything for success in the water.

Something came together in my mind recently. Nearing the end of a long swim workout, swimming laps of "junk yards" characterized by fatigue, collapsing rhythm, and faltering technique, my thoughts turned to my old marathon running days. I recalled the times where I was schlepping along with a wavering stride, running mechanics askew and my rhythm collapsing. Bystanders along the route would try and encourage my staggering frame and psyche with shouts of "lookin' good!" Obviously I looked anything but good yet the people meant well. I'd smile back and acknowledge their support with a weak hand wave.

As I was schlepping along in the pool, struggling with those junk yards, I must have looked something analogous to the way some of us might look toward the end of a marathon. Slowing down in performance times is inevitable, particularly with the aging process. But slowing in swimming can be somewhat managed with attention to mechanics. Swimming at its best is musical. It has rhythm and beat. Learning strokes is like learning the notes and the scales. And once you learn those notes and scales you then must put it all together to play the music.

To carry the metaphor from the music world further, talented musicians, even professional musicians, still have teachers. Similarly, swimmers at all stages should still have coaches to watch and continually monitor technique while making fine adjustments along the way. Therefore, if I have tempted you to try out the pool or if you already are a seasoned swimmer, my next recommendation is for you to find a qualified coach to refine your swimming technique. It never hurts to get those extra pointers.

In the jazz world, Louis Armstrong once said, "If it sounds good, it is good." For aging master's swimmers (and runners), I say, "If it looks good, it is good."

Aging, with its accompanying slower performances that accompany the inexorable passing of time, means little. You can compensate for your slowdown if you obey a few rules that apply to music and to life—if you master the notes (strokes), if you master the rhythm and the timing, if you learn economy of effort while relaxing and enjoying, then that's the whole story. Then you will not only be lookin' good, you will also be doing good.

Psychiatrist Dr. Paul Kiell, a former marathoner and now active master's swimmer, has written extensively on both running and swimming. Among his books are "Exercise and the Mind: The Possibilities for Mind-Body-Spirit Unity" (2010) and "American Miler: The life and Times of Glenn Cunningham" (2006).

Slowing down in performance times is inevitable, particularly with the aging process. But slowing in swimming can be somewhat managed with attention to mechanics.

CALL FOR PAPERS

Endurance and Sports Medicine

Endurance and Sports Medicine is currently accepting original papers focusing on the broad range of sports medicine issues generally related to endurance sports on and off the race course. The journal has two primary goals when selecting papers for publication: 1) to provide insight and education for physicians and other health care professionals who volunteer at endurance events, and 2) to speak directly to those in the sports medicine community who are conducting research, teaching, providing patient care in a clinical or advisory setting, or striving to encourage healthier lifestyles for patients and themselves. To ensure quality, submitted manuscripts are subject to review and jury processes.

General Submission Guidelines for All Categories

Manuscripts with the clearest relevance to *Endurance and Sports Medicine* will be given the highest priority. Publishable topics include, but may not be limited to, management of medical care at endurance events and issues of general interest related to training, nutrition, psychology, and other acute and chronic sports medicine matters (i.e. prevention, injury, diagnosis, treatment, monitoring, and recovery).

If charts, figures or illustrations are excerpted from another publication, permission for use must be included (these files should be attached separately from the Word document). The authors' full names, degrees, and professional affiliations should be included, as well as contact information.

Citations: References should be cited in numerical order in parenthesis in the text and listed in the same order at the end of the text. It is requested that authors follow the format shown in the "National Library of Medicine's Citation Manual" (viewed by following the links below). Journal title abbreviations should be written in accordance with the PubMed Journal Database.

- medlib.bu.edu/facts/faq2.php/content.php?faq=citationsnlm
- www.ncbi.nlm.nih.gov/books/NBK7256

Research Articles

Research articles are manuscripts that present and discuss original (not confirmatory) research with a clear application to *Endurance and Sports Medicine*

as broadly outlined in the first paragraph. Studies must describe hypothesis testing, not hypothesis generation; provide robust statistics; and must be important and interesting to our readership.

Format Guidelines: The format for submission includes an abstract (up to 250 words), introduction, methods, results and discussion, conclusion, and reference sections. Acknowledgements such as sources of funding and other disclosures will be footnoted at the bottom of the first page. Word count for manuscripts is 2,500 to 5,000 words, exclusive of tables, figure legends, and references.

Talking About Training

These articles discuss all subjects related to contemporary training issues ranging from training philosophies and methodologies, sports psychology, physiology of exercise, nutrition, kinesiology, and training tools while incorporating concepts of life-long fitness and wellness for a broad range of sport. Word count is up to 2,000 words, exclusive of tables, figure legends, and references.

Format Guidelines: Manuscript format is flexible and should be appropriate to the subject and style of the author.

Experience Tells Us

Educational articles should be based on personal race-day, clinical, or training experience related to the subject matter of the journal. Word count is up to 2,000 words, exclusive of tables, figure legends, and references.

Submission Deadlines

- Fall/Winter Issue: August 1
- Spring Issue: January 1
- Summer Issue: May 1

Manuscript Submission

Talking About Training/Experience Tells Us:

Douglas Munch, PhD; dfmunch@aol.com

Research:

Fed Miller, III, PhD; fmiller@huntington.edu

If you have general questions or comments regarding the journal, please contact Barbara Baldwin, MPH, at bbaldwin@racemedicine.org.

PREMIER MEMBERS

The heart of any association is its members, as they help to fulfill its mission with their support and collective voice. The American Medical Athletic Association (AMAA) has evolved to become part of a new organization and its heart is still beating strong within the International Institute for Race Medicine. As we move forward, we look forward to collaborating closely with our members to promote standards of care at endurance events and to continue educating runners.

As did the AMAA, we would like to recognize and thank those members who contributed to the organization beyond their annual dues by participating in the Premier Membership program. Your generous support enabled the ARA/AMAA to motivate thousands of youth to be active through the "National Run A Mile Days" program.

The Premier Membership program is currently on hold as we review and organize our fundraising platform. The list below reflects membership donations received from June 1, 2016 to June 1, 2017.

OLYMPIAN (\$250)

Mary C. Boyce
Julius S. Brecht
Charles (Scott) Clark
Harry Daniell
Ronald Dubin
Edmond G. Feuille, Jr.
Cathy Fieseler *±
Wade Gaasch
Scott Glickman
Fawwaz Hamati
Jeffrey Hawkins
Patrick J. Hogan, III
John Howick
Timothy Lepore
Francene Mason
John McAuliffe
Steve Morrow *±
Terry Murphy
Peter Oroszlan
Daniel Pereles
Richard Prokesch
Robert Sanders
Charles L. Schulman

ROBERT SHOLL

Robert Sholl
Michael Solinger
Philip Zitello
Steven Wynder

PATRON (\$150)

Larry Boies, Jr.
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Susan Harding Hawkins
Tristram C. Kruger
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Jim Skibo

SUPPORTER (\$100)

Sal Barbera
Matthew Barnes
Christianne Bishop
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David Cooper
James Culpepper
Michael DeMauro

MICHAEL S. DOYLE

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John Geren
John W. Gilpin
Bernard Gitler
Jeff Godin
Lisa Griffin
Arnold Greene
Steven Grufferman
Kevin R. Haley
Michael Hamrock
Beverly Handy
Dexter Handy
David Jack
C. Douglas Johnstone
Allan Katz
Brian Y. Kim
Andrew King
J. Mark Lawson
Robert B. Lee
Frank Massari, Jr.
Ronald H. Miller
Robert P. Nirschl
Floyd Okada ±
Mark Rubenstein
Bill Snyder
Ralph Sulser
Greg Thorgaard
J. Michael Ward
Clay Whiting
Valerie Zughabib
Bruce R. Worley



Life Member Dr. Steve Morrow has contributed as an Olympian Member since the Premier program began in 2008.



Dr. Scott Clark (right), a regular contributor as an Olympian Member, sits with long-time member and former board member S. Mark Courtney following his Boston Marathon finish (as some of you may know, Mark typically gets chills following his marathon finishes).

* Contributions surpass Olympian level

± Life Member making contribution at the level of Premier Member



Dr. Pat Hogan has hosted numerous "Run A Mile Days" events and regularly contributed as an Olympian Member.

Grants Being Awarded to Eligible Races

The International Institute for Race Medicine (IIRM) and the Matthew Good Foundation are providing up to 100 grants to enable racing events worldwide to receive a complimentary event membership with the IIRM for one year.

What events are eligible for the grant?

park runs • 5K • 10K • half marathons • full marathons • triathlons • trail races • bike races • swimming events • ultra-events • obstacle course events • charity walks

What do grant recipients receive?

- One-year membership with the IIRM, plus the option to renew the membership at a discounted rate the following year
- Unlimited access to the password-protected materials on the IIRM website for all event medical volunteers, public safety personnel, and hospitals
- Access to the IIRM's comprehensive medical manual
- Multiple educational videos on topics relevant to race medicine
- Proven medical protocols documented by experts in the field

- Networking with other medical professionals who manage medical care at races
- Quarterly e-newsletters

How do events apply for the grant?

Send a paragraph outlining your event's history, what type of medical care you have previously offered, and all requested contact information (shown below) to Barbara Baldwin, MPH, at bbaldwin@racemedicine.org. All applicants who have been awarded the grant will receive a confirmation and an event code to join the IIRM within 10 days of receipt.

- Event name, race date, and website address
- Name and contact information for the Event Director
- Name and contact information for the Medical Director/Coordinator
- Field size
- Event type

The IIRM Requests Your Involvement

The Executive Board of the International Institute for Race Medicine has formed committees to facilitate action in key areas focused on growth of the organization and educational outreach to runners and medical care providers of endurance races. If you are interested in participating in or receiving more information about any of the following committees, please write to membership@racemedicine.org. We welcome your participation and feedback!

- Continuing Education Meetings
- Journal
- Online Education
- Marketing
- Research