

IN THIS EDITION
Inspiring Stories about
Athletes and Blood Clots

The National Alliance for Thrombosis and Thrombophilia

NATT

Fall 2006

www.nattinfo.org

Mike is a fit, soon-to-be 45-year old and a ranked triathlete. He is driven by the passion for competition and physical achievement—training every day, watching his diet and being totally in tune with his body. After being casted for stress fractures for a couple of weeks “to keep him off his feet,” he is ready to train again. He develops some pain, redness, and swelling in his calf, and Mike thinks it will go away. **NOTHING WILL KEEP HIM DOWN!** Not until the fateful day soon before Christmas as he is helping with the decorations. He can't catch his breath. Must be the flu, right? **WRONG!** Ironman has developed a pulmonary embolism, PE, or a blood clot in the lungs. The recurring leg pain that Mike experienced was a massive deep vein thrombosis (DVT), a blood clot in the deep veins of the leg. The leg pain was a signal that Mike was at serious risk for the eventual PE he suffered.

Not everyone is as lucky as Mike, who survived his PE. His story is just one of hundreds or thousands of stories of Athletes and Blood Clots, the theme of this NATT Newsletter.

Physical fitness eliminates many of the risk factors that often lead to blood clots, such as, obesity, cardiovascular disease, sedentary lifestyle, poor diet, etc. However, as you see from Mike's story above, athletes are not immune to the risks and ravages of blood clots.

Remember, whether you are an athlete, or a couch potato, awareness of blood clots—their causes, their symptoms, and their treatment—is your best weapon for prevention.

Mark Jablonski,
President

Blood clots can't stop them... not even contain them!

By: Roland Varga, *aka "The Clot Buster"*

During this summer, “The Clot Buster” had the opportunity to race around 3 different states and well over 255.5 miles. But more importantly, I had the opportunity to spread the word about NATT.

I also had the pleasure during my three-state race to meet people who had been affected with blood clots. The positive attitude and strong resolve of these people deeply moved me because they had not let their clotting experiences defeat their lust for life.

I wish that I could meet everyone who, despite having blood clotting issues, remains active and continues to pursue their dreams. I truly enjoy learning about their love for cycling and how much they crave to return to the sport of bike racing. Here are a few folks I have met along the way that you should read about:



Brendan Rogers

As a cycling fan and a collegiate cyclist, Brendan has a lot of professional riders that he looks up to and that inspire him. One might think that as an American he would admire the seven-time Tour de France Champion you-know-who or the most recent American “under suspicion” yellow jersey wearer.

But Brendan admires someone with a different set of attributes that resemble more his own style of riding and outlook in life...Alexandre Vinokourov. Vinokourov is without a question the most relentless bike rider in the professional peloton. If you are a fan of cycling, you probably heard of him and his aggressive style of bike racing that can put a lot of people in difficulty and win him races regardless of the terrain and the competitors.

Perhaps Vinokourov's relentless “I am not giving up” attitude is what Brendan appreciates - especially after his encounter with blood clots that occurred shortly after his first full racing season as a member on the University of Connecticut Cycling Team. Brendan, a Molecular and Cell Biology student, suffered massive clots in both of his legs.

The medical condition required intense treatment and knocked him off his bike for the entire month of July. But thanks to the treatment, and his Vinokourov-like attitude, Brendan was spinning his legs and his wheels again less than two months after his clotting incident. Brendan is back working in the bike shop, wearing compression hose (his fellow mechanics also wore some in support) getting them all greased up just like

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Stephan Moll, MD University of North Carolina, Chapel Hill, NC
Edward Libby, MD University of New Mexico, Albuquerque, NM
William Roberts, MD University of Minnesota Medical School, Minneapolis, MN

The diagnosis of deep vein thrombosis (DVT) or pulmonary embolism (PE) in athletes, who exhibit classic symptoms (table 1), may be delayed or even missed because such medical problems are often not considered by health care providers or by the affected athlete. No studies have been done to determine whether athletes are at a higher, the same, or lower risk for developing blood clots than non-athletes. Blood clots are uncommon in young, healthy individuals – and most athletes are young and healthy. So, for that reason, DVT, PE, and arterial clots in athletes are not the norm.

Many people think of blood clots as a problem occurring in elderly people, but not in young and apparently healthy individuals. Symptoms may, therefore, be misinterpreted

Table 1: Symptoms of DVT and PE

A. Deep vein thrombosis

- Swelling of leg or arm
- Pain of leg or arm
- Warmth of leg or arm
- Bluish, purplish, or reddish discoloration of leg or arm

B. Pulmonary embolism

- Shortness of breath
- Chest pain (worse on deep inspiration)
- Cough
- Bloody phlegm
- Sudden death

as something less serious. The leg symptoms from DVT are often interpreted as “muscle tear,” a “Charley horse,” a “twisted ankle,” or shin splints, while the chest symptoms from PE are attributed to a pulled muscle, costochondritis (inflammation of the joint between ribs and breast bone), bronchitis, or a “touch of pneumonia.”

To understand the problematic issues facing an athlete and the attending caregiver it is important to first understand the condition terminology. Our body is composed of an endless tunnel of arteries and veins through which blood flows throughout the body. Arteries are the blood vessels through which the blood flows from the heart into the periphery: the brain, the internal organs, the legs, and the arms. A clot in an artery leads to stroke, heart attack, or limb threatening peripheral arterial clot causing a painful, cold, and pale extremity. Veins are the vessels through which blood is carried back to the heart. A clot in the deep veins of legs, arms, pelvis, abdomen, or around the brain is called a deep vein thrombosis (DVT). If a piece of clot breaks off from a leg or arm DVT it can travel into the lung causing a life threatening condition known as a pulmonary embolism (PE).

Athlete-Specific Risk Factors for Clots

Being apparently healthy and being an athlete does not prevent a person from developing blood clots. Several circumstances put the athlete, as well as the non-athlete, at increased risk for DVT and PE (table 2). Athletes, coaches and trainers should be particularly aware of these risk factors. Blood clots can occur when:

- there is a disparity between the two systems that balance the clotting process in our blood; either (A) too much activity of the proteins and blood platelets that form clots (the procoagulant system), or (B) too little activity of the system that dissolves blood clots as they form (the fibrinolytic system);
- there is trauma to the blood vessel wall, as may occur after a bone fracture or in thoracic outlet obstruction (see discussion below);
- blood return from the extremities to the heart is impaired, such as when sitting with bent legs in cramped positions for a prolonged period of time;
- the blood is “thicker” than usual, as occurs when an athlete is dehydrated, using the drug erythropoietin (EPO), or has received excessive blood transfusions (blood doping).

Unfortunately, there are few studies investigating the influence that physical training has on blood clot formation and dissolution. So, the exact net effect of training on this equilibrium is unknown. It is known, for example, that blood levels of the clotting protein “factor VIII” increase with exercise and that the elevation persists during recovery. Theoretically, this could lead to an increased risk of blood clots in athletes. However, data also indicate that the fibrinolytic system that dissolves blood clots is overactive in people who exercise. With this overactivity present, the athlete would be protected from having a blood clot. Yet, the net effect of these changes in the athlete

Table 2: Risk factors for DVT and PE (with focus on the healthy athlete)

- Traveling long distances to and from a sports competition (by plane, bus, or car);
- Dehydration (during and after a strenuous sporting event);
- Significant trauma;
- Immobilization (brace or cast);
- Bone fracture or major surgery;
- Birth control pills and patch, pregnancy, hormone replacement therapy;
- Family history of DVT or PE;
- Presence of an inherited or acquired clotting disorder (factor V Leiden, prothrombin 20210 mutation, antiphospholipid antibodies, and others);
- Presence of a congenital abnormality of the anatomy of the veins;
- May-Thurner syndrome (narrowing of the major left pelvic vein);
- Narrowing or absence of the inferior vena cava (the main vein in the abdomen);
- Cervical rib causing thoracic outlet obstruction.

is not known. A detailed scientific discussion of the coagulation issues relevant to exercise and training can be found in a recently published review (reference 1). However, the conclusions are sparse and vague, because of a lack of data and conflicting results from different studies.

Risk Factors for DVT and PE in Athletes

The most common clots occurring in athletes are DVT of the leg and PE. Factors that increase the risk for an athlete, as well as the non-athlete, are listed in table 2. A few unique risk factors predisposing the young and the athlete to DVT and PE are:

Thoracic Outlet Obstruction

In some individuals an extra (cervical) rib or excess muscle or tendon tissue compress the big vein in the upper chest (subclavian vein) that drains the blood from the arm. This compression typically gets worse when the arm is lifted up. This obstruction, often combined with repeated trauma to the vein (due to throwing activities or gymnastics maneuvers), may cause a DVT to form in this area, extending into the arm veins. This is termed “effort thrombosis” or “thoracic outlet obstruction/syndrome.” If the DVT resolves, such as after clot buster treatment, resection of the extra rib or the

excess tissue may be indicated to increase space in the thoracic outlet.

May-Thurner Syndrome

This is a common congenital anatomic variation that predisposes to DVT in the left leg, because the main left pelvic vein is compressed by the overlying main right pelvic artery. This increases the risk of clot formation at the site of this narrowing in the left pelvis with extension of clot down into the left leg. If the DVT resolves, such as after clot buster (thrombolytic) treatment, the narrowing can be opened up by a radiologist with a balloon angioplasty and then kept open by placing a stent.

Congenital Absence or Malformation of the Vena Cava

Congenital abnormalities of the anatomy of the big vein in the abdomen (vena cava) or pelvic veins can be a cause of DVT in young people. The abnormal anatomy probably leads to disturbed blood flow and an increased risk of clotting.

Treatment decisions for people affected with blood clots must be individualized. This is particularly true for young, apparently healthy individuals, such as athletes. In the case of unexplained DVT, testing for an inherited or acquired clotting disorder may be appropriate. When first diagnosed with the DVT, clot buster medication

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Cedric Bills' Story

Editor's Note: Cedric Bills relates an inspiring story of a person in the peak of physical condition suddenly being stricken with a life-threatening health issue. Below is Cedric's account, in his own words, of his battle to regain normalcy.

As an U.S. Army Master Fitness Trainer, I was used to physically challenging my body. So it was not unusual, when in August of 2002 I shrugged off a sharp pain in the calf of my leg – a pain that had jolted me from a restful morning sleep. “What is it,” I thought, and quickly determined that I had a muscle sprain. Shortly thereafter, I went about my business without any concern.

But as the days passed, the pain worsened despite my efforts – such as massaging. A noticeable shortness of breath soon started a few days after the onset of the leg pain. Yet, I continued my work routine. But on the fifth day since my initial calf pain, a most alarming thing occurred – my leg started to swell!

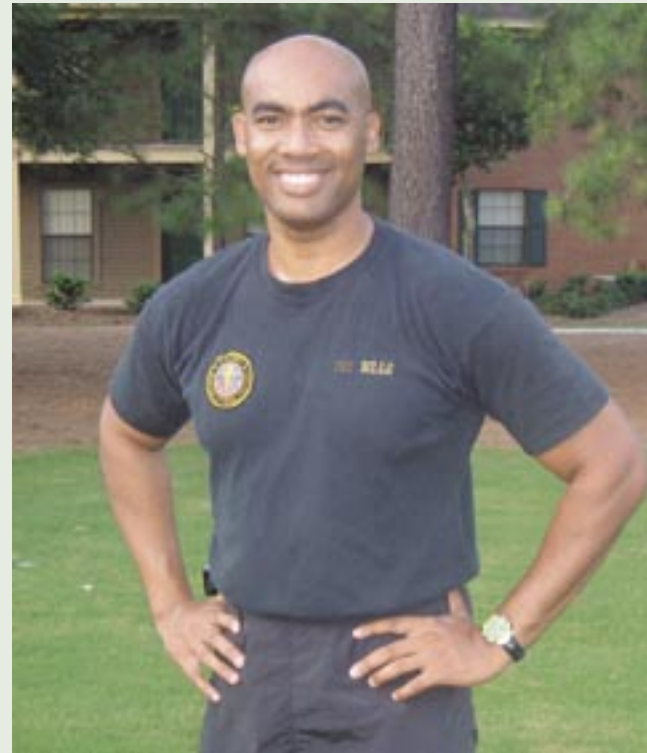
Finally, I went to an emergency room where doctors found that I was suffering from a DVT (deep vein thrombosis) and a bilateral PE (pulmonary embolism). I was successfully treated for the clotting issues and I began to restart what I thought would be a normal life.

Unfortunately, a normal life was not something that was going to follow because since that day in August of 2002 I have had repeated episodes of DVT's and PE's. My most frightening occurrence happened in February of 2005 while I was stationed in Hawaii. That incident produced a very life-threatening clotting situation and I was laid up in a hospital bed for three weeks. What surprised me then, after leaving the hospital, was how long it took me to learn how to walk properly again.

If you don't know, blood clots are very painful and this one had affected my entire leg, even extending into my vena cava valve that leads towards the heart. It seemed like my body was out of control. Doctors had inserted a filter in my vein to catch clots and prevent them from traveling to my lungs. Despite their efforts, I still managed to get clots in both lungs. Medication eased what was a critical life-threatening situation. Meanwhile, my military career was in shambles.

In March, I was medically retired from the Army, receiving a 70 percent disability rating. I never saw my career ending this way – especially since I had trained entire units of soldiers (and individuals) with physical fitness programs to get and keep them in shape. I had never been seriously ill and I was way too young to have medical problems. Besides, I WAS a Master Fitness Trainer!

Physically, my body was suffering as each episode created more damage to veins in the legs – causing a condition known as post phlebotic syndrome. In addition to the filter in my chest, I now



wear a compression stocking on my affected leg every day and a permanent handicap sticker now adorns my car.

The thing I learned as a personal trainer was to always train around injuries – most importantly was to keep moving as much as possible so that good health is maintained. I do that today – walking everyday for 30 minutes and weight training at least three times a week.

What I didn't realize before all this happened was that clotting disorders are not age discriminating and they don't just affect those in poor physical condition. Having had three DVT's and multiple PE's, my life has changed completely. At age 41, I'm not done living an active life while taking my daily Coumadin and watching my diet.

I wonder how things would have been if I had only known the warning signs of this silent killer. I was very lucky. Many others are not. Remember, the best cure for this condition is prevention and knowledge of the warning signs. Seek medical attention immediately.

For me, I'd much rather be running again, playing softball, and playing with my children. But I am lucky and alive.

Athletes and Blood Clots *Continued from page 3*

(fibrinolytic or thrombolytic therapy) should be considered to quickly dissolve the clot. However, clot buster treatment has not been systematically studied to determine whether it really decreases the risk for long-term damage to the veins of the leg and arm, i.e. the postthrombotic syndrome.

Athlete-Specific Challenges and Questions

Most often, an active individual – be it an athlete or one who remains physically fit through routine training and exercise – is suddenly stymied by the affects of his/her clotting incident. Questions, lots of questions, are poised to the care-giver. Of paramount importance for the athlete are particularly the two following issues

a) Can I continue my sport while on warfarin?

A solid medical assessment should be made whether the person who has had a blood clot can come off warfarin or should remain on it. Being on warfarin increases the risk for bleeding. Therefore, contact sports and sports with a risk for serious injury, such as football, hockey, basketball, soccer, gymnastics, alpine skiing, or boxing should not be pursued by a person on warfarin. However, athletes such as runners, bicyclists or triathletes may be able to continue their sport, but they should adapt their activities to avoid trauma that might put them at risk for bleeding (avoid situations leading to bicycle crashes, etc.).

Individual blood thinning treatment plans can also be designed, such as (a) a decrease in warfarin dosage a few days prior to athletic events that would otherwise put the person at increased risk for bleeding, (b) switching the athlete who should be on long-term blood thinners to low molecular weight heparin shots during the athletic season and interrupting the shots for competitions that pose a risk for bleeding, (c) stopping blood thinners during the season and accepting a higher risk for blood clots during that time, but restarting warfarin during the off season. Finally, an athlete may decide to switch from a high risk bleeding competitive sport to one with a lower risk. Obviously, these are all very individual treatment decisions that should be thoroughly discussed between the patient's personal physician, the patient, and the team physician (if the patient is participating in a team sport)

b) How soon after a DVT or PE can I go back to training?

Patients with a DVT may have significant extremity swelling and pain which may improve only slowly over weeks and months. Some residual symptoms may persist long-term, this is termed “postthrombotic syndrome.” It appears that being highly active one month after a DVT is not detrimental; it may, actually be beneficial and lead to less symptoms of postthrombotic syndrome (reference 2). This can be used as an argument to encourage individuals to return to physical activity relatively soon after a DVT. Also, wearing individually fitted compression stockings decreases the long-term risk for postthrombotic syndrome.

No official guidelines exist as to when and how quickly an athlete might return to exercising. Each patient will need an individualized exercise plan (an example is described in reference 3).

It seems appropriate to refrain from any athletic activities for the first 10-14 after an acute DVT or PE until the clot is more adherent to the blood vessel wall and the risk of having the clot break loose (causing a PE) has decreased. To lessen deconditioning during this period of relative inactivity, the athlete may do some strength training – arm and trunk exercises in the case of a leg DVT, leg and trunk exercises in the case of an arm DVT. The athlete may then increase activity between week 2 and 4 and return to pre-clot activity levels by week 4.

Psychosocial Implications

Athletes need to appreciate that significant deconditioning can occur after a DVT or PE. Depression can also set in after such a life-changing event. This is not surprising, given that athletes often view themselves as healthy and, from a health point of view, invincible, and now suddenly realize that they are vulnerable, sick, and sometimes even disabled. Patient support groups may be helpful in this situation, as may antidepressants.

How to minimize the risk for clots

Measures that the athlete and, for that matter, the non-athlete should take to minimize the risk for DVT or PE are listed in table 3. For the athlete the most important ones are probably to (a) avoid dehydration, and (b) take breaks when traveling long distances. ●

Selected References

El-Sayed MS et al: Exercise and training effects on blood haemostasis in health and disease: an update. Sports Med 2004;34(3):181-200.

Shrier I, Kahn SR: Effect of physical activity after recent deep venous thrombosis: a cohort study. Medicine and Science in Sports and Exercise 2005;37: 630-634.

Roberts WO, Christie DM: Return to training and competition after deep venous calf thrombosis. Medicine and Science in Sports and Exercise 1992;24:2-5.

Table 3: How to Prevent Blood Clots

- Take breaks and stretch legs when traveling long distances;
- Stay well hydrated (during and after a strenuous sporting event and travel);
- Know the symptoms of DVT and PE and seek early medical attention if they occur;
- Realize that DVT and PE can occur in the athlete;
- Know the risk factors for blood clots (see table 1);
- Know whether you have a family history of blood clots;
- In case of major surgery, trauma, prolonged immobility, or when in a cast: ask your doctor whether you should receive DVT prophylaxis and, if yes, for how long.

Jeanne Krull's Story



I was logging more than 100 miles on my bicycle in any given week. So, at 46 years of age, it was not surprising that from time to time my legs ached.

Why wouldn't they?

And that was exactly what I told my family physician when she warned me that my leg pain could be a symptom of a blood clot as a result of taking a third generation birth control pill. Interestingly, her warning was one I had never received from my gynecologist - the same doctor who insisted that I stay on the pill for many, many years.

Even so, my family physician's warning was but a faded memory when one year later (September of 2004), I experienced severe pain in my left calf. My response was to use a heating pad, do some stretches, and take plenty ibuprofen because I was in training, preparing for an October bike trip.

It was while riding up a steep hill during that trip that my biking friend asked how my leg felt and I said, "it's the funniest thing, the leg feels fine, but now I am having trouble breathing. My luck it was a clot that went to my lungs," and I laughed!

After returning home, I went to the doctor because I was still having shortness of breath. However, it would be another six weeks before I was actually diagnosed with having a DVT and also suffering from multiple pulmonary emboli.

Why so long? Well, I had failed to mention to any of my physicians that I was experiencing leg pain. Because of that omission, doctors tested me for everything - from exercise induced asthma to a bad gall bladder. Eventually, one of the

clots fractured in my pleura, causing pleurisy. Shortly after the pleurisy diagnosis, I was given a Doppler scan of my legs. Doctors discovered a very large deep vein thrombosis in my left popliteal vein. The fact that I had an auxiliary popliteal vein kept me from having more typical symptoms, other than the leg pain.

I was immediately admitted to the hospital and stayed for 10 days. My CT angiogram showed that my lungs were filled with small and large clots, even though my shortness of breath had actually gone away. A six month regimen on Coumadin® followed. Thankfully, genetic clotting disorder tests proved negative. The villain causing all this? My family physician believes the main culprit was the third generation birth control.

In looking back, I suspect that I had had a blood clot in my leg for a very long time. Six months earlier, my biking trip through Tuscany had provided symptoms when the slightest uphill climb left me inordinately out of breath. While I was somewhat concerned with the problem because I had trained for months prior to the trip, I continued on with my biking sojourn. Today, my doctors believe that my rigorous exercise regimen saved my life because my excellent cardiovascular conditioning had enabled my lungs to compensate for the large number of clots that were probably being constantly showered into my lungs over many, many months or even years.

Weeks after going off Coumadin®, I have said goodbye to my indoor bike trainer and headed back out onto the road. I have to tell you the first couple of rides were amazing because I could actually breathe. I now realize how compromised my breathing was - a condition that I had truly failed to realize. Now, with the wind at my back, I am thankful to be so alive.

Can't Stop Them! *Continued from page 1*

any other part of the bike mechanic outfit.

Over time, power has returned to Brendan's legs. Following the guidance of his coach, he is now back into racing with his UCO-NN team and recently he participated in a eight hour endurance mountain bike race where he finished in SECOND place overall! He has done well enough this season to qualify for the NCAA Collegiate National Mountain Bike Championship race in Angel Fire New Mexico. That is the BIG DANCE for Mountain Biking... GO BRENDAN!!!"

Cheryl Edwards

How far can you ride your bike? If we were to ask that question to Cheryl Edwards, she would respond with a huge smile and say "As far as I can!"

You have probably heard the saying "you can't stop her just hope to contain her." Well, the roads across this great country are the only thing that is containing her. Regardless of the weather conditions, terrain, and any other obstacle you may put in her way, she was not to be stopped this summer from riding her bike across the United States.

Along with her husband and 38 other bicycling enthusiasts, Cheryl participated in a supported tour that started in Seattle, Washington and ended several thousands of miles later in Washington, D.C. It was the adventure of a lifetime for this 53 year old "grandma" who has been cycling, swimming, and running all of her life.

I spoke to Cheryl as she rode along a 30 mile portion of her journey (the segment starting at Sandusky, OH). It was a typical summer Sunday morning with the humidity hovering around 150 percent! Nonetheless, the only complaint that you will hear from this constantly smiling grandmother was that the humidity was making her breathing difficult.

You see, a few years back, Cheryl suffered not one, but a couple of PE's that left her with damaged lungs. Now, she maintains a prevention regimen with daily blood thinners and constant monitoring. The prevention and monitoring program will be a life long regimen.

Learning to live under these circumstances only makes Cheryl want to get up in the morning and do more. During her ride across the U.S., she suffered a nasty crash that brought some difficulty to the ride and its logistical tour plans. But that incident NEVER STOPPED her from ticking over those pedals from the Pacific to the Atlantic.

Yes, she recognizes the risks and life changing obstacles she now faces following her life-threatening brush with blood clots. She is very aware that with some adjustments life remains ahead for her to continue riding, smiling, and creating awareness about blood clots and blood clotting disorders. ●



UPDATES FROM THE EDUCATION COMMITTEE

By: Elizabeth Varga, MS, CGC

Strategic Planning--these two words accurately summarize the activities of the Education Committee over the past quarter. We have been actively reflecting on what we do well, how we can improve, and how we can expand our educational mission.

In a sense, our successes have created the need for this reflection. We recently received funding from **GlaxoSmithKline (GSK), Talecris Biotherapeutics, and the Centers for Disease Control and Prevention** to support the upgrade of our website, for the printing and distribution of our brochures, and support for expenses of our next three patient education seminars. We are very excited about these successes!

Our committee has been very busy working on the program for the next patient education seminar - scheduled in Boston on October 21st. We are currently considering the hosting of 2007 conferences in Salt Lake City, UT, Albuquerque, NM, and Baltimore, MD. Stay tuned for 2007 scheduling announcements!

Other committee activities have included:

- Evaluating our website content and looking for areas how it can be best expanded and improved. We have met with various vendors to decide who can best assist us in creating more content, improving our website's navigation, appearance, usability and interactive capabilities.
- Fostering collaborative relationships with other organizations (such as the National Hemophilia Foundation, Genetic Alliance, the National Organization for Rare Disorders, and the Anticoagulation Forum) in an effort to build our maximum educational impact. In partnership with these organizations, we are planning health care provider seminars, advocacy events, and are working together to distribute our education materials.
- Exploring ways to expand our educational offering to include CE/CME credits for health care providers. Providing medical education credit to health care providers who attend a NATT sponsored event will increase incentive to attend. Ultimately, this educational effort will lead to increased prevention, improved diagnosis and treatment for people with thrombosis and thrombophilia (you!).

NATT is grateful to be in the position to increase its educational offerings. We would love to hear from you if you would like to get involved in planning our future. Please contact me at eavarga@hotmail.com.

Calendar of Events

What events are happening in your area? Find out about the different thrombosis and thrombophilia related events and activities, when they're happening in your community, and how you can participate. Also, please check our website for current events happening in your area at www.nattinfo.org.

21 October 2006

Education Seminar about Blood Clots and Blood Clotting Disorders.

This free seminar is being hosted by NATT and will be held at the Boston Marriott Quincy from 8am – 4pm. More information can be found at www.nattinfo.org. To RSVP, please send an email to nattseminars@yahoo.com. Open to the public and members of the health care community.

23 October 2006

"Electronic Alerts to Prevent Venous Thromboembolism"

LDS Hospital, Salt Lake City, Monday October 23, 2006, 12noon to 4pm (Health care profession only)

9-12 December 2006

The American Society of Hematology 48th Annual Meeting and Exposition:

Meeting Dates: December 9-12, 2006
Exposition Dates: December 9-11, 2006
Friday Satellite Symposia: December 8, 2006
Orange County Convention Center, Orlando, Florida
(Health care profession only)

17 February 2007

Proactive VTE Prophylaxis Seminar sponsored by the Northern Thrombosis Forum, Brigham and Women's Hospital

Times yet to be determined and it will be held at "The Ledge", One Brigham Circle, Boston, MA.
(Health care profession only)

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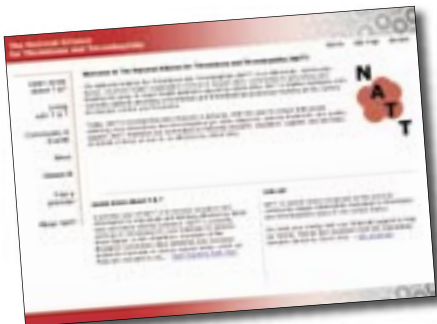
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