



HEALTH ISSUES

ALL ABOUT ASTHMA

The number of athletes with asthma has risen exponentially

Lauren Beard

The scene at the 2008 Beijing Olympic swimming finals may be a bit unusual—eight lanes with an abundance of asthma inhalers waiting behind the blocks. The number of athletes with asthma has risen exponentially, yet coincidentally, so has the concern with the pollution in Beijing. Have asthmatics discovered a secret weapon? With August '08 fast approaching, many Olympic teams are hyperventilating in response to the pollution and heat at the site of this year's Games. With the increase in asthma-suffering swimmers and the immense pollution and heat in Beijing, inhalers may be as common as shaved arms.

Swimming and Asthma

First things first, what is asthma? It is a chronic, inflammatory disease that affects the lining of the bronchioles, or the airways in the lungs. Asthma attacks occur when the lining of the bronchial airways become inflamed and swollen, producing extra mucus and a narrowing of the airways, making it difficult to breathe. The disease can be inherited or developed due to an allergy.

According to the American Lung Association, an estimated 20 million Americans have asthma. Dr. David Beuther, asthma specialist at the National Jewish Hospital in Denver, Colo., reported that 6 to 8% of adults have asthma; 12 to 18% of athletes suffer from the chronic disease, impairing their ability to perform. There is no doubt that swimmers have been affected. In fact, swimming seems to be the asthmatic's sport of choice.

For some, swimming—a sport consisting of long hours in an enclosed room saturated with strong chemicals—has actually been thought to cause asthma. "When you see swimmers that are more likely to have asthma, you have to be careful to draw the conclusion that the cause is swimming," Beuther said. According to Beuther, doctors typically encourage asthmatics to remain active through the sport of swimming because it is an activity that is less aggravating on the lungs, especially for those with Exercise Induced Asthma (EIA).

EIA, a common form of asthma that occurs as a direct result of exercising, is a regular occurrence at the pool. EIA is seen in 80 to 90% of chronic asthmatics, but can also affect people without any prior asthma symptoms. In a study done by the Ohio State University Medical Center on 107 Ohio State varsity athletes, 42 of the athletes tested positive

for EIA (39 percent), and 36 of those athletes had no prior asthma histories. They also reported that 1 out of every 10 people has no classic features of chronic asthma, yet still experience symptoms of asthma during exercise. Again, swimmers are not exempt. Breathing heavily through the mouth—a common act in swimming—is a main trigger of EIA. Long story short, more asthmatics are choosing swimming as a sport because it feels better on their lungs.

Breathing in Beijing

For the abundance of swimming asthmatics, the air quality in Beijing is already a major concern. As the 2008 Beijing Games fast approach, and with pollution a significant trigger of asthma, it is no wonder that more and more people are concerned with becoming asthmatic.

By World Health Organization (WHO) standards, Beijing is considered one of the most polluted cities in the world—both air and water.

Dr. Randall L. Wilber, the Senior Sport Physiologist with the United States Olympic Committee (USOC), has been studying air quality in Beijing for Team USA. He reported numerous contributors to air pollution, all of which are abundant in Beijing's skies.

Carbon monoxide, a colourless and odourless gas that is difficult to filter, comes from cars, buses, and trucks. With the expansion of the Chinese economy, more and more automobiles are roaming the roads in Beijing.

According to Wilber, "Even on a 'blue sky day,' carbon monoxide can be a major health concern. It is a biochemical 'competitor' of oxygen, blocking the transport of oxygen from the lungs to the muscles, organs, and tissues in the body to keep us alive." This is an obvious impairment of athletic performance.

Nitrogen dioxide and sulfur dioxide are over three times as prevalent than in the U.S. Roughly 75 to 80% of Beijing's electrical power comes from coal-fueled power plants, which produce these gases. Sulfur dioxide also causes a burning sensation in the eyes, a problem for precision sports such as archery. (Fortunately, goggle-wearing swimmers have a one-up on this one.)

Particulate matter in the atmosphere, mostly from construction dust, is another significant part of air pollution. You cannot avoid construction in Beijing; statistics say that Beijing has more "construction floor space" than all of Europe!

Finally, ozone is produced in the presence of

bright sunlight and high temperatures. With the Games taking place during the height of summer, temperatures are bound to be extreme.

These four substances—nitrogen dioxide, sulfur dioxide, ozone, and particulate matter—all have similar debilitating effects on athletic performance. "My concern is that an athlete who has perfectly normally functioning lungs here in Colorado Springs (the third "cleanest" city in the US according to the American Lung Association) will have significant problems in Beijing's air pollution," said Wilber.

But pollution is not the only problem. Heat in Beijing can directly impair athletic performance as well. "I believe some nations will get so wrapped up in the air pollution issue that they will forget about the extremely challenging heat and humidity in summertime Beijing," said Wilber. As Dr. Wilber spent August of 2006 in Beijing, temperatures were consistently over 90 degrees F (35 degrees C) and humidity ranged from 75 to 90%.

With temperatures this extreme, the effects on athletes and asthmatics are significant. "Heat can contribute to poor exercise performance particularly if you get above a certain temperature and you are exercising outside," Beuther said. High-ventilation sports are the most affected, including distance sports such as cycling, running, and swimming.

Combating the Heat and Pollution

While the Chinese are implementing temporary solutions in preparation for August, many other nations are devising their own strategies to deal with the combination of heat, humidity, and pollution in Beijing. Both the US Olympic Committee and the Canadian Olympic Committee are on a "top secret" missions to prepare their athletes for the unusual situation in Beijing, so secret that Dr. Jon Kolb from the COC was unwilling to disclose any such information.

Team USA plans to implement strategies that they have used in the past. One is a strategy used prior to the 2004 Athens Games—performing pulmonary function tests (PFT) on athletes to evaluate how air pollution compromises lung function. For those athletes that show symptoms of decreased lung function, asthma medications will be used to treat them, within the World Anti-Doping Agency (WADA) guidelines.

Another of the USOC's plans to fight the heat and pollution is Alternative Training Sites (ATS), a strategy that most big-threat Olympic teams have been known to adopt in the past. This is where teams live and train in a location close to, but far enough away from, the Olympic city prior to and during the Games. In 2008, an ATS in South Korea will allow athletes to acclimatize to the heat, avoid the pollution, and train in Olympic-calibre facilities, all while staying in the same time zone.

"The ATS model was used very effectively by USA



Track & Field (Crete) and USA Swimming (Majorca Island, Spain) prior to the 2004 Athens Games, and I don't think it is a coincidence that those two sports won the most medals of any US teams," said Wilber.

"Historically, approximately 27% of US Olympic Team athletes have EIA, so we can expect that figure to increase relative to Beijing. Interestingly, the athletes on our 2004 Athens Olympic team who had EIA went on to win 25% of our 103 total medals," said Wilber.

In fact, other famous swimmers of the past who have excelled while struggling with asthma include Mark Spitz, Amy Van Dyken, and most recently, Canadian 100 m freestyle world champion and 2008 Olympic medal hopeful, Brent Hayden. Hayden, in an interview with CBC Sports, claimed that after being diagnosed with asthma and being allowed by FINA to use an inhaler, he noticed the benefits immediately—not tiring as quickly and posting faster times in practice. Faster times? Are these asthmatic athletes on to something?

Are those who puff away on inhalers before, during, and after practice reaping benefits? According to Beuther, the answer is no. Using inhalers only allows asthmatics to reach a level playing field with the easy-breathing folk.

Solution?

There are two main classes of asthma medications—

rescue medication and controller medication. Rescue medication (the most common and also called reliever medication) is inhaled and very short acting, opening up the airways for a period of minutes to hours. When an attack occurs, asthma sufferers use the rescue medication to relieve the constriction in the lungs.

Controller medication is taken on a daily basis and is meant to manage the underlying disease. According to Beuther, typically a person with mild symptoms will only need a rescue inhaler, but if there are other symptoms, such as coughing or wheezing outside of exercise, a controller medication should be prescribed.

But asthma medication contains steroids, which has most people wondering whether it is legal. In fact, the type of steroid in asthma medications is not the same type of muscle-building steroid that Ben Johnson was disqualified for. Although it doesn't help an athlete's strength and ability, the drug still needs approval from the World Anti-Doping Agency (WADA).

Beuther said, "There are objective tests to measure whether or not you have asthma so people cannot cheat the system. The international anti-doping agency has pretty strict criteria about how to define asthma before athletes are allowed to take these medications legally," he continued. In order for those athletes with asthma to legally take the medication they need, they must give doctor-

diagnosed proof with an Abbreviated Therapeutic Use Exemption Form (ATUE), a form that is required by all governing swimming bodies and the WADA. But misdiagnosing asthma is common. Medication is too often prescribed to patients that are experiencing shortness of breath, when in fact it may only be acid reflux or heartburn.

Can a non-asthmatic taking asthma medication crush world records? Although several doctors have claimed that a person with normal functioning lungs will see no improved results by using an inhaler, there must be an advantage—especially in a sport like swimming where lung capacity is crucial. Whether it is a psychological or physical gain, the bottom line is that asthma medication helps people breathe.

The dirty air and stifling heat in Beijing is bound to affect the majority of athletes from all over the world competing in the 2008 Summer Games, with or without asthma. While USA and Canada can put the time and money toward testing their athletes for compromised lung function, less fortunate countries will be left behind in a cloud of polluted air. With only a few short months left before the start of the Games, many questions arise: How many more asthmatic athletes will we see come August? And will the results in Beijing be significantly better or worse than usual? As swimmers race back to their inhalers, there is one thing for sure: the 2008 Olympic Summer Games will definitely be a

The-Swim-Store.com

speedo
TYR
arena
Dolphin
FINIS

Swedish Goggles
Strechcordz
Sammy Towels
Malibu C
Summer Solutions

Swim Wear
Caps, Goggles, Paddles
Fins, Swimmer Radios
Heart Rate Monitors
Training Gear, Stop Watches
Sandals, Bags, Towels
Videos, Books
Lifeguard Uniforms
Triathlon Swim Wear & Clothing
Personal Care Products

Great Selection • Low Prices • Always in Stock

US & Canada 1-800-214-6285
International 1-702-369-8365

Call Toll Free
or Shop Online

www.the-swim-store.com
Visit us online enter our monthly contest to win prizes