EFFORTS

Emphysema Foundation For Our Right To Survive

Emphysema Takes Your Breath Away May 2007

How Understanding The Physics Of Effective Air Cleaning Can Help You

Do I Need An Air Cleaner?

A common mistake for many allergy sufferers is to assume that buying a room air filtration device will greatly reduce their home's dust mite problem. In fact, dust mites in any given room like to stay where it is warm and humid, and where they have a food source. That means mites and their allergens are mostly confined to mattresses, pillows, carpets, and furniture, and are not likely to be drawn in to an air purifier and filtered like many other airborne allergens.

A good room air cleaner is most effective for filtering mold spore, cat dander, dog dander, pollen and other small floating particles. In other words, if you are feeling the effects spring pollen, chances are that a room air cleaner could offer you some relief.

Even if you're not sensitive to molds or pollen, there are also purifiers made especially for removing harmful gases, pollutants, odors, and chemicals. Many chemically sensitive individuals, city-dwellers, or those sensitive to odors find that specialized purifiers are a must-have for living symptom-free.

If your doctor has recommended that you get a room air cleaner or you have decided that it would be a good move for the health of your family, the Environmental Protection Agency (EPA) says the following factors are important to consider regarding the performance of an air cleaner. For further explanation of each point, keep reading as I go further in depth on each of these issues.

- The percentage of the particles removed as they go through the device (that is, the efficiency).
- The amount of air handled by the device.
- The effective volume of the air to be cleaned.
- The decrease in performance which may occur between maintenance periods and if periodic maintenance is not performed on schedule.

Source: http://www.epa.gov/iaq/pubs/airclean.html

What Filtration Method Does National Allergy Recommend?

The air purifiers that move air through filtration media. This method is what most doctors recommend, and what we have found in our testing to be most efficient and cost-effective. HEPA (High Efficiency Particulate Air) is the most common filtration media used in air purifiers. Originally developed during World War II, HEPA was used to prevent the discharge of radioactive particles from the exhaust of a nuclear reactor facility. This medium has since become a vital technology in industrial, medical, and military clean rooms and has almost become the standard in portable residential air cleaners. A true HEPA filter is usually pleated to allow for maximum surface area and, by definition, must remove 99.97% of particles at least 0.3 microns in size - as small or smaller than pollen, pet dander, mold spore and some smog particles.

Using HEPA as a benchmark, some companies like 3M have developed similar filtration media (Filtrete) that is as efficient as HEPA media. Be sure to check the particle filtration efficiency of an air cleaner before buying.

Other available filtration technologies include electronic electrostatic machines that use electronically charged collecting plates to attract particles found in the air. There are two general types of electrostatic room air cleaners: those that have motorized fans to circulate room air and those that don't. I'll say more about the importance of air movement later. Generally speaking, any electronic electrostatic machine will rapidly loose effectiveness as dust builds up on the plates. While you may save some money on replacement filter costs, we have found that electrostatic plates need to be cleaned as often as every week in order to maintain their effectiveness. In addition, many electrostatic purifiers can produce ozone as a by-product. According to the EPA:

> When inhaled, ozone can damage the lungs. Relatively low amounts can cause chest pain, coughing, shortness of breath, and throat irritation. Ozone may also worsen chronic respiratory diseases such as asthma and compromise the ability of the body to fight respiratory infections.
>
> (Source: http://www.epa.gov/iaq/pubs/ozonegen.html)

And for this reason, we discourage the use of ozone generators because of their potentially harmful side effects.

Another type of air cleaning technology is found in ionic precipitators. These machines are usually small, tabletop units that dispense ions into a room. The ions find and attach themselves to particulate matter in the air. These newly formed particles maintain their charge and then seek out a surface and attach to it thereby "precipitating" out of the air. Usually these surfaces are nearby walls or furniture that may need to be wiped down periodically because particles collect on them.

Three ionic precipitators have been developed by Wein Products. We recommend the Wein 2500 for basement and crawlspace use, particularly for removing airborne mold spores and mildew. Chronic sinusitis sufferers in particular can

greatly benefit from reduced mold and mildew. These precipitators produce only extremely low and, therefore, safe levels of ozone).

Some air purifiers available today blend the technology of high-efficiency filtration media, with ionization to increase the overall efficiency of their purifiers. Blueair is a well-known manufacturer utilizing this hybrid technology that filters incoming air, while emitting ions to bind to even the tiniest particles and prevent them from escaping past the filters. Blueair air purifiers emit NO ozone due to the design of the sealed ion chamber.

Finally, for those sensitive to environmental pollutants like smog, chemicals and odors, some room air cleaners offer additional filters made from activated carbon, in either granulated or blanket form. Zeolite and potassium iodide are other compounds used for chemical filtration. Austin Air HealthMate Plus and IQAir Multigas GC units are built especially for this purpose.

Why Is Air Movement Important?

By what method does a silent, non-motorized air cleaner bring particles to itself for capture? If you're not sure, you're not alone. But an air cleaner with a strong motor stirs up the air throughout the entire room causing dirty air in the far corner to be carried to the unit for purification. Plus, unpurified air is constantly introduced into a room, so having a hard-working fan to continuously re-circulate air ensures that all air is being filtered. Also, in heavily trafficked rooms allergens are repeatedly kicked up, so it is important to have a purifier that can effectively pull those airborne particles into its filters before they re-settle.

Because air movement is so important to the effectiveness of an air cleaner, National Allergy does not recommend that allergy sufferers use air purifiers that are not motorized. And we are not alone: according to the EPA, "A very efficient collector with a low air-circulation rate will not be effective." So if the air purifier's fan motor is not drawing particles through the filter, it doesn't matter how good the filter is.

In a comprehensive review of a multitude of air purifiers, a leading consumer publication found that a well-known tower-design electrostatic unit was quite inefficient at removing airborne particulates, while another electrostatic machine was their top-rated pick. The difference? The slim, quiet tower unit only used charged collecting plates with no means of passing air through them, while the top-rated unit generated efficient air movement in the room. It should also be noted that that same article ranked the Whirlpool AP450 as the top HEPA Room Air Cleaner.

What Size Purifier Do I Need?

The size - which really reflects the effective volume of air the machine can clean - depends on the size of the room you plan to clean. We test every air purifier that comes in our door for many things, and one of the measurements we and other authorities use is Air Changes Per Hour. This measures the number of times each hour that an enclosure's total volume of air is exchanged with fresh or filtered air. Our target value is to have an air cleaner produce 5-6 air changes per hour with high filtration efficiency. The key for you to maintain this value for your purifier is to use it in an appropriate-sized space. In other words, do not use an air cleaner designed to clean a 10' x 10' room in a 20' x 20' room. The cleaner may only generate 2-3 air changes per hour, which means the allergen count in the room will never be as low as it should be. And remember, there's no danger of over cleaning a room's air. So putting an air cleaner that can produce 6 air changes per hour in a large room into a small room only increases the number of air changes per hour and that's a benefit.

Doctors recommend starting your allergen-control regimen in the bedroom. Realize that the most effective fan-driven air purifiers are going to produce some noise. The more area your area purifier can clean, the more noise it will to produce. Today's manufacturers know that some people will be concerned about noisy air cleaners, so most air cleaners on the market today have variable speeds. Just remember, the published room size recommendations of your purifier assume that you'll be running it on high. If you are planning on only using low or medium settings, you should consider a higher-efficiency cleaner.

If you are concerned about noise keeping you awake, run the air cleaner on high during the day when are not in the bedroom and keep the door shut, then utilize a lower setting at night. For excellent filtration at low decibels, Whirlpool Whispure, Filtrete Ultra Clean or Blueair air purifiers have great sound insulation, so even on the highest setting they are really nothing more than low background noise. Most would probably say the extra noise is a small price to pay for the peace of knowing they are breathing cleaner air.

How Do I Get The Most From My Air Cleaner?

Two other key factors in getting the most from your air purifier are proper placement and regular maintenance.

Proper Placement.

Machines like Whirlpool Whispure and Filtrete Ultra Clean have front air intakes so they can be placed against a wall and still circulate air effectively. Other machines feature 360-degree air intake and are best placed 2 to 3 feet away from a wall. We recommend units which vent clean air upward or from the top of the unit to enable the most effective air circulation and to avoid stirring up dirt and allergens by blowing air across the floor. The area around the air intake should be free of furniture, houseplants or other obstructions. Likewise, you should also follow manufacturer recommendations about placing items on top of your purifier that could inhibit the expulsion of clean air.

Maintenance.

Any air cleaner that utilizes a high-efficiency media filter will require filter changes. Maintenance varies on every machine. The Filtrete Ultra Clean Air Cleaner from 3M has a single replacement filter, while the IQ Air HealthPro units have multiple filters. Failing to change the filters on schedule reduces the effectiveness of your air cleaner, and can eventually cause motor damage. In addition, some manufacturers will void warranties on machines that have not been properly maintained.

Source: nationalallergy.com

"

SMALL BITS OF FITNESS ADD UP

Exercise Comes in All Shapes and Sizes

"Where did the day go?"

Is this a common question in your life? Many of us jam-pack so much stuff into our daily routines, seemingly there's no time to relax for just one minute, let alone exercise. Lack of time is one of the most common excuses for not having a decent fitness regimen. But do you realize that in the time it might take you to go through your e-mail, you could fit in a good workout? We're not talking about giving up 60 minutes either; all you need is 10.

Just 10?

Forget the "all or nothing" mentality when it comes to exercise. Fitness does not live or die by 60-minute workouts; there is middle ground. Short spurts of exercise, when they accumulate, have been shown to share similar benefits of longer workouts.

Your body will reap numerous benefits just by becoming more active. This approach is perfect for times when you don't have time for a regular workout, or when you want to start off slowly and build up a routine.

Easier Than You Think

Treat these 10 minutes like you would a regular workout. Take 1-2 minutes to warm up and get the muscles ready, including stretching. Follow with at least 7 minutes of exercise at a medium or high intensity. Then make sure to include a 60-second cool down.

Since it's brief, it's important to work at a fairly high intensity to obtain all of the benefits. Work at raising your heart and respiration rates. Just like regular workouts, try to include cardio, strength training and flexibility work in your shortened routine. Either knock out all three during the 10 minutes, or plan a 10-minute segment for each area.

Example:

Push out 10 cardio minutes on the stationary bike. For strength, do push-ups, wall sits, or lift dumbbells. For flexibility, it's helpful to just stretch every day. Work different muscle groups and keep it simple. After 10 minutes, you will feel healthier and be on your way to developing solid fitness habits.

But I Still Don't Have Time

It only takes 30 minutes a day, broken up into manageable chunks of 10. Start with a quick exercise when you wake up. The second session? A lunch break is possibly the perfect time to re-energize and get the blood flowing again. The last 10-minute blitz could come in the evening, even while you are watching TV. It's an ideal way to involve the family as well. Go for a power walk after dinner with your spouse or ride bikes with the kids.

It is all about convenience; if you try, you can fit exercise into your schedule no matter where you are. Do it at home or at work, outside or in the living room. Start building exercise spurts into your daily routine and you'll start feeling better.

Source: SparkPeople.com

"

.EBAY TO CEASE OXYGEN DEVICE SALES

In what stakeholders call a victory for the entire respiratory industry and the patients it serves, AirSep Corp. executives said that giant Internet marketer eBay will cease selling prescription oxygen devices. The issue of what happens to concentrators and other oxygen delivery devices after an oxygen patient dies has long been a concern to industry stakeholders, according to AirSep and others, with many risks for consumers who assume ownership of used equipment via garage and Internet sales. There is, for example, no assurance that the level of oxygen is appropriate for the user, and the absence of clinical oversight can lead to dangerous outcomes.

In the fight to eliminate sales of prescription respiratory equipment on eBay, the industry has finally won, said AirSep's Joe Priest, president and CEO. "Kathy Sanchez and our staff did yeomen's work to change eBay's policy regarding the sale of prescription oxygen devices on the site," Priest said. "Every time we saw one up, they sent an e-mail and told them it was a medical device, [that oxygen is] an FDA-controlled drug, and it's just not a device that should be on eBay."

The effort took two years and involved weekly--or even more--phone calls and e-mails to eBay officials, said Sanchez, AirSep's marketing and public relations manager. In February, she received an e-mail from Jack Christin Jr., eBay's senior regulatory counsel, stating that the sale of oxygen concentrators, oxygen compressors, oxygen conservers and their accessories that require a prescription would not be allowed. The policy is applicable to the U.S. and Canadian eBay sites.

Nichola Sharpe, senior public relations manager, eBay corporate communications, said the decision came following contact between eBay and the FDA, as well as AirSep and other respiratory product manufacturers including Inogen, Hill-Rom and Invacare. "[We] worked both with the FDA and with manufacturers of prescription oxygen devices and decided that these devices should not be sold on eBay," she said.

Since the policy change, Sanchez said she has noticed a remarkable decline in the number of oxygen products listed on the site. "We were thrilled that we received the notice that eBay was changing its policy," she added, noting that suppliers and patients alike have applauded the effort.

Source: HomeCare Monday

"

SICK OF SNEEZING? HERE'S HOW TO COPE

Experts offer tips on coping with hay fever, other common allergies

People tend to dislike spring for one of three reasons: They no longer get a booze-soaked break, they can't stand basketball or, maybe worst of all, they spend the whole season sneezing.

It's most likely the latter. That's because seasonal allergic rhinitis, or hay fever, affects more than 20 percent of the U.S. population, according to the American Academy of Allergy, Asthma and Immunology. It's also the cause for about 14.1 million doctor's visits at an overall cost of $6 billion each year.

At the root of the problem are allergens, such as airborne pollens and mold spores. They trigger nasty symptoms, including sneezing, congestion, runny noses and itchiness. Pollen season generally stretches from February or March

through October, but is usually even longer in the South due to the warmer weather.

Doctors don't know exactly what causes some people to battle terrible allergies while others get off scot-free. They have, however, identified some risk factors, such as genetics.

In the DNA

If one's parents both have hay fever, he or she has a 55 percent to 60 percent likelihood of developing allergies, says Dr. Gailen Marshall, director of the division of clinical immunology and allergy at the University of Mississippi Medical Center in Jackson, Miss. If neither parent suffers, the likelihood of their child having allergies drops to 17 percent to 20 percent.

The environment in which you grew up also makes a difference. Exposure to pollen and pollution, such as diesel exhaust particles and ozone, promotes development of allergies too.

Some studies in recent years suggest that children who grow up with dogs and cats in their homes may be at a lower risk for developing allergies to pets, dust mites, ragweed and grass. But exposure to multiple such pets can have a different impact on kids' allergies than exposure to just one, and the subject is still being researched. Dr. Jonathan Bernstein, a professor of clinical medicine in the division of immunology and allergy at the University of Cincinnati, cautions people against getting pets specifically for this purpose.

An ounce of prevention

While a lot of research is being done on preventive treatments, doctors say you're much better off avoiding triggers and using medications to manage your symptoms. The earlier allergy sufferers start tackling the problem, the better.

"Don't wait until you get sick," Marshall says. "If your nose is beginning to itch, your eyes are getting teary and you're starting to get drainage, that's when you take medication — not when you can't breathe, you're waking up in the middle of the night and you're sneezing whenever you go outside. By that time it takes considerably more effort to get things under control."

If you don't treat your allergies you could end up with infections in your sinuses, throat or ears. People suffering from sinusitis miss an average of four days of work each year, according to the American Academy of Allergy, Asthma and Immunology.

The two most common types of allergy medications are antihistamines, which can stop all the major symptoms of hay fever but don't work well on established congestion, and decongestants. The latter comes in the form of oral medications and nasal sprays. The sprays are good for the short term but can cause dependency. If decongestants keep you up at night, or you can't take them due to heart or thyroid problems, try an anti-leukotriene, a medication that helps fight allergic inflammation. Prescription steroid nasal sprays are another effective option.

Of course, there are many of other remedies people swear by, such as taking vitamin C or eating a daily dose of locally made raw, unfiltered honey. The logic is that you're desensitizing your body to pollen, which raw honey contains. But there's no evidence to support these claims and honey could even cause a reaction, Marshall says.

For severe allergy sufferers who don't get relief from medications, allergy vaccination is a good bet. If you can handle regular injections of small doses of a specific allergen over three to five years, you can strengthen your resistance to it. More than 85 percent of patients have a good response, and the shots can help prevent the progression of allergies to asthma. Allergy patients are three times more likely to develop asthma than non-sufferers, Bernstein says.

Keep it simple

If the idea of that many needles is making you feel faint, take it easy. There are lots of little things you can do to lessen your exposure to pollen and molds, the experts say.

That may mean getting a test from an allergist to determine exactly what's setting you off or keeping an eye on pollen and mold counts via your local news or the Internet. The American Academy of Allergy, Asthma and Immunology's Web site lists results from the National Allergy Bureau pollen and mold-counting stations across the country.

If you're sensitive and happen to be outside during high pollen counts, when you get home, take off your shoes, change your clothes and consider washing your hair, says Angel Waldron, spokeswoman for the Asthma and Allergy Foundation of America. Hair is like a magnet for airborne pollen spores. If you don't have time to wash it, thoroughly brush it.

And while warm spring weather may tempt you to open your windows, hang your clothing to dry outside and put down the top of your convertible, allergy sufferers should reconsider. Or suffer the consequences, hopefully with a box of tissues nearby.

"If you know you're allergic to it," says Dr. Hugh Windom, clinical professor at the University of South Florida and spokesman for the American Academy of Allergy, Asthma and Immunology, "avoid it." Source: MSNBC.com

"

LONDON ASTHMA SUFFERERS GET SPACE-BASED HELP

The city of London has launched an innovative service, funded by ESA, which delivers air pollution alerts and health advice via SMS text messages to those who suffer from asthma and other conditions vulnerable to poor air quality.

The airTEXT service officially kicked off at London's City Hall on Thursday with the Deputy Mayor of London Nicky Gavron addressing the event: "There's more than love in the air this spring! Air pollution causes around one thousand premature deaths each year, and we must do everything we can to cut emissions. "This pioneering service will provide people with crucial information about peak periods of air pollution localized for their part of London, so they can take action. It could literally save lives."

AirTEXT is a free service aimed at those who have been diagnosed with asthma, emphysema, bronchitis, heart disease or angina as well as for those who live or work in London. The service has operated in the Borough of Croydon, the largest borough by population, since July 2005 and has received a

positive response with 80 percent of users saying it has helped them manage their symptoms better and reduce their exposure to air pollution.

Subscribers can choose whether they want airTEXT alerts delivered through SMS text messages, voicemail or e-mail and whether they want to receive the alerts the morning of days when air pollution is likely to be higher than normal or the evening before. Forecasts are generated for each London borough.

Messages will indicate moderate, high or very high levels of pollution are expected, what effects are likely to be noticed, such as wheezing, difficulty in breathing or chest pains, and what should be done to minimize the effects, such as avoiding long periods outdoors, avoiding strenuous outdoor activity and increasing the dose of reliever medication as directed by a physician.

The Cambridge Environmental Research Consultants (CERC) developed airTEXT using information from ESA's PROMOTE project, which aims to improve air-quality forecasting using satellite technology. In addition, PROMOTE aims to construct and deliver a sustainable and reliable operational service to support informed decisions on the atmospheric policy issues of stratospheric ozone depletion, surface ultraviolet (UV) exposure, air quality and climate change.

PROMOTE, PROtocol MOniToring for the GMES Service Element on Atmospheric Composition, is itself part of Global Monitoring for Environment and Security (GMES), a joint initiative between ESA and the European Commission to combine all available space- and ground-based information sources to develop an independent European environmental monitoring capacity from planetary to local scales.

The airTEXT service works by combining satellite data from ESA's Envisat on regional air quality forecasts provided by PROMOTE with information on local road traffic patterns and monitoring stations around the city. Regional air quality information is important because not all the pollution affecting a city actually originates there. Depending on the weather, studies show that up to half the air pollution found in some European cities might have come from elsewhere in the continent.

"Previously air pollution forecasts have focused on very large geographical areas and the methods for communicating the information have been poor," CERC atmospheric scientist Dr Iarla Kilbane-Dawe said. "AirTEXT represents a revolution in air-pollution forecasting with localized information being sent directly to the individual." Source: medicalnewstoday.com

"

FINDINGS MOVE SCIENCE CLOSER TO TARGETED, IMPROVED THERAPIES

Scientists supported by the National Institute on Drug Abuse (NIDA), part of the National Institutes of Health, have for the first time identified genes that might increase a person's ability to abstain from smoking. The breakthrough research was conducted by Dr. George Uhl at NIDA's Intramural Research Program and a team led by Dr. Jed Rose at the Center for Nicotine and Smoking Cessation Research at Duke University Medical Center.

The study, published in the journal BMC Genetics, available online April 2, brings researchers a step closer toward tailoring individualized drug therapy for addiction based on an individual's unique genetic make-up.

Source: NIH.Gov

"

Scientists at Johns Hopkins have identified the genetic culprits that trigger a hereditary form of a fatal lung disease. The findings, published in the March 29, 2007 issue of the New England Journal of Medicine, may provide new directions in diagnosis and treatment for families that inherit genes for the disease, as well as for those that develop non-inherited forms of the illness.

A progressive scarring of the lungs with no effective treatment, idiopathic pulmonary fibrosis (IPF) affects approximately 50,000 Americans annually, and like some cancers often is fatal within three years. As many as 20 percent of IPF sufferers are thought to have inherited genetic mistakes that predispose them to the disease; and until now, these gene flaws remained unknown.

To locate the genetic problem, Hopkins investigators screened DNA from blood samples of 73 people with inherited IPF and discovered that six of them (eight percent) had mutations in two genes that produce an enzyme which helps lengthen the fragile ends of chromosomes.

Source: medicalnewstoday.com

"

A NEW WALKING STUDY ENCOURAGES OVERWEIGHT AMERICANS TO STEP UP TO BETTER HEALTH

What if someone told you, you could walk your way to better health? With 65 percent of American adults considered to be overweight or obese, walking may be one way to battle the bulge. However, if you lack motivation, a prescription to walk may be just what the doctor ordered. That's the premise behind a 48-week pilot walking program conducted by 16 member physicians of the American Podiatric Medical Association (APMA).

The study, funded by APMA, examines two groups of nearly 250 overweight patients located across the country. The objective is to determine if a podiatrist's care can make a difference in maintaining a long-term walking routine. The participants will be randomly assigned to one of two groups. Group A participants will be given a written walking program and doctor discussions about the benefits of a walking program. These patients will be given a walking prescription which will include a 12 week calendar to document steps taken per day from the pedometer.

Group B patients will receive no walking prescription, no hand-outs, and no doctor discussions about the benefits of a walking program and will only be given a pedometer and instructions to walk. Body mass index (BMI), cholesterol, blood pressure and other health stats will be monitored on a regular basis for both groups. To qualify for the study, patients

must be 18 years or older, at risk for obesity with a BMI of 27 or higher and cleared to participate in the study with no major health conditions, such as a heart attack, stroke or loss of sensation in the feet. Both groups will receive a free pair of Asics walking shoes to utilize in the study.

"Our walking study helps cement two important concepts," said Dr. Bryan Caldwell, the principal investigating podiatrist in the study and a professor at the Ohio College of Podiatric Medicine. "We have known for years the health benefits of walking, as well as the positive impact a podiatrist's guidance can have on his or her patient's health. We hope the combination of the two will result in a positive outcome for people who struggle with their weight on a daily basis and will ultimately save lives."

Obesity is the second leading cause of preventable death in the U.S. A poor diet and lack of physical activity are two of the biggest contributing factors. For this reason, podiatrists participating in the study will record participants' weight and amount of steps every four weeks using software designed specifically for podiatric research and information sharing from Integrated Physician Systems.

"Implementation of a viable walking program under the care of a podiatrist has great potential," said APMA President Dr. David Schofield. "Podiatrists have a vested interest in their patients' well being, without healthy feet, walking is not an option." Source: apma.org

"

CELLS IN THE LUNG CLEAR THE AIR TO PREVENT LUNG DAMAGE

Air pollution and tobacco smoke contain oxidants that when inhaled can cause damage to the lungs and contribute to diseases such as asthma and chronic obstructive pulmonary disease (COPD). In a study that appears in the March issue of the Journal of Clinical Investigation, researchers from the Harvard School of Public Health, Boston, identify a new mechanism by which mice are protected against inhaled oxidants.

Lester Kobzik and colleagues observed that immune cells in the lungs (known as alveolar macrophages) of mice resistant to lung damage caused by the oxidant ozone expressed more of a protein known as MARCO than the alveolar macrophages of mice susceptible to ozone-induced lung damage.

Consistent with a role for MARCO in protection from oxidant-induced lung damage, mice lacking MARCO showed more lung damage when exposed to either ozone or another oxidant than mice expressing normal amounts of MARCO. MARCO provided protection by enabling alveolar macrophages to take up lipids in the lung modified by the oxidant that would initiate an inflammatory reaction if not removed.

A similar role in the removal of lipids in the lung modified by these oxidants was identified for another protein related to MARCO, SR-AI/II.

As discussed in an accompanying commentary by Edward Postlethwait from the University of Alabama at Birmingham, it is now important to determine whether similar functions can be ascribed to these and other related proteins (all of which are known as scavenger receptors) in humans because of the extensive morbidity associated with lung diseases such as asthma and COPD. Source: ScienceDaily.com

"

EMERGING THERAPIES FOR AIRWAY INFLAMMATION HOLD PROMISE

Applied Data Research Analyzes the Impact of New Treatments

The inhaled upper respiratory market represents one of the largest categories of drug spending, with continuing growth due to increasing incidence and diagnosis of airway inflammation conditions such as asthma and chronic obstructive pulmonary disease. A number of factors – factors that include new and emerging drug classes, improved delivery technology, and multi-therapy drug products - are converging to change the dynamics of this therapeutic sector.

New drug classes that focus on molecular targets are emerging as important tools for practitioners. Interest is growing among practitioners and their patients for treatments that are capable of delivering two drugs that can act in concert to mitigate the effects of airway inflammation better than a single drug. These combination products pair drugs with different indications to maximize patient relief.

As the number of asthmatics, COPD, and allergy patients continues to grow, the existing upper respiratory tract market franchise will continue to provide unit growth and margins that will fund ongoing research into technology improvements focused on systemic delivery of proteins and peptides as well as novel small molecule therapeutics.

These findings are examined in a new and comprehensive report from Applied Data Research. The report, Asthma, COPD and Allergic Rhinitis: Emerging Therapeutics of Airway Inflammation Diseases, concludes that new and emerging drug combination products with improved efficacy will shift the balance among available treatments and create opportunities for market participants and choices for caregivers and their patients.

A significant opportunity exists to improve and expand current treatment of airway inflammation diseases. The inhaled upper respiratory market represents one of the largest categories of drug spending, with continuing growth due to increasing incidence and diagnosis of airway inflammation conditions such as asthma and chronic obstructive pulmonary disease. Interest is growing among practitioners and their patients for treatments that are capable of delivering two drugs that can act in concert to mitigate the effects of airway inflammation better than a single drug. These combination products pair drugs with different indications to maximize patient relief. New drug classes that focus on molecular targets are emerging as important tools for practitioners. As the number of asthmatics, COPD, and allergy patients continues to grow, the existing upper respiratory tract market franchise will continue to provide unit growth and margins that will fund ongoing research into technology improvements focused on systemic delivery of proteins and peptides as well as novel small molecule therapeutics. Source: Applied Data Research

"

HIGH-DOSE INHALED CORTICOSTEROID COULD CUT RISK OF LUNG CANCER

Among a group of mostly older male veterans suffering from chronic obstructive pulmonary disease (COPD), an illness that offers a greater susceptibility to lung cancer, researchers found that regular use of high dose inhaled corticosteroids (ICS) lowered the risk of developing lung cancer.

The results for this study appear in the first issue for April 2007 of the American Journal of Respiratory and Critical Care Medicine, published by the American Thoracic Society.

David H. Au, M.D., M.S., of the Veterans Administration Puget Sound Health Care System in Seattle, along with five associates found that among 10,474 patients with COPD, 517 were considered regular users of ICS.

Among users of more than 1,200 micrograms of ICS per day, the relative risk for lung cancer was lowered to 0.39. For users of less than 1,200 micrograms per day, the relative risk was 1.13. (A relative risk of 1 means there is no difference in risk between two groups.)

Over the next four years, the researchers found that among a total of 9,957 nonusers of ICS, 402 developed lung cancer. For 298 users of ICS at a level below 1,200 micrograms per day, 16 developed lung cancer. Among 219 patients who used over 1,200 micrograms per day, five developed lung cancer.

"Lung cancer is the most common cause of cancer-related death in the United States and accounts for more deaths each year than breast, prostate and colon-rectal cancer combined," said Dr. Au. "Studies such as the Lung Health Study have demonstrated that the most common cause of death among subjects with COPD is lung cancer."

In 2004, more than 11 million U.S. adults were estimated to suffer from COPD, which results from chronic bronchitis and emphysema, two inflammatory lung diseases that frequently co-exist and interfere with normal breathing. Smoking is the primary cause of COPD.

"Tobacco smoke is a well-recognized stimulant of systemic and local inflammation and the role of inflammation in the causal pathway for both lung cancer and COPD has been suggested," said Dr. Au. The researchers noted that ICS have been shown in prospective studies to suppress systemic markers of inflammation such as C-reactive protein and to reduce airway inflammation.

They hypothesized that higher doses of ICS among the male veterans reduced such factors as local airway inflammation, cell turnover, and the propagation of genetic errors. Consequently, these effects could lead to a subsequent reduction in lung cancer risk.

In an editorial on the research in the same issue of the journal, York E. Miller, M.D., of the Denver Veterans Affairs Medical Center, and Robert L. Keith, M.D., of the University of Colorado Cancer Center, Denver, wrote:

"Although the data at present are certainly not definitive, inhaled corticosteroids deserve further consideration for lung cancer chemoprevention. Adequately powered, prospective, controlled trials with prolonged follow-up to capture effects on a carcinogenic process that progresses over years will ultimately be needed to determine efficacy. If these could be designed to capture outcomes of interest relevant to both lung cancer and COPD, joint funding by the National Cancer Institute and the National Heart Lung Blood Institute would then be desirable."

"The risk reduction suggested by the studies discussed would be a clinically significant achievement, particularly in light of the continued lung cancer epidemic," the editorialists continued. "Many additional agents are undergoing evaluation for lung cancer chemoprevention, including micronutrients, tyrosine kinase inhibitors, and blockers or agonists of signaling pathways as reviewed. It is hoped, within the next decade, that chemoprevention of lung cancer in high-risk individuals (beyond smoking cessation) will be standard in pulmonary and primary care settings as is influenza vaccination or cardiac risk factor modification. The potential for benefit is just as great."

Source: American Thoracic Society

"

MOST YOUNG PEOPLE THINK BECOMING A SMOKER IS THE NORM

Worrying new figures from Cancer Research UK reveal that most young adults in England are under the false impression that becoming a smoker is the norm.

Official figures put the proportion of adults who smoke at about a quarter. But results from a published survey show that the vast majority of 16 to 24 year olds - 83 per cent - think the figure is much higher than this. Sixty per cent believed at least half of all adults in England smoke. And nearly 40 per cent thought the figure was as high as two-thirds or more.

These perceptions are cause for considerable concern. Findings from other areas of research suggest that, if young people believe smoking is prevalent, they are more likely to become a smoker too.

Professor Robert West, director of tobacco studies at Cancer Research UK's Health Behavior Unit, said: "These figures reveal a surprising gap between reality and perception. They suggest fewer young people might take up smoking if they realized it's not as commonplace as they think.

"The reality is that smoking is not in any sense of the word a 'normal' or desirable activity. The number of smokers has been falling for decades and the vast majority of people who are smokers want to give up."

Even if the young people surveyed based their judgements on people their own age, they still grossly over-estimated the proportion of the population who smoke. Smoking prevalence among 16-24 year olds is only slightly higher than the national average.

Over 1,700 adults in England, representing both genders, all ages and all socio-economic groups, took part in the survey.

Overall, nearly three quarters over-estimated the number of people who smoke. Young people and the elderly over-estimated the most.

The gap between perception and reality also varied according to socio-economic group. Of those in the lowest paid occupations or who were unemployed, 80 per cent

over-estimated smoking rates compared with 62 per cent in professional and managerial groups.

Jean King, Cancer Research UK's director of tobacco control, said: "Young people are particularly hard to reach with anti-smoking messages, which makes it worrying that, as a group, they over-estimate the number of smokers the most.

"It's important that these perceptions are corrected. But this study also highlights the need to more stringently restrict the tobacco industry's ability to influence this vulnerable group and send subtle messages that smoking is 'normal' and 'cool'."

*The results of the survey can be downloaded from the Smoking Toolkit Study website. The Smoking Toolkit Study is a monthly series of national surveys of the adult population in England assessing how the country is doing with regard to reducing smoking prevalence. It measures how many people currently smoke daily and non-daily, how many have tried to quit in the past month, what prompted them to try, what they used to try to quit and whether they are still not smoking. Those who are smokers or recently gave up are then followed up after three months and six months to see how many of them have tried again or are still successful.

The survey was carried out in January 2007.

Source: medicalnewstoday.com

"

ARFORMOTEROL: THE FIRST NEBULIZED LONG-ACTING BETA2-ADRENERGIC AGONIST

Abstract

Bronchodilators play an important role in the management of stable chronic obstructive pulmonary disease (COPD). Although bronchodilators do not prevent the decline in lung function in patients with COPD, their efficacy in improving disease-related symptoms, reducing the frequency and severity of disease exacerbations, and improving patients' quality of life has been demonstrated in clinical trials. Arformoterol, the (R,R)-enantiomer of the selective beta2-agonist formoterol, is a potent, highly specific, nebulized long-acting beta2-adrenergic agonist recently approved by FDA for the long-term maintenance treatment of bronchoconstriction in patients with COPD, including chronic bronchitis and emphysema. In 2 large, 12-week, phase 3 studies, arformoterol demonstrated an efficacy superior to that of placebo and comparable to that of salmeterol in patients with COPD. In these trials, arformoterol was well tolerated, with a safety profile similar to that of other inhaled long-acting beta2-agonists when used at the FDA-approved dose. Arformoterol is the only long-acting beta2-adrenergic agonist available as an inhalation solution for use with a nebulizer, thus providing a new option for patients who are unable to use a dry-powder inhaler. Evaluation of the long-term safety and efficacy of arformoterol in patients with COPD is currently under way.

Chronic obstructive pulmonary disease (COPD) is a progressive disease characterized by airflow limitation that is not fully reversible. It is the fourth-leading cause of death in the United States and is projected to become the third-leading cause of death by 2020. COPD is a major economic burden in the United States, with more than $37 billion spent directly on COPD healthcare expenses and indirectly on COPD morbidity and mortality expenses in 2004.

COPD is considered incurable with the currently available treatment options. None of the existing therapies has been demonstrated to prevent the decline in lung function associated with this disease. Currently, the goals of therapy are to prevent or provide relief of symptoms, reduce the frequency and attenuate the severity of exacerbations, prevent disease progression, and maintain or improve quality of life.

Bronchodilators are considered first-line maintenance therapy in patients with COPD. Long-acting bronchodilators, including long-acting beta2-adrenergic agonists and inhaled anticholinergic drugs, are more effective than short-acting bronchodilators.4 Long-acting beta2-adrenergic agonists exert their beneficial effect by a reduction in airflow resistance with improvement in lung emptying, which leads to a reduction in resting and dynamic hyperinflation during exercise and improved exercise performance. The efficacy of long-acting beta2-agonists in patients with COPD has been demonstrated in several clinical trials. These agents have been demonstrated to decrease daytime and nighttime symptoms and to improve quality of life.

Arformoterol ([R,R]-formoterol) (Brovana, Sepracor) is a single isomer form of the beta2-agonist formoterol. On October 6, 2006, FDA approved arformoterol inhalation solution for the long-term maintenance treatment of bronchoconstriction in patients with COPD, including chronic bronchitis and emphysema. Arformoterol joins 2 other FDA-approved inhaled long-acting beta2-adrenergic agonists on the market, salmeterol and formoterol, formulated as dry-powder inhalers. Arformoterol is the first long-acting beta2-adrenergic agonist developed as an inhalation solution for use with a nebulizer. Wet nebulizers are not generally recommended for regular treatment because they are more expensive and require maintenance. However, arformoterol provides a new option for patients who are unable to use a dry-powder inhaler or who have difficulty using the dry-powder inhaler correctly.

Arformoterol is the (R,R)-enantiomer of the selective beta2-agonist formoterol. Similar to other beta2-agonists, arformoterol's mechanism of action involves activation of adenyl cyclase, leading to increased production of cyclic adenosine monophosphate (cAMP) via adenosine triphosphate (ATP). Increased levels of cAMP result in relaxation of the bronchial smooth muscle; the exact mechanism by which cAMP causes the relaxation of smooth muscle is not known.

Formoterol enantiomers demonstrate different, possibly contradictory biologic activities. Arformoterol, the (R,R)-enantiomer, is 1,000-fold more potent than the (S,S)-enantiomer, demonstrates 2-fold greater potency than racemic formoterol, and may account exclusively for the activation of beta2 receptors by the racemic mixture. However, (S,S)-formoterol is not biologically inert. It inhibits the beneficial effects of (R,R)-formoterol on proliferation, anti-inflammatory cellular surface marker expression, and

cytokine secretion. Results from studies in healthy volunteers have indicated that racemic formoterol may have proinflammatory properties that would mask the beneficial effects associated with beta2-agonists. Further studies are needed to determine the clinical significance of these properties and to elucidate the advantages of arformoterol over formoterol, if any.

A substantial portion of systemic exposure to arformoterol is due to pulmonary absorption, with a peak plasma concentration occurring 0.25 to 1 hour after dosing. After the administration of arformoterol 15 mcg every 12 hours for 14 days, the mean steady peak plasma concentration and the area under the curve (AUC)0–12 h were 4.3 pg/mL and 34.5pg•h/mL, respectively. Arformoterol is almost entirely metabolized, primarily by direct conjugation to glucuronide or sulfate conjugates and secondarily by O-demethylation. The O-demethylation of arformoterol is catalyzed by the isozymes CYP2D6 and CYP2C19. In a single-dose pharmacokinetic study, 63% of the arformoterol dose was recovered in urine and 11% in feces within 48 hours of drug administration, and approximately 1% was recovered unchanged in urine over the next 14 days. The terminal half-life of inhaled arformoterol in patients receiving the drug for 14 days at the FDA-approved dose (15 mcg every 12 hours) was demonstrated to be approximately 26 hours. Arformoterol pharmacokinetic parameters were not affected by gender, race, or age (Table 2).

Arformoterol has been evaluated in 16 clinical studies involving more than 2,000 patients. Phase 1, phase 2, pharmacodynamic, pharmacokinetic, and 2 pivotal phase 3 studies have been carried out. In 1998, the manufacturer initiated a phase 2 trial in patients with asthma in the United States, but the results of this trial have not been published.13 FDA approval of arformoterol was based on the efficacy results from 2 identical phase 3 trials conducted in the United States.14 Both trials were double-blind, active-controlled and placebo-controlled, parallel-group, multicenter studies in patients with non-asthmatic COPD (including chronic bronchitis and/or emphysema). All arformoterol treatment groups were compared with placebo groups, and salmeterol via a metered-dose inhaler (MDI) was included as an active comparator. Results from the 2 trials are presented throughout this review as combined data.

Patients diagnosed with COPD who had a baseline forced expiratory volume in 1 second (FEV1) =65% of predicted and >0.70 L were enrolled in these trials. A total of 1,456 adult patients were randomized to receive either arformoterol inhalation solution 15 mcg BID (n=288), arformoterol 25 mcg BID (n=292), arformoterol 50 mcg QD (n=293), salmeterol MDI 42 mcg BID (n=290), or placebo (n=293) over a 12-week treatment period. The majority of patients included in these trials had <10 years' history of COPD and >30 pack-years' history of smoking. Patients were allowed to use albuterol MDI as a rescue therapy and ipratropium MDI as a supplemental medication as needed.

The primary efficacy end point was post-dose bronchodilation as measured by the percent change from baseline FEV1 at the end of the dosing interval (12 hours after evening dose for the BID groups; 24 hours after daily dose for the QD group) over the 12 weeks of treatment. Treatment with arformoterol or salmeterol led to a statistically significant improvement in morning trough FEV1 over 12 weeks. In both trials, the mean differences of the percent change in morning trough FEV1 with arformoterol 15 mcg BID, arformoterol 25 mcg BID, arformoterol 50 mcg QD, and salmeterol 42 mcg BID versus placebo after the first dose at Week 0 were 15.3 (95% CI, 12.1–18.4), 19.1 (95% CI, 15.8–22.3), 13.4 (95% CI, 10.2–16.6), and 14.6 (95% CI, 11.5–17.7), respectively. Improvement in morning trough FEV1 was maintained at Week 12; the mean differences of percent change in morning trough FEV1 with arformoterol 15 mcg BID, arformoterol 25 mcg BID, arformoterol 50 mcg QD, and salmeterol 42 mcg BID versus placebo at Week 12 were 9.9 (95% CI, 5.9–14.0), 13.1 (95% CI, 8.7–17.5), 10.6 (95% CI, 6.3–15.0), and 10.8 (95% CI, 7.0–14.5), respectively.

The secondary efficacy end point was the percent change from baseline in 12-hour FEV1 AUC (% change in FEV1 AUC0–12 h) over 12 weeks. The mean differences of the percent change in FEV1 AUC0–12 h with arformoterol 15 mcg BID, arformoterol 25 mcg BID, arformoterol 50 mcg QD, and salmeterol 42 mcg BID versus placebo at Week 12 were 5.9 (95% CI, 3.8–7.9), 5.0 (95% CI, 2.9–7.2), 12.7 (95% CI, 10.3–15.1), and 1.7 (95 % CI, –0.1 to 3.6), respectively.

In these trials, arformoterol doses of 25 mcg BID and 50 mcg QD did not provide sufficient additional benefits on a variety of end points to warrant use of these higher doses. Therefore, a total daily dose >30 mcg is not recommended.

Some tolerance (diminished efficacy with longer duration of therapy) to the bronchodilator effect of arformoterol was observed. The FEV1 improvement at the end of the 12-hour dosing interval decreased by approximately one-third over the course of the study (22.1% mean improvement after the first dose compared with 14.6% at Week 12).

The median time to onset of bronchodilation after the first 15-mcg dose of arformoterol was 6.7 minutes when bronchodilation was defined as an increase in FEV1 of 15% and was 20 minutes when bronchodilation was defined as an increase in FEV1 of 12% and 200 mL. Peak bronchodilator effect generally occurred within 1 to 3 hours of dosing.

Analyses of responders, defined as patients achieving a change from baseline FEV1 of =10% or =15%, were performed. Patients in all active treatment groups demonstrated superior responses compared with patients in the placebo group at Weeks 0 and 12. Among those treated with arformoterol 15 mcg BID, a =10% improvement in FEV1 was achieved in 93% of patients after the first dose and in 84% of patients after 12 weeks of treatment. Among those treated with salmeterol 42 mcg BID, 90% achieved a =10% improvement in FEV1 after the first dose, and 62% achieved a =10% improvement after 12 weeks of treatment. Among those treated with arformoterol 15 mcg BID, a =15% improvement in FEV1 was achieved in 82% of patients after the first dose and in 63% of patients after 12 weeks of treatment.

Symptom and functionality measures were evaluated with St. George's Hospital Respiratory Questionnaire (SGRQ), Subject/Investigator Global Evaluations, and the transitional dyspnea index. Patients in all active treatment groups demonstrated improvements in SGRQ; mean improvements from baseline in total scores ranged from 2.6 to 4.4 units for patients in the active treatment groups compared with 0.2 to 1.2 units for patients in the placebo group. Patients in all treatment groups demonstrated greater improvements in Subject/Investigator Global Evaluations than patients in the placebo group in overall COPD symptoms after 12 weeks. Additionally, all patients in the active treatment groups demonstrated greater improvements compared with patients in the placebo group in mean transitional dyspnea index total score at Weeks 6 and 12. Mean improvements among patients in all active treatment groups ranged from 1.8 to 2.2 units, and 55% to 60% of patients in active treatment groups had an increase of =1 unit, which is defined as clinically meaningful for patients with COPD.

In both studies, patients in the arformoterol groups also demonstrated improvements in peak expiratory flow rate and decreases in the use of rescue albuterol and supplemental ipratropium relative to patients in the placebo group.

Arformoterol was very well tolerated in the 2 pivotal phase 3 studies. In the trials, 7.6% of the 288 patients who received arformoterol 15 mcg BID and 9.2% of the 293 patients who received placebo discontinued treatment because of adverse events. Reasons for discontinuation were mainly related to cardiovascular (arformoterol 15 mcg BID, 3.8%; placebo, 1.7%) and respiratory (arformoterol 15 mcg BID, 2.4%; placebo, 4.8%) events.

Negligible increases in corrected QT (QTc) intervals were observed in all groups after dosing. At Week 0, the mean changes in QTc interval at 2 and 6 hours after dosing among patients in the arformoterol 15 mcg BID group were 2.05 msec and 1.57 msec, respectively, compared with 0.64 msec and 1.12 msec, respectively, among patients in the placebo group. There was no correlation of QTc with arformoterol plasma concentration.

Small decreases from baseline in ventricular heart rate were observed among patients in the arformoterol 15 mcg BID group at 2 hours after dosing. At Week 0, the mean changes from baseline in ventricular heart rate at 2 and 6 hours after dosing among patients in the arformoterol 15 mcg BID group were –2.21 beats per minute (bpm) and 0.57 bpm, respectively, compared with –0.83 bpm and 1.03 bpm, respectively, among patients in the placebo group.15 A dose-related change in mean maximum heart rate in the 12 hours after dosing was observed after 12 weeks of treatment with arformoterol 15 mcg BID (8.8 bpm), arformoterol 25 mcg BID (9.9 bpm), and arformoterol 50 mcg QD (12 bpm) versus placebo (8.5 bpm).

The frequency of adverse events was comparable in the arformoterol 15 mcg BID and placebo groups. The most commonly reported adverse events observed among patients in the arformoterol 15 mcg BID group versus patients in the placebo group were pain (8% vs 5%), chest pain (7% vs 6%), back pain (6% vs 2%), and diarrhea (6% vs 4%). The frequency of all cardiovascular adverse events was 6.9% in the arformoterol 15 mcg BID group versus 13.3% in the placebo group. The rate of COPD exacerbation was 12.2% among patients in the arformoterol 15 mcg BID group versus 15.1% among patients in the placebo group.

The long-term safety of arformoterol was evaluated in a 52-week clinical trial comparing arformoterol 50 mcg QD to salmeterol 42 mcg BID.16 Adverse events were similar in both groups, including respiratory infection, COPD, and bronchitis. The frequency of serious COPD adverse events was slightly higher in the arformoterol group. No new or unanticipated adverse events were observed with long-term use.

The results of the Salmeterol Multicenter Asthma Research Trial (SMART) demonstrated an increase in asthma-related deaths in patients who were taking salmeterol.17 This increased risk of asthma-related death may represent a class effect of the long-acting beta2-agonists, including arformoterol, in patients with asthma. Therefore, as with the other long-acting beta2-agonists, FDA has mandated that "black box" warning information appear on the arformoterol label. Arformoterol, as a single isomer, may have a different risk profile compared with salmeterol; this potential difference needs to be evaluated in clinical trials.

Arformoterol should not be used in combination with other inhaled long-acting beta2-agonists. In addition, the combination of arformoterol with other adrenergic drugs administered by any route should be used with caution because the sympathetic effects of arformoterol may be potentiated when arformoterol is combined with these other agents. Similarly, the combinations of arformoterol and xanthine derivatives, steroids, or diuretics (especially non-potassium-sparing diuretics) may potentiate the hypokalemic effects of arformoterol; these combinations should be used with caution.

Similar to other beta2-agonists, arformoterol should be used with extreme caution in patients who are concurrently being treated with monoamine oxidase inhibitors, tricyclic antidepressants, or any drugs known to prolong the QTc interval.

Beta-adrenergic receptor-blocking agents not only block the pulmonary effect of beta agonists such as arformoterol but may also produce severe bronchospasm in patients with COPD. Therefore, patients with COPD should not normally be treated with beta-blockers unless there are no acceptable alternatives.

In vitro, arformoterol has not been demonstrated to inhibit any of the common human CYP450 enzymes, and the CYP450 pathway represents only a minor part in the overall metabolism of arformoterol. CYP450-mediated drug-drug interactions are unlikely to occur if arformoterol is coadministered with inhibitors or substrates of this enzyme system.

As arformoterol is indicated for the long-term maintenance treatment of bronchoconstriction in patients with COPD, therapy should continue until the regimen fails to provide the usual response. The recommended dose is 15 mcg

administered BID (morning and evening) via a nebulizer; a total daily dose >30 mcg is not recommended. In clinical trials, arformoterol was administered using Pari LC Plus nebulizers and Pari Dura-Neb 3000 compressors. However, the manufacturer states that the drug can be administered via any standard jet nebulizer. Source: MedLinks

"

NEW ASTHMA INHALER PROPELLANT EFFECTIVE, BUT COSTLIER

A common asthma inhaler powered by a new propellant is safe and effective but could come at nearly triple the cost to consumers until a generic version hits the market, according to a review in the New England Journal of Medicine. Conducted by two university professors and a director for the Food and Drug Administration, the review examines the consequences of switching to hydrofluoroalkane, which is replacing chlorofluorocarbon, or CFC, as a key ingredient in albuterol inhalers designed to relieve asthma. The FDA has ruled that U.S. sales of CFC albuterol inhalers be prohibited after 2008.

About 52 million prescriptions are filled for albuterol each year in the United States, with most containing a generic version of CFC. But because of rising global concerns about CFC's ozone-depleting effects, "medically essential" inhalers are finally joining a list of banned products that started in 1978. The researchers say their analyses show that inhalers with CFC and the new brands that contain hydrofluoroalkane, or HFA, are equally effective at treating asthma. "Hopefully, by communicating with health-care professionals, we'll be able to reassure patients," said Leslie Hendeles, the University of Florida professor of pharmacy and pediatrics who spearheaded the review. He worked with Dr. Gene L. Colice, a professor of medicine at The George Washington University School of Medicine, and Dr. Robert J. Meyer, who directs the Office of Drug Evaluation II at the FDA.

Albuterol, one of the medicines that relieves asthma attacks, is the seventh most commonly prescribed drug in the United States. Because it's so widely used, the report predicts Americans will spend an additional $1.2 billion a year on three patented inhaler brands containing the new propellant (Ventolin, ProAir and Proventil) until generic versions reach pharmacies, probably after 2012. Patients who pay for their own medications will probably be hit hardest by new costs — paying on average $26 more per prescription, or $312 more per year — but people with prescription benefit plans will likely face higher co-pays as well, according to the review.

Additionally, while the new inhalers are just as effective as their traditional CFC counterparts, a few differences have been reported. One brand, for example, comes sealed in a protective pouch. After that pouch is opened, the drug carries a shelf life of just two months, while most inhalers can typically be stored for 15 to 24 months, Hendeles said. Consumers will also notice that only the Ventolin brand of HFA inhaler comes with a counter to track how much medicine is left. For that reason, Hendeles suggests keeping a backup inhaler handy if physicians prescribe a device without a counter. "There isn't any reliable way of estimating when they're going to run out," said Hendeles, who also serves as a consultant to the FDA. The review also reports that some HFA inhalers tend to clog more easily. To prevent clogging in HFA inhalers, Hendeles advised, patients should remove the devices' metal canister once a week and clean the plastic actuators with warm water.

Not all of the new HFA inhaler products are ideal for everyone and health-care providers and their patients should be aware of important differences. Two brands of HFA inhalers contain ethanol. It may not be an appropriate therapy choice depending on the patient's religious beliefs, and can temporarily cause a false reading on breath alcohol tests performed by law enforcement agencies, Hendeles said. He noted that CFC inhalers release negligible amounts of the propellant, and do not pose a threat to ozone depletion. However, the United States joined more than 185 other countries in signing the Montreal Protocol, an international treaty requiring complete withdrawal of all CFC products. The inhaler, deemed medically necessary, was exempt until new market replacements using HFA became available.

Hendeles said he hopes the review will dispel myths about HFA for doctors and patients. Still, even though HFA inhalers are safe for the environment and effective at treating asthma, some people may feel uncomfortable when making the switch. HFA inhalers spew slower and warmer plumes of medicine than their CFC counterparts, so asthma patients may fear their new inhalers aren't strong enough. "There undoubtedly will be some people who are absolutely certain it doesn't work as well," Hendeles said, adding that patient education is the key to proper care.

Dr. Rachel L. Miller, an assistant professor of clinical medicine and public health at Columbia University, said she would urge asthma patients to consult their pharmacist or health-care provider if they're nervous about using the new inhalers. "It's really the same drug," said Miller, who has worked with both CFC and HFA inhalers. "I have found both of them, in my personal experience, seem to work fine."

Source: ufl.edu

"

OVERWEIGHT 'HIGHER ASTHMA RISK'

People who are overweight have a 50% higher risk of developing asthma, scientists have said.

US researchers reviewed seven studies involving over 330,000 adult patients, the American Journal of Respiratory and Critical Care Medicine reported. They said obesity was well-established as a risk factor for diabetes and heart disease, and that asthma could now been added to that list.

UK experts agreed there was a link, but said the reasons were still unclear. Asthma affects the small tubes - airways - that carry air in and out of the lungs.

Obesity is a well-established risk factor for diabetes, stroke, cardiovascular disease and arthritis. The findings support the addition of asthma to that list. When something triggers asthma, the muscle around the walls of the airways tightens so that the airway becomes narrower. The lining of the airways becomes inflamed and starts to swell and mucus or phlegm can be produced. These reactions cause the airways to

become narrower and irritated, which leads to the symptoms of asthma - such as wheezing, shortness of breath and a tight chest.

More than 5m people in the UK are currently being treated for asthma.

The study, by a joint team from the US National Jewish Medical and Research Center and University of Colorado, classed normal weight as someone with a body mass index below 25, overweight over 25 but below 30, and obese as 30 and above.

The analysis showed that for every normal weight person with asthma, there were 1.5 people with asthma who were overweight or obese.

The risk of having asthma for those who were obese was twice that of someone with normal weight. Researchers could not pinpoint what caused the increased risk of asthma.

Obesity causes impairments in lung function, such as a reduction in lung volume and an increase in the amount of oxygen used during breathing, but these on its own would not be enough to induce the condition.

And the researchers warned the symptoms associated with this, such as breathlessness, could have been wrongly interpreted as asthma.

But lead researcher Dr Rand Sutherland still said the link was valid. "If significant weight loss could be achieved in the population of overweight and obese individuals, it could be estimated that the number of new asthma cases could fall significantly. "Obesity is a well-established risk factor for diabetes, stroke, cardiovascular disease and arthritis. The findings support the addition of asthma to that list."

A spokeswoman for Asthma UK said: "There is long-standing evidence that obesity and asthma are linked. "This new research attempts to clarify this relationship, however the exact reasons remain unclear. Other studies have shown that losing weight and getting fitter can help in both managing asthma and improving lung function, which supports our advice to people with asthma that a healthy, balanced diet and regular exercise can help them to feel more in control of their condition." Source: BBC NEWS

"

FAT IN STOMACH OVERRIDES EFFECTS OF VITAMIN C

Fats in our stomach may reduce the protective effects of antioxidants such as vitamin C. Scientists at the University of Glasgow found that in the presence of lipid the ability of antioxidants, such as ascorbic acid (the active component of vitamin C), to protect against the generation of potential cancer-forming compounds in the stomach is less than when no lipids are present. "Our results illustrate how diet can influence gastric biochemistry", says Emilie Combet, the post-doctoral researcher working on the project, who presented her results at the Society of Experimental Biology's Annual Main Meeting on Monday 2nd of April.

The incidence of cancer of the proximal stomach has been increasing over the last 20 years for which environmental factors, such as diet, certainly play a part. Nitrite, which is present in our saliva and is derived from nitrate in our diet, is thought to be a pre-carcinogen for gastric cancer. When it is swallowed and enters the acidic environment of the stomach, nitrite spontaneously forms nitrosating species able to convert a range of targets, such as secondary amines and bile acids, into carcinogenic N-nitrosocompounds. Antioxidants such as ascorbic acid protect against the formation of these nitrosocompounds by converting the nitrosating species back into nitric oxide (NO). However, NO diffuses rapidly to lipids, where it reacts with oxygen to reform nitrosating species. The presence of lipids therefore overrides the protective effect of vitamin C against the formation of harmful compounds.

Source: .medicalnewstoday.com

"

HOT ON THE TRAIL

Not getting enough exercise? Be a trailblazer.

In a study, when compared to people who rarely or never used public trails, people who used community trails were twice as likely to get needed exercise. It's a good excuse to celebrate warmer weather, too.

Walking is one of the best things you can do for your health, be it on a treadmill or a trail. It can help manage your weight and boost muscle mass. It's also good for the joints and helps ease arthritis pain. All you need is 30 minutes a day. Even if you tackle a trail only once a week, you're better off than someone who doesn't set foot on them.

Improved access to community trails prompts people to walk more, but if you don't live near a park with trails, you may have to get creative. Try a less-traveled route. Trails come in all forms, from dried-out creek beds to cemetery paths to wilderness walks. And the next time an initiative to add a public park with trails is on the ballot, show your support.

Source: RealAge.com

"

TAI CHI MAY PREVENT PAINFUL SHINGLES

Study suggests Chinese exercise fights shingles in older people

Tai chi is already known as a good low-impact exercise for older people. Now a recent study suggests it offers benefits beyond improving fitness and balance: It may help prevent shingles, a painful skin condition. Researchers found older people who performed the slow, graceful movements of tai chi had a better immune response against the virus that causes shingles than those who only got health education, according to the most rigorous test to date.

It's unclear how tai chi, an ancient Chinese martial art that has become increasingly popular in the West, affects the immune system. But health experts were encouraged by the positive results. "The message is that older people need to maintain healthy behavior," said Andrew Monjan of the National Institute on Aging, which helped fund the research. "It's nothing that our mothers haven't told us, but we're seeing it certainly holds up to scientific inquiry."

The study appears in the April issue of the Journal of the American Geriatrics Society and was led by Dr. Michael Irwin

of the University of California, Los Angeles.

Shingles is a painful skin rash that can pop up in people who have had chickenpox. The chickenpox virus can remain dormant in the body and resurface as shingles years later. It usually starts with pain and itching on the skin that later turns into an irritating rash. An estimated 1 million Americans are afflicted with shingles every year and it commonly occurs in people 50 years old and older.

The UCLA study involved 112 healthy adults, ages 59 to 86, who have had previous cases of chickenpox. Half of them took tai chi classes three times a week for three months and the rest attended health education classes where they were taught good diet habits and stress management. Then both groups were vaccinated with a chickenpox vaccine. Researchers took periodic blood tests before and after vaccination to determine their level of immunity against shingles. After six months, the tai chi group had nearly twice the level of immunity against shingles than the education group. Those who performed tai chi before vaccination had an immune response that was similar to what a vaccine would produce in a younger population. Tai chi combined with the vaccine showed a 40 percent increase in immunity than the vaccine alone, researchers found.

The results weren't surprising to tai chi instructor Howard Chuck, who owns a tai chi academy in Sunnyvale, Calif. Although none of his students are trying to ward off shingles, Chuck said the exercise is popular among his older people who prefer tai chi's meditation aspects. "Tai chi requires a lot of mind power not just muscle power," he said.Source: MSNBC.com

"

STEM CELL EXPERIMENT LETS DIABETICS FOREGO INSULIN

Risky transplants performed on 13 young diabetics in Brazil

Thirteen young diabetics in Brazil have ditched their insulin shots and need no other medication thanks to a risky, but promising treatment with their own stem cells — apparently the first time such a feat has been accomplished. Though too early to call it a cure, the procedure has enabled the young people, who have type 1 diabetes, to live insulin-free so far, some as long as three years. The treatment involves stem cell transplants from the patients' own blood.

"It's the first time in the history of type 1 diabetes where people have gone with no treatment whatsoever ... no medications at all, with normal blood sugars," said study co-author Dr. Richard Burt of Northwestern University's medical school in Chicago.

While the procedure can be potentially life-threatening, none of the 15 patients in the study died or suffered lasting side effects. But it didn't work for two of them. Larger, more rigorous studies are needed to determine if stem cell transplants could become standard treatment for people with the disease once called juvenile diabetes. It is less common than type 2 diabetes, which is associated with obesity.

The hazards of stem cell transplantation also raise questions about whether the study should have included children. One patient was as young as 14. Dr. Lainie Ross, a medical ethicist at the University of Chicago, said the researchers should have studied adults first before exposing young teens to the potential harms of stem cell transplant, which include infertility and late-onset cancers. In addition, Ross said that the study should have had a comparison group to make sure the treatment was indeed better than standard diabetes care.

Ethical questions

Burt, who wrote the study protocol, said the research was done in Brazil because U.S. doctors were not interested in the approach. The study was approved by ethics committees in Brazil, he said, adding that he personally believes it was appropriate to do the research in children as well as adults, as long as the Brazilian ethics panels approved. Burt and other diabetes experts called the results an important step forward. "It's the threshold of a very promising time for the field," said Dr. Jay Skyler of the Diabetes Research Institute at the University of Miami.

Skyler wrote an editorial in the Journal of the American Medical Association, which published the study, saying the results are likely to stimulate research that may lead to methods of preventing or reversing type 1 diabetes. "These are exciting results. They look impressive," said Dr. Gordon Weir of Joslin Diabetes Center in Boston.

Still, Weir cautioned that more studies are needed to make sure the treatment works and is safe. "It's really too early to suggest to people that this is a cure," he said. The patients involved were ages 14 to 31 and newly diagnosed with type 1 diabetes. An estimated 12 million to 24 million people worldwide — including 1 to 2 million in the United States — have this form of diabetes, which is typically diagnosed in children or young adults. An autoimmune disease, it occurs when the body attacks insulin-producing cells in the pancreas. Insulin is needed to regulate blood sugar levels, which when too high, can lead to heart disease, blindness, nerve problems and kidney damage. Burt said the stem cell transplant is designed to stop the body's immune attack on the pancreas.

A study published last year described a different kind of experimental transplant, using pancreas cells from donated cadavers, that enabled a few diabetics to give up insulin shots. But that requires lifelong use of anti-rejection medicine, which isn't needed by the Brazil patients since the stem cells were their own. The 15 diabetics were treated at a bone marrow center at the University of Sao Paulo. All were newly diagnosed, before their insulin-producing cells had been destroyed.

Timing key

That timing is key, Burt said. "If you wait too long," he said, "you've exceeded the body's ability to repair itself." The procedure involves stimulating the body to produce new stem cells and harvesting them from the patient's blood. Next comes several days of high-dose chemotherapy, which virtually shuts down the patient's immune system and stops destruction of the few remaining insulin-producing cells in the body. This requires hospitalization and potent drugs to fend off infection.

The harvested stem cells, when injected back into the body, build a new healthier immune system that does not attack the insulin-producing cells.

Patients were hospitalized for about three weeks. Many had side effects including nausea, vomiting and hair loss. One developed pneumonia, the only severe complication.

Doctors changed the drug regimen after the treatment failed in the first patient, who ended up needing more insulin than before the study. Another patient also relapsed. The remaining 13 “live a normal life without taking insulin,” said study co-author Dr. Julio Voltarelli of the University of Sao Paulo. “They all went back to their lives.” The patients enrolled in the study at different times so the length of time they’ve been insulin-free also differs.

Burt has had some success using the same procedure in 170 patients with other autoimmune diseases, including lupus and multiple sclerosis; one patient with an autoimmune form of blindness can now see, Burt said. “The body has tremendous potential to repair,” he said.

The study was partly funded by the Brazilian Ministry of Health, Genzyme Corp. and a maker of blood sugar monitoring products. Source: MSNBC.com

"

HERB MAY HELP TREAT BLADDER INFECTIONS

Combined with antibiotics, forskolin helps wipe out tough bacteria in mice

An herbal extract that is sold in health food stores and promoted as an allergy and fat loss aid may improve treatment of bladder infections when it is taken with antibiotics, research suggests. Some 90 percent of bladder infections are caused by E. coli bacteria. They affect women four times more often than men, sometimes recurring over and over. The bladder is lined with small pouches that allow it to stretch as it fills. Researchers at Duke University reported in Sunday's online edition of Nature Medicine that some bacteria were able to hide in those pouches, escaping the antibiotics used to treat the infection. In tests in mice, the extract forskolin can cause the pouches to kick out the bacteria, allowing antibiotics to kill them, said the lead researcher, microbiologist Soman N. Abraham. Forskolin is derived from the Indian coleus plant.

"If we combine this with antibiotics we would be in a very good position to eradicate urinary tract infection," he said in a telephone interview. In the experiments, forskolin was injected into some mice and placed directly into the bladders in others, Abraham said. The extract is available in health food stores and some people take it by mouth as a supplement, he said. It is promoted as a treatment for allergies, breathing problems and even fat loss. That availability does "absolutely not" mean people should attempt to treat themselves for bladder infections, Abraham said.

See your doctor first

Urinary tract infections must be treated with antibiotics because they can quickly spread to the kidneys, so infected people needed to see their doctor, he said. But the fact that forskolin is being used by some people does help indicate it is safe, he said. Abraham said the next step for the researchers is to experiment in larger animals to see if they can completely eliminate a bladder infection. "If we can show an impact in combination with antibiotics it should not be too long before we can go to clinical trials" in people, he said. Extracts from the Indian coleus were used in ancient Asia to treat a variety of diseases including urinary tract infections, Abraham said. "So, we have come full circle," he said.

Walter Hopkins, a scientist in the Division of Urology at the University of Wisconsin School of Medicine and Public Health, said the research shows "forskolin may provide a means to interrupt the infection-reinfection cycle" and lead to a quicker resolution of the illness. "If these results could be duplicated in human studies, forskolin could offer a new treatment option for recurrent" urinary tract infection said Hopkins, who was not part of the research team.

Dr. Gregor Reid of the Lawson Health Research Institute in London, Ontario, said the research was interesting. "In some patients, such augmentation may be beneficial. Once human studies are done, we'll have a better idea," he said. "For now, this concept is a long way from being used in patients," said Reid, who was not part of the research team.

The research was funded by the National Institutes of Health. Source: MSNBC.com

"

DAIRY, FRUITS AND VEGGIES MAY HELP SMOKERS QUIT

Milk does the body good -- and may help smokers break the habit, say researchers at Duke University Medical Center.

Smokers reported that consuming milk, water, fruits and vegetables worsened the taste of cigarettes, while consuming alcohol, coffee and meat enhanced their taste, according to the scientists.

The findings could lead to a "Quit Smoking Diet" or to development of a gum or lozenge that makes cigarettes less palatable, said lead study investigator Joseph McClernon, Ph.D., an assistant research professor of medical psychiatry at the Duke Center for Nicotine and Smoking Cessation Research.

"With a few modifications to their diet -- consuming items that make cigarettes taste bad, such as a cold glass of milk, and avoiding items that make cigarettes taste good, like a pint of beer -- smokers can make quitting a bit easier," McClernon said.

The findings appear in the April 2007 issue of the journal Nicotine and Tobacco Research. The research was funded by the National Institute on Drug Abuse.

In what the researchers say is the first study to explore the taste-altering effects of food and beverages on cigarette palatability, they asked 209 smokers to name items that worsen or enhance the taste of cigarettes.

Nineteen percent of them reported that dairy products, such as milk or cheese, worsen the taste of cigarettes; 14 percent reported noncaffeinated beverages, such as water or juice; and 16 percent reported fruits and vegetables.

Forty-four percent of them reported that alcoholic beverages enhance the taste of cigarettes; 45 percent reported

caffeinated beverages, such as tea, cola and coffee; and 11 percent reported meat.

Smokers of menthol cigarettes were less likely to report that any foods or beverages altered the taste of cigarettes, a finding that suggests menthol covers up bad tastes stemming from items consumed with cigarettes, the researchers said.

Identifying which components of foods and beverages ruin the taste of cigarettes could lead to new treatments to deter smoking, said study co-investigator Jed E. Rose, Ph.D., director of the Duke center.

The researchers are now looking at the possibility of using the chemical silver acetate, which is known to alter the taste of cigarettes, to help smokers quit. The additive could be given in the form of a gum or a lozenge as part of smoking cessation treatment.

"Every deterrent treatment requires willpower," Rose said. "This approach alone will not work. It may make cigarettes less pleasurable, but ultimately, if a person is craving a cigarette, he will start smoking again."

Rose recommends that diet modifications be used in combination with standard nicotine replacement therapy, such as the nicotine patch and nicotine gum, to help with withdrawal.

Source: medicalnewstoday.com

"

THE NEW WINE ALTERNATIVE

You don't have to pour red wine on your Cheerios to get the heart-healthy goodness of resveratrol in the morning. Bring blueberries to your breakfast table instead. Blueberries are rich in the same potent anti-cancer and heart-protective resveratrol compound found in abundance in red wine. Just how healthful are blueberries?

Blueberries and other berries of the same species are known for their antioxidant prowess, thanks to the fact that they're brimming with phenols. Some of the phenol compounds recently identified in different blueberry species include not only resveratrol but also piceatannol, a cancer-fighting phenol, and pterostilbene, a phenol credited with helping control blood sugar. Blueberries are loaded with fiber as well.

The latest research on blueberries suggests that the combination of health-promoting substances found in blueberries may work synergistically to dramatically slash disease risk. That's probably why studies link the berries to better brain function, lower cancer risk, and possibly even improved stroke outcomes. Here's another tip on foods with nutritional synergies. So start your day with a berry healthy breakfast. If you can't find fresh berries, frozen are fine. Add them to cereal, pancakes, waffles, low-fat yogurts, or smoothies. Need help getting creative? Try the muffin recipe below.

Recipe Corner

Can't leave the house without your morning muffin? Try this recipe for Blueberry-Maple Muffins. Ingredients include pure maple syrup for sweetness, flaxseeds for fiber and heart-healthy omega-3 fatty acids, and -- of course -- blueberries!

Nutrition Profile: Low Calorie | Low Sodium | Low Sat Fat | Heart Healthy | Healthy Weight

Flaxseeds give these wholesome muffins a nutty taste (although you can substitute 3/4 cup rolled oats) and maple syrup provides the subtle sweetening.

Makes 1 dozen muffins
Active Time: 30 minutes
Total Time: 1 hour
Ease of Preparation: Moderate

Ingredients

1/3 cup whole flaxseeds
1 cup whole-wheat flour
3/4 cup plus 2 tablespoons all-purpose flour
1 ½ teaspoons baking powder
½ teaspoon baking soda
1/4 teaspoon salt
1 teaspoon ground cinnamon
2 large eggs
½ cup pure maple syrup
1 cup buttermilk (see Tip)
1/4 cup canola oil
2 teaspoons freshly grated orange zest
1 tablespoon orange juice
1 teaspoon vanilla extract
1 ½ cups fresh blueberries
1 tablespoon granulated sugar

1. Preheat oven to 400˚F. Coat 12 muffin cups with cooking spray.
2. Grind flaxseeds in a spice mill (such as a clean coffee grinder) or dry blender. Transfer to a large bowl. Add whole-wheat flour, all-purpose flour, baking powder, baking soda, salt and cinnamon; whisk to blend.
3. Whisk eggs and maple syrup in a medium bowl until smooth. Add buttermilk, oil, orange zest, orange juice and vanilla; whisk until blended. Add to the flour mixture and mix with a rubber spatula just until dry ingredients are moistened. Fold in blueberries. Scoop the batter into the prepared muffin cups. Sprinkle tops with granulated sugar.
4. Bake the muffins until the tops are golden brown and spring back when touched lightly, 15 to 25 minutes. Let cool in the pan for 5 minutes. Loosen edges and turn muffins out onto a wire rack to cool slightly.

Nutrition Information: Per muffin: 207 calories; 8 g fat (1 g sat, 3 g mono); 36 mg cholesterol; 29 g carbohydrate; 5 g protein; 4 g fiber; 185 mg sodium.

Tip: You can use buttermilk powder in place of fresh buttermilk. Or make "sour milk": mix 1 tablespoon lemon juice or vinegar to 1 cup milk.

Ingredient note: Flaxseeds, valued as a source of omega-3 fatty acids and fiber, can be found in the natural-foods section of large supermarkets and health-food stores. You must grind the seeds for your body to absorb the benefits.

Source: RealAge.com

The information in this newsletter is for educational purposes only. Always consult with your doctor first about your specific condition, treatment options and other health concerns you may have.

EFFORTS
Suite D
239 NE US HWY 69
Claycomo, Mo. 64119