

# EFFORTS

*Emphysema Foundation For Our Right To Survive*



Emphysema Takes Your Breath Away

August 2005

## **ATP COULD BRING YOUR BREATH BACK**

Scientists have pinpointed the molecular trigger that tells the body to breathe more quickly and deeply when our metabolism increases, such as when we exercise. Their findings, published in the latest issue of *Nature*, could shed light on ways to boost breathing, for example for Olympic athletes, along with better understanding common respiratory disorders such as sleep apnoea, sudden infant death syndrome and Ondine's curse, a rare breathing disorder where patients who fall asleep stop breathing and die.

The team of scientists from University College London (UCL) and University of Warwick have discovered that adenosine triphosphate (ATP) - a molecule known to be the intracellular energy "currency" - is released from key areas of the brain when blood levels of carbon dioxide (CO<sub>2</sub>) rise.

Dr Alexander Gourine from UCL's Department of Physiology says: "Whether you are sprinting for an Olympic medal or simply running for the bus, your body has to increase your breathing to ensure you are absorbing enough oxygen to fuel your muscles and exhale extra CO<sub>2</sub> for the duration of your sprint.

"While the broad control mechanism for breathing has been known for many years, we have discovered how this works at the molecular level. The release of a key chemical from the brain effectively matches your breathing to your metabolism and activity. In other words, extracellular ATP in the brain optimises your breathing to boost maximum performance.

"Our findings could potentially be used to help identify ways of stimulating respiration, particularly for breathing disorders such as chronic airway disease, sleep apnoea and Ondine's curse - a rare breathing disorder where patients who fall asleep stop breathing and die. It could also be of relevance to sudden infant death syndrome - the leading cause of death in infants between 1 month and 1 year of age in the industrial world."

When our metabolism increases, for example when we start to exercise, we may experience an increase in CO<sub>2</sub> levels in the blood, where the body is taking oxygen out of the bloodstream and releasing CO<sub>2</sub> as a waste gas. In this study, this rise was found to trigger the immediate release of ATP from CO<sub>2</sub> sensitive regions of the brain, which in turn regulated the body's breathing to maintain blood CO<sub>2</sub> at adequate levels. Blocking ATP receptors at these sites was found to diminish the chemosensory control of breathing, which prevented the body from increasing respiration sufficiently to meet the needs of the metabolism.

.....Source: [medical.newstoday.com](http://medical.newstoday.com) July 8, 2005

## **CRAPRO INTRODUCES BILL FOR PULMONARY AND CARDIAC MEDICARE PATIENTS**

### ***Bill would include rehabilitation as a covered benefit***

Idaho Senator Mike Crapo introduced legislation to include pulmonary and cardiac rehabilitation as a covered Medicare benefit. Senator Blanche Lincoln (D-Arkansas) joined Senator Crapo as an original co-sponsor. If passed, this legislation would end the decade-long debate between providers, the Centers for Medicare and Medicaid Services (CMS) and the various fiscal intermediaries responsible for reimbursing for these services.

Currently, there is no specific reference to pulmonary or cardiac rehabilitation services in the Medicare statute. While pulmonary and cardiac rehabilitation programs generally are often considered a covered service by Medicare under the "incident to physician services" clause, the absence of a national coverage policy decision has limited access to necessary care and lack of reimbursement in many instances.

"Pulmonary and cardiac rehabilitation is recognized as the standard of care for chronic lung disease and has proven effective in lowering inpatient stays and even removing the need for certain kinds of surgery," said Senator Crapo. "The fact that our healthcare providers have gone so long under such intermittent and provincial rules is a testament to the diligence in their profession and desire for effective patient care. Now is clearly the time for a national, comprehensive Medicare policy—our seniors and their providers deserve the enactment of this legislation."

"In Arkansas, thousands of patients with heart and lung disease use cardiac rehabilitation and pulmonary rehabilitation programs," said Senator Blanche Lincoln. "Our legislation will ensure that Medicare beneficiaries receive consistent access to this necessary care."

Supporters of this legislation include the American Association for Cardiovascular and Pulmonary Rehabilitation, American Association for Respiratory Care, American College of Chest Physicians, American Hospital Association, American Thoracic Society, and the National Association for Medical Direction of Respiratory Care, National Home Oxygen Patients Association.

.....Source: [www.senate.gov](http://www.senate.gov)

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## **DEVICE MAY GIVE SOME EMPHYSEMA PATIENTS BREATHING ROOM**

A tiny umbrella-shaped valve designed to improve pulmonary function for emphysema patients is under investigation by researchers at the Indiana University School

of Medicine. The study, which is being conducted at Indiana University Hospital and five other sites around the country, is evaluating the safety and effectiveness of the Intra-Bronchial Valve, a device developed by Spiration Inc.

The minimally invasive procedure may be an option for emphysema patients who are not candidates for lung volume reduction surgery, which removes diseased areas of the lung. The specialized valves, which range in size from 5-to-9 millimeters, are implanted near the area of the lung damaged by emphysema using a catheter inserted through a bronchoscope. When in place, the valves contract and expand, limiting ventilation to the diseased area and allowing the healthier portion of the lung to function more efficiently.

"Initial results are promising," says Praveen N. Mathur, M.B.B.S., professor of medicine, who is leading the IU clinical trial. "Ideally, patients experience improved lung function, exercise capability and quality of life."

Patients, who are sedated during the procedure, usually are discharged from IU Hospital within 24 hours. Typically, they experience increased activity within three months of the procedure, Dr. Mathur says. Three patients have undergone the IBV procedure at IU since the study got under way at the beginning of the year. IU researchers want to enroll more patients as the trial progresses, says Dr. Mathur.

Patients enrolling in the trial must:

- Have been diagnosed with severe emphysema
- Meet the goals of a preoperative pulmonary rehabilitation program

- Have abstained from smoking for the past four months

Emphysema is a progressive disease affecting 3 million Americans. It causes irreversible lung damage, and, over time, the elasticity of lung tissue is lost, causing air to be trapped in air sacs and impairing the exchange of oxygen and carbon dioxide. Smoking is the major cause of the disease.

At present, the only treatments to prevent further damage wrought by emphysema are pharmacotherapy, oxygen therapy and lung transplantation or lung volume reduction surgery.

.....Indiana University School of Medicine

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### **'HARMLESS' BACTERIUM FOUND TO CAUSE 10 PERCENT OF COPD FLARE-UPS**

A ubiquitous bacterial strain thought to be uninvolved in chronic obstructive pulmonary disease (COPD) in fact is responsible for 2-4 million flare-ups of the condition that occur annually in the United States, researchers from the University at Buffalo have shown.

The bacterium, *Moraxella catarrhalis* or *M. catarrhalis*, often is present in sputum of adults with COPD. However, its potential role in the disease was ignored for decades, because studies in the early 1950s had found it to be relatively harmless.

A study published in the July 15 issue of the American Journal of Respiratory and Critical Care Medicine reports that *M. catarrhalis* was found to be responsible for approximately 10 percent of exacerbations of COPD.

Timothy F. Murphy, M.D., professor of medicine and microbiology in the UB School of Medicine and Biomedical Sciences, was lead author on the study.

"This paper is the first to study the involvement of *M. catarrhalis* in a prospective way in adults with COPD," Murphy said. "Using rigorous methods, our work has shown that acquiring *M. catarrhalis* is strongly associated with the onset of symptoms of an exacerbation.

"People with COPD, estimated to be about 20 million in the U.S., experience one to two exacerbations per year," said Murphy, chief of the UB medical school's Infectious Diseases Division and a pioneer in vaccine development for respiratory disease. "If 10 percent of all exacerbations are caused by *M. catarrhalis*, that translates to 2-4 million exacerbations annually."

COPD is the fourth leading cause of death in the U.S. and many of those deaths occur during exacerbations, he id. "Exacerbations also cause enormous morbidity and health-care costs. They lead to physician visits, emergency room visits, hospital admissions and respiratory failure requiring mechanical ventilation."

In addition to showing that *M. catarrhalis* is involved in exacerbations of COPD, the researchers also found that patients make immune responses to the bacterium when they acquire it.

"Both of these observations provide lines of evidence that *M. catarrhalis* is a pathogen for these patients and provide a strong rationale for pursuing the development of vaccines to prevent *M. catarrhalis* infections in people with COPD," Murphy said.

The study involved 104 adults with COPD who were seen at the outpatient clinic at the Buffalo Veterans Affairs Medical Center over 81 months. During this period, patients made 3,009 clinic visits, 560 of which were during exacerbations. Sputum samples were collected at each clinical visit and molecular typing of organisms was conducted, as well as assays to measure immune response.

Researchers identified 120 episodes of *M. catarrhalis* infections in 50 patients, nearly half of which were associated with flare-ups of COPD. There was no evidence that exacerbations were associated with acquisition of a new strain of another pathogen.

"We know that *M. catarrhalis* causes ear infections in children," said Murphy. "With these new observations regarding the importance of the bacterium in adults with COPD, we have even more reason to forge ahead with developing a vaccine to prevent *M. catarrhalis* infections."

.....Source: [medicalnewstoday.com](http://medicalnewstoday.com)

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### **WALL STREET JOURNAL PROFILES RESEARCH TECHNIQUE THAT COULD PRODUCE STEM CELLS WITHOUT HARMING EMBRYOS**

The Wall Street Journal on Tuesday examined the work of a Chicago researcher who says he has developed a technique that allows him to create human stem cells that have the potential of embryonic stem cells without the use of human embryos. Yury Verlinsky of the Reproductive Genetics Institute and colleague Nik Strelchenko have devised a way to make chemical signals inside cells "reprogram" another cell

and make it behave like a stem cell. The technique involves spinning stem cells in a centrifuge to remove their nuclei and DNA and then combining "hollowed-out" cells with ordinary adult cells, such as skin cells. The research remains in its early stages and has yet to be published in a scientific journal. At the request of Senate Majority Leader Bill Frist (R-Tenn.), Verlinsky on Tuesday traveled to Washington, D.C., to brief Republican staffers at the Capitol on the technique. Congressional Republicans recently introduced legislation (HR 3144) that would promote new, unproven techniques that might allow scientists to retrieve embryonic stem cells without creating or destroying embryos (Regalado, Wall Street Journal, 7/20). Frist is promoting the legislation -- which would authorize federal funding to be used for animal studies that might eventually allow scientists to create human embryonic stem cells without the use of human embryos -- as a compromise measure between the Bush administration's current policy limiting federal funding for human embryonic stem cell research and the Stem Cell Research Enhancement Act of 2005 (HR 810/S 471). HR 810, which would expand federal funding for embryonic stem cell research and allow research using stem cells derived from embryos originally created for fertility treatments and willingly donated by patients, has been approved by the House, but Bush has threatened to veto it (Kaiser Daily Reproductive Health Report, 7/13).

.....Source: medicalnewstoday.com

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### **TAKEDA TO DISCLOSE CLINICAL TRIALS INFORMATION ONLINE**

Takeda Pharmaceutical Company Limited today announced to start disclosure of its clinical trials information in the web-site starting July 1, 2005. This new movement was to follow the joint positioning statement dated January 6 this year by the bodies collectively representing the pharmaceutical industry worldwide such as IFPMA, EFPIA, JPMA and PhRMA.

IFPMA : International Federation of Pharmaceutical Manufacturers & Associations

EFPIA : European Federation of Pharmaceutical Industries and Associations

JPMA : Japanese Pharmaceutical Manufacturers Association

PhRMA : Pharmaceutical Research and Manufacturers of America

Takeda has established the disclosure criteria taking into consideration the said positioning statement as follows:

1. Clinical trials accomplished on or after January 6, 2005 for a product that is marketed in any country of the world. Summary of mainly phase III and IV confirmatory clinical trial data including name of the product, clinical phase, purpose and methods, number of patients, endpoint, statistics, etc.

2. Clinical trials to be initiated on or after July 1, 2005 Summary of protocol of phase III and IV confirmatory clinical trials including development code, clinical phase, target disease, purpose, etc. In this case, summary of protocol is disclosed within 21 days from the start of enrolment of the patients.

The information of all the clinical trials meeting the above criteria will be posted in our English web site, and as for those conducted in Japan, the information in Japanese is also posted in

the web site. In addition, the protocols of the clinical trials in Japan meeting the above criteria 2 will be posted in the specific web site for clinical trials which is now under construction jointly by JPMA and JAPIC (Japan Pharmaceutical Information Center), while we are considering to post those in the US and Europe on the web site of the US NIH (National Institute of Health).

We expect that this disclosure assure the transparency of the information on the clinical trials for the healthcare profession, the patients and other related persons, which we believe will contribute to appropriate use of Takeda's products worldwide.

Takeda, located in Osaka, Japan, is a research-based global company with its main focus on pharmaceuticals. As the largest pharmaceutical company in Japan and one of the global leaders of the industry, Takeda is committed to striving toward better health for individuals and progress in medicine by developing superior pharmaceutical products.

.....Medical News Today July 2005

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### **SCRIPPS RESEARCH SCIENTISTS DISCOVER NEW KEY TO PULMONARY EDEMA IN RESPIRATORY DISTRESS SYNDROME**

Physiology is sometimes a crossroads where many different paths converge. Such is the case with acute respiratory distress syndrome, a severe and often fatal condition also known as adult respiratory distress syndrome or simply "shock lung."

Acute respiratory distress syndrome can be caused by a number of underlying conditions, including smoke inhalation, a severe blow to the chest, bad pneumonia, septic shock, severe blood loss, or drug overdose. Although the causes vary greatly, the situation for a patient who arrives at an emergency room with acute respiratory distress syndrome is largely the same-critical. Adult respiratory distress syndrome leads to the filling of the lung's airways with fluids, a condition known as pulmonary edema. This leads to a reduction of oxygen intake, which can rapidly degenerate into complete respiratory failure.

"It's a serious complication that often results in death," says Professor Hugh Rosen, M.D., Ph.D., of The Scripps Research Institute.

Adult respiratory distress syndrome is usually treated by ventilation that increases the oxygen available to the lungs, as well as by antibiotics, muscle relaxers, pain relievers, heart stimulants, and other drugs that address some of the related problems. According to the U.S. National Heart, Blood, and Lung Institute, these therapies have helped greatly. While in the past fewer than half of all people who developed acute respiratory distress syndrome survived, now as many as seven out of ten receiving critical care in a hospital do.

Now, hoping to improve matters further, Rosen and his Scripps Research colleagues are reporting a new molecular mechanism that controls how the lungs are kept dry and under what conditions they permit fluids to enter. The mechanism involves a protein called the S1P3 receptor expressed on the surface of the cells lining the lung's air sacs. When the receptor

is activated, the lungs become leaky, causing pulmonary edema.

Because the S1P3 receptor is involved in pulmonary edema, blocking this receptor may be a way to improve the prognosis for people with acute respiratory distress syndrome.

### **Gas Exchange and What Goes Wrong When Lungs Are Wet**

The lung is a remarkable piece of anatomy that enables the exchange of gaseous molecules from the environment with molecules in the bloodstream. Though the lungs are compact enough to fit inside our rib cages, lung tissue is a series of airways and air sacs so elaborate that the air cavities inside the lungs encompass an area about 40 times larger than the surface area of the entire body.

These air cavities play a crucial role for the body because they let oxygen into the bloodstream, where it is picked up by erythrocytes, or red blood cells, and carried to the rest of the tissues throughout the body. The cavities are also where carbon dioxide, a waste product, is removed from the blood stream and expelled from the body.

With each breath you take, air flows in your mouth or through your nasal passageways and down your throat. It goes past the epiglottis, the flap that keeps the food and drink you have consumed from spilling into your lungs. Then, the air flows into the larynx, past your vocal cords, and down the trachea, which splits into the two primary bronchi-one feeding each lung. From there, the air continues to the ends of the bronchi, which bifurcate like thousands of stems branching from a trunk into about 30,000 tiny terminal "bronchioles" in each lung. At the ends of the bronchioles are tiny grape-like clusters of air sacs known as the alveoli. It is in the alveoli that the gas exchange with blood occurs.

The alveoli are elastic cavities lined with a tiny amount of fluid and a molecule called surfactant, which prevents these airways from collapsing in on themselves. Surrounding the alveoli are networks of tiny capillaries that carry oxygen-depleted blood around the outside of the alveoli. When a tiny portion of air reaches the alveoli, gasses are easily dissolved into the fluid, and then exchanged with molecules in the adjacent bloodstream.

One physiology that enables this exchange is the lung epithelium, the specialized layer of cells immediately lining the air sacs. The epithelium is held together via what are known as tight junctions. These tight junctions are made up of proteins that insert through the membranes of adjacent cells and link the cells together so tightly that they prevent salt and other small molecules from passing through the gaps between the cells.

In the airways of the lung, tight junctions are critical because there are only two layers of cells between the air and the blood it is supplying with oxygen-a layer of epithelial cells lining the alveoli and a layer of endothelial cells forming the walls of the blood vessels. The total space between the bloodstream and the air at this interface is only about one five-thousandth of a millimeter. This thinness is essential because oxygen and carbon dioxide molecules have to be able to pass through this space during gas exchange, and the further the molecules have to go, the harder it is for oxygen to reach the blood.

When fluid leaks into the lungs, the distance the gas

molecules must travel to reach the blood increases, and this impedes gas exchange. In acute respiratory distress syndrome, pulmonary edema can be so severe that the lungs become heavy and stiff, which is why acute respiratory distress syndrome has also been called "wet lung" or "stiff lung."

Physiologically, pulmonary edema can be caused by conditions other than acute respiratory distress syndrome, for example congestive heart failure, which leads to an increase in pressure in the capillaries surround the lung sacs and a leaking of fluid in the lungs. But in acute respiratory distress syndrome, there is not necessarily too much pressure in the capillaries. So why the fluid-filled lungs?

One reason, Rosen and his colleagues have reported in an upcoming issue of the journal *Proceedings of the National Academy of Sciences*, may be because of the signaling of a small lipid called sphingosine 1-phosphate (S1P), that is produced at sites of inflammation. The activation of S1P3 receptors in the lung by S1P may be what causes pulmonary edema to arise by causing a breakdown of the epithelial barrier.

### **Breakdown of the Tight Junctions**

The work started as a collaboration between Rosen and his Scripps Research colleague Professor Jerold Chun, M.D., Ph.D., both of whom have spent several years studying various lipids and lipid receptor systems in the body including sphingosine 1-phosphate and the lysophosphatidic acid receptors. Sphingosine 1-phosphate is produced or secreted throughout the body, including in the lungs, where it has been found in the lung fluid taken from patients with asthma. The production of sphingosine 1-phosphate is induced as a response to the presence of pro-inflammatory chemicals such as type-1 interferons and tumor necrosis factor, which are both produced during septic shock, one of the exact conditions that lead to edema.

Wanting to know what effect sphingosine 1-phosphate has on edema, the Rosen lab looked at the effect of the lipid on the cells lining the lung and the blood vessels surrounding the lungs. Chun's group had created mutant mice deficient for the S1P3 receptor, which allowed a clean assessment of its role in the lung.

On the blood vessel side, the "endothelial" cells lining the capillaries express a type of protein known as S1P1 receptors. Activation of these S1P1 receptors with the sphingosine 1-phosphate leads to the tightening of junctions between the endothelial cells and the stoppage of potential leakage-the opposite of what happens in edema.

However, the epithelial cells on the lung side express a slightly different type of S1P receptor called the S1P3 receptor protein. Yasuhiro Gon, M.D., Ph.D., found that when sphingosine 1-phosphate is administered into lung sacs, it activates the S1P3 receptors on the airway side of these epithelial cells and induces pulmonary edema. Significantly, they found that a mouse model that has no receptors of this type is protected against pulmonary edema when exposed to sphingosine 1-phosphate.

Why does the sphingosine 1-phosphate induce lung

leakage? To answer this, Rosen and Gon turned to their collaborators Malcolm Wood, Ph.D., and William Kiosses, Ph.D., in Scripps Research's Core Microscopy facility. They applied fluorescence microscopy to sections of tissue that had been exposed to sphingosine 1-phosphate and showed that the leakage occurs because the activation of S1P3 receptor signaling causes disruptions in the integrity of the tight junctions between epithelial cells. Electron microscopy revealed that certain proteins normally found in the tight junctions had been lost.

These results suggest that a chemical antagonist (something that blocks activation) of the sphingosine 1-phosphate receptors in the lung airways might be protective against pulmonary edema and might lead to a therapy to address acute respiratory distress syndrome.

.....Scripps.edu

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## LOW VITAL CAPACITY INDEPENDENTLY PREDICTS TYPE 2 DIABETES

*Lower vital capacity independently predicts the development of type 2 diabetes, according to a report in the June Diabetes Care.*

"Diabetes and lung function are connected," Dr. Frederick L. Brancati from Johns Hopkins University, Baltimore, Maryland told Reuters Health. "We don't know why yet, but this is new and deserves attention."

Dr. Brancati and colleagues used data from the Atherosclerosis Risk in Communities (ARIC) study to test their hypothesis that lower lung function, as indicated by lower vital capacity, is associated with features of insulin resistance and is an independent predictor of new onset type 2 diabetes.

Lower forced vital capacity (FVC) (% predicted) was associated with higher fasting glucose, insulin, and triglycerides, higher systolic blood pressure, and lower HDL cholesterol among men and women in the database, the authors report.

During 9 years of follow-up, there was an inverse relationship between FVC (% predicted) and the incidence of type 2 diabetes, the report indicates. The age- and race-adjusted incidence in the lowest FVC (% predicted) group (28.3 cases per 1000 person-years) was more than twice that in the highest FVC (% predicted) group for both men and women.

Adjustment for the presence of metabolic syndrome or for fasting glucose, insulin resistance, and systolic blood pressure slightly attenuated the association between vital capacity and incident type 2 diabetes, the researchers note, but the association was stronger among men and women who did not smoke.

FVC was significantly more likely to be lower among individuals who were African American, older, and less educated; those who smoked more cigarettes; those who were less physically active; those with higher body-mass index, waist circumference, and waist-to-hip ratio; those with metabolic syndrome; and those with higher white blood cell counts and fibrinogen levels, the results indicate.

"The main implication of our study is that lower vital capacity of the lung deserves attention as an emerging, novel risk factor for type 2 diabetes," the authors conclude. "Even if it turns out not to lie within a causal pathway to diabetes, FVC might still be a useful risk predictor, and the FVC-diabetes link could

suggest explanations for other phenomena, like the elevated risk of heart disease associated with low vital capacity."

"We're looking at rate of decline of FVC in adults with already established diabetes, on the hunch that there could be a cycle," Dr. Brancati said. "We're also collaborating with sleep experts to study sleep related breathing disturbances in relation to insulin resistance. Finally, we're investigating a 'fetal origins' angle, using data from a cohort study of mothers and offspring that started in the 1950s."

.....SOURCE: Diabetes Care 6/2005

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## MANY DOCS DON'T VOLUNTEER ANTISMOKING ADVICE

If smokers want their doctors to help them quit smoking, more than likely they'll have to pipe up and ask for that assistance.

That's according to a new survey that finds physicians less forthcoming with antismoking advice than experts would hope.

The survey of over 4,200 smokers nationwide found that those who asked for help in quitting were much more likely to receive advice and assistance from their doctors, according to lead author Virginia P. Quinn, a researcher with the Kaiser Permanente Southern California health maintenance organization.

"The strongest predictor of these cessation services was a request for help," Quinn wrote in the article. "This is of concern, since only 27 percent of smokers in this study asked for help, and even among the presumably more motivated smokers planning to quit, only a third requested help."

The goal of the study was to review the effectiveness of the "5 A" program, a five-step process to reduce cigarette smoking, which is recommended by the United States Public Health Service.

Although doctors asked nine of every 10 smokers about their habit and advised more than two-thirds to quit, only about half were assessed for their willingness to quit or given assistance for quitting.

The Colorado Department of Public Health and Environment has more about the 5 A smoking cessation program.

.....Source: 2005 HealthDay

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## NEXT-GENERATION, AUTOMATED BLOOD GAS ANALYZER

Bayer HealthCare, Diagnostics Division, announced the worldwide launch of its newest critical care blood gas instrument, the Rapidlab® 1200 analyzer. The Rapidlab 1200 analyzer is a high-throughput, low-maintenance blood gas instrument designed to address the key challenges facing today's laboratories. Delivering results for all test parameters in approximately one minute and with minimal maintenance requirements, the Rapidlab 1200 automated blood gas instrument provides the speed, accuracy and required "up-time" needed for clinical staff to make critical care decisions in a timely manner.

The Leeds Teaching Hospitals NHS Trust, one of the largest trusts in the United Kingdom providing acute services

for the population of Leeds as well as some regional services, was trial site for the Rapidlab 1200 analyzer. Dr. Joan Pearson, POCT Manager for the Department of Clinical Biochemistry and Immunology at Leeds Teaching Hospitals commented, "We found the Rapidlab 1200 analyzer to be a highly reliable instrument with rapid turnaround around time for results. Our lab staff, who have been working with the analyzer in one of the intensive care units since the commencement of the trial in January, were most pleased with the Rapidlab 1200 analyzer's minimal maintenance requirements and its ease of use. These are essential characteristics for an analyzer to meet the Trust's future POTC needs"

The Rapidlab 1200 blood gas analyzer offers a comprehensive test menu, including pH, blood gas, electrolytes, metabolites, and CO-oximetry - all from a single sample - enabling a lab and POCT sites to satisfy individual testing needs. Based on the same cartridge-based technology as Bayer's Rapidpoint® 400 analyzer, the Rapidlab 1200 system eliminates unwieldy gas tanks and reagent bottles, minimizing maintenance requirements and enhancing the analyzer's ease of use.

Additional features of Bayer Diagnostics' recent market entrant include onboard, Automatic Quality Control (AQC) materials independent from internal instrument calibrators. AQC improves country-specific regulatory compliance initiatives and simplifies quality control processes. When integrated with Rapiidsystems™ connectivity solutions, laboratories benefit from centralized data control, system management and improved regulatory compliance.

"The Rapidlab 1200 automated analyzer provides unparalleled ease-of-use combined with reliability, and the outstanding service and support that have become synonymous with Bayer Diagnostics' blood gas instruments," said Tom Warekois, Senior Vice President of Global Strategic Marketing for Bayer HealthCare's Diagnostics Division. "Our laboratory customers will measure the benefits of this analyzer with improved lab workflow, enhanced up-time and increased testing efficiencies."

.....Medical News Today 11 Jul 2005

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## 5 GREAT REASONS TO GET MOVING

Nothing else you can do for yourself has more benefits than regular exercise. Sure, exercise burns calories. And it tones muscles, tightening up arms and cinching in that waistline. But there are plenty of other reasons to get up and get moving:

### 1. More energy

This one's hard to believe, but exercising will make you feel more energetic. When scientists at the University of New Orleans asked 42 volunteers to assess their mood before and after a 50-minute aerobics class, most of them said they felt less tense and less tired after breaking a sweat. In a 1997 study, researchers found that a brisk 10-minute walk gave people more energy than eating a candy bar. How can that be? Exercise boosts a hormone that increases energy. And it doesn't take more than a few workouts before strength and the lungs' capacity to provide oxygen to working muscles improve, increasing stamina -- which is enough to make anyone feel more energetic.

### 2. Less stress

Just one simple workout can ease stress and anxiety. In an experiment at Indiana University, researchers used psychological tests to gauge anxiety levels in 15 volunteers before and after a 20-minute session on an exercise cycle. The volunteers all reported feeling significantly less anxious during an hour or two after the workout. Exercise enhances the flow of brain chemicals, such as serotonin, that are related to positive mood. Because it also increases core body temperature, it can be as relaxing as a good soak in a hot tub.

### 3. A sharper mind

Exercise can even spark creativity. Researchers at England's Middlesex University tested creative thinking in a group of 63 volunteers -- once after they'd done an aerobic workout and once after they'd sat around watching a video. After the workout, volunteers in the experiment felt more positive and scored higher on creativity.

### 4. Healthier arteries

Physical activity boosts levels of high-density lipoproteins, or HDL, the so-called good cholesterol, by as much as 20 percent. HDL helps rid the body of low-density lipoproteins, or LDL, the artery-clogging kind. Studies show that HDL can even pick up cholesterol deposited in arteries and move it to where it won't do harm. Another benefit to the arteries: The level of fat particles in the blood, called triglycerides, falls by as much as 40 percent after a vigorous workout. Exercising converts triglycerides into fatty acids -- the form in which fat can be burned for energy. You burn stored fat each and every time you work out -- the key to keeping weight off. Plus you lower your level of triglycerides in the blood. And the lower your triglyceride level, studies show, the lower your risk of heart disease.

### 5. Better defenses

The moment you begin exercising, your heart starts pounding and your blood pressure surges, sweeping disease-fighting immune cells out into the blood, where they're able to detect troublemakers like cold or flu viruses. Studies show that people who exercise have 40 to 50 percent fewer sick days than their sit-around-and-do-nothing counterparts.

.....Source: ChangeOne

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## ANABOLIC THERAPIES FOR MUSCLE DYSFUNCTION IN WOMEN WITH COPD

### *Initial Award Abstract*

This project aims to improve the effectiveness of medical treatment for women with lung disease produced by cigarette smoking. Chronic obstructive pulmonary disease (COPD, also called emphysema or bronchitis) is a disorder affecting approximately 14 million people in the United States. It is a disabling disorder and inability to exercise is usually the foremost problem. It is becoming clear that these patients suffer not only from poorly functioning lungs but also because the muscles of ambulation perform poorly. We have recently shown that muscle function can be improved in men with

COPD both by strength training and by giving supplemental testosterone, a drug known to build muscles. Until now, most research into methods to improve muscle function has involved only men. However, the number of women suffering from COPD is accelerating and is nearly equal to that of men. The body chemicals that stimulate muscle growth operate differently in women than they do in men. We will focus on two specific strategies intended to improve the muscle's ability to tolerate exercise. First, there is a growing realization that testosterone is not only a "male hormone". Though levels in women are much lower than in men, studies in healthy women suggest that testosterone supplementation increases muscle size. We have found that women with COPD have low levels of this chemical. However, the amount of testosterone that best balances the benefits of testosterone without creating troubling side effects has yet to be determined. We will determine whether administering testosterone to women with COPD will increase muscle mass and exercise tolerance. Second, we have found that women with COPD usually have a low level of activity; we will determine whether a strength conditioning program consisting of a varied group of exercises improves exercise tolerance.

We will assign by chance 72 women with COPD to one of six groups. Four of the groups will receive no training, but will apply a gel to their skin daily that will contain no testosterone or one of three doses of testosterone. Two of the groups will receive strength training (for one hour a day three times per week) plus either a gel with no testosterone or with the highest of the three doses of testosterone. A number of state-of-the-art measurements will be made before and after the 10 week study period including: 1) precise measurement of the muscle and fat mass in the body, 2) muscle strength by weight lifting and by measuring the electrical activity of the muscle, 3) exercise capacity measured on a stationary bicycle, 4) strength of the breathing muscles and 5) the overall quality of life, assessed by well-designed questionnaires. In this study, a number of safeguards will be in place to assure the participants' safety.

Programs are already in place to help rehabilitate patients with COPD. This study should be directly applicable to these programs and will help to decrease the suffering of patients with this smoking-related disease.

.....Tobacco-Related Disease Research Program (TRDRP.org)

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## ASK DR. TOM

***Dr Tom Petty writes a weekly Q&A column on the Internet. As many of you know, he is pretty much the father of supplemental oxygen for COPD. So I thought I would ask him a question that has been bounced around several times on the list here. Here is the question and his answer:***

Q. As supplementary oxygen is not usually prescribed until PaO<sub>2</sub> is less than 55 mm Hg or SAO<sub>2</sub> is less than 89%, does that mean that no significant damage will occur until these reduced values are reached?

Also, can you tell me briefly how these values for prescribing oxygen were determined?

Frank

A. Dear Frank,

Good question. A PO<sub>2</sub> or SAO<sub>2</sub> of 55, or 88% respectively, is where the amount of oxygen carried by red cells, begins to drop as a linear function, as the PO<sub>2</sub> goes lower. This is called the "sharp point on the oxyhemoglobin dissociation curve" ( a mathematical relationship, that is viewed as a graph, showing the amount of oxygen that combines with hemoglobin as a function of the partial pressure of oxygen).

Picking this point is somewhat arbitrary. But it makes sense. For example the entire population in Leadville, Colorado, lives at 10,000 feet, and has a PO<sub>2</sub> of about 55. Most are healthy at this altitude. Peruvian Indians live as high as 17,000 feet, with a PO<sub>2</sub> in the low 40s. But these are healthy people. So far giving oxygen to patients with only mild reductions in PO<sub>2</sub> i.e. 55-60 has not proved beneficial. More science is needed.

Dr. Tom

You can read Dr Tom's columns at: "Ask Dr. Tom"  
([http://www.yourlunghealth.org/dr\\_tom/index.cfm](http://www.yourlunghealth.org/dr_tom/index.cfm))

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## ***BAD PRACTICES NET HOSPITALS MORE MONEY High Quality Often Loses Out In the 40-Year-Old Program***

As far back as 1999, federal and state regulators began to receive complaints that the heart surgery unit at Palm Beach Gardens Medical Center in Florida was a breeding ground for germs. Dust and dirt covered some surgical equipment. Trash cans and soiled linens were stored in hallways. IV pumps were spattered with dried blood. One patient's wife said she saw a medical assistant tear surgical tape with his teeth. State inspectors in 2002 found "massive post operative infections" in the heart unit, requiring patients to undergo more surgery and lengthy hospital stays. In a four-year period, 106 heart patients at Palm Beach Gardens developed infections after surgery, according to lawsuits and government records. More than two dozen were readmitted with fevers, pneumonia and serious blood infections. The lawsuits included 16 patients who died.

How did Medicare, the federal health insurance program for the elderly, respond? It paid Palm Beach Gardens more. Under Medicare's rules, each time a patient comes back for another treatment, a hospital qualifies for an additional payment. In effect, Palm Beach Gardens was paid a bonus for its mistakes.

Medicare's handling of Palm Beach Gardens is an extreme example of a pervasive problem that costs the federal insurance program billions of dollars a year while rewarding doctors, hospitals and health plans for bad medicine. In Medicare's upside-down reimbursement system, hospitals and doctors who order unnecessary tests, provide poor care or even injure patients often receive higher payments than those who provide efficient, high-quality medicine.

"It's the exact opposite of what you would expect," said Mary Brainerd, chief executive officer of HealthPartners, a nonprofit health plan based in Bloomington, Minn. Her Medicare HMO ranked among the top 10 in the nation last year for quality but was paid thousands of dollars less per

patient by Medicare than lower-performing plans. "The way Medicare is set up," Brainerd said, "it actually punishes you for being good."

As Medicare approaches its 40th anniversary on Saturday, much of the debate about the nation's largest health insurance program revolves around whether it will remain solvent for aging baby boomers. Yet another critical question is often overlooked: whether taxpayers and patients get their money's worth from the \$300 billion Medicare spends each year—now about 15 percent of federal spending and projected to grow to nearly a quarter of the budget in a decade.

Along with its sister program, Medicaid—which covers the poor— Medicare exerts a huge influence on the entire health care system. Hundreds of insurers, large and small, follow its lead. In that sense, the government health program provides a window into the quality shortcomings that plague most of American medicine.

For a year, The Washington Post crisscrossed the country to examine the economics of Medicare and how it monitors the quality of its services— reviewing thousands of documents and interviewing hundreds of researchers, regulators and patients. Medicare is highly valued by 42 million elderly and disabled members, but it wastes an enormous amount of money on inefficient medicine, the examination found.

Researchers at Dartmouth Medical School, who have been studying Medicare's performance for three decades, estimate that as much as \$1 of every \$3 is wasted on unnecessary or inappropriate care. Other analysts put the figure as high as 40 percent. "It is astounding," said Arnold Millstein, an expert on medical quality and a member of an advisory board to Medicare. Increasingly, he added, the waste is driving up the overall cost of health care. "We are medically impoverishing increasing numbers of Americans in part because of our inattention to eliminating waste," he said.

Medicare has difficulty controlling waste because of deficiencies in the way it monitors and enforces quality standards. Its oversight system is fragmented, underfunded and marred by conflicts of interest, records and interviews show. For every \$1,000 that it pays to hospitals and doctors, it invests just \$1 or \$2 to oversee and improve patient care.

"The amount we spend on quality is a pittance," said Kenneth W. Kizer, a physician and president of the National Quality Forum, a nonprofit that works with Medicare officials to develop standards of care.

Medicare has outsourced many enforcement activities to private groups that have overlooked or missed cases in which patients were injured or killed, according to hundreds of inspection reports and interviews with state regulators. Some facilities haven't been checked in years.

Medicare officials do collect reams of information on quality of care. Yet in many cases the data aren't analyzed or are locked inside incompatible 20-year-old computers.

One result: striking variations in what Medicare pays for care in different states, or even neighboring Zip codes. In 2001, the typical Medicare patient in Los Angeles cost the government \$3,152 more than a comparable patient in the District. A patient

in Miami cost \$3,615 more than one in Baltimore.

Those disparities cannot be explained by differences in local prices or rates of illness, said John E. Wennberg, a Dartmouth physician and an expert on geographical variations in medical care. Rather, higher spending is related to the number of specialists, hospital beds and technology available. "If you have twice as many docs in a community," said Wennberg, "you end up with twice as many office visits."

Yet most high-spending states rank near the bottom in quality of care, Medicare data show. Louisiana ranked 50th in quality yet first in Medicare spending in 2001, the most recent year available. New Hampshire was first in quality but 47th in spending. Medicare acknowledges that its system rewards bad care. Officials have only recently begun to address the problem.

This year, Medicare began requiring hospitals to report their performance on a handful of measures, such as how many heart attack patients received recommended beta blockers and aspirin. Officials say the reports will pressure hospitals to improve and save money. But officials don't use the data to punish poor performers or to steer patients to the best performers.

"We have to develop systems that address the problem and certainly not pay people for bad care," said Barry M. Straube, acting chief medical officer for the Centers for Medicare and Medicaid Services, the agency that oversees the federal insurance program. At the same time, he said, Medicare must move cautiously. "You don't want to be too drastic until we know what we're doing," Straube said.

### 'Immediate Jeopardy'

There may be no starker illustration of Medicare's upside-down economics than Palm Beach Gardens Medical Center, a 204-bed hospital on Florida's east coast. The hospital, part of the Tenet Healthcare Corp. chain, boasted one of the busiest cardiac programs in South Florida in the 1990s, performing more than 1,000 open-heart operations annually. The heart unit was plagued by infections, which came to public view in 2002 as a result of patient lawsuits.

State regulators first received complaints in 1999 but had dismissed them, state records show. In May 2002, under mounting pressure, regulators returned to the hospital for a three-day inspection. They found that 13 of 24 heart patients whose records they reviewed had "developed serious infections after their surgical procedures, requiring more major, re-constructive surgery." The state cited and later fined the hospital for violating state law. Florida regulators forwarded their findings to the regional Medicare office in Atlanta. A few months later, in an Oct. 15, 2002, memorandum, an official there warned colleagues that Palm Beach Gardens "continued to be out of compliance" with Medicare requirements and that those conditions posed an "immediate jeopardy to patients' health and safety."

Some patients had to have additional operations or return multiple times to the hospital as a result of infections, according to state and federal records obtained under the

One patient, George M. Brown, 77, a West Palm Beach real estate broker and former Marine, died after he developed an infection following open-heart surgery, according to his daughter Susan. In all, her father had five operations, she said. The family sued and eventually reached a settlement with Tenet. Let's just say this," Susan Brown said before signing a confidentiality agreement that was part of the settlement, "he had a lot more time left."

When reimbursing hospitals, Medicare does not distinguish between new cases and problems that result from medical errors or poor care, officials of the insurance program said. So Palm Beach Gardens was eligible for additional payments each time a heart patient had to be readmitted. Medicare officials said they could not calculate how much more the hospital was paid. Even though Medicare had no way to reduce its payments to Palm Beach Gardens, it could have removed the hospital from the program entirely. In October 2002, after the "immediate jeopardy" memo, Medicare officials in Atlanta informed Palm Beach Gardens that they proposed to do just that. Such a move could be fatal for any hospital, cutting off one of its largest sources of funds. For that reason, Medicare rarely expels hospitals, even for dangerous care. The warning to Palm Beach Gardens proved to be no different. Medicare never cut off the hospital's payments. After the hospital filed a "plan of correction," it was back in Medicare's good graces.

State regulators did fine Palm Beach Gardens -- \$323,800 in March 2003. But they quickly reduced it to \$95,000. Elizabeth Dudek, Florida's top health regulator, said they did so "to avoid what could be a costly and lengthy appeal." Hospital officials agreed to the fine without acknowledging any wrongdoing. Tenet, the hospital's owner, said in a statement last week that it "would be inaccurate to conclude" that all of the patients who were readmitted came back because of infections acquired during surgery. The company did not give further details about the cases.

Hospital officials have said their infection rate was about equal to the national average and that some results of the inspections were misleading. "There is no aggregate clinical evidence to show that these infections occurred as a result of care provided at the facility," Tenet said in its statement. In 2004, Tenet settled more than 100 civil lawsuits for \$31 million, again without admitting wrongdoing. After suffering a drop-off in business, Palm Beach Gardens is once again busy. The hospital's Web site touts its heart program as among the nation's best.

### No Free Glasses

One of the losers in Medicare's payment system can be found near Minneapolis. Amid supersize bookstores and upscale coffee shops, doctors and nurses at the suburban Woodbury clinic tend to nearly 23,000 patients belonging to HealthPartners, the highly ranked Medicare HMO. As a Medicare HMO, HealthPartners receives a flat fee from the federal health program to provide care to each member, unlike traditional Medicare, in which doctors and hospitals are paid each time they provide a service. Medicare bases that HMO fee in part on what

it pays for its traditional fee-for-service members in that region.

The result is that HMOs that happen to be in areas where patients use more services and overall Medicare spending is high are paid thousands more annually per member than HMOs in low-cost areas such as Minnesota—regardless of how the patients fare.

For example, WellCare, a Miami HMO, receives \$11,834 to treat each of its Medicare members. HealthPartners: \$7,851—a difference of \$3,983 per patient per year.

Yet HealthPartners outperforms WellCare on 13 out of 14 Medicare quality measures. More of its patients get flu shots and colorectal exams. Turnover among HealthPartners' doctors is lower. And patients of the Minnesota HMO -- whose average age is 78—report being happier with their care.

In 2003, the most recent year for which data were available, HealthPartners outperformed every Medicare HMO in the Miami area, Medicare quality data show. Still, over the average lifetime of a Medicare patient, the federal program will pay Miami's HMOs about \$50,000 more per patient.

What happens to the extra money? It does not all go to the bottom line of the health plans. Rather, it benefits patients in Miami. Under Medicare rules, the HMOs are required to use much of the extra funds to eliminate premiums or provide benefits such as prescription drugs and eyeglasses.

In Minnesota, though, members of HealthPartners pay for their own eyeglasses. They get no prescription drug plan and are charged a monthly \$120 premium—or nearly \$1,500 per year—above and beyond what Medicare pays the health plan.

Medicare "comes out of an old model of care that makes no sense," said HealthPartners' Brainerd. "It isn't fair to those of us who do a better job, and it isn't fair to our patients who end up paying higher out-of-pocket costs."

Donna Burtanger, a spokeswoman for WellCare, said the Miami HMO provides "high quality care and a good value" to Medicare patients. She added that it is "extremely difficult to compare cost and quality of services across various regions of the country."

But Peter T. Wyckoff, executive director of the Minnesota Senior Federation, said that his and other low-cost states end up subsidizing less efficient states. "It's the worst sort of medical welfare," Wyckoff said. "Can you imagine if Social Security were to pay you \$50,000 more because you lived in another part of the country? There would be hell to pay. There would be a revolution."

### A Culture of 'More'

Medicare's built-in incentive to provide more services is one cause of the striking variations in spending, analysts say.

"Geography is destiny," said Wennberg, head of the Dartmouth project that has studied Medicare records for 30 years. Wennberg said differences in spending from region to region aren't caused by varying rates of illness. Rather, they are usually linked to the kinds of extra health services provided in the high-spending areas, such as visits to specialists, tests, costly MRI and imaging scans, and a plethora of minor

procedures. The greater the supply, the higher the number of services delivered.

Miami, which has twice as many specialists as the national average, more hospital beds and more technology, is far more expensive than Minneapolis—a city in a low-cost, high-quality state—even after adjusting for differences in patients' age, sex, race and medical condition. In 2001, a traditional Medicare patient in Miami used \$10,113 in services, on average. A Medicare patient in Minneapolis: \$4,888.

Doing more doesn't necessarily mean doing better, according to Wennberg's colleague, Elliott S. Fisher, who has found that patients in high-spending regions fare no better than those in lower-cost regions. "There is just no evidence that doing more helps," he said. "At best, you do the same, and in some cases you actually do worse."

Recently Medicare officials have begun an effort to transform the way the program pays for care, with a renewed focus on quality. Congress also has joined in, mandating that Medicare try ways to increase competition and link payments to quality.

Medicare has a pilot program to reconfigure how it pays for patients with chronic conditions such as diabetes, heart disease and kidney failure. While relatively small as a percentage of all patients, these beneficiaries account for about half of all money spent. Medicare is testing the idea of paying doctors a single, all-inclusive fee for managing each patient's care, linking the payment to whether the patient gets better.

Another initiative is studying the effect of paying doctors and hospitals small bonuses when they provide preventive treatments such as an annual eye exam for diabetics. Recently, Medicare also began tapping its databanks to give patients access to basic information about the quality of care provided by hospitals, nursing homes, home health and dialysis centers. Much of the information is now reported by the health care providers and posted on Medicare Web sites.

By linking payments to performance, Medicare hopes to shift the culture of medicine away from automatically doing more. In theory, that could lead to savings and improve care.

Mark B. McClellan, head of the Centers for Medicare and Medicaid Services, declined to be interviewed for this article. Straube, his acting chief medical officer, said the savings from reform would be substantial. "Some say billions, some say tens of billions," he said.

To achieve that goal, however, Medicare will have to up the ante, not only rewarding high-quality providers but also withholding payments from those that don't measure up. "We want to assure that every patient gets the right care every time," Straube said. "That's the vision."

### **Barriers to Reform**

For now, Medicare's reforms are research demonstrations or pilot programs, not actual requirements. Nor is Medicare using its clout to penalize underachieving providers. Hospitals are rewarded for simply reporting how they do on specific measures of quality, but not for their actual performance. Those posting superior results are still paid the same as underachievers.

To obtain more ambitious savings, some analysts say, Medicare will have to take a more aggressive stance. But that requires confronting the powerful lobby of hospitals, doctors and nursing homes.

"The more successful [Medicare officials] are, the more likely provider interest will rise up to prevent the program from ever implementing these changes on other than a demonstration basis," said Robert A. Berenson, a physician and former top Medicare official now based at the Urban Institute. There is ample history to support Berenson's view.

In the mid-1990s, Medicare paid a select group of high-performing Midwest medical centers an all-inclusive fee for open-heart surgery. Medicare received a 10 percent discount from the package price.

An analysis of the program by federal officials declared it a success. But when Medicare proposed expanding it to include knee- and hip-replacement surgeries, some hospitals balked and the idea was dropped, according to former Medicare officials. "They objected to the identification of particular institutions as being more worthy than other institutions," said Bruce C. Vladeck, Medicare's director from 1993 to 1997.

Vladeck said Minnesota's Mayo Clinic was one of the most vocal opponents. Mayo executives were interested in both projects but backed away, saying in a March 1997 letter that the primary criterion used by Medicare was "large discounts," not excellence. Vladeck, however, said it was his recollection that Mayo executives took the position they shouldn't have to give Medicare a steep price break but at the same time didn't want their rivals to get special recognition.

"They said, 'We're Mayo and we don't give anyone discounts,'" Vladeck said. In 1997, Congress ordered Medicare to conduct a demonstration of competitive bidding involving Medicare HMOs to see if lower prices resulted. Two locations were Kansas City, Mo., and Phoenix.

HMOs in Phoenix worked behind the scenes to kill the demonstrations, including lobbying Congress, said Bryan Dowd, a health policy professor at the University of Minnesota who studied the project. "It was well-orchestrated opposition," Dowd said. "The local plans organized picketing by beneficiaries. I think they may have even bused them in. And they got to the Arizona [congressional] delegation."

In July 1999, the Senate amended a health care bill to ban the projects in Kansas City and Phoenix. A few months later, similar language found its way into the main 2000 federal spending legislation. The same Congress that ordered the demonstration project was responsible for killing it.

Dowd made that point when he testified before the House subcommittee on health in September 1999. "Only the most cynical among you will not be surprised," he told lawmakers, "when I tell you that the greatest current threat to this congressionally mandated demonstration is Congress itself."

.....Source: 2005 The Washington Post Company

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### **BEANS, BEANS, GOOD FOR THE HEART**

Keep eating those bean burritos. One serving of black

beans a day helps stave off heart disease, researchers have confirmed in a new study. Yet consumption of this legume has fallen among Latin Americans and among Hispanics in the United States, both of which have traditionally eaten beans as a staple.

Researchers have known for several years that legumes, including peas, nuts, and all beans, contribute to heart health. However, prior studies focused on U.S. populations, which tend to consume fewer beans and more of other legumes, such as peanuts. The new study, published in the July Journal of Nutrition, specifically links black beans to lower risk of heart attack. These beans are a major nutrient source in Latin American and Hispanic diets.

Hannia Campos of Harvard University and her colleagues interviewed 2,118 individuals in Costa Rica who had suffered nonfatal heart attacks. They compared these people with an equal number of heart-healthy individuals, matching each heart attack sufferer with a healthy person of the same age, sex, and area of residence. The research team collected data on these individuals' diets, physical-activity levels, socioeconomic statuses, and medical histories.

Costa Ricans who ate one serving, or a third of a cup, of beans per day were 38 percent less likely to have suffered a heart attack than were those who ate beans less than once a month. Beans protected the study participants against heart disease independently of other risk factors, such as obesity, physical activity, and smoking.

Beans contain numerous nutrients known to ward off heart disease, says Campos. "It's a very good package in terms of a single food," she says. Like other legumes, black beans contain folate, magnesium, alpha-linolenic acid, vitamin B6, and fiber. Beans make up a large portion of Costa Ricans' intake of these protective nutrients. For instance, beans make up 25 percent of their total fiber and 17 percent of their folate consumption, says study coauthor Edmond Kabagambe, also of Harvard.

Despite beans' healthy properties, consumption of these legumes is lower in people living in cities, the research team found. Urban populations in Costa Rica ate 24 percent less beans than did people living in rural areas. City dwellers tend to seek "easy meals" of processed foods, which are often high in fat, carbohydrates, and sugar, says Kabagambe. "They eat less of food that takes longer to prepare," he says, such as beans.

Campos says that bean consumption has decreased among Latin Americans and Hispanics partly because of increased urbanization of these populations and partly because beans have acquired a negative image among these people. "They're seen as the food of the poor," she says. "As soon as people have a better income in any way, beans are the first thing to go."

Urbanization has climbed in Latin America, rising from half the population in the 1950s to about 70 percent today, says Roberto Uauy of the University of Chile in Santiago, who has studied dietary trends in Latin America. In some nations, such as Brazil, as many as 85 percent of citizens live in cities. Sao Paulo, Brazil, and Mexico City boast the largest urban populations in the world.



Hispanic immigrants to the United States also tend to move into cities, notes Katherine Tucker, a nutrition researcher at Tufts University. Moreover, as successive generations of Hispanics integrate with the culture of their new country, they move away from traditional foods such as beans. "In doing so, they're losing a lot of basic vitamins and minerals that are in those good-quality foods," Tucker says.

The finding of Campos and her team will encourage nutritionists to emphasize the value of traditional meals, says Uauy. He also points to the value of corn tortillas, a Mexican staple that when combined with beans provides the full range of proteins found in red meat. "We are now recognizing that traditional food components, traditional diets, have importance for people's health," he says.

Beans aren't only important for Hispanics and Latin Americans, emphasizes Tucker. She asserts that all Americans would benefit from eating more beans. "Inclusion of beans is a very straightforward way to improve diet quality," she says. ....Source: Science News, July 9, 2005

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## **CARBON MONOXIDE: POISON GAS OR ANTI-INFLAMMATORY DRUG?**

Carbon monoxide, a poisonous gas that kills thousands of Americans every year, could turn out to be a life-saver for patients recovering from organ transplants, strokes or heart attacks, according to new research from the University of Michigan Cardiovascular Center.

In a recent study, U-M scientists found that inhaling small amounts of carbon monoxide for several weeks after transplant surgery prevented the development of a lethal inflammatory reaction in experimental mice receiving transplanted trachea, or windpipes.

If carbon monoxide therapy works as well in human patients as it does in mice, it could prevent an inflammatory response, called obliterative bronchiolitis, which develops in nearly 50 percent of all patients who receive a lung transplant from an unrelated donor. OB is the most common complication following a lung transplant in humans and the most deadly. It occurs when the patient's immune system rejects the transplanted lung and sends an army of T cells to attack and destroy the foreign tissue.

"No one is sure exactly how it happens, but the small airways in the lung swell and become progressively smaller until the patient cannot breathe," says David J. Pinsky, M.D., the J. Griswold Ruth, M.D. & Margery Hopkins Ruth Professor of Internal Medicine and chief of cardiovascular medicine in the U-M Medical School, who directed the research. "Currently, we have no effective treatments for OB. Unless the patient receives a new lung transplant, the outcome is generally fatal."

Results of the U-M study were published July 18 in the most recent issue of the Journal of Experimental Medicine (JEM).

Pinsky's research team focuses on the relationship between

carbon monoxide and nitric oxide - two poisonous gases produced by different types of cells in the body. U-M research findings suggest that a patient's chances of living or dying after a lung transplant depend, in large part, on the outcome of an internal power struggle between two enzymes that control cellular production of these gases.

"Hmox, or heme oxygenase enzyme, is responsible for the synthesis of carbon monoxide," Pinsky explains. "It was first identified as a heat shock protein induced under stress conditions to help protect cells from damage. Hmox expression increases in human lung transplant patients with OB.

"Nitric oxide synthase, or iNOS, is the enzyme responsible for the synthesis of nitric oxide," Pinsky adds. "When it's expressed in endothelial cells in blood vessels, it causes them to dilate and relax. But when it's expressed in epithelial cells in airways, it generates a flood of leukocytes that trigger an inflammatory response. Expression of iNOS also increases during lung transplant rejection.

"We think that Hmox and carbon monoxide are the body's way of trying to limit tissue inflammation and injury induced by iNOS and nitric oxide during transplant rejection," Pinsky says. "Our data show that localized CO production provides critical protection against the OB induced by iNOS expression. It's a balancing mechanism. When Hmox expression goes up, it reduces iNOS expression and suppresses a key signaling pathway involved in the immune response."

To test their hypothesis, U-M scientists studied two types of experimental mice - one group lacked the gene for the Hmox enzyme and were unable to synthesize carbon monoxide. Another group produced unusually high levels of Hmox and CO. When U-M scientists transplanted windpipes from one type of mouse into the other, genetic differences between the two strains of mice triggered transplant rejection, inflammation and significant narrowing of the airway in the transplant recipients.

But U-M scientists discovered they could rescue the mice by having them inhale CO-enriched air (100 ppm) for two weeks after transplantation, or by giving them a drug that induces high levels of Hmox expression.

"We found that naturally occurring levels of the Hmox enzyme were not high enough to prevent airway occlusion in mice after transplant," says Hiroaki Harada, M.D., a U-M research fellow and co-first author of the study. "We had to either use drugs to boost Hmox expression in the mice or boost its end-product with prolonged inhalation of carbon monoxide."

"Carbon monoxide is lethal at certain doses, but the animals tolerated the 100 ppm level for two weeks with no apparent problems," Pinsky says. "In human terms, it's equivalent to the amount you'd receive sitting in a traffic jam in Mexico City."

The next step was to analyze the amount of Hmox enzyme expressed in white blood cells and in epithelial cells lining the grafted trachea. "We did this to determine the source of CO," Pinsky says. "Was it coming from infiltrating immune cells from the host or from donor epithelial cells lining the graft? In order to prevent airway rejection, our results show that Hmox expression and generation of carbon monoxide must occur in grafted tissue cells."

The researchers also found that while both inhaled and internally produced carbon monoxide had a positive effect on transplant airway inflammation and narrowing, inhaled nitric oxide had no effect and internally produced nitric oxide made the inflammatory reaction worse.

Pinsky's research team previously published evidence for the therapeutic efficacy of CO inhalation in mice recovering from the type of cardiovascular injuries caused by blood clots to the lungs. Pinsky maintains that the balancing act between CO and NO is an important factor in transplant rejection after heart transplants and in recovery after other types of damage to the cardiovascular system.

Pinsky believes that carbon monoxide may one day be as common in the hospital ICU as inhaled nitric oxide is today, but cautions that a great deal of additional research will be required to resolve important questions of dosing and toxicity.

"The therapeutic window for carbon monoxide is very small," he says. "Small amounts are good, but a little more will kill you. So dosage will always be a serious issue in any future therapies."

Columbia University, where Pinsky was a faculty member until 2003 when he joined the U-M's Cardiovascular Center, holds several patents related to treating ischemic disorders using carbon monoxide. Pinsky recently became a consultant to iNOtherapeutics, a subsidiary of Aga-Linde Healthcare, a supplier of medical gases. The research study was supported by grants from the U.S. Public Health Service.

....Source: [medicalnewstoday.com](http://medicalnewstoday.com)

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## **COBBLESTONE WALKING GOOD FOR SENIORS, LOWERS BLOOD PRESSURE AMONG OTHER THINGS**

A recently completed study by scientists at the Oregon Research Institute (ORI) in Eugene confirmed earlier findings from a pilot study that walking on a cobblestone mat surface resulted in significant reductions in blood pressure and improvements in balance and physical performance among adults 60 and over. An article published in an early online publication of the Journal of the American Geriatrics Society summarizes the study results in a randomized trial.

"These are very exciting results," notes John Fisher, Ph.D., one of the lead scientists on the study. "Compared to conventional walking, the experience of walking on the river rock-like surface of these manufactured cobblestone mats improved participants' balance, measures of mobility, as well as reducing their blood pressure. These issues are highly important for preventing and delaying the onset of frailty among older adults, as well as helping them maintain their current health status."

Cobblestone-like walking paths are common in China. The activity is rooted in traditional Chinese medicine and relates to some of the principles of reflexology, in that the uneven surface of the cobblestones stimulate and regulate "acupoints" located on the soles of the feet. These acupoints are purportedly linked to all organs and tissues of the body. Although there is considerable anecdotal evidence indicating the health benefits of cobblestone walking, (e.g., pain relief,

sleep enhancement, improved physical and mental well-being), until recently no controlled studies have been undertaken to scientifically evaluate its benefits and efficacy.

"We visited China and noticed that adults of all ages spent about 30 minutes each day walking, standing, and sometimes dancing on these beautifully laid paths of river stones in the parks and gardens of large cities. They did this for their health every day of the week. We used manufactured mats that replicated these cobblestone paths and developed a special protocol so that participants gradually got used to walking on the uneven surface of the mats," reported Fisher.

Participants in the study, which was funded by the National Institute on Aging (Grant AG20470), were divided into an experimental group -- the cobblestone mat walkers -- and a control group which took part in conventional walking activities for one hour, three times per week for 16 weeks. At the end of the study, mat walkers were found to have better scores on measures of balance, physical function, and blood pressure than those in the conventional walking group. This new physical activity could provide a different choice of physical activity that is therapeutic and health-enhancing and that can be done quickly and easily in the comfort of one's home. The mats are available directly from the Oregon Research Institute in Eugene, Oregon. Please phone 541.484.2123 for more information.

.....Source: Oregon Research Institute

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## **CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) RATES IN WOMEN SKYROCKET**

The death rate for one of the most lethal diseases in North America has skyrocketed for women in the last 20 years, and a team of researchers from the University of British Columbia and the B.C. Centre of Excellence for Women's Health wants to find out why.

Chronic Obstructive Pulmonary Disease (COPD) is the fourth leading cause of death in North America, with about 10,000 Canadians dying from the disease annually. Historically, COPD has affected more men than women, but death and hospitalization rates for the disease are climbing dramatically among women. Researchers predict that by 2010 more women than men will die of the disease.

An interdisciplinary team that is unique in Canada has launched a five-year, \$1.5-million study to investigate the role that biological, social and cultural differences play in COPD. The team is led by Prof. Susan Kennedy of UBC's School of Occupational and Environmental Hygiene and Dr. Don Sin, Canada Research Chair in Chronic Obstructive Lung Disease, of the iCAPTURE Centre at St Paul's Hospital.

The study is funded by the Canadian Institutes of Health Research (CIHR) Institute of Gender and Health (IGH) and Institute of Circulatory and Respiratory Health (ICRH).

"We will be looking at the disease from all angles to understand why women have an extraordinary vulnerability and to help develop better diagnosis, treatment and even prevention," says Kennedy, who also directs UBC's Centre for Health and Environment Research. "Even at apparently equal exposures, women are more likely than men to develop the disease at an

early age and to experience more serious symptoms. Sex and gender differences must be part of the explanation."

COPD death rates in Canada increased by 61 per cent in women and decreased by 15 per cent in men between 1984 and 2000, according to figures from the Public Health Agency of Canada. Today, approximately one million Canadians have the disease.

Factors that may account for the difference in rates of death and disability range from lung size to working conditions. For example, female cleaners often engage in small scale or domestic cleaning where safety procedures concerning pollutants may not be followed.

A lung disorder that causes airways to become partially obstructed, COPD can take 20-30 years to cause symptoms of breathing difficulties. It is a progressive and incurable disease that leads to severe disability and death. The most common causes of COPD are smoking, exposure to second-hand smoke and other pollutants such as dusts and fumes, especially those found in workplaces.

The only such research team in Canada to engage experts in respiratory medicine, gender studies, exposure assessment, and health promotion, the group includes PhD student and respiratory physiotherapist Pat Camp, who originated the study.

"COPD has long been considered a man's disease -- similar to the view once held about heart disease -- so women were often misdiagnosed," says Camp. "Now we need to take the next step and look at both biological and environmental factors to really understand how this disease affects women."

The team will analyze large databases of lung health information on hospital patients and workers at risk of COPD, using methods specifically designed to better understand sex and gender factors.

The team, called ICEBERGS (Interdisciplinary Capacity Enhancement: Bridging Excellence in Respiratory Disease and Gender Studies), is funded by CIHR and includes researchers from the UBC School of Occupational and Environmental Hygiene; UBC iCAPTURE Centre at St. Paul's Hospital; UBC departments of Medicine, and Health Care and Epidemiology, the UBC School of Nursing; and the B.C. Centre of Excellence for Women's Health.

"CIHR is proud to support this research, which will illuminate the impact of gender influences and sex differences on health through the study of this prevalent condition" said Dr. Miriam Stewart, Scientific Director of CIHR's Institute of Gender and Health.

"The research conducted by Dr. Kennedy and her team will help strengthen our knowledge and understanding of how gender and sex play a role in the development, care and prevention of COPD", added Dr. Bruce McManus, Scientific Director of CIHR's Institute of Circulatory and Respiratory Health.

The research is also supported by the Heart and Stroke Foundation of Canada and the BC Lung Association.

CIHR is the Government of Canada's agency for health research. CIHR's mission is to create new scientific knowledge

and to catalyze its translation into improved health, more effective health services and products, and a strengthened Canadian health care system. Composed of 13 Institutes, CIHR provides leadership and support to close to 10,000 health researchers and trainees across Canada.

British Columbia Centre of Excellence for Women's Health, funded by Health Canada and BC Women's Hospital and Health Centre, improves the health of women by fostering collaboration on multidisciplinary research projects.

The James Hogg iCAPTURE ( Imaging, Cell Analysis, and Phenotyping Toward Understanding Responsive, Reparative, Remodelling, and Recombinant Events) Centre for Cardiovascular and Pulmonary Research examines the role of genes and environment in inflammatory heart, blood vessel and lung disease.

The Canada Research Chairs program, designed to build Canada's research capacity, represents a Government of Canada investment of \$900 million to establish 2,000 research professorships in universities across the country.

.....Source: Women's Health News; 19-Jul-2005

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### **CREATINE SUPPLEMENTATION BENEFICIAL IN PATIENTS WITH COPD**

Patients with chronic obstructive pulmonary disease (COPD) who take creatine supplements gain fat-free mass, increased peripheral muscle strength and endurance, and improved health status. However, whole body exercise capacity is not improved, UK researchers report in the July issue of Thorax.

"Skeletal muscle wasting and dysfunction are strong independent predictors of mortality in patients with COPD," Dr. J. P. Fuld, of the University of Glasgow, UK, and colleagues write. They note that creatine nutritional supplementation is commonly used by healthy individuals to increase muscle mass and exercise performance.

"Patients with COPD have low levels of creatine in their muscles," Dr. Fuld pointed out in comments to Reuters Health.

To see if creatine supplements could help COPD patients, the researchers randomly assigned 38 patients with moderate to severe COPD to receive placebo (glucose polymer 40.7 g) or creatine (creatine monohydrate 5.7 g, glucose 35 g) supplementation.

The supplements were taken three times daily for a 2-week loading phase. Then, the subjects took part in an outpatient pulmonary rehabilitation program combined with once daily supplement administration for a 10-week maintenance period.

The team assessed pulmonary function, body composition, and exercise performance at baseline (n = 38), post loading (n = 36), and post rehabilitation (n= 25).

No significant differences were observed between the groups in whole body exercise performance, as measured by the shuttle walk. The team reports that creatine increased fat-free mass by 1.09 kg post loading and 1.62 kg post rehabilitation.

Patients in the creatine group did experience improvements

in peripheral muscle performance, such as knee extensor strength. Endurance also increased after loading and after rehabilitation training.

Clinically meaningful improvements in health-related quality of life were observed with combined creatine and rehabilitation.

"Creatine, which is used by many healthy athletes, led to COPD patients putting on muscle bulk, gaining muscle strength and endurance, and feeling better...(and) it may make their quality of life better," Dr. Fuld said. "It therefore may be potentially useful to a large number of patients with this disease."

"Creatine is a naturally occurring substance, found in high quantities in fish and meat," Dr. Fuld noted. "It is freely available for patients to buy from health and sports shops."

In an accompanying editorial, Drs. T. L Griffiths and D. Proud, of Llandough Hospital, Penarth, note that the challenge now is to "undertake a large randomized controlled trial, powered to detect clinically important differences in health status." They add, "We will then be able to determine the potential usefulness of creatine supplementation in the context of multidisciplinary pulmonary rehabilitation for patients disabled by COPD."

.....Source: Thorax 2005

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### **EXERCISING AT HOME MAY SOLVE WOMEN'S WORKOUT WOES**

We all know them - the perfectly toned women who frequent the gym every day and who rollerblade in the hottest of weather with smiles on their faces and nary a bead of sweat. While they're great role models for an increasingly obese America, they can be intimidating to many women.

"Women compare themselves with each other," says Amy Eyler, Ph.D., associate professor of community health at Saint Louis University School of Public Health and author of a book about why some women don't exercise. "When they really don't feel good about themselves, the last thing they want to see are fit women who look good in exercise clothes at the gym. Add men to the mix and it gets worse. And let's face it - fitness has gone high-tech. I have friends with master's degrees who are intimidated by the complexity of the exercise machines and are too embarrassed to ask for help."

So how can these women get the exercise they need without it cutting into their time or self-esteem? A carefully planned home workout can be the solution - as long as they know how to exercise effectively.

"There are tons of advantages to working out at home," says Eyler. "It's convenient - you don't have to drive anywhere. You can exercise in your baggiest, ugliest clothes and no one will care. You can plan your exercise schedule for the week and you don't have to worry about treadmills not being available or broken machines at the gym."

Eyler offers some tips for women who dread the gym but want to start a lasting workout regimen.

Figure out how much money you want to invest. Calisthenics (crunches and push-ups, for example) don't cost

anything and can work wonders, as long as you use the correct form when you do them. Videos on aerobics or yoga are inexpensive and offer a lot of variety. An exercise ball, free weights and resistance bands are an easy and medium-cost way to build muscle strength and add variety to your workout. And treadmills or other large cardiovascular pieces of equipment, which can be pricey, are a terrific way to work out when you can't go anywhere. "Buying expensive equipment without proper research is like buying a pair of shoes you didn't try on," Eyler says. "Chances are it won't be a good fit, and they'll both just lie around gathering dust."

Determine how much time you're willing to spend to get results. It seems new studies come out all the time demanding how long and how much women need to exercise. "Recommendations are very confusing," Eyler says. "The 'gold standard' for improving cardiovascular health is still 20 minutes of aerobic exercise at least three days a week. If you want health improvements, you can benefit from 30 minutes of moderate activity, like a brisk walk, five days a week. But to lose weight, experts recommend at least one hour of moderate activity a day, which may be accumulated over the course of the day."

Create realistic workouts and stick to them. Women who thrust themselves into intense workout regimens may become so discouraged with their lack of success - not to mention soreness or injury - that they simply give up on exercise entirely. "For someone just starting out, I say shoot for three 30-minute sessions of moderate activity a week and try to work up to five days," Eyler says. "Even though we say we don't have time, very few of us do not have a spare 30 minutes a few days a week." Writing down those 30-minute blocks of time will make it harder to stray from a routine.

Don't make excuses for yourself. "I had a woman tell me that she couldn't concentrate on her exercising while staring at a pile of clothes to be washed," Eyler says. "You have to realize that exercising will give you the energy and stamina to complete all the tasks you might have to do."

Don't expect miracles. Most home workouts will not turn sedentary women into triathletes. "It's important to set specific goals when planning your home exercise program. You won't be ready for a marathon if you do exercise videos three times a week, but you can tone up and improve your cardio system," she says.

Look past the scale for signs of success. Most women want to lose weight and tone up. Though taking measurements is a way of gauging your success, just feeling a difference in the way your clothes fit is another, Eyler says. "Also measure the intangibles: Do you have more energy? Are you starting to look forward to your workouts? Do you sleep better? Are you better able to deal with stressful situations? Personally, I run for my sanity's sake. It is the only time I am truly alone - I have two small kids and a husband who mostly works out of the home. I like the physical benefits, but I appreciate the mental ones more!"

.....Source: medicalnewstoday.com

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## HOW TO HELP THE ELDERLY COPE WITH THE HEAT

As the population ages, a growing number of people become

more vulnerable to extreme summer heat. In 2003, a heat wave was blamed for 14,800 deaths in France. The July issue of the Harvard Health Letter offers tips for the elderly to beat this summer's heat. In addition to heading for the air conditioning, staying out of the sun, and wearing loose, light clothes:

### REVIEW YOUR MEDICATIONS

Painkillers, for example, can reduce awareness of the heat. Talk to your doctor about your medications if temperatures are climbing, especially if you're not protected by air conditioning. Older people are also more likely than younger folks to be taking medications that cause fluid loss (and therefore dehydration), including some laxatives, furosemide (Lasix) to counteract water retention, and other diuretics for blood pressure control.

### CHECK UP ON A NEIGHBOR

Social isolation is a major risk factor for heat-related illness and death.

### STAY HYDRATED

Thirst declines with age, and older sweat glands don't produce as much sweat as they used to. The sweat that is produced tends to contain more salt, and lack of salt in the body can lead to sudden drops in blood pressure.

### LISTEN TO YOUR BODY

Muscle cramps, fatigue, weakness, impaired concentration, confusion, lightheadedness, nausea, labored breathing, chest discomfort, and a rapid or erratic pulse can all be signs of trouble. If you feel ill -- even just a little -- get to a cool place, drink plenty of cool water, and seek medical help if you don't improve promptly.

.....Source: medicalnewstoday.com

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## SINCE THERE HAS BEEN QUITE A BIT OF DISCUSSION

LATELY about the relationship between difficulty breathing/windedness/ breathlessness and oxygen levels and their adequacy, I figure it is timely to make a point that I'm not ever sure many folks understand which in my estimation, has led to much confusion about what is and is not "acceptable".

Jill stated: " although I huff and puff like gangbusters, I don't desaturate below 90 most of the time - which is reassuring - I think." While we have talked a LOT over the years about 90 % being "clinically acceptable" - - even down to 88 %, at times, depending upon the circumstances - - y'all need to understand that because we "accept" the lower saturation levels as targets beyond which to avoid dropping, they do NOT by any means represent "comfort" thresholds.

Folks have lamented that they are 'working like mad dogs to breathe' and are horrendously uncomfortable; "BUT, my saturation is 90 % so it can't be the lack of oxygen that is responsible or causing my SOB." 'Au contraire m'On fraire!' (Forgive the spelling slaughter of the French language, if I did so!) Because 90 % is clinically acceptable insofar as considerations of pulmonary and heart damage are concerned, has nothing to do with whether or not you will be "comfortable" in ANY way while your saturation is hanging down there. Indeed, MANY folks exhibit 'some' degree of breathing discomfort when they are saturating to 90 %. Some even experience discomfort when their saturation is 94 %.

Yet others, though fewer in numbers, experience discomfort when their saturation is anywhere below 96 %. Again, I cite Casaburi's work that shows that 'relievable ventilatory discomfort can be statistically significant when oxygen saturations are within the absolute normal range. This occurs in a much larger segment of the population that we would ever have speculated!

My point is, that simply because your saturation is at or just above the "minimum acceptable target", does not mean you won't have hypoxia-generated breathing discomfort. So don't be quick to dismiss discomfort you feel when your saturation is 90 %, attributing it to some force or influence 'other than' a relatively low oxygen level. A goodly amount of your discomfort can easily and reasonably be caused by the "relative desaturation", such that, were you to increase your oxygen or stop your activity to allow it to return to closer to the "absolute" normal range of 96 - 99 %, you would experience a perceivable decrease in breathing difficulty and/or discomfort that is directly the result of the higher oxygen level.

.....Mark Mangus, BSRC, RPFT, RRT EFFORTS Medical Board

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### **PROGRESSIVE MUSCLE RELAXATION REDUCES ANXIETY AND DEPRESSION IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE**

Participation in a progressive muscle relaxation (PMR) program improves depression symptoms in patients with chronic obstructive pulmonary disease (COPD), according to findings presented here at the American Psychiatric Association (APA) Annual Meeting.

"We found that adding structured PMR to a standard pulmonary rehabilitation program had the added benefit of improving mood as well as respiratory symptoms in patients with COPD," said principal investigator Sermsak Lolak, MD, Staff Psychiatrist, Inova Fairfax Hospital, Falls Church, Virginia, United States.

To determine whether PMR training would decrease anxiety and depression in outpatients receiving pulmonary rehabilitation, Dr. Lolak and colleagues recruited 56 patients with COPD who were participants in an 8-week pulmonary rehabilitation program.

Subjects were randomly assigned an intervention arm or a standard therapy arm. Standard therapy involved 2 days/week of exercise, education, and psychosocial support, with a multidisciplinary team delivering the curriculum. The intervention group received standard therapy with additional sessions of PMR training with a prerecorded tape for 20 minutes each week during weeks 2 through 8.

The investigators assessed patients' anxiety and depression scores using the Hospital Anxiety and Depression Scales (HADS). Both groups had a statistically significant improvement in anxiety over time ( $P = .008$ ). Dr. Lolak explained that the intervention group had lower anxiety scores in weeks 3 through 8, but overall scores for anxiety or depression were not significantly different ( $P = .10$ ).

The gap between the two treatment arms increased over

time, so that patients in the intervention group had increasingly less depression while the control group had increasingly more, Dr. Lolak said.

When the researchers assessed the data by a group-time interaction analysis, they found that the intervention group's depression scores declined in weeks 5 through 8, and that the control group's scores increased during that time. This difference was statistically significant ( $P = .049$ ).

"Obviously, COPD is an illness with a clear physiological origin, and yet patients who have it are troubled because they live with shortness of breath," said Philip Mushkin, MD, who was not involved in the study. "It's not surprising that the authors found that these patients were less anxious as a result of practicing progressive muscle relaxation."

.....Source: pslgroup.com

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### **PULMONARY REHABILITATION PROGRAMS FOR CHRONIC OBSTRUCTIVE PULMONARY DISEASE**

Incremental exercise tests show that the peak work rate in patients who suffer from chronic obstructive pulmonary disease (COPD) and who have participated in a pulmonary rehabilitation program increases an average of 18 percent, according to a "State of the Art" article on COPD pulmonary rehabilitation in the first issue for July 2005 of the American Thoracic Society's peer-reviewed American Journal of Respiratory and Critical Care Medicine.

According to the expert article, the goals of pulmonary rehabilitation programs for COPD patients are to reduce symptoms, improve activity and daily function, and restore the highest level of independent function in patients with respiratory disease.

COPD involves persistent obstruction of the airways caused by severe emphysema and chronic bronchitis. Severe emphysema causes enlargement of the tiny air sacs of the lung (alveoli) and the destruction of their walls. In chronic bronchitis, bronchial glands are enlarged, causing excess secretion of mucus. Frequently, the small airways of the lung become inflamed and blocked. Also, bronchitis victims suffer from a persistent cough that produces sputum. Long-term smoking is the root cause of each of the two illnesses involved. In 2002, 11.2 million U.S. adults were estimated to have COPD.

One of the benefits of pulmonary rehabilitation is improved function capacity, as measured by the 6-minute walk test. Patients who underwent rehabilitation, including exercise training, improved their results by a distance of 54 meters (about 48.6 yards).

Also, the authors point out that improved health-related quality of life is also observed even in the absence of clinically significant improvements in exercise capacity.

Although exercise reconditioning is the key to a successful rehabilitation program, exercise training programs need to be adapted to the individual limitations of the COPD patient, taking into consideration cardiovascular, pulmonary, and skeletal muscle limitations.

They note that exercises should be performed 3 to 5 days

per week at an intensity above 40 to 85 percent of the oxygen uptake reserve (the difference between resting and peak oxygen intake) for more than 20 minutes per session.

.....Source: American Thoracic Society Journal July 2005

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#### Reduced lung function tied to lung cancer risk

There appears to be an association between reduced lung function and the risk of lung cancer, Canadian researchers report. Dr. D. D. Sin told Reuters Health, "Even relatively small reductions in lung function, which are considered within the normal range, increased the risk of lung cancer by 30 percent to 60 percent, especially among women."

Sin and colleagues from the University of British Columbia, Vancouver, reviewed existing studies that have looked into the relationship between lung function and the risk of lung cancer. The analysis involved 204,990 subjects, of whom 6185 had died from lung cancer.

As lung function decreased, the risk of lung cancer increased, the team reports in the issue of Thorax.

Compared to men with the highest levels of forced expiratory volume in 1 second (called FEV1), those with the lowest had a more than 2-fold increased risk of lung cancer.

Women with the lowest FEV1 had a nearly 4-fold increased risk compared to those with the highest.

The investigators say that inflammation of the lungs and airways caused by cigarette smoke and other noxious irritants is a possible explanation for the relationship between reduced lung function and an increased lung cancer risk.

Or it may be that people with reduced FEV1 may have an impaired ability to clear inhaled cancer-causing substances from their airways.

"Since lung cancer can occur in individuals with only small decreases in FEV1, especially in women," concluded Sin, "the traditional boundaries of normal FEV1 may need to be modified for screening purposes." .....SOURCE: Thorax, July 2005.

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#### TRAVEL AT HIGH ALTITUDE – INFORMATION FOR PHYSICIANS

The major risk for patients with lung disease who travel at high altitude, whether by airplane or automobile, is worsening arterial hypoxemia.

Major airline aircraft are pressurized for passenger comfort and safety. Nonetheless, the cabin pressure can vary on many commercial flights and depends on the aircraft design, actual flight altitude, and pilot-related decisions (e.g. avoiding bad weather or turbulence with changes in altitude). The cabin pressure may drop to the equivalent of 9,000 feet above sea level, although the median cabin pressure is equivalent to 6,000 feet. Some smaller, commuter-type aircraft are not pressurized.

Likewise, it is difficult to avoid altitudes of 4,000 feet or higher during longdistance driving in the western United States. Respiratory patients who plan to fly or drive at high altitude need to consider the altitude(s) they will encounter and consult with their physician for advice.

A healthy individual experiences a decrease of 40 mmHg in the inspired partial pressure of oxygen (pO<sub>2</sub>) in the typical

airplane cabin pressurized to 8,000 feet, as the inspired pO<sub>2</sub> drops 4 or 5 mmHg for each 1,000 feet of altitude ascent. However, the decrease in arterial pO<sub>2</sub> is usually not as great because of compensatory physiologic mechanisms, such as hyperventilation. The same altitude exposure in a patient with a lung disorder or pulmonary vascular disease may result in a substantially lower arterial PO<sub>2</sub>. The extent of worsening hypoxemia during altitude ascent varies considerably in a given patient as an acute reduction in inspired pO<sub>2</sub> depends on the altitude, the patient's ability to compensate (ventilatory response), and the nature of the underlying physiologic abnormality. Thus, it is not possible to absolutely predict the actual arterial pO<sub>2</sub> at a given altitude, although the ground-level arterial pO<sub>2</sub> is considered a reliable indicator of altitude tolerance and arterial pO<sub>2</sub> at altitude, using nomograms or laboratory testing with hypoxic gas breathing. The ability of patients to tolerate altitude-related hypoxemia varies considerably and depends on coexisting factors such as respiratory reserve, exercise, cardiovascular and neurological status, smoking history, and level of hemoglobin.

The same general guidelines on hypoxia for airplane travel apply to land travel at high altitude. At 4,000 to 5,000 foot elevations, the expected drop in inspired pO<sub>2</sub> would be 16 to 20 mmHg. While this drop is not so large as that experienced during flight, it can pose a risk for patients with limited pulmonary reserve. When assessing a patient's ability to tolerate high-altitude automobile travel, consider the following factors:

- Cold temperatures cause shivering. This increases the metabolic demands and, therefore, the need for oxygen. Shivering is not usually seen in airplane travel, but is possible with other forms of travel.
- The combination of cold temperatures and low relative humidity, which is typically seen at high altitude, may produce bronchospasm in sensitive individuals.
- Acute mountain sickness can occur in those who travel quickly to an altitude of 8,000 feet or more, and high altitude pulmonary edema can occur at levels above 10,000 feet. First symptoms may be dizziness, headache, drowsiness, and dyspnea; irritability, mental confusion, vertigo, palpitations, and headaches can occur later.
- Sleep disturbances, principally periodic breathing, are commonly seen at altitudes of 8,000 feet or more. This can worsen the already abnormal sleep patterns of patients with chronic lung disease.
- A modest amount of hypoxemia at sea level may not produce any cardiovascular or cerebral symptoms, but the further lowering of the pO<sub>2</sub> due to altitude may aggravate symptoms like angina.

The following are general guidelines to help you decide which patients may safely travel at altitude:

1. Patients who have previously traveled by plane or have gone to an elevation of 8,000 feet or higher without major difficulties in breathing should have no problem with plane or high altitude automobile travel, assuming their medical condition is stable and has not deteriorated since their last trip.

2. Patients with arterial pO<sub>2</sub> greater than 80 should experience no difficulty.

3. Patients with arterial pO<sub>2</sub> of less than 80 but with a normal or low arterial pCO<sub>2</sub> who have a relatively normal minute ventilation and may increase their resting minute ventilation two or three-fold will probably have no difficulty. However, they may need supplemental low-flow oxygen.

4. Patients whose arterial pO<sub>2</sub> is less than 60 at sea level on room air will need continuous oxygen if they are to travel either by plane or by car at high altitude for more than two hours. Shorter periods of hypoxia may be tolerated by certain patients.

5. In patients with elevated pCO<sub>2</sub> in addition to hypoxemia and for whom supplemental oxygen is being considered, oxygen may cause a further worsening of their hypercapnea. Such patients should be discouraged from airplane or automobile travel without pre-travel high altitude simulation testing. Patients with low or normal pCO<sub>2</sub> and those who do not depend on the hypoxic drive to ventilate can safely be given oxygen, as it is unlikely that such therapy will induce hypoventilation.

6. Patients whose medical conditions are unstable should be discouraged from flying until their conditions have stabilized. In particular, patients who are having acute exacerbation of bronchospasm or bronchitis, respiratory infection, pneumothorax, unstable angina or uncompensated congestive heart failure should not fly or drive to high altitude.

7. Patients who fly aboard commercial air carriers should be advised to: arrive early at the airport; ask for wheelchair service whenever long distances have to be covered at the airport; carry only one piece of light-weight luggage and essential medicines onto the aircraft; and never hurry or run. Smoking or exposure to environmental tobacco smoke should be prohibited or avoided prior to and during flight. Patients with lung disease should inform the flight attendant about their condition. Automobile travel requirements need to be individualized. Patients who are suitable candidates for airplane travel should be urged to plan well in advance and discuss their plans with their physician. Patients should contact their airline's passenger services for information regarding the carrier's particular regulations for passengers with disabilities and inflight oxygen therapy. Some airlines will not accept any patient who requires oxygen, and those that do may ask for a letter from the patient's physician stating the diagnosis and oxygen prescription and giving a release to travel with or without an attendant. The oxygen prescription must state the flow rate and whether or not the oxygen is required on a continuous basis. Oxygen therapy at lay-overs and at the destination should also be considered and arranged with vendors. This process is best handled weeks in advance. Requirements for acceptance of incapacitated passengers vary with each airline, although the Americans with Disabilities Act (ADA) has made travel opportunities less difficult for patients. The American Lung Association of California / California Thoracic Society publishes a patient brochure Safe Flying for People with Lung Disease that is helpful.

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## MUSCLES IN OBESITY HAVE PROBLEMS CHOOSING FUEL

In obese and diabetic people, fat and carbohydrate oxidation by skeletal muscle is disrupted, contributing to insulin resistance. In a new study appearing in the July 1 print issue of *The Journal of Clinical Investigation*, Barbara Ukropcova and colleagues from Pennington Biomedical Research Center examine whether the ability of skeletal muscle to oxidize fat in vitro is representative of the donor's metabolic characteristics.

The authors find that skeletal muscle cells, cultured in a controlled environment for up to 5 weeks, isolated from the endocrine and nutritional influences of their donor, retained their donor's metabolic characteristics. This suggests that defects in switching between fat oxidation and carbohydrate oxidation, possibly due to genetic defects in skeletal muscle, contribute to obesity and insulin resistance. The authors show that fuel preference in muscle cells is abnormal in young healthy obese individuals.

In an accompanying commentary, David Kelley writes, "these findings support the concept that the capacity of skeletal muscle to oxidize fat under appropriate physiological conditions is related to leanness, aerobic fitness, and insulin sensitivity."

.....Source: *Journal of Clinical Investigation*, 7/1/05

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## FOODS THAT MAKE UP A HEALTHFUL DIET

### *The New Food Pyramid*

The US Department of Agriculture (USDA) created the first Food Pyramid, which placed foods recommended for frequent consumption at the base, and foods that should be eaten sparingly at the top. The most recent update of the USDA pyramid changes this basic design by dividing it into vertical wedges of different widths to represent the different food groups. These recommendations represent what many diet and nutrition experts consider to be the most solid, reliable, well-researched thinking to date. This update also represents a shift in thinking in American nutrition. Greater emphasis is placed on weight control and exercise. Instead of recommending a diet low in all fats, emphasis is placed on avoiding solid fats (those that are high in trans fats and saturated fats) while allowing foods that are good sources of monounsaturated fats and essential fatty acids. Instead of treating all grain products as equally desirable, it is recommended that people consume whole grain products as much as possible.

The new USDA Food Pyramid is meant to be used in conjunction with the Web site [MyPyramid.gov](http://MyPyramid.gov), where people can enter their age, gender, and physical activity level to calculate a personal recommendation for the amount of each food group to be eaten daily. The website also offers tips for following these recommendations, diet and exercise tracking tools, and additional information.

The basic pyramid, developed by the USDA and the US Department of Health and Human Services, is only one model,

however. This pyramid has been adapted for ethnic preferences and there are now pyramids for the Mediterranean diet, the Asian diet and the Latin American diet. Other diets, such as the vegetarian diet, can also be placed on a food pyramid.

The personal recommendations available from MyPyramid.gov follow these guidelines:

- Balance calorie intake from foods and beverages with calories expended.
- Engage in regular physical activity and reduce sedentary activities.
- Eat recommended amounts of the different food groups based on daily calorie requirements
- Make at least half of the total grains eaten whole grains.
- Eat more dark-green vegetables, orange vegetables, and dry beans and peas. Don't exceed the weekly allotment of starchy vegetables.
- Keep the amounts of fruit juice consumed to less than half of total fruit intake specified by the calculator.
- Consume 3 cups of fat-free or low-fat (1%) milk, or an equivalent amount of yogurt, cheese, or other calcium-rich foods per day.
- Make choices that are low-fat or lean when selecting meats and poultry. Consider fish, nuts, and seeds rich in essential fatty acids as alternatives to meat and poultry. Consider dry beans and peas as an alternative to meat or poultry as well as a vegetable choice.
- Choose most fats from sources of monounsaturated and polyunsaturated fatty acids, such as fish, nuts, seeds, and vegetable oils.
- Choose fat-free, low-fat, or lean meat, poultry, dry beans, milk, and milk products. Choose grain products and prepared foods that are low in saturated and trans fatty acids. Limit the amount of solid fats consumed.
- Choose and prepare foods and beverages with little added sugars or caloric sweeteners.
- Choose and prepare foods with little salt. Keep sodium intake at less than 2300 mg per day. At the same time, consume potassium-rich foods, such as fruits and vegetables.
- If one chooses to drink alcohol, consume it in moderation.

### ***Variations on the pyramid***

Some variations on the USDA Food Pyramid are based on diets from regions with historically lower chronic disease rates. They may be worth considering if your family has a history of heart disease, cancer, high blood pressure or diabetes. Other pyramids reflect personal preferences, such as vegetarianism, or alternative views of healthy eating by expert groups.

### ***What counts as a serving?***

At first, figuring out what counts as a serving may seem a little tricky. Some servings are close to what people would typically consume at a meal; others are much smaller. For instance, a single serving of rice is only one-half cup whereas people are more likely to consume a cup. A hamburger bun is two to three servings (depending on size). This is not a problem as long as you factor this in before you plan your day's servings.

When calculating your servings of each food group, be sure to focus on the labels of packaged foods. They contain a great

deal of valuable information.

The USDA provides recommended daily amounts according to calorie requirements for each of the food groups in the pyramid on their Web site: [www.mypyramid.gov](http://www.mypyramid.gov).

Finally, USDA recommends that everyone get about 30 minutes of moderate or vigorous physical activity in every day. Moderate exercise includes walking briskly, gardening or dancing. Vigorous exercise means running, swimming or doing heavy yard work. The goal of these activities is to elevate the heart rate for at least a total of 30 minutes throughout the day.

.....Source: Healthnotes, Inc., Bronsonvitamins.com

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## **IS GLYCEMIC INDEX THE NEXT WAVE IN NUTRITION?**

Sales figures show US consumers are learning that avoidance of an entire food group is not healthy. Products and messages that consumers may now be primed to accept in order to improve their nutrition is at the heart of scientific presentations scheduled next month at the Institute of Food Technologists' Annual Meeting + FOOD EXPO®.

Under scrutiny here Monday, July 18, will be the glycemic concept as a possible next wave in nutrition. A panel of experts will explore food companies' capabilities of modifying carbohydrate ingredients, the physiology and science behind eating and its effect on glycemic levels, and the changing landscape that manufacturers and consumers now navigate.

While the low-carb message is still heard, it is being restructured in applicable and useful directions. This sets the stage for a new understanding of carbs. For example, certain types extend satiety, lower insulin response and reduce cholesterol.

This scientific review is one of dozens at the IFT Annual Meeting and Food Expo that will focus on diet and health.

On Sunday, July 17, technology experts will offer alternatives for replacing trans fats in foods, while other experts examine the hurdles of bringing successful low-carb products to market. Topics the next day include fish toxicology and safety, new dietary guidelines and advice for different segments of the population including children. On Tuesday, foodservice's focus on reducing obesity, the industry's advances toward reducing sodium in food, and other health and nutrition topics will be examined.

Now in its 65th year, IFT Annual Meeting + FOOD EXPO® is the world's single largest annual scientific meeting and technical exposition of its kind, regularly registering 20,000 attendees, nearly 1,000 exhibiting companies, and more than 1,000 technical presentations. Rated among the largest shows in America\*, the meeting and expo delivers comprehensive, cutting-edge research and opinion from food science-, technology-, marketing- and business-leaders.

In tandem with the IFT Food Safety & Quality Conference, this five-day period is hailed as Food Science and Technology Week. ....Institute of Food Technologists (IFT)

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## **MAKE SURE YOU EAT YOUR BREAKFAST IF YOU WANT TO MAINTAIN A HEALTHY WEIGHT**

If you're looking to maintain a healthy weight, don't skip breakfast. Studies have shown that it's better to eat a low-fat breakfast that emphasizes whole grains and fiber than to skip the morning meal.

The July issue of Mayo Clinic Health Letter says that eating a healthy breakfast has been associated with desirable cholesterol levels and helping to reduce your intake of fat and cholesterol throughout the day. It's also been shown to help you live longer. Here are some heart-healthy breakfast ideas:

**Cereal:** Hot or cold, choose one with a fiber content of 5 grams or more a serving, and a fat content of 0 to 3 grams a serving. Opt for skim milk.

**Fruit:** Slice a banana on your cereal or grab an apple for the road. If you enjoy fruit juice, buy 100 percent fruit juice without added sugar. Limit yourself to one serving of these calorie-rich beverages a day.

**French toast:** Dip whole-grain bread in a batter made of egg whites or egg substitute, a pinch of cinnamon and a few drops of vanilla. Fry on a nonstick skillet or use a nonstick spray.

**Nontraditional:** Make a vegetable sandwich using whole-grain bread. Microwave a potato and top with shredded, low-fat cheese.

.....Source: Mayo Clinic Health Letter July 2005

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## **NUTRITIOUS FROZEN FOODS CAN PLAY ROLE IN WEIGHT-LOSS PROGRAMS**

Size matters when it comes to meal portions in weight-loss diets, according to researchers at the University of Illinois at Urbana-Champaign. And consuming convenient, nutritious frozen dinners may be a way to control portion size.

Research dietitians Sandra M. Hannum and LeaAnn Carson, who work in the laboratory of food science and human nutrition professor John W. Erdman, studied how two diet regimens resulted in weight loss in overweight and obese men. Their findings will appear in the journal *Diabetes, Obesity and Metabolism*. The study was placed online by the journal last month.

Subjects following the first of the diets ate a self-selected regimen based on the Food Guide Pyramid, a nutrition plan established by the U.S. Department of Agriculture in 1992. Subjects following the second diet ate two packaged entrees each day plus recommended servings from the food pyramid. Both diets contained about 1,700 daily calories with equal amounts of carbohydrates, protein and fat. Subjects in the packaged-entree group chose from 24 varieties of Uncle Ben's® bowls, a brand of frozen entrees produced by Masterfoods USA of Vernon, Calif. Masterfoods provided the meals for the subjects and funded the study.

Prior to the study, subjects in both diet groups reported daily consumption of about 2,400 calories. Subjects weighed about 97 kilograms (214 pounds) with a body mass index (BMI) ranging from 26 to 42 kilogram per meter squared, which qualified them as overweight to obese.

Over the course of the eight-week diet, all subjects reduced their daily caloric intake to about 1,700 calories and lost weight. Many subjects reported their surprise in feeling satiated by the diets.

Subjects who followed the frozen-entree diet lost more weight (7.4 kg or 16.3 pounds) compared with the subjects who made their own meals following the food pyramid (5.1 kg or 11.2 pounds). Also, the average BMI decrease was one unit greater in subjects following the frozen-entree diet than subjects following the food-pyramid diet.

These findings replicate the researchers' findings in overweight and obese women, which were published in the March 2004 issue of the journal *Obesity Research*.

Hannum and Carson and their colleagues attribute the greater weight loss among the frozen-entree eaters to the automatic portion control built into that diet, whereas subjects following the pyramid diet had to make their own meals. "The pyramid group had to figure out what to eat, and estimate how much they actually consumed," Hannum said. "There was much more room for error."

After the Illinois studies had finished, the USDA announced a new food pyramid, which allows people to customize their diets according to their age, gender and daily levels of physical activity. The greater complexity of the new pyramid may make this diet even more difficult for people to use, Hannum said.

Whether the participants maintain their new weight depends on whether they can maintain permanent diet changes, an ability that varies across individuals. The study succeeded by pointing many of its subjects in the right direction of portion control.

Because of busy lifestyles, many people eat at restaurants rather than take the time to cook at home. Research in other laboratories has shown that people tend to eat the amount of food that they are served, including large restaurant portions.

"Many of our subjects said that the study was the kick they needed to think about portion size," Hannum said.

Other contributors to the study were Emily L. Petr and Christopher M. Wharton, former graduate students who earned master's degrees in the food science and human nutrition department at Illinois; Linh Bui of Masterfoods USA; and Ellen Evans, professor of nutritional sciences in the kinesiology and community health department at Illinois.

.....University of Illinois at Urbana-Champaign

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## **SOY LOWERS YOUR CHOLESTEROL AND BLOOD SUGAR LEVELS, HELPS YOU LOSE WEIGHT**

***Soy appears to lower cholesterol and blood sugar levels, aid weight loss***

The labels in the snack food aisle promise low-fat, no-fat, low-cal and low-carb tasty treats. But what really makes a food healthy? And should we believe the commercial hype about soy products and our health? Renowned nutrition and weight-loss expert, and University of Kentucky physician and researcher, Dr. James Anderson addresses these and other

questions in two articles in the June issue of the Journal of the American College of Nutrition.

### **What is so good about soy?**

A quick trip through the health-food section of any grocery will reveal several labels touting soy content, but most Americans do not know much about soy beyond a vague idea that it is a healthy food. In his JACN article, Anderson reports on his investigation into the effectiveness of soy in adult weight loss.

Meal replacements, including powders, drinks and energy bars, are popular weight loss tools. Anderson tested two commercially available meal replacements - one soy-based, and one milk based - in a group of obese adults for twelve weeks. Both groups lost weight. The soy-based group lost slightly more weight in any given week, and displayed lower serum cholesterol and LDL cholesterol levels. Soy intake also produced small but significant reductions in serum glucose values. This evidence suggests that soy may be a valuable tool in maintaining overall health, lowering cholesterol, and even slowing the development of diabetes.

"The bottom line is soy is healthy, and while incorporating it into weight loss may not have a more dramatic effect on your waistline than other nutrition plans, its benefits go beyond weight loss toward increasing overall health," Anderson said.

### **What is a healthy snack?**

In another JACN article, "Snack Foods: Comparing Nutrition Values of Excellent Choices and 'Junk Foods'," Anderson raises the possibility that poor snack choices may play an active role in increasing rates of childhood obesity. Noting that snacking can be healthful when snack foods are high in nutritional value and low in calories, Anderson provides a quantitative analysis of what makes a snack either a healthy choice, or a "junk food."

While parents may not enter the grocery store with calculator in hand to crunch the numbers before their children bite into some crunchy snacks, Anderson's research reveals that there is a reliable method for calculating the health value of snack foods. He calls upon manufacturers and government to make this information more readily available to consumers.

"Labels should clearly identify excellent food choices and junk foods," said Anderson. "The government should also consider options such as taxing junk foods, subsidizing healthy foods, and prohibiting junk food advertisements in media targeted to children, especially advertising in schools."

As a physician, Anderson regularly treats young people trying to control their weight. He believes stemming the American obesity epidemic is a task shared by all.

"Communities, schools, legislative bodies, movies, television and food companies should partner in promoting healthful food choices. Where childhood obesity is concerned, we are all responsible," Anderson said.

Anderson, professor of medicine and clinical nutrition, UK College of Medicine, and director, UK Metabolic Research Group, is also the director of the Obesity Research Network, a nationwide network of physicians and scientists recognized for their work in the treatment of obesity. He also is medical director

of the HMR® Program for Weight Management in conjunction with the University of Kentucky. He currently has several weight loss and lipid treatment research studies in progress. ....SOURCE: University of Kentucky

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### **THE NUMBER ONE SOURCE OF CALORIES IN AMERICA**

White bread, previously reported as the leading source of calories in the average American diet, has been dethroned; according to a study's preliminary findings, soft drinks and sweet drinks have successfully taken over.

Researchers studied the reported diets of a large nationwide sample of American adults. Among respondents of the 1999-2000 National Health and Nutrition Examination Survey (NHANES):

More than two-thirds reported drinking enough soda or sweet drinks to supply them with a greater proportion of daily calories than any other food. Those who consumed sweet drinks had higher obesity rates.

Researchers are hopeful that by helping to identify the leading sources of excess energy in the American diet, the results may contribute to the development of strategies needed to fight obesity.

### **Additional Supporting Evidence**

The above findings aren't the only strikes against soda and sweet drinks. According to the American Dietetic Association, relying on a soft drink to satisfy thirst cravings could waste a good deal of your daily calorie allotment.

Consider this: Most adults need about 1,600-2,400 calories a day and the average, 64-ounce "Big Gulp" non-diet sweet drink sold at convenience stores can account for as much as 800 calories in just one serving.

Therefore, how many calories are left for much-needed nutritious foods? Not much. ....Herald-Dispatch.com

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### **THE PROTEIN SOLUTION**

To reach a healthier weight with fewer hunger pangs, consider eating more lean protein. A new study adds to a growing body of research that points to protein's power to satisfy hunger better than either fat or carbohydrates. The findings could also help explain the recent but short-lived enthusiasm for low-carb diets, which happen to be high in protein.

"It's telling us that one of the reasons why the low-carbohydrate diets seemed to work is not because of low carbohydrates, but because of high protein," said Arne Astrup, head of the department of human nutrition at the Royal Veterinary and Agricultural University in Copenhagen. "Look at Atkins, South Beach and the Zone," said Astrup, who wrote an editorial accompanying the protein study, which appears in this month's American Journal of Clinical Nutrition. "They're all characterized as having 30 to 40 percent of calories from protein."

Thirty percent of daily calories as protein -- about twice what most Americans eat, and the upper limit recommended

by the Institute of Medicine— is the amount that University of Washington researchers gave to 19 participants in the latest study. They had an average body mass index of 26, equal to being about 10 pounds overweight, and had maintained their current weight for at least three months.

Throughout the four-month study, food was prepared and supplied by the research team. Although the participants lived at home, they met with researchers twice a week to check their weight and receive more food. Their blood was tested regularly to measure insulin, leptin and ghrelin, hormones that regulate appetite.

During the first two weeks of the trial, researchers supplied enough food for participants to maintain their weight on a standard American diet composed of 15 percent of calories from protein, 35 percent from fat and 50 percent from carbohydrates. Study subjects were instructed to eat all the food supplied. If any remained, they were told to return it so that researchers could accurately calculate their daily calories.

For the third and fourth weeks, participants still received enough food to maintain their weight but shifted to a diet with twice the amount of protein, about half the fat and with the remaining calories coming from healthy carbohydrates, including plenty of fruit, vegetables and whole grains. As before, participants were instructed to eat all the food supplied daily. Any remaining food was returned for measurement.

"They complain about it, because they feel very full on the high protein diet," said David Scott Weigle, professor of medicine at the University of Washington and the study's lead author.

For the last 12 weeks of the study, which was designed to mimic ordinary living conditions, participants received the same high protein fare, plus extra food containing up to 15 percent more calories per day. They also got the freedom to eat as much or as little as they wanted. To avoid nutritional boredom, participants could also eat one meal of their choosing per week and drink up to three alcoholic beverages weekly. They recorded their "free meal" in food records, kept logs rating their appetites and received instructions on how to choose healthy, high-protein fare.

Left to their own devices on the high-protein diet, participants spontaneously cut their intake by 441 calories daily—roughly a quarter of their daily calories. They lost an average of 11 pounds, including about eight of fat, while reporting feeling full and satisfied. "I was surprised by the magnitude of the weight loss," Weigle said, noting that participants' weight "just cruised down."

Blood tests showed that appetite-controlling hormones reached levels that normally boost hunger. "It means that the effect of the high-protein diet was stronger than the biological stimulus to eat more," Weigle said. One way to explain the results, he said, is that a high protein intake affects the brain, a finding already confirmed in animal studies. If the brain perceives that lower levels of appetite-stimulating hormones are normal, Weigle said, "then it would continue to turn down hunger."

Even so, Weigle and others caution that boosting protein to

30 percent of daily calories may not be safe for everyone, since it could overtax kidneys in those with kidney problems, diabetes or glucose intolerance.

For others trying to reach a healthier weight, Astrup said that the latest findings show "that there's no reason to cut down on carbohydrates or that much on fat. Simply increase your protein. That can be done as part of a very healthy diet, including eating all kinds of fruit, vegetables and whole grains."

Here's what registered dietitian Colleen Matthys, part of the University of Washington study team, recommends to help increase protein. Find some of the recipes used in the study at <http://www.leanplateclub.com/> :

- Add nonfat dairy products . Drink skim milk with meals and use it instead of water to make oatmeal or creamy soups, such as tomato. Snack on nonfat yogurt. Use shredded nonfat or low-fat cheese for pizza, tacos and grilled cheese sandwiches on whole-wheat bread. Add nonfat dry milk to mashed potatoes, puddings and casseroles to increase protein.
- Eat more lentils and beans . Not only are they high in protein, but they pack complex carbohydrates that contain plenty of fiber and don't spike blood sugar. Edamame, tofu, soy milk and soy-based meat substitutes are also protein-rich. You can also add a little soy powder to orange juice to boost protein, as the researchers did.
- Crack an egg. Egg whites are pure protein, with no fat or cholesterol. Hard-boil an egg, remove the yolk and fill the white with guacamole, salsa or bean dip, or chop and sprinkle the white on salads. Egg substitutes contain no cholesterol and less fat than regular eggs. Or use one whole egg with extra egg whites to make fluffy, high-protein omelets or frittatas.
- Eat more lean cuts of meat, poultry without the skin, fish and seafood . Skinless turkey and chicken breasts were frequent mainstays of study meals, which also included lasagna made with lean ground beef and ground turkey. The most popular meal among people in the study: chicken fajitas.

.....Source: washingtonpost.com, July 19, 2005

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## TEN TIPS TO CUT BACK THE FAT

Weight-loss fads come and go. But no matter what you hear, limiting fat in your diet, particularly saturated fat and trans fat— is one of the most important diet changes most Americans can make for optimum health.

**Cool it**—Chill soups, gravies and stews, then skim off the fat that floats to the top.

**Buy skim**—Skim milk may taste thinner at first, but if you use it regularly, your tastes should adapt. Try other dairy products such as fat-free yogurt, reduced-fat or fat-free cheeses and low-fat or fat-free sour cream and cream cheese.

**Cook smart**—Limit using oils or butter for frying. Instead sauté or stir-fry foods in a small amount of vegetable broth or cooking wine. Try baking, broiling, steaming, poaching or grilling instead of frying.

No yolk—With eggs, it's the yolk that contains virtually all of the fat and cholesterol. Try using egg substitutes. Or, in most recipes, you can use two egg whites instead of one whole egg.

Cut butter and margarine—Use apple, pumpkin or other fruit butters on breads instead. Try fat-free, butter-flavored spreads or sprinkles. For baking, substitute unsweetened applesauce, prune puree or a commercial baking substitute for half of the butter, shortening or oil in your recipe.

Top it off—Use fat-free salad dressing to add zip to salads or vegetables. Plain, fat-free yogurt can be used in sauces for pasta, salads and sandwiches. Top bagels with fat-free cream cheese.

Bean protein—For a meal or two a week, use beans or legumes instead of meat in a salad, soup or as the main dish.

Lean on meat—Use extra-lean ground beef, ground chicken or ground turkey. Instead of bacon, use Canadian bacon or prosciutto, a lean Italian ham. Buy beef labeled “select” instead of “choice” or “prime.” Trim all fat from meat cuts and remove chicken skin, before or after cooking.

Meat substitutes—Meatless products, such as imitation hot dogs, bacon, burgers and sausage are available at many grocery stores. They often contain less fat—especially saturated fat -- than is contained in an equivalent portion of meat.

Room for dessert—Use fat-free ice cream, frozen yogurt, sherbet or sorbet and top with berries or a fat-free nondairy whipped topping. ....Mayo Clinic Health Letter

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### CHICKEN KABOB DIPPERS

Recipe Rating: Prep Time: 10 min

Total Time: 25 min

Makes: 4 servings

4 small boneless skinless chicken breast halves (about 1 lb.), cut into 1-inch pieces

4 wooden skewers, soaked in water

1 medium yellow or green pepper, cut into chunks

1 medium red onion, cut into chunks

1 small zucchini, cut diagonally into 1/2-in.-thick slices

2 Tbsp. KRAFT Mayo Light Mayonnaise

2 Tbsp. KRAFT Original Barbecue Sauce

PREHEAT grill to medium-high heat. Thread chicken onto skewers alternately with vegetables.

GRILL 3 to 4 min. on each side or until chicken is cooked through and vegetables are crisp-tender, turning frequently.

MEANWHILE, mix mayo and barbecue sauce until well blended. Serve with the kabobs for dipping.

#### NUTRITION INFORMATION

Diet Exchange: 1 Vegetable,3 Meat (VL),1 Fat

Nutrition (per serving)

Calories 190 Total fat 5g Saturated fat 1g Cholesterol 70mg



Sodium 220mg Carbohydrate 8g Dietary fiber 1g Sugars 5g  
Protein 25g Vitamin A 4%DV Vitamin C 50%DV Calcium  
2%DV Iron 6%DV

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### GRILLED FISH AND PEPPERS

Recipe Rating: Prep Time: 10 min

Total Time: 36 min

Makes: 6 servings

1 cup KRAFT Zesty Italian Dressing

2 tsp. red pepper flakes

1-1/2 lb. firm white fish fillets, such as grouper, halibut or tilapia

2 each red and green peppers, seeded, each cut into 6 pieces

2 Tbsp. KRAFT 100% Grated Parmesan Cheese

2 Tbsp. finely chopped cilantro



MIX dressing and red pepper flakes. Pour half of the dressing mixture over fish in resealable plastic bag. Seal bag.

Refrigerate 15 min. to marinate. Place peppers in a separate resealable plastic bag. Add remaining marinade; seal bag.

Shake bag gently until peppers are evenly coated.

PREHEAT grill to medium-high heat. Remove fish from marinade; discard marinade. Remove peppers from marinade, reserving marinade.

PLACE peppers on grill. Top with fish; cover grill with lid.

Cook 4 min.; turn fish over. Brush with reserved marinade from peppers. Grill, covered, an additional 2 min. or until fish flakes easily with fork. Place fish and peppers on serving plate; let stand 3 min. Sprinkle with cheese and cilantro.

#### NUTRITION INFORMATION

Diet Exchange: 1 Vegetable,3 Meat (VL),1 Fat

Nutrition (per serving)

Calories 180 Total fat 6g Saturated fat 1g Cholesterol 45mg

Sodium 220mg Carbohydrate 7g Dietary fiber 2g Sugars 3g

Protein 24g Vitamin A 60%DV Vitamin C 90%DV Calcium

6%DV Iron 8%DV

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### LOW FAT RASPBERRY SUMMER SENSATION

Recipe Rating: Prep Time: 15 min

Total Time: 3 hr 30 min

Makes: 12 servings, 1 slice each

1 pt. (2 cups) raspberry sorbet or sherbet

1 cup cold fat free milk

1 pkg. (4-serving size) JELL-O Vanilla Flavor Fat Free Sugar Free Instant Reduced Calorie Pudding & Pie Filling

1 tub (8 oz.) COOL WHIP FREE Whipped Topping, thawed

1 cup raspberries

LINE 9x5-inch loaf pan with foil. Spoon sorbet into pan; freeze 10 min.



POUR milk into large bowl. Add dry pudding mix. Beat with wire whisk 2 min. or until well blended. Gently stir in whipped topping. Spread pudding mixture over sorbet in pan. FREEZE 3 hours or overnight. To unmold, invert pan onto plate; remove foil. Top with raspberries just before serving. Let stand 10 to 15 min. to soften before cutting into 12 slices.

### How To Soften Sorbet

Soften sorbet in microwave on MEDIUM (50%) for 10 to 15 sec. or until slightly softened.

### NUTRITION INFORMATION

Diet Exchange: 1-1/2 Carbohydrate

Nutrition (per serving)

Calories 100 Total fat 1g Saturated fat 1g Cholesterol 0mg

Sodium 130mg Carbohydrate 22g Dietary fiber 1g Sugars

15g Protein 1g Vitamin A 0%DV Vitamin C 10%DV

Calcium 4%DV Iron 0%DV

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### SUPER FRUITY KOOL KUBES

Prep Time: 5 min

Total Time: 5 hr 5 min

Makes: About 14 servings, 2 cubes each



½ cup KOOL-AID Sugar-Free Soft Drink Mix, any flavor

1-1/2 cups water

MIX soft drink mix powder and water in glass measuring cup; stir until drink mix is dissolved. Pour evenly into plastic ice cube trays lightly sprayed with cooking spray.

FREEZE 3 to 5 hours or until firm. Remove from ice cube trays onto plate or plastic tray.

### NUTRITION INFORMATION

Nutrition (per serving)

Calories 25 Total fat 0g Saturated fat 0g Cholesterol 0mg

Sodium 0mg Carbohydrate 7g Dietary fiber 0g Sugars 7g

Protein 0g Vitamin A 0%DV Vitamin C 4%DV Calcium

0%DV Iron 0%DV

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### SPICED SHISH KEBABS WITH HORSERADISH CREAM

*These colorful and quick kebabs combine the earthy flavor of chili powder with the bite of a creamy horseradish sauce.*

#### Ingredients:

1 pound boneless top sirloin steak, all visible fat discarded, cut into 1-inch cubes

2 teaspoons chili powder

2 teaspoons dried oregano, crumbled

1 teaspoon ground cumin

3/4 teaspoon garlic salt

Vegetable oil spray

### Horseradish Cream

1/3 cup fat-free sour cream

2 tablespoons fat-free or light mayonnaise dressing

1 tablespoon prepared white horseradish

1/2 teaspoon garlic salt

1 large red onion (about 6 ounces), quartered and layers separated

1 medium yellow bell pepper, cut into 1-inch pieces

16 cherry tomatoes

Chili powder to taste

#### Directions

Put the steak in a shallow bowl. Sprinkle with the chili powder, oregano, cumin, and 3/4 teaspoon garlic salt. Toss gently yet thoroughly to coat completely. Let stand for 15 minutes to absorb flavors.

Meanwhile, preheat the broiler. Lightly spray the broiler pan and rack with vegetable oil spray.

In a small bowl, stir together the ingredients for the horseradish cream except the chili powder. Sprinkle the chili powder on top.

Thread the vegetables and meat onto four 12-inch metal skewers in alternating order: onion, bell pepper, tomato, and steak. Put the kebabs on the prepared rack.

Broil the kebabs about 4 inches from the heat for 4 minutes. Turn the kebabs and broil for 3 minutes, or until desired doneness.

Serve with the horseradish cream.

Dietary Information (per serving):

Nutrient Analysis: Calories: 223; Protein: 25 g;

Carbohydrates: 17 g; Total fat: 6.0 g; Saturated: 2.0 g;

Polyunsaturated: 0.5 g; Monounsaturated: 2.5 g; Cholesterol: 67 mg; Fiber: 3 g; Sodium: 461 mg

.....American Heart Association

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### SUE'S FRUIT SALAD

3/4 cup plain yogurt

1/4 cup fresh lime juice

1/4 cup honey

1 teaspoon grated lime peel

2 cups diced peeled cantaloupe

2 cups diced peeled honeydew melon

2 cups seedless red or green grapes

2 cups diced peeled cored pineapple

1 1/2 cups diced peeled papaya

1 cup diced peeled banana

1 cup halved strawberries

#### Preparation:

Mix together the first 4 ingredients in a bowl to make the dressing and chill for half an hour. Pour the dressing over fruit and serve. This recipe is good for about 10 servings

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**HELPFUL HINTS**

How many of these did you know about?

A sealed envelope - Put in the freezer for a few hours, then slide a knife under the flap. The envelope can then be resealed. (hmmmmmm...)

Use Empty toilet paper roll to store appliance cords. It keeps them neat and you can write on the roll what appliance it belongs to.

For icy door steps in freezing temperatures: get warm water and put Dawn dishwashing liquid in it. Pour it all over the steps. They won't refreeze. (wish I had known this for the last 40 years)!

To remove old wax from a glass candle holder, put it in the freezer for a few hours. Then take the candle holder out and turn it upside down. The wax will fall out.

Crayon marks on walls? This worked wonderfully! A damp rag, dipped in baking soda. Comes off with little effort (elbow grease that is)!

Permanent marker on appliances/counter tops (like store receipt BLUE!) rubbing alcohol on paper towel.

Whenever I purchase a box of S.O.S Pads, I immediately take a pair of scissors and cut each pad into halves. After years of having to throw away rusted and unused and smelly pads, I finally decided that this would be much more economical. And now a box of S.O.S pads last me indefinitely! In fact, I have noticed that the scissors get sharpened this way!

Blood stains on clothes? Not to worry! Just pour a little hydrogen peroxide on a cloth and proceed to wipe off every drop of blood. Works every time! Now, where to put the body? LOL

Use vertical strokes when washing windows outside and horizontal for inside windows. This way you can tell which side has the streaks.

Straight vinegar will get outside windows really clean. Don't wash windows on a sunny day. They will dry too quickly and will probably streak.

Place fabric softener sheets in dresser drawers and your clothes will Smell freshly washed for weeks to come. You can also do this with towels and linen.

Candles will last a lot longer if placed in the freezer for at least 3 hours prior to burning.

To clean artificial flowers, pour some salt into a paper bag

and add the flowers. Shake vigorously as the salt will absorb all the dust and dirt and leave your artificial flowers looking like new! Works like a charm!

To easily remove burnt on food from your skillet, simply add a drop or two of dish soap and enough water to cover bottom of pan, and bring to a boil on stovetop.

Spray your TUPPERWARE with non-stick cooking spray before pouring in tomato based sauces and there won't be any stains.

Wrap celery in aluminium foil when putting in the refrigerator and it will keep for weeks.

When boiling corn on the cob, add a pinch of sugar to help bring out the corn's natural sweetness.

Cure for headaches: Take a lime, cut it in half and rub it on your forehead. The throbbing will go away.

Don't throw out all that leftover wine: Freeze into ice cubes for future use in casseroles and sauces.

To get rid of itch from mosquito bites, try applying soap on the area and you will experience instant relief.

Ants, ants, ants everywhere ..... Well, they are said to never cross a chalk line. So get your chalk out and draw a line on the floor or wherever ants tend to march. See for yourself.

When you get a splinter, reach for the scotch tape before resorting to tweezers or a needle. Simply put the scotch tape over the splinter, then pull it off. Scotch tape removes most splinters painlessly and easily.

Now look what you can do with Alka Seltzer.

Clean a toilet. Drop in two Alka Seltzer tablets, wait twenty minutes, brush and flush. The citric acid and effervescent action clean vitreous China.

Clean a vase. To remove a stain from the bottom of a glass vase or cruet, fill with water and drop in two Alka Seltzer tablets.

Polish jewellery. Drop two Alka Seltzer tablets into a glass of water and immerse the jewellery for two minutes.

Clean a thermos bottle. Fill the bottle with water, drop in four Alka Seltzer tablets, and let soak for an hour (or longer, if necessary).

Unclog a drain. Clear the sink drain by dropping three Alka Seltzer tablets down the drain followed by a cup of Heinz White Vinegar. Wait a few minutes, then run the hot water.



**“I’m the Workout Fairy. I’m here  
to tighten your abs!”**

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