

EFFORTS

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Emphysema Takes Your Breath Away

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A NEW SCAN FOR LUNG DISEASES

People with chronic lung disease and asthma could soon be offered better treatment thanks to a new type of Magnetic Resonance Imaging (MRI) scan being pioneered at The University of Nottingham.

A purpose-built MRI research unit has been established to study a range of respiratory diseases. The unit is based at the Queens Medical Centre and will allow doctors to virtually 'see inside' the lungs of patients using a new, specifically-adapted MRI scanner.

The team of scientists and clinicians are working on a new technique using a specially-treated harmless gas which the patient is given to inhale. Unlike air, this gas shows up clearly on an MRI scan, giving an exquisitely-detailed picture of the lungs, their damaged and healthy areas. The new method also shows the gas being absorbed into the bloodstream. This will give doctors a clear idea of how well or badly the different parts of the lungs are transferring life-sustaining oxygen. The scans could also be used to guide treatment or to guide surgeons performing lung reduction operations.

The diseases to be studied using the new type of scan include asthma, lung fibrosis and Chronic Obstructive Pulmonary Disease (COPD). These diseases are a major health burden: for example COPD is among the top five causes of death and disability in the UK with around a million sufferers. It is caused by inhalation of poisonous gases or particles, most commonly in smoking, although some working environments, e.g. coalmining, are also known triggers. COPD accounts for more time off work than any other illness and places a huge burden on the health service.

At present X-rays or CT scans are used to investigate lung diseases. But X-rays and CTs only show the structure of the lung and don't reveal any detail on how well the lungs are functioning. They also involve a small exposure to radiation which can limit repeat scanning.

The MRI imaging technique to be used in the trials will use a gas called Xenon 129. The Xenon is 'hyperpolarized' using lasers which make the gas particles detectable in the MR scanner. Whilst this approach has been tried previously using Helium 3, this gas is difficult to obtain and hence is unsuitable for routine clinical work. Xenon 129 is easy to obtain and thus has the potential to be used widely in the clinic.

The team of scientists and clinicians at the University has won around £3 million from a range of sources to fund the building of the tailor-made facility at the Queen's Medical Centre. It will also pay for clinical trials of the technique and to develop better hyperpolarisation equipment to supply the gas needed. A new member of staff, physicist Professor Thomas Meersman, has been appointed from Colorado State University to help lead the hyperpolarization research.

The project is being led by Professor Ian Hall in the medical school and Professor Peter Morris, Director of the Sir Peter Mansfield MRI Centre. Professor Hall said: "This research has huge implications for the treatment and monitoring of lung disease. We are very excited to be able to combine our world-renowned MRI knowledge with the clinical expertise at the Queen's Medical Centre in Nottingham to try and develop hyperpolarized xenon MRI as the diagnostic and therapeutic monitoring tool of choice for lung-related diseases in the future."

<http://tinyurl.com/ybs3x9w>

CHRONIC EXPOSURE TO POLLUTED AIR HARD ON THE LUNGS

Chronic exposure to outdoor air pollution seems to reduce lung function in otherwise healthy adults, a study suggests.

"We know that very high levels of air pollution (such as those in the smogs of the 1950s) harm health, but until now the evidence that lower levels reduce lung function over the long term has been scanty because it requires such complex analysis," Dr. Lindsay J. L. Forbes, of the University of London, UK, told Reuters Health.

Using survey data on a cross section of more than 40,000 white adults from 1995, 1996, 1997, and 2001, Forbes and colleagues examined ties between exposure to common outdoor air pollutants and various measures of lung function. They found that greater exposure to air pollution heavy in small particles, nitrogen dioxide, and sulfur dioxide was associated with lower lung function, the authors report.

The effects were strongest in men, older individuals, and former smokers.

"Long term exposure to these pollutants may be responsible for a large number of cases of chronic obstructive pulmonary disease in susceptible people, although it is not likely to have significant health effects in people with good lung function in the first place," Forbes said. "The next research step should be to untangle whether air pollution affects lung function over the course of adult life or whether it prevents young people from reaching their maximum lung function," Forbes said.

"This will tell us where we should concentrate our efforts to reduce exposure."

SOURCE: Thorax, August 2009.

COPD MANAGEMENT MAKES STRIDES, BUT DIAGNOSIS STILL LAGS.

Surprised to hear that only one in five smokers suffers some loss of lung function? You should be. That oft-cited statistic just isn't true, according to Dennis E. Doherty, MD. Forty percent to nearly half have some degree of impairment.

A larger circle of lung damage than previously thought helps explain why chronic obstructive pulmonary disease (COPD) is crawling up the ladder of lethal diseases and now

ranks fourth worldwide, even though many people still do not recognize it by name.

Still, there is much to be optimistic about in 2009. Medicare has established reimbursement codes for smoking cessation counseling. In addition, medications such as beta-agonists and anticholinergics are proving themselves adept at improving lung function and decreasing air trapping.

"Identify COPD earlier, and we can likely improve quality of life," said Dr. Doherty, a pulmonologist at the University of Kentucky College of Medicine and Chandler Medical Center, Lexington. "With smoking cessation, we can slow the rate of future decline in lung function."

There is the rub: COPD is too seldom caught early enough. Spirometry still has not caught on, despite awareness campaigns by high profile pulmonologists like Thomas L. Petty, MD. (Read an article by Thomas L. Petty, MD about COPD Progress and Challenges in 2009.)

"If you don't identify patients until their FEV1 is 50 percent of predicted or lower, they are without maintenance treatment and likely to have had costly exacerbations. There are no cost savings there," declared Dr. Doherty, speaking at NAMDRC '09, in Las Colinas, Texas.

One tried-and-true stalwart of medicine can help in this regard: the patient interview. Patients with undiagnosed COPD are often unaware of a decline in their activity levels, Dr. Doherty said. Physicians must learn to question them more carefully. Do you find yourself resting on a bench after shopping in a few stores? Do you lag behind others when walking, and so on.

Spirometry underused

In 2007, a study in CHEST of more than 5,000 COPD patients age 40 and older found that only one-third had received spirometry testing, and only half had received follow-up bronchodilator testing to confirm their COPD diagnosis.¹ A 2008 study in the same journal arrived at similar results, suggesting that spirometry use remains moribund.

"It suggests there are likely a large number of individuals under-diagnosed and misdiagnosed," said lead author MeiLan Han, MD, a pulmonologist at the University of Michigan, Ann Arbor.

The Agency for Healthcare Research and Quality, the American College of Physicians, and other groups maintain that no randomized clinical trials show that spirometry helps with smoking cessation or even that it helps to determine early airflow obstruction that should be treated.

The National Lung Health Education Program (which Dr. Doherty chaired for eight years), the American Thoracic Society, and other groups solidly oppose that view.

"Both see the same studies," Dr. Doherty mused. Why the disparity?

Most experts agree that spirometry should be used to screen symptomatic individuals, Dr. Han said. "The question lies in whether asymptomatic patients with risk factors should be screened. The biggest opponents of mass screening argue that because we have no interventions that modify course of disease, why detect the disease? "However, we know that smoking cessation can slow the decline of lung function, and there is

some evidence to suggest that if a subject undergoes spirometry, they will be more likely to quit. By knowing a patient's COPD status, we can also better target influenza and pneumococcal vaccines. We also know that inhaler therapy can decrease the frequency of COPD exacerbations."

Cessation, rehabilitation reimbursement

On the plus side, new bills in the Senate and House would require Medicare and Medicaid to include smoking cessation programs as a benefit for COPD patients. Sen. Dick Durbin (D-Ill.), with Sen. Ted Kennedy (D-Mass.) has introduced S 770. In the House of Representatives, Diana DeGette (D-Colo.) and Todd Platts (R-Pa.) have introduced an identical bill, HR 1850. Not only would these bills require Medicare and Medicaid programs to include smoking cessation programs as a benefit, they also would define who could provide smoking cessation counseling.

Much to the chagrin of the rehab community, pulmonary rehab will not resemble anything they expected or wanted if nothing changes before it comes on line as a Medicare benefit on Jan. 1, 2010.

Meanwhile, pulmonary rehabilitation, performed either in a hospital or a physician office, is scheduled to come on line as a Medicare benefit in 2010. But the new rule proposed by the Centers for Medicare & Medicaid Services restricts coverage to patients with moderate to severe COPD and limits the amount reimbursed to about \$16 per patient per session. "It doesn't meet any kind of reasonable litmus test," explained Phil Porte, executive director of NAMDRC. "I don't think anybody in any hospital can deliver any comprehensive clinical service for \$16 an hour."

The rule also would cap the number to 36 one-hour sessions, he said. "You can go for two hours, but you can only bill for one."

Porte recently participated in a one-hour phone conference with members of the American Association of Cardiovascular and Pulmonary Rehabilitation, American Thoracic Society, American Association for Respiratory Care, and the American College of Chest Physicians to address these three main areas of concern and plan a strategy.

"We're not going to roll over," he said. "There are serious flaws in their approach. We are going to be aggressive." Ellen B. Griffith, CMS spokeswoman, responded: "We are encouraging all interested parties to submit (feedback) through the formal comment process."

Drug management

On the pharmaceutical side of COPD management, there is reason for optimism. The 2007 TORCH study (Towards a Revolution in COPD Health) randomized 6,000 mostly severe COPD patients over three years into placebo, single-drug, and combination-drug arms.²

It did not reduce mortality, its primary endpoint, but found that the long-acting beta2agonist salmeterol, or the inhaled corticosteroid fluticasone propionate, or the two in combination, slowed the rate of lung function decline over time relative to placebo. It is the first trial to show pharmacologic agents can do this, said Dr. Doherty, a TORCH researcher.

Then, in 2008, a four-year study of the drug tiotropium showed sustained improvements in lung function for up to four years - although it did not alter the rate of decline in lung function.³The study also showed no increase in respiratory, neurologic, or cardiac morbidity or mortality versus usual care, reaffirming the drug's safety profile.

"Tiotropium also led to a 14 percent decrease in exacerbations," for which its manufacturer is now petitioning the Food and Drug Administration to approve it for that indication, said Dr. Doherty, who was involved with the study.

The ultimate question, though, is: Can spirometry, pulmonary rehabilitation, pharmacologic and nonpharmacologic therapies impact COPD mortality? "The jury is still out," he said.

However, within a decade, researchers will identify COPD's differing clinical phenotypes and break the disease down into types and degrees, Dr. Doherty predicted. Perhaps that will lead to therapies that finally loosen COPD's death grip.

<http://tinyurl.com/nct8js>

HOW MUCH WATER DO YOU REALLY NEED?

You should be drinking 8 to 10 glasses of water a day, right?

Well, as it turns out, there's no scientific research to back up this number. Learn how to figure out how much water you should be getting and other ways to stay hydrated this summer. Hydration Basics

Your body relies on water for a lot more than quenching thirst. Water makes up about 60% of your body weight, and it helps control our body temperature, flush toxins and retain moisture. Because we lose fluid through breathing, sweating and bathroom breaks, we need to constantly replenish to keep body fluids in balance.

The truth is, fluid replacement doesn't have to come just from straight-up water — all fluids and many foods contribute to hydration. That's right — everything you drink and foods like soups, fruits and vegetables count. Foods actually account for about 20% of our average fluid intake, while beverages make up the other 80%.

Now that's not *carte blanche* to replace all the water you've been drinking with sugar-y soda or coffee, but it does mean that everything counts. Recommendations for how much "water" to drink should actually be recommendations for how much total fluid you need in a day. Of course, water is still the best choice because it's calorie-free and gets absorbed quickly. Americans get more than 20% of their daily calories from beverages, and it's easy to overdo it, which can mean extra poundage.

But Caffeinated Drinks Dehydrate You, Right?

That's also a myth, too. Research supports that caffeine-containing drinks do not have a negative affect on your overall hydration levels.

How Much Do You Need?

The Institute of Medicine recommends about 11 cups of fluids a day for women and 15 cups for men on average. If you exercise regularly or spend time outside in the heat, you need more. Women that are pregnant or breastfeeding also need more.

The absolute best way to tell if you are properly hydrated is to check the color of your urine (I know, it's kinda gross, but it

works). Dark yellow means you're dehydrated, and light yellow or clear means you're getting enough fluids. Also pay attention to your sweat rate. If you sweat more because of exercise or a hot day in the sun, you need more to drink in order to replenish.

Tap or Bottled?

Nutritionally, there's virtually no difference between tap and bottled water — unless you live in an area where the water has been deemed undrinkable, of course. In fact, tap water may contain more minerals than the bottled stuff. Bottled water is often a convenient option, but it requires a lot more energy to produce all those plastic containers — plus, it can get pricey. According to Planet Green, one liter of bottled water requires 2,000 times more energy to produce than one liter of tap water! Reusable drinking bottles are the eco-friendly way to go.

If plastic bottles are the only option, re-fill them with tap water a few times to get some extra use out of them. Check out our tips for using safe plastic containers and drinking bottles. Sure-Fire Tips for Staying Hydrated

Carry something to drink with you at all times (preferably calorie-free)

Eat lots of fresh fruits and veggies — they have a high water content and loads of nutrients

Check your urine color to make sure you're getting enough fluids

Monitor your sweat rate — the more you sweat, the more you should drink

All fluids count!

Bottom Line: All fluids and foods contribute to your hydration, but good ol' water is still the best choice. Drink fluids with meals and throughout the day (and some extra if you exercise) to make sure you're getting enough.

Farmers Almanac

JUST ONE CIGARETTE STIFFENS ARTERIES

Canadian researchers say smoking even one time significantly stiffens the arteries and negatively influences the body's ability to cope with physical stress.

Young adults ages 18 to 35 who smoke as little as one cigarette increase the stiffness of their arteries by 25 percent, a new study suggests, increasing risk of heart disease and stroke.

Researchers measured the arterial stiffness of both young adult smokers (five to six cigarettes daily) and non-smokers with a test that measured arteries' response to the stress of exercise. An initial test was given to both groups to establish baselines, where smokers were asked not to smoke for 12 hours prior to the test. Smokers were then asked to smoke one cigarette before the test, and chew one piece of nicotine gum before a third test.

During the baseline test, non-smokers reduced their arterial stiffness by 3.6 percent after exercise. Even with a 12-hour tobacco abstinence window before the test, smokers still increased their arterial stiffness after exercise by 2.2 percent. When exercising after one piece of nicotine chewing gum, stiffness increased by 12.6 percent. One cigarette raised stiffness by 24.5 percent.

"In effect, this means that even light smoking in otherwise young healthy people can damage the arteries, compromising the ability of their bodies to cope with physical stress, such as climbing a set of stairs or running to catch a bus," Dr. Stella Daskalopoulou was quoted as saying. "It seems that this compromise to respond to physical stress occurs first, before the damage of the arteries becomes evident at rest."

In addition to stiffening arteries, smoking increases plaque buildup in the arteries, increases risk of blood clots and high blood pressure, reduces oxygen in the blood and doubles the risk of ischemic stroke.

SOURCE: Presented at the 2009 Canadian Cardiovascular Congress by Dr. Stella Daskalopoulou

NEW VACCINE SHOWS PROMISE FOR COPD PATIENTS AT RISK FOR PNEUMONIA

A new vaccine against pneumonia may offer better protection from chronic obstructive pulmonary disease (COPD) patients than the currently accepted vaccine, according to recent research that was published in September 15 issue of the American Journal of the Respiratory and Critical Care Journal, a publication of the American Thoracic Society.

Because pneumonia disproportionately affects patients with COPD and frequently causes exacerbations, the Centers for Disease Control currently recommend that all adults with COPD receive the 23-valent pneumococcal polysaccharide vaccination (PPSV23). However, the efficacy of PPSV23 is not well established in the COPD patient population.

"Reasonable effectiveness for this vaccine has been demonstrated in cohort studies in adults with lung disease," said Mark Dransfield, M.D. of the University of Alabama at Birmingham and lead author of the study. "[However,] debate remains about its immunogenicity and effectiveness in COPD."

Dr. Dransfield and colleagues sought to determine the efficacy of a newer type of vaccine, PCV7, a protein conjugate vaccine, which attaches a weak antigen (in this case, the pneumococcal polysaccharide antigen) to a stronger antigen (the diphtheria toxin) in the hope that the stronger antigen with provoke a more forceful defense from the immune system.

"Conjugated vaccines were originally intended for young children who respond poorly to polysaccharide antigens," said Dr. Dransfield. "We wanted to see whether they could have a similar effect in the COPD patient population in whom immune responses may also be blunted."

Results of the randomized open label trial of 120 adults with moderate to severe COPD showed that, while both the PPSV23 vaccine and the PCV7 vaccine were well-tolerated, the PCV7 vaccine produced superior immune responses on several measures of immunogenicity. Among patients randomized to take the PCV7 vaccine, the fraction exhibiting a twofold increase in serotype-specific IgG antibodies was higher in five of the seven serotypes tested. Blood drawn from patients who had received the PCV7 vaccine was also more effective at killing pneumococci in six of seven serotypes tested one month after vaccination.

"We have shown that PCV7 induces a superior immune response to PPSV23 in COPD at one month post-vaccination," concluded Dr. Dransfield. "Both vaccines elicit responses comparable to those previous observed in health elderly patients." Older age and prior vaccination with PPSV23 dampened the efficacy of the PCV7 vaccine, however. A vaccine in development that contains the capsule of 13 pneumococcal serotypes, called PCV13 (compared to PCV7 which has seven) is hoped to expand the coverage of the vaccine.

"We hope that future research will confirm the superior immunogenicity of PCV13 in COPD," he added. "We also want to determine the relative duration of the immune response following PPSV23 and conjugate vaccination and to identify the immunologic correlates of protection against both invasive and non-invasive pneumococcal disease. We believe our data provide the rationale for further study of the clinical efficacy of protein-conjugate pneumococcal vaccines in the high risk COPD population." <http://tinyurl.com/ntat40>

RESEARCH REPORTS--SOCIOECONOMIC STATUS, RACE, AND COPD HEALTH OUTCOMES

Background: Although COPD is a common cause of death and disability, little is known about the effects of socioeconomic status (SES) and race-ethnicity on health outcomes.

Methods: We aimed to determine the independent impacts of SES and race-ethnicity on COPD severity status, functional limitations, and acute exacerbations of COPD among patients with access to health care. Data were used from the FLOW cohort study of 1,202 Kaiser Permanente Northern California Medical Care Plan members with COPD.

Results: Lower educational attainment and household income were consistently related to greater disease severity, poorer lung function, and greater physical functional limitations in cross-sectional analysis. Black race was associated with greater COPD severity, but these differences were no longer apparent after controlling for SES variables and other covariates (comorbidities, smoking, body mass index, and occupational exposures). Both lower education and income were independently related to a greater prospective risk of acute COPD exacerbation (HR 1.5; 95% CI 1.01 to 2.1; and HR 2.1; 95% CI 1.4 to 3.4, respectively).

Conclusion: Low SES is a risk factor for a broad array of adverse COPD health outcomes. Clinicians and disease management programs should consider SES as a key patient-level marker of risk for poor outcomes.

<http://tinyurl.com/ykzn589>

UPPER ARM EXERCISES IMPROVE VIGOR IN COPD PATIENTS

The benefits of exercises to strengthen muscles in the upper arms, shoulders, and chest of patients with chronic obstructive pulmonary disease (COPD) extend beyond the upper extremities, results of a clinical trial indicate.

Unsupported upper extremity exercises "may ameliorate the patients' general exercise capacity and autonomy, over and above standard pulmonary rehabilitation," physical therapist Stefania Costi and associates in Italy report in the August issue of *Chest*.

The current guideline on pulmonary rehabilitation for COPD patients advocates exercise training targeted at the muscles of the upper extremities in COPD patients. The theoretical rationale for this advice involves the dual role of upper extremity muscles that sustain the upper girdle while also acting as accessory respiratory muscles.

However, Dr. Costi, from the University of Modena and Reggio Emilia, and her team found that the quality of previous clinical trials has been so poor that there are no reliable data to support this type of training.

They therefore conducted their own randomized trial among patients with stable COPD who had been referred for inpatient pulmonary rehabilitation, to study the effects of 15 sessions of unsupported upper extremity exercise training. Twenty-five patients each (mean age 69 years) were randomly assigned to regular rehabilitation or rehabilitation plus the upper extremity training. All patients completed the trial.

The training consisted of five movements while holding dumbbells to activate the pectoralis, deltoids, triceps brachii, trapezius, and biceps brachii.

The primary outcome was change in the 6-minute ring test, in which the total number of rings moved were counted and change in physiologic measures — heart rate, pulse oximetry, respiratory rate, perceived dyspnea and arm fatigue — were monitored. Secondary outcomes were an activities of daily living field test, the 6-minute walking test, and scales to assess the extent and effect of breathlessness on daily activities.

Evaluations carried out at the end of the study period indicated that patients in the intervention group improved significantly in the changes in the number of rings moved in the 6-minute ring test (+25 vs +5), number of shuttles achieved in the activities of daily living (+4.0 vs +0.3), as well as reduced perception of arm fatigue (−0.74 vs −0.08).

The intervention was also associated with significantly greater improvement in the number of meters walked in 6 minutes (+74 vs +24), and in the dyspnea score (−1.04 vs −0.48).

At a 6-month follow-up, the intervention group maintained the greater improvement in the 6-minute ring test and in the degree of dyspnea experienced during daily activities.

Besides corroborating the efficacy of unsupported upper extremity exercise testing in improving exercise capacity, "this trial provides new and relevant data regarding the benefits of this specific training on clinically important outcomes, such as the ability to perform activities of daily living that involve the upper extremities and the fatigue related to those activities," Costi and associates conclude.

Unexpected was the improvement of general exercise capacity, the authors add, surpassing the minimal clinically important difference for patients with COPD.

<http://tinyurl.com/kremrd>

THE EFFECT OF HYPERCHOLESTEROLEMIA ON ROTATOR CUFF DISEASE

Abstract

Background The causes of rotator cuff tendon rupture are multifactorial and still unclear. Intrinsic and extrinsic factors have been implicated as predisposing risk factors for rotator cuff rupture. Previous studies have suggested a relationship between elevated serum lipid profiles and tendon ruptures, although not rotator cuff tears specifically.

Questions/purposes We therefore asked whether patients with rotator cuff tears were more likely to have higher levels of hypercholesterolemia than patients with shoulder pain but without tears.

Methods We prospectively collected serum cholesterol and lipid profiles on two age-matched populations of patients; 74 (mean age, 66.3 years) had ruptures of their rotator cuff tendons, whereas a control group of 73 patients (mean age, 67.4 years) were seen for nontendon-related shoulder complaints.

Results Total cholesterol, triglycerides, and low-density lipoprotein cholesterol concentrations of the patients with rotator cuff tendon tears were higher, and their high-density lipoprotein cholesterol showed a trend to being lower than the control group. Forty-seven of 74 patients (63%) with rotator cuff tears had an elevated serum cholesterol (total cholesterol greater than 240 mg/dL) as compared with an overall rate of 28% in our control group.

Conclusions Patients with rotator cuff tears were more likely to have hypercholesterolemia when compared with the control group.

Clinical relevance Measurement of serum cholesterol in patients presenting with torn rotator cuff tendons should be considered in patients whose cholesterol profiles are unknown. Future consideration of drug treatment may reduce risk for future tendon degeneration, as well as improve quality of life and reduce mortality.

<http://www.springerlink.com/content/c2w18481175016j5/obese>

STARTING AN EXERCISE PROGRAM WITH DIABETES (OR EVEN WITHOUT DIABETES!)

The journey of a thousand miles begins with a single step. Exercise works the same way. Taking that first step can be hard. Maybe you've never exercised. Maybe you used to but stopped. Maybe you've just been diagnosed with diabetes and feel like you'll never be fit again. We've all got plenty of reasons not to exercise. We're:

Too old.	Too fat.
Too weak.	Too sick.
Too busy.	Too tired.

What we need to remember is that it's never too late. With few exceptions, even if you're disabled or injured, you can still improve your level of fitness. Once you get going, you'll be amazed how quickly your excuses fade.

Too old? Join a class with others in your age group. There are seniors' mall-walking clubs, water exercise classes, senior

stretch programs, even chair aerobics classes. Check your local YMCA, YWCA, or county recreation program. Nothing in your area? Start your own program with a partner, such as a relative or friend.

Too fat? If you feel too awkward or embarrassed to exercise, join the club. Most people feel slightly silly when they start out. Exercise is not just for skinny minnies. In fact, once you get going, look around. Few regular exercisers have perfect physiques. Most fitness buffs will respect your efforts and root for your success. If you're trying to lose weight, even a modest amount of regular physical activity can help.

Too weak? Regular physical activity will help you have more strength and energy for daily tasks.

Too sick? Of course, you can't exercise when you're ill or when your blood sugar levels are out of control. But once you are feeling better, regular physical activity will help you stay well. If you stick with it, you may even find you don't get sick as much and may need less medication.

Too busy? You don't have to spend hours exercising to see a health benefit. Depending on your fitness level, you may need to start with as little as 10 minutes of walking three times a week. If you really want to make a change, you can find ways to get more activity into your daily routines. Park farther away from the entrances at the mall. Plan an after-dinner walk with someone you want to talk to. Ride a stationary bike while you watch the morning or evening news.

Too tired? Believe it or not, regular physical activity will give you more energy. Toning your muscles and conditioning your heart, lungs, and blood vessels will better equip you to handle the work and stress of daily life.

Lots of people think of exercise programs the way they think of diets. They plan to get in shape for a certain event. Or they join an exercise class hoping it will help them lose 5 or 10 pounds. But physical activity and healthful eating are habits we need to stay with over the long haul. That doesn't mean doing the same exercise or eating the same meals forever.

You may enjoy trying new forms of physical activity, in the same way new recipes are fun. Or you may find an activity that works for you and stay with it.

The First Step

The first step to fitness is a visit to the doctor. Before you begin any exercise program, get a thorough medical exam. The exam should check:

- Blood pressure
- Blood fat levels
- Glycohemoglobin and current blood glucose level
- Health of heart and circulatory system
- Body composition (fat versus lean)
- Eyes
- Feet

Your doctor should help determine your level of fitness. You need to know what types of exercise or exercise programs are good choices for you. Some complications of diabetes make certain types of physical activity bad choices. The benefits of an exercise program need to outweigh the risks.

If possible, get an exercise prescription. This is an exercise plan that takes into account your current level of fitness, special

health concerns, and your diabetes treatment plan. Your health care providers are your best resources.

Set Goals

Goals help give shape to your exercise plan. They give you something specific to work toward. Reaching a goal marks your success. Setting new goals keeps you going. Start out by asking yourself why you plan to exercise. Do you want to:

- Feel better?
- Move easier?
- Lose weight?
- Get stronger?
- Need more energy?
- Reduce stress?

Stay fit while learning to live with diabetes?
Reduce your risk of diabetes complications such as heart disease?

Get your doctor or partner to stop nagging you?

Once you know why you plan to exercise, talk with your doctor about realistic ways to reach your goal. With your doctor or exercise specialist, you can plan an exercise routine with your goal in mind. Your program will need to take into account your diabetes management routine.

Your doctor and diabetes educator can help you:

- Plan the best times to exercise
- Learn when to test your blood sugar levels
- Understand what your test results mean in terms of exercise
- Avoid problems with low blood sugar levels
- Learn to inspect your feet before and after exercise
- Manage other specific health concerns

Here's how this might work. Suppose you have type 2 diabetes and are overweight. You work in an office and drive to work. You don't have an exercise plan. Your doctor says that if you lose some weight and start to exercise, you may be able to improve your blood sugar control. After your physical exam and an exercise stress test, the doctor says you can start a walking program.

Your health goal: to lose 10 pounds. Your fitness goal: to stay with a regular walking program for 3 months, building up to 30 minutes of walking five times a week. Current fitness level: couch potato.

Now you need to break your fitness goal down into smaller steps. Make your goals realistic, measurable, and achievable. Your long-term goal is to walk for 30 minutes five times a week. Your short-term goal is to walk 10 minutes without stopping three times a week for a month.

Write your goal down. Keep a log, or diary, of your exercise. You can buy a special notebook, write on your calendar, or make a note in your blood glucose record book. You might also want to jot down how you feel while exercising, or any problems you have. This gives you something to look over when you're ready to make changes. When your goal period is up, look at your log. Were there good days and bad? Did you start feeling different? As you set your new goal, use your log to decide on changes. Do you need to reduce your level of physical activity? Or are you

ready to move up a notch? Discuss changes with your health care team. Be sure to reward yourself when you reach a goal.

Knowing that physical activity is something you'll do for the rest of your life can help. You can take the long view. If your first attempt doesn't work, try again. Do something different. Join a class or a mall walkers club. Think about what you enjoy doing and find a fitness activity that matches. Do you like to exercise to music? To TV? Alone or with friends? Outdoors or indoors? There are so many choices, you can find something to enjoy. You know that regular physical activity is good for your health. It also brings fringe benefits such as:

- Looking better.
- Meeting new friends.
- Escaping from the daily grind.
- Learning new skills.
- Reducing stress.

Still, after you've been exercising for a while, you'll no doubt go through a spell where your motivation slips. Anyone who has a long-term exercise program has "off" days, times when he or she just doesn't want to stick with it. Or you may have a setback due to illness or injury.

When it happens to you, don't mistake it for failure. Give yourself a break. Call an exercise buddy. Review your exercise log. Read an inspirational book. Try a new activity. Join a class. Celebrate your successes. Treat yourself to something new to wear when you exercise — a new T-shirt, even new shoes. Before you know it, your exercise slump will be over.

Source: American Diabetes Association

NUTRITION AND BONE: IT IS MORE THAN CALCIUM AND VITAMIN D

Unlike pharmacological agents that are taken for proscribed periods of time, food and nutrient intakes have the possibility of affecting bone health over the entire lifespan. While deficiencies or excesses of individual nutrients have been shown to affect bone, it is likely that individual foods or dietary patterns have important effects related to skeletal health. While biochemical mechanisms exist to relate a deficiency of vitamin K to altered bone metabolism, clinical trials related to supplementation of this nutrient have been confusing. It is likely that these disparate results are related to the fact that interactions of nutrients have not been considered or the possibility that suboptimal nutrient status is a marker of poor nutritional status. Vitamin A excess has been postulated to be related to high fracture risk; however, it is likely that retinol is not the best marker for the proposed interaction. Altering whole food patterns, such as the Dietary Approaches to Stop Hypertension diet, have demonstrated beneficial effects on bone metabolism. Individuals who select some vegetarian patterns may need to consider supplementation with nutrients such as calcium and protein. Future studies should center on whole food and dietary patterns and their relationship to bone metabolism and fracture risk.

<http://tinyurl.com/yap3cdk>

MIDNIGHT SNACKS: MORE FATTENING THAN YOU FEARED?

When it comes to weight gain, the timing of your meals may be just as important as what or how much you eat. According to a study of lab animals published online by the journal *Obesity*, eating during the hours that the body would naturally be sleeping may lead to excess weight gain.

In the first study to associate meal timing with degree of weight gain, sleep scientists at Northwestern University compared two groups of mice, each placed on opposite feeding schedules for a six-week period. Both groups were fed the same high-fat food, and both had the same amount of daily physical activity. The only difference: one group was fed during its normal 12-hour waking period, while the other rodents were fed while they should have been asleep. By the end of the study period, the latter group had gained more than twice as much weight as the mice that ate during active hours: 10.4 g, a 48% increase in body weight, versus 4.4 g, or a 20% gain in baseline weight. (See the top 10 food trends of 2008.)

"For a long time we questioned whether or not eating patterns had anything to do with gaining weight," says obesity expert Dr. Louis Aronne of New York-Presbyterian Hospital/Weill Cornell Medical Center. He points to previous observational research suggesting that people who skip breakfast in favor of massive meals in the evening hours tend to be overweight. "We had no proof that it's a real problem," says Aronne, who was not involved in the study. "If an experiment like this is replicated in humans, it might clarify for us just how much time of day matters when it comes to obesity."

The salient issue, says study co-author Fred Turek, may be the disruption of the body's internal clock, known as the circadian rhythm. Eating at inappropriate times may disturb the body's natural rhythm, setting off a string of metabolic reactions that ultimately lead to weight gain. "Because our bodies are naturally cued to eat at certain times of the day, dining at the wrong time might affect the body's ability to maintain its energy balance," he explains, meaning that our body starts to use its calories differently than it normally would. That in turn could cause fluctuations in numerous hormones, including an increase in ghrelin and a decrease in leptin — the two key hormones that govern appetite and satiety. The hunger hormone ghrelin, which is produced by the stomach, sends a "feed me" message to the brain; leptin, the satiety hormone, signals the brain to stop eating. (See a special report on the science of appetite.)

But while these hormones have been successfully manipulated in lab mice to prompt weight gain or loss, the same has not been true in humans. Experiments in which obese human patients were injected with leptin have failed, because the metabolic pathways that control hunger and fullness in people are far more complex than they are in mice. Knocking out one of, say, 50 such pathways through drug treatment just means the other 49 will eventually pick up the slack, says Dr. George Fielding, a bariatric surgeon at the NYU Program for Surgical Weight Loss.

Although the new findings in Obesity cannot yet be applied outside the lab, other research supports the idea that the disruption of sleep (that includes standing in front of the fridge eating chicken at 2 a.m.) may have something to do with weight gain in humans. Studies of night-shift workers like nurses and factory workers indicate they are at higher risk for being overweight than their daylight counterparts, partly due to poor sleep routines and partly because of their tendency to eat heavy meals late at night, says Aronne. Other studies show that people who get a full eight hours of sleep at night tend to be thinner than those who get less, while numerous epidemiological studies have established a link between short or poor sleeping patterns with overweight-related conditions including diabetes and cardiovascular disease.

Until future studies in humans bear out Turek's preliminary findings, Aronne suggests that avoiding post-dinner snacking is probably still a good strategy, regardless of size. Not only could it help prevent extra weight gain, it can also lower the risk of gastroesophageal reflux and other digestive problems that may compound sleep problems. Aronne further recommends taking well-balanced and evenly spread meals throughout the day, rather than consuming 50% or more of your daily calories at dinner or afterward, since that may also lead to unwanted pounds.

<http://tinyurl.com/makz89>

MEDITERRANEAN FOODS PROMOTE LONGEVITY

The Mediterranean diet is well known for making people live longer, but new research reveals the individual components of the diet which promote longevity.

Professor Dimitrios Trichopoulos at the Harvard School of Public Health surveyed over 23,000 participants on lifestyle and diet. Participants were interviewed over a period of 8.5 years.

Researchers found key Mediterranean foods to promote health and a longer life are vegetables, fruits, nuts, legumes, and olive oil. Researchers recommend limiting the amount of meat you eat, and moderating alcohol intake. The study also shows that a diet high in fish, seafood, and cereals, and low in dairy does not necessarily indicate longevity.

SOURCE: BMJ online, 2009

LANDMARK SURVEY HIGHLIGHTS NEEDS OF UNPAID CAREGIVERS OF PEOPLE WITH DIABETES

Diet and exercise plans, managing blood sugar levels and reliable online information cited as top concerns

The Hormone Foundation, the public education affiliate of The Endocrine Society, in collaboration with the National Alliance for Caregiving, today released key findings from a first-of-its-kind survey (http://www.hormone.org/Public/diabetes_caregiver.cfm) aimed at better understanding the daily needs and struggles of unpaid caregivers of people with diabetes.

The online survey completed by 1,002 respondents in April 2009 found that the major challenges in caring for those with diabetes include exercise and diet compliance, patient depression and maintaining target sugar levels. Caregivers reported that the physician is their top information source, followed by the

Internet. However, while 73 percent of caregivers reported using the Internet to obtain diabetes information, many expressed frustration in evaluating the quality and reliability of online content.

Specific survey findings include:

More than half of respondents (54 percent) struggle with diet-related issues like cooking, meal planning and non-compliance;

Nearly half of respondents (49 percent) reported challenges with medical management of diabetes; and

Twelve percent of respondents reported their own stress and emotional health as a significant concern.

"Caregivers are involved with a wide range of diabetes-related responsibilities and as a result, many report some social and personal health sacrifices due to their caregiving," said Gail Hunt, president and CEO of the National Alliance for Caregiving. "The more information we have to understand the issues and burdens caregivers experience, the better equipped we will be to provide them with meaningful assistance."

"This survey identified many important needs among caregivers of adults with diabetes, but this is only the first step," said Alvin M. Matsumoto, MD, chair of The Hormone Foundation Committee that spearheaded the survey initiative.

"To address the needs identified through the survey, the Foundation will be creating Diabetes Caregiver Central®, an easy-to-use Web site containing the most up-to-date information relevant to diabetes caregivers. The new Web site will serve as a comprehensive one-stop shop including resources and information about diabetes; diet and exercise; optimizing blood sugar control; managing complications and coexisting illnesses; and handling patient and caregiver stress and mental health," said Matsumoto.

Diabetes Caregiver Central® is expected to go live in the fall of 2010.

Additional findings from the survey suggest that: 92 percent of respondents are often dealing with other conditions in addition to diabetes caregiving; women caregivers are more likely than men to have their mental and physical health affected by their caregiving role; and finally, women caregivers are more likely than men to seek information on diabetes caregiving.

<http://tinyurl.com/md8s2q>

ASSOCIATION BETWEEN PRESCRIPTION BURDEN AND MEDICATION ADHERENCE IN PATIENTS INITIATING ANTIHYPERTENSIVE AND LIPID-LOWERING THERAPY

Purpose. The association between prescription burden and medication adherence in patients initiating antihypertensive and lipid-lowering therapy was studied.

Methods. Patients enrolled in managed care organizations who initiated antihypertensive therapy coincident with lipid-lowering therapy (no more than 90 days apart) between January 1, 1997, and April 30, 2000, were eligible for inclusion. Analysis was limited to new users of antihypertensive and lipid-lowering therapy. The proportion of

days covered (PDC) by antihypertensive and lipid-lowering therapy was calculated for the first year after therapy initiation; patients with a PDC of 80% for both drug classes were considered adherent. Prescription burden was defined as the number of prescription medications taken in the year prior to starting antihypertensive and lipid-lowering therapy. Demographic, clinical, and health-service-use variables associated with both prescription burden and medication adherence were measured using medical and pharmacy claims data from the year before initiation of antihypertensive and lipid-lowering therapy.

Results. Among 5759 patients, the mean \pm S.D. prescription burden was 3.6 ± 3.7 (median, 3) medications, and the mean \pm S.D. PDC with antihypertensive and lipid-lowering therapy was $53.9\% \pm 31.9\%$ (median, 58.5%). Among patients with 0, 1, and 2 prior medications, 41%, 35%, and 30% of patients were adherent, respectively, to antihypertensive and lipid-lowering therapy. Among patients with 10 or more prior medications, 20% were adherent.

Conclusion. Among patients in a managed care database taking antihypertensive and lipid-lowering medications, adherence to those regimens became less likely as the number of prescription medications increased. The reduction in adherence with additional prescription medications was greatest in patients with the fewest preexisting prescriptions. <http://tinyurl.com/mn5mp2>

NEW STATEMENT OUTLINES ATS POSITIONS ON RESEARCH, EDUCATION, ADVOCACY

The ATS has issued an official statement that outlines the Society's position on research, training, education, patient care and advocacy. The statement, which appears in the November 15 issue of the American Journal of Respiratory and Critical Care Medicine, also makes specific recommendations on how elements of the organization can make these policies a part of new and ongoing projects.

Lee K. Brown, M.D., lead author of the statement and immediate-past chair of the ATS Health Policy Committee, calls the document a "marching order" that seeks to put the Society's guiding mission, vision and values into operation. "The statement is essentially a plan going forward as to how to put our organizational ideals into practice," he said.

The statement affirmatively states that an "altruistic concern for patients should ultimately dictate ATS positions and activities" with respect to patient access to care. "The ATS advocates strongly for universal access to care for all of our residents, but in addition the care provided must meet accepted standards for quality. For instance, reliance on emergency departments to provide non-emergency care for uninsured patients would not meet an acceptable standard in terms of continuity of care and adequacy of follow-up," said Dr. Brown, adding that he expects "a robust but orderly and polite discussion" about the position.

In research, the ATS will strive to encourage membership among translational and basic researchers and foster increased interplay among basic, translational and clinical research efforts. "There is this idea that translational research is unidirectional,"

said Dr. Brown. "But there needs to be a cycle: basic research should inform translational research, which in turn informs clinical research, but clinical research also needs to produce information that circles back to provide direction for additional basic studies."

In training and education, the ATS will continue to promote lifelong learning among physicians and increase its efforts to shape training curricula in basic, translational and clinical programs and now, specifically, outcomes research.

Finally, the statement acknowledges the impending challenges that face healthcare and health-related organizations. "Two of the major priorities for ATS advocacy include healthcare reform with universal access to healthcare and increased funding for health-related research, particularly that which is translational and outcomes-based, through the NIH and other institutions," said Dr. Brown.

Underlying all of these positions is the singularly important issue of improving outcome measurement and analysis. "In all of these venues—research, training, patient care and advocacy—there needs to be a greater focus on outcomes," explained Dr. Brown. "Comparative effectiveness and evidence-based outcomes data are crucial for developing standards of care, and we need to advocate for the necessary research."

The statement includes guidance for improving dissemination and evaluation of ATS documents and guidelines, a move that is hoped will bring with it better implementation and greater efficacy of its guidelines that, ultimately, will improve patients' well-being and simplify physician practice.

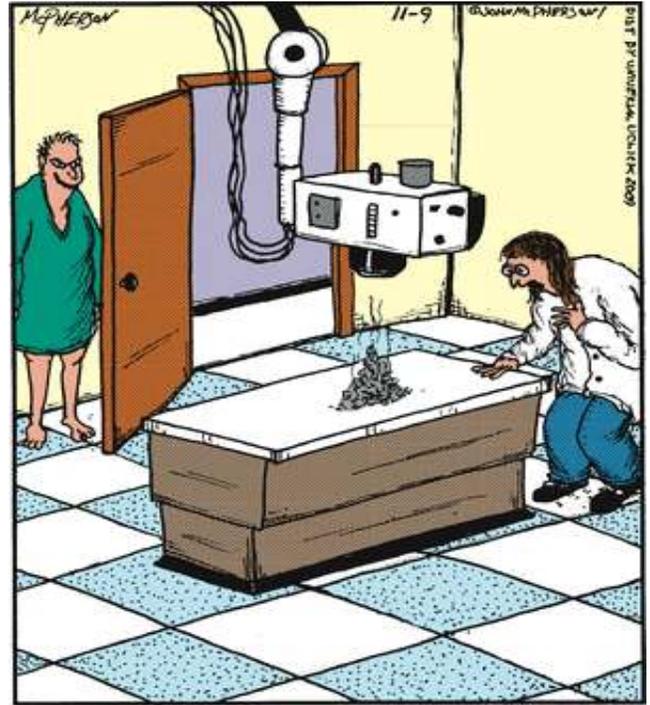
"If this position statement, at the very least, establishes as a standard component of every guidelines project a plan to disseminate the findings and assess their effect on clinical practice and patient outcomes, than I will be satisfied that our work on this document has been a success," Dr. Brown concluded.

Source: American Thoracic Society (ATS)

HAPPY NEW YEAR !



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



Having dumped the bag of ashes on the table, Stew hid behind the door and waited for the X-ray technician's reaction.

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