

EFFORTS

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Emphysema Takes Your Breath Away

Summer 2009

AIR POLLUTION FROM TRAFFIC....

...has a deservedly bad reputation, not least for its health-damaging effects, but it has been unclear how much of its residues we take home with us after a walk in the street. Now a Swedish team has provided an answer with the help of a new device that measures how many airborne particles stay behind in the lungs. And the tiny particles from traffic fumes, it turns out, are far "stickier" than other dust and smoke we encounter a result that could change the way we evaluate air pollution.

Working out how airborne particles are deposited in human lungs has been difficult because some of them can change size as they enter the humid environment inside the airways, and this may affect how easily they get caught, says Jakob Löndahl at Lund University in Sweden. To investigate, Löndahl and colleagues built a device called RESPI, which brings air being inhaled in through one chamber, and exhaled air out through a second chamber. It then analyses particle number and size in both chambers.

Löndahl asked nine healthy adults to breathe into the RESPI device while standing on the kerbside of a six-lane Copenhagen boulevard that sees some 65,000 vehicles pass by on a typical weekday. "We found most traffic fume particles to be very small and hydrophobic [having little affinity for water], meaning they did not grow bigger once inside the wet lung. But small particles get deposited in the lung more easily," Löndahl says.

The researchers compared the street measurements with those from their previous study that measured the deposition of particles inhaled from an open fire and a biomass burner. They found that for each microgram of particles inhaled, 16 times as many of the tiny traffic particles got retained in the lung than either the larger soot particles from wood smoke or the moisture-sensitive salts from the biomass burner that clump into bigger particles once inside the lung. The traffic deposits also had three times the surface area of those inhaled in the biomass combustion study.

"There is some debate as to what characteristics of particles make them unhealthy if it is mass or surface area or number. Our results support that it is the latter two, but at the moment, most air quality policies limit amounts by mass", says Löndahl. Thomas Sandström at the university hospital in Umeå, Sweden, agrees with Löndahl that measuring the severity of air pollution by particle mass is "a very rough measure of anything related to health effects, especially as the particles in traffic are so small.

Sandström co-ordinated the European HEPMEAP project (Health effects of particles from motor engine exhaust and ambient air pollution) until 2005, and collaborated with Löndahl on the biomass combustion study. He was not involved

with the current work. He says this study very elegantly points out that particle number is so much more important for deposition in lungs than particle mass. We have underestimated how much is deposited from traffic compared to other sources, he adds. Löndahl next plans to investigate how the deposition of traffic exhaust particles differs between healthy people and those with respiratory diseases

<http://tinyurl.com/dcy2kh>



BATHROOM BREAKS RAISE MORTALITY

People who find they need to hit the bathroom a couple of times a night or more may be at increased risk of dying. That's the key finding from Japanese researchers who studied 788 older people living in assisted living facilities in Japan. When they compared people who got up to urinate two or more times a night with those who got up less often, they found the frequent bathroom visitors were significantly more likely to die.

The finding held true over the three year study even after the investigators adjusted the results to take other factors that could influence mortality into account, such as age, sex, body mass index, diabetes, high blood pressure, and history of heart disease, among others.

"Nighttime urination is not necessarily just a matter of getting older. Patients should talk to their doctor about what may be causing this," Anthony Y. Smith, M.D., an American Urological Association spokesman, was quoted as saying. "There may be a very serious yet treatable condition involved."

<http://tinyurl.com/ch3cxb>



BLOOD-PRESSURE-LOWERING DRUGS SHOULD NOT BE LIMITED TO PEOPLE WITH HIGH BLOOD PRESSURE

Blood pressure lowering drugs should be offered to anyone old enough to be at risk of a heart attack or stroke (or who is otherwise known to be at risk), regardless of their blood pressure, according to the largest analysis of blood pressure trials to date, published on the British Medical Journal website.

Cardiovascular disease is the leading cause of death throughout the world. For 65 year olds in England and Wales the risk of having a heart attack in the next 10 years is about 10% for men and 5% for women. The increase in blood pressure during a person's life, which affects nearly everyone, is one of the main reasons for strokes and heart attacks being so common.

Despite the widespread use of blood pressure lowering drugs and the results of many randomised trials, uncertainty

remains about which drugs to use and whom to treat. For example, does the preventive effect of drugs differ in people with and without a history of heart disease? And should blood pressure lowering drugs be limited to people with high blood pressure?

To answer these questions, Professor Malcolm Law and colleagues from the Wolfson Institute of Preventive Medicine at Barts and The London School of Medicine analysed the findings of 147 blood pressure trials published between 1966 and 2007, involving 464,000 people.

The results show that using any one of the main classes of blood pressure lowering drugs at standard dose reduced fatal and non-fatal heart attacks by about a quarter and stroke by about a third. Heart failure was also reduced by about a quarter. The reductions in disease were similar in people with and without clinical cardiovascular disease and regardless of blood pressure before treatment.

All the classes of blood pressure lowering drugs had a similar effect for a given reduction in blood pressure that was accurately predicted from epidemiological studies of blood pressure and subsequent disease with two exceptions—an extra protective effect of beta-blockers given shortly after a heart attack and a small additional effect of calcium channel blockers in preventing stroke.

And combining the results with two previously published studies showed that three drugs together, each at low dose to minimise side effects, could increase the preventive effect, reducing heart attacks by about 45% and stroke by about 60%.

Professor Malcolm Law said "The results show that blood pressure lowering drugs should be offered to anyone at sufficient risk to benefit from treatment, whatever their reason for being at risk." However, the exact age range for being most at risk of heart attack and stroke could not be defined precisely from this study, which only looked at randomised trials in people aged 60 & 69.

In an accompanying editorial, Richard McManus from the University of Birmingham and Jonathan Mant from the University of Cambridge, say that these findings reinforce the view that treatment to lower blood pressure should be offered on the basis of risk, regardless of blood pressure. These data support the use of a polypill to lower the risk of cardiovascular disease in people at high risk without first checking their blood pressure, they add. <http://tinyurl.com/rdg4j9>



CHOLESTEROL DRUG CUTS AMPUTATION RISK FOR DIABETICS

The anti-cholesterol drug fenofibrate appears to reduce risks of amputation for diabetics by as much as 36 percent, a study has found. The study was published in a special edition on diabetes by The Lancet, which included another study on how rigorous monitoring and control of blood sugar reduces heart attacks.

In the first study, researchers in Australia ran a 5-year trial involving 9,795 diabetic patients. 4,895 of them were given fenofibrate, produced by Belgian drugs maker Solvay, while the rest were given a placebo. By the end of the trial, 115 patients had lower-limb amputations. The risk of first time

amputation was 36 percent lower for patients given fenofibrate compared with a placebo.

"Treatment with fenofibrate was associated with a lower risk of amputations, particularly minor amputations (below the ankle)," wrote the team, led by Anthony Keech and Kushwin Rajamani at the National Health and Medical Research Council Clinical Trials Center, University of Sydney, Australia. "These findings could lead to a change in standard treatment for the prevention of diabetes-related lower-limb amputations."

An amputation due to diabetes occurs every 30 seconds around the world and imposes a huge burden not only on the victims and their families, but healthcare systems too. High blood sugar can damage nerves and blood vessels in the lower extremities that can lead to gangrene. Severe damage might require toe, foot or even leg amputation.

Rigorous sugar control

In the second study, researchers trawled through 5 previous studies to show that intensive glucose control in diabetics leads to fewer heart attacks, but has no significant effect on stroke or death from all other causes. To date, individual studies of glucose control have failed to show consistent benefits and some even suggested possible harm. The five studies, analyzed by a team headed by Kausik Ray of Britain's University of Cambridge, involved 33,000 patients and provided information on 1,497 heart attacks, 2,318 counts of coronary heart disease, 1,127 strokes, and 2,892 deaths. Patients given more drugs to control their blood sugar had a 15 percent reduction in heart attacks. But such intense treatment had no effect on stroke rates or other causes of death. "Overall, intensive compared with standard glycaemic control significantly reduces coronary events without an increased risk of death," the researchers wrote.

A third study on women with gestational diabetes during pregnancy found that they have a far higher risk of developing permanent diabetes after giving birth. Gestational diabetes (GD) is glucose intolerance first detected during pregnancy. After birth, the woman's blood sugar control is restored to pre-pregnancy levels, but some remain at high risk of diabetes in future. In this study, researchers at the University College London and London School of Hygiene and Tropical Medicine analysed 20 studies involving a total of 675,000 women, of whom 10,859 developed diabetes.

Women with GD were around 7.5 times more likely to develop diabetes after pregnancy compared to those with normal blood sugar control during pregnancy, they found. "This should act as an incentive for women to attend the recommended post-birth check," they wrote. "This attendance could be an opportunity to provide advice on diet and exercise, and treatments to delay or prevent onset of diabetes, as well as alerting these women to symptoms of future diabetes, and to alert general practitioners responsible for their long-term care."

<http://tinyurl.com/n5w4nb>

COMMONLY USED MEDICATIONS MAY PRODUCE COGNITIVE IMPAIRMENT IN OLDER ADULTS

Many drugs commonly prescribed to older adults for a variety of common medical conditions including allergies, hypertension, asthma, and cardiovascular disease appear to negatively affect the aging brain causing immediate but possibly reversible cognitive impairment, including delirium, in older adults according to a clinical review now available online in the *Journal of Clinical Interventions in Aging*.

Drugs, such as diphenhydramine, which have an anticholinergic effect, are important medical therapies available by prescription and also are sold over the counter under various brand names such as Benadryl®, Dramamine®, Excederin PM®, Nytol®, Sominex®, Tylenol PM®, and Unisom®. Older adults most commonly use drugs with anticholinergic effects as sleep aids.

While it is known that these medications do have an effect on the brain and in the case of sleeping pills, are prescribed to act on the brain, the study authors suggest the amount of cognitive impairment caused by the drugs in older adults is not well recognized.

"The public, physicians, and even the Food and Drug Administration, need to be made aware of the role of these common medications, and others with anticholinergic effects, in causing cognitive impairment. Patients should write down and tell their doctor which over-the-counter drugs they are taking. Doctors, who often think of these medications simply as antihistamines, antidepressants, antihypertensives, sleep aids or even itching remedies, need to recognize their systemic anticholinergic properties and the fact that they appear to impact brain health negatively. Doing so, and prescribing alternative medications, should improve both the health and quality of life of older adults," said senior study author Malaz Boustani, M.D., Indiana University School of Medicine associate professor of medicine, Regenstrief Institute investigator, and research scientist with the IU Center for Aging Research.

Dr. Boustani and colleagues conducted a systematic evidence-based analysis of 27 peer reviewed studies of the relationship of anticholinergic effect and brain function as well as investigating anecdotal information. They found a strong link between anticholinergic effect and cognitive impairment in older adults.

"One of the goals of our work is to encourage the Food and Drug Administration to expand its safety evaluation process from looking only at the heart, kidney and liver effects of these drugs to include effects of a drug on the most precious organ in human beings, our brain," Dr. Boustani said.

"Many medications used for several common disease states have anticholinergic effects that are often unrecognized by prescribers" said Wishard Health Services pharmacist, Noll Campbell, Pharm.D., first author of the study, noting that these drugs are among the most frequently purchased over the counter products. "In fact, 50 percent of the older adult population use a medication with some degree of anticholinergic effect each day."

"Our main message is that older adults and their physicians should have conversations about the benefits and harms of these drugs in relation to brain health. As the number of older adults suffering from both cognitive impairment and multiple chronic conditions increases, it is very important to recognize the negative impact of certain medications on the aging brain," said Dr. Boustani.

The brain pharmacoepidemiology group of the IU Center for Aging Research currently is conducting a study of 4,000 older adults to determine if the long term use of medications with anticholinergic effects is linked to the irreversible development of cognitive impairment such as Alzheimer disease.

<http://www.sciencedaily.com>



FDA WARNS CHEERIOS ON HEALTH CLAIMS *FDA Calls Cheerios 'Misbranded' Because of Health Claims Rules; General Mills Stands by Its Science*

The FDA is warning General Mills about health claims on the Cheerios label, but General Mills says its science is strong. In a warning letter sent to General Mills, the FDA notes Cheerios is "misbranded" in a way that makes the cereal sound like a drug to prevent, mitigate, and treat high cholesterol and heart disease.

As evidence, the FDA points to language on the Cheerios label that includes this statement: "Did you know that in just 6 weeks Cheerios can reduce bad cholesterol by an average of 4 percent? Cheerios is ... clinically proven to lower cholesterol. A clinical study showed that eating two 1.5 cup servings daily of Cheerios cereal reduced bad cholesterol when eaten as part of a diet low in saturated fat and cholesterol."

The FDA does allow a health claim linking soluble fiber from whole-grain oats with a lower risk of coronary heart disease, and also to include -- as part of that statement -- a note about lowering total and LDL cholesterol levels.

But according to the FDA, the Cheerios label inappropriately separates the heart disease and cholesterol claims. The FDA also takes issue with a General Mills' web site mentioned on the Cheerios label that uses language that doesn't comply with approved health claims.

For instance, the approved health claim about heart disease is supposed to mention fiber, fruits, vegetables, and a low-fat diet -- not just whole-grain foods. And the FDA warned General Mills about another statement on that same web site that linked whole grains, as part of a low-fat diet, to reduced risk of stomach and colon cancers. That's not an approved health claim.

The FDA's warning letter, which is dated May 5, 2009, and is posted on the FDA's web site, gives General Mills 15 days to correct the problems.

In response, General Mills has posted a statement on its web site. General Mills states that "Cheerios' soluble fiber health claim has been FDA-approved for 12 years, and Cheerios' 'lower your cholesterol 4% in 6 weeks' message has been featured on the box for more than two years. The science is not in question. The scientific body of evidence supporting the heart health claim was the basis for FDA's approval of the

heart health claim, and the clinical study supporting Cheerios' cholesterol-lowering benefit is very strong."

General Mills states that the FDA "is interested in how the Cheerios cholesterol-lowering information is presented on the Cheerios package and web site." The company says it looks forward to discussing and resolving the matter with the FDA.

<http://tinyurl.com/purjad>



FIRST TRANS FATS, THEN CALORIES, NOW SALT ON NYC'S RADAR

First, it was a ban on artery-clogging trans fats. Then calories were posted on menus. Now the New York City health department is taking on salt. City officials are meeting with food makers and restaurants to discuss reducing the amount of salt in common foods such as soup, pasta sauce, salad dressing and bread.

About three-quarters of the salt Americans eat comes from prepared and processed food, not from the salt shaker. That's why New York officials want the food industry to help cut back. "It's very hard for an individual to do this on their own," said Dr. Lynn Silver, an assistant commissioner in the health department.

The department has shown its clout with bans on artificial trans fats and rules forcing chain restaurants to post calorie counts. To comply, fast food chains changed their recipes nationwide, and other cities and states have enacted similar policies. Some manufacturers said getting rid of trans fats took work, and reducing salt has its own difficulties. Unlike sugar, there's no substitute for salt. Cream soups — like that casserole favorite cream of mushroom — are the biggest challenge, said George Dowdie, head of research and development for Campbell Soup Co. The soup maker, which has been cutting salt for years, is in the talks with New York.

By fall, Campbell Soup plans to have more than 90 lower-sodium soups available. That includes its first soup, tomato, which will have almost a third less salt.

The industry hopes salt reduction remains voluntary. "Literally freight cars full of salt have been removed from these products gradually over time," said Robert Earl, vice president of science policy, nutrition and health for the Grocery Manufacturers Association. "It has to be done carefully — gradually and incremental over time."

Herbert Smith Jr. never paid much attention to how much salt was in food until he developed high blood pressure. His doctor at a Harlem health center put him on medication and told him to exercise and watch his diet. The 54-year-old church receptionist said he was alarmed to see how much salt was in the instant soup packages that he liked. He wants the food industry to cut down. "For those who want to use salt, they can add it themselves," he said.

Too much salt raises blood pressure, and high blood pressure raises the risk of heart disease. A recent analysis showed that for every gram of salt cut, as many as 250,000 cases of heart disease and 200,000 deaths could be prevented over a decade.

"Very, very small changes in diet could have dramatic effects," said Dr. Kirsten Bibbins-Domingo, a researcher with the University of California, San Francisco.

For its salt initiative, New York has recruited public health agencies and medical groups across the country. The campaign — with a goal of cutting salt intake by at least 20% in five years — is modeled on a plan carried out in Britain. That effort set voluntary salt reduction targets for 85 categories of processed foods. "Companies have been very innovative," said Corinne Vaughan, of Britain's Food Standards Agency. "And they have been very good at making what are quite huge reductions in salt levels." Salt in pasta sauces has been cut by nearly a third, and soups by about one-quarter, she said. Some foods have been more challenging, she said, citing bacon, cheeses and packaged bread. With less salt, the dough is sticky and harder to process, she said. Salt is used mostly for flavoring but can also help preserve some foods and gives others texture.

Some British companies have also put "traffic light" labels on package fronts — green for low-salt, for example — so shoppers can "make a choice at a glance," Vaughan said.

Everyone needs some salt — or sodium chloride — for good health. The daily recommended amount for Americans is about a teaspoon, or 2,300 milligrams of sodium. But many people consume twice that amount. A Big Mac alone has 1,040 milligrams. A recent government report showed that seven out of 10 adults should be eating even less than the recommended amount — about 1,500 milligrams. That includes anyone with high blood pressure, everyone over 40, and African-Americans, who are at greater risk than whites for high blood pressure.

The prospect of government intervention bothers some, and some critics note that not everyone is sensitive to salt. A few others contend there is not enough scientific evidence that reducing salt really drives down heart problems or deaths. But many in the medical and public health field are firmly behind the idea. "When you've got groups ... all saying we need to reduce salt, the evidence is exceedingly strong, you don't do more trials," said Dr. Stephen Havas, an adjunct professor at Northwestern University's medical school and a former American Medical Association vice president.

In the meantime, the Food and Drug Administration is considering a request that the government regulate salt content. An Institute of Medicine committee is also looking at ways to reduce salt consumption. The FDA says it is waiting for that committee report, due next year, before deciding the regulation issue.

Bibbins-Domingo, the University of California researcher, and her colleagues say their findings support efforts to lower salt levels, either voluntarily or through regulation. She said her patients with high blood pressure struggle to cut down on salt. They give up potato chips, french fries and salty nuts, but end up eating processed foods like soups and pasta that can also have a lot of salt, she said. "I realized how hard it is for patients who want to make those changes," she said.

New York resident Kristle Thompkins, 37, has been trying to make those changes herself. She started reading labels and

limiting salt a few years ago because of her high blood pressure. Now she's adjusted to eating less salt — although she still misses potato chips. The macaroni and cheese she made for an Easter gathering now tastes "too salty."

"My salt tolerance has lowered," Thompkins said.

<http://tinyurl.com/c7mpkt>



INVESTIGATION FINDS THAT CIGARETTE SMOKING DOES NOT AFFECT EVERYONE IN SAME WAY

Cigarette smoking induced COPD, or chronic obstructive pulmonary disease, is a disease that results in severe breathing difficulty. According to World Health Organization (WHO) it is the fourth leading killer worldwide. However the mechanisms responsible for some smokers developing COPD and others evading the disease have not been well understood.

Dr. Manuel Cosio from the McGill University Health Centre, in collaboration with Italian and Spanish scientists, reports in the *New England Journal of Medicine* that an autoimmune mechanism, compounded by genetic predisposition in COPD, would explain the progression of the disease in some smokers and the evasion in others. COPD has a family connection and next of kin of patients with COPD have a much higher chance of developing the disease, a characteristic of autoimmune diseases.

Although smoking is the primary risk factor for COPD in the western world, open fire pollutant cooking and heating fuels in the home is an important risk factor for the development of COPD in women in developing nations. "Smoke can play an important role in autoimmune diseases such as COPD, and other diseases like rheumatoid arthritis, because it accentuates genetic predispositions to the disease," warns Dr. Cosio.

Yet contrary to previous scientific beliefs, COPD does not progress in the same way in all smokers. The authors describe three steps in the potential progression to COPD in smokers: "COPD does not go from stage one, two and three in all people," Dr. Cosio says. "Depending on their personal balance between immune response and immune control some people would stop at stage one, others at stage two, and some will progress to stage three, full autoimmunity and lung destruction."

"Hopefully investigators will now see the disease in a totally different way," Dr Cosio stresses. "Our hope is that our research will open the door for a different investigation on COPD, where scientists learn more about the immunological processes and how these processes could be controlled and modulated to eventually provide the right treatment."

[http://tinyurl.com/l7eoo2%](http://tinyurl.com/l7eoo2%20) higher rate of additional heart problems, compared with their non-depressed peers.

Whooley's team studied the depressed group further. Researchers systematically adjusted for each potential risk factor to figure out whether it was mediating the link between depression and heart disease. Physiological factors, such as serotonin levels or CRP, for example, appeared not to have much impact. But when researchers adjusted for physical activity — that is, when they analyzed the data by assuming identical levels of exercise in both depressed and non-depressed

patients — the difference in heart disease risk between the groups disappeared. Indeed, inactivity among the depressed patients gave them a 44% greater risk of having a heart event than people who were not depressed, accounting for nearly all of the depressed patients' 50% higher risk. Picking up the remainder of the increased risk was cigarette smoking.

The findings suggest that the effect of depression on heart health may have less to do with changes in hormones or other biochemical pathways, and more to do with behavior. Compared with other people, notes Whooley, the depressed are less healthy overall — they're less likely to exercise or take their heart medications, and are more likely to smoke. The relationship also feeds back on itself; previous studies show that exercise not only improves cardiovascular health, but also elevates mood and can ease depression.

The study may even help to explain why treating depression alone — rather than addressing patients' mental state and accompanying behavioral changes — has not proven successful in reducing the risk of heart disease. "We have always looked at certain behaviors like physical activity and smoking in isolation with respect to their effect on heart disease," says Dr. Clyde Yancy, president-elect of the American Heart Association and medical director of the heart and vascular institute at Baylor College of Medicine. "But one or both could be manifestations of depression, which in turn leads to heart disease."

And while researchers are intrigued by the question of which comes first — depression or heart disease — the study points out that, in practice, it doesn't really matter. "It's hard to tease out which came first," says Whooley. "But our bottom line is that regardless of which is coming first, this study introduces a new pathway that might get at that risk, by focusing not so much on depression itself, but by getting at the behaviors that go along with depression." It may be easier to take Prozac than to take a jog, but as the study suggests, it may not always be as effective. <http://tinyurl.com/5qbw6na>



MUSCLE PROTEINS OXIDIZED AND DYSFUNCTIONAL IN DIAPHRAGMS OF COPD PATIENTS

Oxidation of proteins found in respiratory muscles could explain the breathing difficulty typical of chronic obstructive pulmonary disease (COPD), say Spanish scientists.

Introducing their study, Eliezer Barreiro (Hospital del Mar, Barcelona) and colleagues note that several studies have reported adaptive diaphragm changes in patients with COPD.

These changes are probably in response to increased respiratory demand; however, "there is growing evidence that in vitro fiber contractile function is also impaired in the diaphragms of patients with COPD," write the researchers.

Specifically, diaphragm muscle in patients with COPD has been found to contain less heavy chain myosin filaments than usual, suggesting loss of contractile performance, and increased protein degradation, possibly through increased protein oxidation.

To further understanding in this area, Barreiro and team studied diaphragm specimens taken from 24 patients with

moderate or severe COPD and 10 generally-healthy volunteers during lung thoracotomy to remove localized lung neoplasms.

As expected, respiratory muscle function was impaired in those with COPD compared with volunteers, despite the fact that the patients appeared to have switched to a fatigue resistant muscle phenotype.

Further investigation revealed the cause of the dysfunction, showing that contractile enzymes and proteins, including creatine kinase, carbonic anhydrase III, and actin, were significantly more heavily oxidized in patients than in volunteers. Levels of heavy chain myosin were typically 32% lower in patients than volunteers and this essential contractile protein was also five times more carbonylated in those with COPD.

Compared with volunteers, muscle tissue from patients also had significantly lower levels of creatine kinase and significantly increased superoxide anion levels in both mitochondria and membrane compartments.

“The present study is the first to report that carbonylation of diaphragm proteins in severe COPD and in control subjects includes proteins involved in key muscle cellular processes,” conclude the investigators. <http://tinyurl.com/mc622m>



NEW ANTI-ASTHMATIC AND ANTI-INFLAMMATORY DRUGS WITHOUT ADVERSE SIDE EFFECTS, SUGGESTS STUDY

Corticosteroids are powerful drugs used to treat inflammatory conditions such as asthma and other chronic diseases which has made them among the most widely prescribed drugs. Although the anti-inflammatory drugs offer swift relief to the patient, they can carry with them serious side effects. For example, the inflammatory steroids used to treat a child's asthma, but can stunt the child's growth over time. Similarly, adult treatment of Addison's disease, which President John F. Kennedy endured, can lead to the development of diabetes and hypertension.

For more than 20 years, one research team has been working to develop a safer approach that would eliminate inflammation without causing damage to the body. Such drugs, called “antedrugs” have been developed in a lab at Florida A&M's College of Pharmacy. The efforts have been spearheaded by Dr. Henry J. Lee who has led antedrug research in anti-inflammatory, anti-AIDS and anti-cancer drugs for nearly 30 years.

A New Study

Lee and his team have recently completed a new study entitled, Anti-Inflammatory Activities of New Steroidal Antedrugs Isoxazoline Derivatives. It was conducted by Drs. Henry J. Lee, Younes J. Errahali, LeeShawn D. Thomas, Brenda G. Arnold and Glory B. Brown, all of the Florida Agricultural and Mechanical University, College of Pharmacy and Pharmaceutical Sciences, Tallahassee, Florida. The researchers will discuss their work at the 122nd Annual Meeting of the American Physiological Society which is part of the Experimental Biology 2009 scientific conference. The meeting will be held April 18-22, 2009 in New Orleans.

The Study

Antedrug design is a new approach to create safer drugs that attack a problem such as inflammation then quickly become inactive before they can cause damage. The primary objective of this study was to synthesize a new group of corticosteroids that have anti-asthmatic and anti-inflammatory properties without adverse side effects.

The researchers synthesized new antedrugs, isoxazoline derivatives, from prednisolone. They then tested the derivatives in a test tube and found that antedrugs effectively reduced inflammation. In fact, they found isoxazoline derivatives were five times more potent than prednisolone in binding affinities to the cell corticosteroids receptors and reducing inflammation.

The researchers also studied the isoxazoline derivatives in the lung and liver cells of rats and found that the antedrugs significantly reduced the cell inflammation. In addition, the rat plasma began metabolizing rapidly the antedrugs to an inactive form with the half lives less than five minutes and more than 95% of prednisolone remained unchanged even after 100 min incubation.

Results

These results suggest that isoxazoline derivatives compared to conventional steroids improve topical anti-inflammatory activity without causing systemic damage. “This is a very promising outcome,” according to Dr. Lee. Additional studies are currently underway, using a new group of corticosteroids in the treatment of asthma exacerbation and chronic pulmonary inflammation without systemic side effects such as body weight and hypothalamic-pituitary-adrenal axis change. <http://tinyurl.com/dzmbys>



PRESCRIPTION ASSISTANCE PROGRAM LOOSENS ELIGIBILITY GUIDELINES, EXPANDS ACCESS

Together Rx Access , a prescription savings program sponsored by some of the nation's largest pharmaceutical companies, has loosened its income eligibility requirements, thereby expanding the number of health consumers who qualify for the program. According to a March 19 announcement, the program now is available to nearly 90 percent of uninsured Americans.

That's good news family physicians can pass along to their patients who are feeling pinched by America's faltering economy.

The income guidelines that now must be met to qualify for Together Rx Access are:

- a maximum annual income of \$45,000 for a single person (formerly \$30,000);
- a maximum of \$60,000 for a family of two (formerly \$40,000);
- a maximum of \$75,000 for a family of three (formerly \$50,000); and
- a maximum of \$90,000 for a family of four (formerly \$60,000).

Other rules remain the same. Eligible participants cannot be Medicare-eligible or have any other prescription drug

coverage and must be legal residents of the United States or Puerto Rico.

A Kaiser Health Tracking Poll released in February 2009 and cited by Together Rx Access verifies that the American public is having trouble keeping up with health care costs. According to that poll, 53 percent of Americans surveyed said cost concerns had caused them to cut back on health care in the past year.

The survey also found that 21 percent of respondents had let a prescription go unfilled, and 15 percent said they cut pills in half or skipped doses of medicine.

Additional Kaiser Family Foundation research indicates that a 1 percent rise in the nation's unemployment rate increases the number of uninsured individuals by 1.1 million.

According to the March 19 announcement by Together Rx Access, participants in the program can save 25 percent to 40 percent on more than 300 brand-name prescription products; many generic drugs also are covered. The program currently has 1.8 million cardholders and, by its own accounting, has saved patients more than \$81 million since the initiative launched in 2002.

The AAFP applauded the program's new enhanced coverage with a statement of support. "Americans may face financial challenges in meeting their health care needs, resulting in skipped doctors' visits and unfilled prescription medicines for chronic conditions," says the AAFP statement. "We must work together to establish safety nets for those in need to help them better access medical treatments and live healthier lives."

<http://tinyurl.com/cg6su5>



PULMONARY SPECIALISTS CONFIRM EVIDENCE THAT COPD IS AN AUTOIMMUNE DISEASE IN MANY PATIENTS

Pulmonary specialists at the University of Pittsburgh School of Medicine are reporting solid evidence that chronic obstructive pulmonary disease (COPD) is an autoimmune disease in many patients. Previous speculation that COPD may have an autoimmune component has remained unproven until now. The finding, reported recently in the American Journal of Respiratory and Critical Care Medicine, holds particular relevance regarding possible future treatments, including a clinical trial of inhaled cyclosporine now enrolling patients at the University of Pittsburgh. This approach also is scheduled for discussion on Friday, Feb. 29, at the Pittsburgh International Lung Conference being held at the Omni William Penn Hotel Downtown.

The fourth-leading cause of death and second-leading cause of disability in the United States, COPD is a lung disease commonly related to smoking that diminishes breathing capacity over time and includes conditions such as chronic bronchitis and emphysema. The National Institutes of Health estimates that 12 million adults have a current diagnosis of COPD, with an additional 12 million unaware that they have the disorder.

"COPD damages the lung tissue, expanding and breaking down the walls of air sacs, which hinders air flow out of the

lungs and the transfer of oxygen into the blood," said Steven R. Duncan, M.D., a senior author of the study and professor of medicine at the University of Pittsburgh School of Medicine. "This new work shows that in some patients with COPD, immune system antibodies attack the cells that line the airways and air sacs of the lungs called epithelial cells."

The Pitt researchers tracked immune system antibodies in 55 smokers or former smokers (47 with COPD) compared to 21 healthy people who had never smoked. Abnormal antibodies were found in 68 percent of smokers and former smokers with COPD but in only 13 percent of former smokers without COPD and 10 percent of those who had never smoked.

"COPD is responsible for 120,000 deaths a year," said Frank C. Scirba, M.D., a study senior co-author, associate professor of medicine and director of Pitt's Emphysema Research Center. "Available treatments, including inhaled bronchodilators, have little effect on disease progression. New information learned may help us to develop better treatments and perhaps even halt disease progression."

Investigators at the Emphysema Research Center are conducting a clinical trial of an inhaled form of cyclosporine, long used to suppress the immune system in transplant patients. "We are working every day to increase awareness of the disease and find new ways to help our patients," added Dr. Scirba.

Symptoms of COPD include a recurring cough, sometimes underestimated as "smoker's cough," wheezing, shortness of breath, overproduction of sputum and inability to breathe deeply. The most important step patients can take to reduce the risk of developing COPD or slow progression of the disease is to quit smoking.

"We expect to see increasing numbers of patients with COPD in the Pittsburgh area since our smoking rates – some 25 percent – are higher than elsewhere in the United States," said Dr. Scirba.

Patients with more severe COPD interested in additional information on these research findings and the inhaled cyclosporine trial may call the Emphysema Research Center at 412-692-4800. For a copy of the paper, call Michele Baum at 412-647-3555.

For information on the Pittsburgh International Lung Conference, follow this link:

https://ccehs.upmc.edu/courses/brochure_1248.pdf.



UNDERSTANDING SHORTNESS OF BREATH AND LIMITATIONS IN COPD

Chronic obstructive pulmonary disease (COPD) is a major public health problem, and a deeper understanding of its most prominent symptom, dyspnea, may lead to improvements in the manner in which it is assessed and treated.

The objective of this study was to identify important patient-centered concepts of dyspnea and associated activities in order to develop a dyspnea-specific conceptual model for COPD.

We identified five primary areas of the dyspnea experience: breathlessness, fatigue, activity modification,

activity limitation and emotional response. Major influences on dyspnea were individual exertion, exposure to environmental factors, dyspnea-related fear, needing to stop or scale back activities, taking more time to do things, and using adaptive measures or equipment.

Estimates of the number of US patients affected by COPD ranges from 10 million to 24.5 million. It is currently the fourth cause of death in the US, and a significant degree of health care utilization is attributed to it, including some 726,000 hospitalizations, 1.5 million visits to the emergency room and approximately 8 million outpatient physician visits. COPD is also a major source of disability and impaired health-related quality of life.

Says Dr. Victorson, "Such a patient-centered approach to better understanding dyspnea within the context of COPD has not been conducted, yet it is essential to evaluating disease and treatment effects. Our next step is to develop a new self report measurement tool based on these findings that will assess important components of our proposed model.

This will be discussed in Value in Health, the official journal of the International Society for Pharmacoeconomics and outcomes Research. <http://tinyurl.com/cymxtr>



WALGREEN GIVING FREE CARE TO JOBLESS AND UNINSURED

Drugstore operator Walgreen will offer free clinic visits to the unemployed and uninsured for the rest of the year, providing tests and routine treatment for minor ailments through its walk-in clinics - though patients will still pay for prescriptions.

Walgreen said patients who lose their job and health insurance after March 31 will be able to get free treatment at its in-store Take Care clinics for respiratory problems, allergies, infections and skin conditions, among other ailments. Typically those treatments cost \$59 or more for patients with no insurance.

Hal Rosenbluth, chairman of the Take Care Health Systems division, described the plan as something close to an experiment: He said Walgreen isn't sure of patient demand or how much providing the services might cost the company.

It's likely to generate more attention for the clinics, however. Rosenbluth said a typical Take Care patient tells eight other people about his or her experience. So far, about 30 percent of Take Care patients were new customers to Walgreen.

The program is expected to last through the end of 2009. Walgreen runs 341 Take Care clinics in 35 markets around the country, including Chicago, Atlanta, Miami and Cleveland.

Free services will be offered only from 11 a.m. to 3 p.m. Monday through Friday. Walgreen said it will not offer free checkups, vaccinations or other injections because it is focusing on providing services patients might otherwise get at an urgent-care center or even an emergency room.

Patients must present proof they are unemployed, including a federal or state unemployment determination letter and an unemployment check stub. They will have to sign a form at the clinic saying they have lost their jobs and health benefits. If

they find a new job or get new health insurance, they will no longer be eligible for free care.

Spouses and children are also eligible for free services if they don't have insurance of their own.

Medical lab operator Quest Diagnostics is participating in the program by offering free tests for step throat and urinary tract infections.

Walgreen bought the Take Care clinics in May 2007. Take Care says it has seen about 1.2 million patients since its launch in November 2005 and estimates that up to 30 percent of them were uninsured. <http://tinyurl.com/cdmll8>



DUSTING OFF 9 SEASONAL ALLERGY MYTHS *Experts Opine on the Season's Conventional Wisdom*

As the changing of the season brings longer days and buds and blossoms, it also brings some less welcome side effects for the roughly 35 million seasonal allergy sufferers in the United States.

A seasonal allergy sufferer swears by acupuncture for symptom relief. And with those allergic symptoms come some tidbits of advice that don't quite seem to be on the level.

While the origins of allergies remain unclear, most of the conventional wisdom about seasonal allergies can be cleared up with a little digging. For seasonal allergy sufferers, that may be only a small bit of relief.

"We have seen a dramatic increase in pollen over the last 20 years, and it is the most severe allergy season we see in this area," said Dr. David J. Shulan, an allergist and vice president of Certified Allergy & Asthma Consultants in Albany, N.Y., as well as a fellow of the American Academy of Allergy, Asthma & Immunology.

Of course, he notes that because not all allergy sufferers have the same allergies, the worst periods will vary.

Tree season will last through June, while grass will begin to create a problem in mid-May and peak in June. Ragweed problems will begin in the last month of the summer, while mold will peak in midsummer and last until temperatures start to drop.

Of course, for people with allergies in different parts of the country, those peaks of allergy symptoms will vary.

While people on the East Coast may complain of problems with ragweed, Shulan noted that ragweed pollen counts can be 50 times higher in the Midwest.

A change in schedule may even be necessary. "If you have pollen allergies, avoid going out between 6 [a.m.] and 10 a.m., that's generally a peak time for allergies," said Shulan.

For those worried about what to expect each season, and for those hoping to check advice before passing it on to a sneezing friend or family member, we present nine bits of conventional wisdom that needed a little more checking out. **Fact or Myth? Moving (Especially to an Arid Climate) Will Solve Your Allergy Problems**

"Your allergies will follow you, no matter where you go," said Dr. Dan Dalan, an allergist in Fargo, N.D., who is a clinical associate professor at the University of North Dakota School of Medicine. That means some allergies might be

relieved by moving to a different climate, but you may also discover that you have other allergies to your new home.

"If you're dust mite allergic, you will get better," said Dr. Rohit Katial, director of the Weinberg Clinical Research Unit of National Jewish Medical and Research Center and a contributor to ABCNews OnCall+ of a move to a drier climate like those found in Arizona and Colorado.

But, obviously, whether moving will help your allergies depends on which allergies you have in the first place. While you may escape some allergies in the move, a new plant may trigger allergies you didn't previously know you had.

"You can develop new allergies wherever you go," Dalan said. So it isn't a cure for everybody. "There's nothing magical about moving to an arid climate, besides the nature of the exposure changing," Katial said.

And as the next myth will explain, you may not know for a while if the moving even helped.

Fact or Myth? If You Move to a New Place, Your Allergies Will Get Much Worse in Year 2, or Later (because you've been sensitized during the first year).

Answer: Fact

"For new allergens, yes," Katial said. "You most likely won't manifest symptoms in the first year." For allergies to start triggering symptoms, you need a first exposure to sensitize the immune system, with further exposures triggering the allergic reaction. "It has to do with when the pollens are out, when the allergens are out," Dalan said.

He noted, for example, that ragweed is only around for two months, which may not be enough to trigger the allergies. Also, he noted, the amount of allergen in the air and your body's reaction may not be enough for you to notice. "It's personal factors: your personal space and the abundance of the pollens around them in a given year," he said.

For that reason, it may take even longer to discover you have a seasonal allergy. "Some of those things are the patient's perception," Dalan said.

However, if symptoms aren't bad enough, a person may not be diagnosed with a seasonal allergy when they first develop it.

Fact or Myth? Short-Haired Pets Won't Irritate Your Allergies

Answer: Myth

Getting a pet with shorter hair won't necessarily alleviate your allergy problems, because hair isn't the source of your reaction. "It doesn't matter," Dalan said of a pet's hair length. "It's not the hair that's the problem; it's the saliva that's being excreted by the animal." Animals lick themselves in order to stay clean, and that ultimately leads the allergens from the pet to be released into the air.

Katial said that in addition to the saliva, the animal's pelt, or skin, could also be an allergen source. He added, however, that shedding enhances how much the allergen is carried throughout the house -- a problem more affected by cleaning than by the animal. "If they're indoors, they still release allergen, hair or not," Katial said.

Fact or Myth? Flowers Are a Leading Allergy Irritant

Answer: Myth

Not only are flowers nice to look at and a pleasing gift, but the tears they cause are for the most part tears of appreciation, not allergies.

"The really pretty flowering things are the least allergenic," said Katial. "Roses aren't allergenic, because allergies are caused by wind-pollinated plants. Flowers are generally reproduced by insects." Fortunately for the stop-and-smell-the-roses mindset, flowers evolved to have bees transport the pollen they need to spread to reproduce.

Trees, meanwhile, use the wind, and the presence of this pollen in the air is what tends to cause sniffing each spring.

While flower allergies aren't unheard of, trees and grass tend to be the primary culprits. So you may have less to worry about when you pick up a bouquet for a seasonal allergy sufferer. "They may look nice and you can see the pollens, but those typically aren't allergenic," Dalan said.

Fact or Myth? Eat The Local Honey and You Won't Get Seasonal Allergies

Answer: Myth

With a little understanding of plant reproduction, the reason this is a myth becomes clear relatively quickly. "The notion is that pollen causes allergy, and honey is made from pollen. Perhaps if you took the pollen and ingested it ... then it might somehow build up a tolerance," said Douglas Leavengood, an allergist at Gulf Coast Asthma and Allergy in Biloxi, Miss.

The problem with that thinking, Leavengood said, is that the pollens creating allergy problems aren't the ones bees use for honey. "It's the tree, grass and weeds that are the allergy pollens. They broadcast [their pollen]," he said.

Instead of wind, flowers, the source of the pollens in a bee's honey, have heavy, sticky pollens that require bees for transport in order for the plant to reproduce.

"The pollen the honey is made out of is not the pollen that causes the allergies. It's not tree pollen and it's not grass pollen," Leavengood said. "As far as allergy goes, it's just the wrong type of pollen."

Fact or Myth? If You Use One Brand of Allergy Medication, You Build a Tolerance and It Will Stop Working

Answer: Myth

This may have been true with earlier generations of allergy medications, but it isn't the case now.

"It was thought to occur with some of the first generation antihistamines," Shulan said, but "that really has not been shown to occur with the newer medications."

There are a couple of reasons people might think they have developed a tolerance for their meds, however.

For one thing, Dalan noted, antihistamine pills are just a "Band-Aid" for allergy symptoms and do not eliminate allergies. A person exposed to more of the allergen may find that symptoms will occur despite the medication. "It's still working, but it's not working to the amount that they want it to work," he said. "It's a change in the environment."

Part of the problem may also be the expectations of the allergy sufferer for which symptoms the medication will alleviate. "The antihistamines are good for itching, sneezing

[and] runny nose," Shulan said. "For a stuffy head, they really don't do a lot."

Fact or Myth? You Can Outgrow Your Seasonal Allergies
Answer: Sort Of

This is one myth where the science and the practical meaning don't line up, which is why one might be confused by it.

"If it is truly an allergic disease, the DNA started it up and you were born with that DNA," Dalan said. "The DNA for the allergy are always going to be there." So you won't lose the allergy, necessarily. However, Dalan noted, "It's the [severity of the] symptoms that comes and goes."

"You don't really outgrow your allergies. Your symptoms can and go depending on those factors, but the propensity for the allergies is always going to be there, but they might not have symptoms for years," he said.

For a lot of people, a severe childhood allergy may seem much milder with age. "Your sensitivities change over time. You can pick up some new ones; you can lose some," Katial said. "If it starts early in life, the sensitivity does tend to go down." But while age and allergy shots may take some of the sting out of the allergies, they typically remain, to some degree, for life.

"There is a tendency for many people to become less sensitive over time," Shulan said. But that doesn't mean the allergy is completely gone. "Most people will tend to keep allergies for a long time, into their senior years," he said.

Fact or Myth? Breast-Feeding Reduces the Likelihood of Future Allergies in Your Children

Answer: Undetermined

While the benefits of breast-feeding are often touted to expectant and new mothers, it's not clear that preventing allergies are among them. While breast-feeding, Dalan said, there appears to be some benefit to the baby in terms of avoiding allergies.

"The breast milk has protective antibodies and the infant's immune system is not quite developed to the degree it can be," he said. "This is not just for allergies, but it's for anything in the baby's environment." But once the child stops nursing, it's not clear that breast-feeding will keep a child from developing allergies.

"It could be. There's a lot of protective aspects about breast-feeding," Katial said. "There might be some benefits, but you can't say absolutely. It may delay onset of allergies," he added, but noted that "that one's a little more gray."

For his part, Shulan said that "I've seen a number of articles suggesting that, at least for children, there is a decrease in allergies for children who have been breast-fed."

A definitive study, however, was lacking, so until then, this seasonal allergy myth will remain a little dusty.

Fact or Myth? You Can't Develop Allergies as an Adult

Answer: Myth

Allergies may start in childhood, but adults can become allergic to things they weren't previously allergic to, according to Katial.

"There's a feeling that allergies only exist in children and then persist into adulthood. But we frequently see patients that

have done well most of their lives and then as an adult they do develop allergies," Katial said.

New exposures can also trigger allergic reactions that wouldn't have been experienced before. For example, moving from the West Coast to the East Coast might bring on an allergy to ragweed, which thrives in the Northeast. Or, if you did not have a pet growing up, a new dog or cat could trigger an allergy.

Sensitivity may also change, as common allergens, such as pollen, dust mites and molds, provoke more of a response. An adult complaining of symptoms will undergo the same tests administered to allergic children.

"If an adult comes in with symptoms that are typical for seasonal allergies, they should be evaluated to see what they're sensitive to, and again, appropriately treated depending on what the allergen is and given advice regarding environmental precautions and the appropriate medications," Katial said.

"Clearly, one can develop both allergies and asthma as an adult and it doesn't have to be just in children," he said.

<http://tinyurl.com/df2oud>



EYE RELATED SYMPTOMS BRING MORE THAN TEARS TO ALLERGY SUFFERERS, NEW SURVEY REVEALS

FREE "EYE HEALTH & ALLERGIES" BROCHURE AVAILABLE FROM ASTHMA & ALLERGY FOUNDATION OF AMERICA

Many allergy sufferers say symptoms such as itchy, dry, red and watery eyes leave them frustrated and irritable, tired, and distracted, according to a new survey conducted by the Asthma & Allergy Foundation of America (AAFA). About 40 percent of women allergy sufferers surveyed say their red and puffy eyes make them look tired and unattractive.

Among those who wear contact lenses, other problems arise. When their allergies act up, half (50%) say they switch to glasses, while 45 percent report that they wear their contacts less often. For some, not being able to wear their contacts affects how they feel about themselves and impacts their performance at work, school, and when playing sports.

"Having to stop wearing their contacts or wear them less frequently creates a wide range of emotions among allergy sufferers," says Mike Tringale, Director of External Affairs, AAFA, the leading patient advocacy organization for people with asthma and allergies. "Contact lens wearers say they feel less attractive when wearing their glasses (37%), unhappy (35%), less confident without their contacts (29%), and less able to perform activities as well as when they are wearing their contact lenses (26%)."

More than 800 people responded to the online survey about eyes and allergies, conducted by AAFA, and supported by 1-DAY ACUVUE(R) MOIST(R) Brand Contact Lenses. One-third (33%) identified themselves as contact lens wearers, while 12 percent admit to having dropped out of contacts because of allergies.

The majority of contact lens wearing respondents report that they replace their lenses monthly (45%) or every one to two weeks (38%). Paul Karpecki, O.D., F.A.A.O., Clinical

Director, Kofler Vision Group, Lexington, Kentucky says he is not surprised to learn that two out of three (66%) say they find it very uncomfortable to wear their contacts while suffering from eye allergy symptoms.

"Allergy sufferers who wear contact lenses that you use for two weeks or more may experience discomfort and symptoms such as ocular itching, tearing, and redness because allergens and other irritants can build up on contact lenses over time, he says. "This can lead to discomfort and interference with job performance, school, and sports activities."

For allergy sufferers who want to remain in contacts, Dr. Karpecki recommends single-use contact lenses - daily disposable lenses that you throw away at the end of the day.

"Studies have shown that single use contacts, such as 1-DAY ACUVUE(R) MOIST(R) can be a healthy and more comfortable option for any lens wearer with eye allergies," he explains. "By putting in a clean, fresh lens every day, one-day contacts minimize the potential for accumulation of allergens and irritants that can often accumulate with repeated use of the same pair of lenses."

Other major findings from the survey show:

- Spring was identified by 67% of respondents as the most troublesome time of year for eye-related allergies. Over half (51%) say they experience eye allergy symptoms all year long. One-quarter of all respondents (26%) report Fall as the worst time for eye allergies
- Half of women surveyed (52%) report that their eyes are so itchy as a result of their allergies that it causes them to rub their eyes and rub off makeup
- About four in ten (39%) of allergy sufferers say they have consulted with an allergy specialist about their eye-related allergy symptoms. They also report consulting with their Family Practitioner (28%), Optometrist (28%), or Ophthalmologist (28%)

To help allergy sufferers better understand and manage the condition, AAFA offers a free educational brochure titled Eye Health & Allergies. The brochure can be viewed or downloaded at www.aafa.org/eyeallergies or www.acuvue.com/seasons.



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<http://tinyurl.com/cdmll8>



STATINS-LOOKING BEYOND THEIR EFFECTS ON LDL CHOLESTEROL

The blockbuster class of cholesterol-fighters called statins have transformed cardiology and made their money by lowering levels of LDL, or bad cholesterol — an effect that has significantly reduced deaths, heart attacks, strokes and costly bypass and angioplasty procedures.

But many doctors have long been intrigued by indicators that statins work against some of cardiovascular disease's other culprits as well. They are known as pleotropic effects and evidence of their presence is emerging in several studies being presented at the annual scientific sessions of the American College of Cardiology underway in Orlando, Fla.

Exhibit A is Jupiter, the big trial of AstraZeneca's cholesterol buster Crestor. In a study presented over the weekend, Crestor sharply reduced the risk of a blood-clotting disorder called venous thromboembolism. Clots in the veins typically aren't influenced by LDL cholesterol. But logic for the new findings lies in earlier basic research indicating that statins have anti-clotting properties independent of their cholesterol effects.

Another big target of statins is inflammation. A separate Jupiter result showed that participants who achieved aggressively low levels of both LDL and an inflammatory marker called C-reactive protein had a much lower risk of heart attack and other bad outcomes than those who just got their cholesterol down. Paul Ridker, a Harvard and Brigham

and Women's Hospital cardiologist who led the AstraZeneca sponsored trial, has shown in a string of studies going back a decade that the effects of statins on inflammation are separate from those on cholesterol.

Two European studies reported Monday that giving 80 milligrams of Pfizer's statin Lipitor shortly before undergoing artery-clearing angioplasty significantly reduced the risk of small heart attacks around the time of the procedure. Statins don't cause LDL to drop fast enough to play a role in this benefit — but they appear to quickly reduce inflammation.

Even a failed study makes the point. Aurora, another AstraZeneca trial, tested whether Crestor would prevent heart attacks in patients undergoing kidney dialysis. LDL cholesterol fell more than 40%, but heart attacks and other serious events didn't. Cleveland Clinic cardiologist Steve Nissen pointed out that levels of C-reactive protein didn't drop in that study — possibly reflecting dialysis' pro-inflammatory effects on the blood.

What to make of all this? "Hardly any drug that is developed ... works the way we think it works," says Dan Jones, a cardiologist at the University of Mississippi who spoke to the Health Blog on behalf of the American Heart Association. "From a science standpoint, it opens a lot of doors to help us learn more about health disease."

<http://tinyurl.com/c7nhw6>



PREVALENCE OF 'SILENT' HEART ATTACKS REVEALED WITH NEW IMAGING TECHNOLOGY

So-called "silent" heart attacks may be much more common than previously believed, according to researchers at Duke University Medical Center.

Studies show that each year, nearly 200,000 people in the U.S suffer a heart attack but may not realize it. These "silent" heart attacks aren't noted because they don't cause any pain — or at least any pain that patients believe is related to their heart — and they don't leave behind any telltale irregularities on electrocardiograms (ECGs).

New imaging research from Duke University Medical Center appearing in PLoS Medicine suggests that these heart attacks (now called unrecognized myocardial infarctions, or UMIs) may be happening much more frequently than physicians had suspected. Duke investigators also found that these attacks were associated with a surprisingly high risk of untimely death.

"No one has fully understood how often these heart attacks occur and what they mean, in terms of prognosis," says Han Kim, M.D., a cardiologist at Duke and the lead author of the study. "With this study, we can now say that this subset of heart attacks, known as non-Q wave UMIs, is fairly common, at least among people with suspected coronary artery disease."

Physicians can usually tell when a heart attack has recently occurred by signature changes on ECGs and in certain blood enzyme levels. But if a heart attack happened in the distant past, physicians rely on the appearance of a specific alteration on an ECG called a Q-wave, which signals the presence of damaged tissue.

"The problem is, not all UMIs result in Q-waves on the electrocardiogram. Those that don't are called non-Q-wave myocardial infarctions. Those are the ones we haven't been able to count because we've never had a good way to document them," says Kim.

Kim believed that using delayed enhancement cardiovascular magnetic resonance, or DE-CMR, might be good way to get an idea about how frequently non-Q-wave myocardial infarctions occur. Previous studies had shown that DE-CMR was particularly adept in discerning damaged tissue from healthy tissue.

Researchers used DE-CMR to examine 185 patients suspected of having coronary artery disease but who had no record of any heart attacks. All of them were scheduled to undergo angiography to find out if excess plaque had narrowed or blocked any of their arteries. Investigators followed the patients for two years to see if the presence of any unrecognized non-Q-wave heart attacks were associated with a higher risk of death.

They found that 35 percent of the patients had evidence of a heart attack and that non-Q-wave attacks were three times more common than Q-wave UMIs. Non-Q-wave attacks were also more common among those with more severe coronary artery disease. In addition, researchers discovered that those who suffered non-Q-wave UMIs had an 11-fold higher risk of death from any cause and a 17-fold higher risk of death due to heart problems, when compared to patients who did not have any heart damage.

"Right now, there are no specific guidelines about how patients with UMIs should be treated," says Kim. "If patients with UMIs happen to be identified, they are usually treated similarly to those patients where heart disease has already been documented. Future studies will likely examine how common unrecognized non-Q-wave heart attacks are in other patient groups and how these UMIs should be treated."

The National Institutes of Health supported the study. <http://tinyurl.com/lb3bjyoutcomes>. Lisa Powell and Frank J. Chaloupka of the University of Illinois at Chicago assessed research published between 1990 and 2008 that involved weight and BMI in combination with pricing and taxes.

<http://tinyurl.com/d7mz4q>



RECOGNIZING SIGNS AND SYMPTOMS OF ACUTE HF

Although heart failure is a chronic condition, acute exacerbations are frequent and occur with serious complications; patients with heart failure and their families can help improve prognosis in acute events if they are taught to recognise the tell-tale signs of worsening condition and seek immediate medical help. "Any delayed recognition of these signs is associated with an increased rate of hospitalisation and complications, including mortality," says Professor Ferenc Follath from the University Hospital of Zurich, Switzerland.

Speaking at Heart Failure Congress 2009, Professor Follath explained that around two-thirds of these acute events occur in patients with known heart failure, and around one-third as a first event in those with undiagnosed heart failure.^{1,2} Recognition of the signs and symptoms of a

worsening condition, therefore, will help minimise any delay in treatment and reduce complication rates.

Citing existing data, Professor Follath said that heart failure patients and their families should be on the alert for any evidence of the symptoms presented by patients admitted to hospital for emergency treatment. These symptoms include:

- shortness of breath (dyspnea), found to be evident in 92% of acute heart failure patients
- peripheral oedema (in 35%)
- cough (in 33%)
- breathing difficulty when lying flat (orthopnea, in 30%)
- chest pain (in 29%)
- nocturnal dyspnea (in 28%)
- fatigue (in 17%)
- palpitations (in 7%)

Shortness of breath, said Professor Follath, is by far the most common presenting symptom, and families should recognise that it can be described in various ways – from "suffocation" to "tight chest" to "heavy breathing". At the same time, he warned that many elderly patients with heart failure may have co-existing conditions with non-cardiac symptoms, and these may be misleading. Careful instruction, therefore, in a simple understandable way is essential to ensure early warning and speedy treatment.

An American study reported in 2008 found that patients hospitalised with acute heart failure had experienced considerable delays in seeking medical care (with an average delay time of 13.3 hours).³ Male sex, multiple presenting symptoms, absence of a history of heart failure, and seeking medical care between midnight and 6 a.m. were associated with prolonged prehospital delay.

"This is why it is so important to instruct patients and their families how to recognise the symptoms of acute heart failure," said Professor Follath, "to seek medical help without losing critical time of hours or even days before appropriate treatment can be started."

According to Professor John McMurray, President of the Heart Failure Association of the ESC, cases admitted to hospital for acute heart failure had until recently a very poor prognosis, but the better identification of symptoms - and thus their more appropriate treatment - have brought about a 40-50% reduction in mortality rates in a short time. <http://tinyurl.com/n2z5jv>



NEW SPECIES OF CHOLESTEROL-BUSTING BUG WITH A TASTE FOR WASTE DISCOVERED

A novel species of bacteria with cholesterol-busting properties has been discovered by scientists at the Universidad Complutense de Madrid, Spain. Dr Oliver Drzyzga and colleagues isolated the new bug, called *Gordonia cholesterolivorans*, from sewage sludge. Their findings are reported in the current issue of the *International Journal of Systematic and Evolutionary Microbiology*.

A steroid found in all body tissues, cholesterol is used in the cosmetics and pharmaceutical industries as stabilizer, emollient and water-binding agent. As a consequence, steroids - including

cholesterol - are a major group of contaminants in urban sewage residues.

Gordonia bacteria have only been classed as a separate group of bacteria since 1997 but they have already proved useful as they are able to degrade a wide range of environmental pollutants including phthalates (used in plastics), rubber and hazardous compounds such as the explosive hexogen (cyclotrimethylenetrinitramine). *Gordonia cholesterolivorans*' ability to break down cholesterol means that it could be used to clean up contamination.

Dr Drzyzga and co-workers are studying the genetics of this novel bacterium to genetically modify strains that might also be used to synthesise new and industrially useful breakdown products of cholesterol. "New steroid compounds made by these bacteria may find applications in the pharmaceutical and medical sectors in the future, but as some *Gordonia* species are pathogenic to humans it is unlikely that they could be used directly to treat high cholesterol-related conditions in humans", said Dr Drzyzga.

"We are trying to work out exactly how *Gordonia cholesterolivorans* metabolises cholesterol so that we can identify and construct metabolically engineered strains that are more rapid and effective in breaking down cholesterol.

<http://tinyurl.com/q6ujzd>



HEART FAILURE PATIENTS MAY HAVE TROUBLE FOLLOWING LOW-SODIUM DIETS

Study highlights:

Only one-third of heart failure patients comply with recommended daily sodium intake. Researchers fault eating higher calories; frequent intake of foods with hidden salt such as fast food, lunch meat, bread and pizza; and lower economic status. Heart failure patients need individualized diet plans that lower sodium and enhance the overall quality of their diet.

Even when they attempt to reduce their sodium intake, only one-third of heart failure patients in a small study were able to adhere to a recommended low-sodium diet, researchers reported at the American Heart Association's 10th Scientific Forum on Quality of Care and Outcomes Research in Cardiovascular Disease and Stroke.

The recommended daily intake of sodium for heart failure patients is 2,000 milligrams (mg). However, the 116 heart failure patients in the study consumed an average 2,671 mg per day with a range of 522 to 9251 mg per day.

The American Heart Association recommends healthy people aim to eat less than 2,300 mg of salt per day. Some people — African Americans, middle-aged and older adults and people with high blood pressure — should aim for less than 1,500 mg per day.

"The patients themselves were shocked to find out they were eating more than 2000 mg of sodium a day," said Carolyn M. Reilly, R.N., Ph.D., abstract co-author and postdoctoral fellow at Emory University in Atlanta. Most of the patients thought they were taking steps to reduce their sodium, but focused on the wrong target, Reilly said. "There is so much salt hidden in foods that patients aren't aware of.

While they may have thrown away their salt shakers, they didn't know that 70 percent of the sodium in the American diet is in the food, not the shaker," she said. "Everything processed has sodium in it to give it a longer shelf life. In addition to safety, sodium is also added to foods to enhance texture and mask bitterness. Some of the big culprits we have identified in this population are cured meats such as hot dogs and bacon, and other processed foods like canned soups, salad dressings and condiments."

The analysis of the ENSPIRE (Education and Supportive Partners Improving Self Care) study included 116 patients (28 to 78 years old, 64 percent male and 58 percent black) with mild and moderate heart failure on standard therapy. Baseline analyses showed that higher sodium intake was associated with higher caloric intake, male gender, eating fast food and lower economic status.

For the study, patients wrote down everything they ate for three days, then received personalized instructions on how they could further reduce the sodium in their diets with examples from the food diary.

Caloric intake ranged from 688 to 4,207 calories per day, with an average of 1,674 calories. Participants ate 110 percent of the recommended amounts of protein, 63 percent of recommended carbohydrates and 89 percent of recommended total fat. "Most of the patients in the study ate meat and other protein, but didn't eat enough carbohydrates such as greens, fruits, vegetables and whole grains, nor enough low-fat (1 percent) or fat-free dairy," Reilly said.

Frequent high-sodium food selections included fast-food burgers and chicken sandwiches, lunch meat, salad dressing, processed entrees, corn products such as prepared grits and cornbread, pork sausage, bread and pizza. More than 40 percent of patients ate at least one fast-food sandwich with 1,115 mg of sodium during the three-day period and one in seven had pizza with 1,461 mg of sodium.

Participants who were able to adhere to the recommended sodium levels tended to eat fewer calories, less carbohydrates and less fat, but not less protein. Women and those making \$35,000 or more a year were more likely to adhere to the low-sodium diet.

The recommendations need to be individualized for the heart failure patient, keeping overall quality of the diet in mind, Reilly said. "The food diary shows what they actually ate. The dietary education needs to be tailored to the patient and individual needs."

"It's not good enough just to give patients a list of foods to eat and tell them to read food labels," she said. "The diary helps open their eyes to what they are eating. A nurse or dietitian then can show them better choices that they could make."

Patients need to keep the sodium to 2,000 milligrams a day or less, Reilly said. "That's 500 mg a meal and two snacks with 250 mg each. Another rule of thumb is to limit eating anything that has more than 100 mg of sodium per serving."

These findings are from a larger study in which patients and families are provided education on how to read food labels and strategize on how to make healthier food and beverage choices

when eating out, shopping or attending social functions, she said. "Our goal is to help heart failure patients make better choices."

<http://tinyurl.com/cxo25z>



HEALTHIER LIFESTYLE CAN CUT COPD SYMPTOMS

Diet, exercise and smoking cessation counseling also proved cost-effective, study finds

A lifestyle intervention program that promoted exercise, healthy eating and quitting smoking improved the health of people with mild to moderate chronic obstructive pulmonary disease (COPD) and was cost-effective, a new study shows.

The patients in the study were randomly assigned to receive usual care or to participate in an interdisciplinary, community-based program (INTERCOM). The first four months of the intervention program featured intensive lifestyle moderation. That was followed by 20 months of less intensive maintenance in which the patients were offered guidance but not rigorous intervention.

After 24 months, the patients in the intervention program showed significant improvements in health status, exercise capacity, and breathing problems (dyspnea), compared to those in the usual care group.

Among those in the intervention group, improvements were noted at four months in COPD-specific quality of life, walk distance, exercise capacity, dyspnea, handgrip force and fat free mass index. After 24 months, significant improvements remained in exercise capacity, dyspnea and disease-specific quality of life.

During the two-year study, the overall cost per patient was about \$3,686 more for the intervention group. But the researchers noted that the cost for patients in the intervention group is "front-loaded" and that maintenance costs were minimal.

"This is the first randomized controlled trial showing that community-based pulmonary rehabilitation is feasible and effective, even for patients with less advanced airflow obstruction, and that the INTERCOM program improves functional exercise capacity and health-related quality of life during 24 months relative to usual care at acceptable costs," Annemie Schols, a professor of nutrition and metabolism in chronic diseases at Maastricht University in the Netherlands, said in an American Thoracic Society news release.

"The INTERCOM program is based upon an integrated view on pulmonary and extra pulmonary manifestations of chronic obstructive pulmonary disease resulting from smoking, suboptimal diet, inactivity and disease susceptibility. These new findings from the INTERCOM trial could lead to a shift in clinical medicine and public health towards personalized lifestyle intervention," Schols said.

The study was presented at the international conference of the American Thoracic Society, in San Diego.

<http://tinyurl.com/nn6e9n>



NEW PROCEDURE LOWERS CHRONIC HIGH BLOOD PRESSURE

Radiofrequency ablation of the renal sympathetic nervous system is a promising treatment for those with chronic high blood pressure, according to new research.

The procedure -- already used in a similar way to treat certain types of heart arrhythmias -- involves disabling nerves in the kidney by using radiofrequency signals through a catheter. Researchers used the procedure on 45 patients at five centers across Australia and Europe who had systolic blood pressure of at least 160 mmHg.

After the procedure, blood pressures were reduced by 14/10, 21/10, 22/11 and 27/17 after one, three, six and 12 months respectively. No complications were reported in the study.

"What we've shown is a procedure which is very simple, turns out to be safe and effective, and its results are sustained in lowering blood pressure in a population who clearly needs something additional to what we have at the moment," Henry Krum, MBBS, Ph.D., Director of the Centre of Cardiovascular Research & Education in Therapeutics at Monash University in Melbourne, Australia, said.

For patients how can't lower their blood pressure despite using multiple anti-hypertensive drugs, using this procedure could be an effective way to get their blood pressure under control and prevent heart attack and stroke. That's because over-activity of the renal sympathetic system plays an important role in the progression of high blood pressure.

The trial was the first to use renal sympathetic nerve ablation in humans. <http://tinyurl.com/cg54sw>



DIABETICS' HEART ATTACK RISK CAN BE REDUCED, RESEARCH FINDS

People with diabetes who maintain intensive, low blood sugar levels are significantly less likely to suffer heart attacks and coronary heart disease, new research published today in The Lancet has shown.

By undertaking a meta-analysis which pooled information from five large trials, researchers at the University of Cambridge were for the first time able to provide reliable evidence linking intensive blood sugar level (or glucose) control with fewer heart attacks.

The research, funded by the British Heart Foundation, pointed to a 17 % reduction in heart attacks and a 15 % reduction in coronary heart disease. However, the study found a more modest trend towards reduction in strokes with intensive control of glucose levels compared to standard care. Importantly, in contrast to smaller studies which had suggested possible harm from better blood sugar control, there were no adverse effects on deaths from any cause.

It is well documented that diabetics are at increased risk of heart disease. Even though patients can reduce their risk by maintaining healthy blood pressure levels and cholesterol reduction, the risk remains high.

Dr Kausik Ray of the University of Cambridge, lead author of the study, said: "Previous studies have been

inconclusive, leaving diabetics and their doctors unsure as to whether maintaining lower blood sugar levels actually benefitted the patients. Although additional research needs to be conducted, our findings provide insight into the importance of improving glucose levels which should include lifestyle changes as well as medication."

The five trials involved more than 33,000 individuals, including 1497 heart attack cases, 2,318 cases of coronary heart disease, and 1227 strokes. In order to assess the possible risk of various heart conditions, Dr Ray and his team analyzed the data collected on the glucose levels in blood, specifically a long-term marker of glucose control called HbA1c. In healthy individuals, HbA1c levels average between 4-5%. However, diabetics often have levels above 6.5%.

In the present study, those taking a standard treatment maintained a HbA1c level of 7.5%. Individuals who underwent intensive treatment to lower their blood sugar level were 0.9% lower than those who underwent standard treatment (average 6.6%), thereby dramatically reducing their risk of disease in large blood vessels.

Professor Peter Weissberg, Medical Director at the British Heart Foundation said: "It is well established that carefully controlling blood sugar in people with diabetes can help prevent disease in small blood vessels that leads to kidney failure and blindness. This collective analysis of several large clinical trials suggests that careful blood sugar control also protects against heart attacks and strokes, the major causes of death in people with diabetes.

"These findings emphasise the importance of detecting and treating diabetes as early as possible, thus preventing the chances of developing heart and circulatory disease."

Dr Ray concluded: "The present findings reinforce the need for diabetic patients to achieve and maintain better control of blood sugars long-term, as a means to reduce risk of heart disease."

<http://tinyurl.com/r8sh9v>



DIABETES PATIENTS SHOULD HAVE REGULAR EXERCISE, WEIGHT TRAINING

To reduce their cardiovascular risk, people with type 2 diabetes should do at least two-and-a-half hours per week of moderate-intensity or one-and-a-half hours per week of vigorous-intensity aerobic exercises, plus some weight training, according to an American Heart Association scientific statement published in *Circulation: Journal of the American Heart Association*.

The global increase in overweight and obesity has led to an "unprecedented epidemic" in type 2 diabetes (when the body is unable to use insulin efficiently to help turn glucose, or blood sugar, into energy for the body's cells). In 2007, type 2 diabetes in the United States cost an estimated \$174 billion in direct medical costs and indirect costs such as disability, lost productivity and premature death. That amount represents a 30 percent increase from the \$132 billion estimated in 2002, according to the statement.

Furthermore, heart and blood vessel disease is responsible for nearly 70 percent of deaths in people with type 2 diabetes.

"Given the observed increases in type 2 diabetes in adults over the last few decades in developed countries, and the increasing numbers of overweight and obese individuals throughout the world, we must look at ways to reduce the cardiovascular complications of diabetes, and exercise is one of those ways," said Thomas H. Marwick, M.D., Ph.D., chair of the writing group and professor of medicine and director of the Centre of Clinical Research Excellence in Cardiovascular and Metabolic Disease at the University of Queensland School of Medicine in Brisbane, Australia.

Diet and exercise can prevent or slow the development of type 2 diabetes and produce clinically significant improvements in blood sugar control and cardiovascular risk factors in people with the condition, according to the statement. This benefit can reduce or eliminate some patients' needs for medications to control risk factors.

The statement emphasizes the importance of exercise advice in the primary care environment. Patients are encouraged to work with their health care provider to establish an exercise regimen — basically, getting a prescription for exercise. Exercise, for the purpose of this statement, is defined as planned and structured activity that is aimed at improving cardiovascular health and metabolic control.

Physicians, physician assistants, nurses, diabetes counsellors and other health care providers are the most logical professionals to give advice about physical activity and should do so during every encounter with patients who have type 2 diabetes.

Recommendations include:

To improve cardiovascular risk, type 2 diabetes patients should get at least 150 minutes per week of moderate-intensity exercise or 90 min/week of vigorous-intensity exercise, or some combination of the two.

Patients should exercise on at least three non-consecutive days each week to maximize benefits. Individual sessions should be at least 10 minutes each or longer.

Resistance training should be encouraged, and should be moderate- to high-intensity — 2?? sets of 8?? repetitions at a weight that can't be lifted more than 8?? times, with 1??-minute rest periods between sets.

Exercise counseling is needed to assess and adjust levels of physical activity and provide motivation and support. Telephone counseling is economical, practical and effective.

<http://tinyurl.com/lmr7aa>



Food Additive to Watch: Sodium Nitrite

If you think hot dogs, bacon and lunch meats keep that pinkish hue naturally, think again! These are just a few of the foods that contain the preservative sodium nitrite, which may be harmful to your health.

What is it?

"Sodium nitrite" and "sodium nitrate" (you might see either on a food label) are used as preservatives to keep meat that bright red color and help prevent bacterial growth.

Where is it?

Sodium nitrite is commonly added to cured meats, bacon, sausage, ham and smoked fish. The FDA has established guidelines to limit the amount of nitrites that can be used in foods. Many food companies are using less and less of these additives because of their potential dangers.

What is the problem?

Nitrites in food can lead to the formation of chemicals called nitrosamines, which may cause cancer. Studies have linked eating cured meats that contain nitrites to various types of cancer in children, pregnant women and adults. Although studies have yet to prove that eating nitrites in bacon, sausage and ham causes cancer in humans, the Center for Science in the Public Interest urges pregnant women to avoid these foods.

The addition of ascorbic acid (a.k.a. vitamin C), erythorbic acids or alpha-tocopherol (a.k.a. vitamin E) can help prevent the formation of nitrosamine. You might see these things added to nitrite-containing products (read the ingredients label). This has dramatically decreased nitrosamines in foods, which is a good thing!

How do you avoid it?

Check labels on meat and fish products and choose products that are free of nitrates and nitrites. Applegate Farms is one company that has many products — including lunch meats — that are labeled "no nitrates" or "no nitrites added."

One thing to remember is there's a difference between the nitrites added to meats and the ones naturally existing in fruits and vegetables.

<http://tinyurl.com/cz8nx4>



SCIENTISTS SAY NEW 'TOMATO IN A PILL' MAY REDUCE CHOLESTEROL LEVELS

Scientists say they have found a way to put the antioxidants from the skin of ripe tomatoes into a pill, which would slash cholesterol levels. The new pill, called Ateronon, has been developed by Cambridge Theranostics Ltd., a subsidiary of Cambridge University in London. The pill could be on sale as early as July.

Ateronon was launched at the conference of the British Cardiovascular Society in London. "This has the potential to affect everybody. We are very excited about it," chief executive Gunter Schmidt said.

Ripe tomato skins contain a substance called lycopene, which is thought to protect against cancer, heart disease and strokes. Ateronon is developed from lycopene and contains other compounds found in natural foods. The manufacturers claim that in tests on 150 people suffering from heart disease, it appeared effective on all of them.

Mediterranean-style diets are rich in tomatoes and people from the region have much lower rates of heart disease than other parts of the world.

But lycopene cannot be absorbed by the body unless it has been broken down before being eaten, such as when tomatoes are cooked and processed.

Ateronon is developed from a lycopene and contains other compounds found in natural foods. <http://tinyurl.com/nrhpo0>

SOURCE OF MAJOR HEALTH BENEFITS IN OLIVE OIL REVEALED

Scientists have pinned down the constituent of olive oil that gives greatest protection from heart attack and stroke. In a study of the major antioxidants in olive oil, Portuguese researchers showed that one, DHPEA-EDA, protects red blood cells from damage more than any other part of olive oil.

"These findings provide the scientific basis for the clear health benefits that have been seen in people who have olive oil in their diet," says lead researcher Fatima Paiva-Martins, who works at the University of Porto.

Heart disease is caused partly by reactive oxygen, including free radicals, acting on LDL or "bad" cholesterol and resulting in hardening of the arteries. Red blood cells are particularly susceptible to oxidative damage because they are the body's oxygen carriers.

In the study, published in *Molecular Nutrition & Food Research*, Paiva-Martins and colleagues compared the effects of four related polyphenolic compounds on red blood cells subjected to oxidative stress by a known free radical generating chemical.

DHPEA-EDA was the most effective and protected red blood cells even at low concentrations. The researchers say the study provides the first evidence that this compound is the major source of the health benefit associated with virgin olive oils, which contain increased levels of DHPEA-EDA compared to other oils. In virgin olive oils, DHPEA-EDA may make up as much as half the total antioxidant component of the oil.

Paiva-Martins says the findings could lead to the production of "functional" olive oils specifically designed to reduce the risk of heart disease. "Now we have identified the importance of these compounds, producers can start to care more about the polyphenolic composition of their oils," she says.

<http://tinyurl.com/dj389d>



EAT BETTER — FOR LESS MONEY

Buy in bulk, find a CSA, plant a garden and know when to go organic

It takes a lot of time to learn how to stock up on food that's good for you plus, healthy food simply costs more. It's definitely an extra expense. A family of four spends about \$5,300 a year on groceries, according to the Department of Labor.

One strategy for maximizing nutrition while minimizing time in the produce aisle: Go online to order nonperishables such as nutrition bars and organic beef jerky, and every two months or so, he hit the warehouse stores to stock up on healthy staples such as brown rice and cheese.

The deck is stacked against a busy guy trying to feed his family healthful food. The Institute for Agriculture and Trade Policy found that over a 15-year period the cost of fresh fruits and vegetables rose 40 percent, while prices on sweets and soda dropped. Adam Drewnowski, PhD, director of the University of Washington Center for Obesity Research, found that a dollar buys 1,200 calories worth of potato chips and cookies but just 250 carrot calories. The government's

agriculture policy actually encourages low prices for corn and soybeans, leading the food industry to produce cheap snacks full of corn syrup and soybean oil.

If you're willing to look beyond the grocer, however, here are six ways to improve your diet while saving cash and time. Buy direct

Jake Brown, a communications director in Montpelier, Vermont, bypasses the supermarket whenever possible. Each fall, he buys a lamb from the farmer down the road, paying \$70 for 50 pounds of meat that comes butchered and wrapped in meal-size portions. Another local farmer sells him a box of freshly harvested fruits and vegetables each week at a 15 percent discount. Not only does Brown save time, but "it's really top-notch quality," he says. "I just feel good about having my son eat this stuff."

The number of farms offering individual food subscriptions (known as CSAs, short for "community-supported agriculture") has grown from roughly 600 in the 1990s to more than 2,200 today. A typical CSA charges \$400 to \$600 for up to six months of freshly harvested fruits, vegetables, herbs, flowers, and even meat. A farm called 2Silos near Columbus, Ohio, offers a protein share: A typical month's bounty, for \$60, might include 10 pounds of meat, including grass-fed steaks, breakfast sausage, free-range chicken, and lamb roast, plus two dozen eggs and extras such as soup bones and organ meats. The DeBerry Farm in Oakland, Maryland, offers a box of vegetables, herbs, berries, and melons for about \$20 a week. Some deliver, while others drop boxes at a central location. Either way, you avoid the shopping-cart derby.

To find a CSA, go to localharvest.org. The site also has a directory of more than 9,000 farms that offer provisions ranging from honey and cheese to whole pigs.

Bottom line: According to the Bureau of Labor Statistics, the average American family of four spends about \$2,100 a year on meat and vegetables. That makes the annual \$1,700 a year a hypothetical family would spend at 2Silos and DeBerry look like a pretty good deal.

Make it automatic

Set up a shopping list at a site such as peapod.com or freshdirect.com in the East, or winderfarms.com in the West, and you can do a week's shopping in minutes and have it delivered. For nonperishable items, consider amazon.com, where signing up for regular deliveries will knock 15 percent off your bill.

Bottom line: Delivery services save time, but may not save money. With Peapod, for instance, you'll pay a \$10 delivery charge for orders under \$75 (the price drops as you spend more). And some items cost more online than they do in the store; for instance, a box of Cheerios is \$4.19 on Peapod, but \$3.39 at the Giant supermarket affiliated with the site.

Don't rule out warehouses

Okay, your idea of the perfect Saturday morning probably doesn't involve pushing a cart through Costco. But filling the trunk of your car this Saturday is a good way to avoid shopping trips for the rest of the month. There's a reason the store attracts customers with a median income of \$100,000, and it's not the 64-ounce jars of mayonnaise. It's more like the 2005 Cos d'

Estournel, an outstanding second-growth Bordeaux that will run you \$299 a bottle at wine.com. It's just \$199 a bottle at Concerned About Your Cholesterol? 10 Ways to Lower LDL and Raise HDL costco.com.

Bottom line: Buying in bulk can save significant money. Tropicana orange juice costs \$1.31 a quart at Costco versus \$2 a quart at Giant. Filippo Berio extra-virgin olive oil costs \$6 a quart, versus \$15.92 a quart at Giant. Got a newborn? Parents can save about 10 cents a diaper by going with the Costco brand; that adds up to nearly \$200 saved a year. Just beware of what The Wall Street Journal calls "the Costco Effect": the tendency to buy more stuff simply because you perceive it to be a good deal.

Check the frozen-food aisle

While your instinct may be to buy fresh food, you can save time and boost the nutrition factor by heading to the freezer case. Sure, locally grown produce is the best bet in season, but the frozen version is often more nutritious off season, says Mary Beth Kavanagh, a nutrition instructor at Case Western Reserve University's School of Medicine. Most frozen produce hits the deep freeze within hours of harvest. The stuff flown in from Mexico, meanwhile, probably shed a trail of nutrients all the way to your kitchen table. A study published in the journal Food Chemistry found that the nutrient status of frozen peas, broccoli, carrots, and green beans was equal to that of supposedly fresh supermarket produce, while frozen spinach was nutritionally superior to its fresh counterpart. Bonus: Reaching into the freezer instead of driving to the store will save time.

Bottom line: You'll cut your vegetable bill in half by going with frozen. In a survey, we found that fresh broccoli, snap peas, squash, and green peppers ran \$3 or more a pound, while the frozen versions were \$1.50 or less a pound. To maximize your savings, look for bags of frozen vegetables, which tend to cost less than the boxed variety.

Know when to go organic

When is it worth it to go out of your way and spend more on organic foods? Studies have shown benefits for milk and eggs, largely because they have more omega-3 fatty acids. Just be sure the label says omega-3 as well as organic, because the omega-3s result from the diets of the cows and hens. As for produce, the Environmental Working Group conducted nearly 43,000 pesticide tests on 43 fruits and vegetables and found that some soak up more bad stuff than others. Among the most highly contaminated were peaches, apples, bell peppers, celery, nectarines, strawberries, cherries, lettuce, pears, and grapes. Meanwhile, there's less reason to pay for organic onions, avocados, mangoes, asparagus, kiwis, bananas, broccoli, or eggplant, which all carry relatively low levels of pesticide residue.

Bottom line: Organic costs more, but it's sometimes worth it. And if you follow the rest of the advice in this article, you'll save more than enough money to cover the extra cost.

Plant a garden

The cheapest, most convenient, most carbon-footprint-friendly source for healthful food is your own backyard. Even a little container garden can produce enough

lettuce, tomatoes, and herbs for a summer's worth of salads. Brown planted a garden on the roof of his front porch, and he says, "It's incredibly prolific." Somehow an overabundance of fresh tomato sauce and pesto is a problem he's willing to endure.

<http://tinyurl.com/dzktrm>



CONCERNED ABOUT YOUR CHOLESTEROL? 10 WAYS TO LOWER LDL AND RAISE HDL

Learn how to decrease the "bad" type of cholesterol or increase the "good" kind

Your doctor tells you that your level of LDL—the "bad" type of cholesterol—is too high, and, in a double whammy, he says that your level of HDL—the "good" cholesterol—is too low. So, you wonder, is there anything you can do to decrease the bad while increasing the good?

There are steps you can take to accomplish this. It's much easier to push LDL down than to push HDL up, but it's well worth the effort to strive to do both. A November study published in the Postgraduate Medical Journal found that increasing HDL levels in patients who are also aggressively lowering their LDL levels can reduce cardiovascular risk. An HDL level of 60 milligrams per deciliter or higher is believed to help protect against heart disease. Women's risk for heart disease rises significantly at HDL levels below 47 mg/dL; men are at particular risk if their HDL level falls below 37 mg/dL.

For LDL, a reading of 190 mg/dL or higher is considered to be very high, 160 to 189 is considered to be high, and 130 to 159 is considered to be borderline high. A level of 100 to 129 is considered to be near optimal; less than 100 is considered optimal for most people. But for those who are at very high risk for heart disease or have a history of heart trouble, a reading of less than 70 is preferred.

Depending on your cholesterol levels, successfully reaching your target levels will probably take a combination of medication and lifestyle and dietary changes. Among the changes you'll have to make: Stop smoking, work out, lose weight, and eat well, the PMJ study suggests.

If you're up to the task, here are 10 ways to lower your LDL and raise your HDL:

1) Taking a statin can lower LDL by 10 percent (at the lowest dose) to 55 percent (at the highest dose), says Robert H. Eckel, professor of medicine at the University of Colorado-Denver and past president of the American Heart Association. A small percentage of people who take statins experience severe myopathy, which is muscle discomfort or weakness. (Consider 7 reasons statin users shouldn't dismiss muscle pain.) Statins also bump up HDL, typically by 5 to 10 percent (that's only 2 to 4 mg/dL, not enough to make much of a difference). Other types of cholesterol-lowering medications are sometimes prescribed in combination with statins.

2) A cholesterol absorption inhibitor would be a likely next step for those who can't take statins because of side effects, Eckel says. There is only one such drug—ezetimibe (Zetia). A 2003 study in the journal Pharmacotherapy found that when given alone or in combination with other cholesterol-lowering medications, ezetimibe reduced LDL by 15 to 20 percent and

raised HDL, but, as with a statin, not by much—2.5 to 5 percent.

3) Bile acid sequestrants can decrease LDL by about 10 to 20 percent, according to the National Heart, Lung, and Blood Institute. When combined with a statin, these medications can lower LDL by more than 40 percent. Medications in this class—cholestyramine, colestipol, and colesevelam—come in pill or powder form. The powder must be mixed with water or juice before being taken. These drugs offer an added benefit for diabetics: Recent research has shown they help to lower blood glucose levels.

4) Nicotinic acid, also known as niacin, is a water-soluble B vitamin that lowers LDL by 10 to 20 percent and is the only drug that can have a real impact on HDL, says Eckel. According to the NHLBI, it can lift HDL levels by 15 to 35 percent. A study published this month in *Current Medical Research and Opinion* says that niacin and fibrates (explained below) are underutilized—either alone or in combination with statins—to treat low HDL and high triglycerides (a kind of fat in the blood). Because most people who take niacin experience flushing of the skin and a warm feeling, particularly on the face, neck, and ears, up to half of those taking the medication choose to stop it, according to the Mayo Clinic.

5) Fibrates are mostly effective at lowering triglycerides and in heightening HDL levels, according to NHLBI. These drugs usually lower LDL by 10 to 20 percent, Eckel says. For those who take this type of medication, HDL increases are usually in the neighborhood of a modest 10 to 15 percent.

6) Lose weight. This can lower LDL, though levels will go back up unless you make lasting dietary changes, Eckel says. Aim to lose 10 percent or more of your body weight. Keep in mind that while you're losing weight, your HDL levels may fall, Eckel warns. But as you maintain your new body weight, your HDL will increase as long as you've lost at least 10 percent of your body weight. Try U.S. News's 10-week workout routine to help you get started, and avoid these 7 mistaken beliefs that can prevent weight loss.

Exercise itself can raise HDL, although usually not by a meaningful amount. "For sedentary people with low HDL cholesterol and heart disease, even a little bit of exercise can raise it—but not by a lot," Eckel says. "For the average Susan or Joe, moderate aerobic activity needs to be accompanied by a change in body composition—less fat—to increase HDL." There are a few caveats: Women who have abnormal menstrual periods have minimal increases in HDL, and too much resistance training may actually lower HDL cholesterol if not accompanied by some aerobic training.

7) Limit saturated fats. Eating saturated fats—which are the main diet-linked cause of high cholesterol—tends to raise your HDL, but it also increases your LDL. These fats are mostly found in animal foods such as beef, lamb, poultry, pork, butter, cream, and milk, and in coconut and coconut oil, palm and palm kernel oil, and cocoa butter. "We think the bad cholesterol is more of a concern than the good cholesterol," says Eckel, so it's important to limit consumption of saturated fats. The American Heart Association recommends limiting saturated fat intake to less than 7 percent of your total daily

calories. "A reduction in saturated fats by a moderate amount will reduce LDL," Eckel says.

8) Avoid trans fats, which have been purged from many prepared foods but are found in small quantities in some animal products. They also are formed during the hydrogenation process of making margarine, shortening, and cooking oils. Trans fats can increase LDL and decrease HDL. Vegetable oils that are partially hydrogenated are the source of about 75 percent of trans fatty acids in the American diet, according to the AHA. It's easier now to find foods that contain little to no trans fats, as more attention is paid to how trans fats affect people's health. Many restaurants are making an effort, and New York City and California have banned trans fats.

As a rule, try to limit your intake of trans fats to less than 1 percent of your total calories on any given day, the AHA suggests. Read the nutrition facts label when you buy food to keep an eye on how much trans fat you're consuming. "Look at the ingredients, and if ingredients say hydrogenated or partially hydrogenated, there are trans fats in there," says Barry Franklin, director of cardiac rehabilitation at the William Beaumont Hospital in Royal Oak, Mich.

9) Have an occasional drink. Drinking alcohol increases HDL levels slightly but doesn't decrease LDL, according to NHLBI. Because drinking too much alcohol can result in alcoholism, damage to the liver and the heart muscles, high blood pressure, and high triglyceride levels, among other problems, it's important to limit consumption. Men and women who consume alcohol should do so in moderation, which means one to two drinks daily for men and one drink for women, the AHA suggests.

10) Quit smoking. There are plenty of reasons to stop, but one that's not widely known is that smoking has been shown to decrease HDL levels. Smoking also makes it harder to work out, which means it is less likely you'll reach healthful cholesterol goals. And that's not all. Consider these other reasons why you should stop smoking right now.

<http://tinyurl.com/n6duvr>



CHOLESTEROL-LOWERING FOODS

Tasty, functional foods help you lower cholesterol naturally.

Do you want a diet to lower cholesterol? We all know that butter, ice cream, and fatty meats raise cholesterol, but do you know which foods make up a low-cholesterol diet? Find out here.

Here's some good news. To lower your cholesterol, you can actually eat more of certain foods. A handful of some "functional foods" have been shown to make a big impact on your cholesterol levels. They're also much tastier than a pill chased with a glass of water.

"These foods may not be magic, but they're close to it," says Ruth Frechman, RD, a spokeswoman for the American Dietetic Association.

Researchers have found that some foods -- such as fatty fish, walnuts, oatmeal, and oat bran, and foods fortified with plant sterols or stanols -- can help control your cholesterol.

Some studies have shown that a diet combining these "superfoods" may work as well as some cholesterol-lowering medicines to reduce your "bad" LDL cholesterol levels. How strong is the evidence? The FDA has reviewed the research on each of these foods, and given them the status of a "health claim" for managing cholesterol.

This is great news for the 105 million adults in the U.S. with high cholesterol. Making good food choices is an easy way of improving your health. It also puts less strain on your pocketbook. A trip to the grocery store is bound to be cheaper than a trip to the pharmacy. Also, many people can't handle the side effects from cholesterol drugs. Focusing on diet gives us all a new option.

Getting Started on a Low-Cholesterol Diet

Managing high cholesterol isn't a simple do-it-yourself project. You need to work with your health care provider. And while changing your diet may help a lot, many people still need drugs to reduce their risk of heart disease. Also, remember that these foods aren't cure-alls. A handful of walnuts or a bowl of oatmeal won't make you invincible. It won't give you a free pass to eat all the high-fat foods you want. To benefit, you still must eat low-fat foods, watch your weight, and get more exercise.

"Eating a healthy diet is not just about eating a few special foods," says Suzanne Farrell, MS, RD, a spokeswoman for the American Dietetic Association. "There's a bigger picture. You need to practice moderation, eat a variety of foods, and get enough physical activity." <http://tinyurl.com/15vewl>



CHOLESTEROL AND THE MEDITERRANEAN DIET

Looking for a new diet that is tasty, healthy, and good for you? The Mediterranean diet may be perfect for you. This specific diet incorporates healthy eating habits with the fun, flavorful cooking styles of the exotic Mediterranean, and has been known to reduce the risk of further heart disease in people that have already experienced a heart attack.

In the Mediterranean, traditional diets include eating fruits, vegetables, pasta, and rice and the focus is making wise choices about the foods that you eat, and that not all fats are "bad" fats. The diet mirrors the Step 1 diet by The American Heart Association, but contains less cholesterol and more fats that are good for you.

Key components of the diet include:

- ; Eating lots of fruits and vegetables
- ; Eating healthy fats such as olive oil and canola oil
- ; Consuming a small portion of nuts
- ; Drinking red wine in moderation
- ; Consuming little red meat
- ; Consuming fish regularly

How do I incorporate the diet into my life?

- ; Eat natural peanut butter, as opposed to processed
- ; Use butter sparsely
- ; Eat lots of fruits and vegetable
- ; Use olive or canola oil
- ; Substitute fish for red meat

- ; Use lower fat dairy products
- ; Eat grilled fish once or twice weekly
- ; Keep nuts (walnuts, almonds. Pecans) on hand for snacking
- ; Try to avoid products that are fried
- ; Have a glass of red wine with dinner (if approved by your healthcare provider)

Why should this diet work?

The Mediterranean diet is rich in alpha-linolenic acid, which is a fat found in walnuts, walnut oil, canola oil, salmon, mackerel, and purslane. (A green vegetable.) Alpha-linolenic acid is turned into the fats that are found in oily fish and can protect you against heart disease. It makes your blood less sticky, and therefore less likely to form blood clots that can block blood vessels and cause either stroke or a heart attack.

Where did this diet start?

The Mediterranean diet is based off of the eating habits of people living in Mediterranean countries. The eating habits of the Greeks, Sicilians, and Tunisians were based on the agriculture, livestock, and fishing of their select regions. Certain foods, such as meat and cheese were never popular due to an unfavorable climate to raise extensive quantities of livestock, and historically consume lamb, game, poultry, and fish over beef.

What is the benefit of drinking red wine?

In traditional Mediterranean countries, people drink wine with their meals. After many years of study, it has been discovered that light alcohol intake is associated with reduced risk of heart disease. Red wine has an affect that is aspirin-like, and reduces the blood's ability to clot. It also contains antioxidants, which may protect your cells against the effects of free radicals. <http://tinyurl.com/19j7qg>



SWEET NEWS FOR PEOPLE WITH HIGH CHOLESTEROL, DUDE!

Natures stickiest anti-oxidant (honey) could be as good at fighting heart disease as some fruits and vegetables, a recent study from the US suggests. Fruits and vegetables are very low in saturated fat and total fat, and have no cholesterol. A diet high in fruit and vegetables may also help to improve and maintain cholesterol levels for those with heart disease.

Its been known for some time that honey contained varying amounts of antioxidants, with dark honey having the most. But this was the first study to look at how eating honey affected blood antioxidant levels in the blood.

The participants aged 18 to 68 were given about four tablespoons of honey per 16oz glass of water. There was a marked increase in the amount of anti-oxidants produced as a result. Dr Nicki Engeseth, who led the research at the University of Illinois in Urbana-Champaign, said: "It looks like honey is having a mild protective effect." Which is great news if you have a sweet tooth and high cholesterol to boot.

Of course, no amount of honey is going to lower dangerously high levels of LDL cholesterol, (LDL = low density lipoprotein cholesterol, which is the 'bad' cholesterol we get from saturated-fats). If you are suffering with high

Cholesterol, you run the risk of stiffening of the arteries and heart disease. But fear not. If you wish to take on your high cholesterol in a slugging match, help is at hand in the form of Atorvastatin, AKA Lipitor. Lipitor is the biggest selling prescription drug of all time, which will give an indication of the magnitude of the global cholesterol problem. In 2008 alone sales grossed \$12 billion around the world.

LIPITOR comes from the group of drugs known as statins. Statins lower cholesterol in your body. They block an enzyme in the liver, which the body uses to actually make cholesterol. A substance the body needs and uses readily.

But sometimes too much cholesterol is created as a result of bad diet choices. Lipitor switches off a portion of the enzyme responsible for creating the LDL cholesterol, reducing production. When less cholesterol is made, the liver uses more of it from the blood naturally. This results in lower 'ambient' levels of cholesterol in your blood. Which is great news. Lipitor is clinically proven to lower bad cholesterol levels 39%-60%, when diet and exercise aren't enough. A course of Lipitor can show drastic reductions in cholesterol levels in only two weeks.

So why not give yourself a helping hand with high cholesterol? Don't you think you deserve it?

<http://tinyurl.com/nuty2d>



WHY ICED TEA MAY BE BETTER THAN HOT

If you take your tea cool in the summertime, you may be doing your throat a favor.

Research shows that temperature could matter when it comes to the health of your esophagus. Drinking piping hot beverages may increase the risk of esophageal cancer.

Putting the Chill on Cancer

In a study of an Iranian province that has one of the highest rates of esophageal cancer in the world, researchers found that subjects who regularly drank extremely hot tea had a higher risk of the cancer -- much higher than people who drank their tea just warm or lukewarm.

See You in 4

The theory is that regularly drinking very hot drinks could chronically irritate and inflame the esophagus, making it susceptible to carcinogens. To help reduce your risk, all you may need to do is wait a few minutes for your tea to cool. People in the study who drank their tea less than 2 minutes after it was poured from the piping-hot kettle had a greater risk of esophageal cancer than the people who waited 4 or more minutes (enough to get it below 149 degrees Fahrenheit).

<http://tinyurl.com/m5nxnp>



REFRIGERATOR TEA

As you probably know, teas are packed with flavonoids and antioxidants that are beneficial to our bodies. There are so many types and flavors — green, white, oolong and red to name a few — that there's lots of room for creativity. I really like jazzing up white teas with citrus fruits and herbs. Fruits are naturally sweet so there's no need to add extra sugar (which means extra, non-nutritious calories).

How many people, grew up drinking Sun Tea? It was a summer classic. Unfortunately, Sun Tea is considered unsafe by the CDC because there's a risk for bacterial growth. That doesn't mean you have to go without slow-brewed tea.

To make refrigerator tea, take a large pitcher and fill it with water. Add 4 teabags (your choice of brand and flavor) per quart of water. Refrigerate for 6 hours. Strain and remove teabags and serve with a dash of your favorite natural or no-calorie sweetener.

For some extra flare:

- Add herbs (mint, basil, rosemary, etc.)
- Add fruit (melon, citrus and berries are my favorite)

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WHITE TEA--SOLUTION TO OBESITY EPIDEMIC ?

Possible anti-obesity effects of white tea have been demonstrated in a series of experiments on human fat cells (adipocytes). Researchers have now shown that an extract of the herbal brew effectively inhibits the generation of new adipocytes and stimulates fat mobilization from mature fat cells.

Marc Winnefeld led a team of researchers from Beiersdorf AG, Germany, who studied the biological effects of an extract of white tea – the least processed version of the tea plant *Camellia sinensis*. He said, "In the industrialized countries, the rising incidence of obesity-associated disorders including cardiovascular diseases and diabetes constitutes a growing problem. We've shown that white tea may be an ideal natural source of slimming substances".

After treating lab-cultured human pre-adipocytes with the tea extract, the authors found that fat incorporation during the genesis of new adipocytes was reduced. According to Winnefeld, "The extract solution induced a decrease in the expression of genes associated with the growth of new fat cells, while also prompting existing adipocytes to break down the fat they contain".

White tea is made from the buds and first leaves of the plant used to make green tea and the black tea most commonly drunk in Western countries. It is less processed than the other teas and contains more of the ingredients thought to be active on human cells, such as methylxanthines (like caffeine) and epigallocatechin-3-gallate (EGCG) – which the authors believe to be responsible for many of the anti-adipogenic effects demonstrated in their study.

<http://tinyurl.com/cqbh7u>



Have A Wonderful
Summer

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.



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