Volume 12, Number 1 -- Fall 2003

News

Maine Cardiovascular Health Council

A Coordinated Approach to CVD Risk Reduction

New Guidelines for Treating Hypertension

Important new information and guidelines in the treatment of hypertension were released in May. *The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7)* emphasizes that keeping blood pressure in check before it drifts too high will pay off in fewer heart attacks and strokes, less heart failure and kidney disease, and fewer premature deaths.

Under the old guidelines, published in 1997, blood pressure was considered normal if the systolic pressure was under 140 and the diastolic pressure was under 90. In that classification, normal meant usual, or average. It didn't mean healthy, which is the way most people think of it. The JNC 7 report defines normal, meaning optimal or healthy, as under 120/80. A systolic pressure of 120 to 139 or a diastolic pressure of 80 to 89 is now called prehypertension. This reflects more accurately where high blood pressure really begins. Several recent, large studies show that the chances of heart attack, stroke, heart failure, chronic kidney disease, and premature death start creeping up at the very normal blood pressure of 115/75. From there on, every 20-point increase in systolic pressure or 10-point increase in diastolic pressure doubles the risk.

A chilling statistic from the report suggests that without vigilance and action, hypertension is in almost everyone's future. Data from the Framingham Heart Study shows that in the absence of preventive

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New Blood Pressure Categories

	Systolic BP		Diastolic BP
Normal (optimal)	less than 120	and	less than 80
Prehypertension	120-139	or	80-89
Stage 1 hypertension	140-159	or	90-99
Stage 2 hypertension	160 or higher	or	100 or higher

New Guidelines

Continued from front page

action, 55-year-olds with normal blood pressure have a 90% chance of developing hypertension at some point later in life.

The Report urges people with hypertension and their doctors to make blood pressure control a priority. Good control is defined as getting blood pressure under 130/80 if diabetes or kidney disease is present, or under 140/90 if not. You can do this with lifestyle changes and drug therapy.

For garden-variety hypertension without diabetes or kidney disease, the guidelines recommend lifestyle changes plus a diuretic such as chlorthalidone, as the place to start.

A long-awaited major study of hypertension medications, the ALLHAT trail, compared several classes of hypertensive agents. The study included over 33,000 patients with hypertension judged to be at increased risk of coronary heart disease. Patients were treated with one of four commonly-prescribed anti-hypertensive agents. These include a diuretic, chlorthalidone; a calcium-channel blocker, amlodipine (Norvasc); an ACE inhibitor, lisinopril (Zestril/Prinivil); and an alpha-blocker, doxazosin (Cardura).

The doxazosin arm of the trial was terminated early due to inferior results with this agent. The remaining three drugs were studied for an average period of 4.9 years.

The published results were surprising. Treatment with the diuretic, an inexpensive drug that was popular many years ago, was equal to or superior to the other more "modern" antihypertensive agents.

Diuretic therapy effectively controlled blood pressure compared to the other agents. Remarkably, treatment with the diuretic chlorthalidone conferred protection against cardiac complications including heart attacks that was equal to or superior to the other agents tested.

The report appeared along with the new guidelines in the May 21, 2003, *Journal of the American Medical Association*.

For most people with hypertension, one drug isn't enough. If often takes two or more medications to control blood pressure. The guidelines recommend that one of these be a diuretic.

Special Diet for High Cholesterol

A low fat diet that is high in fiber, nuts, and vegetable proteins may be just as good as certain drugs at lowering high cholesterol levels.

This study is the first to show that a special type of diet can reduce cholesterol levels to the same extent as statins.

Forty-six adults with high cholesterol levels were put on a low-fat diet, or a low-fat diet plus a statin, or the special diet for 4 weeks. The special diet included almonds, soy proteins, high-fiber foods like oats and barley, and margarine with plant sterols—chemicals found in leafy green vegetables.

As reported in the July 23 issue of the *American Medical Association,* all of the treatments produced a drop in levels of LDL. However, the special diet and the diet plus statin produced a much bigger reduction than the low-fat diet.

The special diet and statin treatment were also better than the low-fat diet at reducing levels of C-reactive protein.

The study suggests that the special diet could be tried by people who need to lower their cholesterol because they might be successful without statins.

Gout Could Prevent Heart Attack

The British Heart Foundation recently announced a grant award to scientists at the University of Dundee in Scotland for a 30-month study of allopurinol, a drug commonly used to treat gout, to find out if it could be useful in reducing heart attacks. The drug blocks an enzyme called xanthine oxidase that is involved in producing uric acid and is also thought to play a role in oxidative stress. Earlier this year, US researchers reported in *Circulation* that allopurinol restored normal vessel function in smokers.

Since a strong link exists between the breakdown of the cells that line blood vessels and the risk of cardiovascular events, allopurinol may be useful in improving endothelial functions.

For more information, go to www.heartcenteronline.com/myheartdr/

Eating Fish Makes Heart Beat Slower

The more fish you eat each week, the slower your heart beats, new research suggests. This may help explain why eating fish seems to protect against sudden death – a problem that is often related to a fast heartbeat.

The results are based on a study of nearly 10,000 older men without evidence of heart disease. The men were divided into four groups based on weekly fish intake and their heart rate and risk factors for heart disease were compared.

As weekly fish intake increased, heart rates fell. Furthermore, fish consumption remained a predictor of slower heart rates, even after accounting for other factors that can influence heart rate, such as age, smoking status, and physical activity.

In agreement with previous studies, fish intake was also associated with a rise in cell levels of omega-3 fatty acids. Other effects of fish consumption included a drop in blood pressure, decreased triglyceride levels, and increased HDL cholesterol levels.

The new findings support the idea that fish should be a major dietary component. See related article on page 10.

(From: *Circulation*, August 12, 2003.)

Urban Sprawl is Making Us Fat

U.S. researchers quantified the price of living in sprawled-out American communities, and weight gain leads the list – six pounds on average.

Their findings, published in special issues of the *American Journal of Public Health* (2003; 93) and the *American Journal of Health Promotion* (Sept/Oct 2003), are aimed at urban planners, county and city councils, and other groups involved in laying out communities.

The study found that U.S. adults living in sprawling counties weigh more, are more likely to be obese, and are more likely to suffer from high blood pressure than are their counterparts in compact counties.

Two-thirds of the U.S. population lives in counties covered in the group's survey.

Unlike people in old-fashioned urban centers who can walk to work, shops, and public transport, those in the spread-out communities cannot walk even if they want to because sidewalks and crossings are lacking and homes, schools, and workplaces are far apart.

The research can be used to persuade policymakers to change zoning, funding, and even lending laws to promote development that will encourage people to walk.

More compact communities are less expensive. Sprawl brings 10% greater annual public service deficits and 8% higher housing costs, the researchers said. Dense communities also ease pollution and allow for better social interaction.

The researchers looked at U.S. Centers for Disease Control and Prevention data on more than 200,000 people living in 448 U.S. counties in major metropolitan areas. They assessed sprawl in each county using U.S. Census Bureau and other federal data.

In lieu of the MCHC Summit this year ...

Learning to Move & Moving to Learn: *Promoting Physical Activity through Schools*

Wednesday, December 3rd, 2003 ~ Augusta Civic Center

This conference is intended for school personnel, community coalition members, and other advocates at the local and state-level who are interested in improving physical activity opportunities in Maine schools.

Co-sponsored by Maine Center for Public Health, Harvard Prevention Research Center, Maine Cardiovascular Health Council, and Maine Bureau of Health.

For more information, go to **www.mcph.org**.

Stroke

Primary Care Doctors Make a Difference in Stroke Deaths

More primary care physicians may result in fewer stroke deaths. On average, an increase of one primary care doctor per 10,000 population was associated with 1.5 fewer stroke deaths per 100,000, according to a study published in *Stroke*. The study results also suggest that primary care reduces the impact of income inequality on stroke mortality. Public policy makers should target areas of income inequality for more primary care.

In the United States, socioeconomic status is a major determinant of a person's health. Greater income disparity is associated with poorer health. Some research has shown that disparities in income and social standing create stresses that can eventually damage health.

Researchers reviewed 11 years of U.S. state-level data from various sources and defined primary care physicians as those in family practice, general practice, general internal medicine, and general pediatrics who are active in office-based patient care. They found that the presence of primary care is associated with improvements in health and reductions in stroke death over time, despite worsening economics or lower levels of education – two factors previously linked to eroding health status.

In the analysis, the average state age-adjusted stroke death rate dropped about 17% between 1986 and 1995. During the same period the number of primary care physicians steadily increased. Income inequality fluctuated during this period, with an overall worsening trend.

The reasons for the association between the presence of primary care physicians and the drop in stroke deaths may be because new stroke prevention and treatment strategies have become more common in primary care practice. Those developments include better management of high blood pressure with new medications, improved treatments for heart attack survivors, and attention to lifestyle-related risk factors.

Although the availability of primary care is not meant to be seen as a substitute for socioeconomic status or higher income, it may be another avenue to improve population health.

The study results don't necessarily imply that the mere presence of more primary care physicians ensures that more people are exposed to primary care or that they receive superior care.

3-Part Test May Counter the Ravages of Stroke

Family members and the general public may be able to save lives and prevent disabilities by knowing how to administer a simple three-part test to someone they suspect might be having a stroke. Memorize it:

- *Raise both arms and keep them up.*
- *Speak a simple sentence coherently.*
- *Smile.*

If someone doesn't respond normally to any or all of the three requests, call for emergency help.

About 700,000 people suffer a new or recurrent stroke each year. Stroke-related disabilities afflict more than 1.1 million. Most of the damage results from blockages in brain vessels. A quick response to symptoms gives patients a better chance at receiving medications early enough to treat blockages. The test, from the University of North Carolina-Chapel Hill School of Medicine, was introduced at an American Stroke Association's conference in February.

(Excerpted from *Heart Advisory*, May 2003).

North American Stroke Meeting 2003

December 4-5, 2003

Disney's Yacht and Beach Club Resort
Orlando, Florida

For more information, visit the Professional Resource Center at www.stroke.org or call 1-800-787-6537.

Diabetes

"Move More"

What's the best way to provide community support to people with Type 2 diabetes who are trying to increase their level of physical activity?

This is the question that the Move More Diabetes Project is hoping to answer. Funded by a generous grant from The Robert Wood Johnson Foundation, the Move More Diabetes Project is engaging the services of volunteers to help conduct formative research in the Kennebec Valley Region. The goal is to develop and test physical activity interventions that support therapeutic levels of physical activity (at least 150 minutes per week) for adults who are at risk for or who have Type 2 diabetes or pre-diabetes. The project is part of the Foundation's nationwide program, Building Community Supports for Diabetes Care.

The *Move More Diabetes Project* includes the following components:

- Conducting formative research through focus groups and interviews designed to provide insight into the barriers to physical activity and to identify solutions to those barriers in the Kennebec Valley Region.
- Engaging *Community Movers,* volunteers to conduct interviews, recruit focus group participants, and provide peer support to project participants.
- Utilizing existing opportunities to be physically active, such as indoor walking spaces and outdoor walking trails.
- Conducting a 3-month pilot project from October 1 to December 31, 2003 that will test the intervention selected, and will track clinical data on 50 project participants.
- Providing research and project results to area healthcare practitioners and the general public.

The *Move More Diabetes Project* has been extended through April 30, 2004, and Move More has been invited to apply for funds to implement a full-scale project through October 2006.

The *Move More Diabetes Project* is a project of the Kennebec Valley Diabetes Care Initiative, a 5-year old collaborative group of health care providers, hospitals, insurance company representatives, employer representatives, patients, and community organizations in the Kennebec Valley Region. Key players are MaineGeneral Health and Greater Waterville PATCH.

For more information about the Move More Diabetes Project, please contact Alison Webb, Project Coordinator, at 872-2157.

A Daily Walk Prolongs Life for Diabetics

Regular exercise is a key ingredient in the prevention and treatment of cardiovascular disease. This is especially true in patients with diabetes. A recent clinical study evaluated the benefits of walking exercise in a population of diabetic patients.

Close to 2900 participants with diabetes were surveyed as part of the National Health Interview Survey. The study patients were questioned in detail about how often they walk, how long they spend walking, and how much their heart and breathing rates increase. Compared to sedentary individuals, patients who walked at least two hours per week had a 39% lower mortality when followed for up to eight years. The lowest mortality was observed in persons who walked 3 to 4 hours per week and for those who experienced a moderate increase in heart and breathing rates. The benefits or walking were present in patients of varying age, race, weight, diabetes duration, and physical handicaps.

(From: *Gregg, EW, et al. Relationship of Walking to Mortality Among US Adults with Diabetes. Arch Intern Med 2003; 163:1440-1447.)*

Depression and Heart Disease

Study Calls for Treating Symptoms of Depression Along With Heart Disease

People with depression are known to fare worse with heart disease than people without depression, but researchers say it's not clear how psychological factors are related to actual physical indicators of heart function or how a person perceives his or her own health.

The results of a new study shows symptoms of depression make people with heart disease feel worse regardless of how well their heart is actually working. Treatment of heart disease should also include assessment and treatment of symptoms of depression.

The study, published in *The Journal of the American Medical Association* (JAMA), looked at the relationship between symptoms of depression and measures of heart and overall health in a group of 1,024 adults with heart disease.

One-fifth (20%) of the heart disease patients had symptoms of depression, and researchers found these symptoms were strongly linked to several health indicators. Almost twice as many depressed vs. non-depressed patients reported the following:

- At least mild heart disease symptom burden (60% vs. 33%);
- Mild physical limitation (73% vs. 40%);
- Mildly diminished quality of life (67% vs. 31%); and
- Fair or poor overall health (66% vs. 30%).

However, the two traditional measures of heart disease severity – ejection fraction and ischemia – were not significantly associated with these health factors or the participants' quality of life. The researchers also found that lowered exercise capacity was associated with symptoms of depression.

Compared with others, the study showed that heart patients with symptoms of depression were also more likely to have:

- A lower income
- Greater stress and less social support
- A history of heart attack or diabetes
- A lower capacity for exercise
- A high body mass index

In addition, those with depressive symptoms also tended to be younger than those without and were less likely to be married or male.

(From July 9, 2003 issue of *JAMA* – Vol. 290, No. 2.)

Treating Depression May Also Lower Risk of Blood Clots

A new study published in the August 12 issue of *Circulation* shows adding an antidepressant to traditional heart disease therapy after a heart attack or chest pain can reduce the chances of dangerous blood clots that can lead to a heart attack.

As many as one in four people develop depression after a heart attack. Although recent studies have shown that depression raises the risk of death due to heart disease, depression often goes untreated in heart patients because many doctors have been reluctant to prescribe certain types of antidepressants for fear it might make the patient's heart disease worse. However, the newer class of SSRI antidepressants don't carry the same heart risks as the older types and may actually help prevent blood clots.

In the study, researchers measured eight factors related to blood clotting in 64 men and women who were diagnosed with depression after being hospitalized for a heart attack or chest pain. All of the participants were also receiving other anticlotting medications such as aspirin to reduce the risk of a future heart attack, and 28 of them also received the antidepressant Zoloft.

This study looked at whether adding Zoloft to these standard treatments provided an additional benefit. In measurements taken 6 and 16 weeks after treatment began, patients who took an antidepressant in addition to standard heart disease medications had lower platelet activity compared with the other group.

Future studies will address the question of whether Zoloft might be a beneficial cardiovascular drug, used not just to treat cardiac patients with major depression but to reduce cardiac risk in those with mild depression or no depression.

Vitamins May Reduce Inherited High Cholesterol Effects in Children

Children and young adults who have inherited hypercholesterolemia may reduce their risk of clogged arteries by taking vitamins C and E, according to a study conducted at the University of California San Francisco.

The vitamins improve blood flow through the arteries and may prevent the damage that leads to atherosclerosis, commonly known as hardening of the arteries, the researchers said. The study is the first to show that vitamins can reverse the damage as well.

Children were given moderate doses of vitamins C and E for six weeks and significant improvement in blood-vessel function occurred, which is an important indicator of cardiovascular health.

An estimated 50 million U.S. children have hypercholesterolemia, and thus a high risk of heart disease and heart attack. The American Heart Association defines this as cholesterol of 200 or higher and low-density lipoprotein – LDL – of 130 or higher.

Drugs including statins work well to lower cholesterol levels in adults but they can have severe side effects and are not usually recommended for children.

Diets rich in fruits and vegetables and low in fat, especially animal fat, have also been shown to lower cholesterol and the risk of heart disease – but most Americans do not eat this kind of diet.

A team studied 15 children and young adults age 9 to 20, who had average total cholesterol levels of 242 and LDL levels of 187. Half the children got daily doses of 500 milligrams of vitamin C and 400 international units of vitamin E for six weeks. The other half got placebos. Then the groups were switched. Better diet alone reduced LDL by about 8%, but the vitamins, as expected did not affect cholesterol levels.

The researchers measured how well the arteries were working by examining flow-mediated dilation of the brachial artery. They were looking for signs of endothelial dysfunction, which can cause blood vessels to stiffen, one of the earliest signs of atherosclerosis. The endothelium releases nitric oxide, which causes the blood vessels to open. The vitamins may restore this process in damaged arteries by reacting with free radicals that damage cells.

Flow-mediated dilation (FMD) of the brachial artery was around 6 at the start and for those patients given placebo or diet alone, but it was 9.5 after the children got the vitamins. Normal FMD of the brachial artery in children is reportedly between 8% and 12%.

Gene Mutation and Child Obesity

Children with a particular variation in a gene related to a stress hormone may be more likely to be overweight or obese than their peers.

Since 50% to 70% of the variation in body weight relates to genetic factors, too much of the stress hormone cortisol is thought to lead to central obesity. In mouse experiments, a particular enzyme that converts cortisone into cortisol, 11BetaHSD-1, promotes weight gain.

Variations of the gene 11BetaHSD-1 were looked at in 103 overweight and 160 normal weight children. They discovered that 4.3% of children had two copies – one inherited from each parent – of a particular variation of the gene and 30% had one copy of the alteration.

Body mass index (BMI) differed according to the type 11BetaHSD-1 gene a child had. Children with two copies of the gene alteration had the highest BMI.

After adjusting for age, sex, race and height, children with this mutation were heavier, had central obesity, and higher insulin levels so they had part of the so-called syndrome X.

This particular genetic variant may be an important marker of obesity in children. Currently, several drug companies are working on developing drugs to block the activity of 11BetaHSD-1 as a potential treatment for obesity.

Obesity

Trimming the Fat in an Oreo World

In July, Kraft Foods Inc., the nation's largest food company, said it was going to help fight a global epidemic – obesity.

Kraft's research and development team is now looking to remove fat and sugar from some of the company's popular items, where possible, without compromising taste. And Kraft has plenty of fat to trim. The company's biggest selling items are products like Kraft cheese and Oreos.

The problem, most experts say, is that while food companies have increasingly offered healthier alternatives, consumers continue to favor snacks and products packed with tasty fats and sugars.

To bolster its share of the snack food market, Philip Morris, the majority owner of Kraft, paid $14.9 billion in 2000 to acquire Nabisco, the maker of Oreos and Chips Ahoy, and merge the unit with Kraft.

Snacks are growing 3 to 4 percent, where the rest of the food industry is growing by about 1 percent. With obesity rates climbing and health care costs soaring, food makers are worried that regulators, legislators, and class-action lawyers could force major changes on the industry, or cost it dearly in the courtroom. Some research analysts see parallels to the tobacco litigation, parallels which Kraft's parent company, the Altria Group, knows all too well from its experience with Philip Morris. In two remarkably bold reports, analysts at J.P. Morgan Chase and Credit Suisse First Boston warned investors last fall that the big food companies were facing major financial risks.

According to Kraft, a food-industry database search found 25 news articles about obesity in the first quarter of 1999; in the most recent quarter, a similar search turned up 1,400.

Among the other changes underway at Kraft is the elimination of all in-school marketing. The company said that it had spent a couple million dollars a year on in-school marketing.

But Kraft's efforts have also come under fire from some of its peers. Executives at several big food companies say Kraft has conceded too much ground to those who like to blame big food makers for the obesity epidemic.

Kraft also seems to be reaching out to its critics. The company is forming a global advisory council to help it develop policies, standards, and measures in its effort to combat obesity.

Public Policy Targeting Obesity

About 34% of U.S. adults age 20 and older are overweight, and about 30% — or 59 million people – are obese, according to the Centers for Disease Control and Prevention, which sets measures based on body mass index. In two academic studies, obesity is identified as the second-leading cause of preventable deaths in the United States. And the bulge once associated with middle age now afflicts an increasing number of youngsters; the CDC found that 15% of children age 6 to 19 are overweight, about triple the proportion 20 years ago.

As obesity-related health costs soar, policymakers nationwide are pursuing legislative solutions modeled after the anti-smoking campaigns of the 1990s to attack what many in the medical community say is one of the gravest threats to the nation's long-term health.

Twenty-five states, following successful efforts in Arkansas and Texas, are considering restrictions on the sale of soda and candy in schools. Parent and advocacy groups in Alabama and Seattle are pushing to go one step further, waging campaigns to eliminate junk food advertising aimed at kids.

Maine state Representative Sean Faircloth said state officials would be negligent to ignore this problem. Rep. Faircloth was successful in persuading the Maine Legislature to form an obesity commission with an eye toward enacting several bills next spring.

"What other situation would you have where there's an epidemic that affects over 60% of the populace and public policymakers don't do anything?" said Faircloth in an article that appeared in the August 10th *Washington Post*.

FDA to Require Foods to Reveal Trans Fat

The Food and Drug Administration regulations released in July will require nutrition labels to include a new line listing the amount of trans fat in each food right under the amount of saturated fat by 2006.

Adding the two together provides the total of heart-risky fats in each serving.

The FDA has estimated that revealing trans fat content on labels could save between 2,000 and 5,600 lives a year because people would choose healthier foods or manufacturers would change their recipes to leave out this ingredient.

Trans fat is found in many products, from meats and dairy to pastries. The most common added source is partially hydrogenated vegetable oil, where liquid oil is turned into a solid to protect against spoiling.

Saturated fat is found primarily in meat and other products containing animal fat. People are advised to eat no more than 20 grams a day, about 10% of calories. Some surveys suggest trans fat comprises up to another 10%. Both types can increase the risk of heart disease, although some research suggests trans fat may be the worst culprit because it increases bad cholesterol and triglycerides while lowering HDL.

The Nurses Health Study indicates that there was a 50% increase in the heart attack rate among women who ate the greatest amount of trans fat compared with those who ate the lowest levels.

The National Academy of Sciences, which sets nutrition levels, last year ruled that while eating some trans fat may be unavoidable, there is no safe level that it could recommend as an upper limit (even 2-3 grams a day can increase health risks – there's 4 grams in a glazed donut). So while product labels now list what percent of total calories a food offers in saturated fat, the new trans fat labels won't. FDA had considered putting a footnote on labels recommending eating only a little trans fat, but consumer testing found that this could have the unintended consequence of scaring people back to foods high in saturated fat.

The FDA promised more research to find ways to educate about heart-damaging fats so that consumers can make better food choices.

Exercise Can Counteract Genetics

Stiffness of the arteries, a known risk factor for heart disease, can be influenced by genetics. It has also shown to be associated with central abdominal adiposity. Research has found that exercising away apple-shaped abdominal fat can also lower the genetically predisposed risks of artery stiffness. The results appeared in the July 16 issue of the *Journal of the American College of Cardiology*.

It is believed that heredity plays a strong and perhaps dominant role in the development of obesity. Studies of adopted children and twins have independently concluded that weight among siblings and parents are often very similar. Adults adopted as children tend to have body types that are more similar to those of their biological parents than those of their adoptive parents. Earlier studies, comprised of groups of twins given the same controlled diet, showed that individual participants gained weight to various degrees, while twins seemed to increase in weight in a similar fashion.

In the current study, researchers from Australia, London, and the United States studied 684 female twins (age 18 to 71 years). This group consisted of 53 pairs of identical twins, 262 pairs of fraternal twins, and 54 "singletons" whose twin was excluded from the study. The goal was to evaluate the genetic and environmental interactions between lifestyle factors, abdominal obesity, and artery stiffness – Augmentation Index (AI). None of the participants had signs of heart disease or had a prior history of stroke or diabetes. None were taking cholesterol-reducing drugs or antihypertensives.

The study found that central abdominal obesity was a significant determinant of artery stiffness (AI), independent of age, heart rate, smoking, *and* genetic factors. Also noted was that regular physical activity reduced the genetic susceptibility to increased AI. In fact, physically active subjects at high genetic risk of increased AI had similar AI to subjects at low genetic risk.

MPHA 19th Annual Meeting

"Steps to a Healthier ME"

October 31, 2003 ~ Augusta Civic Center

Lisa Letourneau, MD, MPHA, Vice Chair of MCHC, will be providing a breakout session on 'The Chronic Care Model: A Framework for Improving Chronic Illness Care."

For more information, go to www.mcph.org/mpha/MPHAindex.html.

Heavy Metals May be Heavy on the Heart

It's been known for years that high levels of mercury or lead in the body can harm such organs and tissues as the heart, nerves, blood, brain, lungs, and kidneys. What's new is the notion that levels well below what's considered safe in the workplace may boost blood pressure and cause heart disease. Mercury may post a threat to people who enjoy eating fish or do so often because it's good for the heart. Lead may be a particular problem for older women.

The Mercury is Rising

Mercury from power plants, waste incinerators, batteries, fluorescent lights, and even broken or discarded thermometers seeps into rivers, lakes, and oceans. Algae and other aquatic microorganisms absorb and incorporate it. As bigger critters eat smaller ones, mercury works its way along the food web, becoming more concentrated at each link. Top predators like sharks and bass can have mercury levels thousands of times higher than the water in which they swim.

Reports from the Environmental Protection Agency (EPA) and the National Academy of Sciences say mercury *may* damage several body systems, including the cardiovascular system.

The international Heavy Metals and Myocardial Infarction Study Group reinforced the idea that eating fish is good for the heart. Among the 1,300 participants of this study, heart attacks were least common among those who ate the most fish. But increasing levels of mercury in the body counteracted this benefit. (Study can be found in the Nov. 28, 2002, *New England Journal of Medicine*.)

Getting the Lead Out

Throughout the middle part of the 20th century, lead was a top environmental problem. In 1970, more than 400 million pounds of lead were spewed into the air and water across the United States. Although bans on lead in gasoline and paint have whittled that down to about 8 million pounds a year, those who lived through that era carry a legacy of lead in their bones.

The body works hard to get rid of lead that enters via the air, water, and food. However, 15% of it ends up locked in bone where it can hibernate for years. This creates what Harvard toxicologist Howard Hu calls "the poison within," since the common bone-eroding process of osteoporosis leaks lead into the bloodstream.

Experiments in animals show that lead can stiffen arteries, make heart muscle more excitable, and influence how the nervous system controls blood pressure. Each of these effects can boost blood pressure.

In a nationwide federal survey of health and nutrition, higher blood pressure went hand in hand with higher blood lead levels among the 2,000 middle-aged women who took part. About 19% of those with the lowest blood lead levels had high blood pressure, compared to 28% of those with the highest lead. Lead levels in the group of women classified as "high lead" were well below the safe limit of 40 micorgrams per deciliter set by federal work safety standards. (*Journal of the American Medical Association*, March 26, 2003).

Using data from the same survey, researchers from the National Institute of Environmental Health Sciences showed that lead levels were linked to blood pressure in black men and women. (*Hypertension*, March 2003).

Mercury in Seafood

Seafoods low on the list have the least mercury.

Species (4 ounces)	Mercury (in micrograms)
Shark	143
Swordfish	105
Mackerel, king	88-121
Bass, Striped	77
Bluefish	38
Tuna, white (canned)	34
Tuna, fresh, albacore	29
Snapper	27
Tuna, fresh, yellowfin	24
Tuna, light (canned)	18
Catfish, freshwater	11
Crab	11
Flounder	11
Mackerel	9
Scallops	5
Anchovies	4
Salmon (wild)	4
Shrimp	4
Oysters	2

Sources: EPA, FDA, and Consumers Reports.

What to do

When it comes to blood pressure and heart disease, mercury and lead are small potatoes compared to smoking, inactivity, overweight, and the typical American diet. Without overlooking the major risk factors, it's possible to minimize mercury's and lead's cardiovascular effects as part of a general approach to keeping healthy. Here's how:

- Choose low-mercury fish (see box).
- Stock up on heavy-metal blockers (vitamin C and calcium – for vitamin C, that's 75 mg for women and 90 mg for men. For calcium, it's 1,000-1,200 mg daily).
- Look to the future – Buying products that don't contain mercury or lead can help keep these metals out of the air and water. Recycling items that contain lead and mercury already in your home (in products such as batteries, fluorescent light bulbs, and thermometers) will help. Visit www.health.harvard.edu/heart for information on what you can do about household mercury and lead.

Even Modest Exercise Can Reduce Blood Pressure

In patients with high blood pressure who were previously sedentary, modest increases in physical activity result in meaningful decreases in blood pressure, according to a report in the August issue of the *American Journal of Hypertension*.

In an 8-week exercise intervention study, the researchers examined the response to exercise training in 207 untreated patients with high blood pressure. The subjects were divided into five groups depending on duration per week of exercise: no regular exercise; 30 to 60 min/week; 61 to 90 min/week; 91 to 120 min/week; and more than 120 min/week.

There were no differences among the groups in terms of age, gender, height, weight, calorie intake, and blood pressure level at the start of the trial.

No changes in blood pressure were observed in the sedentary group. On the other hand, all of the subjects in the exercise groups experienced significant reductions in both systolic and diastolic blood pressure.

The magnitude of reductions in systolic blood pressure was greater in the 61 to 90 min/week group compared with the 30 to 60 min/week group, the investigators report. However, there were no greater reductions in systolic blood pressure with further increases in exercise volume.

The average exercise duration in the 61 to 90 min/week group was 75 min/week. The reduction in systolic pressure was about 12 mm Hg, and the drop in diastolic about 8 mm Hg.

There were no significant differences in the magnitude of reductions in diastolic blood pressure between the exercising groups. No obvious associations were found between exercise frequency per week and the magnitude of reductions in blood pressure with exercise training.

The study notes that guidelines have recommended 30 to 60 minutes of exercise on most days, although a recent study found that just one hour of exercise per week halved the risk of cardiovascular disease.

The current findings are consistent with that study and raise the possibility that much smaller amounts of exercise than the amounts recommended by recent guidelines may reduce high blood pressure.

The study found that even 30 to 60 minutes of exercise per week were sufficient to reduce blood pressure but stressed the fact that more exercise may be warranted depending on other cardiovascular risk factors.

The High Cost of Heart Disease

A survey of U.S. medical costs puts heart disease at the top of the list. The dollar amounts listed reflect only direct medical costs for doctors' visits, tests, drugs, surgery and other treatments, and hospitalizations. They don't include lost wages or other societal costs, which would probably double the price tag. The results appeared in the March/April 2003 issue of *Health Affairs*.

Condition	Total spending
Heart disease	$57.5 billion
Cancer	$45.5 billion
Trauma	$44.1 billion
Mental disorders	$29.7 billion
Diabetes	$19.6 billion
Hypertension	$18.2 billion
Stroke	$16.3 billion
Ostoarthritis	$16.3 billion
Pneumonia	$16.3 billion
Back problems	$12.9 billion
Kidney disease	$9.7 billion
Hormone disorders	$9.7 billion

Women

Women and Cardiac Rehab

A recent study found that women heart patients do not attend cardiac rehabilitation programs as often as needed, and that both the doctors and the women themselves may be to blame. All the women in the study were eligible for cardiac rehabilitation, yet only 64% received a referral by their doctor. By 12 weeks after their cardiac event, only 32% of the total sample of women actually attended cardiac rehab programs, while 12% began a program but dropped out.

Women were more likely to attend cardiac rehab if their doctor had recommended it and if they had undergone bypass surgery. They were less likely to attend if they had suffered only a heart attack, were younger than 55 or older than 70, or unemployed. The two most popular reasons the women gave for not attending were difficulty obtaining transportation and feeling too sick or tired. (From *Progress in Cardiovascular Nursing*, Vol. 18, No3, (Sept. 15, 2003), pp. 121-126.)

Risk Factors Linked to Sudden Cardiac Death in Women

Some 94% of women who died of sudden cardiac death (SCD) had at least one of the common risk factors for heart disease, although most had no prior history of cardiovascular problems, according to a new study (April 15, 2003 rapid access *Circulation*).

SCD is an abrupt halt in heart function usually caused by an irregular rhythm in the lower chambers of the heart. It most often strikes men, so it is less studied in women. But both genders are vulnerable, usually without the warning flag of previous heart disease. Among risk factors that may predispose women to sudden death, those in the study who smoked 25 or more cigaretees a day had a four-fold increased risk of SCD. Diabetes was linked with a three-fold risk increase. Controlling these risks may guard against SCD.

How Does Heart Disease Affect Women?

- 35% recognized symptoms as possibly stemming from heart disease.
- 45% said their diagnosis came out of the blue.
- 52% were dissatisfied with care from the medical system.
- 57% experienced mental health problems.
- 69% were referred to a cardiac rehabilitation program.
- 75% were satisfied with their primary care doctor or cardiologist.
- 85% made no significant changes in diet or physical activity.

The results of the survey appeared in the January 2003 issue of *Women's Health Issues*. A copy is available at www.health.harvard.edu/heart.

For more information check out WomenHeart: the National Coalition of Women with Heart Disease at www.womenheart.org or call 202-728-7199.

(From a survey conducted by the National Coalition of Women with Heart Disease.)

A Book Worth A Look

We Are What We Eat – Why More Isn't Better

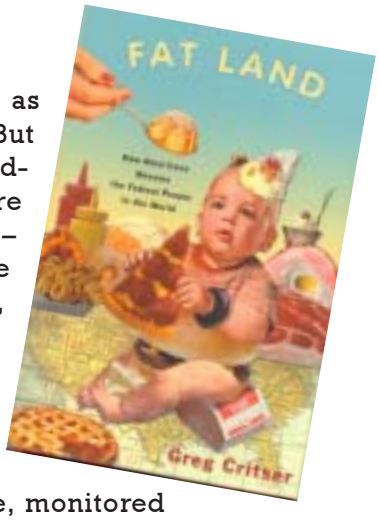
"Fat Land: How Americans Became the Fattest People in the World," by Greg Critser, 232 pp, $24, ISBN 0-618-16472-3, Boston, MA, Houghton Mifflin, 2003.

In a little book on a big topic, Greg Critser explores the causes underlying the national obesity explosion.

The author describes how the supersize era arose. Food vendors noticed that people would not purchase two small bags of French fries (fear of being accused of gluttony?) but had no problem buying one huge bag. This lead to supersized meals of all kinds. In fact, the size of serving plates in restaurants has increased almost 15%, from 10.5 in to 12 in. Since the number of calories we consume away from home keeps rising, there is increased exposure to greater amounts of food. Of course, we don't have to eat it all – but we do. Critser suggests a lack of self-discipline but doesn't go into that aspect as much nor the relationship between eating behavior and marketing.

In the past decade, the biggest overall change in our diet has been the increase in the use of high-fructose corn syrup (HFCS). Between 1980 and 1998 the total use of sweeteners in the US rose from 123.0 to 155.1 lb per person per year (26%). Use of HFCS alone rose from 19.0 to 63.8 lb per person per year (236%). A general view prevailed that sugar is sugar and fructose is a natural product like glucose or sucrose. However, metabolically, fructose is different. It processes more rapidly and more efficiently than glucose; fructose catabolism leads to increased fatty acid synthesis and esterification which results in secretion of very low-density lipoprotein. In other words, we have ingested what can be viewed as fuel for a fat factory. The author mentions a 19-month study of more than 500 schoolchildren (average age 11 years) showing that one HFCS-rich soft drink daily added a mean 0.18 points to a child's body mass index.

Putting on weight is a matter of caloric bookkeeping. If we spend fewer calories than we ingest, we end up with a deposit on the hip. Exercise is a good way to burn extra calories. An exercise habit can be instilled early in life and once was. Physical education used to be as much a requirement for graduation as English and math. But with failing school budgets, things that are considered frills – music, art, gym – have been eliminated. So, the children who are ingesting HFCS and more fats don't have a place or way to work the calories off.



There are fewer safe, monitored playgrounds, and very often school friends do not live close by or neighborhoods are not safe. In most cases, referendums to raise money to pay for additional school activities or to set aside or create safe and accessible play space have been defeated. Organized play – soccer, softball – is one way of providing increased activity but this depends on parental ability to participate. The author also cites many instances in which food vendors have donated equipment and food to school cafeterias in return for exclusive marketing rights. These rights were not won by victories in elections, they were ceded by cash-strapped school districts that had no other means of support.

So here we are: we are getting fatter because we eat more of everything; our schools and communities have poor or nonexistent recreational activities because we won't raise the dollars necessary to establish and maintain them; and we tolerate commercial intrusions into our schools that may not be in the best interests of our kids' health.

Addressing these issues is not so difficult if we recognize the fact that healthy, active kids are better learners and become healthy, active adults that are more productive citizens. If we re-examine our priorities, Fat Land could be transformed into a place where people find it easier to be healthy than supersized.

Briefs

Ibuprofen May Cut Aspirin's Benefit

Regularly taking a nonsteroidal anti-inflammatory drug (NSAID) appears to negate the benefit of taking aspirin to prevent a heart attack. (*Circulation* online edition August 25, 2003.)

Pravachol Benefits More Than Cholesterol

Treatment with the cholesterol-lowering "statin" drug Pravachol can improve how well blood reaches the muscle of the heart, and this is not necessarily reflected by changes in cholesterol levels. (*Journal of the American College of Cardiology,* August 20, 2003.)

Mental Health Linked to Heart Health

A special issue of the journal *Brain, Behavior, and Immunity* looks at new research into psychological risks for heart disease. These studies show that your mind affects your immune system, and your immune system affects your heart. A better understanding of the interplay between mental health and heart health may lead to earlier recognition – and earlier treatment – of at-risk patients. (Kop, W. *Brain, Behavior, and Immunity,* 2003; Vol. 17; pp 233-237.)

Inflammation May Affect Benefits of Low-Fat, Low-Cholesterol Diet

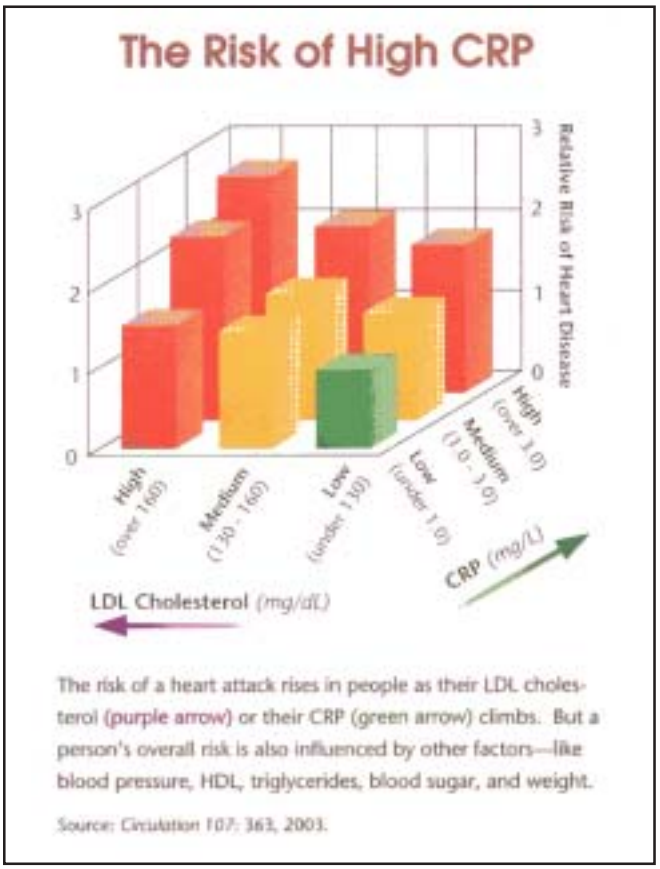
People with a high level of C-reactive protein (CRP), a marker of inflammation in the body, don't receive the same beneficial reductions in cholesterol while on a low-fat, low-cholesterol diet as those with lower levels of CRP.

CRP Increased in Children as Weight Increases

There is a significant association between body mass index and C-reactive protein (CRP) levels in children, according to a study in the August 20th issue of *Circulation: Journal of the American Heart Association*.

Cholesterol-Reducing Drugs Can Reduce Arrhythmias in Patients with ICDs

For patients who have an implantable carioverter defibrillator, the risk of a recurring abnormal heart rhythm may be reduced by taking cholesterol-lowering medication. This finding is reported in a study published in the July 2 issue of the *Journal of the American College of Cardiology*.



The risk of a heart attack rises in people as their LDL cholesterol (purple arrow) or their CRP (green arrow) climbs. But a person's overall risk is also influenced by other factors—like blood pressure, HDL, triglycerides, blood sugar, and weight.

Source: Circulation 107: 363, 2003.

Nearly All Heart Risk Due To Bad Habits

The vast majority of heart attacks affect people who smoke, have high blood pressure, high cholesterol or diabetes. Roughly nine out of 10 heart patients surveyed had one of these four risk factors, often for years, before experiencing a heart problem, according to a pair of studies published in the August 20, 2003 issue of *JAMA*.

US Approves Test to Help Predict Heart Disease

A new blood test to help identify patients facing higher risk of coronary heart disease was approved by the FDA in July.

The PLAC test, made by diaDexus Inc., in California, measures the enzyme lipoprotein-associated phospholipase A2. According to the FDA, an elevated PLAC test result with an LDL level below 130 may give doctors increased confidence that patients have two to three times the risk of having coronary heart disease when compared with patients having lower PLAC test results.

(From Reuters *Health Info*, July 22, 2003.)

Coffee and Alcohol Combination May Protect Stroke Patients

A combination of caffeine and alcohol ("caffeinol"), the equivalent of about two cups of coffee and a single cocktail (1.5 ounces of whiskey or six ounces of wine for a 140-pound patient), may limit brain damage from a stroke, according to preliminary research. In rat studies, alcohol alone increased cerebral injury caused by a stroke, and caffeine alone had no effect. But the combination resulted in a 70% to 80% reduction in the size of "infarcts" -- localized damage in vessels. Now, after a pilot study of 23 stroke patients, researchers say caffeinol is safe (April 11, 2002 rapid access *Stroke*). Next step: another human study comparing possible benefits of caffeinol with a placebo. (Exerpted from *Heart Advisor,* June 2003.)

Long-term Job Stress May Raise Blood Pressure

Men who worked for 25 years or more at a demanding job over which they felt little control had a large increase in blood pressure both when they were on the job and at home, according to the study published in the June 1 issue of the *American Journal of Epidemiology* (2003; 157:998-1006).

High Blood Pressure in Teens Predicts Heart Disease

Increased blood pressure in adolescence and a relative rise in blood pressure from adolescence to adulthood seems to increase the risk of developing atherosclerosis in adulthood, according to a report published in the July issue of the *American Journal of Hypertension*.

New Guidelines for Children Released

There is now substantial scientific evidence documenting risk factors for CVD in childhood: dietary habits, physical activity, and the use of tobacco.

These guidelines present a conservative approach to identifying risk factors in childhood and safely modifying those identified without harm to the growing child. The AHA's Council on Cardiovascular Disease in the Young has developed a cardiovascular health schedule that allows risk factor identification and modification within the framework of routine pediatric care.

The guidelines were co-released in the March 25, 2003 issue of *Circulation* and the April 2003 issue of *The Journal of Pediatrics*.

New Scientific Statement Released

The AHA released a scientific statement on Obesity, Insulin Resistance, Diabetes, and Cardiovascular Risk in Children. Published in the March 13, 2003 issue of *Circulation*, lifestyle modification and weight control during childhood can reduce the risk of developing insulin resistance syndrome, Type 2 diabetes mellitus, and CVD.

NHLBI Study Will Look at Maintaining Weight Loss

In July, the National Heart, Lung, and Blood Institute (NHLBI) announced the launch of a major study that could help solve one of the hardest aspects of weight loss – keeping off lost pounds. The study, called the "Weight Loss Maintenance Trial," will be conducted in two phases at four clinical sites.

The study will include 1,600 men and women in its first phase, and 800 in its second. Phase I is a 5-month weight loss program; phase II will try to help those who lose 9 or more pounds in phase I keep the weight off for 2 ½ years.

Americans have shown that they can lose weight in the short-term according to Dr. Laura Svetkey, Director of the Duke Hypertension Center in Durham, NC, and lead investigator in the study. However, only a small proportion achieve long-term weight control. To successfully fight the obesity epidemic, clinicians and other health care providers must have options that are effective and feasible for a broad range of people. The best weight-loss strategy will not only lead to long-term weight control, but also achieve it by establishing a healthy dietary pattern and physical activity routine that lasts a lifetime

The four centers involved in the Weight Loss Maintenance study are: Duke University; Pennington Biomedical Research Center at Louisiana State University in Baton Rouge; Kaiser Permanente Center for Health Research (KPCHR) in Portland, OR; and The Johns Hopkins Medical Institutions in Baltimore, MD. KPCHR also serves as the study's coordinating center.

In the study's first phase, participants will receive counseling to help them make lifestyle changes to reduce their weight. These lifestyle changes will include reducing calories and increasing physical activity. Participants will be encouraged to follow the DASH eating plan, which has been shown to reduce blood pressure and cholesterol. Phase I participants will keep food and fitness diaries to monitor their diet and physical activity. Those who lose nine or more pounds after five months will be eligible to enroll in phase II.

In phase II, participants will be randomly assigned to one of three weight-maintenance strategies: self-directed/usual care (SD/UC); personal contact (PC); and interactive technology (IT). The SD/UC group will meet once with a health counselor for advice on how to maintain their weight loss and to discuss their own weight loss plans. They also will receive educational materials about diet and physical activity. Those in the PC group will receive personal guidance and counseling on how to maintain their weight loss through monthly telephone calls and occasional visits with a health counselor.

Participants in the IT group will use an Internet-based, individually tailored, interactive computer program to help them keep their weight off. They can use the program as often as they wish and can log on anywhere they have Internet access: at home, work, a school, or a public library. They also will receive weekly e-mails with tailored messages on their progress that include links to the Web site. Further, they will receive reminders by an interactive voice phone system to log onto the study's Web site and respond to e-mail.

The study will compare these two methods with the self-directed/usual care group. The study involves a large, diverse group of overweight and obese people and will determine the impact of these maintenance strategies on their weight and heart disease risk factors. It also will see if the strategies have other effects, such as on participants' quality of life.

Those interested in finding out about enrolling in the study can call the site near them: for Duke University – 919-419-5904; for Pennington – 225-763-2596; for Kaiser Permanente – 503-499-5755; for Johns Hopkins – 410-281-1881.

For more information on this study and "Aim For a Healthy Weight" web page, go to http://www.nhlbi.nih.gov.

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