

EFFORTS



Emphysema Foundation For Our Right To Survive

Emphysema Takes Your Breath Away

April 2008

WHEN TAKING A SIMPLE BREATH'S A MAJOR BATTLE

The twin branches of plastic tubing inserted in his nose are attached to another, larger transparent tube. It snakes across the room to connect to a machine in the corner that hums quietly. The ebb and flow of quiet noise is the sound of John Kirtley breathing the vital oxygen that keeps him alive.

John, who lives in Seaton, suffers from emphysema and has been told that he has a life expectancy of about two years.

"It's not diagnosed easily, although it could be. Doctors use a spirometer to distinguish between asthma and chronic obstructive pulmonary disease but unfortunately, it's only used if somebody is extremely breathless. I went to hospital in 2000 with pneumonia, had two X-rays and they still didn't diagnose the disease. It wasn't until I took a spirometer test in 2002 that they told me I had severe emphysema. And at that stage it's far too late."

Chronic obstructive pulmonary disease, or COPD, is an umbrella term for chronic asthma, bronchitis and emphysema. Smoking is the main cause of COPD, which currently affects 11,000 people in Devon alone. Before he was diagnosed, John was smoking two packs of cigarettes a day.

"I'm 63 and my lungs function at 15 per cent of the efficiency that could be expected of someone my age. It's absolutely catastrophic. I'm on oxygen 24 hours a day and at night I sleep with a non-invasive ventilator machine. That's a contraption you put over your head to reduce the levels of carbon dioxide in your blood.

"I have to use oxygen to move around outside and I get tired very easily. I can't lift heavy objects. Climbing stairs is an ordeal and I can't go up hills. If I do go for a walk I have to keep my head down, concentrate and I can't talk. But the biggest enemy is depression. Many people give up. You literally have to force yourself to do things sometimes - to go out, to exercise and sometimes even to eat."

In cold weather, John stays inside and rarely socializes. The chance of catching a cold would be high and should he do so, he would be hospitalized.

"Every time you go into hospital with an exacerbation like a cold, your lung function declines. If you stay indoors, there's little variation but if you don't exercise you will also go down very quickly. Muscles use oxygen but if you don't work them they use more. It's a vicious circle. You can't

exercise because you have difficulty breathing. Another aspect is that if I'm facing a large meal, about halfway through I would start having difficulty breathing. So the idea is that you have a number of small meals throughout the day. A lot of this knowledge is not given to patients."

In one way, John is one of the lucky ones - he lives with his wife, Joan, who is also his carer.

She said: "It broke up our marriage before it got diagnosed. John went down the drink road because he was so depressed. He didn't know what was wrong with him and nor did the doctors. I just gave up on it for a few years. However, we kept in contact and, eventually, got back together. John is very upbeat about it but I do everything. He does manage the disease very well and that makes it easier for me. But you have to live every day as it comes.

Source: Express&Echo, UK

COMBO MRI/PET SCANNER

Two kinds of body imaging -- positron emission tomography (PET) and magnetic resonance imaging (MRI) -- have been combined for the first time in a single scanner.

MRI scans provide exquisite structural detail but little functional information, while PET scans -- which follow a radioactive tracer in the body -- can show body processes but not structures, said Simon Cherry, professor and chair of biomedical engineering at UC Davis. Cherry's lab built the scanner for studies with laboratory mice, for example in cancer research.

"We can correlate the structure of a tumor by MRI with the functional information from PET, and understand what's happening inside a tumor," Cherry said.

Combining the two types of scan in a single machine is difficult because the two systems interfere with each other. MRI scanners rely on very strong, very smooth magnetic fields that can easily be disturbed by metallic objects inside the scanner. At the same time, those magnetic fields can seriously affect the detectors and electronics needed for PET scanning. There is also a limited amount of space within the scanner in which to fit everything together, Cherry noted.

Scanners that combine computer-assisted tomography (CAT) and PET scans are already available, but CAT scans provide less structural detail than MRI scans, especially of soft tissue, Cherry said. They also give the patient a dose of radiation from X-rays.

The photomultiplier tubes used in conventional PET machines are very sensitive to magnetic fields. So the

researchers used a new technology -- the silicon avalanche photodiode detector -- in their machine. They were able to show that the scanner could acquire accurate PET and MRI images at the same time from test objects and mice.

Source: Medical News Today

TASK FORCE RECOMMENDS AGAINST SCREENING FOR CHRONIC OBSTRUCTIVE PULMONARY DISEASE USING SPIROMETRY

Adults without symptoms of chronic obstructive pulmonary disease (COPD) should not be screened for the disease using spirometry, according to a new recommendation from the U.S. Preventive Services Task Force. The recommendation and the accompanying summary of evidence are posted online in the *Annals of Internal Medicine*. It will appear in the April 1, 2008, print edition of the journal.

COPD is a lung disease in which the airways in the lungs are damaged, making it hard to breathe. COPD is the fourth leading cause of death and affects more than 5 percent of the U.S. population. Current or past cigarette smoking is the most common cause of COPD. Breathing in chemicals or other kinds of lung irritants over a long period of time may also cause or contribute to COPD, and individuals over the age of 40 are also at higher risk for the disease.

Screening for COPD is most often performed using spirometry, a lung function test that uses a spirometer machine. Spirometry is performed by having a patient breathe into a tube attached to a spirometer machine, which calculates the amount of air the lungs can hold and the rate that air can be inhaled and exhaled. The results of the test are compared with those of healthy individuals of similar height and age and of the same gender and race.

The Task Force found that the benefits of screening individuals without symptoms of COPD were very small. Approximately 400 adults between the ages of 60-69 would need to be screened in order to identify a single patient who may later develop COPD symptoms severe enough to require immediate medical care. The Task Force also found that spirometry can substantially overdiagnose COPD in people over the age of 70 who have never smoked and can produce some false positives in younger adults.

In those patients experiencing symptoms of COPD, including coughing that doesn't go away, coughing up large amounts of mucus, shortness of breath, wheezing and chest tightness, spirometry may be used to confirm a diagnosis of COPD. The Task Force found evidence that the diagnosis did not have an impact on the number of patients who quit smoking, nor could they find evidence that it increased the number of patients who received the flu vaccine. Quitting smoking is the single most important thing a patient can do to slow the progression of the disease, and there is some evidence that getting vaccinated against the flu can prevent worsening of COPD symptoms.

"Our review of the evidence found that screening for COPD with spirometry in patients who report no symptoms provides very little or no benefit to individuals, even in those

who are eventually diagnosed with the disease," said Task Force Chair Ned Calonge, M.D., who is also Chief Medical Officer for the Colorado Department of Public Health and Environment. "We encourage clinicians to focus on screening all adults for tobacco use and helping individuals who smoke to choose evidence-based therapies that can help them to quit."

The Task Force is the leading independent panel of experts in prevention and primary care. The Task Force, which is supported by AHRQ, conducts rigorous, impartial assessments of the scientific evidence for the effectiveness of a broad range of clinical preventive services, including screening, counseling, and preventive medications. Its recommendations are considered the gold standard for clinical preventive services. The Task Force recommends against screening adults for COPD using spirometry. (D recommendation)

The recommendations and materials for clinicians are available on the AHRQ Web site here. Clinical information is also available from AHRQ's National Guideline Clearinghouse at <http://www.guideline.gov>. Source: medicalnewstoday.com

TIGHTER TUMMIES: A NEW WAY TO COMBAT WEIGHT GAIN

Two cell proteins that relax the gut and help accommodate a big meal have been identified by UCL (University College London) scientists. The proteins could offer a future drug target against weight gain, by preventing the stomach from expanding.

In a paper published in this month's issue of the *Journal of Pharmacology and Experimental Therapeutics*, Dr Brian King and Dr Andrea Townsend-Nicholson explored the molecular basis of relaxations of the gut. In the study, the authors identified two protein receptors - P2Y1 and P2Y11 - involved in fast and slow relaxations of the gut. These proteins were identified in the guinea pig, but are also present in the human gut, and thus offer the potential as a future target for drug treatment. Further research by the UCL team will focus on the human isoform of the P2Y11 protein receptor.

Dr Brian King of the UCL Department of Neuroscience, Physiology and Pharmacology says: "The mechanisms we have identified are important to the normal workings of the stomach - a hollow organ which actively relaxes to help accommodate the size of your meal. The human stomach has a 'resting' internal volume of 75 milliliters but, by relaxing its muscular wall, can expand to an internal volume of two liters or more - a 25-fold increase in the volume it can accept. This expansion is controlled by nerves inside the stomach wall and these nerves release molecules that stimulate the P2Y1 and P2Y11 receptor proteins embedded in muscle cells in the gut wall.

"The mechanism of slow relaxation of the stomach might represent a future drug target in the fight to control weight gain and reverse obesity. We are looking to identify drugs that would block the P2Y11 receptor and, therefore, prevent slow relaxation of the stomach. As a result of blocking the P2Y11-based mechanism, meal size would be smaller, offering the person a better chance of regulating their food intake.

"This would be a brand new approach to weight control. At present, the most successful way to help obese patients lose weight is gastric banding or stomach stapling, both of which

reduce the maximum volume of the stomach. But these are also tricky surgical procedures, not without attendant risks. A pill that could replace this surgery, yet have the same effect, might be a useful alternative."

'Involvement of P2Y1 and P2Y11 Purinoceptors in Parasympathetic Inhibition of Colonic Smooth Muscle' is published in the March edition of the Journal of Pharmacology and Experimental Therapeutics (Volume 324 (Issue 3), 1055-1063). Source: Medical News Today

YOUR BRAIN ON FRUIT

Reaching for the fruit bowl might keep your brain sharp as a tack when you get older. That's because big fruit-eaters -- besides getting boatloads of good-for-you nutrients -- score high when it comes to memory and reasoning skills.

Mind Your Flavonoids

The reason for fruit's brain-boosting effect? It's all about the flavonoids, those amazing antioxidants that fight disease and might be one of your best defenses against cognitive decline. In a study, people who had the highest flavonoid intake performed best throughout a 10-year period on tests of verbal fluency, logical reasoning, and visual memory.

How to Get Your Fill

Sneaking more fruit into your diet is one way to load up on flavonoids, but vegetables like onions and broccoli provide some, too. You'll need a wide variety of fruit and veggies in your diet to get the RealAge-recommended 31 milligrams of flavonoids per day. You can also sip some with several cups of tea or juices like cranberry every day. (Did you know ruby-red cranberry juice could help your heart stay strong?)

For those times when you run out of fresh fruit, keep this brain-honing treat on hand: flavonoid-packed dehydrated fruit. Dehydrating removes the moisture, leaving behind flavor AND flavonoids in a crunchy-delicious snack. Great in lunch boxes or as a snack at work. Sweet!

Source: RealAge

7 SECRETLY HEALTHY FOODS

Think these foods are artery-clogging diet busters? We've got a surprise for you.

Eggs

Cholesterol fears give eggs a bad rap. It has long been assumed that foods high in cholesterol translated into high cholesterol levels in our blood. Nutrition experts now know that for most people, the amount of cholesterol in a particular food usually has a minor effect on blood cholesterol. Other types of fats, including saturated and trans fats, have a much greater impact.

Why they're healthy: Eggs are packed with nutrition. One egg has a mere 75 calories, yet contains 13 essential nutrients. Along with high-quality protein, eggs have choline, a compound considered critical for brain development and believed to influence lifelong memory and learning functions. Eggs also contain vitamin E, iron and zinc plus small amounts of lutein and zeaxanthin, two carotenes that support healthy vision and may help prevent age-related blindness.

Best ways to eat them: As close to as natural as possible. When fried, paired with bacon and hash browns, topped with cheese or mixed into a salad with a heavy dollop of mayonnaise, eggs become accomplices to a high-fat, higher-calorie diet.

Instead, enjoy them scrambled, boiled or poached, mixed with veggies or chopped and tossed with a little light mayo. Partner with whole wheat toast, whole grain pilafs or fruit.

White potatoes

Many believe potatoes are nutritionally anemic junk food loaded with carbs. That may be true of french fries, but a whole white potato is a different story.

Why they're healthy: Sure, they're filled with carbohydrates, but that's OK. Our bodies, especially our brains, need less-processed carbohydrates for energy. One baked potato contains 25 percent of the recommended daily amount of vitamin C. Eat the whole potato (including skin) for a good source of B6, copper, potassium and manganese. Their high-fiber content helps slow digestion and provides a sense of fullness long after a meal is over.

Best ways to eat them: It's the add-ons that do the damage. If you pick the right accessories, such as low-fat cottage cheese and snipped herbs or black beans and corn salsa, potatoes can become nutritional heavyweights. Try boiled potatoes diced and lightly brushed with olive oil, herbs and spices; mash them with the skins on; or bake and top with sauteed mushrooms and onions.

Pizza

Pizza is a nutritional chameleon, taking on the healthy or unhealthy attributes of its toppings. It can be a greasy fat-fest or vitamin-rich meal suitable for many diets.

Why it's healthy: In theory, a slice of pizza represents several food groups within the Food Guide Pyramid. With a whole-wheat crust, it provides a serving or two of whole grains loaded with antioxidants and phytonutrients, the plant-based compounds that help fight disease. The tomato sauce is packed with beta carotene, lycopene and vitamin C. If the pie is made with real mozzarella cheese, you get a healthy dose of calcium.

Pizzas can also be a great base to add highly nutritious vegetables, including red peppers, mushrooms, onions, broccoli and spinach.

Best ways to eat it: Whole-wheat crust is a must. Slather on tomato sauce and use a light hand when sprinkling on cheese and lean meat. Be generous with your veggie picks. If buying pre-made pizza, stick with whole-wheat crust and add additional veggies to the top.

Beef

The beef over beef is its fat content -- specifically the amount of saturated fat found in many cuts.

Why it's healthy: One 3-ounce serving of lean beef contains 50 percent of the protein most people should get in a day and nearly 40 percent of the zinc and vitamin B12. Lean beef is a good source of selenium (a mineral linked with a reduced risk of some cancers), B6 and iron.

Best ways to eat it: Whether red meat gets a nutritional thumbs up depends on the portion size and the cut of beef. Keep portions to 3 ounces to 4 ounces of cooked weight. Choose cuts from the round or loin, such as top round, eye of round, top loin

or sirloin, or try flank steak. Trim visible fat and marinate in flavorful low-fat sauces. To keep fat in check, grill, broil or bake beef, or cook it in broth or another low-fat liquid.

Sugary cereals

Sugared cereals are often called crunchy candy because the excess sugar content adds a heap of unnecessary calories.

Why they're healthy: While some pre-sweetened cereals are overloaded with sugar, artificial colors and ingredients, other brands can provide 15 percent to 100 percent of the Recommended Dietary Allowance of several vitamins and minerals, including those that many people don't get enough of: vitamin D, vitamin E, magnesium and calcium. Some pre-sweetened cereals can offer fiber and a serving of whole grains.

Best ways to eat them: Some diets advise two servings of cereal a day, but one bowl should be enough for most people.

The key to keeping these healthy is to pick brands with fewer ingredients listed. The first ingredient should be a whole grain such as whole wheat or rolled oats. Add your own fruit—strawberries, blueberries or bananas—instead of buying cereal already loaded with dried fruit (too sweet). Sugars listed on the nutrition label should be no more than 8-10 grams (8 grams = 2 tsp.) and offer at least 3 grams of fiber per serving. Drink the milk at the bottom of the bowl because some of the nutrients added to cereals leach out into the milk. If you try to cut calories by tossing the leftover milk, you'll likely miss out on many of the nutrients that were added in.

Canned Goods

Many people mistakenly believe that canned goods contain fewer nutrients than fresh produce.

Why they're healthy: Canned fruits and vegetables are picked and packed at their peak ripeness, cooked quickly and sealed so nutrients are not lost. Several studies have found that the vitamin content in canned or frozen foods is comparable to fresh produce. Some canned foods such as tomatoes actually top frozen or fresh. With canned beans, the heating process may also make the fiber more soluble and useful to the body than dried beans.

Fresh foods can lose a significant amount of certain nutrients, such as vitamin C, after several days. Canned foods can hold on to their nutrients for up to two years.

Best ways to eat them: To keep nutrition locked in, store canned foods in a cool, dry location. Choose fruits packed in their own juices over those packed in syrups. Up to half the sodium in canned vegetables or beans can be washed away by rinsing under water.

Oysters

These mollusks may have a reputation for their love-enhancing qualities, but they're also shunned for being loaded with cholesterol and blamed for more than a few cases of food poisoning.

Why they're healthy: Oysters are a lean source of protein and they contain omega-3 fatty acids. Six oysters have a total of 600 milligrams of omega-3s -- one-third of what's recommended in a day. One serving has about 55 milligrams of cholesterol -- one-fifth of what's found in an egg and less

than the amount in a chicken breast. For most people, the amount of cholesterol in a particular food usually has a minor effect on blood cholesterol.

Oysters are an exceptional source of zinc, an important immune system booster that also helps sharpen your sense of taste and smell. They're also an abundant source of vitamin B12, copper, iron and selenium.

Best ways to eat them: Oysters can be purchased fresh, frozen or canned. Fresh or frozen is preferable because canned varieties are usually packed in oil or a water and salt solution. When buying live oysters, make sure the shells are tightly closed. They should smell like the sea, not sulfurous. They can be grilled, steamed or eaten raw. Some people, including children, pregnant women, older folks and those with a compromised immune system should avoid raw oysters because of the potential risk of food poisoning due to toxic bacteria.

Source: The American Dietetic Association

EATINGWELL POWER SALAD

Makes 2 servings, about 4 cups each

Ingredients

6 cups mixed salad greens
1 cup shredded carrots
2 tablespoons chopped red onion
¼ cup dressing,
10 cherry tomatoes
4 slices roast turkey breast, cut up (3 ounces)
2 slices reduced-fat Swiss cheese, cut up (2 ounces)

Instructions

Toss greens, carrots, onion and dressing in a large bowl until coated. Divide between 2 plates. Arrange tomatoes, turkey and cheese on top of the salad.

Nutrition Information

Per serving: 180 calories; 4 g fat (1 g sat, 0 g mono); 27 mg cholesterol; 19 g carbohydrate; 21 g protein; 6 g fiber; 757 mg sodium; 956 mg potassium.

Nutrition bonus: Vitamin A (290% daily value), Vitamin C (70% dv), Folate (55% dv), Calcium (40% dv).

Exchanges: 3 vegetable, 2 very lean meat, 1/2 fat, 1 Carbohydrate Serving

LOADED SPINACH SALAD

Makes 2 servings, about 4 cups each

Ingredients

8 large eggs
6 cups baby spinach
4 tablespoons Creamy Blue Cheese Dressing (recipe follows), divided
1 8-ounce can beets, rinsed and sliced
1 cup shredded carrots
2 tablespoons chopped pecans, toasted (see Tip)

Instructions

1. Place eggs in a single layer in a saucepan; cover with water. Bring to a simmer over medium-high heat. Reduce heat to low, cover and cook at the lowest simmer for 10 minutes. Pour off the hot water and run cold water over the eggs until they are

completely cooled. Peel the eggs, discard 6 of the yolks, chop the remaining yolks and whites.

2. Toss spinach and 2 tablespoons dressing in a large bowl. Divide between 2 plates. Top with chopped eggs, beets, carrots and pecans. Drizzle with the remaining 2 tablespoons dressing.

Tips

To toast chopped nuts & seeds: Cook in a small dry skillet over medium-low heat, stirring constantly, until fragrant and lightly browned, 2 to 4 minutes.

Nutrition Information

Per serving: 300 calories; 13 g fat (3 g sat, 6 g mono); 216 mg cholesterol; 26 g carbohydrate; 22 g protein; 8 g fiber; 823 mg sodium; 592 mg potassium.

Nutrition bonus: Vitamin A (240% daily value), Folate (35% dv), Vitamin C (30% dv), Calcium (15% dv).

Exchanges: 4 vegetable, 2 lean meat, 1 1/2 fat., 1 Carbohydrate Serving

CREAMY BLUE CHEESE DRESSING

Makes 1 1/4 cups

Ingredients

1/2 cup reduced-fat mayonnaise
1/2 cup nonfat buttermilk or nonfat milk
1/2 cup nonfat plain yogurt
2 tablespoons tarragon vinegar or white vinegar
1 tablespoon Dijon mustard
1/2 teaspoon salt
1/2 teaspoon freshly ground pepper
1/4 cup crumbled blue cheese (1 ounce)

Instructions

Whisk mayonnaise, buttermilk (or milk), yogurt, vinegar, mustard, salt and pepper in a medium bowl until smooth. Add cheese and stir, mashing with a spoon until the cheese is incorporated.

Tip

Cover and refrigerate for up to 1 week. Stir before using.

Nutrition Information

Per 2-tablespoon serving: 38 calories; 3 g fat (1 g sat, 1 g mono); 4 mg cholesterol; 2 g carbohydrate; 1 g protein; 0 g fiber; 215 mg sodium; 8 mg potassium.

Exchanges: 1/2 fat, 0 Carbohydrate Servings

CREAMY DILL RANCH DRESSING

Makes 1 1/4 cups

Ingredients

1 small shallot, peeled
3/4 cup nonfat cottage cheese
1/4 cup reduced-fat mayonnaise
2 tablespoons buttermilk powder (see Note)
2 tablespoons white-wine vinegar
1/4 cup nonfat milk
1 tablespoon chopped fresh dill
1/4 teaspoon salt
1/4 teaspoon freshly ground pepper

Instructions

With the food processor running, add shallot through the feed tube and process until finely chopped. Add cottage cheese, mayonnaise, buttermilk powder and vinegar. Process until smooth, scraping down the sides as necessary, about 3 minutes. Pour in milk while the processor is running. Scrape down the sides, add dill, salt and pepper and process until combined.

Tip

Cover and refrigerate for up to 1 week.

Note: Look for buttermilk powder, such as Saco Buttermilk Blend, in the baking section or with the powdered milk in most supermarkets.

Nutrition Information

Per 2-tablespoon serving: 19 calories; 1 g fat (0 g sat, 0 g mono); 1 mg cholesterol; 2 g carbohydrate; 2 g protein; 0 g fiber; 125 mg sodium; 10 mg potassium.

Exchanges: Free food, 0 Carbohydrate Servings

6 FOODS THAT FIX BAD BREATH

Last night, the tacos smothered in onions were great. But this morning, your breath could fell a sumo wrestler.

What to do? When your breath has turned toxic because of smelly foods — usually garlic, onions, or curry, but fish and cheese can do a number, too — you need an air freshener for your mouth. And you need it often: every 30 to 60 minutes until the odorous offender has cleared out of your bloodstream, which can sometimes take up to 24 hours. Because brushing constantly is impossible, try countering breath-busting foods with what's likely to be handiest: other foods.

" **Lemons.** Suck on a lemon wedge, or nibble on the rind — easy to do in restaurants, where there's often a citrus garnish; if not, you can order sparkling water with lemon. For other times, lemon-flavored hard candies work just as well, and they're totally portable.

" **Parsley and other green garnishes.** When your favorite garlic-laden pasta dish or onion-topped burger arrives with a few sprigs of parsley on the side, consider it a hint, not just a colorful trim. Chewing on the sprigs releases parsley's pleasant, breath-freshening oils. Garnishes of fresh basil and rosemary work, too.

" **Apples and other crisp, fresh foods** (firm pears, carrots, jicama). They're high in fiber, and all that chewing bumps up saliva production — the combo acts like a scrubbing rinse for your mouth. Sweet.

" **Crunchy spices.** For a more exotic solution, pick up some anise, cardamom, coriander, and fennel seeds, available in the spice aisle of most grocery stores. Mix equal parts in a small covered bowl, and keep it on the dining room table next to the salt and pepper. Chewing on a few seeds will release enough oil to sweeten after-dinner curry or coffee breath. And your mouth will taste amazing.

" **Mint sprigs or cinnamon sticks.** Either of these deliciously potent flavors will squelch the sulfurous scent of onion and garlic. Plus, an essential oil in cinnamon kills a nasty type of oral bacteria, discouraging it from setting up house in your mouth. Cinnamon or mint gum is just as effective. If you pick a gum sweetened with xylitol, it will freshen breath and help reduce cavities — smart, if you're a gum lover. Bonus:

Regular oral care can make your RealAge as much as 6.4 years younger.

- " **Berries and yogurt.** If you can't get through most days without indulging in foods that are less than breath-friendly, eat for prevention, which is even better than a cure. Consuming half a cup of plain, sugar-free yogurt twice a day can lower mouth levels of hydrogen sulfide (yes, that rotten egg smell). Berries (and melons, oranges, and other fruits high in vitamin C) also deter stinky mouth bacteria. Start and end each day with a cup of fruit topped with a big dollop of yogurt and you might never have to worry about bad breath

11 HEART HEALTHY SNACKS

These snacks get our hearts pumping, literally and figuratively. They're delicious alternatives to the ho-hum bag of chips or candy bar. Skip the drive-through or the candy aisle and load up on some heart-healthy snacks that will not only maintain your cardiovascular health, but may help you drop a few pounds as well.

1. **Vegetables dipped in hummus** Fresh vegetables are low in calories and have many antioxidants, and many have no fat with plenty of fiber to satiate you. Fiber has also been shown to lower cholesterol. Hummus, made from chick peas, is a great alternative protein without saturated fat.
2. **Fruit skewered on a stick with a little dark chocolate for dipping** Fruit has a variety of antioxidants to fight cancer and heart disease. Dark chocolate has a high concentration of flavinols, a type of antioxidant, to fight heart disease.
3. **Half of a cantaloupe filled with fat free cottage cheese, a dash of cinnamon and some berries** The cantaloupe and berries have antioxidants, and the fat-free cottage cheese fulfills a serving of dairy without the saturated fat.
4. **Fat-free yogurt with fruit and a sprinkle of nuts** Get another serving of dairy without saturated fat as well as antioxidants from fruit and unsaturated fat from the nuts.
5. **Smoothies with silken tofu and berries plus a dash of grape juice or pomegranate juice** Tofu is a great alternative protein source without saturated fat. Berries, grape juice and pomegranate juice have a high concentration of antioxidants.
6. **Homemade soup** Start with a vegetable base. You can buy a frozen vegetable base or containers of vegetable base to load up on antioxidants and fiber. Make sure its low in sodium. Then dump in a bag of frozen or mixed vegetables. Mix in a couple of cups of beans. Make sure to rinse the beans to remove sodium. Season with fresh herbs. "If you want to make it creamy without heart-clogging fat, use low fat soy milk or evaporated skim milk," says Hendel. She calls it, "The most amazing creamy liquid that you can add for creaminess without fat. It's a magical ingredient in the

kitchen."

7. **Pureed prunes** sneak them into your brownies "It makes very chocolaty brownies," Hendel says. "Pureed fruit will make the chocolate taste more chocolaty, plus you've added in something that use less oil or less butter and you've added antioxidants because of the pureed fruit. Also fruit has fiber to lower your cholesterol."
8. **Silken tofu or soy milk** substitute for regular milk in recipes "It can add heart healthy protein, yet cut down on heart-clogging calories of the other oils you might have used."
9. **Applesauce or apple butter** use in place of oil for muffins "Apple butter is one of best ingredients you can add to moisture and pleasant fruit flavor that won't combat your other ingredients," Hendel says.
10. **Nuts and small chunks of fruit** sprinkle on top of muffins "If you substitute applesauce for the oil," Hendel says, "you'll be making a muffin low in fat, chock-full of antioxidants from fruit, fiber from nuts, and heart-healthy protein from the nuts."
11. **Meatloaf** really! Use tofu and chopped white chicken meat instead of red meat. "You can't taste the to fu at all," Hendel says. "Plus, you get extra protein."

THE AMAZING LIFE OF A FAT CELL

My name is Adi: Adipose Tissue. I have been called many things in my life, from inert tissue to a chunk of useless slime. Most people look at me with disdain, but I m really here to help them! I protect vital organs, store fuel and energy in case food gets scarce, make hormones work and control chemicals that regulate brain function, the immune system and metabolism. Without me, life would be impossible. But what thanks do I get? So often, I m lipo d out and thrown away just when there is so much good left for me to do.

Fast Fat Facts

Fortunately, scientists are delving ever-deeper into the mysteries of fat cells and discovering more and more about the functions these expandable little lipid suitcases serve and why some good fat cells go bad.

Adipose tissue is active and complex.

It comes in a variety of sizes and types: small, medium, large, extra-large, predeveloped, young and old. Fat cells transmit signals to the brain; they also have receptors that get switched on and off. These receptors may tell the cell to store more fat, release more fat or trigger secretion of various chemicals that influence appetite and the body s use of insulin. Fat cells are seriously opinionated: They even seem to have a gender preference when it comes to where they congregate and multiply.

They are also always in the process of evolving and growing.

If you take a glob of fat and look at it under a microscope, you are going to see cells in various stages of maturity, says Matthew Kaufman, M.D., a plastic and reconstructive surgeon who practices at the Institute for Advanced Reconstruction and the Plastic Surgery Center in New Jersey and Manhattan. Recent research shows, he notes, that a glob of fat contains not only adipocytes (mature, or adult, fat cells) but also preadipocytes (immature fat cells), and is a source of adult stem cells (precursor cells that have the potential to develop into various cells and tissues).

This stew of not-yet, almost and full-blown fat cells may play an important role in determining many aspects of overall health, from body weight to insulin resistance, from sex hormones to emotional well-being.

Our current understanding of the life stages of a fat cell is a far cry from the days when scientists believed that fat cells neither died nor reproduced.

We think preadipocytes may be used to replace old fat cells when they die out, Dr. Kaufman says. And the preadipocytes may come from stem cells in fat that are somehow prompted to emerge.

There is also evidence that fat is stimulated by certain chemicals in the body. One of these is insulin growth factor, or IGF. There is an intimate relationship between fat tissue in the body and insulin production.

Researchers have observed that as fatty tissue increases, insulin levels increase, perhaps with a corresponding elevation in IGF. Fat cells, Dr. Kaufman explains, are in turn stimulated by IGF; both insulin and IGF are likely to stimulate cell growth and inhibit cell death. In other words, you produce more fat cells, and they hang around longer.

The ever-increasing number of fat cells also produces hormones called adipocytokines. These speed up cell growth and play a role in inflammatory processes. And that, Dr. Kaufman says, is the beginning of a cycle of weight gain and increasing difficulty in losing weight: Individual fat cells expand, storing more lipids within their walls. This stimulates the maturation of preadipocytes into additional fat cells, and these mature fat cells get bigger, just like the ones before them.

A Fat Virus?

Given all the concern about our growing national waistline and the epidemic of type 2 diabetes that threatens to swamp our health-care system over coming decades, it's no surprise that researchers are trying to figure out just why Americans are so stubbornly fat and getting fatter all the time. Granted, we eat an enormous amount of fast food and watch far too much TV, but it doesn't seem possible that those factors alone could account for all the excess weight we have put on.

While we now have some knowledge of what happens in adipose tissue that makes fat cells fatter and more plentiful, we are just beginning to discover what sets off that process.

In 2007, Magdalena Pasarica, M.D., Ph.D., principal

researcher at the Pennington Bio medical Research Center in Baton Rouge, LA, presented a paper at the International Applied Fat Technology Society meeting about her research on the human adenovirus 36 (AD-36) and its effect on the various fat cells found in fatty tissue. Adenoviruses, the common viruses that cause colds and flu, usually produce conjunctivitis, respiratory tract infections or diarrhea. But when we infected chickens, rats, marmosets and mice with AD-36, says Dr. Pasarica, after three to six months, they all became obese, even though they consumed similar amounts of food as the control group did.

Dr. Pasarica's group then studied the effect of AD-36 in animal preadipocyte cell lines and found that the virus caused these cells to accumulate fat. Then, she explains, a study was done in humans. Researchers tested for the presence of AD-36 antibodies in the blood of 500 subjects from New York, Wisconsin and Florida; they were testing for people who had been infected with the virus at one point. What they found was that the people who were antibody positive were significantly heavier than the ones that were antibody negative.

The next step for Dr. Pasarica was to see what effect AD-36 had on adult stem cells found in fat. These stem cells, she notes, can become any type of cell—bone cells, fat cells, muscle cells. It all depends on the induction that you use for them; as Dr. Pasarica puts it, They are like blank cells.

After isolating the cells from liposuction aspirate, Dr. Pasarica's team performed a Petri dish experiment that showed that once the stem cells extracted from fat were infected with the virus, they became fat cells.

The virus tells them to become fat cells, she says. You can extrapolate this to humans: Suppose that a human is infected with this virus. The virus could go to the adipose tissue and induce the development of new fat cells. Also, existing fat cells will be fatter after infection.

"We've shown that AD-36 could act in three ways to make people become fatter and fatter, conjectures Dr. Pasarica. The virus makes existing fat cells bigger and fatter. It makes pre-fat cells turn into fat cells that in turn get fatter and fatter. And it influences stem cells in adipose tissue to turn into fat cells. It appears this is how we get more fat cells and fatter fat cells.

But the doctor knows that AD-36 is not the only cause of obesity in humans: We are not claiming that all obesity is caused by this infection, she stresses, but we do believe that a certain percent might be caused by it.

This line of research may eventually help provide the answer to the age-old question: Why, given two people with comparable diets and exercise routines, may one person become obese while the other person does not?

Clearly, we have yet to reveal all the mysteries surrounding the life of adipose tissue. But at least we now realize that it deserves our attention and respect.

Source: MediZine, LLC

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Always consult with your doctor first about your specific
condition, treatment options and other health
concerns you may have.

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