Cleaning up eggs, p. 9 | A guide to sandwich shops, p. 12 | Tuna in a pouch, back cover

Nutrition Action HEALTH LETTER™
NOVEMBER 2010 $2.50
CENTER FOR SCIENCE IN THE PUBLIC INTEREST

Photo: Eric Audras/PhotoAlto Agency RF Collections/Getty Images.

BAD FOR BONES?

The latest on food and fractures

An apple. A bagel. A chunk of cheese. Which of them may weaken your bones and muscles, boosting your long-term risk of hip or spinal fractures?

It's no surprise that calcium-rich cheese should help *strengthen* your bones (though that may not happen if you get too little vitamin D).

But recent studies also suggest that too many grain foods—bagels, bread, cereal, rice, pasta, and cookies and other baked goods—may lead to bone and muscle loss by creating an acid load in the body.

The good news: Replacing grains with fruits and vegetables can neutralize the acid load (and maybe some of that blubber load you've been trying to jettison).

Here's the latest on what we know about what may—and may not—keep you fracture-free.

Continued on p. 3.

U.S. EDITION

STATEMENT OF OWNERSHIP, MANAGEMENT, AND CIRCULATION (All Periodicals Publications Except Requester Publications) 1. Publication Title: *Nutrition Action Healthletter*. 2. Publication Number: *0007-704*. 3. Filing Date: *September 14, 2010*. 4. Issue Frequency: *Monthly except for combined issues in Jan-Feb and July-Aug*. 5. Number of Issues Published Annually: *10*. 6. Annual Subscription Price: *US$24.00*. 7. Complete Mailing Address of Known Office of Publication (not printer): *1220 L St., N.W., Suite 300, Washington, D.C. 20005-4053*. Contact Person: *Dennis Bass*. Telephone *202-332-9110*. 8. Complete Mailing Address of Headquarters or General Business Office of the Publisher (not printer): *Same as #7*. 9. Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor: Publisher: *Michael F. Jacobson, same address as #7; Editor and Managing Editor: Stephen B. Schmidt, same address as #7*. 10. Owner: Full Name: *Center for Science in the Public Interest, Inc., a nonprofit corporation*. Complete Mailing Address: *Same as #7*. 11. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages or Other Securities. If none, check box: *None*. 12. Tax Status (For completion by nonprofit organizations authorized to mail at nonprofit rates): *The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes has not changed during the preceding 12 months*. 13. Publication Title: *Nutrition Action Healthletter*. 14. Issue Date for Circulation Data Below: *September 2010*. 15. Extent and Nature of Circulation: 15.a. Total Number of Copies (net press run): Average no. copies each issue during preceding 12 months, *786,919*; No. copies of single issue published nearest to filing date, *808,010*. 15.b. Paid Circulation (By Mail and Outside the Mail): 15.b.1. Mailed Outside-County Paid Subscriptions Stated on PS Form 3541 (Include Paid distribution above nominal rate, advertiser's proof copies, and exchange copies): Average no. copies each issue during preceding 12 months, *740,195*; No. copies of single issue published nearest to filing date, *765,175*. 15.b.2. Mailed In-County Paid Subscriptions Stated on PS Form 3541 (Include Paid distribution above nominal rate, advertiser's proof copies, and exchange copies): Average no. copies each issue during preceding 12 months, *0*; No. copies of single issue published nearest to filing date, 0. 15.b.3. Paid Distribution Outside the Mails Including Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Paid Distribution Outside USPS: Average no. copies each issue during preceding 12 months, *937*; No. copies of single issue published nearest to filing date, *1,167*. 15.b.4. Paid Distribution by Other Classes of Mail Through the USPS (e.g. First-Class Mail): Average no. copies each issue during preceding 12 months, *898*; No. copies of single issue published nearest to filing date, *800*. 15.c. Total Paid Distribution (sum of 15.b(1), (2), (3), and (4)): Average no. copies each issue during preceding 12 months, *742,030*; No. copies of single issue published nearest to filing date, *767,142*. 15.d. Free or Nominal Rate Distribution (By Mail and Outside the Mail): 15.d.1. Free or Nominal Rate Outside-county Copies included on PS Form 3541: Average no. copies each issue during preceding 12 months, *26,870*; No. copies of single issue published nearest to filing date, *25,717*. 15.d.2. Free or Nominal Rate In-County Copies Included on PS Form 3541: Average no. copies each issue during preceding 12 months, *0*; No. copies of single issue published nearest to filing date, *0*. 15.d.3. Free or Nominal Rate Copies Mailed at Other Classes Through the USPS (e.g. First-Class Mail): Average no. copies each issue during preceding 12 months, *25*; No. copies of single issue published nearest to filing date, *25*. 15.d.4. Free or Nominal Rate Distribution Outside the Mail (Carriers or other means): Average no. copies each issue during preceding 12 months, *0*; No. copies of single issue published nearest to filing date, 0. 15.e. Total Free or Nominal Rate Distribution (sum of 15.d(1), (2), (3), and (4)): Average no. copies each issue during preceding 12 months, *26,895*; No. copies of single issue published nearest to filing date, *25,742*. 15.f. Total Distribution (sum of 15.c. and 15.e.): Average no. copies each issue during preceding 12 months, *768,925*; No. copies of single issue published nearest to filing date, *792,884*. 15.g. Copies not Distributed: Average no. copies each issue during preceding 12 months, *17,994*; No. copies of single issue published nearest to filing date, *15,126*. 15.h. Total (sum of 15.f. and 15.g.): Average no. copies each issue during preceding 12 months, *786,919*; No. copies of single issue published nearest to filing date, *808,010*. 15.i. Percent Paid (15.c. divided by 15.f. times 100): Average no. copies each issue during preceding 12 months, *96.5%*; No. copies of single issue published nearest to filing date, *96.8%*. 16. Publication of Statement of Ownership. If the publication is a general publication, publication of this statement is required. Will be printed in the November 2010 issue of this publication. 17. I certify that all information furnished on this form is true and complete. I understand that anyone who furnishes false or misleading information on this form or who omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including civil penalties). Signature and Title of Publisher. *Michael F. Jacobson, Ph.D. (signed), Publisher, September 14, 2010.*

Nutrition Action Healthletter (ISSN 0885-7792) is published 10 times a year (monthly except bi-monthly in Jan./Feb. and Jul./Aug.).

POSTMASTER: Send changes to ***Nutrition Action Healthletter***, 1875 Connecticut Ave., N.W., Suite 300, Washington, DC 20009-5728.

Application to mail at Periodical postage rates approved at post office of Washington, DC, and at additional offices.

Design and production by The Page Group (www.pagegroup.com).

Subscriber Services

The cost for a one-year subscription or gift (10 issues) is $24; two years are $42. ■ **For bulk subscriptions**, please write for details. ■ **To change your address**, send us your subscriber number and your old and new address. ■ **If you don't want us to exchange your name**, send us your name and mailing-label information. ■ **Mail:** CSPI, 1875 Conn. Ave., N.W., Suite 300, Washington, DC 20009. **Fax:** (202) 265-4954.

E-mail: circ@cspinet.org. ■ **Internet:** www.cspinet.org. ■ **Expiration date** is in the upper center of your mailing label. Your **subscriber number** precedes the expiration date.

GUARANTEE! We'll give you 2 FREE ISSUES of *Nutrition Action* if there's ever a problem with your subscription.

The contents of* NAH *are not intended to provide medical advice, which should be obtained from a qualified health professional.

BAD FOR BONES?

The latest on food and fractures

One in two women and one in four men over age 50 will break a bone because of osteoporosis, which literally means "porous bones." The older you are, the higher your risk.

By the time you're 40, your body starts losing more bone than it makes. Losing just 10 percent of your bone mass can double your risk of fracturing a spine or hip.

And it's not just weak bones, but weak muscles, that lead to debilitating fractures. Here's how to avoid both.

ACID LOAD

Q: What would surprise people who want to prevent bone fractures?

A: You can't just think about bones. As we age, we lose muscle mass at a pretty good clip and our balance becomes worse, so we have a greater risk of falling. This is a major, major contributor to osteoporotic fractures.

Falls create the fracture opportunity, so there's a lot of interest in them these days. For five years now, we've viewed fracture risk as not just a matter of bone content, but also a matter of muscle.

If you can't improve muscle performance and balance, it's hard to lower the risk of falls, and falls will create fractures. So we're interested in nutrients that affect both bone and muscle.

Q: Which nutrients affect both?

A: The acid-base balance of the diet is one factor that we're working on enthusiastically. The acid load generated by many diets isn't handled well by older people because of their declining kidney function. So they become gradually, mildly, but progressively acidotic. That is, they have too much acid in the bloodstream.

That causes muscle wasting. Muscle loss is the body's way of adapting to the excess acid. So is bone loss.

Q: So the body breaks down bone and muscle to neutralize the excess acid?

A: Yes. We know that bone cells have hydrogen ion receptors, so they're sensitive to excess acid. No one has worked out exactly how acid signals the muscle to break down. But it's clear that the body tries to defend against increasing acid by breaking down bone and muscle.

Q: Do acidic foods like citrus fruit create acid in the body?

A: No. Grains—like bread, cereal, rice, pasta, crackers, tortillas, cookies, doughnuts, cupcakes, and similar foods—and protein do. When they are metabolized, they release sulfuric and other acids into the bloodstream.

In contrast, fruits and vegetables get broken down into bicarbonate when they are metabolized, so they add alkali to the body. And that helps to neutralize acid. Sugars and fats are generally neutral. So when the diet is relatively poor in fruits and vegetables relative to grains and protein, that's a net acid-producing diet. [See "Dropping Acid," p. 5.]

Q: Do we have conclusive evidence that eating a diet that neutralizes excess acid protects bone?

A: No, but it's promising. We've put people on an acid-producing diet—that is, a diet high in protein and grains—and then given them an alkali like potassium bicarbonate. And you can see markers of bone turnover drop. And nitrogen excretion, which is an indication of muscle wasting, also declines.

These effects occur immediately, and they're reversible when you reverse the acid load. That's been shown in short-term studies, and we also did a three-month study in 170 healthy older people.

When we gave bicarbonate to the people on the acid-producing diet, it resulted in reduced bone turnover markers. And the women—who got a higher dose for their body weight than the men—actually improved their performance doing a double leg press. The bicarbonate increased power in their legs and decreased nitrogen wasting, which suggests that they were losing less muscle mass.

Q: Were the people very old?

A: No. We studied men and women aged 50 and older. The average age was 63. Muscle wasting picks up and is continuous from the 40s on. You can see this if you look around you. You can see it in the mirror. And you can also see it on the street. It's obvious. You see people with a big belly and skinny legs.

Q: Do both animal and vegetable protein produce acid?

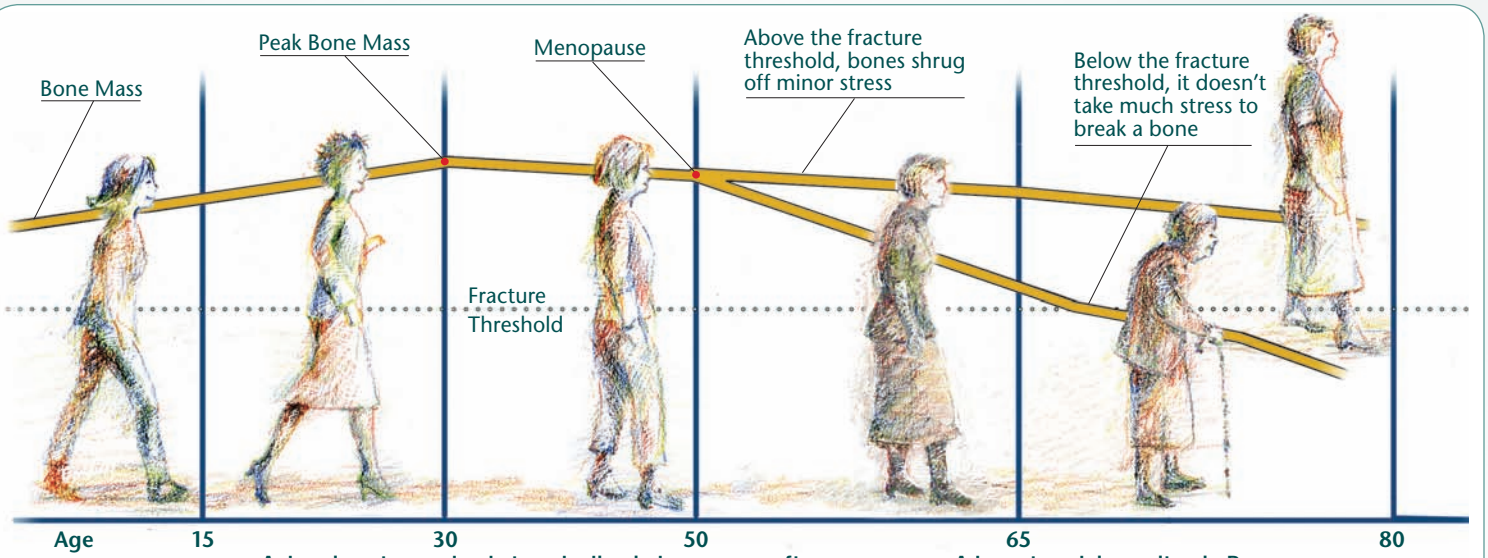
A: Since plant protein generally comes in foods like beans, which have an accompanying alkaline source, it is less acid-producing than the same amount of protein from beef. But it's not the protein that matters.

The acid-producing quality depends on how many sulfur-containing amino acids are in the protein, and there's a wide range in both plant and animal protein sources. So it's misleading to refer to protein as plant or animal, unless you know the overall picture.

Bess Dawson-Hughes is a professor of medicine at Tufts University School of Medicine in Boston and the director of the Bone Metabolism Laboratory at the Jean Mayer U.S. Department of Agriculture Human Nutrition Research Center on Aging at Tufts. She is a past-president and trustee of the National Osteoporosis Foundation, general secretary of the International Osteoporosis Foundation, and the author of more than 280 journal articles, book chapters, and reviews. *Nutrition Action*'s Bonnie Liebman spoke to her by phone from Boston.

> > > > >

Photo: Eric Audras/PhotoAlto Agency RF Collections/Getty Images (top).



A drop in estrogen leads to a decline in bone mass after menopause. Adequate calcium, vitamin D, fruits, vegetables, and exercise can help keep bone mass from falling below the fracture threshold. That's the zone in which a hip, spine, or wrist is more likely to break.

Illustration: Loel Barr.

Q: Are you saying that protein is bad for bones?

A: No. Many adults aren't getting the amount of protein that most of us think is needed. The Recommended Dietary Allowance is 0.8 grams of protein per kilogram of body weight, but 1.0 or 1.1 grams per kilogram seems to be associated with slower muscle wasting in older people. There's not final proof, but the evidence is compelling.

So cutting protein to lower acid load can be counterproductive to individuals with marginal protein intake. Instead, we need to cut back on grain foods. In an obese population, to get rid of some of these grains—which are calorie-laden and acid-producing—would be the ticket.

Q: What's the next step in your research?

A: We want to do a longer, three-year trial, with hard endpoints like muscle size, muscle performance, rates of bone loss, etc. But first we need to make sure that we are using the optimal dose of potassium bicarbonate. We are trying to get a dose-ranging study approved and done so that we can do the big trial with the best dose.

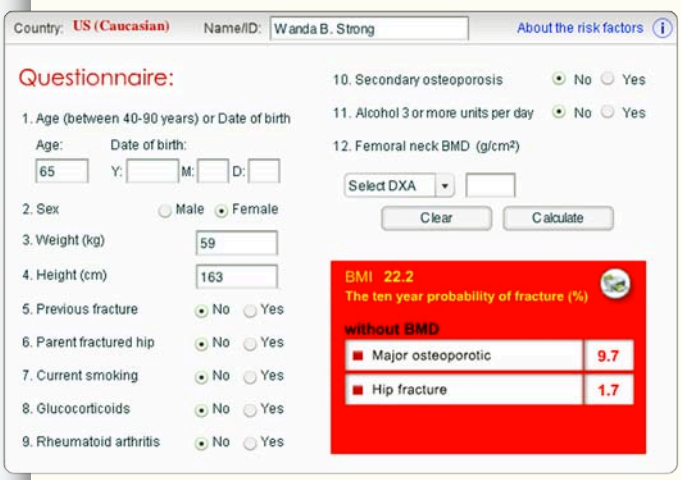
Unfortunately, that isn't always done. With vitamin D, for example, trials have used different doses. There are no dose comparisons that would enable you to make an educated guess at the best dose. So now—millions and millions of dollars later—we are left trying to infer what the best vitamin D dose would be. It's wasteful to do it that way. But getting funding to test doses is so grindingly slow.

Q: Would you recommend that people consume bicarbonate?

A: No. I would advise people to eat fruits and vegetables. We're studying potassium bicarbonate because we know precisely how much acid it neutralizes.

WHAT'S YOUR FRAX?

You can use the FRAX (Fracture Risk Assessment Tool) to estimate your risk of fracture, whether or not you've had your bone mineral density (BMD) tested. The National Osteoporosis Foundation Guide recommends that doctors consider prescribing medication if your risk of a hip fracture is at least 3 percent—or your risk of any major bone fracture is at least 20 percent—over the next 10 years. Most women (and men) do not cross either of those thresholds until their 70s.



A typical 65-year-old woman—like Wanda B. Strong—would need medication only if she had a previous fracture due to mild trauma (like falling from standing height, not as the result of a car crash), or if she had taken glucocorticoids (like prednisolone) for more than three months, or if she had rheumatoid arthritis (not osteoarthritis), or if she had secondary osteoporosis (a condition—like menopause before age 45 or Type 1 diabetes—that is strongly linked to osteoporosis).

To calculate your FRAX score, go to www.sheffield.ac.uk/FRAX and click on Calculation Tool.

VITAMIN D

Q: What other nutrients are linked to both muscle and bone?

A: Vitamin D. It improves strength in the legs and lowers the risk of falling. Second, it improves bone strength, so it lowers the risk of your having a fracture should you fall.

Q: How does it work?

A: Vitamin D is essential for the absorption of calcium, which is needed for bone. Animals that are totally vitamin-D-deficient cannot form bone and can't remodel bone. [See "Super Remodel," p. 6.] Inadequate D levels are associated with more rapid bone loss and more fractures, no question.

Q: How does vitamin D affect muscle?

A: That's not as thoroughly understood at the cellular and molecular level. There are vitamin D receptors

in muscle tissue. And in a couple of small studies, treatment with D increased the number of vitamin D receptors and the size of the type 2 muscle cell fibers. And extreme vitamin-D-deficiency is associated with a deficit of the type 2 fibers.

These are the fast-twitch fibers that are your first responders when you are losing your balance. It is well documented that inadequate D levels are associated with higher risk of falling. So vitamin D is really important for muscle.

Q: Do most people get too little vitamin D?

A: Yes. Sixty percent of people in the U.S. and Europe get too little vitamin D. The percentages are higher in the Middle East and Southeast Asia.

The most important source of vitamin D is sun exposure, which increases the body's production of vitamin D. The diet is not rich in D. There's a little in fatty fish and in eggs, but by and large, most people without sun exposure will need a supplement.

Q: You were on the panel that set the current Recommended Dietary Allowances for vitamin D. Are the RDAs too low?

A: Yes, we still have the 1997 values—400 International Units for adults aged 51 to 70 and 600 IU for people over 70—and they are too low.

People aged 60 and older need 800 to 1,000 IU a day to keep blood levels at 30 nanograms per milliliter. But we'll just have to wait to see what the panel will do this time around.

Q: What if you're low in vitamin D and are producing too much acid?

A: In animal experiments, we're trying to determine the precise effects that both vitamin D and an acid load have on muscle at the cell level to see whether there is any interaction. It could be that vitamin D doesn't function well in an acid environment. That's our hypothesis. We'll have those results soon, and it's going to be very exciting. It might open some new avenues for research.

OTHER NUTRIENTS

Q: What nutrients are crucial just for bone?

A: Calcium is huge. In meta-analyses, there's about a 20 percent reduction in the risk of fractures when people are given both calcium and vitamin D. We also found a lower risk of tooth loss when we have people over 65 take both calcium and vitamin D supplements for three years. However, calcium without vitamin D may not be as protective of bones or teeth.

Q: Does potassium matter?

A: We did a trial to figure out whether it was the potassium or the bicarbonate or if you needed the combination. And it turned out it was the bicarb. Potassium had no impact on short-term indicators of bone loss or muscle wasting. Potassium is great for other things like blood pressure.

Q: And vitamin K?

A: It was promising for a while, but vitamin K1—that's what's in lettuce and other dark leafy green vegetables—had no impact on rates of bone loss in three or four large trials. There is interest in some of the other K compounds but at higher, pharmacologic doses, not what you would get in foods.

Q: What about magnesium?

A: We haven't made much progress with magnesium, simply because it's so hard to get an indicator of the body's magnesium status. The blood level doesn't tell you that, and there's no easy assay to measure tissue levels. It's analogous to the osteoporosis field prior to bone-density scans. You couldn't get a handle on what the bones were doing in a large number of people.

Q: Does excess salt harm bones?

A: Salt—sodium chloride—isn't good because it causes calcium leaching. It can tip you into a calcium deficit if you have a borderline calcium intake and are eating a lot of salt. In order to get rid

> > > > >

DROPPING ACID

Here's the potential renal acid load (PRAL) for a sample of foods. Look for foods with high negative PRALs (like fruits and vegetables) to neutralize high positive PRALs.

Why list only whole milk and full-fat yogurt? You'd have to ask the German researchers who compiled the data in the 1990s.

Fruits	PRAL
Raisins *(¼ cup)*	-8.4
Apricots *(4)*	-6.7
Kiwi fruit *(2)*	-6.1
Watermelon *(2 cups)*	-5.3
Pear *(1)*	-4.8
Orange *(1)*	-4.2
Apple *(1)*	-3.4
Pineapple or Strawberries *(⅔ cup)*	-3.1
Peach *(1)*	-2.4
Vegetables *(½ cup cooked unless noted)*	
Spinach	-12.6
Zucchini	-4.1
Carrot	-3.8
Tomato, raw *(1)*	-2.6
Cauliflower	-2.5
Lettuce, raw *(3 cups)*	-2.1
Green beans	-1.6
Broccoli	-0.9
Asparagus	-0.4
Miscellaneous	
Olive oil *(1 Tbs.)*	0.0
Sugar *(1 tsp.)*	0.0
Butter *(1 Tbs.)*	0.1
Milk chocolate *(1.5 oz.)*	1.0
Cereal & Grains	
Bread, whole wheat *(1 slice)*	0.8
Bread, white *(1 slice)*	1.6
Rice, white *(½ cup cooked)*	2.7
Rolled oats *(1 cup cooked)*	8.7
Dairy & Eggs	
Ice cream, vanilla *(1 cup)*	0.8
Soft cheese *(1 oz.)*	1.2
Whole milk *(8 oz.)*	1.7
Fruit yogurt, whole milk *(6 oz.)*	2.0
Eggs *(1 large)*	4.1
Hard cheese *(1 oz.)*	5.4
Cottage cheese *(½ cup)*	9.6
Fish, Meat, & Poultry *(5 oz. raw)*	
Haddock	9.7
Beef or Pork, lean only	11.2
Chicken, no skin	12.4
Turkey, no skin	14.1
Beverages	
Red wine *(5 oz.)*	-3.5
White wine, dry *(5 oz.)*	-1.8
Draft beer *(16 oz.)*	-1.0
Coca-Cola *(12 oz.)*	1.5

Source: *J. Am. Diet. Assoc. 95*: 791, 1995.

of the salt, the kidney is going to get rid of calcium. It doesn't have the skill to be selective.

Q: Does too much vitamin A retinol increase the risk of hip fracture?

A: That hasn't gotten much farther than the observation that higher vitamin A levels have been associated with fractures in a couple of studies. We've known that vitamin A is very toxic to bone at extremely high levels. In fact, vitamin A toxicity is characterized by massive bone loss and coma. But whether typical levels are a risk, we don't know.

Nevertheless, I think it's wise to avoid excess vitamin A. I would stick to no more than 2,000 to 3,000 IU of retinol per day. [See "The Bottom Line."]

When there weren't many vitamin-D-fortified foods or supplements, some doctors were recommending a double daily dose of multivitamins in order to get the 800 IU of vitamin D that some of us recommend for people over 70. That's not a good idea because you could get too much vitamin A.

Beta-carotene in fruits and vegetables isn't associated with bone loss even though the body turns it into vitamin A.

EXERCISE

Q: Does exercise help?

A: Absolutely. Aim for at least half an hour a day of weight-bearing exercise like walking or dancing. [See "Step On It!"] There's no solid, unequivocal evidence for exactly what regimen and for how long and for how many days per week. All those details haven't been worked out so you just have to do something reasonable.

Q: Either strength training or aerobic?

A: Yes. But with either kind, the spine seems to respond better, as do the hips, when you are in the upright position as opposed to lying down. That sends a different signal to the bone.

Q: How does weight-bearing exercise strengthen bones?

A: This has been a big question for a long time. It appears that the mechanical load from the weight is turned into a chemical signal by the osteocytes. These are the former osteoblasts, the bone-forming cells, that get entrapped in the bone.

For years we had thought that, once they did their job, they were just entombed, do-nothing cells, and that's not right. They have tentacles that go out and touch one another and communicate the signal to build new bone tissue.

MEDICATION

Q: Are we treating the right people with drugs to prevent bone loss?

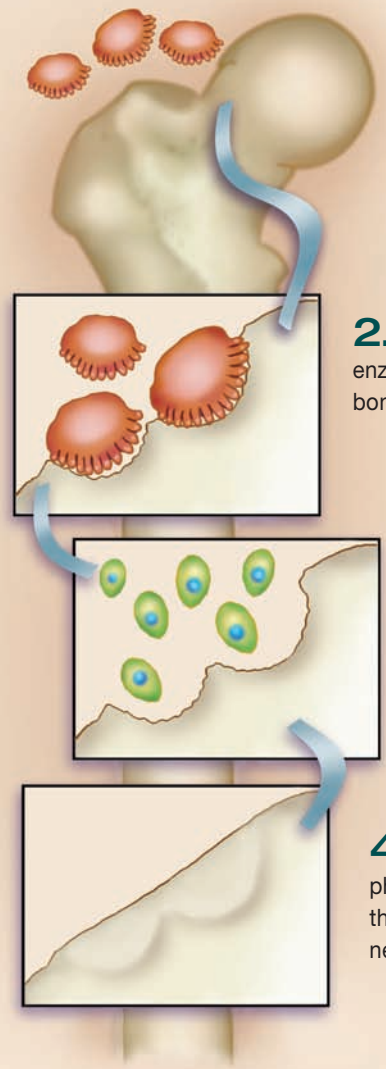
A: Not exactly. I led a group that looked at the potential impact of the National Osteoporosis Foundation's latest guide on treatment. It's based on the FRAX, or Fracture Risk Assessment Tool, which was developed by the World Health Organization to estimate the 10-year risk of a fracture based on age, weight, family history of fractures, etc. [See "What's Your FRAX?" p. 4.]

We found that people age 70 and older are practically all good candidates for treatment, but that those in their 50s are generally not good candidates.

This is very important. If the new guide is right, then we've been overtreating women in their 50s and 60s and undertreating older women.

SUPER REMODEL

Most of the adult skeleton is replaced about every 10 years. Remodeling repairs small cracks, gets rid of old bone, and frees up calcium in case the body needs it.



1. Bone-dissolving cells called osteoclasts approach old bone.

2. Osteoclasts use enzymes to dissolve bone tissue.

3. Bone-building cells called osteoblasts prepare to lay down a bone matrix made mostly of a protein called osteocalcin.

4. Calcium and phosphorus attach to the matrix and create new bone.

Illustration: Loel Barr.

Q: Do some women in their 50s and 60s need medication?

A: Yes. If you've had a prior spine or hip fracture, you are a candidate for treatment. And if a bone-density test shows a T-score of -2.5 or lower at the spine or hip—that means you already have osteoporosis—you don't need a FRAX score. You need treatment, no matter what your age.

Q: So the question is what to do about people whose bone density is low, but not low enough to be osteoporosis?

A: Yes. Among women who have a T-score in what is called the osteopenia range—that is, between -1.0 and -2.5—over 40 percent of those in their 50s would have been candidates for treatment by the old guide. By the new guide, only about 8 percent are candidates.

You see that huge shift. And among women in their 60s with osteopenia, around 55 percent by the old guide but only about 18 percent by the new guide are candidates for treatment.

Q: What about older women?

A: That hasn't changed much. Among women in their 70s with osteopenia, about 60 percent should be candidates for treatment and by their 80s, about 90 percent would be candidates.

Yet many older people are not particularly worried, and many

physicians are not recognizing the need for treatment.

So I'm hoping that this condition will be taken more seriously by physicians treating women and men in their 70s and 80s and 90s. And that they don't jump on the treatment bandwagon so early with people in their 50s.

Q: Should all women get their bone density measured?

A: Most don't need it until they're 65. Women under 65 should get a bone-density test and get a FRAX score only if the doctor is concerned about their risk factor profile.

Q: What about men?

A: Men can wait until age 70, but then the advice is the same. If their T-score is in the osteopenia range and their FRAX score is high enough, they're good candidates for treatment.

Q: The theme of this year's World Osteoporosis Day—October 20th—was "Don't miss the signs of a breaking spine." Why do spinal fractures often go undiagnosed?

A: Sometimes the fractures are slow and occur micron by micron. Nerve endings aren't that involved. People will notice that the shape of their back or their height has changed, and they'll get an X-ray and see these fractures. That's not uncommon.

But they would not have been painful discrete events. They don't hurt. That's fortunate, but unfortunately, the intervention is sometimes delayed because people are unaware of them.

Q: Are hip fractures a bigger problem?

A: Oh yes, because they require surgery and longer hospital stays and then more time in a rehab institution, etc. Hip fractures cost about $30,000 each in direct medical costs.

But spinal fractures are also associated with increased risk of declining health and death. That's even true for wrist fractures. A recent study found that people who've had wrist fractures start to lose their overall ability to get around and do their activities over the following six to seven years. It's an indicator of declining health.

Q: Are hip and spinal fractures equally preventable?

A: With diet and exercise, yes. With drugs, it depends. Some drugs lower risk of spine fracture only, whereas others lower risk of fractures at all sites.

Bisphosphonates like Fosomax, Actonel, and Reclast—the once-a-year injection—have powerful effects on the spine and hips. Drugs like Evista and some of the weaker bisphosphonates, like Boniva, just lower spine fractures.

Q: Can bisphosphonates cause hip fracture?

A: There may be a slight increase in the risk of an unusual kind of hip fracture, but it pales beside the risk of having a fracture from untreated osteoporosis. We need to keep it in perspective.

It's similar to the fear that the bisphosphonates could cause jaw osteonecrosis—a rare condition involving bone lesions that fail to heal. In both cases, the risk is minuscule compared with the risk of not treating osteoporosis.

Q: But there's quite a bit we can do before drugs are on the table?

A: Yes. The take-home message is that diet and exercise have real impact on both bone and muscle health.

STEP ON IT!

Any weight-bearing exercise is good for your bones. Here are a few high- and low-impact examples. Exercise that isn't weight-bearing may be good for your heart and waistline, but won't help your bones.

HIGH-IMPACT

- Dancing
- High-impact aerobics
- Hiking
- Jogging or Running
- Jumping rope
- Stair climbing
- Tennis

LOW-IMPACT

- Using elliptical training machines
- Low-impact aerobics
- Using stair-step machines
- Fast walking on a treadmill or outside

NON-WEIGHT-BEARING

- Bicycling or Indoor cycling
- Stretching and flexibility exercises
- Swimming
- Water aerobics
- Deep-water walking

THE BOTTOM LINE

Food or Nutrient	Shoot for This Much Every Day	What You Need to Know
Calcium	1,000 mg if 19 to 50 1,200 mg if over 50	To protect the prostate, men shouldn't exceed 1,500 mg a day.
Vitamin D	400 IU if adult up to age 60 800 to 1,000 IU if over 60	Adults 60 and younger may need more than 400 IU a day, but evidence is hard to come by because fractures are rare in younger people.
Protein	At least 60 grams (women) At least 80 grams (men)	These levels are for a typical 130 lb. woman or 175 lb. man. Rule of thumb: Your target protein in grams is roughly half your weight in pounds.
Fruits & Vegetables	At least 11 servings a day	There's no better way to neutralize excess acid.
Exercise (weight-bearing)	30 minutes or more	To get or stay trim, you'll need 60 to 90 minutes a day.
Vitamin A retinol (as acetate or palmitate)	2,330 IU (women) 3,000 IU (men) (More is okay only if it's from beta-carotene.)	The outdated Daily Value (DV) for vitamin A that's used on labels (5,000 IU) is too high.

Vitamin Zzzzzz

Dieters lose more fat and less muscle if they get enough sleep, says a small, provocative new study.

Researchers put 10 sedentary overweight middle-aged men and women on a lower-calorie diet. For two weeks, roughly half were allowed to sleep for 5½ hours a night, while the other half got to sleep for 8½ hours. After a three-month break, they switched.

Sleep had no impact on how many pounds the participants lost. But when they were sleep-deprived, they lost 55 percent less fat and 60 percent more lean body mass (mostly muscle) than when they were allowed to sleep for 8½ hours a night.

The participants also had a lower metabolic rate, felt more hungry, and had higher ghrelin levels when they were sleep-deprived. Ghrelin is a hormone that stimulates appetite.

What to do: Shoot for eight hours of sleep each night. Although these results need to be confirmed, other studies have found that people who sleep less are more likely to be overweight or obese.

Ann. Intern. Med. 153: 435, 2010.

PREVENTING PARKINSON'S

Exercise may lower your risk of Parkinson's disease, the second most common cause of dementia among older people.

In the mid-1990s, researchers asked more than 200,000 middle-aged and older participants in the NIH-AARP Diet and Health Study how often they exercised during four periods of their lives (ages 15 to 18, 19 to 29, 35 to 39, and in the past 10 years).

A decade later, 767 of the participants had been diagnosed with Parkinson's disease. Participants who had reported more than seven hours a week of moderate or vigorous activity at ages 35 to 39 or in the recent decade were 35 to 40 percent less likely to be diagnosed with the illness than those who rarely or never did moderate to vigorous activity. Lighter activity and exercise at younger ages weren't linked to Parkinson's.

What to do: It's possible that the less-active people in the study exercised less because the disease had already begun before they entered the study. If that were the case, exercise wouldn't lower the risk of Parkinson's.

Of course, there are plenty of other reasons to exercise. But you can't just stroll, bowl, slow dance, or do light housework. Those are light activities. Try brisk walking, tennis, biking, swimming, or not-so-slow dancing.

Neurology 75: 341, 2010.

Photo: © Monkey Business/fotolia.com.

Green Leafies vs. Diabetes

Green leafy vegetables like spinach and kale may lower the risk of Type 2 diabetes.

British researchers pooled the results of four studies that followed a total of 177,000 people (mostly women) for 5 to 23 years.

Overall, those who averaged 1⅓ servings of green leafy vegetables a day were 14 percent less likely to be diagnosed with diabetes than those who averaged only one serving every five days.

What to do: It's not clear if greens prevent diabetes or if it's just that healthy people eat more greens *and* have a lower risk of diabetes. Either way, why not have a spinach salad tonight?

BMJ 341: c4229, 2010.

Whole Grains & Belly Fat

People who eat more whole grains have less visceral belly fat, the kind that's linked to a higher risk of heart disease and diabetes.

Scientists measured both subcutaneous (below-the-skin) fat and the deeper layer of visceral fat in more than 2,800 middle-aged participants in the Framingham Heart Study. People who reported eating at least three servings of whole grains a day had 10 percent less visceral fat than those who said they ate less than a serving per week.

However, whole grains were not linked to less visceral fat in people who also consumed at least four servings of refined grains a day. Whole-grain eaters also had smaller waist sizes than refined-grain eaters.

What to do: Replace refined grains with whole grains. The Framingham participants got most of their whole grains from bread, ready-to-eat breakfast cereals, oatmeal, popcorn, and brown rice. Pasta, English muffins, white bread, pizza, and white rice were the major sources of refined grains.

Am. J. Clin. Nutr. doi: 10.3945/ajcn.2009.29106.

Walking on Eggshells

Keeping eggs—and hens—safe

BY DAVID SCHARDT

Mice, Maggots, & Manure

"It's the worst thing I've ever been through," Robin Shaffer recalled. "I had no energy. The pain. You'd try to keep something in you and it just comes out."

When Shaffer ate an enchilada, bean burrito, and chile relleno combo meal at a Mexican restaurant in Bemidji, Minnesota, in May, she had no idea that a raw egg tainted with *Salmonella* bacteria had contaminated her food in the kitchen. That would knock Shaffer off her feet for three weeks. "My life was literally the toilet," she told a local TV station.

Shaffer and six other diners at the restaurant were among the first of what would become more than 1,600 documented victims of the largest outbreak of *Salmonella enteritidis* food poisoning since the government began compiling statistics in 1973.

The outbreak set off a national debate about how our eggs are produced. Is it cruel to cram hens into tiny cages, with no access to the outdoors, and with no room to nest or perch? Are "cage-free" eggs more humane? Are they less likely to make people sick?

After Robin Shaffer and restaurant-goers in at least 10 states became infected by *Salmonella* in May, epidemiologists in Minnesota and California were able to finger the likely source: two factory farms in Iowa that together produce more than a billion eggs a year.

But Wright County Egg and Hillandale Farms didn't just supply restaurants. Their eggs were also sold in bulk to other companies that packaged them for resale in supermarkets under evocative brand names like Sunny Farms, Sunny Meadow, and Wholesome Farms.

When inspectors from the Food and Drug Administration finally descended on the two farms in mid-August, what they found was anything but "sunny" or "wholesome."

Both companies' laying houses, which each held tens of thousands of hens, were infested with flies, maggots, wild birds, and rodents. Chicken manure was piled four to eight feet high below some of the cages. Any of that might have been the source of the *Salmonella*.

In fact, in September, Congressional investigators discovered that Wright County Eggs had detected *Salmonella* on its equipment and in its barns at least 73 times during the past two years. While the companies agreed to recall a half billion of their eggs, by that point most of them had probably already been eaten.

"There is no question that these farms were not operating with the standards of practice that we consider responsible," said FDA Commissioner Margaret Hamburg.

Yet neither egg operation had ever been inspected by the FDA. (The agency rarely checks food plants.) The FDA now says that it intends to inspect all 600 of the major U.S. egg producers.

Crowded Hens

Filth aside, is there a more humane way to produce the nation's nearly 80 billion eggs each year? And, if so, is it less likely to turn out eggs that are tainted with *Salmonella*?

More than nine out of 10 eggs are laid by hens that are confined for their lifetimes in battery cages, typically five to eight hens to a cage. (The cages are arrayed in "batteries"—rows of cages stacked one atop another.) Within each cage, every hen has about 67 square inches of floor space, less than the size of this page. That's not enough room for them to stretch their wings or engage in other activities that are natural for hens—like nesting, perching, and rolling around on the ground (dustbathing).

It's also not enough room for them to lay their eggs like uncaged chickens can.

"The birds suffer from extraordinary frustration on a daily basis," says Paul Shapiro of The Humane Society of the United States.

Too close for comfort. A typical caged hen lives in an area no bigger than this page.

> > > > >

Egg Tips

Salmonella in eggs is rare. Just 1 in every 20,000 eggs is contaminated. But if that egg happens to be in your next carton, the statistics don't matter.

- Refrigerate eggs as soon as possible in their original carton in the coldest part of the refrigerator (usually the body of the fridge, not the door). Discard cracked or dirty eggs.
- Wash your hands, cooking utensils, and food preparation surfaces with soap and water after contact with raw eggs.
- Cook your eggs until both the white and the yolk are firm. (*Salmonella* could be in either part.)
- Use pasteurized egg whites like Egg Beaters in place of regular eggs. Or try pasteurized eggs, which look and taste like regular eggs but have been heated in the shell to kill bacteria and viruses. You can identify them by the red "P" that's stamped on the carton or on each egg.
- Eat cooked eggs promptly. They shouldn't be kept warm (like in a steam table at a restaurant) or at room temperature for more than two hours.
- Avoid dishes made with raw or undercooked eggs. That includes homemade (or restaurant-made) Hollandaise sauce or Caesar salad dressing. Commercially bottled versions are okay.

Sources: CDC and CSPI.

"Chickens in nature have a very strong desire to lay their eggs in a private, dark, secluded nesting area, but battery cages don't allow them to do that."

A far smaller number of laying hens live in indoor "cage-free" houses, where they can walk around, spread their wings, lay their eggs in nests, and, in some facilities, perch and dust-bathe. But most cage-free hens aren't free to wander outside.

The list of supermarkets, food processors, and restaurants that have rejected eggs from battery cages in favor of cage-free eggs is growing. In February, Walmart, the nation's largest grocery store chain, announced that all eggs sold under its Great Value brand will be cage-free. The company joins Costco, Safeway, Trader Joe's, Whole Foods, and other retailers in shifting to cage-free eggs.

This summer, the world's two largest cruise companies, Carnival Cruise Lines and Royal Caribbean Cruise Lines, announced that they will begin converting to cage-free for the several million eggs they serve to passengers each year. Ben & Jerry's, Burger King, Denny's, Subway, and Wendy's are shifting to cage-free eggs, as have the dining facilities at nearly 350 colleges and universities.

And the state of California has announced that it will ban the sale of eggs from battery-caged hens beginning in 2015.

Why the growing movement to cage-free production?

■ **Hens.** Most companies that switch to cage-free eggs cite its more humane treatment of laying hens. "It's clear to us that cage-free farms, when certified to meet third-party standards, give hens more space to do as they please: scratch around, roost, and gossip about the henhouse," says Ben & Jerry's Ice Cream.

■ **Eggs.** Are cage-free eggs more likely to be free of *Salmonella* and other contaminants? It's not clear.

"The evidence suggests that cage-free facilities have significantly lower risks of *Salmonella* infection," says The Humane Society's Paul Shapiro.

That evidence comes from Europe. In 2004 and 2005, for example, the European Food Safety Agency took samples from more than 5,300 egg-laying facilities in 24 countries.

"Across the board, it found a higher risk of *Salmonella* in the caged facilities," says Shapiro.

But European egg facilities are smaller and are different in other ways, argue U.S. producers. Battery cages are the most effective way to separate hens and their eggs from bacteria-containing excrement, they maintain. And keeping five to eight birds in their own cage reduces the possibility of their transmitting disease to other hens in the flock.

Who's right? There's not enough reliable data to tell.

"We really don't know if there is a big difference" between *Salmonella* levels in caged and cage-free hens, says Jeffrey Armstrong, dean of agriculture and natural resources at Michigan State University. Armstrong chairs the Animal Welfare Advisory Committee of the United Egg Producers, an industry group.

"Anyone who says that the evidence is clear, they're not reading all of the scientific literature."

Feeling Sick?

If you become infected with *Salmonella enteritidis*, you'll typically develop fever, abdominal cramps, and diarrhea beginning 12 to 72 hours after you eat a contaminated food. You'll most likely be sick for four to seven days.

Most victims don't require treatment other than drinking plenty of fluids. Antibiotics usually aren't necessary. But the diarrhea can be severe, and some people require hospitalization and rehydration with intravenous fluids.

In rare cases, a *Salmonella* infection spreads from the intestines to the bloodstream. That can be fatal unless the person is treated promptly, cautions the Centers for Disease Control and Prevention. The elderly, infants, and those with impaired immune systems are more likely to have a more serious illness, says the CDC.

Source: CDC.

The Bottom Line

■ Eggs are an inexpensive source of protein. But a typical yolk contains roughly 200 milligrams of cholesterol. That's two-thirds of the American Heart Association's 300 mg daily limit for healthy people.

■ Eggs are cheap enough that most people can probably afford to pay extra for cage-free or organic eggs that are more humanely produced than battery-cage eggs.

What Does It Mean?

Don't believe everything you read on an egg carton. Some claims mean something, while others don't.

Here are some common claims...and some claims that we wish were more common.

Certified Claims

These claims have been verified or certified. You can trust them.

USDA Organic: Hens must be uncaged inside barns or warehouses, and must have outdoor access (how much isn't specified). Hens must be fed an organic, all-vegetarian diet that is free of antibiotics and pesticides. Beak cutting is permitted. (Egg producers often trim hens' beaks to prevent the animals from harming each other.) Hens cannot have received any antibiotics after they were three days old.

American Humane Certified: Hens can be confined in cages or can be cage-free. Beak cutting is allowed.

Animal Welfare Approved: Hens are raised by independent family farmers in flocks of no more than 500 birds that spend their adult lives outside. Beak cutting is prohibited. The animals aren't fed any animal byproducts. (The eggs are available at some farmers markets and restaurants.)

Certified Humane: Hens must be uncaged inside barns or warehouses, but may be kept indoors at all times. Beak cutting is allowed.

United Egg Producers Certified: Meets minimum voluntary industry standards, which, according to the Humane Society, "permit routine cruel and inhumane factory farm practices."

Uncertified Claims

If the eggs haven't been certified by an organic or animal-welfare organization, these claims haven't been verified and are as honest as the companies that make them.

Raised without Antibiotics: The hens were not fed antibiotics at any time. If a hen was sick and given antibiotics, its eggs cannot make the claim. The *routine* use of antibiotics in hens is illegal.

Cage-Free: Hens live outside of battery cages in barns or warehouses, but usually don't have access to the outdoors. Cage-free hens typically have two to three times more space than caged hens.

Free-Range or Free-Roaming: Cage-free hens with some outdoor access. There are no requirements for how much or what kind.

Pasture-Raised or Pastured: Hens spend at least some time outside foraging for vegetation and bugs.

Claims that Mean Nothing

You can safely ignore these claims.

Hormone-Free: Claim or no claim, it's illegal for egg producers to feed hormones to their hens.

Natural: It can mean anything.

Nutrient Claims

Caged and cage-free hens typically eat the same corn-based diet, so there's no nutritional difference between their eggs. But some producers supplement their hens' diets with ingredients that raise the level of some nutrients.

Two large Eggland's Best eggs, for example, contain 50 percent of the Daily Value for vitamin E. That's 10 times as much as two regular large eggs contain. If an egg carton makes a claim, check the Nutrition Facts label to see what percent of a day's worth of the nutrient the eggs supply.

Omega-3 Claims

"Not all omega-3 eggs are created equal," warns Mary Van Elswyk, a dietitian and omega-3 consultant in Longmont, Colorado. "You need to know which omega-3s you're interested in and how much of them the eggs contain."

DHA and **EPA** help reduce the risk of heart attacks, lower blood triglyceride levels, and are key constituents of brain cells and the retina. They're found most plentifully in fatty fish like salmon. A 3½ oz. serving of cooked salmon contains roughly 1,200 milligrams of DHA and 600 mg of EPA.

The third omega-3 fat—**ALA**—doesn't protect the heart as much as DHA and EPA do. Most Americans get enough ALA from margarine, salad dressing, and other foods made with vegetable oils.

A typical egg naturally contains about 25 mg of DHA and 25 mg of ALA. So if a carton claims that its eggs have omega-3s but doesn't say how much, or if it boasts that it has 50 mg of omega-3s per egg, "chances are, it's actually just an ordinary egg," says Van Elswyk.

Last summer, the U.S. Dietary Guidelines Advisory Committee said that eating seafood twice a week that provides an average of 250 mg a day of DHA plus EPA is associated with a lower risk of fatal heart attacks in people with or without heart disease. The committee also concluded that there isn't enough evidence that ALA can do the same.

A few companies feed their hens fishmeal or algae, which can get the DHA up to about 100 mg per yolk. By feeding their hens flaxseed or canola oil, they can easily boost the ALA to 350 mg or so. So if a carton boasts that its eggs have 300 mg or more of omega-3s, you can assume that most of it is ALA and not the more desirable DHA and EPA.

The FDA has banned all omega-3 claims on eggs, but that hasn't stopped producers from making the claims.

Sources: Humane Society, others.

Sandwich, Soup, & Salad Smarts

A GUIDE TO QUICK-CAFÉ MENUS

BY JAYNE HURLEY & BONNIE LIEBMAN

Twenty years ago, a quick lunch meant a burger and fries or pizza or fried chicken or your own peanut-butter-and-jelly sandwich. Today, just about every street corner has a café-style restaurant that offers what the industry calls "fast casual" food.

There you'll find a mix of soups, salads, and sandwiches (along with sweets, breads, and other bakery items) that have never seen the inside of a deep-fat fryer. But watch out: on many menus you'll also find a minefield of white flour, saturated fat, and salt. (In fact, sodium was so hard to dodge that we gave up on trying to award any Best Bites.)

Here's how to sidestep the worst offenders at three "fast casuals": Panera, Au Bon Pain, and Corner Bakery. Many of our tips will work at other restaurants, too.

Information compiled by Melissa Pryputniewicz and Amy Ramsay.

Panera Bread, a comfy café with free Wi-Fi, has 1,388 locations nationwide. Like most chains, its menu has winners and losers, but here's one difference: Panera puts calories *right on the menu board*. Bravo!

What's more, the company's online "Nutrition Calculator" tells you the calories, sodium, saturated fat, protein, and other nutrients in each item in your sandwich or salad, so you can see what happens if you, say, leave out the croutons or get the Whole Grain instead of the Tomato Basil bread.

As at any "fast-casual" restaurant, most dishes on Panera's menu need some work, especially in the salt department. That's true whether you get a full sandwich, a soup, a salad, or a "You Pick Two," which means any two of the following: a half-salad, a half-sandwich, or an 8 oz. cup of soup.

Soups. Panera's low-fat soups (like Black Bean and Chicken Noodle) have a reasonable 100 to 200 calories per 12 oz. bowl. Others (like Broccoli Cheddar and Baked Potato) hover around 300 calories, thanks to the cheese and cream, which also donate about half a day's saturated fat to your arteries.

(Note: The 12 oz. bowl is larger than the 8 oz. cup you get with a "You Pick Two" meal. Our chart lists only full-size soups, sandwiches, and salads.)

What's more, most of Panera's soups range from high to *really* high in sodium (1,000 to 2,000 milligrams per bowl). And many people order their soup with a 200-calorie baguette (400 mg of sodium) or a 590-calorie bread-bowl (1,210 mg of sodium). If you're stuck on soup, at least stick to the "You Pick Two" (8 oz.) cup.

Sandwiches. A few sandwiches—like the Smoked Turkey Breast, Mediterranean Veggie, Tuna Salad, and Napa Almond Chicken Salad—are fairly low in saturated fat. But, like any Panera sandwich, they still will run you about 600 to 1,000 calories and 1,200 to 3,000 mg (one- to two-days' worth) of sodium. The bread accounts for about half the calories and at least a third of the sodium. Sandwiches with ham or smoked turkey are likely to have more than 2,000 mg of sodium.

Solution: get a salad. Second best: try a "You Pick Two" with half a salad (see below) and half a sandwich. For your half sandwich, try the Napa Almond Chicken Salad, Mediterranean Veggie, or Tuna Salad on a delicious fresh-baked (partly) Whole Grain Loaf bread. That will keep the half-sandwich's sodium at a not-off-the-charts 700 mg or less. (Don't even think about half a cheese-laden hot Panini.)

Salads. Salads replace the sodium and calories in a sandwich's white bread with vegetables that fill you up but not out.

You can't beat the Classic salad, a mix of field greens and Romaine lettuce with tomatoes, cucumbers, and onions. It's a perfect "You Pick Two" partner, with just 80 calories and 140 mg of sodium per half-salad. And most of the sodium comes from the 1½ tablespoons of balsamic vinaigrette, so you might be able to get by with less.

If all you want for lunch is a salad, a full-size Classic (with just 2 grams of protein and 170 calories) probably isn't enough, even with a hunk of (partly) whole grain baguette. Instead, try customizing a salad like the Fuji Apple Chicken. It's a mix of field greens and Romaine with pecans, Gorgonzola, chicken, tomatoes, onions, and apple chips with a white balsamic vinaigrette.

A Classic Salad makes a good partner for any "You Pick Two."

You can cut about a quarter of its 830 mg of sodium by holding either the Gorgonzola or the chicken and another 70 mg by switching from white to regular balsamic vinaigrette. That trims the sodium down to the mid-500s.

And you can bring the sodium in a full-size Grilled Chicken Caesar from 820 mg to 500 mg by cutting the croutons.

Panera's full salads typically stay around 500 calories or less with dressing. As with *any* dressing on *any* salad, order it on the side and try using half or less.

Keep in mind that these numbers apply to full-size soups, sandwiches, and salads, not the smaller "You Pick Two" sizes. Within each section, foods are ranked from least to most calories, then saturated fat, then sodium.

Signature Sandwiches	Calories	Protein (g)	Saturated Fat (g)	Sodium (mg)
Napa Almond Chicken Salad	690	29	4.5	1,200
Asiago Roast Beef	690	48	14	1,270
Chicken Caesar	720	43	10	1,270
Bacon Turkey Bravo	830	53	10	3,010
Chipotle Chicken	990	53	15	2,170
Italian Combo	1,040	61	17	3,080
Cafe Sandwiches				
Smoked Turkey Breast	560	35	2	2,040
Tuna Salad	590	20	5	1,160
Mediterranean Veggie	610	22	3.5	1,450
Smoked Ham & Swiss	710	45	10	2,440
Sierra Turkey	970	41	11	2,050
Signature Hot Panini				
Smokehouse Turkey	720	53	12	2,540
Turkey Artichoke	750	42	7	2,420
Tomato & Mozzarella	770	30	10	1,290
Frontega Chicken	860	46	9	2,150
Cuban Chicken	870	47	11	1,890
Cafe Salads *(ranked with dressing—3 Tbs.)*				
Classic	40	2	0	30
with Balsamic Vinaigrette	170	2	1.5	270
Greek	160	8	4	1,290
with Greek Dressing	380	8	8	1,670
Caesar	240	11	5	430
with Caesar Dressing	390	12	8	610

Signature Salads *(ranked with dressing—3 Tbs.)*	Calories	Protein (g)	Saturated Fat (g)	Sodium (mg)
Asian Sesame Chicken	310	31	2.5	420
with Asian Sesame Vinaigrette	400	31	3.5	810
BBQ Chopped Chicken	330	30	1	290
with BBQ Ranch Dressing and BBQ Sauce	500	31	3	770
Chopped Chicken Cobb	280	38	5	740
with Herb Vinaigrette	500	38	9	1,120
Grilled Chicken Caesar	360	36	6	640
with Caesar Dressing	510	37	9	820
Fuji Apple Chicken	370	32	4.5	510
with White Balsamic Fuji Apple Vinaigrette	520	32	7	830
Soups *(Bowl—12 oz.)*				
Chicken Noodle	110	8	1.5	1,360
Garden Vegetable with Pesto	160	5	0	1,240
Black Bean	170	10	1.5	1,590
Chicken Tortilla	190	10	1.5	1,110
French Onion	240	9	5	2,210
Broccoli Cheddar	290	12	9	1,540
Cream of Chicken & Wild Rice	320	10	7	1,270
Baked Potato	340	7	11	1,210
New England Clam Chowder	450	8	20	1,190
Sides				
Apple	80	0	0	0
Potato Chips	160	2	1	130
French Baguette Slice	180	6	0	440
Whole Grain Baguette Slice	190	8	0	410

Daily Limits (for a 2,000-calorie diet): **Sodium:** 1,500 milligrams. **Saturated Fat:** 20 grams.

au bon pain®

With 234 outlets nationwide, Au Bon Pain seems to specialize in quick lunches in downtown areas, airports, and other places with crowds of people in a hurry. Locations in some cities are required to post calories on their menu boards, and most outlets have a kiosk where you can look up Nutrition Facts.

Soups. You've got to give Au Bon Pain credit. The chain has three soups—Southwest Vegetable, Tomato Basil Bisque, and Mediterranean Pepper—with roughly 400 to 600 milligrams of sodium in a medium (12 oz.) serving.

The only catch (other than the 5 grams of saturated fat in the bisque): the chain rotates its soups, so the menu may not have the lower-sodium soup you want when you want it.

Sandwiches. Like Panera, Au Bon Pain offers several sandwiches—like the Chicken Salad, Chipotle Chicken, and Spicy Tuna—that put a lid on saturated fat. So do wraps like Thai Peanut Chicken and Mayan Chicken. That's because they're the only sandwiches or wraps with no cheese. Since when does every sandwich—from turkey and chicken to roast beef and steak—need cheese?

But even if you minimize the sat fat, your arteries and waist will have to handle 1,000 to 2,000 mg of sodium and 500 to 800 calories. And that includes the healthy-sounding Mediterranean and Southwest Tuna Wraps, which come in white-flour lavash wrappers.

You're better off with a 560-calorie Au Bon Pain spicy Black Bean Burger than a 540-calorie Big Mac from the Golden Arches, which has double the sat fat. But Au Bon Pain's 560-calorie Roast Beef with Brie is essentially a Big Mac with an extra 350 mg of sodium.

Our advice: If a salad won't do, order a sandwich with little or no cheese on (whole wheat) multigrain bread. Better yet, get half a sandwich (or save half of your whole sandwich for tomorrow). You can dodge the saltiest sandwiches by skipping ham, pastrami, bacon, or other processed meats. But the only way to really take down the sodium is to eat less sandwich.

Minimize the dressing to trim the salt on a Thai Peanut Chicken Salad.

Photo: Stephen Schmidt.

> > > > >

Our chart shows numbers for medium-sized soups and whole sandwiches, though half-sandwiches are also available. Within each section, foods are ranked from least to most calories, then saturated fat, then sodium.

	Calories	Protein (g)	Saturated Fat (g)	Sodium (mg)
Signature & Hot Sandwiches				
Chicken Salad	490	29	2	1,130
Spicy Tuna	490	30	3	1,210
Black Bean Burger	560	30	5	970
Steakhouse (Hot)	590	36	8	1,850
Pastrami and Swiss	590	47	11	2,080
Eggplant Mozzarella (Hot)	640	25	10	1,280
Chipotle Chicken	650	41	5	1,500
Roast Beef Caesar	650	39	8	1,670
Chicken Pesto	660	43	5	1,560
Mozzarella Chicken	680	48	8	1,450
Caprese	680	30	15	1,200
Oven Roasted Turkey Club	700	45	13	1,970
Arizona Chicken	710	48	12	1,700
Turkey Melt (Hot)	720	42	9	1,880
Grab n Go Sandwiches				
Turkey with Swiss	530	42	8	1,410
Ham with Swiss	530	39	9	1,930
Roast Beef with Brie	560	39	10	1,390
Tuna with Cheddar	630	38	10	1,370
Wraps				
Thai Peanut Chicken	530	30	2	1,340
Mayan Chicken (Hot)	580	25	3	1,190
Mediterranean	610	18	7	1,770
Grilled Chicken Caesar Asiago	610	34	9	1,440
Angus Steak Teriyaki (Hot)	630	24	4	1,450
Southwest Tuna	780	39	14	1,620
Specialty Salads *(ranked with dressing—4 Tbs.)*				
Garden	80	3	0	110
with Balsamic Vinaigrette	200	3	2	470
Thai Peanut Chicken	190	21	0	330
with Thai Peanut Dressing	350	23	1	1,070
Chef's	260	25	8	1,070
with Balsamic Vinaigrette	380	25	10	1,430
Tuna Garden	270	21	2	530
with Balsamic Vinaigrette	390	21	4	890
Mediterranean Chicken	290	23	6	1,230
with Balsamic Vinaigrette	410	23	8	1,590
Caesar Asiago	220	11	6	480
with Caesar Dressing	490	12	11	850
Mandarin Sesame Chicken	310	20	1	410
with Sesame Ginger Dressing	540	21	4	1,090
Grilled Chicken Caesar Asiago	290	27	6	740
with Caesar Dressing	560	28	11	1,110
Turkey Cobb	340	27	8	940
with Blue Cheese Dressing	650	29	14	1,400
Soups & Stews *(Medium—12 oz.)*				
Garden Vegetable	80	3	0	1,070
Chicken Noodle	130	8	1	1,050
French Onion	130	3	3	1,310
Vegetarian Lentil	170	9	0	1,200
Southwest Vegetable	170	6	1	400
Mediterranean Pepper	170	7	1	590
Chicken Gumbo	180	6	1	880
Butternut Squash & Apple	200	4	3	780
Old Fashioned Tomato	200	6	3	1,150
Tomato Basil Bisque	210	7	5	500
Vegetarian Chili	220	12	0	970
Cream of Chicken and Wild Rice	240	6	5	970
Split Pea with Ham	250	18	0	1,220
Black Bean	260	15	0	1,100
Corn and Green Chili Bisque	260	6	7	1,540
Potato Cheese	260	7	9	1,250
Chicken & Vegetable Stew	290	11	5	940
Beef Chili	300	18	4	1,110
Broccoli Cheddar	300	11	10	990
Clam or Corn Chowder[1]	340	9	7.5	1,070
Baked Stuffed Potato	350	9	10	990
Chicken Pot Pie Stew	370	15	10	1,020
Macaroni & Cheese	500	20	18	1,380
Au Bon Portions				
Hummus & Cucumber	130	3	0	460
Turkey, Asparagus, Cranberry & Gorgonzola	140	15	3	550
Mozzarella & Tomato	180	10	7	240
Herb Cheese, Fruit & Crackers	190	4	6	450
Apples, Blue Cheese & Cranberries	200	4	4	270
Brie or Cheddar, Fruit & Crackers[1]	200	7	6	280

[1] Average.

Daily Limits (for a 2,000-calorie diet): **Sodium:** 1,500 milligrams. **Saturated Fat:** 20 grams.

Source: company information.

Salads. Salads beat sandwiches because they're built around a bowl of greens instead of 300+ calories' worth of bread. But you'll end up with 500 to 600 calories if you pour a full packet of dressing on a Grilled Chicken Caesar Asiago or Turkey Cobb Salad. And dressing plus salted chicken or turkey, cheese, croutons, and bacon can catapult the sodium in any salad into the 1,000 to 1,500 mg range.

Solution: use just half the dressing. You'll still get about two tablespoons' worth. But you'll knock the Thai Peanut Chicken and the Mandarin Sesame Chicken Salad down from over 1,000 mg of sodium to the 700s. And half the dressing trims the Tuna Garden or Caesar Asiago Salad from around 850 mg to around 700 mg. You might even be able to get away with less than half the dressing.

Au Bon Portions. For people who want a mini-lunch or a smart snack, Au Bon Pain offers seven different (modest-sized) "Au Bon Portions" in the Grab n Go refrigerator case.

The Apples, Blue Cheese, & Cranberries, for example, has just 200 calories and 270 milligrams of sodium. Not too shabby. Cheese with fruit and (white-flour) crackers is less interesting (and uses up more than a quarter of your day's saturated fat limit). And the lick-your-lips Mozzarella & Tomato (with pesto) has just 240 mg of sodium and 180 calories, but delivers 7 grams of sat fat (a third of a day's worth) in just half a cup of food.

At Corner Bakery Cafe, which has 119 locations, you can grab a quick bite to go or sit down and be served. While the chain posts calories on its menu boards only where required to by local law, you can find full Nutrition Facts on the company's Web site.

Soups. The Three Lentil Vegetable has less sodium than most of Corner Bakery's other soups, but 930 milligrams in a (10 oz.) cup is still too high. It's a shame because the soup is rich in plant protein, fiber, and flavor and low in calories and saturated fat.

Blubber alert: The Loaded Baked Potato and Cheddar Broccoli soups will send their more than three-quarters of a day's sat fat directly to your arteries and their 400 calories right to your waistline. Get either soup in a 15 oz. bowl and the sat fat jumps to more than a day's worth.

Sandwiches. You won't find a sandwich on the menu with less than 1,000 mg of sodium. Several top 2,500 mg. (And that's not counting the 300 mg in the pickle spear.)

But at least most of the Mom's (cheeseless) Sandwiches keep the calories at around 500. And two of them—the Roasted Chicken and Smoked Turkey—minimize the sat fat (*and* come on partly whole grain Harvest Bread).

In contrast, most Grilled Panini (and several Signature Sandwiches) hit 700 to 800 calories and 10 to 15 grams of sat fat. Hello? That's like eating two Quarter Pounders without cheese.

You can cut the salt—and boost the vegetables—with a Corner Sandwich Combo, which pairs half a sandwich or panini with a Mixed Greens salad (or with a guaranteed salty cup of soup or Caesar Salad). A Combo of half a Mom's Roasted Chicken sandwich and Mixed Greens, for example, has just 330 calories—a bargain, even though the sodium (730 mg) is still half a day's worth.

Salads. With their 4 to 6 tablespoons of dressing, most Entree salads have roughly 700 to 900 calories, not counting the 110-calorie Focaccia roll that's on the side. Only the Asian Wonton and The Greek salads keep the calories closer to 500. But The Greek is drenched in sodium (over 2,000 mg) even without dressing. With any salad, you can curb the salt and calories by curbing the dressing.

Other options: get a smaller Cafe salad, which shaves all the numbers in our chart by about half. Or try The Trio salad, which lets you choose three mini-salads plus a 30-calorie field greens garnish (and a 110-calorie Focaccia roll). If you pick, say, the Asian Edamame Salad or the D.C. Chicken Salad plus *two* Seasonal Fruit Medleys (to keep the sodium down), you can get away with around 300 to 400 calories and 600 to 700 mg of sodium (without the roll). *Now* you're talkin'.

Photo: Stephen Schmidt.

Mix two fruit and one chicken salad to make a Trio salad less salty.

Our chart shows numbers for full sandwiches, Entree (not smaller Cafe) salads, and 10 oz. soups. Within each section, foods are ranked from least to most calories, then saturated fat, then sodium.

	Calories	Protein (g)	Saturated Fat (g)	Sodium (mg)
Signature Sandwiches & Grilled Panini				
Tuna Salad	570	32	4	1,010
Uptown Turkey	580	38	4	1,900
D.C. Chicken Salad	630	27	3	2,330
Ham or Turkey Pretzel[1]	680	41	7.5	3,190
Turkey Frisco	730	56	9	2,080
Poblano Fresco or Tomato Mozzarella[1]	740	27	14	1,670
Chicken Pesto	760	38	3.5	2,430
Grilled Panini[1]	760	38	13	2,290
Poblano Fresco with Roast Beef or Chicken[1]	830	44	12	2,110
Mom's Sandwiches *(without condiments)*				
Roasted Chicken or Smoked Turkey[1]	420	37	1.5	1,070
Corned Beef	480	32	1	2,020
Smoked Ham	490	30	6	2,050
Roast Beef	510	38	2.5	1,490
Signature Hand-Tossed Salads *(ranked with dressing—4-6 Tbs.)*				
Asian Wonton	330	31	2	800
with Ginger Soy Dressing	490	33	3	2,080
The Greek	320	16	11	2,220
with White Balsamic Vinaigrette	530	16	14	2,790
Caesar	250	13	4	540
with Caesar Dressing	710	15	12	1,330
with Chicken and Caesar Dressing	830	34	14	1,860
Harvest	640	22	11	1,130
with Balsamic Vinaigrette	770	22	12	1,460
with Chicken and Balsamic Vinaigrette	890	41	14	1,990
Santa Fe Ranch	610	35	10	1,160
with Ranch Dressing	770	37	13	1,600
Chopped	530	37	16	1,590
with House Vinaigrette	810	37	20	2,270
The Trio Salads *(choose 3—comes with field greens garnish)*				
Field greens garnish	30	0	0	70
Greek Vegetable	60	2	1	590
Seasonal Fruit Medley	70	1	0	10
Asian Edamame	90	4	0	480
Mixed Greens	120	2	1	240
Pasta Caprese	140	6	3	170
Caesar	230	5	3.5	420
D.C. Chicken Salad	240	13	2.5	620
Egg or Tuna Salad[1]	260	16	3.5	530
Homemade Soups *(Cup—10 oz.)*				
Three Lentil Vegetable	140	8	0	930
Mom's Chicken Noodle	140	8	1.5	1,080
Roasted Tomato Basil	250	9	0	1,590
Cheddar Broccoli or Loaded Baked Potato[1]	410	14	17.5	1,180

[1] Average.

Daily Limits (for a 2,000-calorie diet): **Sodium:** 1,500 milligrams. **Saturated Fat:** 20 grams.

Source: company information. The use of information from this article for commercial purposes is strictly prohibited without written permission from CSPI.

About CSPI, publisher of Nutrition Action Healthletter

CENTER FOR Science IN THE Public Interest

The Center for Science in the Public Interest (CSPI), founded in 1971, is an independent nonprofit consumer health group. CSPI advocates honest food labeling and advertising, safer and more nutritious foods, and pro-health alcohol policies. CSPI's work is supported by *Nutrition Action Healthletter* subscribers and foundation grants. CSPI accepts no government or industry funding. *Nutrition Action Healthletter,* first published in 1974, accepts no advertising.

Nutrition Action Healthletter
CENTER FOR SCIENCE IN THE PUBLIC INTEREST
Suite 300, 1875 Connecticut Avenue, N.W.
Washington, DC 20009-5728

www.cspinet.org

RIGHT STUFF

STAR TUNA

Remember when all tuna was canned tuna? (Okay. *Some* people were eating fresh tuna while most of us were reaching for the mayo.) These days, tuna is just as likely to come in a pouch. That means no draining and no BPA.

Bisphenol A is a building block of some plastics that shows up in just about all can liners. In some animal studies, BPA alters behaviors that are influenced by hormones. And some—but not all—animal studies suggest that BPA may increase the risk of cancer, diabetes, and heart disease. With tuna-in-a-pouch, those worries are gone.

Also gone in **StarKist Low Sodium Albacore White** or **Chunk Light Tuna** is much of the salt you'd get from canned tuna, which you need like a hole in the head (especially if you're mashing with mayo). Instead of the usual sodium you'd get in half a small can of Albacore (190 milligrams in a 2 oz. serving) or Chunk Light (180 mg), you get 70 mg (Albacore) or 130 mg (Chunk Light) in a (2.6 oz.) pouch.

And the pouch delivers just 80 or 90 calories, which are well-spent on protein (20 grams) and on EPA and DHA (200 to 290 mg total), the omega-3 fats that are linked to a lower risk of heart disease. It's less omega-3s than you'd get from salmon, but more than most DHA-fortified foods contain.

Tuna does have mercury, but even young children and nursing, pregnant, or planning-to-be-pregnant women can eat up to 12 ounces of light canned tuna (or 3 oz. of albacore for each 100 pounds of body weight) per week. Others can have up to three times that much.

So check out the pouch. It may be time for a tuna-up.

StarKist: (800) 252-1587

Photos: Stephen Schmidt.

FOOD PORN

DIRTY SECRETS

"Made with a sprinkle of salt and a taste of butter," says the label of **Pop Secret** microwave **HomeStyle Popcorn**.

A "sprinkle" is industry-speak for "more sodium (240 milligrams per serving) than most competitors (about 160 mg)." And that "taste of butter"? It's code for "enough butter-flavored partially hydrogenated soybean oil to supply 4 grams of trans fat," which is two days' worth.

If that isn't homestyle, what is?

It's not just HomeStyle. Nearly all Pop Secret (and Jiffy Pop) popcorns still have trans fat. In contrast, nearly all Act II, Newman's Own, Orville Redenbacher, and Smart Balance microwave popcorns have replaced partially hydrogenated oils with (mostly) palm oil.

Stick to 94% Fat Free versions of those brands, since their fattier cousins have 2 to 4 grams of saturated fat in a 4-cup serving. Better yet, look for Pop Weaver. Earlier this year, the brand switched to canola oil, so you don't have to worry about either saturated or trans fat.

The 94% Fat Free varieties also trim the calories from about 150 down to about 100 per 4 cups. But that's not much popcorn. Most bags hold 10 to 12 cups. (A "small" movie theater popcorn at a typical chain is 11 cups.)

Bottom line: look for a no-trans microwave popcorn with the fewest calories and the least sat fat and sodium in the "1 cup popped" serving listed in the Nutrition Facts. Then multiply by 4 to estimate what you're likely to get if you eat a third to half of the bag.

Diamond Foods: (209) 467-6000

dish OF THE MONTH

AlmondBeans

Steam 1 lb. of trimmed green beans until tender. Sauté a thinly sliced onion in 2 Tbs. of olive oil until golden brown. Toss the beans with the onion. Season with up to ⅛ tsp. of salt and top with ¼ cup of toasted slivered almonds.