



The “Mighty” Mineral – Magnesium

We all hear about the benefits of calcium for bone health. Now a message from another important mineral: magnesium. Magnesium is the fourth most abundant mineral in the body and is essential to good health. Approximately 50% of total body magnesium is found in bone.

Four ounces of cooked halibut contains 120 milligrams of magnesium, a mineral needed to regulate heart rhythms, maintain muscle and nerve function, keep bones strong and strengthen the immune system. Other dietary sources of magnesium are almonds, cashews, soybeans, spinach, oatmeal, wheat bran, black-eyed peas, yogurt, brown rice, lentils, avocados, peanut butter, black beans, and bran cereal.

The recommended dietary allowance (RDA) for magnesium in adults ages 19-30 is 400 milligrams per day for men, 310 mg per day for women. In adults 31 and older, the RDA is 420 mg per day for men and 320 mg per day for women.

Source: *Nutrition: Concepts and Controversies* by Frances Sizer and Eleanor Whitney and <http://nih.gov/factsheets>

Cola or Other Soft Drink?

A recently published article confirms once again that overall nutritional choices can affect bone health. The take home message from one of the co-investigators, “women concerned about osteoporosis may want to steer away from frequent consumption of cola until further studies are conducted. Physiologically, a diet low in calcium and high in phosphorous may promote bone loss, tipping the balance of bone remodeling toward calcium loss from the bone.”

The study did show a correlation between a lower calcium intake in general for the women who drank the most colas. The authors of the study found that the more cola the women in the study consumed the lower their bone mineral density and they did not find an association of bone mineral density loss for women who drank carbonated beverages that were not cola. So you may want to re-consider your beverage choice next time you are thirsty for something fizzy.

Source: *Journal of Clinical Nutrition*. October 2006; 84 (4) Tucker, KL, Morita, K, Qiao N, Hannan MT, Cupples A and Kiel DP.

World Congress On-line

International Osteoporosis Foundation’s (IOF) 2006 World Congress on Osteoporosis, the largest scientific congress devoted specifically to osteoporosis, was held in Toronto, June 2 to 6, 2006. Summaries of several research projects are located at:

<http://www.osteoporosis.ca/english/News/iof2006/default.asp?s=1> Topics include: weight loss and bones, men at risk, exercise, children’s bone health, and more.

Dairy Products: One of the 12 Power Foods

According to a recent Men’s Health article, dairy products are one of the 12 foods that make up a large part of our diet. The author David Zinczenko suggests incorporating two or three of the 12 into each of your three major meals and at least one of them into each of your three snacks. If you are concerned about weight control, good news is reported from a University of Tennessee study which found that dieters who consumed between 1,200 and 1,300 milligrams of calcium a day



lost nearly twice as much weight as those taking in less calcium. Researchers think the mineral probably prevents weight gain by increasing the breakdown of body fat and hampering its formation. Low-fat yogurt, cheses, and other dairy products can play a key role in your diet. Zinzenko recommends milk as your major source of calcium. Liquids take up lots of room in your stomach, so your brain gets that signal that you're full. Sprinkling in chocolate whey powder can help curb sweet cravings.

The other 12 are: almonds and other nuts, beans and other legumes, spinach and other green vegetables, oatmeal, eggs, turkey and other lean meats, peanut butter, olive oil, whole-grain breads and cereals, extra-protein whey powder, and raspberries or other berries.

Source: *Power 12 Foods: Never Go Hungry* by David Zinzenko in *Men's Health*, June 2006.

Osteoporosis and Parkinson's Disease

Bone loss and loss of muscle mass, combined with poor balance, shuffling gait, and increased incidence of falling greatly increase the risk for bone fracture, and probably explains the rate of hip fractures in patients with Parkinson's Disease. Indeed, when bone mineral density was compared with values for age-matched groups, Parkinson Disease patients had a higher incidence of severe osteoporosis.

Because patients with Parkinson's Disease may be at risk for bone fracture, and are more likely to experience unplanned weight loss, it is important that nutrition bolster bone strength and prevent loss of lean body mass (Sarcopenia: see the summer 2006 edition of the Bone Builders newsletter).

Source: <http://www.nutritionucanlivewith.com>
Parkinson's Disease: Unique Barriers to Nutrient Repletion by Kathynee Holden, MS, RD, 2000.

Can Foods Worsen Osteoporosis?

Q. Is it true that protein causes calcium loss?

Getting enough protein is essential for good health. However, too much protein can increase calcium loss. As the body burns excess protein, it produces a chemical called sulfate, which can cause the kidneys to pass calcium out of the body before it can be absorbed. The recommended daily intake for protein is 44 grams for women and 56 grams for men.

Q. Can I have a glass of wine once in a while?

Absolutely. Research suggests that excessive alcohol consumption increases the risk of developing osteoporosis, but there is no reason not to enjoy an occasional glass of wine. In fact, research suggests that moderate consumption of red wine may have some health benefits of its own, including reducing the risk of heart disease.

Q. What about salt?

Salt (sodium) increases the amount of calcium that passes out of the body before it can be absorbed and put to work for your bones. This is because sodium and calcium compete in the bloodstream to be absorbed by the body. If sodium wins, your body may absorb less calcium than it needs. The Recommended Dietary Allowance for sodium is 2400 mg a day.

Q. Should I give up coffee?

Caffeine is believed to reduce the body's ability to absorb calcium, but it is easy to make up for the loss by getting enough calcium each day. Moderation is the key. To be sure your body is getting all the nutrients it needs – including calcium – your best bet is to eat a wide variety of foods, including a minimum of five to six servings of vegetables and fruits a day.

Source: ReNew, Issue 8, FORTEO Newsletter.

News and Information from . . .

Bone Builders Physical Activity Program in Maricopa County

A few basic safety tips to avoid common injuries from exercise are simple:

- Always warm-up your muscles before any strenuous activity and cool them down afterwards. If you're going to use a treadmill or play basketball, walk around and stretch your muscles until you cool down and your heart rate lowers.
- Train all of your major muscle groups. It's a mistake to focus on one area such as abdominal muscles or biceps.
- Avoid lifting too much weight. If you can't finish eight repetitions without straining, you're probably lifting too much weight.
- Use good form. Learn how to adjust machines to your body size and avoid jerking while lifting weights. Jerky movements can lead to sprains and injury. Back muscles are especially vulnerable.
- Work hard enough – but not too hard. Get your heart beating and work up a light sweat, but avoid workouts

that are too intense. Moderate activity for longer periods of time will help you avoid injury and burnout!

Source: American Council on Exercise as seen in October 2006 issue of *WellBeing UA Life & Work Connections* newsletter.

Before you do any exercises . . . Warm Up!

Any movements performed for 5 continuous minutes will serve as a sufficient warm-up and might include the following:

Deep breathing – Slowly, inhale, in through the nose, deeply and exhale out through the mouth. Do 5 - 6 reps.

Hugs – Wrap your arms, one under one over the other around upper chest, reaching for your back and hold for a count of 5, release. Repeat 6 reps alternating top and bottom arms positions.

Arm Circle – Lift your arms out from your sides at shoulder height. Make small circles forward and then back, 10 each direction. Vary with doing it palms up and palms down, hands open and closed, wrists bent and straight.

Elephant Walk – Walk in place or around the room, raising knees high for 2 - 3 minutes, swinging arms.

Know Your Exercise Intensity Level

Some basic exercise intensity guidelines might include these suggested by Miriam Nelson of Strong Women.

1. Very Easy: To easy to be noticed, like lifting a pencil.
2. Easy: Can be felt but isn't fatiguing, like carrying a book.
3. Moderate: Fatiguing only if prolonged - like carrying a full handbag that seems heavier as the day goes by.
4. Hard: More than moderate at first, becoming difficult by the time you complete four or five repetitions. You can make the effort ten times in good form, but need to rest afterwards.
5. Extremely Hard: Requires all you strength, like lifting a piece of heavy furniture that you can lift only once, if at all.

Note: If a person is in good health, exercising regularly, and any particular exercise has begun to seem easy – that is, a person can do more than ten or twelve repetitions at the current intensity – then it's time to increase intensity of the workout by adding more weight or repetition. However, participants are discouraged from progressing if they:

- have had a cold or flu.
- have an injury or severe muscle soreness.
- are experiencing an acute bout of illness.

Wide Leg Squat

An exercise will effect dynamic skills, which are movements that include a transfer of skills, e.g., moving from a seated position to a standing position, altering the base of support. Improvements from doing this exercise will yield significant benefits to lower body strength and balance necessary to perform such movements as the ability to steadily sit down or rise up from a chair or toilet, get into or out of a car, and even give pause for thought when deciding whether to continue bathing in a bathtub or move to shower. These daily activities define, partly, quality of daily life. Surrender to immobility is a sure surrender to a lesser quality of daily life. So as we age, we realize how important it really is to keep moving!

This simple exercise will strengthen the muscles of the front, back, and inner thigh as well as the buttocks, which makes it especially important for the hipbones. It also helps to improve balance and prevent falls.

Starting Position:

Stand with your feet slightly greater than shoulder-width apart about 6-8 inches in front of a chair with your arms crossed in front of your chest, shoulders relaxed. (Diagram on page 4).

The Move:

1. Leaning slightly forward at the hip, aim your buttocks into the chair and slowly lower yourself back to a seated position. Keep your chest lifted and your back, neck, and head in a straight line.
2. Pause for a breath in the seated position.
3. Leaning slightly forward, stand up slowly, making sure to keep your knees directly above your ankles. As you do this, push up from your heels through your lower legs, thighs, hips, and buttocks, which will help keep your knees from moving in front of your feet.

Where you will feel the effort:

In your thigh, buttocks, and lower back.

Reps and sets:

Complete 10 repetitions for 1 set, rest for a minute, and then do another 10 repetitions for the second set.

(Diagram is on page 4).



Special Notes:

Participants should be sure to keep their chests lifted throughout the move, so that the body doesn't curl forward. Eyes should be looking straight ahead rather than down at the floor. If participants are experiencing any pain in their knees, program leaders should guide their technique to make sure they are not letting their knees move forward past their toes during the move and that the lower leg stays perpendicular to the floor.

Participants Make Sure You:

- ✓ Lean just slightly forward when beginning the move.
- ✓ Don't allow your knees to come in front of your toes.
- ✓ Tighten your abdominal muscles.
- ✓ Don't hold your breath.

Source: *The Strong Women Program: A National Fitness Program for Women.* Tufts University 2004.

Bone Appetit

Cheeseburger Macaroni Casserole – A yummy one dish main course that youngsters and everyone else will enjoy and the calcium benefits are excellent.



Makes 4 servings; prep time is 20 minutes; cook time is 35 minutes.

- 1 pound lean ground beef (may substitute ground turkey or chicken)
- 1/2 cup chopped onion

- 1 cup uncooked whole wheat elbow macaroni (or whole wheat penne or rotini pasta)
- 1 medium tomato, chopped
- 1 (8 ounce) can tomato sauce
- 1/2 teaspoon seasoned salt, optional
- 1/8 teaspoon pepper
- 1 cup shredded reduced fat Cheddar cheese

Preheat oven to 350 degrees. Spray an 8 X 8 inch baking pan with nonstick cooking spray; set aside. In a large skillet over medium heat, cook ground beef and onion until beef is browned and onion is soft; drain.

Cook macaroni according to package directions, omitting salt; drain. Spoon the macaroni into the prepared pan. Spread the beef mixture and chopped tomato over macaroni. Pour tomato sauce over beef and sprinkle with seasoned salt, if desired, and pepper.

Sprinkle with cheese and cover loosely with foil; bake 35 minutes or until cheese is melted and edges of casserole are bubbling

Nutritional facts per serving: Calories 340; Total Fat 10 g; Saturated Fat 4 g; Dietary Fiber 4 g; Carbohydrates 28 g; Protein 36 g; Sodium 650 mg; Cholesterol 75 mg; **Calcium 30% daily value.**

Source: www.3-A-Day.org by permission, recipe created by Chef Ina Pinkney, chef/owner of Ina's, Chicago.

Maricopa County News

Giving and Volunteering

Tis better to give than receive. This is not just a adage; it is a living truth many volunteers espouse as the reason for their giving of time and energy. As the holiday season of Thanksgiving approaches, Bone Builders invites you to volunteer in our efforts to broadcast the preventive messages Bone Builders offers through the osteoporosis education program.

We have many opportunities for you to share the knowledge you have gained in your training, to team up with another volunteer or staff, to help in numerous ways in our new office and/or to host an information booth at a health fair.

Various parent education classes at city-wide schools have asked for presentations, many of which are for Spanish speakers. Puede ayudarles? Another area of great need is to attend agency health fairs; we'll supply all the materials for set-up. Are you motivated to share your experience? Please call and we'll make a match for you to volunteer in whatever capacity you are most comfortable. Here is a list of events we have been requested to attend and you are always welcome in the office.

- November 2nd – Senior Healthy Aging Fair at Maryvale Community Center.
- November 4th – South Mountain Village Festival Health Fair at South Mountain Community Center, El Reposo Park.
- November 8th – Berry/Landis Plastics at 8400 West Washington St., Tolleson, 3:00 - 7:00 p.m., Contact: Carrie White, AZ Health Links, at 602-778-7695.
- December 2nd – Asian Pacific Community in Action, Chinese Cultural Center, Contact: Ms. Yen Nguyen at 602-265-4598.
- December 4th – Training for BB Physical Activity Program trained trainers/volunteers.
- February 12th, 2007 – Helping Hands, 740 N. Power Road, Mesa, Contact: Steve at 480-545-6271.

Please call Donna Harris at 602-470-8086, extension 316 to say you'll give of your time and we will give you much appreciation.

Study Shows Nutrition, Increased Physical Activity Can Prevent Bone Loss

Researchers at the University of Arizona Area studying the effects of exercise and hormone replacement

therapy on bone mineral density, soft tissue composition and muscle strength in post-menopausal women.

“Not all bone is created equally,” said Scott Going, an associate professor in the College of Agriculture and Life Sciences and co-principal investigator for the ongoing University of Arizona Bone Estrogen and Strength Training study.

The study has identified that a combination of improved nutrition and increased physical activity can prevent bone loss and give women a way to fight the chronic disease of osteoporosis.

“We call osteoporosis a pediatric disease with a geriatric outcome,” said Linda Houtkooper, a UA nutritional scientist and co-principal investigator of the study, because how women take care of their bones today will make a difference years from now.

Physiology professor Timothy Lohman established the Body Composition Laboratory in 1984. This lab assessed bone development and associations with physical activity, nutrition and exercise training. Since then, the UA research team has explored bone development in young girls, athletes, pre- and post-menopausal women and has developed exercise and nutrition recommendations for achieving maximum bone density.

In 1989, Going, Houtkooper and Lohman began looking at trends in women's health care. They discovered that little was known about the effects of exercise and calcium on bone health of pre-menopausal women and whether increased exercise and adequate calcium in the diet may help prevent bone loss at menopause.

“This was a new frontier in research with women,” said Houtkooper.

Between 1995 and 2001, 256 women participated in the study. All of the women were given calcium citrate supplements throughout the study and body composition scans before and at intervals during the study. Part of the group also participated in a strength-exercise program.

After the first year, study participants' bone health continually improved. Findings indicated that there was an increase in bone mineral density in the hip area. By the second year, the exercise program group also had increased their spine bone mineral density.

This research has become the foundation for a program that trains volunteer community educators on osteoporosis risk and prevention. More information is available at <http://www.vpr.arizona.edu>.

Updates for Volunteer Birthdays

We are in the process of updating our volunteer birthday list. If you want to be included on the *Birthday List* please let Donna Harris know either by email at dharris@ag.arizona.edu or phone to 602-470-8086, extension 316.

Volunteer Birthdays!

Happy Birthdays to the following volunteers:

September

- 5 - Beverly Tonti and Betty McMurrin
- 8 - Joe Buendia
- 9 - Gerry Davis
- 14 - Esther Evenson
- 16 - Erin Raney
- 20 - Emma Ditsworth
- 21 - Cheryl Wedmore
- 24 - Shweta Agarwal and David Lizarraga

October

- 2 - Celeste Castoreña
- 3 - Margarita Truong
- 21 - Irene Rassi
- 28 - Robert Gari

November

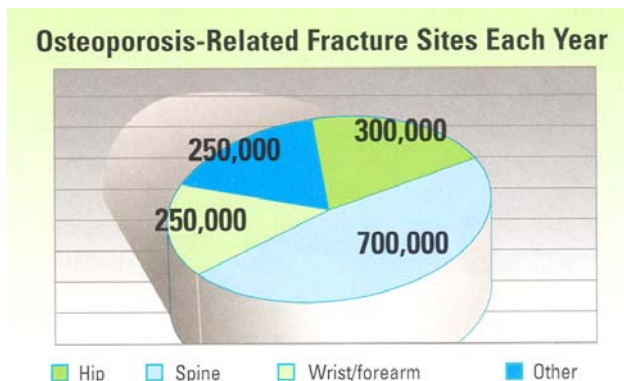
- 2 - Joanne McCay
- 4 - Anne Reed
- 7 - Ana Arvayo-Batres
- 23 - Denei Langford
- 24 - Dorothy Cope
- 27 - Sandra Valenzuela

Treatment Can Be Prevention

For those of us living with osteoporosis a major focus of our treatment can be the prevention of fractures. Here are some suggestions to help reduce the risk of sustaining a fracture. We can avoid any extreme bending and reaching, avoid twisting the trunk and heavy lifting. Prevent tripping or falls in our homes by removing throw rugs and keeping hallways and stairs well lit at night. Adjust clothing rods in closets to the appropriate height to decrease the amount of reaching. Install grab bars and use non-skid mats in the bath; consider a shower chair for extra safety. Long handle equipment such as sponges for bathing, shoe horns and clothing assistance devices will eliminate bending.

The International Osteoporosis Foundation reports that once a woman has a vertebral (spine) fracture, she is five times more likely to have another fracture within a year. The graph on page 2 shows the most common fracture sites due to osteoporosis. Your prevention treatment may save you from a broken bone.

For more tips or information on fall prevention, call the Bone Builders office at 602-470-8086 extension 316.



Sharon Hoelscher Day, Extension Agent, Family & Consumer Sciences
Coordinator, Community Health Programs
email: shday@ag.arizona.edu



- Dr. Linda Larkey, Phoenix Area Director, Women’s Cancer Prevention Research Initiative and Research Assistant Professor, College of Public Health
- Donna Harris, Program Coordinator, 602-470-8086, ext. 316, email: bones@ag.arizona.edu
- Elizabeth Schnoll, Health Educator, 602-470-8086, ext. 324, email: eschnoll@ag.arizona.edu

Persons with a disability may request a reasonable accommodation, such as a sign language interpreter by contacting Sharon H. Day at 602-470-8086, extension 332. Requests should be made as early as possible to allow time to arrange the accommodation.