

The Associated Press State & Local Wire

May 19, 2004, Wednesday, BC cycle

Briefs from the Upper Peninsula

ST. IGNACE, Mich.

The Upper Peninsula's only Miss Basketball has agreed to play for the University of Michigan.

Krista Clement, a senior at LaSalle High School, had whittled her decision down to Marquette and Michigan. She said she is happy with her decision to play for the Wolverines.

"It was tough ... I love the girls and the coaches at Marquette. But in the end, I just couldn't see Michigan playing without me," Clement told The Evening News for a Wednesday story.

The 5-foot-9 point guard signed the letter of intent late Tuesday night, the deadline for the late signing period under NCAA rules.

She averaged 24 points, 6.7 rebounds, 7.4 assists and 4.2 steals as a senior.

"Krista is precisely the type of player and person who we feel will excel in our program," said Michigan coach Cheryl Burnett. "She is obviously a great player, but also a first-class student who possesses the leadership qualities necessary to build any program."

Clement became the first girl from the Upper Peninsula to win the state's Miss Basketball Award this past season. She also was named the Michigan Sports Hall of Fame Athlete of the Year and received several other honors.

HOUGHTON, Mich. (AP) - **Michigan Tech University** has signed an exchange agreement with a Sudbury, Ontario college.

The agreement Tuesday with Cambrian College of Applied Arts and Technology allows qualified Cambrian students to transfer to **Michigan Tech** to complete a bachelors of science degree. A second agreement allows graduates from the Canadian school's three-year civil engineering technology program to enroll in **Michigan Tech's** bachelors of science in surveying program.

"We're really excited to be continuing this partnership," **Michigan Tech's** interim president, Glenn Mroz, told The Daily Mining Gazette for a Wednesday story.

Cambrian's president, Sylvia Barnard, said the two institutions share a number of similarities, including a long tradition of mining in both communities. She said the surveying degree is not available at Cambrian.

Cambrian is one of 175 colleges in Canada offering two- or three-year diplomas, often in vocational fields. It has about 4,300 full-time and 10,000 part-time students.

Michigan Tech officials say such exchange programs are important in that they attract international students to the university. Along with promoting diversity, those students also provide a needed infusion of cash into the surrounding community.

ONTONAGON, Mich. (AP) - Village officials have approved a tentative agreement allowing the new White Pine Power Plant to maintain and operate the pumping station at Silver City in exchange for water.

Ontonagon Village Manager Penny Osier said the board on Monday unanimously approved a proposal to enter into an 18-year contract with the power plant. The plant is scheduled to come online July 1.

Under the agreement, in exchange for access to the water, the plant would maintain the village's pump station on Lake Superior at Silver City.

Osier said the agreement goes into effect immediately.

"It's a good thing for the whole region because it will stabilize our electrical grid, provide jobs and be a customer for the village," she told The Daily Mining Gazette for a Wednesday story.

She said by handing over the running of the aging pumping station to the power plant, the village also would be able to save about \$5,000 per month in electrical costs.

Plant officials say the agreement benefits them in that the facility needs water to cool power-generating turbines.

ONTONAGON, Mich. (AP) - While searching for a permanent replacement for the current superintendent who resigned on Friday, Ontonagon school officials are eyeing a retired superintendent for a temporary position.

Retired superintendent Louis Gregory is expected to be recommended by the Ontonagon Area School District's administrative committee, said committee member and board president Dean Juntunen.

The nomination comes after Superintendent David Ruhman tendered his resignation Friday after a special meeting held to decide whether to continue the district's all-day kindergarten.

Gregory would assume day-to-day administrative duties, assist in the search for a full-time superintendent and lead staff negotiations, which are ongoing a full school year after contracts expired last June.

Juntunen said he is confident the school board will uphold the choice.

"He seems to have universal support," Juntunen told The Daily Mining Gazette for a Wednesday story.

The board will meet Friday to vote on Gregory's appointment and to hold a motion to accept Ruhman's resignation.

The Post-Crescent

May 18, 2004 Tuesday

Appleton, WI: SPORTS; Pg. 2D

Closer to Home

staff

Rattlers host Kids Camp: The Wisconsin Timber Rattlers and Prospera Credit Union will host a baseball camp for boys and girls 6 to 12 years old on Saturday at Fox Cities Stadium. Parents must pre-register children for the camp by Thursday. Campers sign in at 1 p.m., The camp concludes at 3 p.m. Each child receives a general admission ticket to Saturday

night's game. The contact is Nikki Becker at 920-733-4152.

Wabiszewski makes choice: Appleton West senior basketball star Dusty Wabiszewski will attend **Michigan Tech**.

Coach to be introduced: New Xavier boys' basketball coach Tom Neises will be introduced to prospective players at any grade level, and their parents at 8 p.m. today in the Xavier Fine Arts Center.

Wausau Daily Herald

May 17, 2004 Monday

Wausau, WI: LIFE; Pg. 2B

Campus News

Staff

The University of Wisconsin-Eau Claire College of Business's management faculty recognized one student with the Outstanding Management Major Awards and four students with Distinguished Management Major Awards.

Senior Ryan Wenzel, Stratford, was awarded a Distinguished Management Major Award.

Brian Bresnahan, son of Michael and Betty Bresnahan, Wausau, was inducted into the

Honor Society of Phi Kappa Phi at **Michigan Technological University**-Houghton.

The University of Wisconsin-Eau Claire chapter of Phi Eta Sigma National Freshman Honor Fraternity initiated new members April 24. Area students include Antigo - Christine Parilek; Medford - Nicole Kalmon; Merrill - John Jameson; Mosinee - Larissa Erickson and Rebecca Napiwocki; Stetsonville - Melissa Juedes; Tomahawk - Justine Cottrell; and Wausau - Alex Kaziak, Ryan Kuharske and Amber Legenza.

Wausau Daily Herald

May 16, 2004 Sunday

Wausau, WI; LIFE; Pg. 3E

Wausau resident part of winning canoe team

Staff

GRAPHIC: COURTESY OF MTU; Raine Wanner of Wausau, left, was a member of the **Michigan Tech**-Houghton Concrete Canoe Team, which took first place overall in the American Society of Civil Engineers' regional competition. Wanner, a 2001 graduate of Wausau West High School, is a senior in civil engineering at **Michigan Tech**. By winning the competition that took place at the University of Akron-Ohio, the Tech team earned the right to represent the North Central Conference at the National Competition June 17 to 20 in Washington, D.C. The team took first place in the design paper, oral presentation and final product categories and finished second in the races. The students adopted a lumberjack theme, in keeping with **Michigan Tech's** northwoods location, and displayed their canoe on top of logs cut from the woods. For the concrete, they replaced the crushed rock with mini-bubbles of glass, experimenting with 45 trial batches to develop the strongest, lighter-than-water mix. Team member Danielle Ladwig is in the front of the canoe.

Muscle & Fitness/Hers

May 1, 2004

No. 4, Vol. 5; Pg. 78; ISSN: 1526-9140

Boning up: preventing osteoporosis requires more than just calcium. Here's your complete bone health guide.

Colino, Stacey

SOMETIMES when a disease gets a lot of attention, it's hard to tell whether the media is just being alarmist or whether the disease really is rampant--and you personally are at risk. Such is the case with osteoporosis. We all hear a lot about this brittle bone disease, but who actually gets it and why? Are you doomed to develop it if you don't drink milk? Is it only in the cards for you if osteoporosis runs in your family? As someone who works out all the time, should you feel more confident that you'll avoid the disease--or less?

The truth is, one in two women over the age of 50 will have an osteoporotic fracture in their lifetime. What's more, recent research shows that many women as young as college age may already be on the road to osteoporosis. Yet as alarming as these reports are at first glance, there are lots of things you can do to prevent yourself from joining this particular club. For instance, you might think you know how to eat right to prevent osteoporosis--get calcium, calcium and more calcium--but there's actually quite a bit more to the story: Several other nutrients also play important roles in maintaining bone health. Likewise, you may have heard that working out is your best defense against osteoporosis, but there, too, are some oft-missed specifics about the type of exercise that works best. Perhaps most important of all is the fact that osteoporosis prevention hinges on balance. In between watching what you eat and obsessing over your diet and in between exercising enough

and working out too much lies a middle ground that can set you up for good bone health.

THE BONE BANK

As far as your bones are concerned, time is of the essence. During your teens and early twenties, your body continues to build bone and deposit it in your skeleton and also "remodels" bone, a process in which the body breaks down the bone, then builds it back up to the same level. After the age of 25, however, you start withdrawing from the bone bank, breaking bone down but not building it all the way back up. Most women, in fact lose bone mass at a rate of .25 percent to .5 percent a year until about age 45. Then menopause hits and things get worse because of dropping estrogen levels. Estrogen is what helps the bone remodel itself, explains Felicia Cosman, MD, clinical director of the National Osteoporosis Foundation and an osteoporosis specialist at the Helen Hayes Hospital in West Haverstraw, NY. That's why women end up losing even more bone mass after menopause, thus increasing their risk of developing osteoporosis.

But why worry about the disease before menopause? Because invisible and insidious bone loss can also happen well before a woman hits her late 40s and early 50s. In fact, many active, younger women have weaker bones than they realize. In a recent study involving 164 women, researchers at the University of Arkansas found that 2 percent of college-age women already have osteoporosis and another 15 percent have suffered significant

losses in bone density and may be on their way to developing the brittle bone disease. "What you do earlier in life will affect your chances of developing osteoporosis," Cosman says. "It's never too late to start doing something to protect your bones, but the earlier, the better."

It's especially important to take action if you've ever fractured a bone after falling, if you're very thin, if you've gone through menopause at a relatively young age (in your early 40s), or if osteoporosis runs in your family. Recently, researchers in Iceland identified a common gene among a large number of families with osteoporosis; other researchers have identified a handful of different genes that are related to bone density or bone turnover. "There's no way we can tell which is the most important gene," Cosman says. "Clearly, the disease is inherited. It probably relates to multiple genes, not just one." In the future, these discoveries may lead to novel treatments or preventive measures for osteoporosis.

While you can't change certain facts of life such as being a woman, growing older or being of Caucasian or Asian descent--all of which increase your risk of developing porous bones--there are lots of preventive steps you can take. It's a matter of giving your bones the nutrients they need, the exercise they crave and the lifestyle habits that support, rather than deplete, their density.

BEYOND CALCIUM

Many women of childbearing age still don't get the recommended 1,000 mg of calcium daily. In fact, a recent survey by the American Dietetic Association found that while 89 percent of women believe calcium is important to their health, 45 percent 'fess up to not getting enough of the mineral in their diets. You, too? Perhaps you're not much of a milk drinker. Dairy products--including milk, yogurt, and cheese--are a superior source of calcium. And low-fat dairy products are up to 20 percent higher in calcium than whole-milk products, notes David Hamerman, MD, director of the Center for Bone Health at Montefiore Medical Center in New York.

But, sorry, being dairy averse isn't a good excuse for shrugging off the recommended amount of calcium when you can also get enough through other food sources. True, it may take a concerted effort to incorporate these other calcium-rich foods into your diet--among them kale, calcium-fortified soymilk and fortified orange juice, canned sardines and salmon--but the fact that they're also chock-full of other nutrients may make it worth the trouble.

Your other (and perhaps easiest) option, of course, is to take a calcium supplement. Which among the multitudes lining store shelves are the best? Supplements that contain calcium carbonate (such as Tums) offer more available calcium per pill but some women find they cause bloating or constipation. "Another option is calcium citrate, such as Citracal, which may be easier on the stomach," says Leslie Bonci, MPH, RD, director of sports nutrition at the University of Pittsburgh Medical Center. Another difference between the two types of calcium is when you have to take them. For best absorption, calcium carbonate should be taken with a meal, while calcium citrate can be taken with or without food. Consumption of either supplement, though, needs to be spaced out during the day. "The body doesn't absorb more than

500 mg of calcium at one time," says Bonci.

It's important to note, too, that calcium isn't the only nutrient essential to bone health. Good calcium absorption, in fact, depends on vitamin D, which increases the uptake of the mineral into the bone. Throughout much of the year, the skin produces plenty of vitamin D when it's exposed to the sun, but this may be a problem during the winter months in sun-deprived parts of the country. At those times and in those places, it's critical to consume at least 400 IU of vitamin a day from fortified foods or to take a multivitamin. (See Recipe for Strong Bones, p. 116, for sources of D and other osteoporosis-preventive nutrients.)

Vitamin K also has a role in bone health. K stimulates the production of osteocalcin, a protein that contributes to bone strength. Another player is vitamin C, which is critical to the production of collagen, the glue that holds bones together. Magnesium assists in bone formation, too, and helps maintain the body's calcium levels. And potassium contributes to the retention of calcium that's already in bones. In fact, research has found that women who consume large amounts of fruits and vegetables tend to have stronger bones than those who don't, largely because produce is rich in magnesium and potassium, among other nutrients.

While you should definitely make sure you're getting enough of these bone helpers, it's also important that you avoid megadosing on them or any other vitamins or minerals--especially vitamin A. "Excessive levels of vitamin A can interfere with calcium metabolism and utilization and increase calcium excretion, which can increase the risk of bone loss," says Bonci. To be on the safe side, limit your intake of vitamin A to 700 mcg.

As you assess the osteoporosis "preventiveness" of your diet, keep in mind that the macronutri-

ent composition of your meals can also have an impact. Protein, in particular, is an oft-overlooked factor in bone health. "Bone is growing tissue and protein plays a role in maintaining the integrity of all the body's growing tissues," says Bonci. The trick is to consume the right amount of protein, not too much (which may leech calcium from bone) or too little (which can compromise bone maintenance). A good rule of thumb: Your body needs half its weight in grams of protein per day, which means if you weigh 150 pounds, you should consume 75 grams of protein daily--the equivalent of about 1/2 a roasted chicken breast, 4 ounces of salmon, 1/2 cup of low-fat cottage cheese and 1 ounce of whole almonds.

STRESS YOUR BONES THE RIGHT WAY

Exercise is the other half of the bone health equation. Yet not all forms of exercise are equally helpful. Weight-bearing exercise--in which you place the weight of your body on your bones through, for example, walking, hiking, jumping, or running--maintains bone density more effectively than others, notes Connie Lebrun, MD, director of primary care sport medicine at the Fowler Kennedy Sport Medicine Clinic in London, Ontario. And the more intense your weight-bearing workout is and the more impact it involves, the better it is for your bones. Activities such as running, jumping or climbing stairs are ideal for building and maintaining bone density and are a step above walking or, say, doubles tennis, which are, in turn, much more beneficial to bone health than bicycling or swimming. That's why cross training is such a good idea if your main activities are nonweight-bearing.

Keep in mind, too, that the benefits of exercise are site-specific. Rowing, for example, preserves bone density in the lumbar spine, whereas jumping maintains bone in the hips and lower legs. "The benefits are consistent with

where you put the stress," Lebrun explains. But here's the hitch: You have to keep putting stress on those same areas to maintain the bone density gains you make. To wit, researchers at Oregon State University in Corvallis found that a 12-month program of progressive jumping exercises and lower-body resistance training helped women between the ages of 30 and 45 increase their bone mass--particularly in their legs--by up to 3 percent, but when the women subsequently stopped doing the exercises for six months, they lost nearly all the gains they'd made.

Resistance training--whether your resistance of choice is free weights, exercise bands, weight machines or your own body weight--is another form of weight-bearing exercise that keeps bones strong. "It has to do with the mechanical pull on the bone as the muscles contract," Lebrun explains. This is especially important for the upper body, since it's hard to place stress on these areas through other types of weight-bearing exercise. "No one knows which exercises are most helpful," Lebrun admits, "but some studies suggest that doing resistance training, using large muscle groups in the upper and lower extremities, for 30 minutes three times a week will yield improvements in bone density in seven to nine months."

When it comes to exercise, though, the key is not to overdo it. If you exercise aerobically to an extreme, you can deplete your estrogen levels at a relatively young age. As a result, your period can become irregular or altogether absent for months at a time (a phenomenon called exercise amenorrhea). It used to be thought that this happened only if you were to lose too much body fat, but experts now say it has more to do with being in a state of energy drain--burning up loads of calories through exercise without fueling your body with enough calories in the form of food. When this happens, your body probably won't produce the required

amount of estrogen. How much exercise is too much? "There may be a threshold at which these hormonal changes occur," explains Anne Loucks, PhD, a professor of biological sciences at Ohio University in Athens, "and that threshold may be different from woman to woman." In other words, what constitutes too much exercise or too little food can vary from one woman to the next.

What experts do know, though, is that athletic women are particularly at risk for a syndrome called the "female athlete triad," which consists of a spectrum of disordered eating habits, amenorrhea and osteoporosis. "Endurance athletes and highly competitive athletes--such as gymnasts, ice skaters, and runners--are at the highest risk," notes Diana Lapiro, RN, a nurse-clinician at the Osteoporosis Center at the Hospital for Special Surgery in New York City. But it can even happen to devoted recreational exercisers who are overtraining to the point of fatigue.

Recently, another hormone-related factor has been found to endanger the bone health of young women: Depo-Provera, the once-a-month, injectable progesterone-only contraceptive. "It suppresses estrogen production in the ovaries, which can facilitate bone loss," Cosman explains. Whatever causes these unusually low estrogen levels--exercise, eating too few calories or Depo-Provera--the result is the same. The risk of stress fractures and the early onset of osteoporosis increases.

What's especially worrisome is that once bone mass is lost, it may be gone for good. "We don't know yet to what extent bone mass can be regained once the reproductive system is turned back on," Loucks says. In fact, a study published in *Osteoporosis International* found that even after their periods became normal, athletes who'd had amenorrhea continued to have low bone density eight years later.

The take-home message: Make sure you're eating enough to cover the energy you're expending through exercise and keep an eye on your period. If you stop menstruating, get checked out by a doctor promptly. After ruling out other potential problems, your doctor may suggest you take oral contraceptives as a form of hormone replacement--for the sake of your bones and your reproductive health.

BONE DEPLETERS

The good news is that if you're a health-conscious person, you've probably already managed to avoid all sorts of bad habits that can sabotage the health of your bones. The No. 1 offender: Smoking, which is a triple threat because it decreases estrogen levels, reduces levels of vitamin C and may interfere with the body's use of calcium. Also, drinking excessive amounts of alcohol (four or more drinks per day) can decrease the activity of osteoblasts, the cells that are involved in bone rebuilding. Chugging caffeine all day long (more than three or four cups per day) or consuming too much salt (6,000 mg or more a day) can trigger greater calcium excretion, too.

Severely restrictive eating habits can also take a toll on bone health. Not only will cutting way back on calories make you miss out on the nutrients you need to shore up your bones, but the it may affect your production of estrogen, says Bonci. What's more, the psychological stress of consciously restraining your eating habits could also have a deleterious effect. Researchers at the University of British Columbia in Vancouver found that women who exercise dietary restraint--meaning, they tend to obsess about everything they eat--excrete higher levels of cortisol (a stress hormone) in their urine and are more likely to have ovulatory disturbances, both of which appear to increase the risk of bone loss.

So here's the story in a nutshell: Eat well without making yourself crazy over it, take a multivitamin and mineral supplement and/or calcium supplement if you need to make up for any holes in your diet, and consistently engage in a healthy amount of weight-bearing exercise, and your chances of having strong bones over the long haul are very good. Because, ultimately, says Cosman, osteoporosis is a preventable disease. "And it's really in your 20s, 30s and 40s where you can make an impact by practicing healthy exercise and eating habits," she says. "An ounce of prevention is worth a huge amount in the long run."

Research May Bear New Clues

Scientists are now exploring a bear-bones approach to preventing osteoporosis in humans. Researchers at Penn State Milton S. Hershey Medical Center and **Michigan Technological University** recently studied wild black bears' unique ability to rebound from the significant bone loss they experience each year during their long hibernation. The black bears hibernate almost half the year, a stint of inactivity that in almost all other species would almost certainly result in a major reduction in bone density. To the researchers' surprise, though, the bears seem to maintain steady bone density levels from year to year. In fact, their bones' strength and mineral content may actually even increase as the bears grow older.

Theories? Bears don't defecate or urinate during their long sleep, which may allow them to recycle the calcium normally lost by these acts. While the bruins do indeed lose bone mass during their hibernation, the researchers discovered that bone production remains constant and may even accelerate as the bears wake up and become active again. The scientists hope that bear studies will reveal clues as to how humans may be able to prevent osteoporosis.

--Liz Neporent

Osteopenia: The Young Person's Bone Problem

If you've heard the term osteopenia--which means "low bone mass"--being batted around more often lately, it's because it's estimated that more than a fair share of young women have the condition. "Osteopenia is really common--about 20 percent of healthy premenopausal women have it," explains Felicia Cosman, MD, clinical director of the National Osteoporosis Foundation. "It's not a disease in itself and it doesn't need to be treated unless it's very low, but you want to watch it."

Osteopenia reflects a measure of bone density that lies somewhere between what's considered normal and what's considered osteoporotic for a woman's age. It's often thought of as a precursor to osteoporosis, but osteopenia doesn't have to result in that diagnosis: While the tendency to have it may be somewhat genetic, it can also be modified by your dietary and lifestyle habits.

The trouble is, because osteopenia doesn't cause symptoms and because premenopausal women generally don't have bone mineral density tests, many women have no idea that they have the condition. Complicating the matter, insurance plans won't cover the cost of a preventive bone density scan unless there's a medical reason for a premenopausal woman to have one. But there are times when having your bone density tested may be warranted. Among them: if you've had multiple fractures in your life; if you have a medical condition such as Crohn's disease or rheumatoid arthritis or if you take medications such as corticosteroids (for asthma, inflammatory bowel disease or autoimmune diseases), anticonvulsants (for seizure disorders) or GnRH agonists (for endometriosis); if you have irregular periods; or if you've had anorexia.

According to the National Osteoporosis Foundation, the best test is a DEXA (dual energy X-ray absorptiometry) scan, which measures bone density, usually in the hip or spine. If you discover that your bone density is low, it's imperative to address the problem right away. "The aim is to slow down the rate of bone loss," says David Hammerman, MD, director of the Center for Bone Health at Montefiore Medical Center in New York. "A person can remain osteopenic without having it progress to osteoporosis."

Recipe for Strong Bones

There's no one nutrient or workout that will give you strong bones. Rather, osteoporosis prevention requires several ingredients. Here's the list*:

Calcium -- 1,000 mg a day

Best sources: dairy products, fortified orange juice and soy milks, canned sardines and salmon, broccoli, kale and other dark leafy greens

Vitamin D -- 200 IU a day

Best sources: fortified milk and cereals, salmon

Vitamin K -- 90 mcg a day

Best sources: Swiss chard, spinach and other dark leafy greens

Vitamin C -- 75 mg a day

Best sources: citrus fruits and juices, cantaloupe, strawberries, red peppers, broccoli

Magnesium -- 310 mg a day (to age 30); 320 mg a day (after age 30)

Best sources: nuts, sunflower seeds, whole-grain breads, spinach, dried beans

Potassium -- 4.7 g a day

Best sources: milk, yogurt, bananas, baked potato with skin,

avocado, tomato and orange juices.

Protein -- Half your body weight in grams (i.e. 150 pounds, 75 grams)

Best sources: lean meats, seafood and poultry, dairy, nuts and seeds, eggs

Resistance training -- Using large muscle groups in the upper and lower extremities for 30 minutes, three times a week.

Weight-bearing cardio -- 45 minutes to an hour, three times a week.

* Recommendations are for women under age 50.

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