We all lose some bone mass as we age. As we grow older, existing bone is broken down faster than new bone is made; these thinner bones are called Ostepenia. As this breakdown occurs, calcium and other minerals are lost and the bones become lighter, less dense, and more porous. With further loss, Ostepenia becomes Osteoporosis. The thicker your bones are, the longer you can offset Osteoporosis, which is most common in women older than age 65. Luckily, there are some ways to increase bone strength and reduce your chance of a fracture. Peak bone mass is most influenced by genetics (75%). Environmental factors, like diet and exercise, make up the remaining 25%.

Calcium is a mineral essential to bones and teeth which contain over 99% of the calcium in the body. Bone calcium is used as a reserve that is released into the body as needed. As women age, absorption of calcium declines due to lower estrogen levels. Maintaining calcium stores is essential in preventing unnecessary bone loss. Calcium-rich foods include kale, broccoli, sesame seeds, spinach, collard greens, turnip greens, blackstrap molasses and canned fish with bones. Although dairy products do contain calcium, “greens and beans” provide similar amounts of calcium per serving with much less calorie amounts. In a study from Yale University on animal protein intake and hip fractures, those who had the highest dairy consumption had the most fractures. The speculation is that high concentrations of animal proteins make the blood more acidic. The body then responds by pulling calcium and other minerals out of bones to help neutralize the acid. Salt has a similar effect as large amounts of sodium leach calcium from the bones. Caffeine also slightly increases calcium loss from the body.

Vitamin D promotes bone formation and is needed for calcium and phosphorus absorption. Clinical trials have shown that calcium combined with vitamin D can reduce bone loss as well as the risk of bone fractures in populations at risk for osteoporosis. Vitamin D supplementation has been shown to improve bone health in older subjects. Food sources include fortified milk, sardines, salmon, shrimp, cod, shrimp, and whole eggs. However, sunlight is one of the most adequate and preferable sources of vitamin D.

Exercise. Bones are similar to muscles; when you use muscles they get bigger and stronger and when you make bones work they get stronger and denser. Working bones means impact, the weight of your body, or resistance. The two types of exercise that are most important for building and maintaining bone density are weight-bearing and muscle-strengthening.

**Weight-Bearing Exercise:** The two types of exercise that are most important for building and maintaining bone density are weight-bearing and muscle-strengthening. **Weight Bearing** exercises are activities that make you move against gravity while staying upright: dancing, high-impact aerobics, hiking, and jogging. These types of exercises are high intensity and best for building bones in people who do not have low bone mass or osteopenia/osteoporosis. Low impact options include elliptical training machines, low impact aerobics, stair-step machines and walking. **Muscle Strengthening** activities are those where you move your body against resistance. Examples of these types of exercise are lifting weights, using elastic exercise bands, using weight machines and lifting your own body weight.

**Balance activities** are non-impact and can help improve balance and posture. They also help to increase muscle strength and decrease the risk of falls or broken bones. Balance exercise strengthen your core and challenge you to hold the position without falling. Strong core and leg muscles are important in decreasing your risk of falls, try yoga or tai chi! If you currently have low bone density or osteoporosis, let your instructor know so he/she can provide alternatives for certain positions to prevent fractures.

**Functional Exercises** improve how well you move in everyday activities. For example, if you have trouble getting up from a chair or climbing stairs, you should do these activities as exercises.
Swiss chard with Sesame Seeds

1 1/2 pounds Swiss chard, well washed
2 tablespoons soy sauce
2 tsp. sugar
2 tablespoons sesame oil
2 tablespoons sesame seeds, roasted and lightly crushed
1 1/2 tablespoons dry sherry or cooking wine

Bring a large pot of water to a boil and cook chard, 3-4 minutes until stems are barely tender (if you are using mature chard, cut stalks at a diagonal into thin strips, cut leaves crosswise into 1/4 inch strips and boil additional 2-3 minutes). Meanwhile, whisk together remaining ingredients and pour over chard. Toss and serve immediately or chill for a cold salad.

Salmon Burgers

1 can (15 1/2 oz.) wild salmon
3/4 cup dry bread crumbs
1/2 cup thinly sliced green onions
1/4 cup chopped parsley
1 teaspoon dill weed
3 egg whites
2 Tablespoons lemon juice
1 Tablespoon vegetable oil
4 Hamburger buns
Lettuce leaves, optional
Tomato slices, optional

Drain and flake salmon, reserving 1/3 cup liquid. Mix together flaked salmon, bread crumbs, green onions, parsley and dill. Mix in egg whites, lemon juice and reserved salmon liquid. Form mixture into 4 patties. Heat oil in non-stick frying pan. Sauté patties over medium heat until golden brown on both sides. Place salmon patties on hamburger buns; garnish with lettuce leaves and tomato slices, if desired. Serves 4

Recipe courtesy Alaskan Seafood

Exercise Bands are great for weight-bearing exercises. They are low in cost and can go anywhere with you. Take one to the office to do on breaks, at night, or when you’re traveling!

Let's get moving!

Bicep Curl: Stand with the middle of the band under your feet and an end in each hand. Start with the arms straight by your sides and the band held taught. Bend the arms at the elbows to lift the hands towards the shoulders. Slowly return to the starting position.

Overhead triceps extension: Place one end of the band under your foot (or hold it in your other hand, depending on the flexibility of the band) and hold the other end in your hand. Bend your elbow so it is pointing to the ceiling and your hand is behind you. Straighten your elbow and point your hand to the ceiling. Slowly return to the starting position.

Upright Row: Place the center of the band underneath your feet. Hold each end of the band in your hands, start with your arms straight pointed downward to your feet. Pull upwards and bend the elbows out behind you. Slowly return to the starting position.

Hip Extension: Start on all fours with the band wrapped around the sole of one foot. Wrap the ends of the band around your hand or hold onto the handle. Lift your leg off the floor and straighten it behind you, level with your spine. Slowly return to the starting position.

Knee Flexion: Attach the band to a fixed point or have a partner hold the end of the band close to the floor. Wrap or place the other end around one ankle and lay on the floor so the band is taught when the leg is straight. Bend the knee, bringing the food up towards your butt. Slowly return to start.

Crunch: Lay on your back with the center of band attached to a fixed point (like a chair leg) behind your head. Hold the ends of the band and bend your elbows. Crunch and pull your head and shoulders off the ground while keeping your arms still. Slowly return to start.

Twist: Sit on the floor with legs straight out in front of you. Loop the band around the soles of your feet and hold both ends together in your hands. Twist to one side, come back to the middle and twist to the other side.