

# Eat Healthy and Stay Healthy

**-Osteoporosis Prevention-**



*“Take care of your  
body. It’s the only  
place you have  
to live.”*

**- Jim Rohn -**

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# Osteoporosis and Diet

About 25 million women and 12 million men suffer from osteoporosis. More than 1.5 million fractures occur annually due to osteoporosis, which represent a cost of an estimated \$15 billion in health care and rehabilitation services.

The number of older adults (over age 65 years) in the United States is projected to reach almost 25% by 2020 which greatly increases the numbers in the population at risk for osteoporosis. The average life expectancy in the United States early in the 21<sup>st</sup> century is almost 81 years for women and 73 years for men. As a result of the increasing numbers of older adults, osteoporosis, is affecting more people and becoming more costly. The provision of bone-building nutrients is necessary even after the onset of osteoporosis.

Bone is built during the first 25-30 years of age. This peak bone mass depends on both dietary calcium intake and weight-bearing physical activity such as heavy gardening, pushups, sit ups, weight lifting, jump rope, stair climbing, and Pilates. Bone loss is a normal process; it begins in mid-adult life (35-40 in women, 40-45 in men), and continues into old age. The typical bone loss in older women amounts to about 300 mg of calcium (one cup of milk) per day (400 mg for post-menopausal women without estrogen therapy). Osteoporosis occurs when bones become so weak that the skeleton is unable to sustain ordinary stress. Osteoporosis is a “silent disease.” There are no warning signs or symptoms. Although the rate of bone loss can be slowed or stopped after diagnosis, bone that has been lost can’t be restored.

## Risk Factors

- Family History of Osteoporosis.
- Female Gender (2-times the risk compared to Men).
- Asian or Caucasian Ethnicity.
- Slender Body Build—greater body mass adds stress to bones and increases strength.
- Estrogen Depletion: Menopause, early oophorectomy (excision of the ovary) in women, and Total Hysterectomy, Hypogonadism (inadequate production of sex hormones) in men, and Hypogonadism in women with excessive exercise.
- Advanced Age (60+ years).
- Sedentary Lifestyle: stress from muscle contraction and up-right body position against the pull of gravity stimulates bone formation.
- Prolonged use of Certain Medications and Antacids: Phenytoin, Phenobarbital, Thyroid hormone, Corticosteroids, Cyclosporine, Aluminum-containing antacids, Heparin, etc.
- Diseases or Conditions that Affect Calcium and Bone Metabolism: Hyperthyroidism, Diabetes, Chronic renal failure, Chronic diarrhea or malabsorption, Chronic obstructive pulmonary disease, Subtotal gastrectomy, and Hemiplegia (paralysis of one side of the body).
- Underweight: body weight for height that is 15-20% below healthy weight or a body mass index [BMI] below 19. (BMI=kg/m<sup>2</sup>. i.e. a woman with 5’7” height and 120 lb weight: 120 lbs

=  $120 \div 2.2 = 54.5$  kg;  $5'7'' = 67$  inches =  $67 \times 2.54$  cm = 170.18 cm  $\div 100$  m = 1.702 m. BMI = weight in kg  $\div$  height in m<sup>2</sup> =  $54.5 \div 1.702^2 = 18.8$ .  $18.8 < 19$  = underweight)

- Cigarette Smoking and Excessive Alcohol Intake (more than 2 drinks a day): accelerates bone loss by depleting calcium stores.
- Caffeine, iron, high sodium and protein, and excessive fiber consumption (these compounds inhibit calcium absorption). If you take iron and calcium supplements, don't take them at the same time.
- Inadequate calcium or vitamin D intake (which stimulates calcium absorption): usually only 30% of consumed calcium is absorbed by adults, but can range from 10% to 60%..

Bone health is influenced by three major interacting factors: diet, exercise, and estrogen. Risk of osteoporosis can be reduced by ensuring adequate intakes of calcium from foods (and supplements); engaging in regular weight-bearing exercises; if necessary, taking bone-conserving drugs (Calcitonin, sodium fluoride, Vitamin D, etc.). Weight-bearing exercise and estrogen therapy may improve bone strength in older women.

Foods high in calcium include: buttermilk, chocolate milk, ice cream, pudding, yogurt, cheese, black beans, navy beans, pinto beans, red beans, white beans, fortified cereal, fortified orange juice, canned salmon, canned sardines, fortified soy milk, almonds, collard greens, turnip greens, broccoli, rhubarb, spinach, and bok choy.

### **Tips to Increase Calcium in Your Diet**

1. Choose at least 2-3 servings of low fat dairy foods each day such as milk, cheese or yogurt, instead of relying on supplements.
2. Add nonfat dry milk powder to puddings, homemade cookies, breads or muffins, soups, gravy, casseroles and even a glass of milk. A single tablespoon of nonfat dry milk powder adds 52 mg of calcium, and 2-3 tablespoons can be added to most recipes.
3. Avoid foods high in oxalic acid such as spinach, rhubarb, chard, beet greens and sweet potatoes because they can block calcium absorption.
4. Limit your sodium and caffeine intake because excess amounts can increase calcium excretion.
5. Consume calcium sources throughout the day instead of all at once since your body can best handle about 500 mg at one time.
6. If you cannot meet your calcium requirements by diet, it may be necessary to take a calcium supplement. Consult your health care team for recommendations.

### **Relevant Web Sites**

<http://www.menopause.org>, <http://www.nof.org>, <http://www.osteoporosis.ca/>

# Recipes - Calcium Rich\*

## HARVEST LASAGNA

|  |                               |
|--|-------------------------------|
| 1 Tbsp. olive oil, divided                   | 2 cups chopped onions         |
| 1 bunch (8 oz.) escarole or spinach, chopped | 1 Tbsp. chopped garlic        |
| 1 container (15 oz) part-skim Ricotta        | 2 cups canned spaghetti sauce |
| 2 small yellow squash, diced                 | 12 oven-ready lasagna noodles |
| Salt   | 1 cup shredded Fontina cheese |
| 1 bunch (1½ lbs) Swiss chard, chopped        |                               |

Heat 1 teaspoon oil in large nonstick skillet over medium-high heat. Add escarole (or spinach) and cook for 5 minutes or until tender. Add garlic and cook 1 minute more. Drain liquid and cool. Transfer to medium bowl; stir in Ricotta and set aside.

Heat same skillet over medium heat. Cook diced squash with 1 teaspoon oil until just tender, 1½ to 2 minutes per side. Transfer to large plate, sprinkle with a pinch of salt. Heat remaining 1 teaspoon oil in skillet over medium-high heat. Add Swiss chard and cook until wilted, about 3 to 5 minutes. Stir in onions and ¼ tsp salt, and cook until onions soften, 5 minutes. Transfer vegetables to large plate and cool.

Cook marinara until heated through. Meanwhile, heat oven to 375 degrees. Spoon half the spaghetti sauce onto bottom of a 13 x 9 inch baking dish. Create alternating layers of noodles, squash and ricotta mixture until ingredients are gone, ending with a noodle layer. Spoon remaining marinara over top layer of noodles. Sprinkle with Fontina. Cover dish loosely with foil. Bake until sauce is bubbly and noodles are tender, about 50 minutes. Let stand 15 minutes before serving.

### Nutritional Information:

Serving: 1 ½ cups, Yield: 8 servings, Calories: 317 kcals, Protein: 19 g, Fat: 11 g, Carbohydrates: 38 g, Cholesterol: 51 mg, Calcium: 392 mg, Sodium: 539 mg, Iron: 5.19 mg

## CHOCOLATE CHEESE PIE

|   |  |
|---|--|
| 1 pkg. (14 oz.) fat free marble loaf cake | chopped  |
| 1 cup low-fat cottage cheese              | 1 pkg. (4-serving size) chocolate flavor pie filling instant pudding mix |
| 1 cup cold skim milk                      |  |
| 1 square semi-sweet baking chocolate,     | ½ cup whipped topping  |

Cut loaf cake in half; reserve one half for another use. Cut remaining cake half into 8 slices; cut each cake slice in half. Line bottom and sides of 9-inch pie plate with cake slices; set aside. Place cottage cheese, milk, and chocolate in blender container; cover. Blend on high speed until smooth. Add pudding mix and whipped topping; cover. Blend on low speed 1 minute, stirring once. Pour into prepared pie plate. Refrigerate 3 hours or until set. Store leftover pie in refrigerator.

**Nutritional Information:**

Serving: 1/8 pie, Yield: 8 servings, Calories: 324 kcals, Protein: 8 g, Fat: 10 g, Carbohydrates: 53 g, Cholesterol: 3 mg, Calcium: 139 mg, Sodium: 772 mg, Iron: 2.46 mg

**HAM and CHEESE BRUNCH BAKE**

|   |  |
|---|--|
| 24 oz package frozen hash brown potatoes  | 16 oz. low-fat sour cream                  |
| 2 cups cooked ham, cubed                  | 10 oz. can cream of potato soup, undiluted |
| 2 cups cheddar cheese, shredded & divided | Freshly ground black pepper to taste       |
| 1 small onion, chopped                    |  |

Thaw the hash brown potatoes and combine them in a large mixing bowl with the diced ham, a half-cup of the shredded cheddar cheese, and the chopped onion. In a separate mixing bowl, blend together the sour cream, cheddar cheese, potato soup and black pepper. Add the sour-cream-and-soup mixture to the potatoes and ham, making sure all ingredients are thoroughly combined. Pour the mixture into a lightly greased 3-quart oven-proof baking dish. Top with more cheese, and bake in a pre-heated 350 degree oven for 1 hour.

**Nutritional Information:**

Serving: 1/2 cup, Yield: 10-12 servings, Calories: 305 kcals, Protein: 14 g, Fat: 20 g, Carbohydrates: 17 g, Cholesterol: 59 mg, Calcium: 230 mg, Sodium: 777 mg, Iron: 1.29 mg

**LOW-FAT AMBROSIA FRUIT DIP**

|                                      |   |
|--------------------------------------|---|
| 8 oz. low-fat cream cheese, softened | 1 tsp. lemon zest (grated yellow rind of lemon) |
| 1 cup low-fat vanilla yogurt         | 14 packets non-sugar sweetener                  |
| 3 Tbsp. Maraschino cherry juice      |   |

Simply blend together the cream cheese and yogurt with a whisk or handheld mixer until smooth. Stir in cherry juice, lemon zest, and sugar substitute. Chill at least 2 hours prior to serving. Serve with a variety of fresh fruits. Return any leftover dip to fridge.

**Nutritional Information:**

Serving: ¼ cup, Yield: 8 servings, Calories: 70 kcals, Protein: 6 g, Fat: 1 g, Carbohydrates: 10 g, Cholesterol: 3 mg, Calcium: 100 mg, Sodium: 173 mg, Iron: 0.1 mg

## **ORIENTAL FRIED RICE**

|                            |                          |
|----------------------------|--------------------------|
| 2 Tbsp. olive              | 2 Tbsp. soy sauce        |
| 3 eggs, beaten             | 1 tsp. seasoning salt    |
| Dash of salt               | 1 cup ham, diced         |
| 4 cups cooked rice, cooled | 1 cup green onion, diced |
| 1 cup wheat berries        |                          |

In a large skillet or wok, heat oil. Pour in eggs and salt and cook as an omelet; remove to cutting board and chop. Heat more oil. Pour in rice, wheat, soy sauce, and seasoning salt. Sauté until hot. Remove. Do not add more oil. Put ham and onion into pan and sauté until hot. Combine all ingredients. Stir and cook until hot.

TIP: to decrease sodium content use reduced-sodium soy sauce in place of traditional soy sauce.

Nutritional Information:

Serving: ¾ cup, Yield: 6 servings, Calories: 305 kcals, Protein: 14 g, Fat: 11 g, Carbohydrates: 38 g, Cholesterol: 133 mg, Calcium: 45 mg, Sodium: 1326 mg, Iron: 2.68 mg

## **LION HOUSE RICE PUDDING**

|                                     |                          |                         |
|-------------------------------------|--------------------------|-------------------------|
| 2 cups cooked rice                  | ½ cup raisins            | 2 eggs, slightly beaten |
| 2 cups skim milk                    | 2 Tbsp. cornstarch       | ⅛ tsp. nutmeg           |
| 1 large can skim<br>evaporated milk | ¼ tsp. salt              | ⅛ tsp. cinnamon         |
|                                     | ½ cup plus 2 Tbsp. sugar | 1 tsp. vanilla          |

In a heavy 2 or 3 quart saucepan, combine cornstarch, salt, and sugar; blend well. Stir in milks, stirring constantly over medium heat until thick and smooth. Add rice; reheat to a full boil. Remove from heat. Pour a little of the hot mixture into beaten eggs while stirring rapidly. Return egg mixture to hot milk and rice and stir until thickened. Remove from heat. Stir in raisins, spices, and vanilla. Chill.

Nutritional Information:

Serving: ½ cup, Yield: 8 servings, Calories: 279 kcals, Protein: 9 g, Fat: 5 g, Carbohydrates: 51 g, Cholesterol: 67 mg, Calcium: 204 mg, Sodium: 169 mg, Iron: 1.51 mg

## **CHICKEN-RICE BAKE**

10-oz. can cream of mushroom soup  
1 cup milk  
1 envelope onion soup mix  
3-oz. can chopped mushrooms

1 cup regular rice  
3 lb. chicken, cut up and skinned  
Paprika or seasoning salt

In a bowl, stir together mushroom soup, milk, dry onion soup mix, and un-drained mushrooms. Reserve ½ cup of the soup mixture and set aside. Stir uncooked rice into remaining soup mixture. Turn rice mixture into a 13 x 9 inch baking dish. Arrange chicken pieces on top. Pour reserved soup mixture over chicken, sprinkle chicken pieces with paprika. Cover tightly with foil. Bake at 375 degrees until rice is tender (approx. 1½ hours) or 250 degrees for 3 hours.

**Nutritional Information:**

Serving: ¾ cup, Yield: 12 servings, Calories: 289 kcals, Protein: 26 g, Fat: 9 g, Carbohydrates: 24 g, Cholesterol: 64 mg, Calcium: 67 mg, Sodium: 878 mg, Iron: 2.06 mg

**FETTUCCHINE with MUSHROOM SAUCE**

1 Tbsp. olive oil  
½ lb. (250 g.) mushrooms, sliced  
1 leek, sliced  
1 clove garlic, minced  
1 Tbsp. all-purpose flour

1 can 2% evaporated milk  
½ tsp dried thyme  
¼ tsp pepper  
1 pkg. fettuccine  
¼ cup chopped fresh parsley

In saucepan, heat oil over medium heat. Add mushrooms, leek and garlic; cook for 5 minutes or until mushrooms release liquid. Stir in flour; cook, stirring, for 1 minute. Gradually add milk, whisking constantly. Add thyme and pepper; continue to cook, whisking, for 5 minutes or until thickened. In large pot of boiling salted water, cook pasta for 8 to 10 minutes until al dente. Drain. Toss pasta with mushroom sauce. Garnish with parsley.

For a real treat, use a mixture of white, cremini, and Portobello mushrooms for an intense mushroom flavor.

**Nutritional Information:**

Serving: ¾ cup, Yield: 4 servings, Calories: 359 kcals, Protein: 14 g, Fat: 8 g, Carbohydrates: 59 g, Cholesterol: 15 mg, Calcium: 170 mg, Sodium: 68 mg, Iron: 3.8 mg

**POTATO SOUP**

1 lb. thick sliced bacon, cut up

2 stalks celery, sliced

|  |                          |
|--|--------------------------|
| 3 cloves garlic, minced                    | 1 tsp. dried cilantro    |
| 1 large onion, coarsely chopped            | Salt and pepper to taste |
| 8 medium to large potatoes, peeled & cubed | 1 cup heavy cream        |
| Chicken stock                              | ¼ cup all-purpose flour  |
| 1 tsp. dried tarragon                      | 3 Tbsp. butter           |

In a Dutch oven, cook the bacon. Remove bacon from pan and set aside. Drain off all but ¼ cup of the bacon grease. In the bacon grease sauté the celery and onion until onion begins to turn clear. Add the garlic and continue to cook for 1 to 2 minutes. Add the cubed potatoes and toss to coat. Sauté for 3 to 4 minutes. Return the bacon to the potatoes. Cover and simmer until potatoes are tender. In a separate pan, melt the butter or margarine and cook the flour for 1 to 2 minutes. Add the heavy cream, tarragon, and cilantro. Bring the cream mixture to a boil to thicken, stirring constantly. Add the cream mixture to a boil to thicken, stirring through. Puree about ½ the soup and return to the pan. Season to taste and serve.

Nutritional Information:

Serving: 1 cup, Yield: 8 servings, Calories: 418 kcals, Protein: 10 g, Fat: 24 g, Carbohydrates: 43 g, Cholesterol: 66 mg, Calcium: 90 mg, Sodium: 439 mg, Iron: 1.83 mg

### **REVISED POTATO SOUP with LESS FAT and MORE CALCIUM**

|   |                                |
|---|--------------------------------|
| 1 lb. thick sliced bacon, cooked, drained, cut up | 1 T. olive oil                 |
| 8 – 12 med.-large potatoes, peeled, boiled, cubed | 3 cloves garlic, minced        |
| 8 – 10 stalks celery, sliced                      | ½ cup all-purpose flour        |
| 2 cans chicken broth                              | 1 cube butter                  |
| 2 cups water                                      | 1 can fat-free evaporated milk |
| 1 tsp dried tarragon                              | 1 quart fat-free half and half |
| 1 tsp dried cilantro                              | 1 tsp lemon juice              |
| 1 T. instant chicken bouillon granules            |                                |
| 2 large onions, coarsely chopped                  |                                |

Cook and prepare bacon and potatoes as directed in ingredient list. Combine celery, chicken broth, tarragon, cilantro, and chicken bouillon in a large pan. Bring to a boil and simmer until celery is cooked. Add cooked and cut-up bacon. Set aside. In a large saucepan, melt butter or margarine. Add flour. Cook for 1 to 2 minutes. Add the evaporated milk and half and half. Stir until very hot but not boiling being careful to not scorch. Add the celery/bacon mixture one cup at a time. Add the cooked and diced potatoes and lemon juice. Heat mixture thoroughly until hot but not boiling. Blender puree about ½ of the soup and return to the pan. Season to taste and serve.

Nutritional Information:

Serving: 1 cup, Yield: 12 servings, Calories: 378 kcals, Protein: 12 g, Fat: 17 g, Carbohydrates: 47 g, Cholesterol: 39 mg, Calcium: 274 mg, Sodium: 837 mg, Iron: 2.58 mg