Program: Understanding Your Risk for Brittle Bones
Speaker: Emily K. Frank, MD, Internist, St. Vincent Medical Group
Introduced by: Alison Brown
Attendance: 110
Guests: Phyllis Cockerill, Sara Jo Shoup, Martha Helen, Ruth Lawrence, Becky Eckerle, Roz Webb, Ethan Abella, Renee Ratermann, Shirley & Alan Whitby, Geraldine Bonner, Frances Whitener, Jan Woodruff

***Scribe*:** Tom Lauer
Editor: Bonnie Carter

Emily Frank, MD, is board certified in internal medicine and a Bone Health Specialist, one of only 50 in the USA. She has dedicated over a decade to the education of adult patients on wellness and preventive medicine. Her medical practice places an emphasis on the bone health of both men and women.

Dr. Frank graduated with Phi Beta Kappa honors from Indiana University, Bloomington, with a BA in Chemistry, minoring in Spanish. She received her medical degree from Indiana University School of Medicine and completed her internal medicine residency at St. Vincent, Indianapolis. Five years ago she earned her certificate in the Culinary Arts at Ivy Tech Community College to better understand how nutrition, specifically food consumed at restaurants, impacts health.

Dr. Frank is a member of the National Osteoporosis Foundation and the International Society of Clinical Densitometry.

Dr. Frank acknowledged several Scientech members in attendance, particularly Dr. Robinson for her training in the late 1990s. She then went on to ask whether the group wanted the “public” talk on Osteoporosis or the “Clinician level” talk. The attendees overwhelmingly wanted the “Clinician level talk”.

Dr. Frank began with a bit of her background: Family practice for 10 years, then off to Ortho Indy and started doing working with bone patients. Currently, she sees 1000-1500 patients/year in that role. She indicated there are few formal training programs in Indiana and the US and suggested there is a true “treatment gap” regarding osteoporosis in our health care system.

By definition, osteoporosis is low bone mass and deterioration of bone tissue resulting in bone fragility and breakage. The bone is constantly breaking down and reforming (remodeling) during our lifetime. When the bone remodeling slows with respect to the amount of bone broken down, bone strength diminishes, potentially causing osteoporosis. This condition is shown by having “soft” bones or bones that are prone to breakage.

In the US, 10 million individuals have osteoporosis, with 20% of these being men and 80% being women. Approximately 34 million individuals have osteopenia, a condition of lesser bone loss when compared to osteoporosis, but greater than “normal” individuals for any given age and gender.

Osteoporosis is a disease clinically silent until fracture occurs. For individuals over age 50 who break a bone, only 23% have bone density tests. She suggested for this age group of people, a fracture may be the first sign of osteoporosis, and when a bone fractures, you should have a bone density test.

Men and women have the highest bone densities in their mid 20s, but lose bone density continuously after that age. Women are at a greater risk of osteoporosis as they lose bone faster than men, approximately 5% of their bone density per year for first five years after menopause.

There are a number of things that cause or promote bone loss. First of all, age slows the bone regeneration (remodeling) process. This can be related to the reduction of estrogen in women and testosterone in men. In addition, family history, low calcium intake or absorption, low vitamin D intake or absorption, smoking and alcohol use, low body weight/anorexia (teen age deprivation will show up later in life), hyperthyroidism, hyperparathyroidism, chronic oral steroids, hepatic disease, renal disease, malignancies, immobilization, medications (long list, particularly those that influence calcium absorption or release from the body) can all contribute to the problem.

There are several evaluation techniques for osteoporosis including:

Dual energy X-ray (DXA)
Quantitative ultrasound
Quantitative CT

However, some work better than others with some not particularly reliable. For example, with DXA, evaluating the femoral neck provides the best correlation, while the heel is not reliable. These tests provide a T-score, or a measure of bone density. In general, a low score would mean a lower bone density. 0.0 would be normal bone density for a particular age and gender, while -1.0 to -2.5 would suggest osteopenia and values below -2.5 would suggest osteoporosis. There are a number of other tests that relate to osteoporosis including: CMP, CBC, TSH iPTH, SPEP, and 24-hour urine, testosterone that assist in the diagnostics for osteoporosis.

Vitamin D deficiencies may cause osteoporosis, among other physical problems. This vitamin is the trigger that helps the body absorb calcium, the main element needed for bone growth and development. When this vitamin is limited or blocked by some other physiological mechanism bone density remodeling is reduced. Vitamin D can be obtained from milk or the sun. This begs the question that was asked whether we should stay out of the sun from a dermatology perspective, or go out into the sun from a vitamin D and bone density perspective. Dr. Frank indicated there are no clear cut answers.

Calcium comes from milk, yogurt, cheese, kale, broccoli, and supplements. Men under age 70 need 1,000 mg/day, while men over age 70 need 1,200/day. Women under age 50 need 1,000/day, while women over age-50 need 1,200/day. Some calcium supplements must be taken with food, require stomach acid and can cause constipation. In addition, it is better to take the supplements several times a day in smaller doses that one large dose per day. This will result in better calcium absorption.

Exercise is also helpful for building bone density, but it must be weight-bearing exercise to stimulate bone remodeling. For example, walking and dancing are good, but biking, elliptical training, and swimming are not because they are not weight bearing. Yoga can be good for bone density building and it will also improve balance and stability.

Questions were abundant, with the program ending at 12:58 pm.

Dr. Emily Frank