

Contributing factors and treatments of osteoporosis



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Factors Contributing To Osteoporosis, The Symptoms And Consequences Of This Disease And Its Prevention And Treatments So That Patient Can Achieve An Almost Normal Life

Primary osteoporosis can occur in both sexes, is common in postmenopausal females, and occurs later in life in men. Secondary osteoporosis includes deficiencies or excesses of hormones, steroid administration and chronic illness. Osteoporosis may not be due to bone loss alone but if a person is 20 years of age and the bones have not reached their life's highest density although one ages with normal daily bone loss, osteoporosis can occur even without accelerated bone loss because the ultimate bone mass achieved is the result of a balance between bone formation and bone resorption. Bones are living tissue. Throughout our lifespan, new bone is formed daily to replace areas of bone that dissolve into the blood. This constant remodeling process-bone resorption and then formation-continues throughout life, but after age 35 more resorption take place. Osteoporosis results when there is excess bone loss without adequate replacement. Bones become brittle and easy to break. Normal bone structure has two forms that is the outer shell of the bone known as the cortex which is very strong and solid. The inside consists of trabeculae, a meshwork of bony struts. The empty spaces between the struts are filled with fat, bone marrow and blood vessels. In osteoporotic bones, calcium leaches from the bone mass and as a result small holes form in the bones. Presence of these holes causes bone weakening. As the process continues, trabecular struts are lost and the pores and empty spaces within the bone grow larger. It takes one minute breaks to occur in the weakened bone tissue to cause major fractures. It is hoped that

this assignment could be of much help to us and our other friends to have a better understanding of osteoporosis in general

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INTRODUCTION TO OSTEOPOROSIS

OSTEOPOROSIS IN MENOPAUSE WOMEN

Definition Of Osteoporosis In Menopause Women

i. Defining Osteoporosis

The World Health Organization (WHO) defined osteoporosis in women as a bone mineral density 2.5 standard deviation below peak bone mass (20-year-old healthy female average) as measured by DXA.

There are two types of osteoporosis; primary osteoporosis and secondary osteoporosis.

Primary Osteoporosis can be found in people with low bone mass, in female, aging citizens, those suffering from estrogen deficiency, white race, low weight and body mass index (BMI), a family with osteoporosis history, addicted smokers, and a long history of fractures. Last but not least a prolonged periods of immobility, early menopause, and low endogenous levels of estrogen

Secondary Osteoporosis are disorders link with increased risk of osteoporosis, such as hypogonadism which is the lack of testosterone or estrogens by the testes or ovaries, endocrine disorders, genetic disorders, hematologic disorders, gastrointestinal diseases such as celiac disease,

connective tissue disorders, nutritional deficiency, alcoholism, end stage renal disease, drug such as corticosteroids and congestive heart failure.

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ii. What Is Menopause?

Menopause happens in woman at the age of 51 whose ovaries had stopped releasing eggs, estrogens or when other hormones produced in the ovary slowly diminishes and menstruation slows down. If the ovaries had stopped producing estrogen and progesterone, the low estrogen levels may cause menopause symptoms. For example; cessation of menstruation will be followed by night sweats, hot flashes, vaginal dryness or even heavy and erratic periods. Osteoporosis in menopause women is known as post menopausal osteoporosis.

B. Knowing Osteoporosis's Basic Bone Formation

Our bone is renewed in two stages, that is, resorption and formation. In the resorption stage, the bone is broken down and removed by osteoclasts cells. In the formation stage the osteoblasts cells built new bones replacing the old ones. During childhood, early adulthood and by mid-30s, more bones are produced than removed. After mid-30s the bone is lost faster than it being formed, which resulted in the amount of bone in the skeleton to slowly decline due to aging. Osteoporosis due to aging is called primary osteoporosis. If caused by disease processes or prolonged use of certain medication, it is then known as secondary osteoporosis.

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THE RISK FACTOR, FACTORS AFFECTING AND THE CAUSES OF OSTEOPOROSIS

II. The Risk Factor And Factors Affecting Osteoporosis

The Risk Factor of Osteoporosis/Factors Affecting Osteoporosis

Risk factor for osteoporosis fracture is group into non-modifiable and modifiable. Examples of non-modifiable are aging in men and women, oestrogen deficiency, reduction in bone mineral density and a drop in men testosterone level.

Potential modifiable are excess alcohol, vitamin D deficiency, tobacco smoking, malnutrition, high protein diet, under weight or inactive, excess physical activity, soft drinks, caffeine and heavy metals. Heavy metal is an association between cadmium, lead and bone disease. Low level exposure to cadmium can cause an increased loss of bone mineral density in men and women, which in turn can lead to pain and increased risk of fractures. Higher cadmium exposure can soften the bones.

Its greatest risk factor is the menopause stage where there is no further production of bone protecting hormones or production of protecting hormones reduced. Other risk factors include being female, age, family history of osteoporosis, hormone deficiency, low calcium intakes, drinking excessive alcohol and smoking cigarettes. Others include early menopause in women and a number of medical conditions. Health also contribute to risk factor, especially if ones had her ovaries removed, having menopause before <https://assignbuster.com/contributing-factors-and-treatments-of-osteoporosis/>

the age of 45, suffering from amenorrhea or regular intake of steroid or thyroid medication

Hereditary or genetics could be anyone's risk factor, for example, family history whereby female Caucasian or Asian with thin and small bones.

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Unchecked lifestyle like addicted smokers and heavy beverages drinkers , that is, ones drinking habit of caffeinated drinks such as coffee, tea or soda. If ones does not consume enough milk, dairy product, vegetables, fruits or other food sources rich in calcium or taking excess protein intake could also increase the risk factor of osteoporosis.

Being physically inactive for a prolong periods of time could increases the risk of osteoporosis.

The Causes Of Osteoporosis In Menopause Women And Men

Osteoporosis is related to weak and fragile bones in aging people, people with obesity and pregnant women. Diseased bone with small pores and cracks often breaks, causing fracture unable to support their body weight are caused by osteoporosis.

Lifestyle habits, smoking, alcohol intake, hereditary and low estrogen levels in women and men can cause osteoporosis.

The inability of ovaries in post-menopause women to secrete estrogen to maintain the bone density can cause them osteoporosis.

Enough nutrients should be taken at an early age or else we will end up with bone diseases later on. Weak bones that become weaker will develop small cracks due to improper supply of nutrients and minerals are the primary cause for developing osteoporosis.

In gender, women are smaller and have less bone when compare to men and they lose bone tissue quickly as they aged too. Low body weight could be affected with

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osteoporosis disease. Mineral density should be built up at an early age by taking food that is rich in calcium and minerals for stronger bone tissue as they get older.

Eating excess protein causes calcium intake to be taken from the bone and excreted in the urine. To make it worst, bone strength peaks in our mid thirty, after this, bone gradually loses its density and strength.

The presence of particular hormonal disorder and other chronic diseases such as parathyroid or as a result of medications can be one of the causes of osteoporosis, especially for women after menopause or even old men.

Hyperparathyroidism can happens in a young age or osteoporosis in male,

Immobility of an affected limb after severe fractures as in accident victims can cause osteoporosis, especially those in plastered for a long time. Drug like steroid is an osteoporosis inducer. Patients with this treatment should have high calcium intakes.

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SIGNS AND SYMPTOMS OF OSTEOPOROSIS

III. Understanding The Signs and Symptoms of Osteoporosis

Signs and Symptoms of Osteoporosis

The Pain Factor

There are not many signs and symptoms of osteoporosis. We can feel the signs and symptoms if there is severe and long lasting pain in acute fracture when lifting or bending. Back pain is a sign or symptom that shows an increased thoracic kyphosis, that is, the upper back curve or an increased cervico-thoracic curve, for example, the dowagers hump. Both of them feature a noticeable loss of height. Osteoporosis does not always cause pain. It can cause discomfort due to thinning bones. Under x-ray, thin bones and compressed fractures in the thoracic spine shows that even without trauma the sign and symptom of osteoporosis is still there, especially after a bone density scan (DEXA) to detect and monitor the degree of osteoporosis changes.

Bone disease is responsible for 1.5 fractures every year. The fractures are the first sign of osteoporosis existing in bones such as in the hip, spine and wrist. Breaks in the hip and spine should be taken seriously because if not

taken care of immediately not only they suffer severe pain but also require hospitalisation and major surgery.

Osteoporosis fractures can cause acute and chronic pain but spinal fractures may be painless. Sometimes, acute pain is the normal process of fracture's healing. Whereas chronic pain continues long after the bone is healed.

An accidental fall or severe blow can cause hip and wrist fracture. A crush fracture and a collapsed vertebra is also a prominent symptom.

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Over the years of unchecked disintegration of the vertebrae can caused widows hump, a forward curve of the spine in the upper back.

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PREVENTIONS OF OSTEOPOROSIS

IV. Preventions And Treatments For Patients To Live A Normal Life

A. Preventions, Treatments And Coping With Osteoporosis

i. Preventing Osteoporosis In General

We need to practice the healthy lifestyle to prevent our bones from becoming thin and weak or also known as osteoporosis. Without prevention and treatment, osteoporosis will continue developing on our bones without any symptom or pain until we noticed that fracture had occurred. The first prevention that we will discuss is based on the scope of nutrition. Our bodies

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need the proper amount of vitamins, minerals and other nutrient to stay healthy. By eating the right food, we essentially get the best nutrition needed. For the better function of heart, muscle, nerve and for stronger bones, gaining enough calcium and vitamin D is important. Balanced diet is the best way to get enough calcium. Besides getting the balanced diet, we need to have a diet that is high in calcium. Getting less calcium during our lifetime will increase the risk of developing osteoporosis which is related with broken bones, rapid bone loss and low bone mass. Good sources of calcium present are low-fat dairy product (milk, yogurt, cheese, and ice cream), leafy vegetables (broccoli, collard greens, and spinach), sardines and salmons with bones, tofu, almonds and food with added calcium (orange, juice, breads, and soy products).

Other things we can do to prevent osteoporosis from occurs to us is through exercises. Bones are living tissue that will become stronger when we exercise. A

bone may look like a hard and lifeless structure, but it is actually more like muscle. Bone density

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and strength increased through physical activity during childhood and adolescence.

Meaning, children who always do their exercise often more are easily to have maximum strength and solid bone (higher peak bone density) usually when they are 30 years.

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The best exercise to prevent osteoporosis is weight bearing exercise. This is because this exercise works against gravity. It works when our feet and leg are supporting our own weight. It is important for building and maintaining healthy bones. It includes walking, jogging, jumping rope, climbing stairs, dancing and others.

Other recommended exercise is resistance exercise. This exercise use muscle strength to trigger muscle mass and also help to strengthen the bones. Activities that make use this muscle is weight lifting like using free weight and machines, as found at health club and gym.

Exercise is more benefit in older people because through exercise they can increase their muscle strength, coordination and balance which make them to attain better health. However, people with chronic disease like heart or lung disease, people with osteoporosis, older people and people who do not take their exercise should check themselves with their healthcare provider before trying any exercise program.

Other ways for us to prevent osteoporosis is to change our life style. It includes to stop smoking and limiting alcohol intake. Smoking had bad effect to our body especially to our bones and as well as our heart and lung. For women, nicotine in cigarette will inhibit the bone protective thus it will affect amount of estrogen produce. Women smoker

tend to get menopause earlier. This is because it will hasten the development of osteoporosis since bone density had decrease rapidly after menopause.

Menopause women who had smoked and choose hormone replacement therapy acquire more complication and intake of large doses of hormone. For the men who smoke, they are at risk for osteoporosis to occur. Besides that, men or women smoker may absorb less calcium from their daily diet.

Compared to non smoker, smokers have high risk of hip fracture. Other than to stop smoking, we need to limit the alcohol intake in our daily life.

Consumption of 2-3 ounces of alcohol a day even in young men and women will cause them to have bone loss and fracture. This is the result of poor nutrition which increased the risk of falling. Drinkers are liable to get a high risk of osteoporosis.

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TREATMENTS AND MEDICAL AIDS FOR OSTEOPOROSIS

ii. Treatments And Medical Aids For Osteoporosis Patients

At times, we wonder as to how we have osteoporosis problem and not knowing why this is happening to us. It is crucial for us to see the symptoms and detect the risk factors of osteoporosis before it is too late. We should also be aware and know how to prevent osteoporosis from occur to us as we aged.

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After following the guide lines given by the doctors and physiotherapist but bone fracture still could not be stopped, a person can take drastic action to stop the progression of bone loss through surgery or medications. So do not worry too much about it since there are ways on how to treat it.

There are various treatments that are available for treating osteoporosis. One of them is Hormone Replacement Therapy (HRT). HRT is used on women who are going through menopause. The function of this treatment is to make the bone density to be constant and stable and also to slower down the fracture rates during treatment session.

There are so many types of HRT like the menopausal hormone therapy, estrogen hormone therapy, testosterone hormone treatment, and others related to the hormone. Usually this type of HRT is not used alone. It is always used with the combination of two hormones, for example, progesterone is combined with estrogen. This is to prevent side effect like increasing the risk of stroke, heart disease, breast cancer, heart attack, ovaries

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cancer and also the risk of endometrial cancer in woman who has not had a hysterectomy (surgical removal of the uterus). This HRT can be taken in form of pill and skin patches.

Other form of treatment provided is the high intake of calcium and vitamin supplements. This nutrition intake has benefited older people either male or female in taking steps to decrease the risk of fracture. For women, getting

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enough calcium in their diet can help to minimise the risk of fracture at young age.

Each day, we should drink or eat for about 700mg of calcium. This is the best amount of calcium that our bodies need every day. If we had found that we are not getting sufficient amount of calcium in our diet, we should ask the health care provider or the doctor for advise about calcium supplement that we need to take.

Another treatment available for osteoporosis patients is through medication or therapeutic medication. Effective medication should be approved by the US Food and Drug Administration (FDA). Currently the most effective medication that is approved by FDA is the anti-resorptive agents.

This medication is aimed to prevent bone loss. Besides increasing the bone density, anti-resorptive medications inhibit bone removal and tipping the balance in favour of bone rebuilding. Examples of antiresorptive agents are menopausal estrogen therapy, alendronate, risedronate, ibandronate, raloxifene, teriparatide and calcitonin. Each antiresorptive agents has had approval for their specific use.

Alendronate, risedronate, and ibandronate are approved for the prevention and treatment of postmenopausal osteoporosis in women. Alendronate is able to increase

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bone mass in men with age-related osteoporosis, Alendronate and risedronate are to treat men and women with steroid-induced (glucocorticoid) osteoporosis.

Raloxifene is approved for the postmenopausal women who are not taking hormone replacement therapy. Teriparatide is approved for the treatment in postmenopausal women and men who are at high risk for fracture and is the calcitonin medication.

The last step that we can do to prevent osteoporosis from developing is through early screening. Doing bone mineral density (BMD) test is the only reliable way to know the exact loss of bone mass. It is to test the strength and solidness of the bones. Bone mineral density tests measure the solidness and mass (bone density) in the spine, hip, wrist, heel or hand. This is the common sites of fractures in our bodies due to osteoporosis.

These tests are performed like x-rays. They are painless, non-invasive, and safe. The risk of radiation is very minimal, much less than even having a chest x-ray film. BMD test should be taken by people with strong risk factor for osteoporosis. The risk factor includes estrogen deficiency, poor diet without enough calcium, Lack of exercise, smoking, large intake of alcohol, family history of hip fracture or vertebral fractures and low body mass index. Examples of tests that are used to measure bone mineral density include dual energy x-ray absorptiometry (DXA), quantitative computed tomography (QCT), and quantitative ultrasound (QUS).

By detecting osteoporosis at an early stage, the patient and the doctor can take action to stop the progression of bone loss. Changing the lifestyle and sticking to the treatment strategies recommended by a doctor, osteoporosis can be prevented

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COPING WITH MENOPAUSAL OSTEOPOROSIS

Menopause Women Coping With Osteoporosis

Menopause women with a number of risks factor or had a fracture without significant trauma should go to the hospital and treated for low bone density. Exercise plays an important role to help circulation, increase bone density and HDL levels and lower stress due to vaginal dryness. They should avoid smoking and excess alcohol. They should limit their protein and fat intakes and increase their fibre and calcium intakes.

They should get the help and advice from a skilled physiotherapist from any local osteoporosis classes and clinics who in turn will educate them the importance and benefits of movement.

Plenty of exercises can push up their bone to a good level and slow down the bone loss process. Impact exercises which jar the bones are better than cycling or swimming.

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THE CONSEQUENCES OF OSTEOPOROSIS

V. Consequences Of Osteoporosis For Individuals And Community

Osteoporotic fractures have consequences impact for individuals, community, organisation, private industry and governments, for example, individually fractures can lead to chronic pain, immobility and restricted activities. The cost of loss of income, such as, equipment and devices to help cope with restricted activities and home care are paid by family members. For the community, an increased demand for services such as meals on wheels and community taxi services are inevitable.

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CONCLUSION

VI. Conclusion

We would like to conclude that osteoporosis can be avoided if we plan our food intakes wisely. Food sources rich in calcium like dairy products, green leafy vegetables and fruits which is known to increase the bone mineral density. Vitamin D, magnesium, vitamin B and vitamin K are essential nutrients found in green vegetables that could avoid weak and thinning bones. We should also exercise for a healthy and fitness body and should go for medical check up as often as possible to enable detection of osteoporosis

at its early stage. Furthermore, serious consequences of bone fracture include permanent disability or death.

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GLOSSARY

Standard deviations-

Standard deviations refer to a disease characterised by low bone mass and loss of bone tissue that may lead to weak and fragile bones. In osteoporosis the bone mineral density is reduced, bone micro architecture disrupted and the amount and variety of bone protein is altered.

DXA-

DXA (dual energy x-ray absorptiometry) is a means of measuring bone mineral density (BMD).

WHO-

WHO (World Health Organisation) is a specialised agency of a coordination authority on international public.

Immobility-

State of being immobile

Renal-

(Anatomy) of, in or near the kidneys

Cessation-

Action or act of ceasing; pause.

Deficiency-

State of lacking something essential,

Instance of this; shortage

Lack of a necessary quality; fault.

Erratic-

Irregular or uneven in movement, quality or behaviour (unreliable)

Caucasian-

Relating to the 'white' or light-skinned racial division of mankind

Dowager's hump or widow's hump-

Compression fractures of the spine cause a loss of height and the bending of the shoulders (upper part of the back)

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