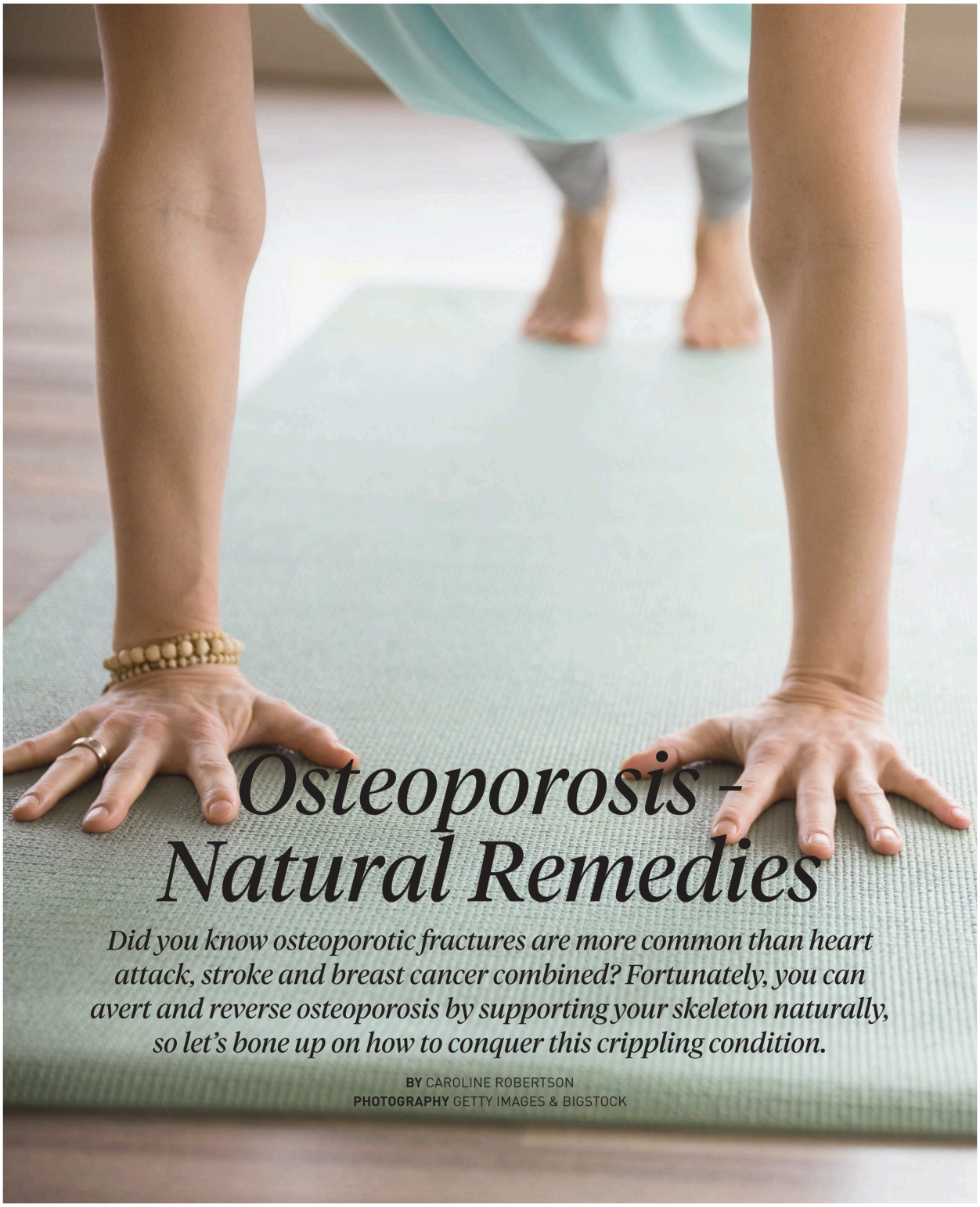
- Osteoporosis

WellBeing | special report BONE HEALTH



Osteoporosis – Natural Remedies

Did you know osteoporotic fractures are more common than heart attack, stroke and breast cancer combined? Fortunately, you can avert and reverse osteoporosis by supporting your skeleton naturally, so let's bone up on how to conquer this crippling condition.

BY CAROLINE ROBERTSON
PHOTOGRAPHY GETTY IMAGES & BIGSTOCK



Yoga is an excellent exercise for stretching and strengthening.

I'll never forget Sarah. She was a slim, elegant 48-year-old secretary humming along happily. Then one morning without warning she awoke 5cm shorter. Her vertebrae had collapsed, followed by multiple fractures. Her skeletal scaffolding slowly disintegrated and she was afraid to even bend over in case she broke something. "If only I'd eaten well and exercised," she lamented. Her painful and preventable osteoporosis is a cautionary tale for us all.

Prevention is the key to protecting ourselves from porous bones. Even if we have less-than-average bone density, called osteopenia, this can be halted and rectified. Monitoring your bone density from 20 years on while vigilantly building healthy bone ensures strong senior years. The bad news is that bones are often slow to regenerate. The good news is that depleted bones can be rebuilt. In fact, every cell in your skeleton is replaced every seven years, according to the Institute for Stem Cell Biology and Regenerative Medicine at Stanford Medicine. With a customised combination of nutrition, exercise and therapies, osteopenia and osteoporosis can be halted and even reversed.

Lara Pizzorno is testimony to the power of affirmative action. Author of *Your Bones: How You Can Prevent Osteoporosis and Have Strong Bones for Life Naturally*, Lara overcame the genetic osteoporosis that killed every female in her family. Aided by her renowned naturopath husband, Dr Joe Pizzorno, she restored her skeleton with diet, exercise and supplements.

"I have lots of risk factors and I managed to beat osteoporosis," she says. "NO ONE, not a single person, should have osteoporosis. It is completely preventable and reversible."

Skeleton in the closet

"When I found out I was shocked and refused to believe it! As far as I was concerned, osteoporosis was not for someone like me, a former Bond girl who travelled, swam, walked miles every day ... I feel lucky that with the help of my doctor I can still be me, living life and doing activities that I want and expect to be able to do."

- Ursula Andress, actress and former Bond Girl

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Though it affects mostly women over 60, osteoporosis isn't an old crone's disease. Some experts say it's a paediatric disorder with geriatric consequences as low birth weight, minimal exercise and poor nutrition in youth predisposes one to osteoporosis when older. Osteoporosis usually begins as bone density depletion, or osteopenia, from our twenties in women and men.

Surprisingly, men over 50 have more osteoporosis than prostate cancer and men have higher rates of fracture-related deaths than women. Singer Mark Holden was devastated when he was diagnosed with osteoporosis. "I don't think I'd ever heard of a man having osteoporosis. It came as a complete shock to me." INXS member Kirk Pengilly felt the same when he discovered his osteoporosis at 37. "I thought it was for old ladies, basically. Osteoporosis has affected my life in many ways. Mainly I'm a lot more aware of my health now. I exercise regularly, I gave up smoking ... In fact, I probably feel better now than I have ever felt!"

Osteoporosis is more prevalent than we realise as it often goes undetected. Evidence suggests that many women who sustain a fragility fracture are not appropriately diagnosed and treated for probable osteoporosis. Worldwide, osteoporosis causes more than 8.9 million fractures annually, amounting to an osteoporotic fracture every three seconds. One in three women and one in five men over age 50 will suffer osteoporotic fractures. It accounts for more days spent in hospital than diabetes, myocardial infarction and breast cancer in Western women over 45.

Osteoporosis is likely to touch your life in some way with over 2.2 million Australians suffering from an osteoporosis-related condition and experts predicting about 3 million Australians will have osteoporosis by 2021. Professor Peter Ebeling of the University of Melbourne Medicine and Endocrinology Department says osteoporosis is the greatest undetected and untreated national health priority disease. Awareness and positive steps will save your skeleton from becoming a sad statistic.

Feel it in your bones

Actress Gwnyneth Paltrow was diagnosed with osteopenia at age 35 after a leg fracture. She was lucky to identify her low vitamin D status early and address it before it progressed to the osteoporosis her mother suffers from. However, many remain unaware they have osteopenia or osteoporosis as this "silent disease" often creeps up without warning. The starting stages of bone loss or osteopenia are usually only evident through tests rather than telling signs.

Research suggests receding gums and weakening grip strength can indicate bone degeneration. Dr Christiane Northrup suggests you watch your mouth: "Osteoporosis usually begins in the jawbone and can be spotted by a dentist long before you're at risk for a broken hip." Chewing creates force that can crack teeth or a jawbone weakened by osteonecrosis.

The good news is that depleted bones can be rebuilt.

Just as cracks in fine china eventually shatter a dish, over time breaks occur as bones weaken. A fracture following a minor fall or bump is when many discover they have fragile bones. The most common breaks occur at the forearm (80 per cent), humerus (75 per cent), hip (70 per cent) and spine (58 per cent). A collapsed vertebral disc is pain-free 66 per cent of the time, but signs can include height loss, back pain and a kyphosis curve or hunchback. Vertebral fractures affect your sense of a stable foundation, resulting in low self-esteem, distorted body image and depression, according to studies.

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Calcium credit foods include whole-milk yoghurt, almonds, broccoli and kale.

If untreated, osteoporosis continues to crumble the bones and contribute to death. A broken bone can cause immobility, disability, pain, loss of independence and poor body confidence. If social interaction is affected, a sense of isolation and sadness can ensue. Stagnation blocks the flow of blood, lymph and nerves, further deteriorating the body and bones. It's amazing that at 90 years old 33 per cent of women and 17 per cent of men have a hip fracture, resulting in many losing the ability to walk and 36 per cent passing away within a year. Ensure your future health by curtailing causes and building unbreakable bones.

Bad to the bone

"I was diagnosed with osteoporosis. I was over 50, Caucasian, thin, small-framed, and I have it in my genetic history. It was almost a slam-dunk."
- Actress Sally Field

Are you heading to bone-break hotel? Decide your destiny by being conscious of the causes and risks in your life. The following factors increase your tendency to osteoporosis:

- Petite, slim frame of northern European or Asian descent
- Being over 50 and female
- Family history of osteoporosis
- Menopausal
- Late onset of menstruation or early menopause
- Abnormal absence of menstruation
- Smoking (cadmium and nicotine disrupt bone-building cells and interfere with ability to activate vitamin D)
- Excessive alcohol or caffeine intake (increases calcium loss)
- Low nutrient intake or absorption, especially calcium, magnesium and vitamin D
- Sedentary lifestyle and infrequent weight-bearing exercise
- High sodium intake
- High animal protein intake as acidity leeches calcium
- Acidic diet
- Low sex hormones including oestrogen, progesterone or testosterone

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- Overactive thyroid, parathyroid hormone or adrenal glands
- Eating disorders such as anorexia or bulimia
- Kidney failure
- Rheumatoid arthritis
- *Osteogenesis imperfecta* evident by blueness in whites of the eyes
- Thalassaemia
- Cystic fibrosis
- Malabsorption such as with IBS, food allergies, amoebas
- Excess vitamin A such as more than 900mcg/day for men and 700mcg/day for women
- Medications, including antacids, benzodiazepines, NSAIDs, contraceptive pill, anticonvulsants, thyroid hormone and steroids. "High-dose cortisone is the second most common cause of osteoporosis and we currently have no real treatment for this serious side-effect," says Steven L Teitelbaum, MD, senior author of a study on how glucocorticoids suppress bone formation.

You can take a quick one-minute risk test at iofbonehealth.org/iof-one-minute-osteoporosis-risk-test. However, for a precise picture of your skeletal strength, it's vital to get a definitive diagnosis from your healthcare practitioner.

The sooner you support your skeleton, the longer it will support you in all your endeavours.



Ghee nourishes bone marrow and bone.

No bones about it

"An accurate diagnosis, which is relatively simple, can save women a lot of suffering, fractures and emotional damage."
~ Carmen Sanchez, osteoporosis patient

At Bondi's Body and Bone clinic, Mike Turner, a sports medicine and DEXA applications specialist, gave me an easy and painless scan. "This is the gold standard for determining bone density, fat and muscle mass," Turner explained. After five minutes relaxing on a padded bed, I was handed the extensive report on my hip, spine and forearm bones. This priceless information motivated me to continue my bone-building regime and to monitor them annually.

Unfortunately, most people with osteopenia or osteoporotic fractures are neither identified nor treated, according to the 2004 report *Osteoporosis: Underrated, Underdiagnosed and Undertreated*. The DEXA scan, or Dual Energy X-ray Absorptiometry, is the most accurate testing method and it's usually free with a doctor's referral. The DEXA scan shows if your

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Soak up Vitamin D3 with 10 minutes of sunbathing a day.

bones have depleted to a -2.5 level, which constitutes osteoporosis. A T-score of -1.0 and above indicates normal bone density whereas a T-score of -1.0 to -2.5 indicates low bone mass or osteopenia.

An enteral peptide test is also useful to see how much calcium is being excreted. Turner explains the DEXA scan is perfectly safe and superior to other methods. "It's also cheaper than an MRI, rebatable, and has lower radiation and higher accuracy than a CT scan or X-ray." He emphasises the importance of early detection to halt the progress, and ongoing evaluation to ensure treatment is effective.

The sooner you support your skeleton, the longer it will support you in all your endeavours. Inspirational solo yachtswoman Dame Ellen MacArthur urges people to protect their bones. "People thought I took a big risk when I sailed around the world by myself. However, there's one thing I don't take risks with and that's my bone health, because without strong bones I wouldn't have been able to sail across so many seas. Get yourself checked and beat the break so you can continue doing what you like best."

The sooner you support your skeleton, the longer it will support you in all your endeavours.

Osteoporosis offensive

An early offensive is the best defence against osteoporosis. Being forewarned will prevent your forearm from snapping. It's preferable to prevent rather than lament bone loss. As Benjamin Franklin said, "An ounce of

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prevention is worth a pound of cure." Invest in your bones by depositing nutrition into your bone bank during peak skeleton storage years up to 25 years. Research reveals exercise early in life boosts bone mass and exercise later in life maintains it. It also supports strength, co-ordination and balance.

Children with restricted diets or malabsorption, or who are on certain medications, can take supplements to ensure sufficient bone-building blocks. Adults can reduce their risk of osteoporosis through weight-bearing exercise, nutritional supplements and herbs and by quitting smoking. You can also cut your use of caffeine, sugar, table salt, acidic foods, soft drinks, nightshade vegetables, fluoridated water, high-phosphate foods, animal protein and depleting medications such as cortisone.

Bone is living tissue composed of over 70 minerals in a collagen/protein base. Your body constantly breaks down and builds bone with special cells called osteoclasts (destroyers) and osteoblasts (builders). Most of your bone mass is built by 30 years of age; after that it continues to build but more slowly. You're capable of increasing bone production at any age if you make strong pillars your priority.

Bone biochemistry is a complex dance of digestion, absorption and retention.

Bones of contention

Pharmaceutical medicine has two approaches to osteoporosis treatment. There are bisphosphonate drugs that stop bad bone from being cleared, such as Fosamax. These result in thick, weak, brittle bones lacking in vital circulation. High fluorine concentration causes a similar condition called fluorosis where bone becomes dry, hard and prone to fractures. In the long term, tests have linked bisphosphonate drugs to increased osteonecrosis (jaw rot), root canals, hip fractures, irregular heartbeat, eye problems, ulcers and hypoglycaemia. Bones lose their ability to build new bone and to adjust to changing forces. Many physicians and patients are shunning these potentially harmful medicines. As Lara Pizzorno explains, "You have more bone sticking around but it's garbage; it's very fragile. That's why even the FDA has now come out with a warning to doctors, in October of 2010, that no woman should be on one of these drugs for longer than five years."

The other treatment is HRT (hormone replacement therapy). This boosts bone density by decreasing bone loss. However, studies show HRT can increase the risk of uterine cancer, breast cancer, ovarian cancer, blood clots, strokes and heart attacks. Also, when HRT is stopped, bones deteriorate again at the same rate as during menopause. HRT doesn't address the other important causes of osteoporosis. Many informed doctors are now advising a more holistic approach to overcoming osteoporosis, including dietary modifications.

Hormone help

Sex hormones, especially oestrogen, appear to protect bones. Bone density can decrease with declining oestrogen levels. During menopause women can lose 5–10 per cent density each year. This accelerated bone loss generally slows around five years after menopause. Balanced hormones contribute to balanced bones.

Herbs that can help hormone harmony include black cohosh, wild yam, chaste tree, red clover and oats. Breast cancer survivors are advised to seek guidance from their health practitioner before taking these herbs.

Flaxseed oil, which is oestrogenic and rich in omega-3 fatty acids, benefits bone density, according to recent research published in the

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Two top exercises for strengthening bones are fast walking and jogging.

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International Journal of Food Safety, Nutrition and Public Health.

Bone appetite

"I have been on a diet for most of my adult life. As a result, my body has been deprived of essential vitamins and nutrients, which no doubt contributed to my osteoporosis."
~ Britt Ekland, Swedish actress

Get into that kitchen and rattle those pots and bones. Serve your skeleton digestible dishes so it blossoms from the benefits. For your cells to absorb these bone-mass morsels, a hearty digestion is essential. An ideal diet only feeds the toilet if you can't assimilate it. Thus, the first step for a bone banquet is to empower the digestive chef.

Address any issues such as acidity, allergies, candida, inflammation, low enzymes, parasites, toxicity, stress and organ weakness. There are many ways to a glowing GIT. Cleanses, enzymes, herbs, prebiotics, probiotics and supplements are just some streets to a smiling stomach. Once the digestion is stoked, let it cook up an inner feast that's a bone elixir.

Certain foods support your skeleton while some sabotage it. A nutrient-rich, digestible, alkaline diet creates better bones. As Vivian Goldschmidt, MA, author of *Save our Bones Program* says, "Eating approximately 80 per cent alkalising foods and 20 per cent acidifying ones creates a balanced environment that allows bones to thrive and provides some remarkable whole-body benefits."

An acid bloodstream from stress, disease, diet or shallow breathing drains alkalising minerals like calcium from bones to buffer the acidity. Focusing on alkalising options of plant protein, healthy oils, vitamins and minerals makes your bones better every day. If they suit you, try these intestinal ingredients to fill up your bones.

Skeleton superfoods

■ **Organic bone broth** is rich in the amino acids proline and glycine which help build the collagen matrix of bone mass. This is more important than minerals for tensile strength and juicy flexibility. Almonds and chestnuts

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also provide bone-building collagen.

- **Natto** is a sticky soybean fermented condiment that's the ultimate source of vitamin K_2. This cleans calcium deposits from arteries and deposits it in your bones. It's proven to benefit bones and heart health.
- **Raw hemp protein and chlorella** are high-protein alkalisers for stronger bones.
- **Fermented soy** such as miso and tempeh provide protein and isoflavone phyto-oestrogens. These can protect menopausal women from bone weakening and osteoporosis, according to several extensive studies.
- **Magnesium**-rich spinach, tofu, almonds, broccoli, lentils, pumpkin seeds, sunflower seeds, sesame seeds and black beans aid calcium absorption.
- **Calcium** credit foods are whole-milk yoghurt, almonds, broccoli, kale, sesame seeds and salmon with bones.
- **Omega-3 fatty acids** from flaxseed oil or fish such as salmon reduce inflammation in the body and increase calcium absorption, thus reducing bone breakdown. A recent study states that the omega-3s boost bone marrow, which nurtures bone.
- **Ghee** also nourishes bone marrow and bone, according to Ayurvedic doctor Rama Prasad: "To renovate and refill bone Ayurveda uses herbal ghees. Stabilisation of minerals in the skeleton requires ghee. A number of products such as Tiktaka Ghritam are commonly used for osteoporosis."
- **Himalayan salt** supplies bones with its 27 per cent salt content in the form of 84 colloidal minerals. Insufficient salt in the diet makes bones weak, but excess table salt or sodium chloride is detrimental to bones as it increases urinary calcium excretion.
- Soak up sunny **vitamin D_3** with 10 minutes sunbathing, a supplement or fatty fish such as herring, salmon or trout.

Skeleton stealers

Help bones by not hindering their intrinsic balance. Moderation is key for the following potential bone breakers.

- **Sugar** damages collagen via AGES (advanced glycation end products). This is why diabetics are more prone to osteoporosis.
- **Hydrogenated oils** create inflammation, which stimulates bone dissolution.
- **Caffeine, phosphoric acid soft-drinks, cigarettes and salt** increase mineral excretion.
- The acidity of **grains and meats** aggravates inflammation and leeches minerals from bone.



Broth with greens and bone marrow

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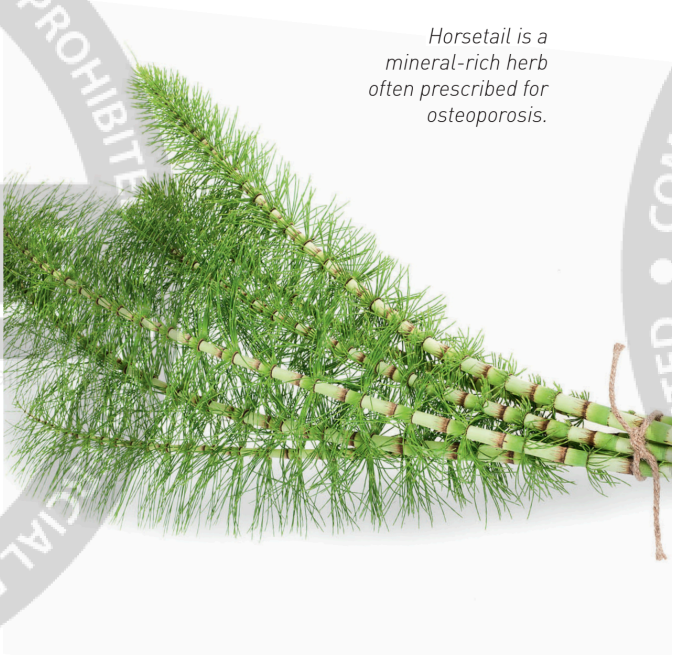
Meat protein increases blood acidity, which is neutralised by calcium mobilised from the skeleton. In a study published in *The American Journal of Clinical Nutrition*, researchers observed over 1000 women. After seven years, women who ate four times as much animal protein as vegetable protein were more likely to experience bone loss and fractures at the hip than women who ate nearly equal amounts of the two protein types.

■ **Cow's milk** has been crowned as the queen of calcium but its high phosphorus content needs to pull calcium from bones to buffer its acidity. A 12-year Harvard study on 78,000 women showed those who consumed more milk had a higher incidence of hip fractures. It's also significant that countries with low dairy consumption such as Africa, China and Japan have lower rates of osteoporosis than countries with high milk intake such as the US and Scandinavia.



Horsetail is a mineral-rich herb often prescribed for osteoporosis.

Bone up

Bone biochemistry is a complex dance of digestion, absorption and retention. Each element must be in balance to build healthy bone and reduce bone loss. Star performers in bone ballet include the following:

Calcium citrate

Calcium is an important component of the bone matrix, though only in partnership with other nutrients. It breeds bone cell growth and aids absorption of minerals. The citrate form is the most absorbable, bioavailable form of calcium. Though calcium carbonate is cheaper, it's difficult to digest, coming from rocks, and may cause gas, bloat, indigestion and nausea.

Vitamin D_3

Vitamin D_3 or cholecalciferol is vital for calcium absorption into the blood and bone. Studies show that adequate vitamin D intake is associated with a lower rate of osteoporosis and osteoporotic fractures. Sunning yourself for 10 minutes a day is generally sufficient, but some people have an inability to absorb vitamin D in this way, so it's safer to supplement.

Magnesium chelate or oxide

An estimated 80 per cent of Americans are magnesium deficient. *The American Journal of Clinical Nutrition* revealed that high magnesium was associated with greater bone mineral density in the elderly. Magnesium builds bone matrix by forming hard hydroxyapatite crystals. It offsets the constipating potential of calcium while charging and relaxing muscles for more mobility and less pain.

Vitamin K_2

New studies show that vitamin K_2 is crucial in preventing osteoporosis. We can't create or store vitamin K, so supplementation is the safest bet. Vitamin K_1 is cheaper and can convert to vitamin K_2 once metabolised, but only in optimal health. Vitamin K_2 activates osteocalcin, which brings calcium to bones and can completely reverse bone loss, according to recent Japanese studies. Seven Japanese trials show that vitamin K_2 supplementation reduces vertebral fractures by 60 per cent and reduction

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in hip and other non-vertebral fractures by 80 per cent. People on blood-thinning medications such as warfarin should consult their health professional before taking vitamin K.

Boron

This natural mountain mineral is integral to calcium, magnesium and vitamin D absorption. Research has shown it helps prevent calcium loss and bone demineralisation in postmenopausal women.

Collagen

Colla literally means "glue" in Greek. Collagen is the cement that holds our bones together. It's a lattice-like protein that keeps our connective tissue strong and supple. Carnivores get ample collagen from gelatin and bone broth. Vegetarians and vegans have the option of aquatic and land plant sources such as seaweed and tobacco plants.

Strontium citrate

This misunderstood mineral is a new vital addition to osteoporosis prevention and treatment. Trials on over 7000 women show strontium greatly reduces risk of vertebral, femur and hip fractures in as little as one year. In women older than 80 years, strontium reduced vertebral fractures by 55 per cent over the first year of treatment and by 32 per cent over three years. Strontium competes with calcium for absorption, hence one must take them at least four hours apart and have more calcium than strontium. Avoid strontium ranelate, the synthesised and patented product. Studies suggest it increases thromboembolism, causing strokes or blood clots.

Calcium ascorbate

Alkalising vitamin C is essential to create the collagen that builds bone.

Chelated zinc

Zinc amino acid chelate stimulates bone formation and inhibits bone loss.

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Other
Other supplements that support a strong skeleton include B vitamins, copper, molybdenum, selenium, silicon and vanadium. These are abundantly available from a balanced, organic diet providing your digestion can extract and assimilate them. Horsetail, comfrey and nettle are mineral-rich herbs often prescribed for osteoporosis.

Throw yourself a bone

"I fractured my wrist opening a jar; that's when my world shattered. I had the bones of an 80-year-old," said 53-years-young Lucia, my past patient. Like Lucia, many get the devastating diagnosis of osteoporosis and feel frail and helpless. Fortunately, there are constant advancements in osteoporosis management, including effective ways to avoid further fractures.

Being aware of your movements and limitations is important. Self-care routines can equip you with empowering tools to feel stronger and more secure every day.

Ayurvedic rejuvenation therapies to boost bone density and manage pain include applying dhanwantharam thailam daily, herbal milk massage called navara kizhi, mineral bhasmas and internal herbal ghees. Soaking in a warm bath of three cups of borax or Epsom salts can clear acid and infuse minerals through the skin. An added benefit of borax is that its anti-fungal action cures candida and brightens the bath. Hence it sits in the cleaning aisle of supermarkets.

Once fractures have occurred, supplementation, herbs, massage and exercise can accelerate healing. Platelet Rich Plasma injections show promising results in regenerating bone and reducing pain. However, more studies need to be conducted for conclusive evidence. If a vertebra collapses, it can be replaced with bone cement injections in a surgical procedure called vertebroplasty.

Another way to stimulate stem cells is to beat yourself up; Iron Shirt Chi Gong teaches that bone beating stimulates bone marrow and osteoblast bone cell activity. Traditional beaters are composed of 100 bamboo or steel 12-inch rods bound together by tape or a sheath. Avoid fractured areas and be gentle if your osteoporosis is advanced, yet firm if you're only osteopenic. Search Shaolin Energy Brush online for instructional videos.

No more lazy bones

If you don't use it you lose it when it comes to connective tissue. Moderate stress on muscles and bones make them stronger. Work your bones and muscles to make them more resilient. This requires resistance and weight training as Kit Laughlin, author of *Overcome Neck and Back Pain*, points out. "Three words prevent and reverse osteoporosis: weight-bearing exercise." Of course, this must be customised to your capacity, preferably with professional help.

With advanced osteoporosis or fractures, exercise must be modified to your individual ability. Irrefutable evidence shows activity reduces osteoporosis and the risk of hip fractures. Studies show that bone mineral density in postmenopausal women can be maintained or increased with therapeutic exercise. Exercise provides triple protection by bulking bones, toning muscles and improving balance to reduce the risk of fracturing falls.

"Three words prevent and reverse osteoporosis: weight-bearing exercise."

Swimming and cycling are great for cardiac health and stretching but you need weight-bearing, resistance regimes to enhance bones. Top exercises to include are fast walking, jogging (preferably barefoot on earth), climbing stairs, tennis, dancing, lawn mowing, working out on a cross trainer, walking lunges, trampolining,

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lifting your own weight and weight lifting.

Lifting weights twice a week for a year avoided expected bone loss and increased bone density in women as old as 70 years in a 1994 *Journal of the American Medical Association* study. Resistance training strengthens bones, muscles, ligaments and the tendons surrounding joints. This gives limbs greater stability, thus reducing the chance of wonky walking and falls from grace.

Yoga, Pilates and tai chi are excellent stretching and strengthening exercises, improving balance, flexibility, co-ordination and relaxation. Postural alignment is important to reduce the wear and tear of misalignment or dysfunctional movement. Consider Alexander Technique, The Gokhale Method, Feldenkrais, Foundation Training, osteopathy or physiotherapy to improve your biomechanics.



Since the forearm is the most common fracture site, Mike Turner suggests "tensile exercises for the forearm, pull-ups or static arms hanging for those with reduced upper body strength". However, Turner cautions, "Particular care needs to be taken with the elderly to reduce the risk of joint strain as muscle groups used for pulling are known to have a much higher incidence of injury than pushing exercises."

Dr Scott Howitt, a sports and rehabilitation specialist chiropractor, uses two exercises in his practice to strengthen core and postural muscles to prevent falls:

1. One Leg Standing (similar to yoga's tree pose but with the knee up as high as the hip joint)

2. Gait Training (walking with correct head turns)

Enjoy moving your body with increased awareness and appreciation. One positive outcome of osteoporosis is it forces you to pay attention to your body so you can mindfully master it.

Good vibrations

NASA found that vibration machines can reverse the osteopenia or osteoporosis that occurs when astronauts go into space in zero gravity. Russian ballet dancers discovered that vibration hastened healing in minor injuries. Vibrating platforms have been shown to improve bone density, reverse bone loss, counteract the effects of gravity, increase strength, positively stress bones, muscles, ligaments and tendons.

A vibration machine is safe and simple to use. It forces you to recruit core muscles and enlist stabilising muscles without stressing the

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cardiovascular system. Basic exercises called acceleration training can assist faster fitness than exercise on stable surfaces. Stretching and strengthening with the cyclical vibrations adds an extra challenge to the muscles and bones which enhances development. Whole-body vibration causes compression and remodelling of the bone tissue, activating osteoblasts while reducing the activity of the osteoclasts. It also improves circulation which brings rich nutrients to the bones. The Berlin Bedrest Study proved that 10 minutes of vibration training six times a week prevented muscle and bone loss in total bedrest over 55 days. Enjoy wobbling your way to better bones.



Funny bone

Feeling secure, supported and grounded is essential for a strong skeleton. Bones are connected to your base chakra, which gives you a sense of stability and safety in the world. Stress and insecurity shakes this foundation and increases cortisol, a bone and mineral leeching hormone. Researchers studying cortisol levels of stress subjects found corresponding low bone mass, particularly in the lumbar vertebrae and femur.

Mind-body pioneer Louise L Hay says osteoporosis stems from feeling there is no support in life. Dr Mona Lisa Schulz agrees, saying osteoporosis is to do with "[the] network of people who give you a sense of safety and security in the world. If you are alone, lonely and depressed, you have an increased risk toward osteoporosis." Depression is also detrimental to bones by increasing levels of an inflammatory protein called interleukin-1.

You can repeat affirmations and take actions to counter this effect. Some suggested statements are:

- "I am always provided for and protected."
- "The universe supports me easily and abundantly."
- "I am strong, stable, secure and supported."

See and believe yourself better by visualising support and robust bones. First thing on waking, look at a skeleton picture for one minute then close your eyes and see your skeleton strong, white and glowing and your body like a mountain.

Wear base-chakra stones in a belly belt, such as jasper, ruby, black tourmaline, black kyanite, black onyx, obsidian and smoky quartz. Anoint your lower back with or burn essential oils such as cedarwood, frankincense, myrrh, patchouli and sandalwood.

Walk barefoot, feeling the earth cushioning your soles. Thank the air for giving you breath, the sky for sheltering you, the water for nourishing you, the sun for warming you. Relish nourishing foods, a comforting home and sensual pleasures. Recognise visible and invisible sources of support. Ask and expect assistance when you need it and above all feel that you can cope and overcome any challenge in life, drawing from your deep energetic core.

- *References available on request.*

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