Osteoporosis and Arthritis

by Tessa Jupp RN

I was asked to give a talk on osteoporosis at OSWA on 1 Feb 2014. These days lots of people are concerned about bone density and doctors are pushing drugs like Fosamax, and also HRT, to say nothing of calcium and dairy foods high in calcium as a regime to prevent future bony fractures.

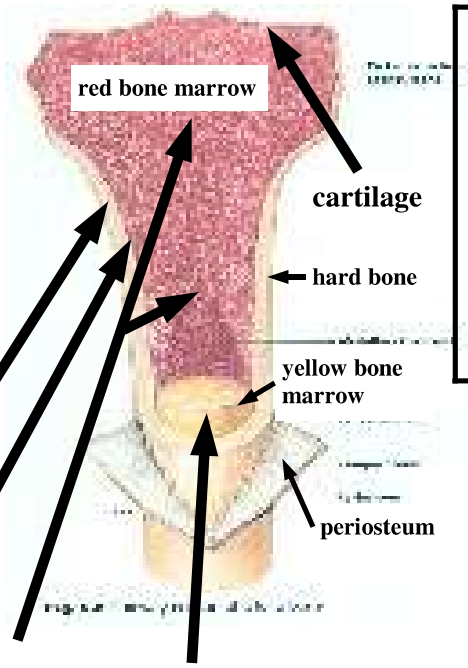
In the last newsletter I had an article warning on the dangers of excess dietary calcium causing self-induced pain that many were being subscribed strong pain-killers to combat. People rang to confirm this worked.

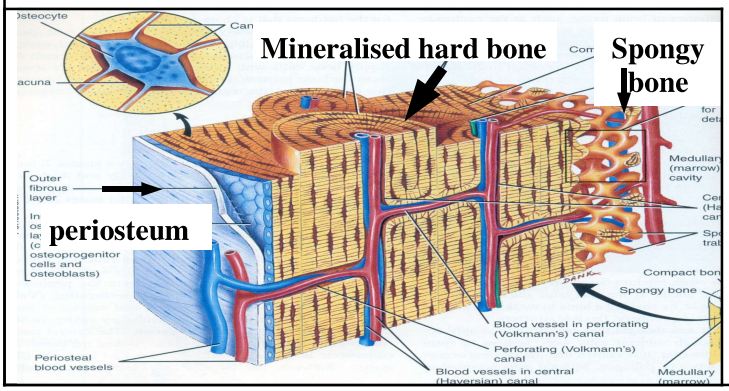
My suggestion was to **eliminate all dairy foods,** including **cheese**, **yoghurt, ice cream**, cream and all animal milks from your diet for a fortnight to see if pain improves. ie use a milk substitute (not soya) like rice or oat milk or Coffee-mate, where you need milk.

This way you may have a real easy answer to get rid of pain or you will know that calcium is not the cause. NB - It can take at least a week to get all the problem excess calcium out of your system and **stop the aches.**

So let's look at the actual structure of bone.
Bone is living tissue and is continually renewing itself.

There is an 18% - 20% turnover of bone cells every year. We think of bone as solid and strong but bone is made up of an outer soft lining (periosteum) that has a good supply of blood and nerves; a small hard mineralised middle layer; a spongy interior with blood vessels and a central bone marrow that is red at the ends of long bones and yellow bone marrow that stores fat in the middle of the bone.





The **red marrow** produces **stem cells** for renewal and repair of the many different cells all over the body (eg when you scratch or cut yourself) and also to become **red and white blood cells**, platelets for clotting etc. 2.5 million red blood cells are produced every second.

Where bones meet ie joints, the lining periosteum is replaced with **cartilage** which **is a buffer** so you don't have bone rubbing on bone, as in arthritis.

Tendons anchor muscle to the periosteum by fibres composed of collagen that infiltrate this outer lining.

We have 4 different types of bone - long bones in arms and legs; short bones in wrist and ankles; flat bones in skull, ribs, pelvis and shoulder blades; irregular bones as in spinal vertebra, face, sinuses, knee cap, big toes.

They all have these bony layers but only long bones have bone marrow. The hard compact bone has layers like a tree trunk and this is where the minerals are stored that provide strength to bones. Normal adult bone is comprised of 35% organic material, primarily collagen, and 65% minerals, mainly calcium and phosphate plus many other minor minerals.

Calcium levels in the blood must be maintained within a very narrow concentration range for normal physiological functioning, namely muscle contraction and nerve impulse conduction. These functions are so vital to survival that the body will de-mineralise bone to reduce blood calcium levels by increasing available magnesium, releasing it from storage in bone cells and so excrete calcium.

Bone tissue is comprised of a mixture of minerals deposited around a protein matrix, which together contribute to the strength and flexibility of our skeletons. 65% of bone tissue is inorganic mineral, which provides the hardness of bone. The major minerals found in bone are calcium and phosphorus bound to the organic protein matrix. Magnesium, sodium, potassium and citrate ions are also present. The remaining 35% of bone tissue is an organic protein matrix, 90-95% of which is type I collagen. Collagen fibres twist around each other and provide the interior scaffolding upon which bone minerals are deposited. **Collagen is primarily gelatine and Vit C.**

Other essential nutrients include manganese, boron, zinc, vitamins A, C, D, K, B6, B12 and **folate.**

Newly-formed, incomplete mineralised bone loses its stiffness and can become deformed under the strain of body weight. Too much calcium and insufficient other minerals results in brittle bones more likely to fracture.

Normal replacement of bone cells occurs when osteoclasts use protein-digesting enzymes to dissolve old bone, creating a space for new bone to be laid down by osteoblasts. Too much bone may be removed if the body needs more of the other minerals stored in bone eg magnesium for cramps, manganese for tendons, or if our bodies are too acidic from all the sugars and processed foods we eat these days. So calcium in bones can be released from bone to maintain the pH (acid-alkaline) balance and is then lost in urine as it goes out with the acid it had to neutralise. **Scientific studies** show **high** levels of **calcium excretion in urine** when people **eat** an **acidifying diet**.

When blood calcium is high we make hormones to place it into bone but if magnesium levels are low, this chemical action stops and calcium is deposited in soft tissues like joints and stones.

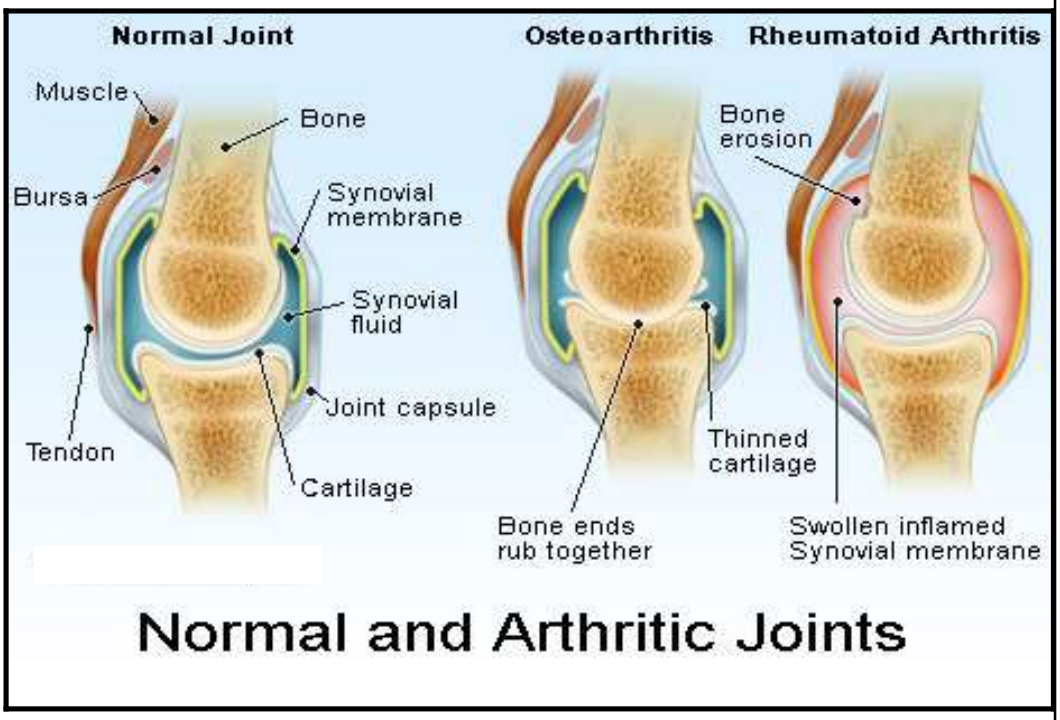
Dr Guy Abraham MD, a USA research gynaecologist and endocrinologist in PMT and osteoporosis has found strong evidence that women with osteoporosis have a deficiency of a chemical that can only be made when they take twice as much magnesium as calcium. **Calcium taken without magnesium makes bones brittle and more likely to fracture.**

A Spanish study in 2005, looking into why deer antlers were breaking, found that the cause was low levels of manganese not calcium. Further human studies showed that **manganese** was needed as the ***"glue"*** that stuck calcium into the bone. Other work by West Australian teacher Rex Newnham PhD DO ND also found that **borax** (boron) was the ***"cement"*** needed to combine all these minerals incl calcium into bone cells

So maintaining correct levels of all these nutrients allows the body to work properly thus correcting both osteoporotic and arthritic problems. Borax also normalises the sex hormones, both male and female so there is no need for HRT or bisphosphonate drugs like Fosamax that interfere with normal bone remodelling.

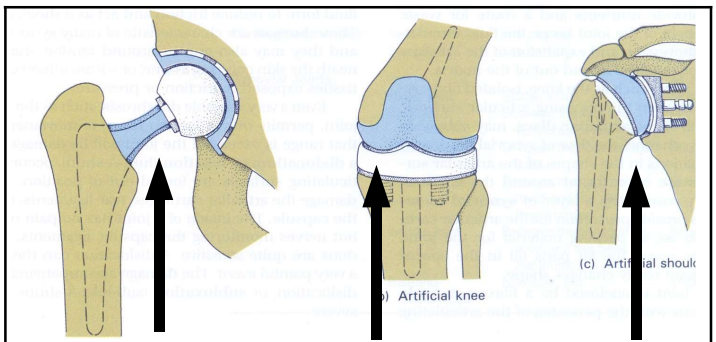
In fact research shows that the rise in testosterone levels with **borax has shrunk prostate tumours** and reduced PSA levels. Borax has also significantly improved memory and cognition in the elderly as well as alleviating joint and bone pain. Borax has helped remove toxic metals, toe fungus and psoriasis too.

Osteoarthritis is caused by degeneration of the cartilage at the end of bones allowing them to touch. This can be caused by wear-and-tear and insufficient nutrients to maintain and renew cartilage. **Gelatine** and **Vitamin C** are the 2 primary ingredients for cartilage but also needed are Vitamins A, D, B6, B12, K and folate, zinc and fish oils. **Bone matrix** is 25% water, 25% protein (collagen) and 50% minerals. **Cartilage matrix** is 70% water, 15% collagen protein and 15% glyco-(sugar) protein. Matrix is protein fibres embedded in a fluid gel or solid substance.



Normal and Arthritic Joints

Rheumatoid arthritis is a **chronic inflammation** of the synovial membrane of the joint resulting over time in painful deformity and immobility, especially in fingers, wrists, feet and ankles. This inflammation can be caused by initial infection or injury. Excess calcium is deposited in the inflamed tissue causing abnormal stiff immobile inappropriate bony growths. Both of these arthritic conditions can result in surgical joint replacements. However early intervention with extra magnesium, gelatine, borax, Vit C, B6, manganese and dietary changes can be another way of dealing with these problems. **Chicken broth** and other bone broths can be effective too. **Borax is also an old remedy.**



Hip replacement *knee replacement* *shoulder replacement*