

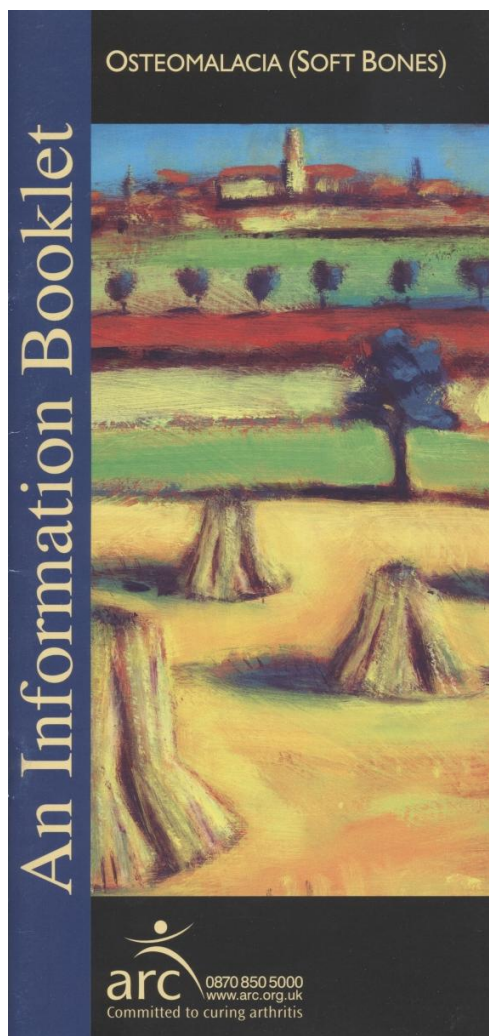
## Welcome to the: Orthopaedic Opinion Online Website

The website for the answer to all your Orthopaedic Questions

- **Orthopaedic Opinion Online** is a website designed to provide information to patients who have orthopaedic and musculoskeletal problems and are undergoing treatment.
- **Patient information** is provided in the form of downloadable information sheets.
- **Orthopaedic advice** and second opinions can be provided by our expert internationally renowned Consultant Orthopaedic Surgeons.
- **Online review** of patients' X rays or MRI scans can also be provided and any proposed treatment plans reviewed.
- **Book a clinical consultation** with one of our internationally renowned consultant orthopaedic surgeons in Bristol or London.
- **Orthopaedic reports** can be provided for Injury or Accident Claims and Medical Negligence claims.

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## Osteomalacia (Soft Bones)



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### Osteomalacia (soft bones)

Key words: osteomalacia, soft bones, vitamin D deficiency, Rickets, genu varum, bow legged, mineralisation of bone,

Link: <http://www.arc.org.uk/arthinfor/patpubs/6058/6058.asp>

#### Summary

Osteomalacia means soft bones. It is often, but not always, caused by lack of vitamin D. The people most often affected by osteomalacia are the frail elderly and people of South Asian origin.

In children, osteomalacia is called rickets. In Victorian times rickets was a common condition causing the bones of the skeleton to develop poorly. People affected could grow short and with bent leg bones. Nowadays rickets is rarely seen but osteomalacia is still a problem in adults.

#### What is osteomalacia?

Bone is a tissue which is active throughout life. Tiny areas of bone are continually being removed and replaced. This is known as 'bone turnover'. In an average adult many millions of these microscopic areas of bone will be active at any one time. This process allows old bone to be removed and new bone to take its place.

Bone is made up of four major components:

- mineral (mainly calcium and phosphorus)
- matrix (collagen fibres, which are similar to gristle)
- osteoclasts (bone-removing cells)
- osteoblasts (bone-producing cells).

The matrix is made of collagen fibres which criss-cross each other. When normal bone is formed, these fibres are coated by mineral (this process is called 'mineralisation'). The strength of the new bone depends on enough mineral covering the collagen matrix. The more mineral laid down, the stronger the bone.

Osteoclasts remove old bone and osteoblasts produce new collagen matrix. The last phase of this process is mineralisation, also under the control of osteoblasts. Osteomalacia happens if the phase where mineral covers the collagen matrix does not take place properly. In osteomalacia more and more bone is made up of collagen matrix without a mineral covering, so the bones become soft. These softened bones may bend and crack and, although you cannot see this, it is painful.

#### What causes osteomalacia?

To allow bone mineralisation to take place the body needs enough minerals – calcium, phosphorus – and also vitamin D. If the body does not have enough of any one of these three, osteomalacia will develop. However, not having enough calcium is unknown as a cause of osteomalacia in Western countries. Certain rare inherited disorders can cause normal kidneys to lose phosphorus, which causes osteomalacia. But the most common cause of osteomalacia is a lack of vitamin D.

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