



What is osteoporosis?

Osteoporosis occurs when the struts which make up the mesh-like structure within bones become thin causing them to become fragile and break easily, often following a minor bump or fall. These broken bones are often referred to as 'fragility fractures'. The terms 'fracture' and 'broken bone' mean the same thing. Although fractures can occur in different parts of the body, the wrists, hips and spine are most commonly affected. It is these broken bones or fractures which can lead to the pain associated with osteoporosis. Spinal fractures can also cause loss of height and curvature of the spine.

This fact sheet focuses mainly on the contraceptive injection Depo Provera since it has long been known that its use is associated with bone density loss. Other forms of hormonal contraceptives and potential bone effects are also discussed.

What is Depo Provera?

Depo Provera is a long acting contraceptive hormone injection for women that contains a progestogen (sex hormone) called medroxyprogesterone acetate. There are currently two types of injection. The original and most commonly used form of Depo Provera is given by intramuscular injection (into the buttock, arm or thigh) every twelve weeks and the newer subcutaneous (just under the skin) injection which is given every 13 weeks.

Depo Provera works by releasing progestogen slowly into the body, suppressing oestrogen and other hormone levels. This thickens mucus from the cervix (neck of the womb) and makes the lining of the womb thinner as well as preventing the ovaries releasing an egg. Most women who use Depo-Provera will stop having periods.

Depo Provera has a very low failure rate as a contraceptive, has few general side effects and is

licensed for long-term use. It may be considered as an option for you if you are unable to take a contraceptive pill containing oestrogen for reasons such as high blood pressure or a risk of blood clots (thrombosis). It is also widely used among teenagers where risk of unintended pregnancy is high and where other contraceptive methods have either failed or not proved suitable.

What roles do the sex hormones, oestrogen and progesterone, play in keeping bones healthy?

Having adequate levels of oestrogen will help you to develop and maintain healthy bones. When oestrogen levels drop sharply at the menopause, there is a loss of bone density (bone density is the quantity of bone that, when measured, helps to indicate bone strength). At the moment, it is unclear about the role of progesterone (the natural hormone produced by the body) and how it affects bone health.

As Depo Provera suppresses oestrogen hormone levels does it cause osteoporosis or associated fragility fractures?

Several studies have shown that bone density does decrease by a small amount in women using Depo-Provera. Most of the decrease happens during the first few years on Depo-Provera, then the bone density stabilises. The decrease in bone density is probably greater in young women (in their teens and early twenties) than in older women. However, follow-up studies have shown that bone density improves again when women stop using Depo-Provera, and will come back to near the original levels after a few years.

Fractures may be more common in women who use Depo-Provera, but some studies suggest that this is because they may have had fragile bones and a higher 'fracture risk' even before they started the Depo-Provera.

Are there some women who should avoid using Depo Provera because of effects on bone?

This is a much debated question. Previous advice from

The UK advisory group, the Committee on Safety of Medicines 2004, emphasised the need for caution with Depo Provera because of the unknown effects of this drug on osteoporosis and fracture risks. The statement says that 'Depo Provera should be a 'second line treatment' in young women under 19 years (only used as a second choice because other methods are unsuitable).' It also states that 'all women using Depo Provera for more than two years should also consider whether they have risk factors for osteoporosis and if so, consider whether other forms of contraception might be more appropriate.'

More recent advice however from The World Health Organisation (WHO) 2007 recommends that there should not be any restriction on the use of Depo Provera if you are aged between 18 and 45 nor on the length of time you can use it (if you are eligible to use this method).

It recommends special consideration if you are under 18 (when bone density is being built up rapidly) or over 45 (when you are approaching the menopause) although it is felt that the advantages will generally outweigh any concerns about the theoretical consequences (fractures) of long term Depo Provera use. This is in part due to emerging evidence that has shown that bone density tends to recover over time once Depo Provera is stopped. However with continuing use of this contraceptive it recommends that the overall benefits and risks are periodically reviewed.

Despite this, some doctors feel that until there is more evidence available, Depo Provera should be avoided in these groups of women and particularly women under 16. Depo Provera should also be used with caution if you are between 18 and 40 and have other risk factors for osteoporosis, especially if you take glucocorticoid (steroid) tablets (glucocorticoid tablets are used to treat inflammation in conditions such as asthma). Other risk factors would include low body weight, especially with eating disorders such as anorexia nervosa, coeliac disease, strong family history and smoking.

However, decisions will need to be made on an individual basis and if there are no other suitable methods of contraception, Depo Provera may be prescribed for these women. For most women, avoiding pregnancy will be the priority.

Should I have a scan to measure my bone density before starting Depo Provera?

It is not practical or useful for everyone using Depo Provera to have a bone density scan. If you have other risk factors for osteoporosis (such as low body weight, anorexia, coeliac disease, glucocorticoid use or smoking), or if you are planning to use Depo-Provera for many years, a bone density scan may help to guide a decision on whether to use Depo Provera. If your bone density is below the normal range for your age, an alternative method of contraception may be advised. In practice, however, considering your risk factors for osteoporosis will probably be more useful than a scan when making decisions about using Depo Provera.

Do I need my oestrogen hormone (oestradiol) level checked with a blood test while on Depo Provera, and would taking oestrogen tablets help to reduce any potential bone loss?

Probably not. Everyone on Depo-Provera will have low oestrogen levels, and there is no information on whether the oestrogen levels can predict the change in bone density. Some doctors may suggest taking additional oestrogen to some women as a safety measure if they want to use Depo Provera in their 40s as they approach the menopause.

Do other types of progestogen only contraceptives also impact on the bones?

These types of contraception include the long acting progestogen contraceptive implant, the Mirena coil and the progesterone only pill (mini-pill).

Etonogesterel (Nexplanon) is currently the only implant available in the UK. This implant is positioned (under local anaesthetic) just below the surface of the skin on your upper arm. It slowly releases the hormone into your blood stream and lasts for three years. It works in a similar way to Depo Provera by stopping ovulation (release of an egg from the ovaries), and altering the cervical mucus and the lining of the womb.

The progestogen releasing intrauterine device (levonorgesterel) - known as the Mirena® coil is inserted into the womb. It is an effective contraceptive device, and is also licensed to protect the lining of the womb if you are receiving oestrogen replacement as part of hormone replacement therapy.

There have only been a few studies of bone health with implants and Mirena® coils, so we know less about their effects than we do about Depo-Provera, and particularly there is not much information about

their effects in very young women. However, the available studies suggest that they don't cause a significant decrease in bone density.

The progestogen only pill does not suppress oestrogen levels significantly (and doesn't generally stop ovulation) even though it can sometimes stop or reduce the frequency of your periods. It works by causing the cervical mucus to become more viscous and impenetrable to sperm as well as altering the womb lining (becomes thinner).

There have been no specific studies which have looked at the effect of the progestogen only pill on bone density, so we don't know whether it is detrimental to bone health. However, it causes less suppression of oestrogen levels than Depo-Provera, and doctors are not generally concerned about its effect on bone.

I'm on a combined oral contraceptive pill; will this affect my bones in any way?

Research has shown that the combined (oestrogen and progestogen) oral contraceptive pill does not reduce bone density in post-adolescent (over 18) women or increase fracture risk. There is some evidence however, to suggest that adolescent girls who take the combined oral contraceptive pill while their bones are still developing may end up with slightly lower bone density than those who do not use the 'Pill'. But the overall impact on bone health is considered small.

I'm on Depo Provera. What else can I do to prevent osteoporosis and fractures?

Factors which can help to maintain healthy bones include a well-balanced diet with adequate calcium rich foods (such as milk, cheese and yoghurt); safe sunlight exposure to get adequate vitamin D; regular weight bearing exercise (such as walking, running or aerobics); avoiding smoking and keeping alcohol consumption within the recommended limits.

Useful contacts

National Sexual Health Line

For advice on sexual health and contraception
Helpline: 0300 123 7123

Brook

The sexual health charity for young people under 25
www.brook.org.uk

NHS choices

Provides on line information from the National Health Service on conditions, treatments, local services and healthy living.

www.nhs.uk

Worth Talking About

Contraception, sexual health and relationship advice for under 18s.

www.nhs.uk/worhtalkingabout

The Family Planning Association

The UK helpline is closed.

The Northern Ireland is still available

Tel: 0345122 8687

www.fpa.org.uk

For online sexual health and contraception information

You could also talk to your doctor or local family planning clinic.

The **National Osteoporosis Society** is the only UK-wide charity dedicated to improving the prevention, diagnosis and treatment of osteoporosis and fragility fractures. The Charity receives no Government funding and relies on the generosity of individuals to carry out its vital work.

For osteoporosis information and support contact our Helpline:

 **0808 800 0035**

 **nurses@nos.org.uk**

To become a member or make a donation:

 **01761 473 287**

 **join online at www.nos.org.uk**

To order an information pack or other publications:

 **01761 471 771**

 **info@nos.org.uk**

or download from our website at www.nos.org.uk

This fact sheet is one of a range of publications produced by The National Osteoporosis Society. If you would like more general information about osteoporosis see our booklet *All about Osteoporosis*.

This information reflects current evidence and best practice but is not intended to replace the medical advice provided by your own doctor or other health professional.