

## PATIENT INFORMATION LEAFLET

### Vitamin D Deficiency

#### What is vitamin D?

Vitamin D is essential for good health, strong bones and muscles. Unlike other vitamins, we do not need to get vitamin D from food. Our main source of vitamin D is made by the skin in response to sunlight.

#### What happens if I don't get enough vitamin D?

Vitamin D deficiency is very common in the UK. This is mainly due to lack of adequate sunlight. Most people have no symptoms, or only vague ones such as tiredness or muscle weakness. However, general aches and pains throughout the body can be an important sign of vitamin D deficiency.

Severe vitamin D deficiency can cause osteomalacia in adults, which makes bones softer and causes severe bone pain and muscle weakness. Children can develop rickets which can cause permanent deformities to the bone, weaken muscles and reduce growth.

Vitamin D deficiency has also been linked to several health problems such as osteoporosis, cancer, diabetes, autoimmune conditions (where the body turns on its own cells) and heart disease.

#### Who is at most risk of vitamin D deficiency?

- Babies and young children, children and adolescents who spend little time playing outside.
- Pregnant women and breastfeeding mothers.
- People over 65 years of age.
- People with darker skin – that is people of Asian, African, Afro-Caribbean and Middle East descent.
- People who cover most of their skin when they are outside – those who wear traditional clothes or attire.
- People who live in the UK and northern climates, especially during late autumn/winter until the start of spring.
- Anyone who spends very little time outside during the summer – the housebound, shop or office workers, night shift workers.
- People who are obese or significantly overweight.

Other people at risk of vitamin D deficiency include those with certain medical conditions such as Crohn's disease, coeliac disease and some types of liver and kidney disease. Some medicines for epilepsy can also affect the way vitamin D is broken down and used by the body.

### How is vitamin D deficiency diagnosed?

Some people with vitamin D deficiency or insufficiency (below normal levels) show no symptoms. A simple blood test can be done to check vitamin D levels. Your doctor will decide if you need the test depending on your lifestyle, symptoms and medical history. Vitamin D levels can be measured in nmol/L or µg/L. In Bromley, we use the following levels of vitamin D to diagnose vitamin D deficiency:

80 nmol/L and above	Normal
50-79 nmol/L	Insufficiency
Below 50 nmol/L	Deficiency

Experts cannot agree on a safe upper limit for normal vitamin D levels. However, we do know that workers with high sun exposure such as lifeguards have levels up to 160nmol/L without any problems.

### What is the treatment for vitamin D deficiency in adults?

The best treatment is vitamin D supplements available as tablets, capsules, liquids or injections.

If your vitamin D level shows deficiency, your doctor will prescribe a course of treatment to be taken by mouth every day or every week over a period of 6 to 12 weeks. Hospital doctors sometimes give high doses over a period of 7 to 10 days.

Your doctor may order blood tests to make sure your vitamin D levels have returned to normal. You will need to take low dose vitamin D supplements every day to prevent the deficiency from coming back.

If your vitamin D level shows insufficiency, your doctor will advise you to buy vitamin D supplements and take a dose of 2000 IU (50µg) daily (usually as two tablets or capsules containing 1000 IU (25µg)).

### Where are vitamin D supplements available?

Vitamin D supplements and vitamin drops are readily available to buy from community pharmacies, health stores and supermarkets.

The strength of vitamin D supplements may be in µg (micrograms) or IU (international units). Ask your pharmacist if you are not sure which product to buy.

## Are there any side effects from vitamin D supplements?

It is very unusual to get side effects from vitamin D if taken in the prescribed dose. Very high doses can raise calcium levels in the blood. This would cause symptoms such as increased thirst, passing a lot of urine, nausea or vomiting, dizziness and headache. If you have any of these symptoms, you should contact your doctor or hospital doctor immediately who will arrange for a blood test to check your calcium levels.

## What is a safe dose of vitamin D?

If you take vitamin D supplements, do not take more than 1000 IU (25µg) a day without the advice of your doctor. However, taking 2000 IU (50µg) a day is unlikely to be harmful.

Multivitamin supplements and cod liver oil contain vitamin D. Medicines containing calcium and vitamin D are commonly prescribed to strengthen bones.

So do not take more than one supplement containing vitamin D without checking with your doctor or pharmacist, particularly if you are taking vitamin D prescribed by your doctor.

## What about vitamin D for pregnant and breastfeeding women?

The Department of Health recommends that all pregnant and breastfeeding women should take 400 IU (10 µg) of vitamin D a day. Some women may need higher doses, particularly those with other risk factors for vitamin D deficiency but they should not take more than this amount without the advice of their healthcare professional.

Pregnant women should avoid taking supplements which are high in vitamin A. These include some multivitamins and cod liver oil.

Some women who are pregnant or breastfeeding may qualify for Healthy Start vitamins. Healthy Start vitamins for women contain 400 IU vitamin D and other vitamins which are important for the pregnant woman's health and the development of the baby. In Bromley, Healthy Start vitamins are available from Bromley Healthcare child health clinics. For further information and application forms speak to your health visitor or go to the Healthy Start website at [www.healthystart.nhs.uk](http://www.healthystart.nhs.uk). Forms are also available from your doctor's surgery or maternity units.

## How is vitamin D deficiency treated in children and adolescents?

In Bromley, we use the Guide for vitamin D in childhood produced by The Royal College of Paediatrics and Child Health <http://www.rcpch.ac.uk/>

See your doctor if your child is showing symptoms of vitamin D deficiency such as aches and pains, muscle weakness, delayed walking, knocked knees or poor growth.

## Vitamin drops for prevention

The Department of Health recommend that all babies and young children aged 6 months to 5 years should take vitamin drops containing 7-8.5µg (280 IU-340 IU) vitamin D unless they have more than 500ml of fortified formula milk a day.

Breastfeeding babies may need to be given a vitamin drop from one month of age if their mother has not taken a supplement during pregnancy.

Families that qualify for Healthy Start can obtain vitamin drops for children through this scheme.

## How can vitamin D deficiency be prevented?

### Sunlight

Most people should be able to get all the vitamin D they need by getting sufficient exposure to sunlight. If you go out in the sun two or three times a week for at least 15 minutes (before applying sunscreen) in the middle of the day between 11.00am and 3pm, your body may make enough vitamin D in the summer months in the UK. People with darker skin and the elderly will need more exposure.

However, our summers can be cloudy at times and the sun is not strong enough in our winters to make vitamin D. It is therefore difficult to rely on sunshine alone to make all the vitamin D we need all year round. People also tend to avoid direct exposure to the sun to prevent skin cancer and sunburn. So some people may need to take vitamin D supplements especially in the winter months.

If you are going on a sunny holiday, you may not need to take your regular vitamin D supplements. However people taking prescribed vitamin D such as alfacalcidol and calcitriol should not stop taking these medicines.

Your body will not make too much vitamin D by the action of sunlight even if you are taking supplements or medicines containing vitamin D.

### Diet

Only 10% of our vitamin D is supplied by our diet. The best sources are oily fish (salmon, sardines, pilchards, trout, tuna, herring, mackerel) and cod-liver oil. Margarine, some breakfast cereals and infant formula milk have added or are 'fortified' with vitamin D but only in small amounts.

## Summary

- Vitamin D is essential for good health, strong bones and muscles.
- Vitamin D deficiency can cause osteomalacia (soft bones) in adults or rickets in children and has been linked to several other health problems.
- We obtain most of our vitamin D by the action of sunlight on our skin in the middle of the day during the summer months.
- Food is a poor source of vitamin D. Oily fish is the best source.
- People who are in at risk groups for vitamin D deficiency are recommended to take supplements.
- Routine vitamin D blood tests are not recommended.
- Vitamin D supplements are readily available to buy from pharmacies and other outlets or through Healthy Start.
- Vitamin D supplements are safe and unlikely to cause side effects.

If you are concerned that you or your family are not getting enough vitamin D, speak to your doctor, pharmacist, nurse or other healthcare professional.

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