

## **What is vitamin D and why is it important?**

Vitamins are compounds that our bodies need to grow and remain healthy. Vitamin D is essential for bone health. Vitamin D is needed to absorb calcium and other nutrients from our diet and helps to keep bones strong. Vitamin D may also help to keep us healthy in other ways, for example by helping memory, energy levels and the immune system, but the evidence for all of these is not complete.

### **Where does vitamin D come from?**

Vitamin D is made in our bodies in response to sunlight on the skin. We also absorb vitamin D from our diet but we can only obtain a small amount (about 10%) of the vitamin D we need in this way because very few foods contain vitamin D. Foods that do contain small amounts of vitamin D include oily fish (such as sardines, pilchards, herring, trout, tuna, salmon and mackerel), liver, egg yolk, mushrooms, cheese, milk and butter (very small amounts), and fortified foods. Vitamin D is also available in some food supplements that you can buy from the pharmacy or supermarket. These different supplements contain different amounts of vitamin D which will be shown on the label. If you are unsure how much vitamin D is present you could talk to your pharmacist.

### **How much vitamin D do I need?**

The latest recommendations suggest that 600 IU (international units) of vitamin D each day is enough for nearly all adults and children over 1 year old. Older adults (over 70 years of age) need about 800 IU (20 micrograms) daily. These amounts include the vitamin D from sunshine, from our food and from any supplements we take, all added together. People with fair skin who spend plenty of time out of doors and who regularly eat foods containing vitamin D will get enough vitamin D from their lifestyle. People who cannot make enough vitamin D from the sunshine will generally need to take supplements, even if they eat plenty of vitamin D-rich foods.

### **Can I have too much vitamin D?**

Yes - it is possible to have too much vitamin D but this is very rare. It is not possible to make too much vitamin D from the sunshine, even if you spend lots of time in strong sunlight, for example on holiday abroad. This is because your body controls the amount of vitamin D it makes and when it has made enough it breaks down any more as soon as it is produced in the skin. If somebody has too much vitamin D it causes too much calcium to be absorbed. This makes the calcium level in the blood too high (hypercalcemia) and causes symptoms. Symptoms of hypercalcemia include nausea, vomiting, abdominal pain and constipation. Vitamin D supplements are generally very safe and providing you take the recommended dose you will not get too much vitamin D. Doses up to 4000 IU (100 micrograms) daily are considered safe and most people need much less than this to keep their bones healthy.

### **How will it affect me if I have a shortage of vitamin D?**

Adults with very low levels of vitamin D for a long time develop a condition called osteomalacia. In this condition, calcium is lost from the bones. The bones become softened and painful and broken bones (fractures) can occur without an injury. In osteomalacia, the muscles also become weak making it hard to walk. Children who have very low vitamin D develop a similar condition called rickets. Low levels of vitamin D that are not low enough to cause osteomalacia are still important. Calcium can gradually be lost from the bones and result in osteoporosis. Osteoporosis increases the risk of broken bones.

### **Am I at risk of low vitamin D?**

Some people are at greater risk of vitamin D deficiency than others. This may be because they cannot produce enough vitamin D from the effect of sunshine on the skin, because their diet is low in vitamin D, or a combination of these. At-risk groups include:

- Older people, especially those who are housebound
- People who have dark skin or who remain covered up when they go outdoors. This includes people who regularly use high-factor sunscreen

Your doctor will know if you are at risk because of any medical conditions you have or because of medications you take.

### **What can I do to improve my vitamin D levels and do I need a supplement?**

The best way to increase vitamin D levels for most people is by spending time out of doors over the summer months – but this is not recommended if you are at risk for skin cancers. Exposing the skin on your arms and face to sunlight for 20-30 minutes a day, 3 times each week is enough for most people with fair skin to make the vitamin D they require. This should be without sunscreen and, in order to avoid sunburn, exposure should not be in the middle of the day when the sun is hot. As we get older we need more sunlight to produce enough vitamin D and people with darker skin also need to spend more time in the sun. This is why these groups are at greater risk of vitamin D deficiency. It is also important to eat foods which contain vitamin D regularly. However, this cannot make up for lack of sunlight exposure. This is why many people are advised to take vitamin D supplements.

### **Why have I been given supplements containing calcium as well as vitamin D?**

Vitamin D helps to keep bones healthy by helping us to absorb calcium. If you have been short of vitamin D for a long time you will need extra calcium while your bones are healing. Even after that, if you have a diet low in calcium your doctor may advise you to continue taking the combined supplement. This makes sure that you are getting the right amounts of both calcium and vitamin D for your bone health. Many foods contain calcium but our bodies absorb the calcium from dairy foods such as milk and cheese more easily than from some other foods.

### **Why have I been given a course of high-dose vitamin D supplements?**

If your doctor has found that you are very short of vitamin D the quickest way to increase the level back to a healthy level is with a course of high dose supplements. These are usually given as capsules or medicine which is taken once a month (sometimes once a week). The high dose treatment is usually only needed for about 3 months. After that, you will need to continue to take normal supplements to prevent you from becoming short of vitamin D again in the future. If you are treated with high dose vitamin D it is important that it is taken as prescribed. If you have been given high dose vitamin D by your doctor you should tell any doctors that you see at the hospital that you have had this so you are not given extra treatment that you don't need.

### **How long will I need to take vitamin D for?**

Unless there is a short-term reason for you to have low vitamin D levels, such as an illness preventing you from going outdoors, then you will need to continue taking supplements for life. By continuing your supplements you will maintain healthy levels of vitamin D and this will help you keep your bones healthy.