

Bone issues: Osteonecrosis and osteoradionecrosis

Health information after cancer treatment as a child or teenager

The purpose of this factsheet is to tell you about long-term side effects (called 'late effects') that can happen after having cancer treatment. They can happen soon after treatment has finished or later in life. The medical team at the hospital where you received your treatment or your long-term follow-up team will be able to help you with specific information about which late effects are relevant to you.

Osteonecrosis is a condition where there is a temporary or permanent loss of blood supply to the bone. It is also known by the term avascular necrosis (AVN). This can weaken the bone and cause pain and stiffness (arthritis). For some individuals, this weakness may progress to joint problems and in the long term a joint replacement may be needed. This progression may take place over many years.

Osteonecrosis is most likely to occur during treatment for cancer. It can affect any bones, but more often is found in the ends of long bones such as the thigh bone, causing hip and knee problems. It can occur in one bone or in many. Osteonecrosis may be found by chance or when investigations are performed as a consequence of bone pain.

Osteoradionecrosis is a rare problem of bone healing that affects a small number of individuals who have received radiotherapy in high doses, particularly to the jaw. It usually occurs after dental procedures and leads to mouth pain and swelling.

Who is at risk?

The following may increase your risk of **osteonecrosis**:

- acute lymphoblastic leukaemia (particularly aged over 10 years at diagnosis)
- corticosteroids
- stem cell transplant, especially with total body irradiation (TBI) or graft versus host disease (GvHD)
- bisphosphonates

Teenagers and those with sickle cell disease are more at risk than others receiving these treatments.

If you have received a high dose of radiation to the jaw you are at risk of developing **osteoradionecrosis**.

What investigations might be needed?

Your doctor will use some of all the following tests to investigate bone and joint pain:

- X-ray
- MRI scan

How is it treated?

Treatment for **osteonecrosis** aims to reduce pain, stop bone damage and protect the joint from further damage. It includes:

- painkillers – to reduce pain
- reduce weight bearing – to allow healing
- physiotherapy exercises – to encourage mobility
- surgical treatment – for severe cases to promote healing, or in advanced cases to reconstruct the joint

Treatment for **osteoradionecrosis** may include:

- painkillers – to reduce pain
- antibiotics – to treat any infection
- hyperbaric oxygen – oxygen delivered in a pressurised chamber may occasionally be used to encourage healing

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What can I do to help myself?

The following will help to relieve some of the symptoms:

- make sure you maintain a **healthy weight**
- **regular exercise** is important but care should be taken when considering activities that put stress on your joints, eg. running and jumping – discuss this with your clinical team
- consider **non weight-bearing exercise**, such as swimming and cycling
- do your **physiotherapy exercises** regularly
- **rest your joints** when they hurt

Where can I find more information?

The (American) National Association of Arthritis and Musculoskeletal Diseases and Skin Diseases has further information about osteonecrosis
www.niams.nih.gov/health-topics/osteonecrosis

The (American) Oral Cancer Foundation has further information about osteoradionecrosis
www.oralcancerfoundation.org/complications/osteoradionecrosis

Avascular Necrosis Charity UK raises awareness and provides support
www.avncharity.org.uk

Royal Osteoporosis Society provides information and support
www.theros.org.uk



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Written by CCLG Late Effects Group, a national network of experts who specialise in looking after young cancer survivors, in conjunction with the CCLG Information Advisory Group, comprising multiprofessional experts in the field of children's cancer. If you have any comments on this factsheet, please contact us. CCLG publications on a variety of topics related to children's cancer are available to order or download free of charge from our website.

Children's Cancer and Leukaemia Group (CCLG) is a leading national charity and expert voice for all childhood cancers.

Each week in the UK and Ireland, more than 30 children are diagnosed with cancer. Our network of dedicated professional members work together in treatment, care and research to help shape a future where all children with cancer survive and live happy, healthy and independent lives.

We fund and support innovative world-class research and collaborate, both nationally and internationally, to drive forward improvements in childhood cancer. Our award-winning information resources help lessen the anxiety, stress and loneliness commonly felt by families, giving support throughout the cancer journey.

Our work is funded by donations. If you would like to help, text 'CCLG' to 70300 to donate £3. You may be charged for one text message at your network's standard or charity rate. CCLG (registered charity numbers 1182637 and SC049948) will receive 100% of your donation.