

# Leg Casts and Blood Clots: Reducing the Risk

## **Patient information leaflet**

This leaflet explains how to reduce the risk of deep vein thrombosis (DVT) and pulmonary embolism (PE) during and after having your leg immobilised in a plaster cast or other appliance such as a splint or boot.

## **In this leaflet:**

What are blood clots (VTE)?.....	3
Why am I at risk?.....	4
VTE risk factors .....	5
How to reduce the risk?.....	6
VTE prevention exercises.....	7
Anticoagulant Medication.....	10
Anticoagulants - Contraindications.....	11
Complications.....	12
How do you know if you have VTE?.....	13
Useful Information.....	14

## What are blood clots (VTE)?

Your blood has a mechanism that normally forms a blood clot (plug) to stop the bleeding when you are injured (example: when you have a cut). Sometimes this mechanism can go wrong and a blood clot forms when there is no injury, which can block the vein and stop blood flowing to the affected area.

This is called **venous thromboembolism (VTE)**, which can happen:

In a vein of the leg causing a deep vein thrombosis (**DVT**)



Figure 1: DVT

If the DVT becomes loose, it can travel to the lungs causing a pulmonary embolism (**PE**). This condition can be fatal.



Figure 2: PE

**DVT** can lead to post-thrombotic syndrome on the leg (permanent pain, difficulty walking, leg wounds that don't heal). **PE** when not fatal, can lead to chronic pulmonary hypertension (weak heart, chest pains, shortness of breath)

## Why am I at risk?

People with a **leg immobilised** in any form of plaster cast, boot or brace following a fracture or injury are more likely to develop VTE.



Figure 3

Being active, particularly walking, helps pump the blood around the body. When the leg is immobilised, it stops you being able to move as freely as you were able to before your injury. The increased risk of developing VTE happens as a result of a slower blood flow to the legs.



Figure 4

The risk of VTE varies between patients as other risk factors come into play. That is why it is crucial that all patients are assessed for their risk of VTE to establish their personal risk level.

VTE Risk Factors	
Related to You	Related to your injury
Age over 35	A severe injury (e.g. dislocation, fracture, complete tendon rupture)
Being overweight (BMI ≥25)	A long, short or half cast or splint
Having cancer in the last 5 years	If you are not allowed to put weight on the leg, using crutches
Having disorders (e.g. diabetes, asthma, high cholesterol, heart disease, arthritis, thrombophilia and other clotting disorders, varicose veins, high blood pressure ... )	A significant reduction in your mobility, spending long periods housebound, in bed or chair
Dehydration	<p>It is a <b>good thing</b> to know your risk so you can do something about it.</p> <p><b>Having risk factors</b> does not mean you will have VTE.</p> <p><b>Not having risk factors</b> also doesn't mean you will not get VTE. <b>We advise all patients with a leg immobilisation to follow the advice on how to reduce the VTE risk explained in this leaflet.</b></p> <p><b>There are lots of things you can do.</b></p>
Pregnancy or 6 weeks after birth	
Being Male	
You or your family member having a VTE in the past	
Taking the contraceptive pill or HRT	
Recent: operation, hospital admission, long journey (plane, train, car, bus)	



**How to reduce the risk?**

**General recommendations for all patients with leg casts:**

**Stay  
Active**



Figure 5

**Drink  
Plenty**



Figure 6

**VTE  
Prevention  
Exercises**



Figure 7

**Instructions on pages 7 & 8**

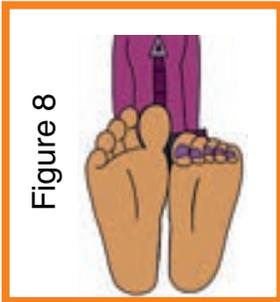
## VTE Prevention Exercises

These exercises increase the blood flow to the legs and to the lungs helping to prevent VTE. To be able to do them you may need to take painkillers regularly, as pain is a common reason for people not moving about increasing the risk of VTE.

**Do 10 repetitions of each exercise every hour, while you are awake.**

### Exercises for the injured leg: You can do them with any type of cast

Whilst your leg is immobilised you will find it difficult to have a full range of movement.



#### **Wiggle your toes**

while lying in bed or whilst sat up with your legs elevated.

#### **Move your ankle**

**up and down.** It will not move very much as the cast will stop it.

#### **Buttocks**

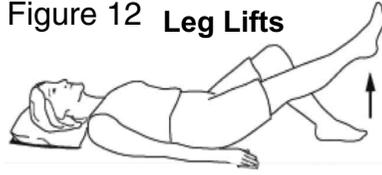
**squeezing** Lying down or sitting, clench your buttock muscles together and hold for a count of 3 before relaxing.

**Static Quads**

**Figure 11**



**Figure 12 Leg Lifts**



**Static Quads and leg lifts** Lie down, with kneecap and toes facing the ceiling. Tighten the muscles in the front of the thigh and push the back of your knee into the bed holding for 3 seconds and then relax. To do the lift, raise your leg from the bed with knee straight, hold it for 3 seconds and gently bring the leg down.

**Exercises for the injured leg: only for below knee cast**

**Figure 13**



**Figure 14**



**Download the free app: *Preventing VTE***



**Knee bends and lifts** Hold on to a table or counter for support. Slowly bend your knee by lifting your heel towards your buttocks. Hold for 3 seconds. For the lifts slowly raise your knee up to the level of your hip, hold for 3 seconds. Slowly lower your foot to the floor.

## Exercises for the good leg:

All exercises for the injured leg can be done on the good leg, as well as:

Figure 15



### **Sit to standing:**

Sitting on a chair, holding on to a table or counter, stand up and sit back down slowly, keeping your back straight.

Figure 16



### **Paddle your feet up and down and circle them around and around.**

The circle motion should be clockwise and then anticlockwise.

## Breathing Exercises:

Figure 17



Place your hands on the side of your rib cage. Take a slow deep breath and feel the ribs being pushed upwards and out to the side as you expand your lungs. Hold it for 3 seconds. Breathe out slowly with your lips closed together as if you are whistling.

## How to reduce the risk?

In summary, to reduce your risk of VTE all you have to do is follow the general recommendations for all people with a leg immobilisation:

Stay Active



Drink Plenty



VTE Prevention Exercises



The doctor or nurse will complete a VTE risk assessment to take into account all of your risk factors. Depending on the assessment, you may also require anticoagulant medication



Figure 18

## Anticoagulant Medication

Anticoagulant medication modifies the blood clotting process to stop clots forming so easily. The injection normally prescribed is called 'Dalteparin' and is usually injected beneath the skin into a skin fold over your stomach. This will be done every day for as long as you have your leg immobilised (up to 8 weeks).



The nurse will teach you how to do this injection and provide you the Dalteparin leaflet with written instructions (Figure 19) and a yellow sharps bin to store all the used syringes safely.



## The good news is:

- ✓ The injection is ready to use, no fiddling about
- ✓ The needle is one of the smallest (1.2 cm long)
- ✓ The liquid to inject is also very little (0.2 ml)
- ✓ The injection procedure is easy
- ✓ It feels like minor stinging
- ✓ It only takes about 20 seconds
- ✓ Alternative arrangements are available if you can't do it



## Anticoagulants - Contraindications

**You should not be offered anticoagulant medication if you have the following conditions**

If you are bleeding

Low platelet count (less than 50)

Poor kidney function

Recent spinal, brain or eye operations

If you are already taking anticoagulant medication (e.g.: for your heart)

## Best practice for maximum benefit



Figure 20

- ✓ Make sure you take it as prescribed
- ✓ Take it every day at the same time/times
- ✓ Do not miss any doses
- ✓ Keep an eye out for complications (see next section ('complications'))
- ✓ Any problems with your anticoagulant medication, contact your GP immediately

## Complications

Be aware of the following **uncommon complications** of taking anticoagulant medication:

Allergy (example: rash, severe reaction: anaphylaxis)

Extreme tiredness or pallor

Extreme bruising or bleeding

(example: nosebleeds, blood in the urine or stools, bleeding from surgical

wounds, heavy periods, internal bleeding, bruising on your stomach at the injection site, easy bruising)

If this happens, call your GP immediately. For severe reactions: bleeding that doesn't stop or anaphylaxis call 999 immediately.

## How do you know if you have VTE?

Unfortunately, if you follow all of the advice to prevent VTE, you may still get it, even if you are at low risk.

**So keep an eye out for DVT and PE:**



Figure 21

**If you suspect you have a DVT call your GP as soon as possible!**



Figure 22

**This is an emergency!**  
**If you suspect you have a PE call 999 immediately!**

## **Useful information:**

**Buckinghamshire Hospitals Trust Patient Medicines Helpline: 01296 31 6197**

**Buckinghamshire Healthcare website:**

**[www.buckshealthcare.nhs.uk/For patients and visitors/patient-information-leaflets.htm](http://www.buckshealthcare.nhs.uk/For%20patients%20and%20visitors/patient-information-leaflets.htm)**

**National Institute for Health and Care Excellence**

Venous thromboembolism in over 16s: reducing the risk of hospital-acquired deep vein thrombosis or pulmonary embolism

**<https://www.nice.org.uk/guidance/ng89>**

**Use NHS services**

**[www.nhs.uk/conditions/blood-clots/](http://www.nhs.uk/conditions/blood-clots/)**

**Other useful websites**

**[www.nhs.uk/conditions/deep-vein-thrombosis](http://www.nhs.uk/conditions/deep-vein-thrombosis)**

**[www.patient.co.uk](http://www.patient.co.uk)**

**Download the App**

Preventing VTE (found in Google Play)

## **Infection prevention & control message**

Please keep your hands clean:

- Use the hand sanitiser where available.
- Wash your hands well at every opportunity

**Figure 1:**

**[https://simple.wikipedia.org/wiki/Pulmonary\\_embolism](https://simple.wikipedia.org/wiki/Pulmonary_embolism)**

**Figures 3: [www.pinterest.co.uk](http://www.pinterest.co.uk)**

**Figure 4: [www.freepik.com](http://www.freepik.com)**

**Figure 2, 5, 6: [www.pixabay.com](http://www.pixabay.com)**

**Figure 7: <https://www.finavia.fi/>**

**Figure 8: [www.thompsonphysicaltherapy.com](http://www.thompsonphysicaltherapy.com)**

**Figure 9: [www.facebook.com](http://www.facebook.com)**

**Figure 10: <https://myhealth.alberta.ca>**

**Figure 9: [www.wikihow.com](http://www.wikihow.com)**

**Figure 13, 14: <https://myhealth.alberta.ca>**

**Figure 15: <https://images.app.goo.gl/3KL6aasAFhPia7dY7>**

**Figure 17: <https://awaken.com>**

**Figure 18: <https://klmevents.com/?p=107>**

**Figure 20: <https://images.app.goo.gl/czWqmd1PpEyvN6Ma6>**

**Figures 21, 22: <https://cancerclot.info/>**

**[www.buckshealthcare.nhs.uk](http://www.buckshealthcare.nhs.uk)**

**Follow us on Twitter:**

**[@buckshealthcare](https://twitter.com/buckshealthcare)**

Author: Mariana de Mascarenhas

Issue date: Sept 2020

Review date: Sept 2023

Leaflet code: WZZ2304

Version: 2