

Travel-related deep vein thrombosis

The link between cramped conditions and deep vein thrombosis (DVT) has been recognised since World War II when people sitting for hours at a time in air raid shelters¹ developed the condition.

However, the most common situation in which humans now find themselves with limited mobility for prolonged periods is on flights. Whether the flight is long haul or short haul², business class or economy and whatever the passenger's age or sex they could potentially develop a DVT.

Although the relationship between DVT and flights was identified half a century ago³ the condition has increasingly been in the public eye in recent years after media attention focussed on a number of cases of people suffering a DVT after flights. Recent research⁴ has also suggested long journeys by other forms of travel can also contribute to the development of DVT.

What is deep vein thrombosis and how is it caused?

Put simply deep vein thrombosis is a blood clot which forms deep in the leg veins.

When blood flows around the body it is helped to travel against gravity through the veins by the leg muscles, which act as a pump when walking around. Problems arise when there is limited movement as blood can then pool in the veins potentially causing blood clots.

If these clots break free and travel to the lungs they can cause pulmonary embolism (PE), which is a much more serious condition and can be fatal.

¹ Simpson K. Shelter deaths from pulmonary embolism. Lancet 1940; ii:744.

² Belcaro G. Short haul study – SHAPSS preliminary results. VF-E Web Journal 16.10.03

³ Homans J. Thrombosis of the deep leg veins due to prolonged sitting. New England Journal of Medicine 1954;250:148-149.

⁴ Ferrari E, Chevallier T, Chapelier A et al. Travel as a risk factor for venous thromboembolic disease. Chest1999; 115:440-444

What are the symptoms of deep vein thrombosis?

Although in some instances DVT has no symptoms, typically the thrombosis will cause pain in the calf, especially when walking, and can cause swelling and redness. The pain is often worsened when the foot is bent towards the knee.

If the blood clot breaks free and travels toward the heart and lungs chest pain, breathlessness and coughing may occur. This may indicate a pulmonary embolism (PE). A PE is a medical emergency. If any of these side effects are experienced medical attention should be sought immediately

The side effects may take a while to present themselves so people should remain vigilant for a few days after travelling.

Who is at risk of developing deep vein thrombosis?

The following should be considered as risk factors in developing DVT:

Risk factors for deep vein thrombosis⁵

- Previous history of venous thrombosis (blood clots) and pulmonary embolism
- Age above 40 (risk increases with age)
- Pregnancy
- Use of oral contraceptives or Hormone Replacement Therapy (HRT)
- Obesity
- Varicose veins
- Recent surgery or injury, especially to lower limbs/abdomen
- Cancer
- Genetic blood clotting abnormalities (for example, Factor V Leiden)

However, there have been a number of incidences of airline passengers developing DVT after a flight that did not fall into any of the recognised at risk groups. Everyone planning to go on a journey which will involve prolonged periods of immobility (whether it is in a coach, car or train) should take precautions.

⁵ World Health Organisation

How to help prevent deep vein thrombosis

There are a number of simple and effective measures passengers can take when going on a journey that will require limited mobility:

Precautions⁶

- Move around seat and cabin as much as possible, or if travelling by car or coach take frequent breaks to stretch legs
- Exercise calf muscles while seated
- Avoid alcohol and caffeine
- Stay well hydrated by drinking water, decaffeinated soft drinks or juice
- Avoid leg discomfort while seated and don't cross your legs or ankles
- Do not take sleeping pills
- Consider wearing compression socks (flight socks)

Who should consult a doctor or healthcare professional

- Individuals with a history of venous thrombosis (DVT) should consult their doctor before flying
- Anyone who has had recent surgery as if they travel for more than three hours they are three times more at risk of developing a DVT⁷
- Anyone with the following conditions should consult their doctor before wearing compression socks:
 - a previous history of venous thrombosis
 - superficial vein thrombosis
 - diabetes
 - severe obesity
 - reduced mobility
 - heart disease
 - severe varicose veins
 - injury to lower limb/abdomen
 - stroke
 - cancer
 - chemotherapy treatment
 - genetic blood clotting disorder
 - pregnant

⁶ House of Lords Select Committee on Science and Technology 5th Report on Air Travel and Health

Does it just affect passengers on long haul flights?

Recent research⁸ has shown that in medium and high risk passengers, blood clots form in the first two to three hours of a journey, putting people on short flights at risk. The international study examined more than 500 passengers flying from London to Italy and found blood clots in 4.3% of high-risk subjects after their flight. Many experts believe time spent sitting in airport waiting rooms can also attribute to the development of blood clots.

Equally, prolonged periods of immobility in other forms of transport, such as cars and coaches, can also lead to DVT. A study⁴ in Nice, France, showed people suffering from DVT were four times more likely to have taken a journey, by either plane, train or car, lasting four or more hours.

Deep vein thrombosis and or pulmonary embolism, often referred to as venous thromboembolism (VTE), can also happen when people are in hospital having surgical procedures or are immobile in a hospital bed.

Over 25000 people die each year from hospital acquired DVT and PE. This could be prevented by risk assessment and preventative treatment (prophylaxis)

For further information on how to avoid a VTE when going into hospital contact AntiCoagulation Europe.

Tel: 020 8289 6875 Email: anticoagulation@ntlworld.com

⁷ Arya R, Cohen A T. Long haul flights and deep vein thrombosis: who is at risk? Br J of Haematology – 2003, 120: 367-368

⁸ Belcaro G. Short haul study – SHAPSS preliminary results. VF-E Web Journal 16.10.03