

Health & Fitness Tips

Deep Vein Thrombosis - Don't be a clot

Deep Vein Thrombosis is a life-threatening illness. SQNLDR Belinda Ball explains the known risks and how to minimise them.

Recent media attention has identified long-distance travel as a potential risk factor for developing Deep Vein Thrombosis (DVT).

However, a select committee on science and technology, appointed by the UK's House of Lords to report on air travel and health in November 2000, found no significant effects for the vast majority of travellers.

There is currently no authoritative data to show any clear difference in the incidence of DVT between those who have recently travelled and those who have not. But the ADF, as an employer, has a duty of care to ensure any risk to its personnel is minimised. Accordingly, the Defence Health Service has published the following guidelines to help reduce the risk of developing DVT during long-distance travel.

Personnel concerned about the following risk factors and contemplating long distance travel for three hours or more should seek advice from a medical officer.

People at risk:

While there is no conclusive evidence that travel, particularly flying, is a specific risk factor for developing DVT, medical research indicates that a number of factors, extrinsic and intrinsic, increase the risk for the development of DVT in some groups within the population. The degree to which these factors predispose personnel to the formation of DVT is subject to speculation, but it appears that a combination of several of these factors may significantly increase the risk.

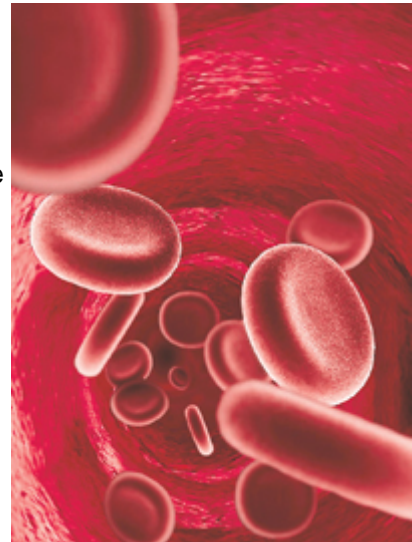
Extrinsic and intrinsic factors:

The potential extrinsic (external) risk factors for DVT associated with travel by air, road or rail are:

- increasing duration of travel;
- the cumulative effect of multiple trips;
- immobility and seat comfort, which may be compounded by obesity or height;
- restrictions on leg room;
- seated posture, including when asleep;
- wearing of tight undergarment or movement-restricting clothing;
- dehydration;
- alcohol consumption; and
- compression of the major leg vein by the edge of the seat, door or console.

The potential intrinsic (internal) risk factors are:

- being more than 40 years old;
- pregnancy;
- cardiovascular diseases;
- former or current malignant diseases;
- blood disorders leading to increased clotting tendency;
- personal or family history of DVT;
- recent major surgery or injury, especially to lower limbs or abdomen;
- oestrogen hormone therapy, including oral contraceptives;
- heart failure, and



- varicose veins.

The combination of several of these factors may significantly increase the risk of formation of DVT. Personnel with any of the intrinsic risk factors are encouraged to seek medical advice before undertaking long distance travel.

Questions and answers

What is DVT?

DVT is a condition in which a blood clot (thrombosis) forms mainly in the deep veins of the legs. These clots can be present without symptoms or signs, but may give rise to swelling of the affected leg, sometimes accompanied by pain (particularly when the foot is flexed upwards) and local tenderness. This swelling should not be confused with the common mild swelling of both lower legs during and after a long flight, which is due to inactivity and soon disappears after leaving the aircraft.

DVT is not dangerous in itself but complications arising from it may occasionally be life-threatening. Complications occur when a thrombus breaks away from the wall of the vein to which it is attached and is carried along with the flow of blood in what is termed an embolus. If the embolus reaches a blood vessel through which it cannot pass, it blocks the vessel. The consequence of such a blockage is called an embolism. The most serious of these occurs in the lungs (pulmonary embolism) giving rise to chest pain and breathing difficulties, and in the worst cases, death from respiratory failure.

What causes DVT?

Clotting in blood vessels is associated with:

- poor circulation or stagnation of the blood (chronic venous insufficiency);
- excessive coagulability or coagulopathy (thickening, leading to an increased tendency to clot) of the blood; and
- abnormalities in, or damage to, the walls of the blood vessels.

What is the incidence of DVT?

The November 2000 report from the House of Lords committee on science and technology concluded that, "if there is an increased risk of DVT from flying, it is small". It stated: "Among every million people taking a long journey by any mode once a year, at least 1000 cases of clinically detectable DVT will be found, because that's the general population incidence, plus possibly another 200 because of the additional risk of travelling. Many of the latter will have additional risk factors, so for healthy individuals, the risk of getting a clinically significant DVT solely because they are taking a flight seems exceedingly small."

The actual incidence of DVT in people who have recently travelled by air is not known, because the appropriate scientifically rigorous epidemiological studies have not been carried out.

Does economy air travel cause it?

The term "economy class syndrome" was coined more than 20 years ago and has been used extensively in the media. This term is misleading, as the same risk factors may apply to first-class and business-class air travellers as well as travel by road and rail.

What preventive measures are there?

The following preventive measures are recommended for all travellers (with or without intrinsic factors), particularly for long-distance flights:

- do not place baggage in the space under the seat in front because that reduces the ability to move the legs;
- exercise the legs at regular intervals while seated to improve venous flow. These exercises should primarily activate the leg muscles, for example, through strong alternating stretching and flexing of the feet. A couple of cycles with deep breathing increases central venous flow. It is also recommended that the passenger walk throughout the cabin for a short while, once an hour;
- do not sleep in a cramped position and do not use hypnotic drugs (sleeping pills), because veins can be damaged by unrecognised compression;
- consume fluids – such as water, non-caffeinated drinks and juices – before and during the trip. Alcoholic beverages should be avoided on long trips because of their diuretic and vasodilating (swelling) effects;
- wear loose-fitting, comfortable clothing when travelling; and

- avoid smoking and avoid crossing legs when seated.

Does blood-thinning medication help?

Aspirin, other blood-thinning medications and support stockings are not recommended for all travellers. These should only be prescribed by a medical officer, who will make the appropriate recommendations on a case-by-case basis, taking into account such considerations as individual risk factors and medication you may be taking.

What are the symptoms of DVT?

DVT may not cause symptoms until the blood supply is severely interrupted. Personnel experiencing any of the symptoms listed below should seek medical advice as soon as possible:

- unexplained pain;
- unexplained shortness of breath;
- sudden swelling of lower limbs;
- enlargement of the superficial veins;
- reddish-blue discolouration; or
- skin that is warm to the touch.

In summary

Brochures are readily available in travel packs handed to Service members by Qantas. Personnel responsible for passengers on military aircraft will also be informed through command channels to advise members of the risks. Posters will be distributed to medical facilities to inform members about long distance travel and DVTs.

Complications with DVT

Even if blood clots don't embolise, a deep vein thrombosis can result in a number of circulation problems. These circulation problems are usually localised and develop where the blood clot forms. The damage caused by blood clot formation can result in high blood pressure in the surrounding area, a condition known as "venous hypertension". Localised circulation problems can lead to chronic venous insufficiency. This occurs if the veins cannot effectively return blood from the legs to the heart. Backed-up blood leaks out of the veins and pools in the legs and feet.