

E- thrombosis



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What is e- thrombosis?

- **Blood clots due to prolonged sitting in front of a PC**
- **We will explore**
 - **What is a clot**
 - **Causes and mechanisms**
 - **Size of the problem**
 - **What can we do about it?**

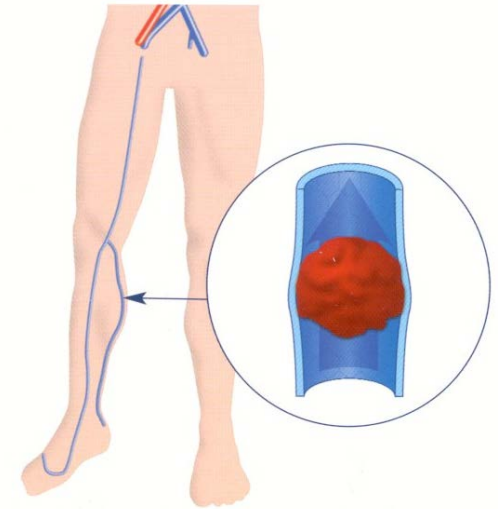
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What is venous thromboembolism (VTE)?

Blood clots start as a deep vein thrombosis (DVT), a blood clot forming in the veins deep in the leg, usually in the calf or thigh, although occasionally DVT can occur in other veins of the body.

Deaths are caused by the clot 'breaking off', travelling around the body and eventually blocking an artery in the lungs. This is known as a pulmonary embolism (PE).

Together, DVT and PE are known as VTE.



What are the symptoms and signs of clots?

PE Symptoms:

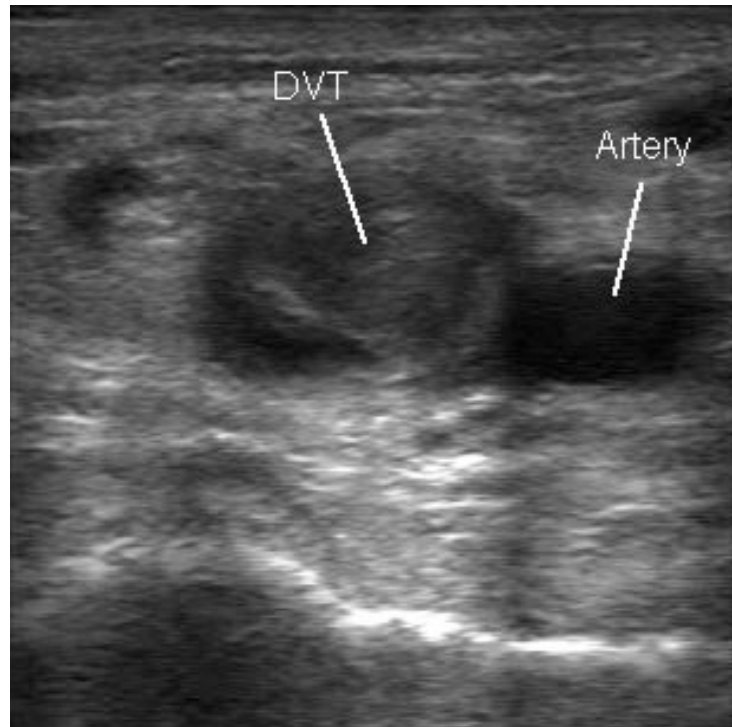
- Shortness of breath & chest pain
- Rapid heart & respiratory rate
- Coughing blood (not in all cases)
- **A great mimic of other chest problems**
- **Sudden death**

DVT Signs:

- Swelling in the legs
- Change in colour
- **Pain only (80%)**

Diagnosis of DVT

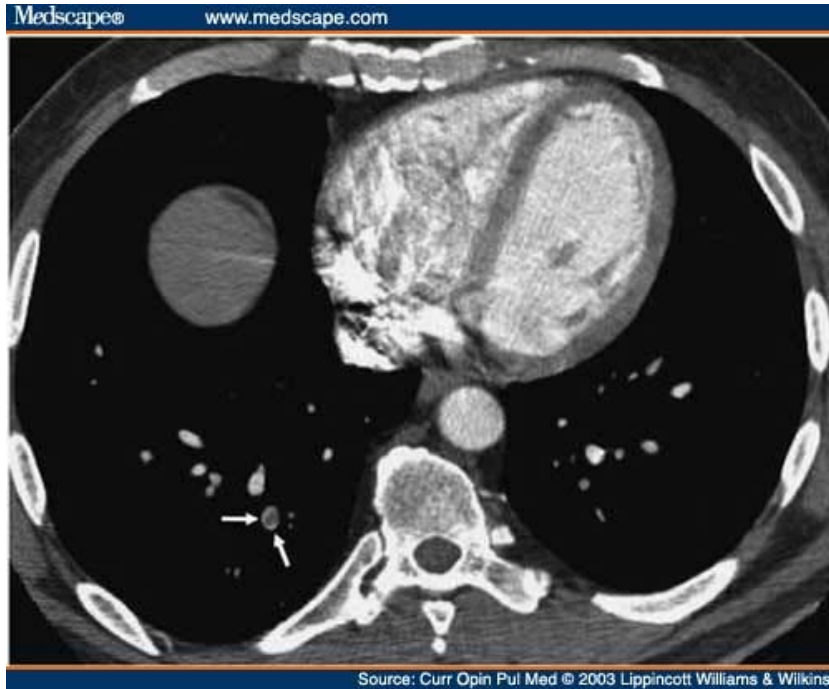
Doppler ultrasound
Far from perfect but non
invasive



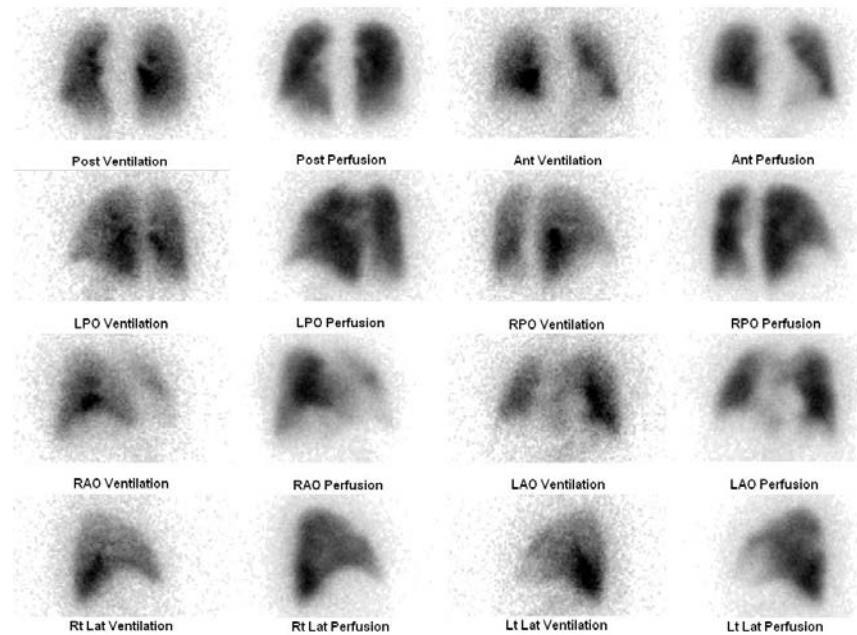
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Diagnosis of pulmonary embolism



CT PA
Increases risk of breast cancer



Ventilation/perfusion scanning
Misses small PE

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Risk Factors

- Each year, one in every 1,000 people in the UK is affected by DVT.

Risk factors are due to one or more of the following

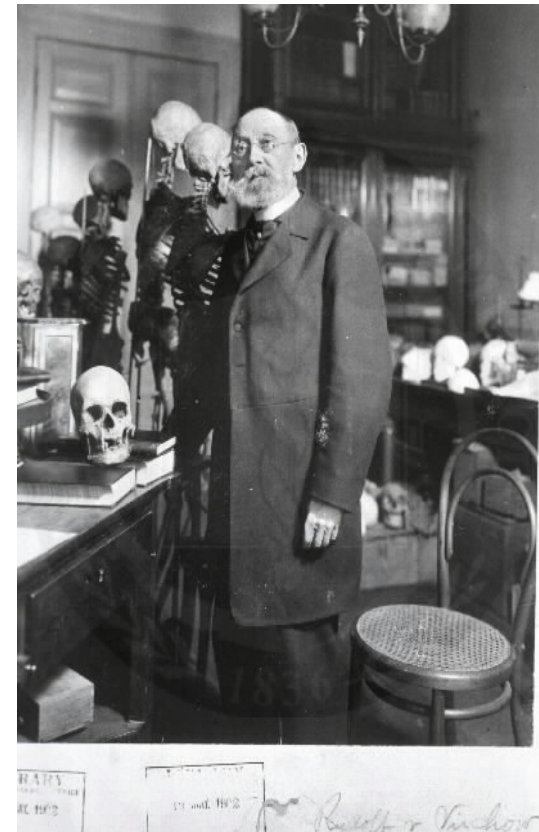
- Reduced blood flow in the leg i.e. immobility
- Damage to the vein wall
- Sticky changes in the blood
- DVT occur at ANY age but becomes commoner with age as the blood gets stickier

Pathogenic mechanisms:

VIRCHOW'S TRIAD 1846

- Changes in flow
- Changes in vessel wall
- Change in blood =
THROMBOPHILIA

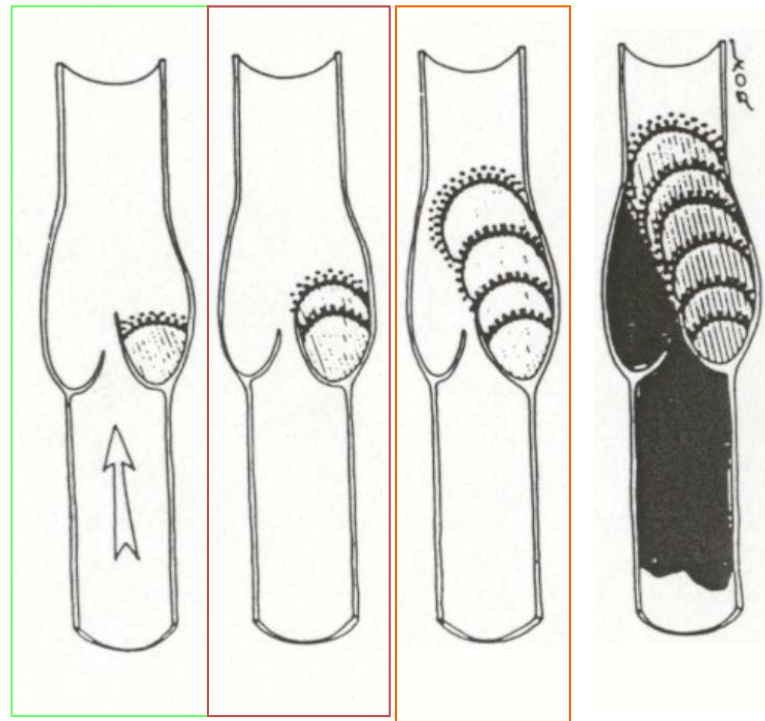
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Risk factors for venous thromboembolism

- Surgery Trauma (major or lower extremity)
- Immobility, paresis
- Malignancy
- Cancer therapy (hormonal, chemotherapy, or radiotherapy)
- Previous VTE
- Increasing age
- Obesity
- Pregnancy and the postpartum period
- Oestrogens---OCP or HRT
- Selective oestrogen receptor modulators
- Acute medical illness
- Heart or respiratory failure
- Inflammatory bowel disease
- Nephrotic syndrome
- Myeloproliferative disorders
- Paroxysmal nocturnal haemoglobinuria
- Varicose veins
- Central venous catheter
- Inherited or acquired thrombophilia

The beginnings of a deep vein thrombosis.....



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VTE doesn't discriminate

The Telegraph

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Serena Williams has pulmonary embolism

The chances of Serena Williams playing at this summer's Wimbledon are minimal after she had emergency treatment in Los Angeles to remove a blood clot from her lung, and women's tennis ought to be preparing itself for the possibility that she could miss the 2011 season in its entirety.



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28 December 2011 Last updated at 13:59

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Rapper Heavy D killed by DVT, coroner says

The sudden death of rapper Heavy D was due to a pulmonary embolism caused by deep leg vein thrombosis (DVT), a Los Angeles coroner has decided.



Heavy D is best known for his 1991 hit No Front Love

MailOnline

Eight hours at work can give you DVT

by OLIVER STALLWOOD, Metro

Last updated at 08:33 09 May 2006

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A programmer has told how he almost died after developing deep vein thrombosis after sitting at his desk for just a few hours.

Chris Simmons fell unconscious and began coughing up blood after a clot moved from his leg to his lungs.

The 41-year-old had developed a pulmonary embolism at the end of a normal eight-hour day.

that travels to another

Related St

ing distance air travel.

Heavy D pos inconclusive

hallway at his Los Angeles transported to Cedars Sinai

Hip-hop star dies aged 4

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Venous thromboembolism in the UK

Estimates

- VTE in the UK -an estimated 60,000 deaths: at least 32,000 due to hospital admission of which 25,000 are preventable
- More people die from VTE than breast cancer, HIV and road traffic accidents combined
- Hospital acquired VTE causes more deaths than hospital -acquired infection (MRSA & C difficile, peaked at 10,000)

Facts about hospital-acquired clots

- **Definition includes any VTE within 90 days of discharge**
- Hospital-acquired clots account for 2/3 of all VTE
- Registered deaths due to VTE in England in 2007 -19,000- but under diagnosed.....(House of Commons Question summer 2009)
- Autopsy data suggests reported incidences are markedly underestimated. Baglin et al J Clin Path 1997; 50: 609-10

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Lifeblood's story

Founded 2002, Registered charity in 2003

Mission statement

- To increase awareness of thrombosis
- To increase research funds to improve care of thrombosis

About

- Has grown from nothing to “Health charity of the year 2010”
- Tightly knit board of 7 trustees, 2 Medical directors, Nursing and Pharmacy directors and one full time Executive officer
- Fiercely independent, 55% of income from public donation
- Instituted National Thrombosis Week. Hit 52 million last year
- Campaign to improve awareness, prevention and treatment
- Have patient support groups, No 1 website for information on thrombosis
- Fund research



Our STOP THE CLOTS Campaign

➤ GOAL

- Increase public awareness of the risk factors for VTE (both hospital and community acquired);
- Increase the proportion of patients risk assessed for VTE on admission to hospital and given preventative measures if indicated.

➤ CAMPAIGN OBJECTIVES

- Improve clinical outcomes for patients and reduce national financial burden of VTE by:
 - Mandating VTE risk assessment -yes!
 - Appropriate use of thromboprophylaxis—yes!
 - ‘minimum standard of care’ –yes!
 - Raise public and political awareness of VTE –ongoing..

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www.take-time-out.info

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Christopher's Story

- S.N.E.S / N64 / Game Cube / DS / Xbox 360
- Loved Gaming and IT
- Active – Not reclusive – 4 Part Time Jobs
- Excessive Periods Gaming -Played All night – Friends in USA / Canada / UK - Evidence Emerged
- Studied IT and won place at University – Games Design
- Died aged 20 of a PE



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First association between prolonged sitting and clots

Deckchairs in the Blitz

1940- Simpson a pathologist noticed an increased death rate due to pulmonary emboli from those sitting in bomb shelters



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What happens to the blood flow in sitting legs?

- Blood flow in the popliteal veins is reduced by half after 90 minutes of immobility
- Blood flow is reduced when sitting on a chair and feet cant touch the floor
- Foot exercises enhance blood flow
- Hitos et al, JTH 2007

THE EVIL CHAIR



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Travellers thrombosis

- Risk of VTE (clots) doubled after long haul flights (>4hours)
- Risk increases with the duration of travel and number of flights within a short time
- Increased further by other risk factors such as obesity, the oral contraceptive pill
- Similar risk with any long distance travel including prolonged sitting in a car, bus or train
- More likely in non- aisle seat, short and tall individuals
- BUT risk is overstated < 1 in 10,000 flights!!



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The first case of e thrombosis described...

Dr Richard Beasley, New Zealand

- 32 year old man with a 6 week history of a painful calf followed by sudden onset of shortness of breathe- CTPA showed extensive pulmonary emboli
- He had no family history of clots and no obvious risk factors.
- Further questioning revealed that he spent 12-18 hrs a day at his PC.
- He would frequently sit for 1-2 hrs and not infrequently up to 6 hours without standing up
- The first death (2004)- a 24 year old South Korean man who spent 80 hours playing PC games.



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Physical inactivity and PE in women: a prospective study

Kabrhel et al. Brit Med J 2011; 342: 3867

- Nurses Health study follows 69,950 women
- Over 18 years there were 268 cases of pulmonary embolism
- Asked how long each week they spent sitting
- 22% spent >40 hrs a week sitting
- Risk of PE was > 2x in those who spent the most time sitting compared to those who spent the least time sitting
- No association between amount of physical activity and PE.

“Seated immobility syndrome”

Prof Richard Beasley

A 21st century hazard

- Term used to encompass all VTE (clots) associated with sitting
- Includes
 - E-thrombosis
 - Travellers thrombosis
- Other related conditions
 - 3 deaths described due to PE after 3-4 days prayer in a prayer centre
 - Physical restraints in patients with psychiatric illness and wheelchair bound patients



We were designed to be on the move
NOT sedentary!!



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How large is the problem?

A Lifeblood survey conducted by ComRes in 2012

Targeted 1000 people- “workers” and “gamers”

500 “workers” –young professionals

- 68% working 10hours a day
- 3 in 5 working overtime
- 58% working weekends
- Those who worked > 40 hr week were more likely to spend their free time sitting down and were less likely to take a break in the day
- Spent an average of 2.75hrs at their desk without moving
- Those working in law finance or IT were more likely to eat at their desks (45%) and less likely to move around during the day (32%)

500 gamers

- Spent an average of 3 hours sitting before getting up
- 96% of gamers video game for more than 90 mins before taking a break
- The majority(52%) would play computer games rather than keeping fit
- Playing up to 5 hours at a time
- Personal comfort needs were put to one side with almost half saying they would delay getting up for a drink, for food or going to the bathroom

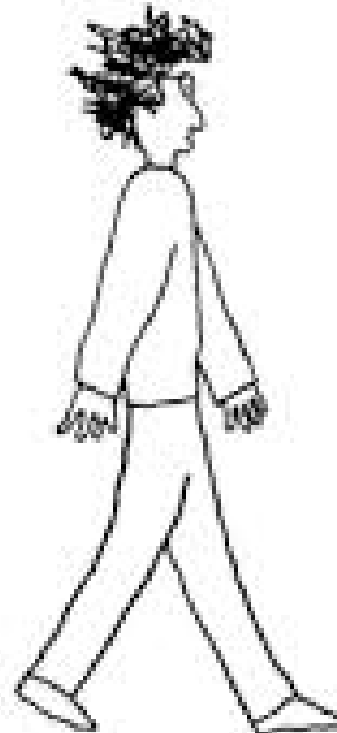
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Risks of such behaviour?

Healy et al. J R Soc Med 2010; 103: 447-454

- Survey of 197 patients with VTE (clots) and 197 controls
- Prolonged work & computer related seated immobility was present in 17% of cases and 9.6% of controls.
- In multivariate analysis prolonged work and PC-related seated immobility was associated with increased risk of VTE odd ratio 2.8 (95%CI 1.2-6.1, p=0.013)
- Risk increased by 1.1 (95% CI 1.0-1.2, p=0.014) for each additional hour seated
- Risk increased in those who has their own desk at work 2.1 (1.3-3.3, p=0.003)
- Risk increased in those who usually ate lunch at their desk 2.2 (1.1-4.1), p=0.02)
- No reduction in risk with an adjustable chair or being able to stretch ones legs out fully.

Action is required! Take a break



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Move your legs, pump up the blood flow



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To summarise

- Seated immobility syndrome which includes e thrombosis is a real phenomenon
 - Blood flow through leg veins falls by 50% if one sits immobile for 90 minutes
 - This is phenomenon of the computer age
 - A problem for work and home
 - Prevention is better than cure- don't sit still for long periods
 - Get up and walk around to restore normal blood flow frequently
 - Get up and leave your desk at lunchtime!
- Future research
 - To identify how big a problem it is
 - To look at effects combined with other risk factors e.g. obesity
 - Political
 - Early discussions with Nick Clegg MP and the UKIE about warnings on video games
- Legal cases?
None in UK at present.....

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