

ABSTRACT

Blood clots are a serious threat to the global population. Blood clots could manifest in various forms, such as DVT, PE, MI, or stroke. Serena Williams, the winner of 39 grand slam titles, suffered from thrombotic episodes twice in her life. Through her strong will, athletic nature, Serena came out of these medical issues and is now back on the tennis courts! Serena has set an excellent example in front of the world how a strong will power can bring the person out of serious medical conditions. Our hats off to Serena Williams! We wish her all the best in her career.

INTRODUCTION

Did you know that one blood clot forms every minute and one death due to thrombosis occurs every 6 minutes? The number of deaths due to thrombosis is higher than breast cancer, AIDS, and traffic accidents combined. We are members of the Global Thrombosis Forum (GTF, www.gtfonline.net), an affiliate of North American Thrombosis Forum (NATF, www.natfonline.org). The goal of our organization is to spread awareness of thrombosis (blood clots) throughout not only our local community but around the world. In hopes of doing so, we often compose articles, set up educational booths at local events, and research important correlations between blood clots and other medical conditions.

BLOOD CLOTS

The blood clots form via coagulation cascade in veins (Deep Vein Thrombosis, DVT and Pulmonary Embolism, PE).

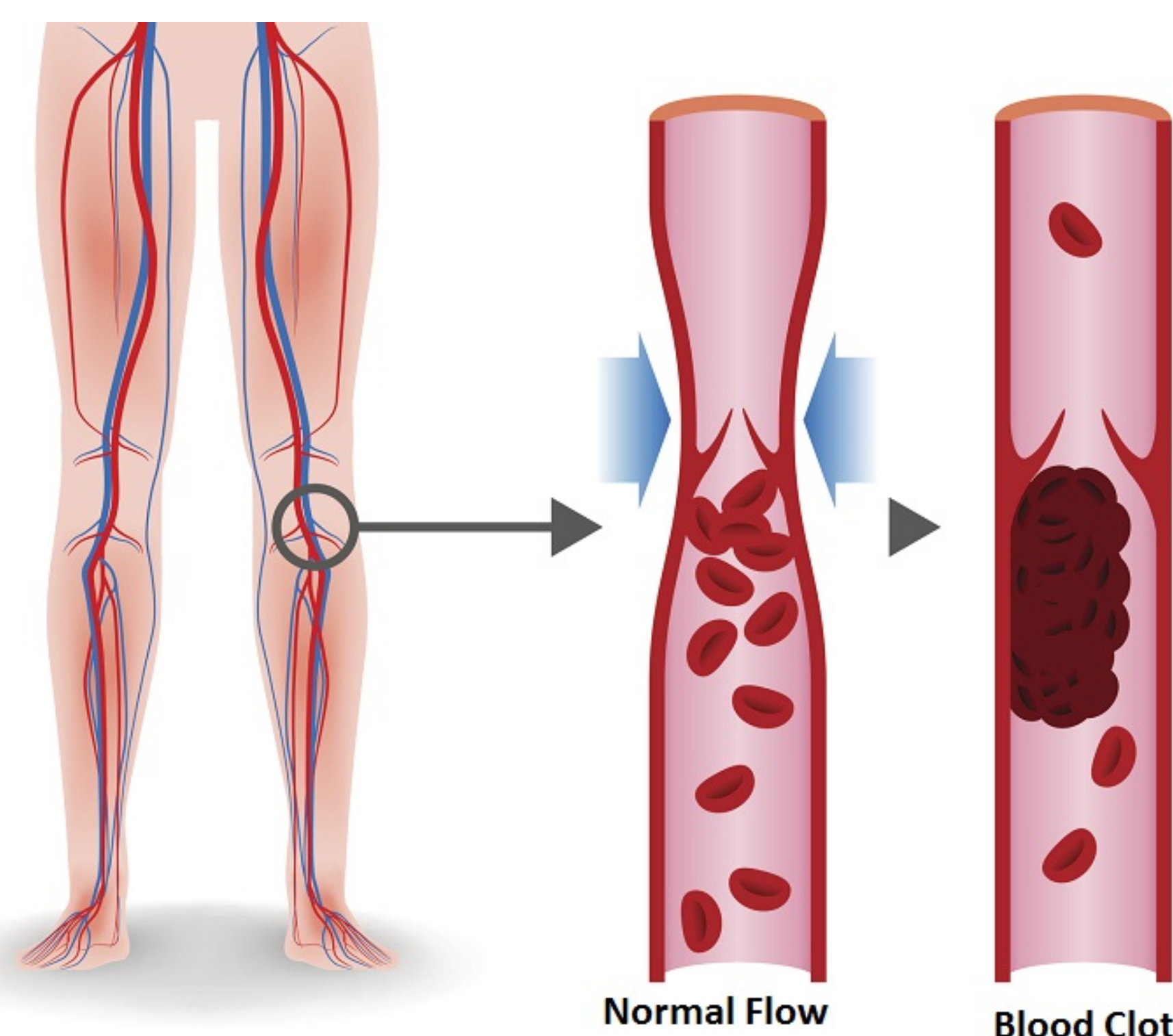


Figure 1: Patient with DVT

THE COAGULATION CASCADE

- A multi-stepped process.
- Multiple proteins are involved in the cascade, and they act as enzymes or catalyzers for the reaction.
- The extrinsic pathway is initiated by a trigger factor called the tissue factor.
- The intrinsic pathway is triggered by blood coming into contact with collagen fibers in the broken wall of a blood vessel.

SERENA WILLIAMS AND INJURY



Figure 2: Serena Williams

- Serena Williams, winner of 39 grand slam titles, suffered from pulmonary embolism (PE), a life threatening condition where blood clots appear in the lungs.



A blood clot in the Pulmonary Artery

Figure 3: The clot in the lung in a patient with pulmonary embolism

- Serena has spent nearly 12 months incapacitated by a cut to her foot that resulted in PE.
- Serena later on revealed that the clot in her lung had been a life-threatening condition. "I was on my deathbed at one point - quite literally. I've had a serious illness but at first I didn't appreciate that," she said.
- Williams had been on the way out to the Oscars party when she experienced difficulty breathing.
- At her physiotherapist's insistence she went to hospital.
- Had several blood clots in both lungs. A lot of people die from that.
- Underwent 2 surgeries
- Made her mentally tougher than a lot of things
- This experience gave her a whole new perspective on life and career - and not taking anything for granted.

CHILDBIRTH

- After an emergency C-section, Williams encountered what is an often fatal complication: PE.
- The next day, while recovering in the hospital, Serena suddenly felt short of breath.
- She immediately assumed she was having another pulmonary embolism.
- Walked out of the hospital room and told the nearest nurse, between gasps, that she needed a CT scan with contrast and IV heparin right away.
- The nurse thought her pain medicine might be making her confused.
- Serena insisted, and soon an ultrasound of her legs was performed.
- The ultrasound revealed nothing, so they sent her for the CT, and sure enough, several small blood clots had settled in her lungs.
- Minutes later she was on the drip. "I was like, listen to Dr. Williams!"
- Because of her history of blood clots, she was able to save her own life.
- Unfortunately, between 700 and 1,200 American women every year don't live to describe the experience of giving birth.
- Pregnant women are often at a much higher risk due to the various circumstances that surround pregnancy. Many of the risk factors include lack of physical activity, sitting idle, expansion of the uterus, pressure on the veins by the growing fetus, lack of exercise, and a general lack of fluid intake (Figure 4).

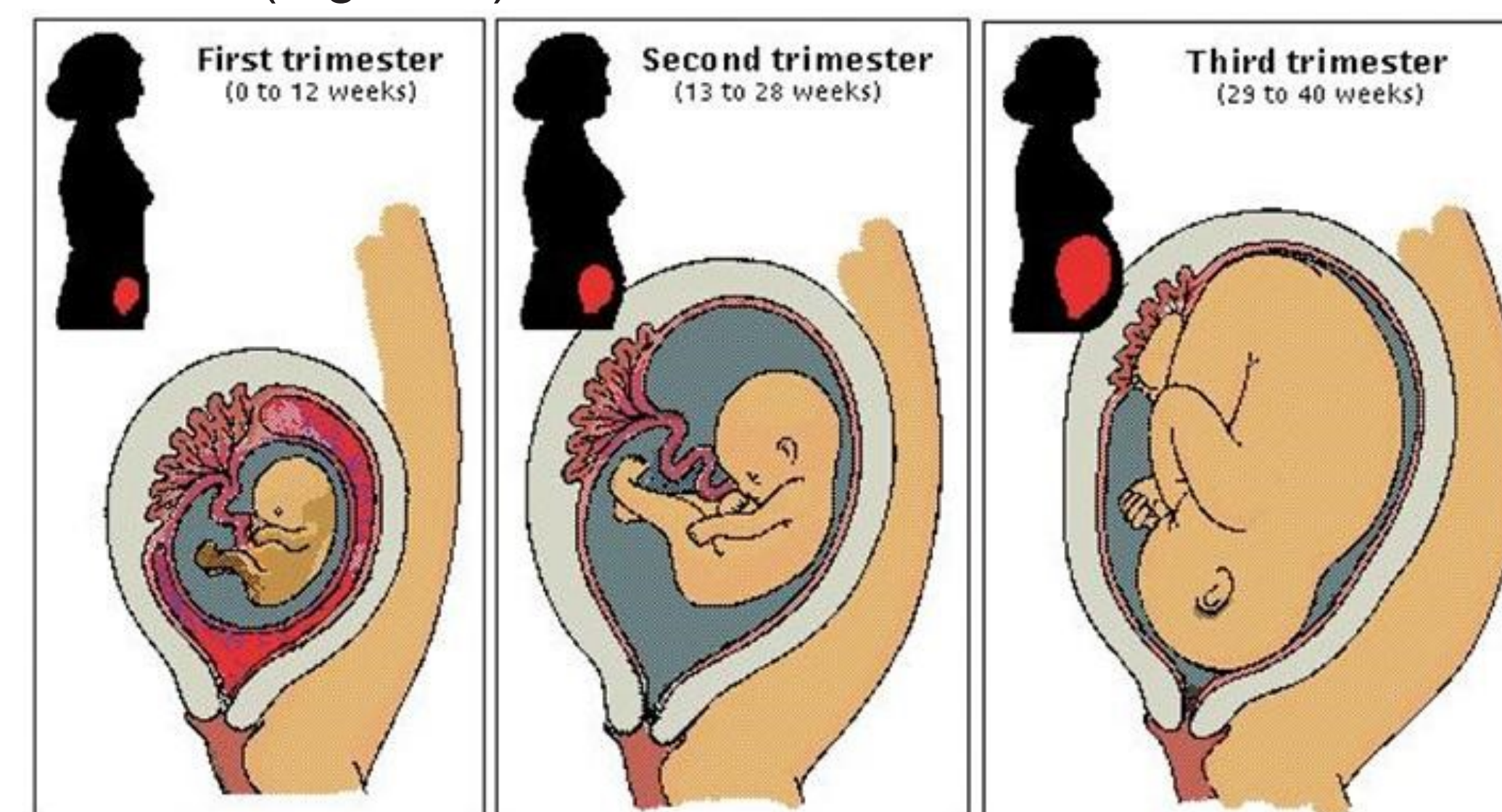


Figure 4: Showing how the growth of the baby contributes to a higher chance of thrombosis

ADDITIONAL RISK FACTORS

- Serena Williams was also diagnosed with Sjogren's syndrome an autoimmune disease that's identified by two of its most common symptoms: dry eye and dry mouth.
- "Unfortunately, that's typical of people with autoimmune disease," she says.

RECOVERY OF SERENA WILLIAMS

- Athletes are normally considered to be the fittest people around the world, however, they too have risk factors of thrombosis that affect them separately.
- The risk factors include long periods of immobility during the transportation to and from their games.
- They are also likely to get injured due to the intense practices they partake in; these lead to an increased chance of contracting a blood clot.
- Other risk factors include dehydration during long matches, and the overly intense cardiovascular exertion.

SUMMARY AND CONCLUSIONS

- In conclusion, blood clots are a serious threat for the global population as a whole, and no one has the luxury of not having to worry about them.
- Nevertheless, one could prevent PE by simple measures.
- Serena, through her strong will, athletic nature, came out of all these medical issues and is now back on the tennis courts!
- Serena has set up an excellent example in front of the World how a strong will power can bring the person out of serious medical conditions.
- Our hats off to Serena Williams! We wish her all the best in her career.

ACKNOWLEDGEMENTS

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REFERENCES

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