



Maternity Compression Socks

The Use of Compression Socks
During and After Pregnancy

Written By Rebekah Mustaleski

email: hello@motifmedical.com
phone: (844) 272-8390
motifmedical.com



Physiological Responses During Pregnancy

Pregnancy is a time filled with bodily changes, as all systems are adapting to the additional work necessary to maintain a healthy pregnancy.

The cardiovascular system, in particular, experiences massive changes to account for the increased nutritional and metabolic needs of the pregnant person and growing baby. Throughout the pregnancy, the heart's cardiac output increases by up to 40%, there is an increase in stroke volume and heart rate, and the vascular resistance decreases¹.

At the same time, the pregnancy related hormones progesterone and relaxin bring about vasodilation, which leads to a decrease in blood pressure. The composition of the blood is also undergoing changes with plasma volume rising by up to 50%, red blood cells increasing by about 18%, and clotting factors increasing, particularly fibrinogen and platelet counts².

All of these adaptations occur to meet the increased demands of the pregnancy and delivery, but they also contribute to common pregnancy issues such as supine hypotension, edema, and varicose veins.

While all of these changes are good and the sign of a healthy pregnancy, they also predispose the body to some complications that are more common during a pregnancy than the person would have in the rest of their life.

PHYSIOLOGICAL RESPONSES DURING PREGNANCY

The use of compression socks during the day can help prevent some varicose veins and improve the symptoms of others⁴.

Graduated compression socks, in particular, can help prevent the development of DVT in pregnant populations⁴.



- The large variations in cardiac output, pulse, blood pressure and localized blood flow are common in pregnancy, but these fluctuations can be exacerbated by relatively trivial changes in **posture, activity, and anxiety**.
- Pregnant people are up to 5 times more likely to develop DVT.

- The reduced blood flow can lead to localized edema, particularly in the lower extremities, and the dilated blood vessels increase the risk of **varicose veins** and **deep vein thrombosis (DVT)**.
- Pulmonary embolism (PE), DVT's most feared complication, is currently the leading cause of **maternal death** in the developed world³.

Physiological Responses After Pregnancy

Progesterone and relaxin are essential pregnancy hormones and their effect on the vascular system is necessary to allow for adequate blood expansion. However, the dilated blood vessels combined with the increased clotting factors present during pregnancy put the pregnant person at a higher risk of developing varicose veins and blood clots.

- ★ **Pregnant people are six times more likely to develop a thromboembolism than the general population⁵.**

After the birth of the baby, clotting factors remain high and movement generally decreases. The new parent must be encouraged to move around, as they are able, to promote blood flow in the legs and feet.

The use of compression socks during this recovery time can also help minimize risk of thrombosis and the ensuing complications.



Prophylactic Strategies

The use of compression garments, lifestyle changes, and medications can be helpful in improving the maternal mortality rate, as related to cardiovascular changes that happen during pregnancy.

- Maintaining good posture and body mechanics throughout the day is imperative to sustain adequate blood flow and reduce edema.
- To further support the additional workload of the cardiovascular system, it is recommended that pregnant people avoid laying on their back, as the weight of the growing uterus can compress the inferior vena cava and impair return blood flow to the heart.
- Pregnant people should also avoid sitting or standing for long periods of time and not cross their legs while sitting, as these habits can impair blood flow from the lower extremities and can contribute to edema and varicose veins.
- Maternity compression socks can help maintain good blood flow and reduce the incidence of edema and thrombosis in the lower extremities.



Conclusion

Pregnancy is a time filled with much excitement and many changes in the body. While most of the changes are the way that the body is able to sustain a healthy pregnancy, they can also lead to uncomfortable and even life-threatening complications.

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