

## Your veins – part of the circulatory system



*“During my first pregnancy I developed spider veins. Now I am pregnant again and I am afraid I may start having my first varicose veins.”*

*“I have never yet had problems with my veins. But now I am five months pregnant and every evening my legs are tired and heavy.”*

*“Because I have problems with my veins I have been wearing compression stockings for years, but they are slowly becoming uncomfortable. Are there special compression tights for pregnant women?”*

*“A friend of mine developed varicose veins during pregnancy. How can I avoid this?”*

You are expecting a baby - what is routine for your gynaecologist is a very special time for you. Particularly the first pregnancy is contemplated with a mixture of delight and apprehension. What will happen to me in the next few months? How will my body change? What is good for me now and what is not?

The fact is, during pregnancy, women experience many positive changes in their bodies as a result of hormone changes. The hair becomes thicker and the skin usually improves. But there are also a few unpleasant side effects. Around 50% women develop varicose veins during the first pregnancy. With the second pregnancies, the percentage affected is even higher. And the risk of thrombosis also increases.

**How does pregnancy affect my veins? Why do varicose veins develop? How high is the risk of thrombosis? And how can I effectively avoid these problems?**

Our advisor supplies you with answers to the main questions surrounding pregnancy and venous health. You will see why and how pregnancy can have an adverse effect on your veins and how you can avoid the possible problems.

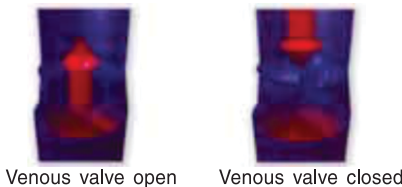
## The role of your veins in the circulatory system



First a few important facts: All cells in our body must receive a constant supply of nutrients and oxygen. This is provided by the human circulatory system. The heart pumps blood at high pressure into the arteries and these distribute it throughout the body. Used blood is returned by the veins to the heart and from there is transported to the lungs where it is enriched with oxygen.

The venous system is part of the blood circulation and leg veins play an important role : they transport blood back to the heart, regulate the circulation and affect skin temperature.

The veins of the superficial venous system run under the surface of the legs, collect blood from the skin layers and transport it upwards via the deep venous system, which is located within the leg and surrounded by muscle. When transporting blood, the veins can only rely to a small extent on the pumping action of the heart. The blood must mainly be transported by other mechanisms known as the joint and muscle pumps. The venous valves play a central role in the development and severity of varicose veins. If these “non-return” valves are damaged, the blood can no longer be pumped towards the heart. Instead it collects in the legs and visibly dilates the veins.



**What are varicose veins?**

Varicose veins are dilated, crooked veins.

Varicose veins are a disease of the veins: the affected veins are no longer able to fulfil their blood transport function properly. The result is that blood collects in the veins. At the surface of the skin on the legs, the veins look the bulging cords.

## Why your veins can get tired

Millions of people are familiar with the symptoms: tingling and dragging, tired heavy legs. The first signs of venous disease are spider veins. However, these are more of a cosmetic than a medical problem. Varicose veins are different. These occur at the surface of the skin as dilated, meandering veins – not a pretty sight. But varicose veins are also of medical significance – in this state they are no longer fully capable of carrying out their function of returning blood to the heart – and blood collects.

Venous disease has a variety of causes, but generally a combination of different factors is involved:

**An inherited connective tissue weakness** – the main cause of varicose vein formation.

**Overweight/chronic constipation**

The pressure on the abdominal cavity rises and veins are subjected to an additional burden.

**Regular long periods of sitting and standing**

Only during exercise can the joint and muscle pumps function fully, so “emptying” the veins by means of muscle activity.

**Toxins**

Alcohol dilates the vessels.

**Hormonal changes**

Pregnancy, birth, & consumption of Contraceptive Pill.

## How pregnancy acts as a burden on your veins

Pregnancy is a fascinating process – new life is being created in your body! All women experience the hormonal changes in their bodies – sometimes this results in nausea, sometimes in excessive hunger attacks, and there is usually tightness in the breasts.

Pregnancy also has an effect on the venous system. On average, women gain between ten and twelve kilograms in weight in nine months. This considerably increases the pressure on the leg veins. To ensure that the foetus receives the optimum blood supply, nature has arranged it so that up to 20% more blood flows through your body during pregnancy. This also means more work for your veins. The growing uterus and increasing weight of your baby also put pressure on your veins in the pelvic area and prevents blood



flow towards your heart. The bigger your bump the heavier and less mobile you become. This also means less activation for the joint and muscle pumps. Quite apart from additional weight and pressure, pregnancy

always involves dilation of the blood vessels. The reason for this is that the pregnancy hormone progesterone softens not only the cervix, making it more pliable, but also the veins.

## Summary of causes :

- Large weight gain.
- The total amount of blood in the body rises by approx. 20%.
- The growing uterus and the increasing weight of the baby press on the abdominal and pelvic veins.
- The hormone progesterone dilates the vessels and the hormone gestagen loosens the connective tissues.

Conclusion : The venous system is subjected to a considerably increased load during pregnancy as a result of various factors.

## Why varicose veins are so common during pregnancy



Varicose veins of pregnancy

## Do varicose veins disappear again after pregnancy?

Contrary to popular belief, varicose veins that first appear during pregnancy do not necessarily disappear completely after the birth.

It is certainly the case that varicose veins generally disappear after delivery, because the weight, pressure and hormonal situation return to normal. However, as a result of the heavy load during pregnancy, veins and venous valves can also be permanently damaged. Particularly in women with additional risk factors, such as an inherited connective tissue weakness or overweight, it is not unusual for pregnancy to make the beginning of chronic venous disease.

**CAUTION: During pregnancy, neither sclerotherapy nor stripping is possible. This is also not recommended directly after delivery. It is better to wait for a few months and to see whether enlarged veins may subside.**

## Why pregnancy and the post-natal period increase your risk of thrombosis

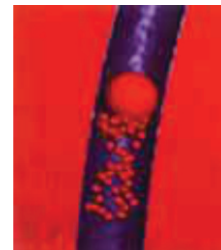
During pregnancy and the post natal period (up to approx, 6 weeks after the birth of the baby) the risk of thrombosis and therefore the risk of embolisms, increases.

## What is thrombosis?

In thrombosis, a blood clot forms on the wall of the vein. This is known as a thrombus, and consists of platelets that are clumped together. This is a common occurrence and not particularly dramatic, in that the body is able to dissolve the thrombus itself by means of certain enzymes. However, if this process that inhibits clotting is disrupted, the thrombus can grow until it completely obstructs the vein. This is what doctors call thrombosis.

## What is the cause of thrombosis?

Experts differentiate between various risk factors that favour thrombosis.



## What can a thrombosis lead to?

Thrombosis can be dangerous. Particularly if the thrombus or parts of it become detached and reach the lungs. Pulmonary embolism can be fatal. But even if all goes well with the thrombus, there can be long term symptoms – damage to the venous walls and valves and the lymphatics, for example.

## Risk of thrombosis during pregnancy...

Nature has developed practical solutions for many problems. For example, it uses hormones to ensure that blood becomes thicker during pregnancy. This protects the mother from excessive bleeding during delivery.

However, when the blood is thicker, clots (thrombi) form more easily on the walls of the veins. Compared with non-pregnant women, pregnant women have a three to five times higher risk of thrombosis.

## ... and in the post-natal period

The six weeks following the birth of the baby is known as the post-natal period: during this time the risk of thrombosis continues to rise – particularly following caesarean section or in the event of heavy blood loss.

In these cases, systematic prevention of thrombosis is necessary; this includes compression treatment, mobilisation exercises, possibly even drug treatment with heparin.

**TIP: In hospital you will be asked about venous weaknesses and venous disease and treated accordingly. If you are planning a home birth, you should discuss any preventive measures at right time with your gynaecologist.**

## Compression stockings: help for your veins with no side effects

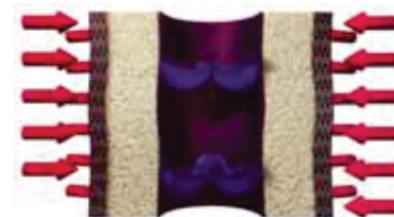
Experts agree that the best method of preventing varicose veins during pregnancy is the systematic wearing of compression stockings.

Compression stockings support the veins in returning blood to the heart and effectively relieve your legs by applying targeted pressure from the outside.

Compression stockings are important for all women who have varicose veins or have had them in the past. But compression stockings are also ideal for preventing venous disease, spider veins and thromboses – a preventive measure that has absolutely no side effects.

## How compression stockings work

Compression stockings reduce the diameter of your leg veins. The system of venous valves works again due to the support of the compression stocking – blood no longer collects in the legs.



Pressure on the venous walls closes the venous valves

Stretch marks, spider veins and the severity of varicose veins are therefore reduced or prevented altogether.



The medically required pressure gradient (pressure decreasing from the ankle to the thigh) accelerates the return of venous blood to the heart. This minimises the risk of thrombosis and embolism. Moreover, studies by respected researchers have shown that compression stockings improve the whole circulation of pregnant women and therefore also the circulation of the embryo.\*

But even after delivery, compression stockings should continue to be worn for a few weeks (at least six), because the risk of phlebitis and thrombosis is particularly high during this time.

Compression tights for all conditions

To clear up a couple of preconceptions: compression stockings are neither uncomfortable nor boring. Modern compression stockings consist of high-tech fibres, guaranteeing that they are very comfortable to wear. They come in different shapes, qualities and colours, allowing for fashion changes.



\*Source: S. Weber, K.T.M. Schneider, P. Bung, F. Fallenstein, A. Huch, R. Huch, Kreislaufwirkung von kompressionsstrümpfen in spatschwangerschaft (Circulatory effect of compression stockings in late pregnancy) Geburtshilfe und Frauenheilkunde 47/1987, p. 395-400, Georg Thieme Verlag Stuttgart - New York.

The ideal option for pregnant women is maternity tights, tights that you can wear throughout the nine months of pregnancy. The secret is a panty section that grows with you and fits comfortably even when your bump gets really big.

Things to remember when buying :

Comprehensive advice

Compression stockings and tights are available only from medical retailers (large chemists and pharmacies). Find out about the different designs and choose at your leisure the colour that best matches your wardrobe.

Careful measuring



In order to have the right effect in the right place, compression stockings and tights must be measured exactly. The circumference and also the length of the leg are crucial. It is best to be measured for compression stockings in the morning, when your legs are not congested.

Optimum fit for the lower body

For pregnant women, the best possible fit in the abdominal and pelvic area is crucial. Ask for the special maternity model.

But even if there has not been any clear evidence of weak veins previously, compression stockings may be a good idea for you, to prevent varicose veins in pregnancy and thrombosis. This is a worthwhile investment in the health of your veins.



Other things you can do to keep your veins fit

Obviously, pregnant women should avoid anything that can lead to unnecessary congestion in the veins. Tight clothing, for example, or long periods of travel in a cramped position. Crossing your legs may look elegant but does your veins no good at all.

The following tips can help you through pregnancy with healthy veins:

- Wear medical compression stockings regularly (daily).
  - Avoid long periods of standing or sitting in general.
  - Chairs with hard edges are bad for your veins.
  - Put your feet up as often as possible.
- Heat is a hazard. It is better to avoid prolonged sunbathing and hot baths at this time.
  - In hot weather, cool your legs regularly, e.g. with cold water.
  - Make sure you have a balanced, healthy diet.
  - Wear comfortable, light and flat shoes (also, during pregnancy you will quite possibly need a larger size!)
  - Take exercise. Go for a walk, do easy exercises for your veins.



Flex and extend your foot 10 times, working against the tension of the strap. Finish the exercise with the foot flexed and hold this position for at least 10 seconds, then gradually reduce the tension.



Place your heel about 30 cm in front of the chair. Pull your forefoot upwards, bending and stretching your toes alternately. Try to touch the floor only with the tips of the toes.



Lie on your back and raise your extended leg; in this position extend and flex your foot, working against the tension of the strap.



Lying on your back with your leg raised, bend and stretch your leg at the knee, as if you were cycling, working against the tension of the strap. All exercises on your back with your leg raised give the best possible return flow of blood from your veins.

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