

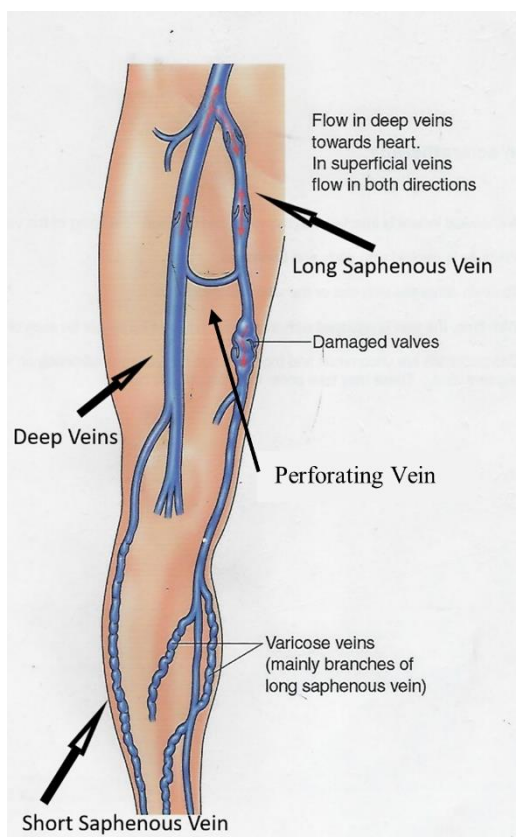
VARICOSE VEIN INFORMATION SHEET – Dr Michael Neale.

1) Normal Anatomy of Veins in the Leg

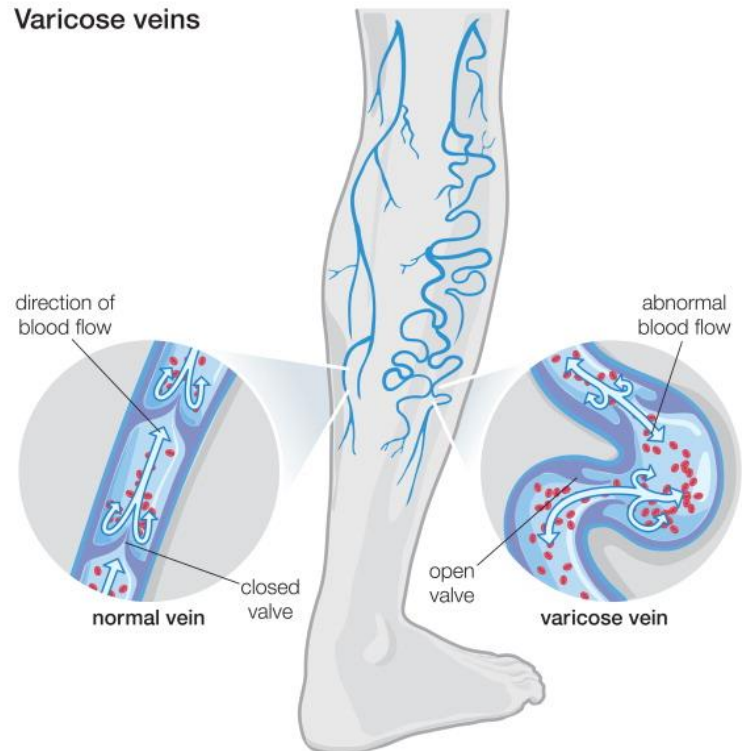
There are two systems of veins in the leg: superficial and deep. The superficial system of veins (in the subcutaneous layers under the skin) is the one involved in varicose veins. The deep system of veins (deep within the muscle compartments) ultimately carry all of the blood back to the heart (arteries take blood from the heart, veins return the blood) and are the veins involved with Deep Vein Thrombosis (DVT). All blood in the superficial veins will drain into the deep veins. The superficial veins join the deep system at two major points: in the groin (at the sapheno-femoral junction); and behind the knee (at the sapheno-popliteal junction). The Long or Great Saphenous Vein (LSV) and the Short or Lesser Saphenous Vein (SSV) join the deep veins at these points respectively. There are also many “perforating” veins that take blood from the superficial to deep veins at different points in the legs. All the veins have valves within them, which allow blood to flow in only one direction (towards the heart).

2) What are Varicose Veins?

Varicose veins occur when the valves in the veins fail to work, thus allowing blood to travel back down the veins with the effect of gravity (hence the veins become prominent when standing and usually disappear on lying down). The most important sites of valve failure are at the sapheno-femoral junction (in the groin) and the sapheno-popliteal junction (behind the knee). Failure at these points allows progressive dilatation and failure of more valves in the veins (LSV and/or SSV) further down the leg. These dilated veins and all their branches form the varicose veins that we see in the legs. There are lesser degrees of varicose veins which do not involve the main superficial veins. These are described as reticular veins, spider veins and venous flares.



Varicose veins



3) Who Gets Varicose Veins?

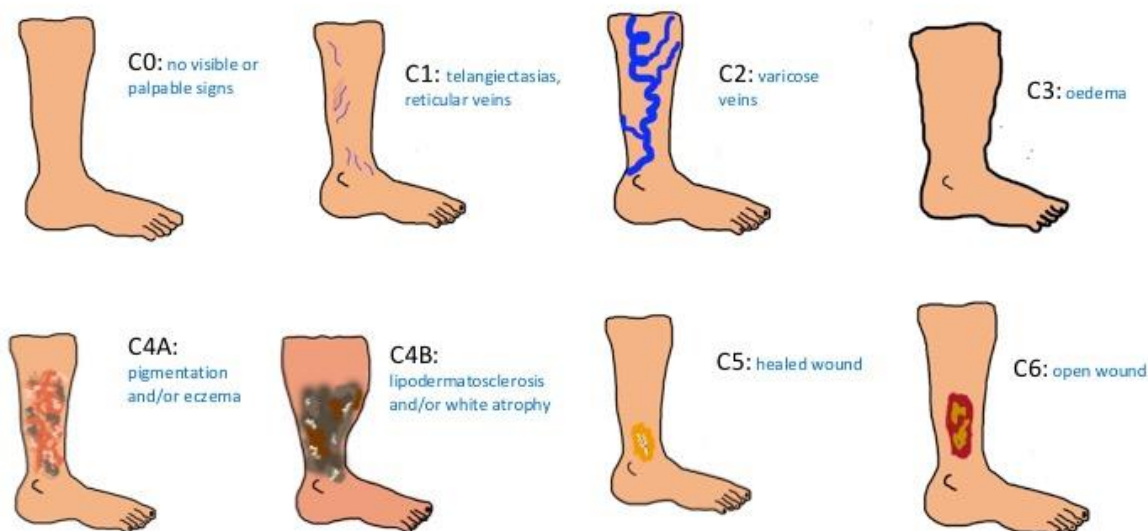
Anybody can get varicose veins. Women however have a higher incidence of varicose veins than men. Varicose veins do run in families (hereditary), particularly where the father has a history of varicose veins. Varicose veins can become apparent at almost any age. They may first become a problem during pregnancy (due to the pressure on the veins in the pelvis), after which they may disappear altogether or remain a problem. The natural history of varicose veins is variable – they may remain unchanged over many years, or continue to get larger with time. Jobs which involve prolonged periods of standing (or sitting) with minimal moving around, will tend to contribute to progression and worse symptoms.

4) What Problems Can Varicose Veins Cause?

There are essentially 4 groups of people with varicose veins:

- a) Asymptomatic: The majority of people with varicose veins will be asymptomatic. Some people will of course have concerns about their veins purely from a cosmetic point of view and they would be considered in this group.
- b) Symptomatic: Many people will get symptoms related to their varicose veins. These symptoms are generally described as ache, heaviness or discomfort which is often poorly localized in the leg. Some people will get itch or a sense of heat which is usually localised to the area of their veins. Swelling is also a symptom of veins and may be considered more serious and crossing over with the next group of patients (see “c” below).
- c) Major Medical Problems: Some people (a minority) will develop issues of major medical concern. These include:
 - i. Superficial Thrombophlebitis: This is “blood clots” or thrombosis within the superficial veins causing pain, redness, hard lumps. Without appropriate treatment, these can progress (propagate) through into the deep veins and so is a risk factor for DVT.
 - ii. Bleeding: Veins that are very close to the skin (typically small “blebs”) can bleed. This is generally very easy to control and should be managed with direct focal pressure to the bleeding point and elevation of the leg to take the pressure out of the veins.
 - iii. Discolouration/Skin Change: Discolouration related to varicose veins is typically a brown discolouration in the skin, particularly seen on the inner aspect of the ankle. It is related to breakdown of red blood cells containing iron, causing a staining in the skin. It is important to realise that there are other conditions that lead to similar discolouration. Damage to the skin and tissues underneath the skin, medically known as “lipodermatosclerosis” involves a hardening and indrawing of the tissues particularly around the “gaiter” or ankle area. This is the result of fibrosis or scarring within the subcutaneous tissue. These changes are very much a precursor for venous ulceration (see below).
 - iv. Ulceration: This is the most feared complication of varicose veins and involves the breakdown of the skin, particularly at the ankle region and is the end result of uncontrolled “venous insufficiency” or “venous hypertension”. Ulceration can occur as a result of either problems with the deep veins, superficial veins or a combination of both.
- d) Risk for Major Medical Problems: Some people will have veins that have not yet caused major medical concerns but who would be considered at risk for major medical problems. The main potential risks would be patients with large veins who would be at increased risk for developing thrombosis (blood clot) or some at risk for bleeding.

The problem of chronic venous disease. **CEAP Classification**



5) Should I Have My Varicose Veins Treated?

The reasons for treating varicose veins are varied. There is of course a difference between veins that “should” be treated and veins that people “want” to treat. There can also be a “philosophical” discussion on treating veins in order to “prevent” complications of veins (that may or may not occur in the future). Varicose veins should be treated if they are associated with complications (as described above). They can be treated for symptoms that you find distressing or purely for cosmetic reasons if you wish. In all cases, the risks versus the benefits need always to be considered. Veins can be classified under the “CEAP” classification as shown above where “C” stands for “Clinical”. Our NSW public health system however has guidelines (correctly) that would indicate surgical treatment of veins only when associated with complications. Public hospital treatment is essentially limited therefore to “C” classification 4, 5 and 6 shown above.

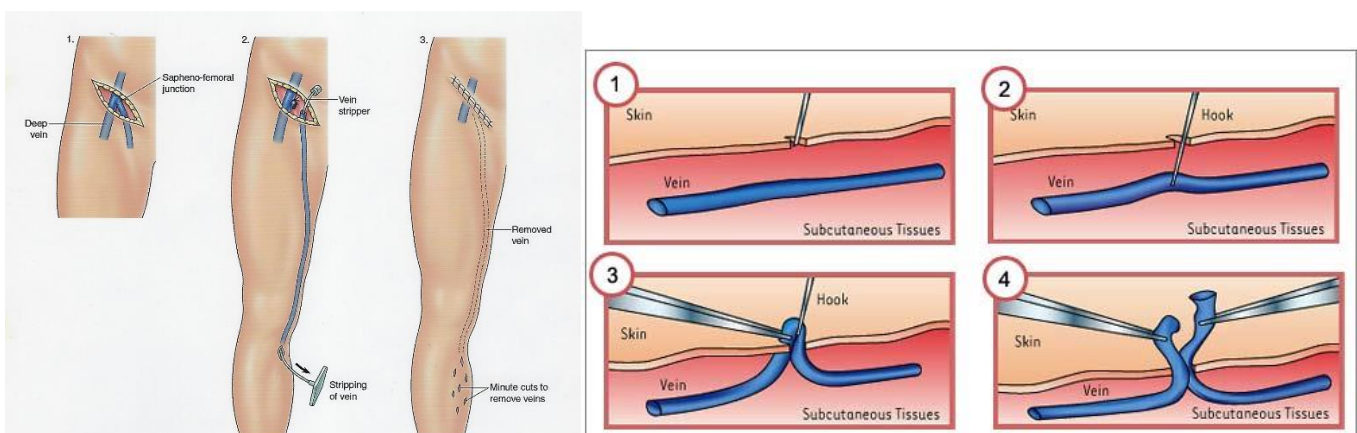
6) What Investigations are Needed?

You will most likely undergo an ultrasound study of your varicose veins prior to any treatment. You may have had this prior to your consultation, however this study may need to be repeated as some places performing ultrasound scans are not properly trained in specialised vascular studies and so the studies performed may not be adequate. Dr Neale runs a specialised vascular ultrasound service in order to make decisions about the best way to manage your particular situation. The sonographers performing the scans are all familiar with Dr Neale’s interests and will draw a detailed map relating to your varicose veins which will also help you to understand your treatment. Sometimes, the veins in your leg may appear to arise from possible pelvic communication, requiring an abdominal venous duplex scan. This may need to be done on a separate occasion with you fasted to allow adequate imaging of the abdominal and pelvic veins. All ultrasound scans performed through our rooms will be bulk billed. Very rarely, it may be necessary to perform other specialised radiological investigations (such as a CT scan or MRI) before any recommendations regarding treatment can be made.

7) What Treatment Options Are Available?

There are various options for treating varicose veins based on the principles of what problems they are causing, where are they coming from and therefore what are the best options for dealing with them. Treatment will therefore be different for everyone.

- a) **No Treatment:** If the veins are not causing any problems, they do not need to be treated. This is always the safest option (unless they are high risk for complications).
- b) **Medication:** There are medications available which may help relieve some of the symptoms of varicose veins. Some examples include Horse Chestnut Extract and Paroven. None of these medications will change the physical appearance or complications of varicose veins – they are only useful to try to control symptoms such as ache, heaviness and minor swelling. It is important to also remember that all medications have potential side effects and interactions with other medications which should be checked before trying these.
- c) **Compression:** This takes the form of either bandages (if ulceration is present) or special venous compression stockings. This is appropriate where surgery or injection is not appropriate or where the patient specifically wants to avoid surgery or injections. Compression may be the mainstay of treatment in some people, though may also need to be combined with any of the other treatment modalities. Effective compression treatment requires the stockings/bandages to be worn every day from the time of getting up in the morning to going to bed at night and so requires commitment and dedication. Wearing of stockings in hot summer months can also be a problem – however, if this is the best treatment for you, it is very important to persevere. Compression is also useful for reducing risks of thrombosis and swelling associated with long distance air travel. Dr Neale can provide some recommendations on where to get stockings for different indications.
- d) **Injections:** Injection therapy (or Sclerotherapy) involves injecting the varicose veins which causes the veins to block off and “fibrose” with time. It is generally best for smaller veins and when there are no problems at any of the major junction areas between the superficial and deep venous systems. Injections are often the best treatment for minor superficial (spider) veins which are usually only of cosmetic concern.
- e) **Surgery (Stripping):** Surgical “stripping” for varicose veins is now largely a treatment of historical interest. Stripping involves disconnecting the superficial and deep systems at the affected junction points (groin or behind the knee), removing the affected (LSV and/or SSV) vein and then removing other varicose veins through small (1-2mm) incisions in the skin (see “Avulsions” below).

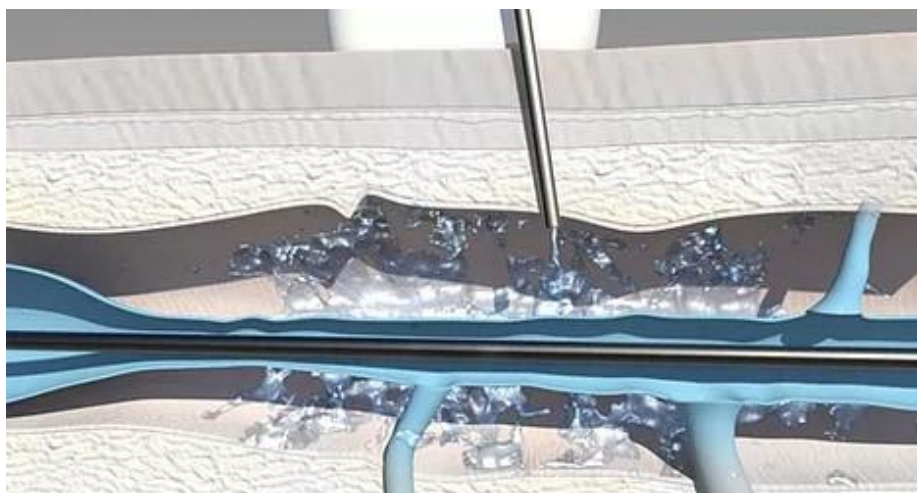
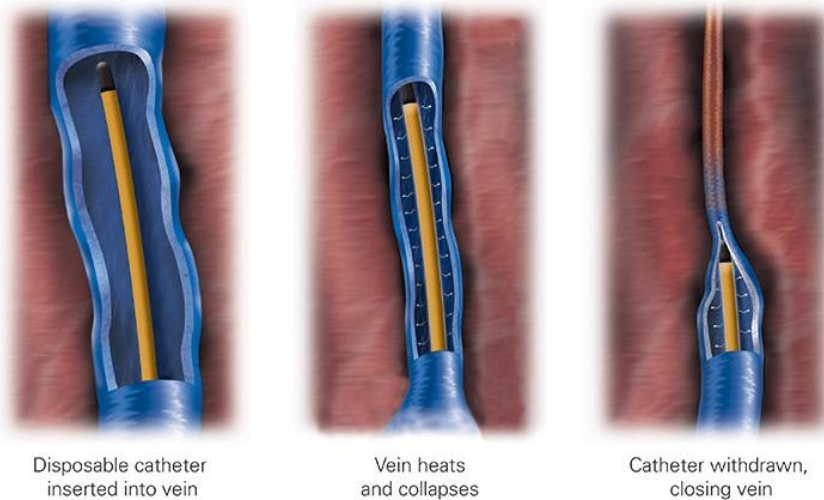


Surgical Stripping (Left) and Surgical Avulsions of Varicosities (Right)

- f) **Surgical Avulsions:** Avulsions is the procedure to remove larger visible veins through small incisions in the skin. This is often performed in association with treatment of a main trunk such as the LSV or SSV, usually with some form of “endovenous ablation” (see below). The small

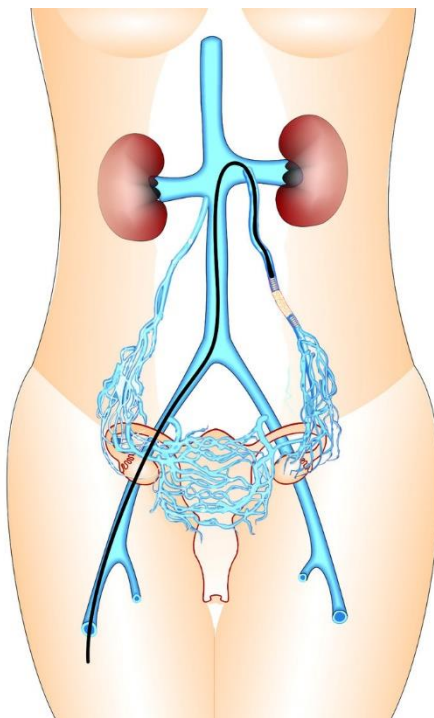
incisions are usually closed with a simple “steristrip” as they are not large enough to require stitches or clips. Avulsions is basically the part of the procedure to remove the “visible” components of the veins, whilst the usually associated “ablation” procedure deals with the hidden source of the visible veins. There may occasionally be necessity to make a larger incision to formally ligate (“tie off”) a perforating vein, the other communications from the deep to superficial veins. These incisions being larger will require a suture, usually buried under the skin (“dissolving” sutures).

- g) **Endovenous Ablation:** Endovenous ablation refers to techniques designed to “close off” rather than remove a major superficial vein. These are the techniques which have essentially replaced surgical stripping of veins. It is generally for treating longer, straight segments of vein (usually the LSV or SSV) which are not able to be seen, with the visible, tortuous veins being managed by either “avulsions” or injections as described above. Sometimes smaller visible veins are left to decompress after the ablation treatment of the source of the problem. Endovenous ablation techniques are divided into different categories: Thermal ablation (radiofrequency or laser) and Non-Thermal ablation (medical glue). In Dr Neale’s practice, thermal ablation is generally combined with treatment for larger veins requiring surgical avulsions (see above) under general anaesthetic. Thermal ablation requires placement of fluid (“Tumescent Anaesthetic”) around the vein (done under ultrasound guidance) in order to “squash” the vein onto the catheter and protect surrounding tissues from the heat of the thermal ablation (See diagrams below). Less severe veins may be treated with Non-Thermal ablation (“glue”) under local anaesthetic though may also be done under general anaesthetic. Dr Neale will discuss the rationale between the different approaches with you during your consultation.



Images showing radiofrequency catheter in vein (top) and tumescent anaesthetic placed around vein

- h) **Coil Embolisation:** This procedure will generally relate to treatment of a pelvic source for varicosities in the leg (or for primary pelvic congestion syndrome). This procedure is usually a day only procedure under local anaesthetic, performed under X-ray guidance in the operating theatre. A catheter is passed from the femoral vein in the groin region to the source of pelvic incompetence (usually the left ovarian vein, sometimes also involving the right side), allowing metal “coils” to be placed within the vein to occlude (block) the vein, therefore stopping the venous reflux into the pelvic varicosities.



8) What is Involved in Surgery for my Veins?

For those people undergoing Endovenous Ablation procedures (thermal or glue), a prescription pair of stockings will need to be purchased beforehand. You will be given a form and information on where to obtain these preoperatively. You will be admitted to hospital usually on the same day as your procedure. For procedures on your legs, your veins will be “marked” just prior to surgery in most cases. It may be necessary in some situations to have a further ultrasound scan and ultrasound guided marking of particular problem areas either the day before or the morning of surgery. When you wake up from your anaesthetic, you will usually find that your leg(s) are bandaged. This is normal following this surgery. You will usually stay overnight in hospital. It is very unusual to need to stay in hospital any longer than this. Longer stays often increase the likelihood of complications. You will require somebody to take you home from hospital and to be available for assistance in these early post-operative days. For patients undergoing day only procedures (eg Coil Embolisation, Medical Glue and some Thermal Ablation procedures), you will be discharged usually about 2 hours after the procedure with instructions regarding ongoing care and management of dressings and stockings where appropriate.

9) What can I Expect Post-operatively?

For patients staying overnight after treatment of their legs, the morning after your surgery, Dr Neale will usually visit early to check on your progress. The bandages will usually be removed by the nurses on this morning. You will be allowed to shower, any dressing (eg groin wound) will be replaced and you will be assisted to put on your stockings. You will notice a number of small paper strips (steri-strips) over the wounds where your veins have been removed. There will generally be no stitches to be removed. The steri-strips should be left to come off when they want to. As they peel at the edges, you should simply trim them with a pair of scissors. It is fine for these strips to get wet in the shower. You will then be ready to go home. You will usually

be asked to take a low dose aspirin a day (100mg or 150mg) for 1 month post operatively (if no contraindication) in order to reduce the risk of post-operative deep vein thrombosis (aspirin has an effect to thin the blood, even at such a small dose).

Once home, you should make an appointment to see Dr Neale for follow up in the rooms (this is usually 1-2 weeks later). You will need to wear your stocking(s) day and night for one week (only on the operated leg(s), removing the stockings for a shower each day). After this, you only need to wear the stockings during the day – they should be removed at night, just prior to going to bed. You may remove your stocking to shower each day and it is OK for the wounds to get wet. Dry the legs carefully, patting rather than rubbing them dry. Any dressing in the groin (or behind the knee) can be removed the day after discharge. No further dressing is required. However, if you find the wound is irritated by your underwear, you may wish to cover the wound each day for a few more days. Please ensure you change any dressing each day if you require this.

You can expect your leg(s) to be a little sore and bruised following the procedure. The pain should be controlled with pain killing tablets (usually Panadol and/or Nurofen are best), though you can still expect some discomfort. Most people however are quite surprised at how little discomfort they have following this surgery. You should be able to reduce and stop the tablets some time during the first one to two weeks post-operatively, however, everybody responds to pain differently. The bruising will usually get worse initially during the first week – this again is normal. It will then gradually improve though can be present for up to 6 to 8 weeks.

The incisions usually heal with minimal scarring, however wound healing is a slow process, taking many months to mature. The small incisions in your leg should fade fairly quickly (similar to any small scratch). For some people, they will fade by 6 weeks, in others it will take many months. If the leg or wounds seem more painful than you would expect, or is associated with fevers, you should see your local doctor or make an appointment with Dr Neale to check whether antibiotics are needed. You will probably also notice during the first few weeks to months that the site of avulsions may be “hard” and “lumpy” – this is most likely the normal bruising/scarring process and will settle down and soften with time (months). Check with your local doctor or make an appointment for review with Dr Neale if concerned.

10) What Can I and Can't I Do?

Following your surgery, your activities should be gradually increased over one to two weeks. Following this, you should be able to do almost all normal daily activities as you like. In the initial period, you should walk as much as you like. If your legs feel like they need a rest, you should sit with your leg(s) elevated or lie down. You should not go swimming or do other sporting activities until reviewed by Dr Neale post-operatively, or as discussed with Dr Neale. You will need to wear your stockings as described above. If you are unsure about your level of activity, please do not hesitate to contact our rooms for advice.

11) What Follow-up Will I Have?

You will have a routine post-operative appointment usually one to two weeks after discharge to make sure everything is OK. If this was not arranged prior to surgery, you will need to ring immediately after your discharge to make this appointment. Patients who have had endovenous ablation procedures will also have follow-up ultrasounds arranged, generally on the same day as your consultation, in order to ensure closure of the treated segment of vein and ensure there is no evidence of DVT. All ultrasound scans again are bulk-billed. The first “post-operative” appointment is part of “normal aftercare” and as such is included in the standard surgical fee as per Medicare guidelines. Dr Neale generally likes to see most patients again 2-4 months post-operatively. In most cases, this will be a final check. If everything is progressing well, no further follow-up is required. This consultation is not considered normal aftercare and will attract a normal follow-up consultation fee. Any problems during follow-up will be dealt with as necessary and do not generally attract any fees. If during any of this time you have any concerns, you should see your local doctor or make a further appointment with Dr Neale. Dr Neale can be contacted at any time if you have major concerns, either through the rooms (9439 8972) during normal working hours, or through the afterhours manager at North Shore Private Hospital after hours or on weekends (8425 3000).

12) What Complications Can Occur?

You will be given the opportunity to ask about any specific concerns at the time of your consultation and again prior to your surgery. As with any surgical procedures however, complications both major and minor can occur. Surgical complications are generally divided into those common to any procedure and those specific to the procedure performed.

- a) **General Complications:** These include risks related to anaesthetics (general or local, please speak with the anaesthetist if you have any specific concerns), stroke, myocardial infarction (heart attack), cardiac arrhythmias, allergic reactions, wound infections/scarring, deep vein thrombosis (DVT) and death.
- b) **Specific Complications:** These include bleeding complications, scarring from the incisions, skin pigmentation (also called “staining”, a brown discolouration in the skin), and growth of fine capillary veins near where other veins have been removed/injected (called matting). These complications are often cosmetic in nature and need to be borne in mind especially if you are treating your veins mainly for cosmetic reasons. Injury to nerves can occur either related to surgical avulsions/wounds or thermal injury which may lead to temporary or permanent loss of sensation and/or function or severe pain (neuropathic pain). Areas of numbness will generally reduce over a period of time though may not resolve completely (can take up to 1-2 years). Neuropathic pain will generally reduce over 6-8 weeks though may take many months and in rare cases could be permanent.
- c) **Residual Varicose Veins:** Due to how the procedure is performed, there may be some residual veins found during follow-up. If there are residual veins, these may be able to be treated with injections if they are of concern to you. Your surgical treatment is not designed to remove/treat spider veins and some smaller (reticular) veins – if these are of concern, they can be dealt with at a later date. Dr Neale may refer you to a cosmetic specialist for treatment particularly for these smaller veins (someone who specialises specifically in cosmetic procedures). This would usually be delayed for at least 3-6 months after any surgical treatment.
- d) **Recurrent Varicose Veins:** Unfortunately, due to the hereditary nature of varicose veins, you are never “cured” of varicose veins. This does not mean that everyone will get veins coming back. Recurrent veins can occur early or at any time in the future. These may be related to some technical failure of treatment or more commonly due to new areas of venous reflux developing (ie new veins giving way over time related to the hereditary weakness within the veins). Any treatment of recurrent veins will go back to the original principles described in section (7) - what problems they are causing, where are they coming from and therefore what are the best options for dealing with them.

It must be emphasised that complications are uncommon, however it is important for you to remember that adverse events can occur. The above lists cover the more common problems seen after varicose vein treatments but may not be exhaustive. There could be other unrelated issues, issues related to your other health conditions (co-morbidities) and other rare complications (general or specific). Every care of course is taken to avoid any complications. If you wish to discuss things again, please do not hesitate to make a further appointment for a consultation with Dr Neale prior to any treatment.