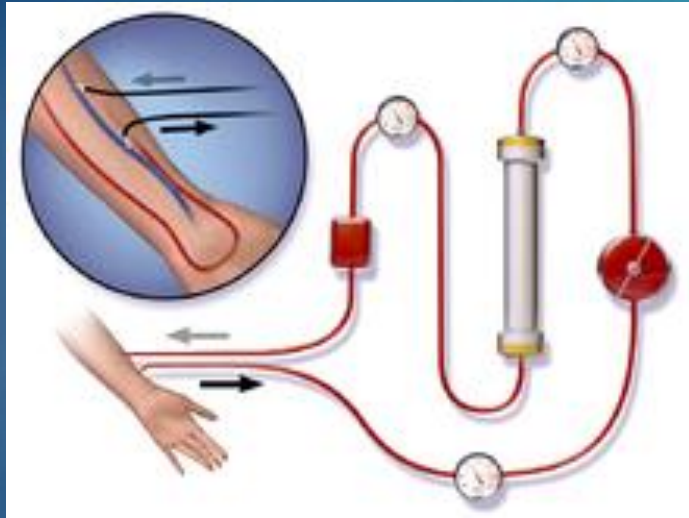


# Hemodialysis and Vascular Access



- Hemodialysis can be done at home, or in a dialysis clinic in your area
- To do hemodialysis, we need access to your bloodstream
- We have several ways to access your bloodstream, these are called your vascular access
- You may require several vascular accesses during your time on hemodialysis
- You, your team and your situation will determine which access is best

# How does a Vascular Access work?



[https://upload.wikimedia.org/wikipedia/commons/thumb/7/7d/Blausen\\_0313\\_Dialysis.png/220px-Blausen\\_0313\\_Dialysis.png](https://upload.wikimedia.org/wikipedia/commons/thumb/7/7d/Blausen_0313_Dialysis.png/220px-Blausen_0313_Dialysis.png)

- We use your vascular access each time you have dialysis
- Your vascular access is connected to the dialysis machine using tubes or needles
- One line takes the dirty blood out of the body so it can go through a filter and get cleaned
- The other line returns the clean blood back to your body
- We clean approx 60L of blood by continuous filtering

**Your Vascular  
Access is Your  
Lifeline!**

# Types of Vascular Accesses



FISTULA



GRAFT



CATHETER

Let's review each type of access and talk about the advantages and disadvantages...

# How do we choose?

1. fistula
2. graft
3. catheter

However:

You and your care team will work together to determine the best vascular access option for you.





# What is a Fistula?

- Connection made by a surgeon or radiologist
- Joins your own vein to the side of an artery
- The vein then gets bigger and stronger
- Once the vein is strong enough it will be able to withstand needles for dialysis 3x/week
- The fistula ends up looking like an enlarged vein under your skin



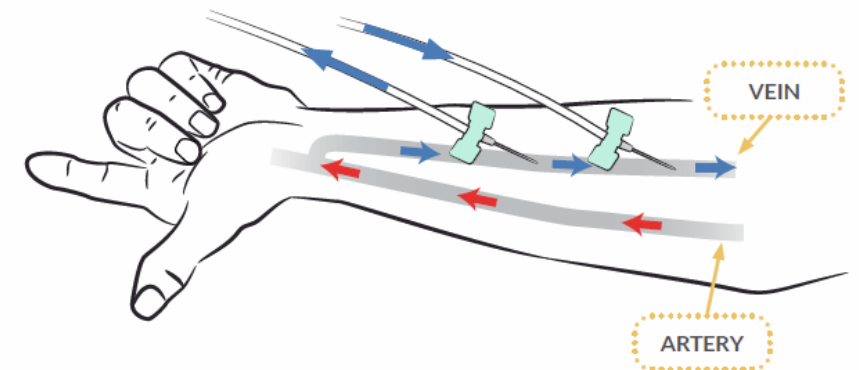
# Fistulas are usually...

- ▶ Done as a day procedure in the operating room or sometimes in the radiology dept
- ▶ Done using freezing and medication for comfort
- ▶ Ideally created well before you need to start dialysis to allow time for “maturation” or as soon as possible once you’ve started dialysis



# How is a fistula accessed?

- ▶ Each time you come to your dialysis treatment, two needles are placed in your fistula
- ▶ Needles are removed when the treatment is complete
- ▶ If you have a fear of needles, we have options for freezing to help to reduce discomfort to help to reduce discomfort
- ▶ Some patients prefer to put in their own needles, it's easier than you think!
  - ▶ Your kidney care team can teach you how to do this



# Fistula Advantages and Disadvantages

## Advantages

- ▶ Fewest problems
- ▶ Last the longest
- ▶ Easiest to look after
- ▶ Can be created well in advance
- ▶ Less machine alarms
- ▶ Best at cleaning blood
- ▶ Safe to shower and swim
- ▶ Keeps you the healthiest

## Disadvantages

- ▶ Not possible in all patients
- ▶ Take time to get bigger
- ▶ 1 out of 5 will not work and may require another surgery
- ▶ may get larger and more visible over time
- ▶ Needles are required
- ▶ Holding time after each treatment
- ▶ Occasionally require maintenance procedures

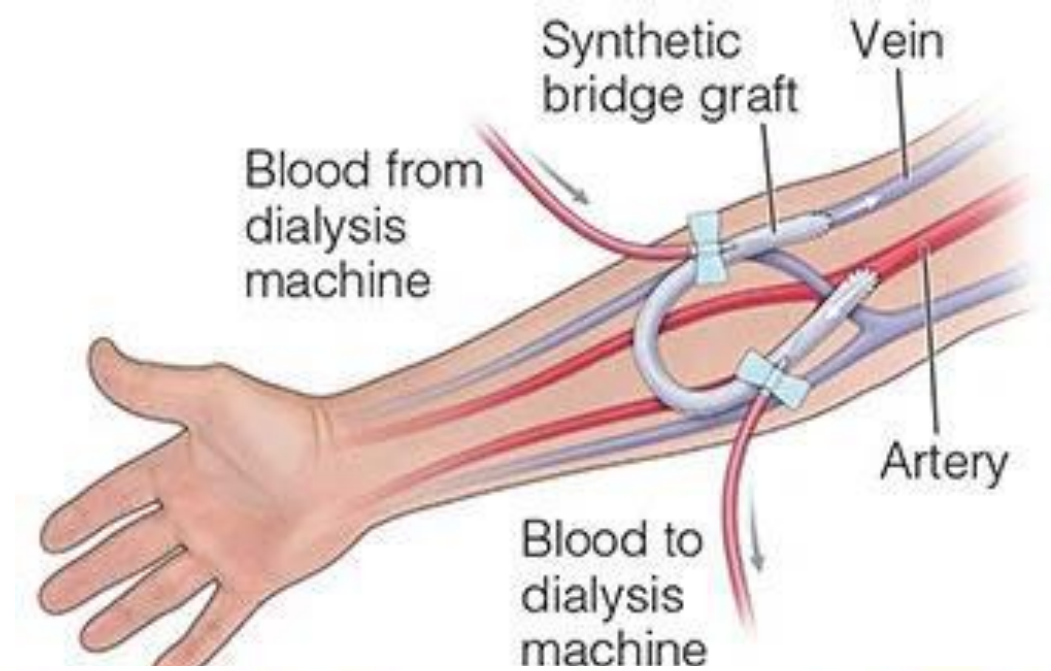


Let's watch how a fistula is accessed...



# What is a Graft?

- When a fistula is not possible, a graft may be an option
- similar to a fistula
- uses a piece of soft, plastic-like tubing to connect an artery to a vein
- under the skin



# Graft Advantages and Disadvantages

## Advantages

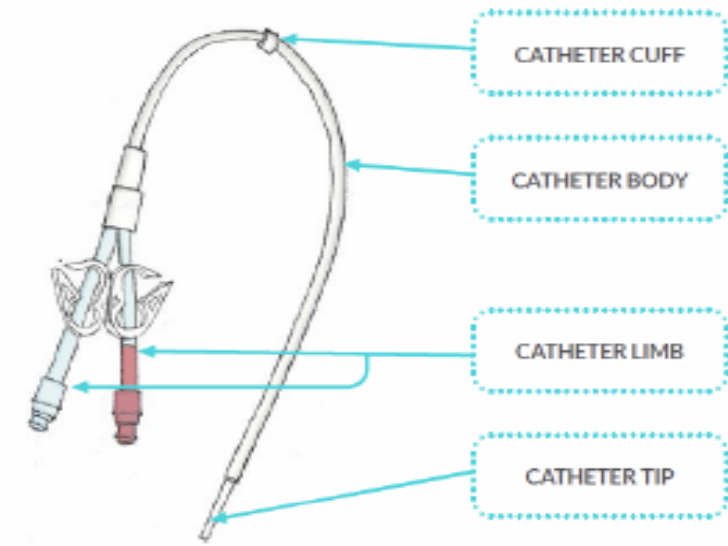
- ▶ Can be used as soon as it's healed
- ▶ Lower risk of infection compared to catheters
- ▶ Easy to look after
- ▶ Safe to shower and swim
- ▶ Less machine alarms

## Disadvantages

- ▶ May not last as long as a fistula
- ▶ Needles
- ▶ May require maintenance procedures

# What is a Hemodialysis Catheter?

- A fistula or graft is not always possible so a catheter may be recommended
- Inserted into a large vein in the neck
- The end of the catheter sits in the heart
- The catheter has two limbs that are outside the skin
- One limb draws blood from the heart and the other limb returns the cleaned blood
- Inserted in the X-ray department or the Operating Room



Long term hemodialysis catheter  
(tunneled under the skin)



# Catheter Advantages

## Advantages

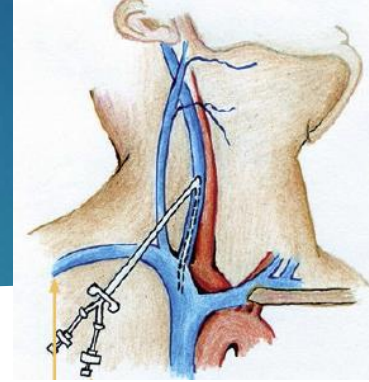
- ▶ Can be used immediately
  - ▶ Good when we need to start dialysis urgently
- ▶ Good option for people without adequate blood vessels or conditions that make a fistula or graft not possible
- ▶ Good option for people who may only be on hemodialysis temporarily
  - ▶ Those who will go on to PD
  - ▶ Those who will get a transplant soon
- ▶ No needles!



<http://fbomodern.com/wp-content/uploads/2013/04/Weighting-up-the-benefits-with-the-risks-of-vascular-access.png>



# Catheter Disadvantages



## Disadvantages

- ▶ Most likely to become infected (these infections can spread throughout the body)
- ▶ More likely to get blocked up and need to be replaced
- ▶ Cause vein damage to the large veins that bring blood to the heart—this can limit future dialysis option
- ▶ More challenging to care for (dressing changes)
- ▶ Unable to get it wet (no swimming or hot tubs)
- ▶ More machine alarms

# Summary

## Catheter



- Good option for immediate and short term dialysis needs
- Tube one end external, one end in heart
- Must keep the catheter dry
- Must not swim or use a hot tub
- No needles
- Require more procedures than fistulas or grafts

## Graft



- Can be used in 2-3 weeks
- If a fistula is not possible we may use an artificial tube to connect your vein to your artery
- Safe to shower, bath and swim
- Needles required
- Requires less procedures than catheters, but more than fistulas

## Fistula




- Takes time to “mature” so needs to be planned early
- Made with your own vein and artery
- “Gold Standard”
- Safe to shower, bath and swim
- Needles required
- Sometimes require additional procedures to get it going, but requires the least ongoing care

# What can I do next?

- ▶ Hemodialysis requires healthy veins and arteries
- ▶ Blood work and IVs can damage veins
  - ▶ Ask the lab or nurse to use your hand veins
  - ▶ Ask the lab or nurse to use your dominant arm
- ▶ Save your veins starting now, well before you need an access
- ▶ If you're on dialysis already, ask your dialysis access team about getting a purple band!

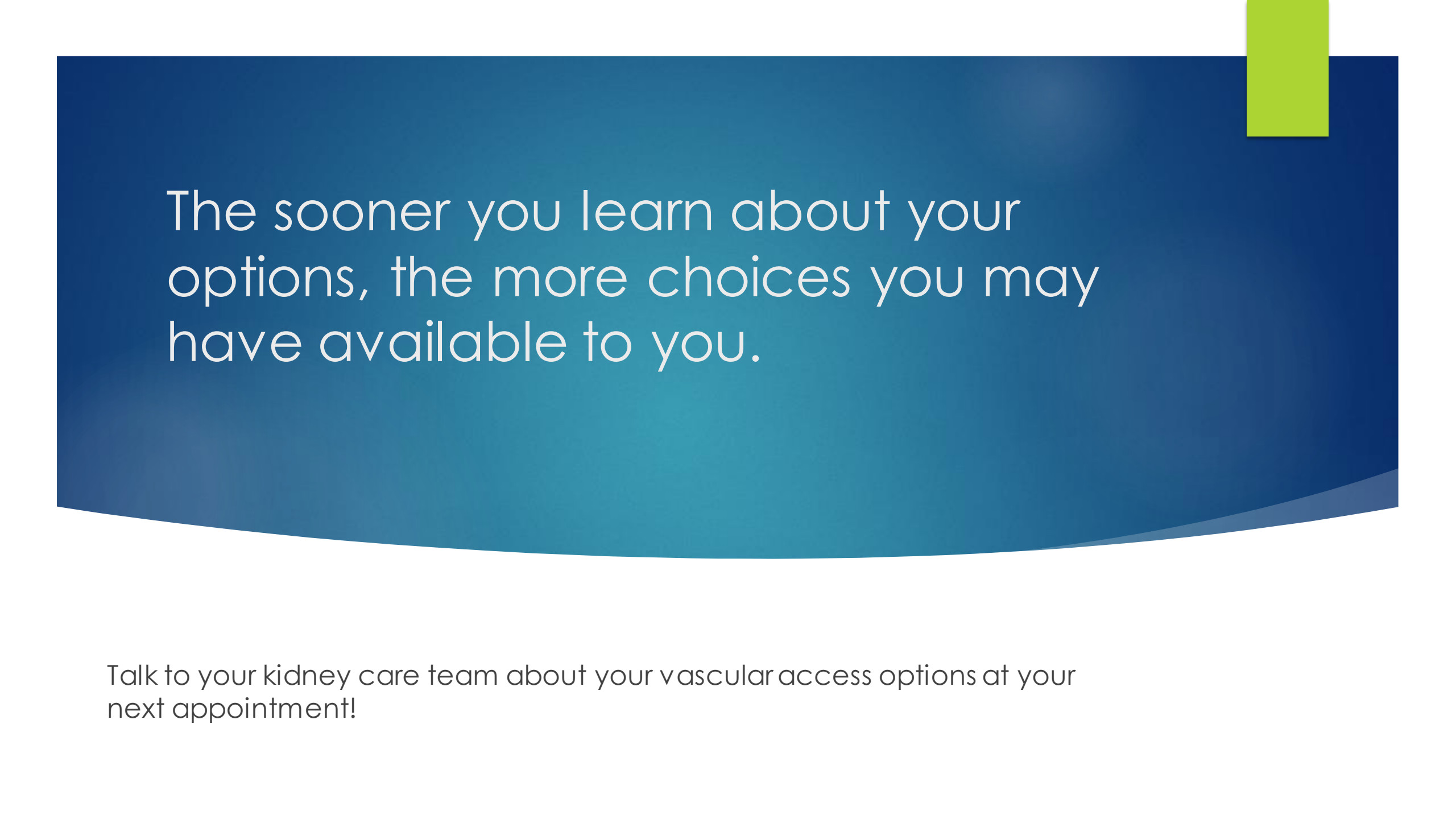
**I AM A KIDNEY PATIENT.**  
**Important info about my veins**

- **NO IVs or blood draws on my RIGHT / LEFT arm.**
- If IV or blood draw is required, use my **hand veins** or my other arm.
- **No BPs on my fistula or graft arm.**
- If long-term access is required, use small tunneled internal jugular line.



**BCRenal**  
British Columbia Health Services Authority





The sooner you learn about your options, the more choices you may have available to you.

Talk to your kidney care team about your vascular access options at your next appointment!