ESRD Network # 12 Patient Newsletter

Providing kidney patients and their families information on diet, health, and kidney disease.

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Nephron News & You

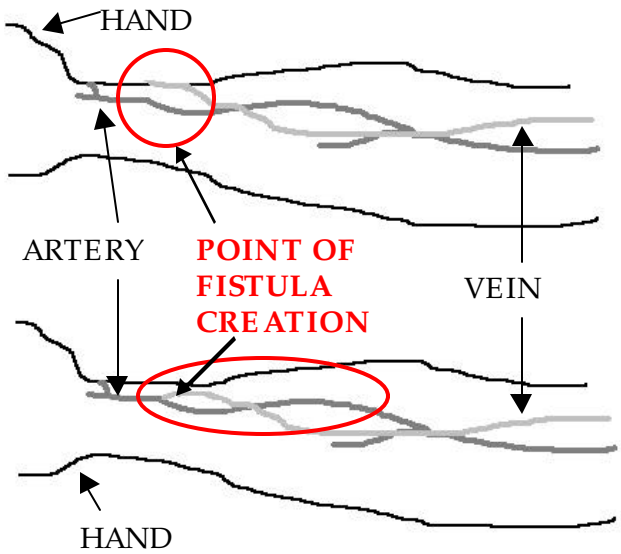
Maintaining Your Lifeline

Current research studies show that dialysis patients suffer more hospitalizations due to dialysis access complications than any other difficulty. The access could be clotted, infected, or become narrowed. This article will give you information on things you can do to check your access, prevent infection, monitor for narrowing, and ultimately assist you in maintaining your dialysis lifeline.

Not All Alike

The notation that "six of one, half dozen of another" is not true when it comes to dialysis accesses. Fistulas, grafts, and catheters are very different. The differences can be seen in the advantages and disadvantages of each.

Fistulas or "native fistulae" (sometimes called by your doctor) is a dialysis access created with your own vein. Your "vascular surgeon", (a doctor that specializes in the construction and reconstruction of veins and arteries) will use a vein and, through surgery, attach it to an artery. (See Pictures)

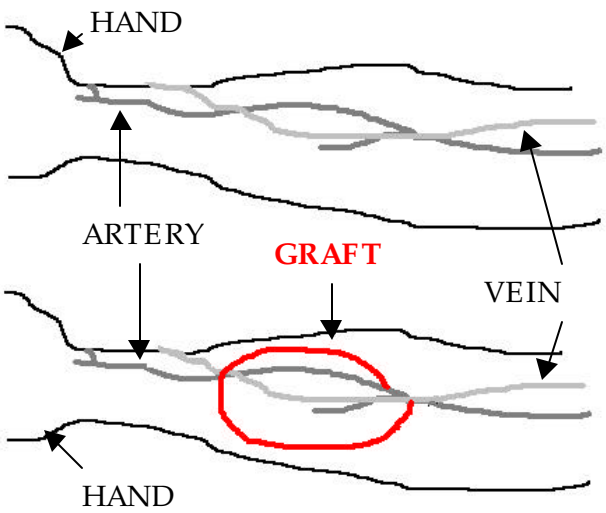


Arteries take blood away from the heart; veins bring blood back to the heart. Blood flows through arteries much more quickly than through veins. After a fistula is placed, it must "mature". Maturation can take from 4 to 16 weeks. The high flow of arterial blood through the vein causes the vein to expand.

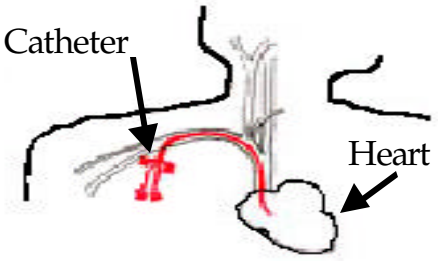
PUMP IT UP!

You can encourage fistula maturation by performing the exercises recommended by your health care team. **(Be sure to check with your staff for the proper technique.)** The thought behind exercising a fistula is similar to the bulging veins on a body builder. When a body builder exercises, more oxygen is needed in the muscle. The only way to bring more oxygen to the muscle is to increase the delivery method – i.e., stretch the vein. This stretching allows more blood to flow through the fistula, causing it to "mature". Once mature, the fistula is ready to be cannulated – used. As soon as pain from surgery has subsided, start arm exercises by squeezing a rubber ball or using a rolled up wash cloth for 5 minutes, alternating squeezing and relaxing the hand. Do this up to 6 times a day. Approximately 2 weeks after your surgery ask your dialysis facility for a tourniquet. Place the tourniquet well above the fistula, (not so tight as to stop blood flow). With the tourniquet in place, continue to perform the exercises. These exercises will assist developing your fistula, and help strengthen the walls of the fistula. Some disadvantages noted were failure of the fistula to develop, (often seen in patients with vessel disease), and length to maturation. However, a fistula that performs well during the first 6 months, can be expected to last from 10 – 15 years (Fillinger MF and Kerns DB, *Vascular Access for Hemodialysis IV*, 1996).

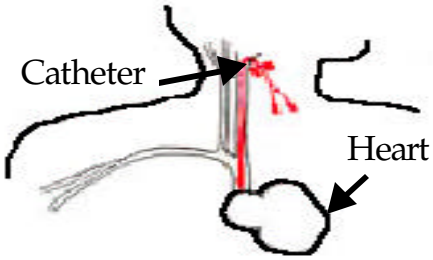
Grafts, on the other hand, are made with synthetic tubing. The tubing is attached to both an artery and a vein. The tubing usually has a horse shoe appearance if in the forearm, or can be placed in the upper arm or thigh. (See picture) The principle of a graft is the same as a fistula; arterial blood is carried through the graft and back through the other side of the graft to a vein. Studies show that grafts tend to clot more easily than fistulas, and infection rates are higher. The placement sites for grafts are limited by accessibility to staff, length of graft to facilitate rotation of sites, and delivery of a high flow of blood. The advantage of this access is its usability in several weeks.



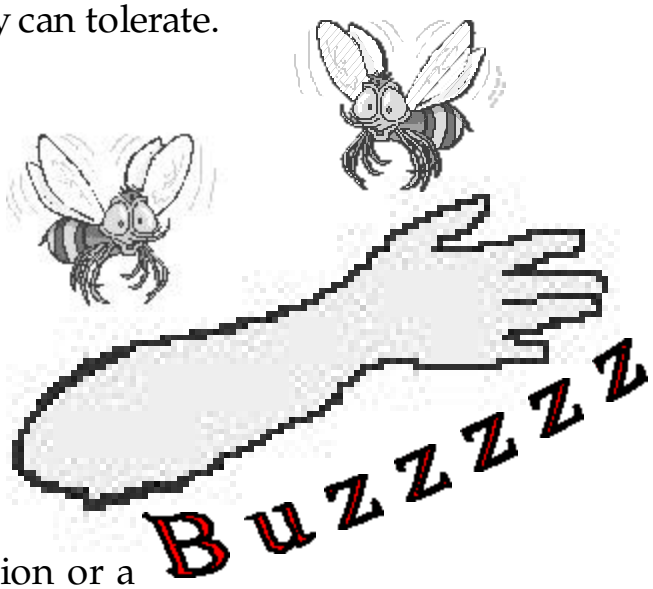
Subclavian Catheter



Internal Jugular Catheter

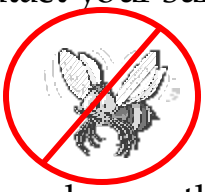


Catheters are a completely different type of access. There is a variety of catheters available for dialysis, some long-term, others temporary. Your doctor and surgeon select the catheter based on the length of time the catheter will be in place and knowledge of your vein anatomy. Catheters tend to give a lower blood flow on dialysis, clot more frequently, are prone to infection, and are not considered the best type of access for long-term dialysis. Yet for some, it is the only type of access their body can tolerate.



Does it buzz???

It is recommended that patients with fistulas or grafts check their access every morning for a "buzzing" feeling. Also consider checking your access after an episode of low blood pressure, dizziness, or light-headedness. It should feel like a small vibration or a rhythmic "whoosh". Health care professionals call this buzzing a "thrill". If you or a family member were unable to feel the thrill, it would be wise to call your dialysis unit as soon as possible to have their staff evaluate your access. Lack of a "buzzing" feeling could mean your access has clotted and the staff will contact your surgeon.

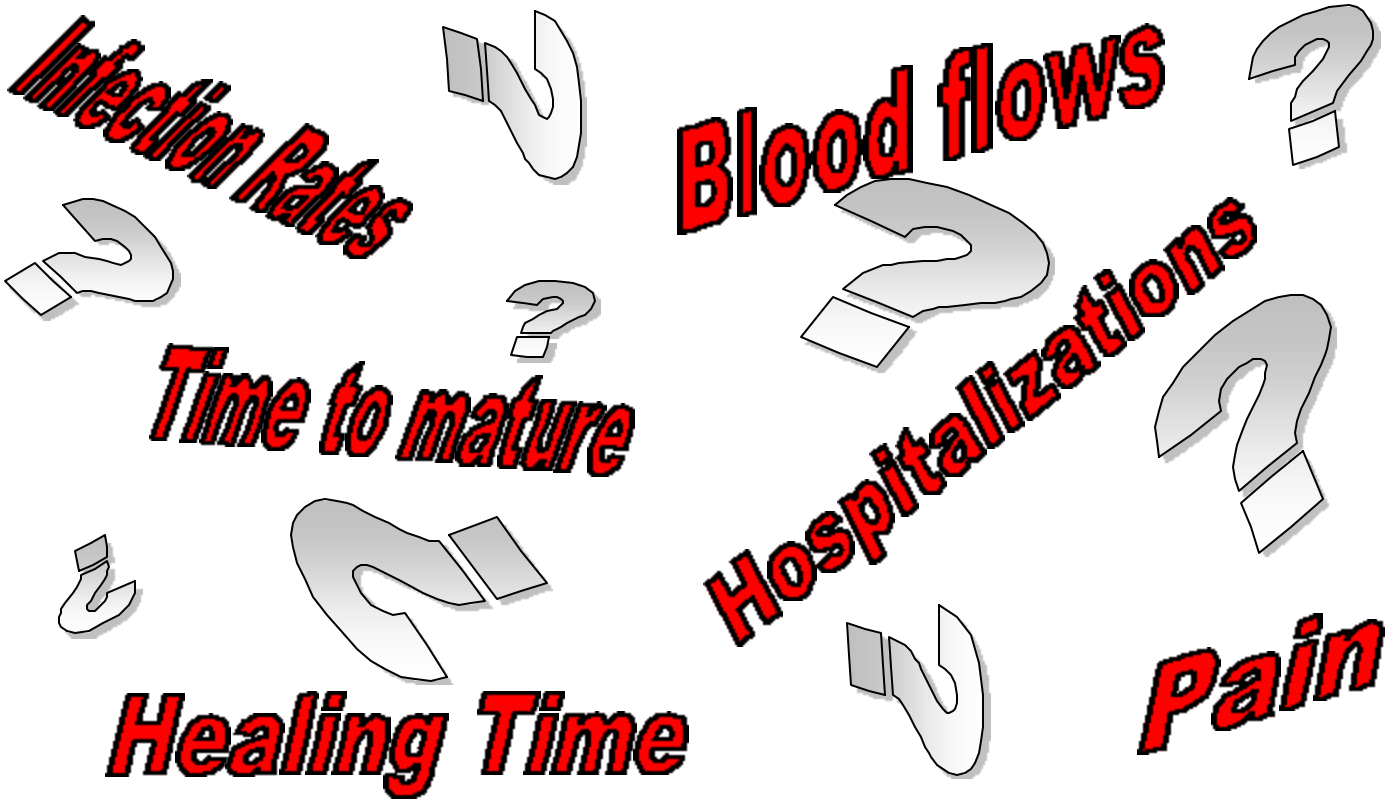


The THRILL Is Gone

What happens when your access clots? (The 'buzz' or thrill is no longer there) Your dialysis facility may contact your surgeon. You may be scheduled for an appointment with radiology or surgery. This depends upon your physician, surgeon, and how many times your access has clotted in the past. Medication can be placed in your graft or fistula with needles, slightly larger than ones used in dialysis. The medication dissolves the clot or the radiologist can remove the clot. Sometimes clots form because of a narrowing in the graft or fistula. If this is the case, the narrowed portion **may** be reopened. Reopened grafts and fistulas may clot again within the next 6 months and could require placement of a new access. The following tips can help preserve the life of your access…

To care for your access and prolong its life, consider the following:

- Report signs of infection, including redness, warmth, drainage, swelling, unusual tenderness, or fever over 101° F (38.3° C) to your health care provider and dialysis center.
- Feel for a thrill at your access site daily and after any episodes of low BP, hypotension, dizziness, light-headedness, or an incident of prolonged bleeding.
- Call your health care provider or dialysis center immediately if you can't feel a thrill.
- Avoid sleeping on the access arm.
- Avoid carrying anything that weighs more than 5 pounds or carrying anything draped over your access arm.
- Avoid tight clothing on the access – tight clothing can encourage clotting.
- Immediately report any numbness, pain, coldness, loss of motion, or reduction in sensation of the access arm or hand to your health care provider.
- Immediately report if the access site suddenly bulges more than usual.



If you are using a graft or fistula, **YOU** can help it last longer, prevent clotting, and stay healthier by doing **two** simple steps:

Ask your nurse to teach you how to check the venous pressure of your graft or fistula each treatment.

If your graft or fistula begins to narrow (called stenosis), you may see the venous pressure monitor go higher on your dialysis machine or handheld monitor. Your facility staff look for changes in blood flow and may refer you to a vascular surgeon if changes are seen.

Track your venous pressure each treatment and notify your doctor or nurse if it changes.

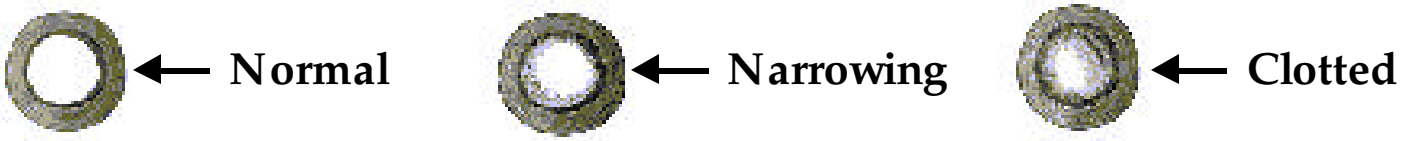
A change in your venous pressure may be a sign that your access is getting ready to clot. The rise in venous pressure may be due to some form of narrowing in your access that does not allow the blood to flow through your graft or fistula. If you see the venous pressure rise over several treatments, let your doctor or nurse know. They may check your access and if needed send you to a doctor for treatment to keep it from clotting.

Venous Pressure Defined

"Venous Pressure" is the measure of pressure on the vein side of your access. Each facility may measure it differently.

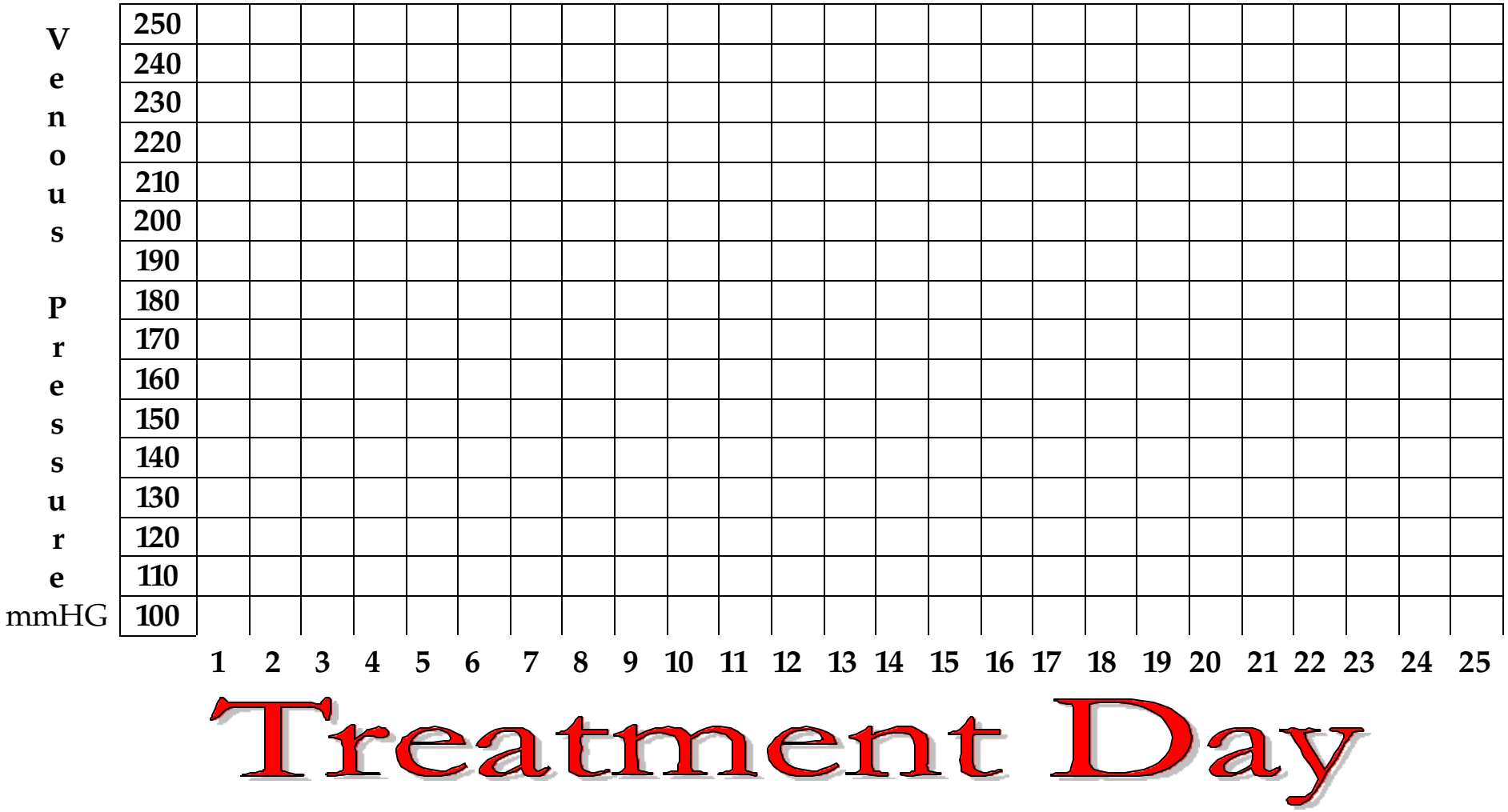
Venous Pressure detects the "force" from the access on the blood – the resistance to blood returning from the dialysis machine. The higher the pressure, the higher the force needed to return the blood, the more the access may have narrowed.

(See Pictures)



Name _____

1. You may want to print your name on the form just in case it gets lost.
2. Ask your nurse or patient care technician (PCT) how your clinic measures your venous pressure.
3. Ask your nurse or PCT for your venous pressure.
4. On the chart below, place a dot as near your venous pressure number.
5. Each treatment, you can mark your venous pressure. After several treatments, connect the dots.
6. If you notice that your venous pressure is rising over a week or two, tell your nurse or PCT.
7. This form will allow you to track your venous pressure for 2 months.



Maintaining Your Lifeline – Patient Education Section

Name_____ Facility Number _____

SEITAERR

13 19 29

TUILFAS

27 11 18

FATGR

16 12 28

LACUVRAS

4 1 24

RONPENH

20 10 3

CETNIYSHT

17 22 5

RYNSUMAE

25 8 30

SSNISTEO

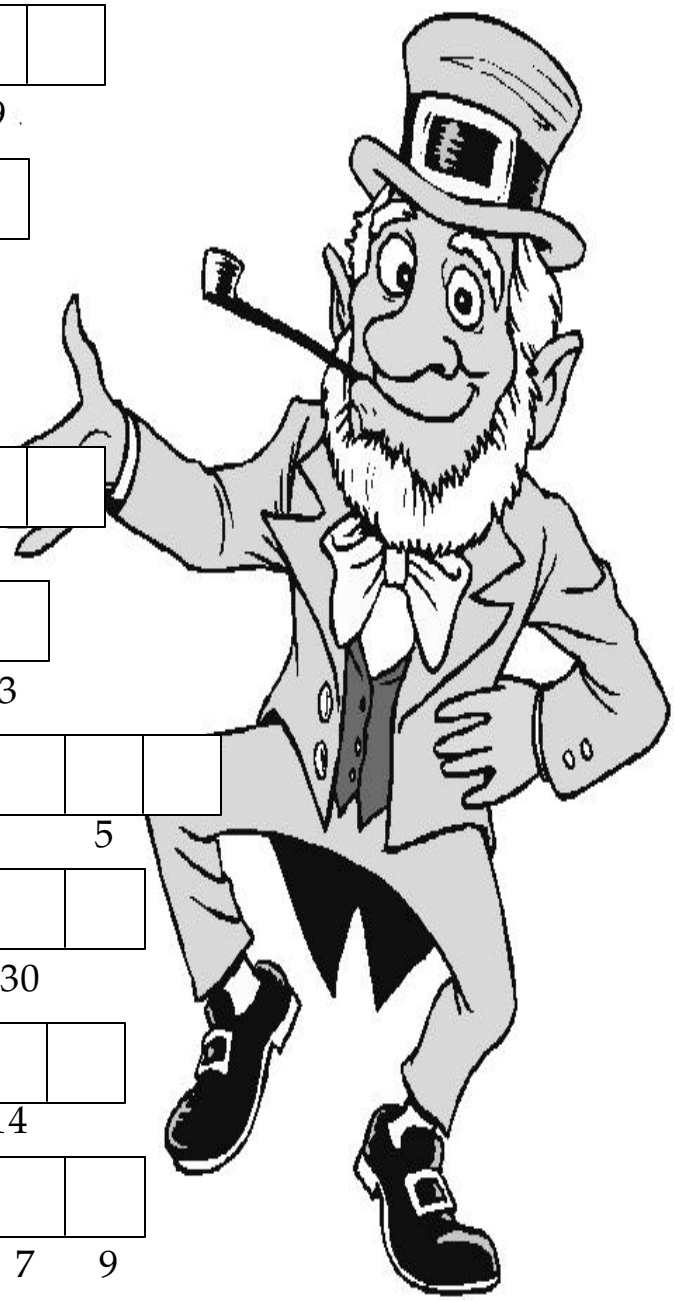
26 2 14

CAETEHRT

21 7 9

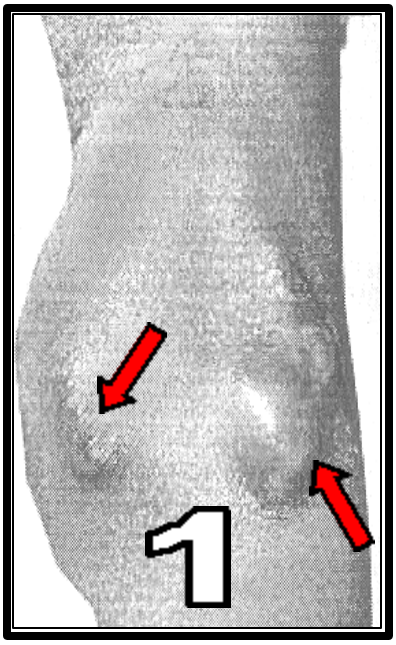
NAGDADAISEVTS

6 23 15

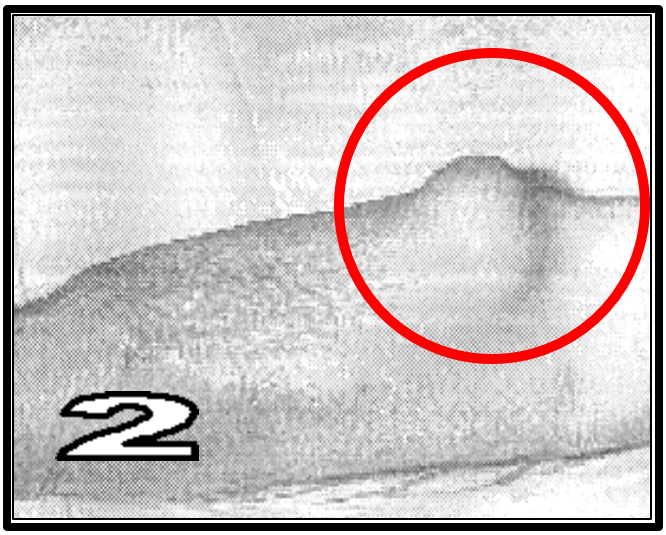


1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

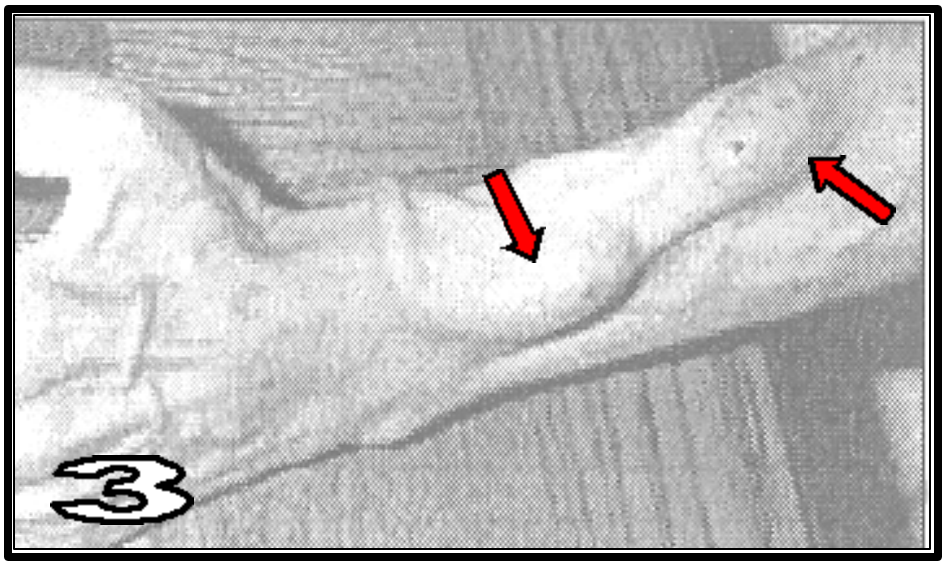
17	2	18	19	20	21	22	23	24	25	26	27	28	29	30	



Location, Location, Location!

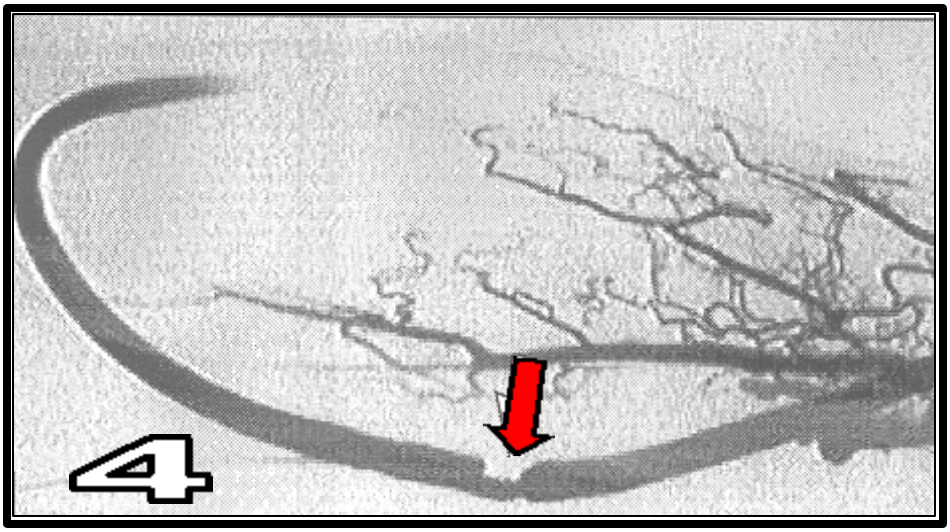


The placement of the needles for a treatment should be rotated every treatment. Repeatedly cannulating the same location of the fistula or graft encourages the walls of the graft or fistula to become weakened. This weakening, over time, can cause prolonged bleeding after the needle is withdrawn, a bulging at the site, (called a pseudoaneurysm), or deterioration to the vessel - all can lead to another surgery for the placement of a new access.



(See Pictures)

Pictures 1 and 2 are forearm grafts. The picture on the left shows multiple sticks to the same area of the graft. The picture on the right shows a long term problem with narrowing. Picture 3 is a forearm fistula. The arrows in both pictures (1 and 3) reflect repeated needle placement in the same general area which can lead to future difficulty. The circled area in picture 2 is the area of narrowing – stenosis. Picture 4 is an internal view of a graft with narrowing - (stenosis). The arrow is pointing to the location where the graft has narrowed.



GETTING READY FOR ACCESS PLACEMENT

All this talk have you thinking about getting your access placed? Here's some information to assist preparing you beforehand:

The Week Before Surgery:

- You may need to stop taking aspirin and ibuprofen - ask your doctor.
- You may need to have blood drawn before surgery.
- Ask your dialysis unit for a current list of your medications.
- Your doctor may ask you to have a chest x-ray and EKG performed.

The Night Before Surgery:

- Your physician may suggest you take a sleeping pill.
- Your doctor will inform you of medications to take. Do not eat or drink anything after midnight.
- Check with your doctor before taking insulin, diabetes pills, blood pressure medicine, heart pills, or any other medication on the day of surgery.
- Consider wearing glasses instead of contacts to the hospital, (contacts must be removed before surgery.)

What to Expect While You're There:

You **MAY** encounter the following procedures and equipment during your stay.

- **Taking Vital Signs:** These include your temperature, blood pressure, pulse (counting your heartbeats), and respirations (counting your breaths).
- **Blood Tests:** You may need blood taken for tests. It can be drawn from a vein in your hand or from the bend in your elbow. Several samples may be needed.
- **Chest X-ray:** If not done already, the doctor may want to take a picture of your lungs and heart to make sure you are ready for surgery.
- **Heart Monitor:** (Also called an EKG). Three to five sticky pads are placed on different parts of your body. Each pad has a wire that is hooked to a TV-type screen or to a small portable box. The wires work together to shows tracing of your heartbeat.
- **IV:** A small tube is placed in your vein for giving medicine or liquids.
- **Pulse Oximeter:** With a little clip connected to your ear, finger, or toe, this machine measures the oxygen in your blood.
- **General Anesthesia:** You are asleep throughout the operation. The anesthetic is given either as a liquid in your IV or as a gas through a facemask.
- **Local Anesthesia:** This is a pain-killing injection at the site of the operation. You will remain awake, and may feel some pres sure or pushing, but no pain.

After Surgery:

The site will have a bandage to keep the area clean and prevent infection. (A nurse may briefly remove the bandage and check the stitches shortly after surgery.) The doctor will write restrictions on the amount of activity you can perform.

As you begin your recovery, you may expect the following:

- **Oxygen:** At times during your stay, your body may need extra oxygen. It is given either through a plastic mask over your mouth and nose or through nasal prongs. The oxygen can dry your nose out. If so, let your nurse know. It is unsafe to take the oxygen off on your own.
- **Deep Breathing and Coughing:** These exercises help prevent a lung infection after surgery. Deep breathe and cough every hour while you are awake, including any time you spend awake during the night. This can help ward off infection.
- Take a deep breath and hold it as long as you can. Then push the air out of your lungs with a deep strong cough.
- Your output of urine may have to be measured. Ask your doctor whether it's OK to use the toilet.
- **Bruit:** This is the sound of blood flowing through the fistula or graft. Doctors will use a stethoscope or their fingers to check the flow.

Medicines:

Your doctor may order any of the following in addition to your regular medications.

- **Antibiotics:** These medications help prevent bacterial infection.
- **Pain Medicine:** To ease pain after the operation.
- **Anti-Nausea Medicine:** This medicine calms your stomach and controls vomiting.

After You Leave

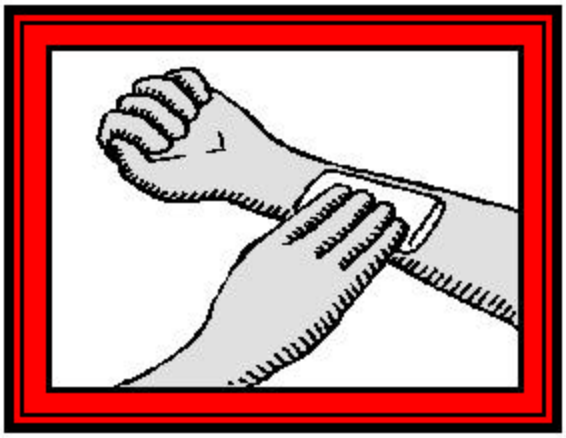
- For pain or swelling, you may put ice in a plastic bag, cover it with a towel, and place it over the incision for 15 to 20 minutes out of every hour as long as necessary. Treatment with ice is most useful if started right after surgery and used for 24 to 48 hours.
- When you are allowed to bathe or shower, carefully wash the stitches or staples with soap and water. Then put on a clean, new bandage.
- Keep the arm with the fistula or graft in a comfortable position. Sleeping on that arm could cause the access to clot.

Call Your Doctor If...

- Your incision is swollen and red or you see any pus. These could be signs of infection.
- Your stitches come apart.
- Your bandage becomes soaked with blood.
- You develop a high temperature.
- You no longer feel the "buzzing in your arm".

Seek Care Immediately If...

- You suddenly have trouble breathing or start having chest pain.
- The fingers or toes below the fistula or graft turn blue, go pale, or feel cool.
- The fistula or graft starts bleeding. Apply gentle pressure to stop the bleeding, and **call 911. This is an emergency.**



Defining Stenosis

Venous stenosis monitoring is recommended by professional renal organizations to assist health care providers in assuring your dialysis access is in working order. Stenosis is a narrowing of your access. It can occur anywhere throughout your access, but commonly occurs on the vein side of your graft or fistula or in areas where needles are frequently placed. Stenosis can cause your access to clot, give poor blood flow, and decrease the adequacy of your treatments. Staff trained in monitoring for stenosis can sometimes help prevent clotting, decreased adequacy, and poor blood flow before they occur. Monitoring can alert staff and patients to difficulties earlier, and hopefully prevent the complete loss of an access. Check with your dialysis healthcare team to see what type of stenosis monitoring they perform and if your access is in good condition.

Spice Up the Winter Blahs

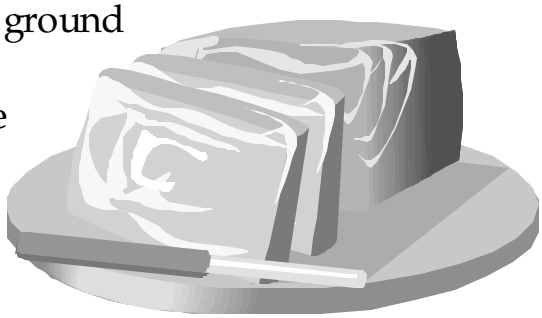
Please check with your dietician before trying any recipe provided. Your renal healthcare team is knowledgeable about your specific diet and your monthly labs.

Tex-Mex Meatloaf - Nutritional Analysis

Protein	18 grams
Fat	18 grams
Calories	291 calories
Sodium	142 mg
Potassium	358 mg
Phosphorus	163 mg

2 cups white bread crumbs
1/3 cup milk
1 cup onion, chopped
1 red or green bell pepper, chopped
1 cup frozen corn, cooked and drained
1 large egg, beaten
1 tablespoon chili powder (ground red chili has no added salt)
1-1/2 pounds lean ground beef

Preheat oven to 350 degrees. Soften breadcrumbs in milk. Add onion, bell pepper, corn, egg, chili powder, and breadcrumb mixture to ground beef and mix well. Press into a 9 x 5-inch loaf pan. Bake 75 to 80 minutes. Let stand 10 minutes before serving. Pour off any excess fat before slicing.



Mexican Rice

Nutritional Analysis

Protein	2 grams
Fat	18 grams
Calories	199 calories
Sodium	155 mg
Potassium	79 mg
Phosphorus	35 mg

1 cup white rice (uncooked)
1/4 cup olive oil
1/4 cup onion, chopped
2 cloves garlic, peeled and chopped
1/4 cup tomato sauce
3 cups water
1/4 teaspoon salt

Brown rice in hot oil, stirring frequently. Add onion and garlic. Sauté until tender. Add tomato sauce, water, and salt. Cover and simmer about 20 minutes until water is absorbed.

Complete the meal with spicy corn bread on the next page!

Spicy Corn Muffins

1 egg
3/4 cup milk
1 tbsp baking powder
1 cup flour
1 cup corn meal
1/2 cup sugar
1/3 cup vegetable oil
3 tbsps chopped green chili peppers

Place cupcake papers in 12 muffin cups. Beat egg. Stir in milk and oil. Stir in flour, sugar & baking powder until moistened (batter will be lumpy). Fill 12 muffin cups 3/4 full. Bake at 400 degrees F for 20 minutes or until lightly browned.

Nutritional Analysis

Protein	2 grams
Fat	18 grams
Calories	199 calories
Sodium	155 mg
Potassium	79 mg
Phosphorus	35 mg

Recipe Websites

http://www.ikidney.com/

http://www.ika.ie/recipes.html

http://www.niddk.nih.gov/health/kidney/pubs/kidney-failure/eat-right/eat-right.htm# affect

High Potassium Foods

The following foods are high in potassium. Please consult with your Dietician before using these in your diet.

Vegetables Broad Beans, Butter Beans, Jerusalem Artichokes, Mushrooms, Parsnips, Plantain, Pumpkin, Spinach, Sweet Potato, Tinned Tomatoes & Yams

Fruits Apricots, Avocado, Banana, Figs, Greengages, Melon & Rhubarb. Dried fruits (Apricots, Currants, Dates, Prunes, Peaches, Raisins, & Sultanas)

Other Nuts, peanut butter, milkshakes, tomato juice, orange juice.

Consult your dietician and other healthcare staff, for information on the best recipes for your diet.

How is Network 12 Involved?

Network # 12 is currently performing a study on venous stenosis monitoring for grafts. Most dialysis patients lose their access due to venous stenosis, (a narrowing of the vein used for the graft). We are encouraging all facilities to develop and implement a policy for monitoring a patient's access. The goal of the study is to encourage all facilities to monitor for stenosis so the overall number of accesses lost because of stenosis is decreased. Need more information? Don't hesitate to contact the Quality Improvement Department at 1-800-444-9965 for further information.

Patient Resources

www.renalweb.com
www.ikidney.com
www.nephron.com
www.usrds.org
http://www.humed.com/dialysis/links.htm

Local/ National Kidney Foundations

National Kidney Foundation
www.kidney.org
National Kidney Foundation – Iowa Chapter
www.kidneyia.org
(319) 369-4474, (800) 369-3619
National Kidney Foundation – Nebraska Chapter
www.kidneyne.org/teamnebraska
(402) 572-3180, (800) 642-1255
National Kidney Foundation – Kansas & Western Missouri
www.kidneyksmo.org
(913) 262-1551, (800) 444-8113
National Kidney Foundation of Eastern Missouri & Metro-East
www.nkfstl.com
(314) 961-2828, (800) 489-9585

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