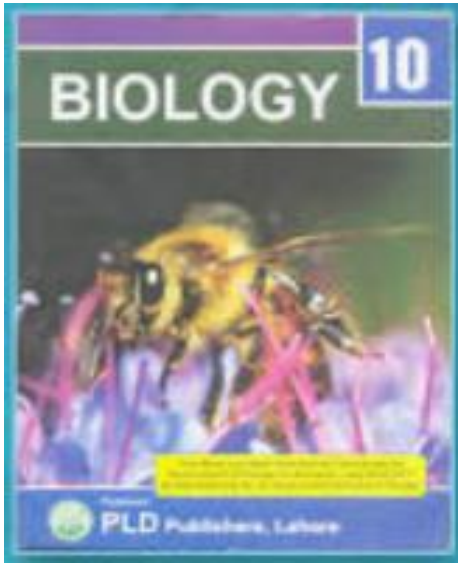
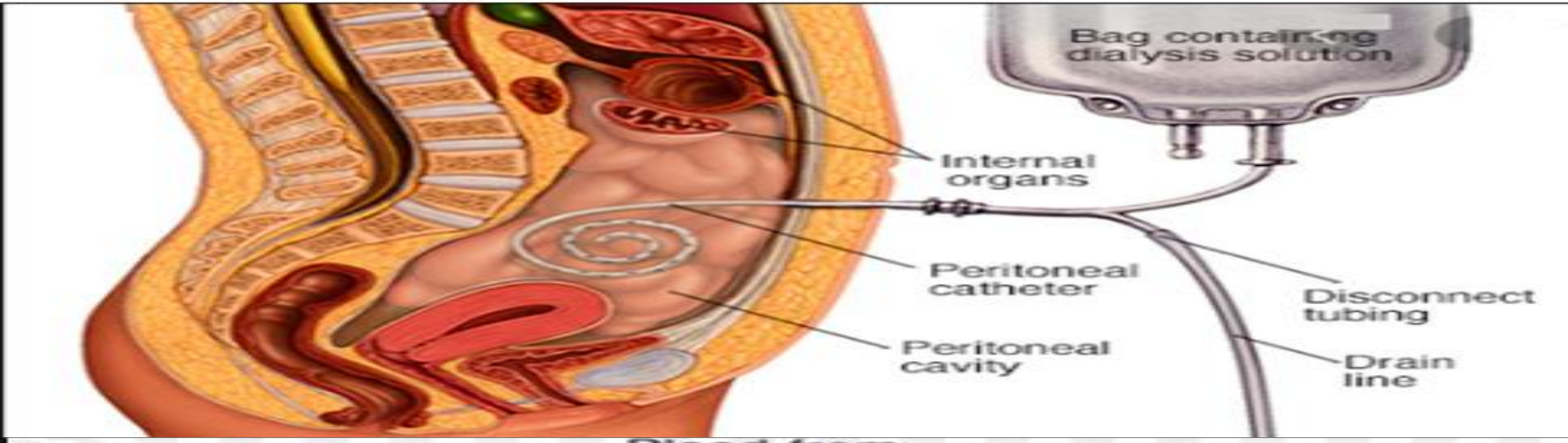
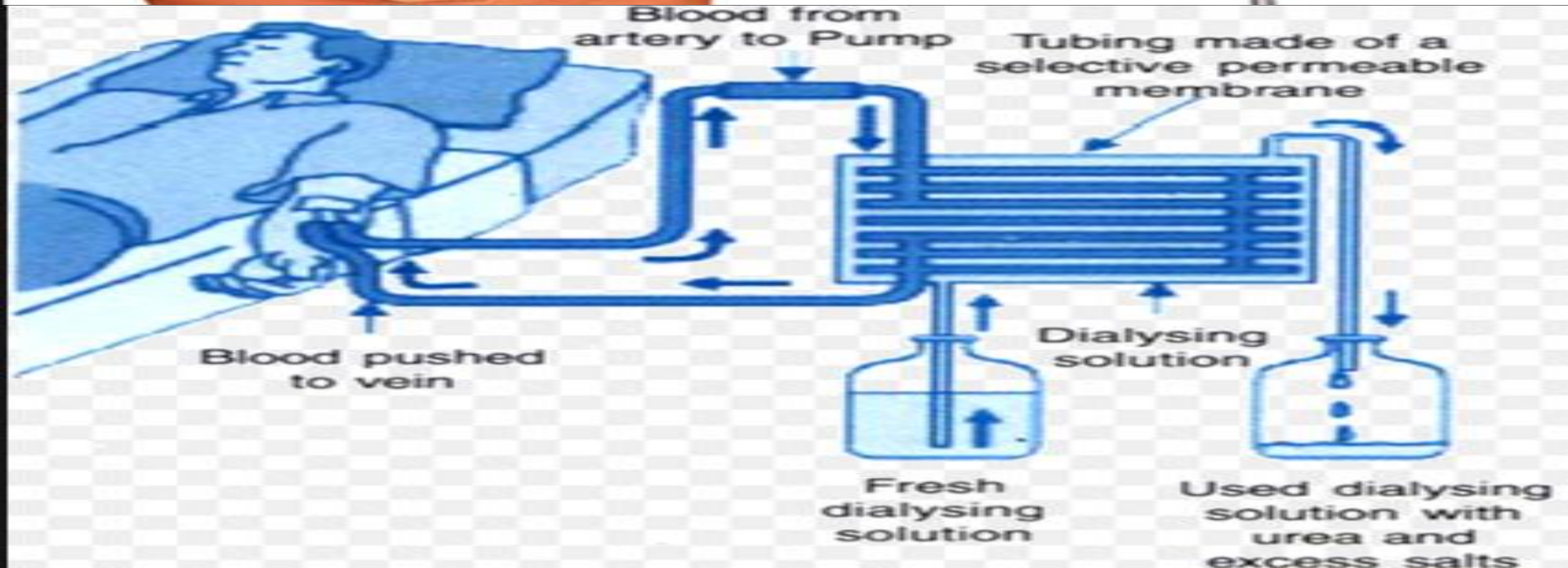
Pakistan School
Kingdom of Bahrain


BIOLOGY
10
PLD Publishers, Lahore

ENGAGING STARTER

PERITONEAL DIALYSIS





LEARNING OBJECTIVES

- At the end of the lesson, students will be able to;
- Describe the treatment of kidney failure.
- Differentiate between Peritoneal dialysis and Haemodialysis.
- Describe the end stage kidney failure and kidney transplant.

Chapter 11. Homeostasis

Topic: Dialysis

Page- 27-29

DIALYSIS TYPES

Hemodialysis

Peritoneal dialysis

PD V/S HD

Dialysis

Definition

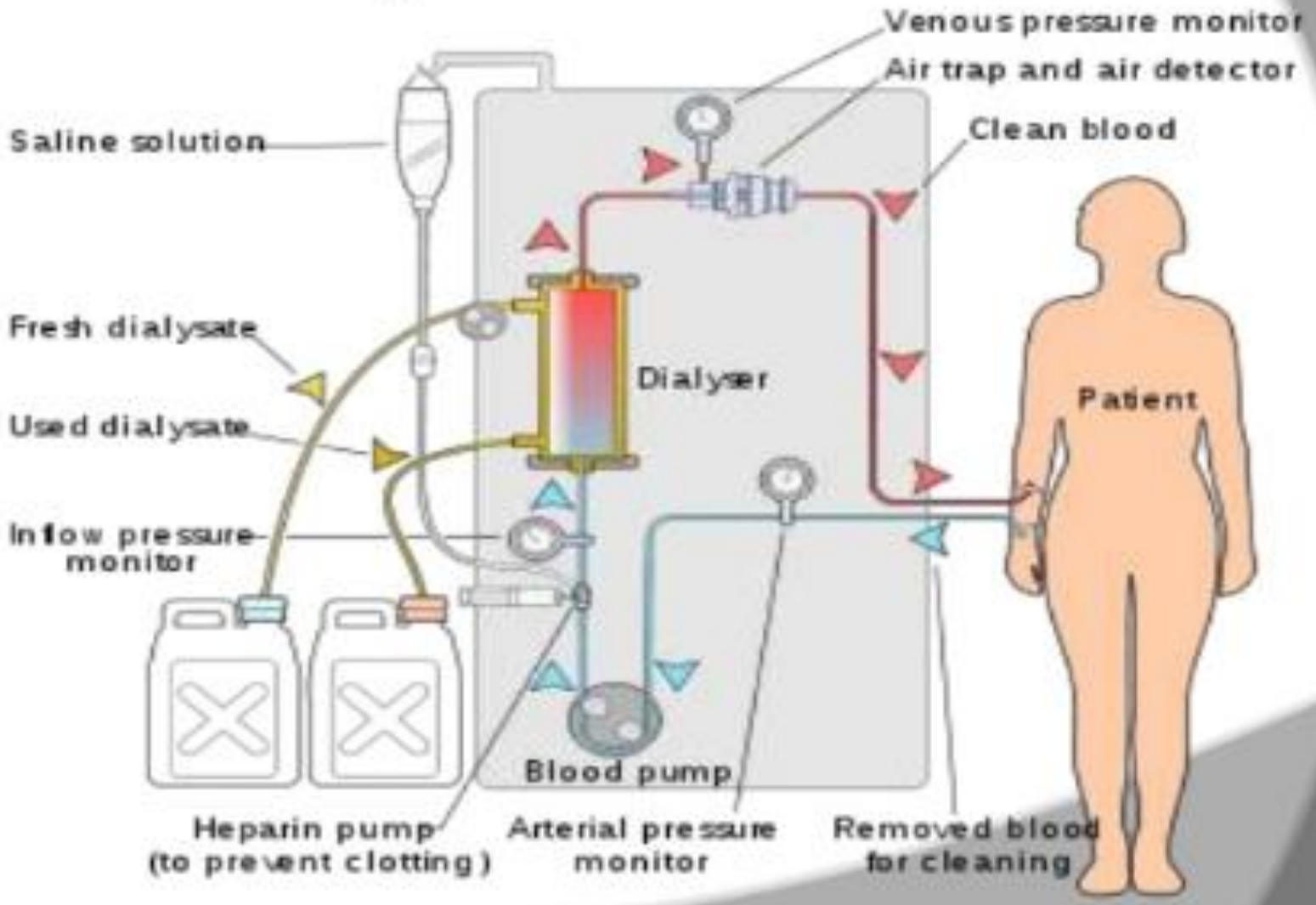
- Artificial process that partially replaces renal function
- Removes waste products from blood by diffusion (toxin clearance)
- Removes excess water by ultrafiltration (maintenance of fluid balance)
- Wastes and water pass into a special liquid – dialysis fluid or dialysate

Dialysis

- **Types:**

1. Hemodialysis.
2. Peritoneal dialysis.

Hemodialysis

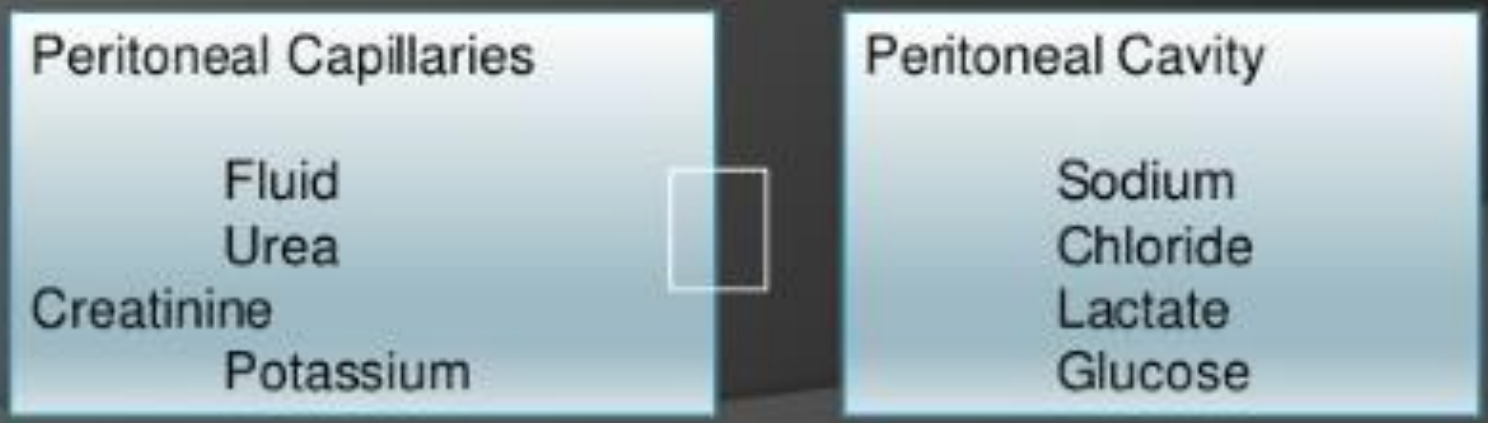


Haemodialysis

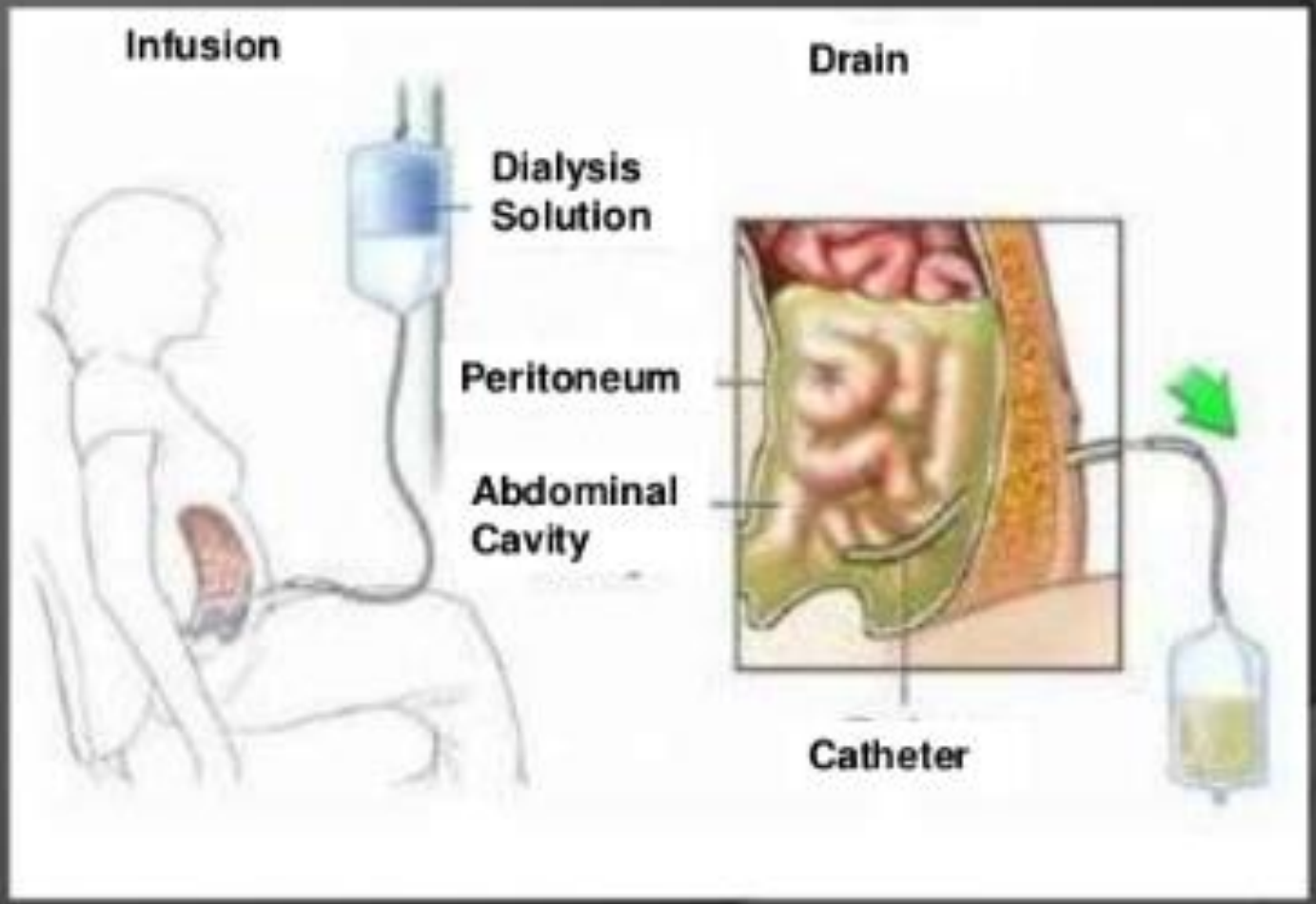
- Dialysis process occurs outside the body in a machine
- The dialysis membrane is an artificial one: Dialyser
- The dialyser removes the excess fluid and wastes from the blood and returns the filtered blood to the body
- Haemodialysis needs to be performed three times a week
- Each session lasts 3-6 hrs

Peritoneal Dialysis

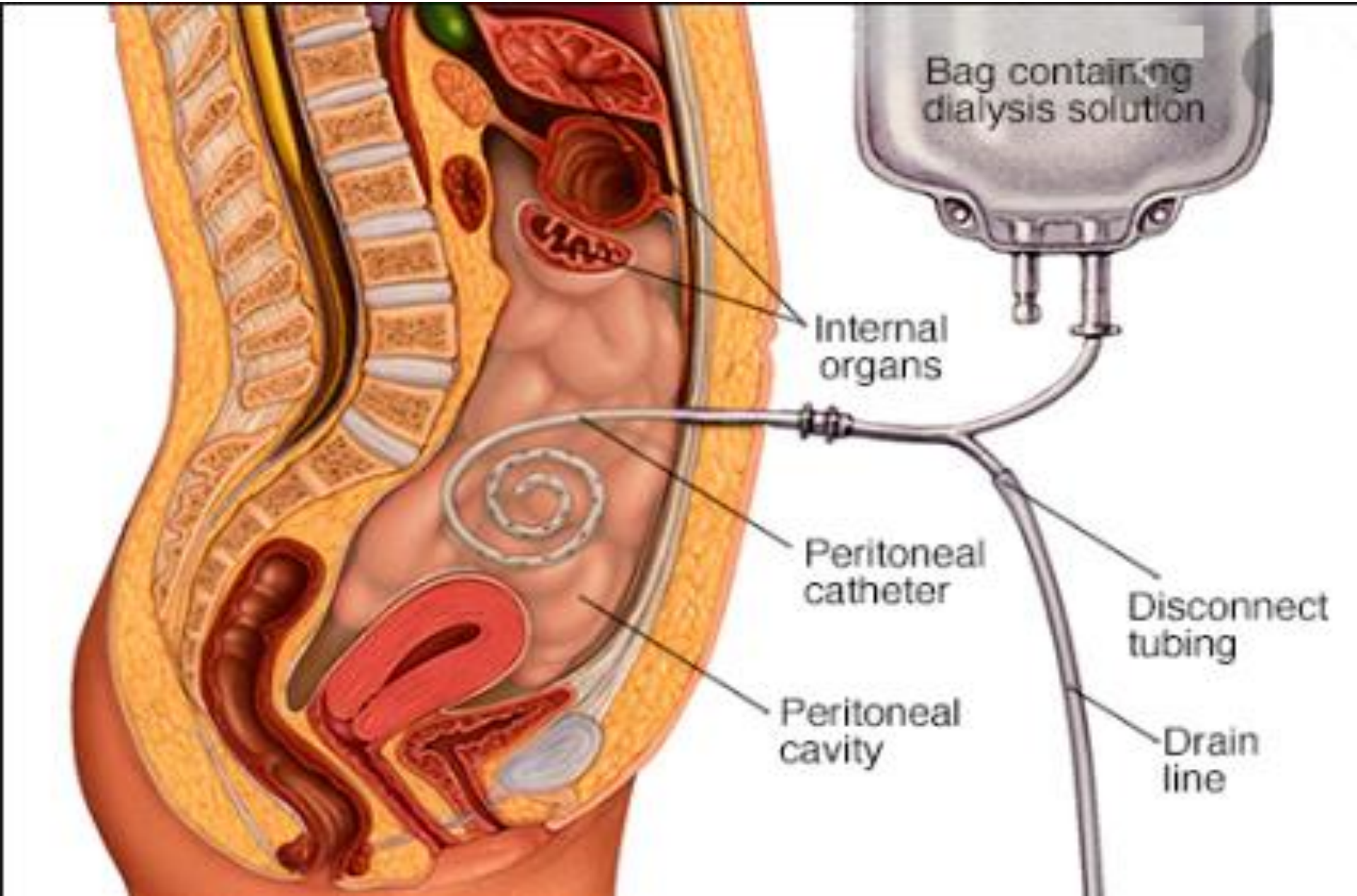
- Peritonealcavity: reservoir for dialysate
- Peritoneum: semipermeablemembrane across which excess body fluid and solutes are removed
- Polyurethane or silicone catheter



Peritoneal Dialysis



PERITONEAL DIALYSIS



Dialysis:

Dialysis means the cleaning of blood by artificial ways

Methods of dialysis:

There are two methods of dialysis

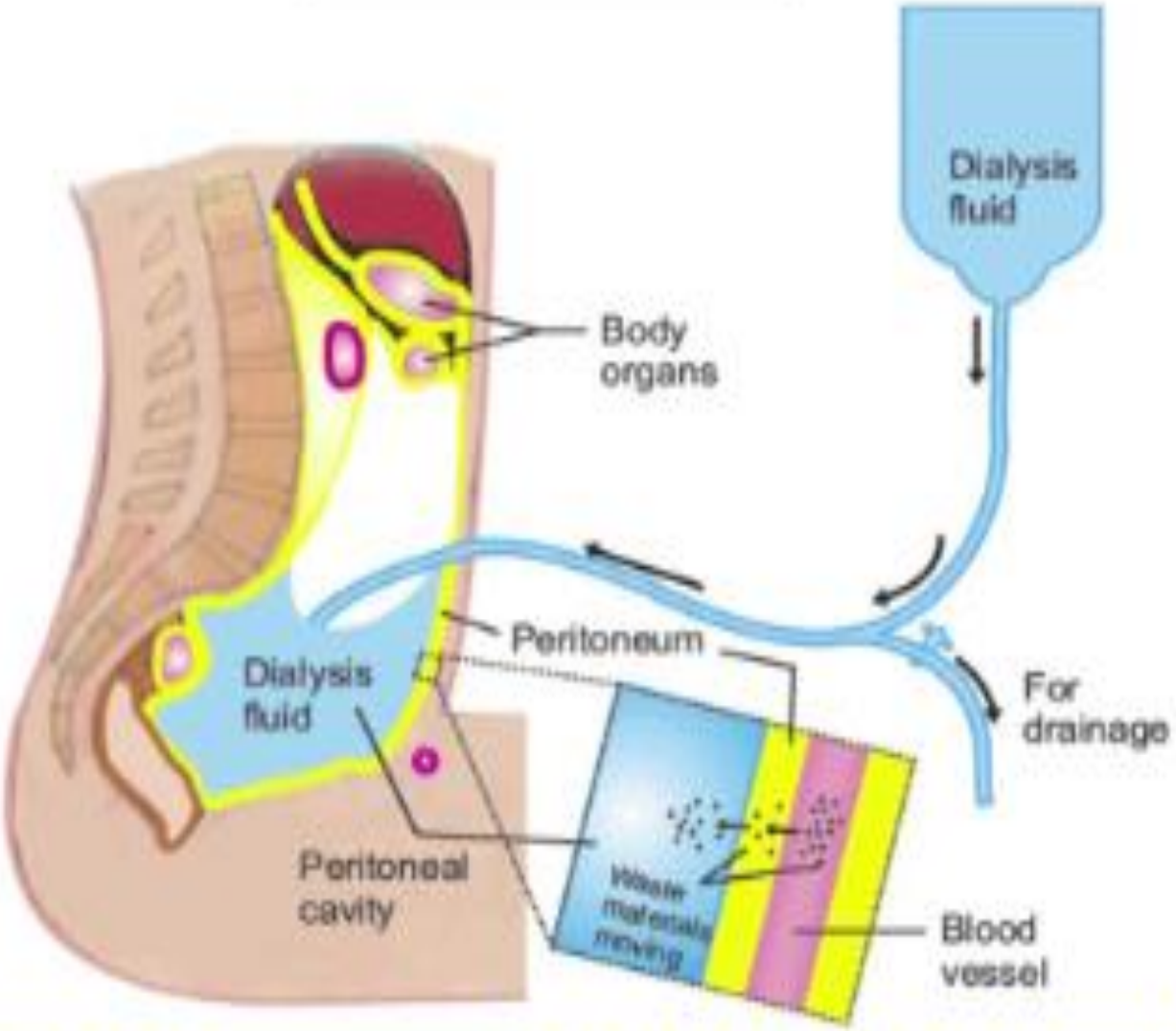
1. **Peritoneal Dialysis:**

In this type of dialysis, the dialysis fluid is pumped for a time into the peritoneal cavity which is the space around gut. This cavity is lined by peritoneum.

Peritoneum contains blood vessels. When we place dialysis fluid in Peritoneum cavity waste materials tom peritoneal blood vessels diffuse into the dialysis fluid which is then drained out. This type of dialysis can be performed at home but must done every day.

a. Dialysis

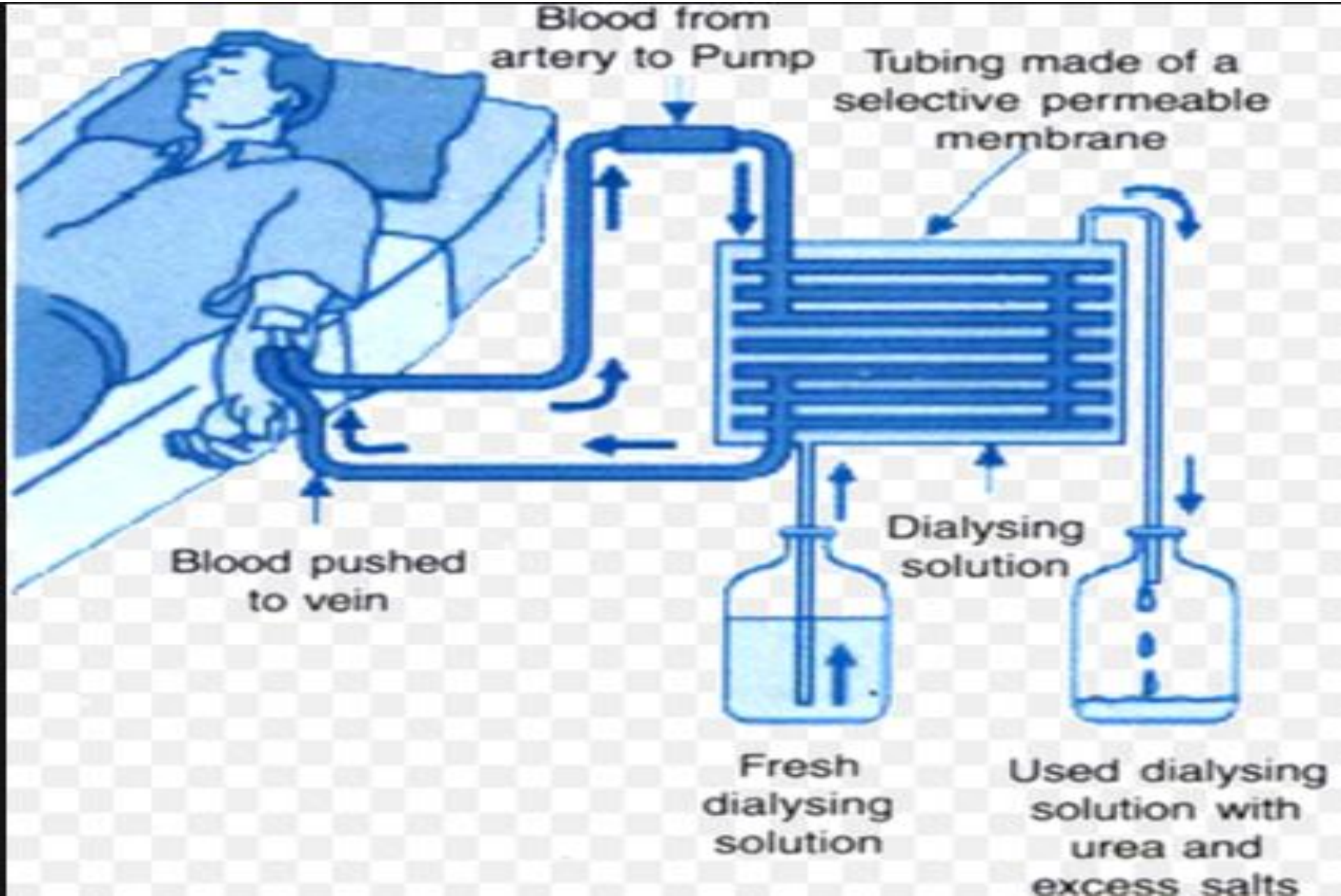
1. Peritoneal Dialysis



2. Hemodialysis:

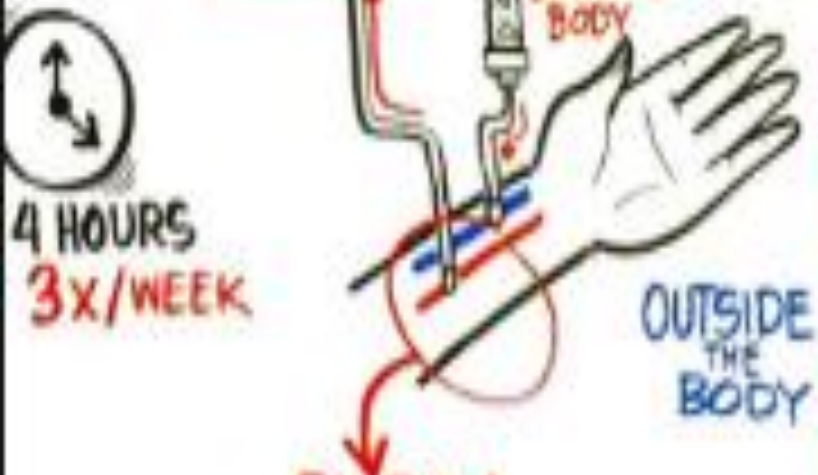
In hemodialysis patient's blood is pumped through an apparatus called dialyzer. The dialyzer contains tubes the wall of which act as permeable membranes. Blood flows through the tubes while the dialysis fluid flows around the tubes. Extra water and wastes move from blood into the dialysis fluid. The cleansed blood is then returned back to body. The hemodialysis treatments are typically given in dialysis centers three times per week.

HAEMODIALYSIS



DIALYSIS

HEMODIALYSIS

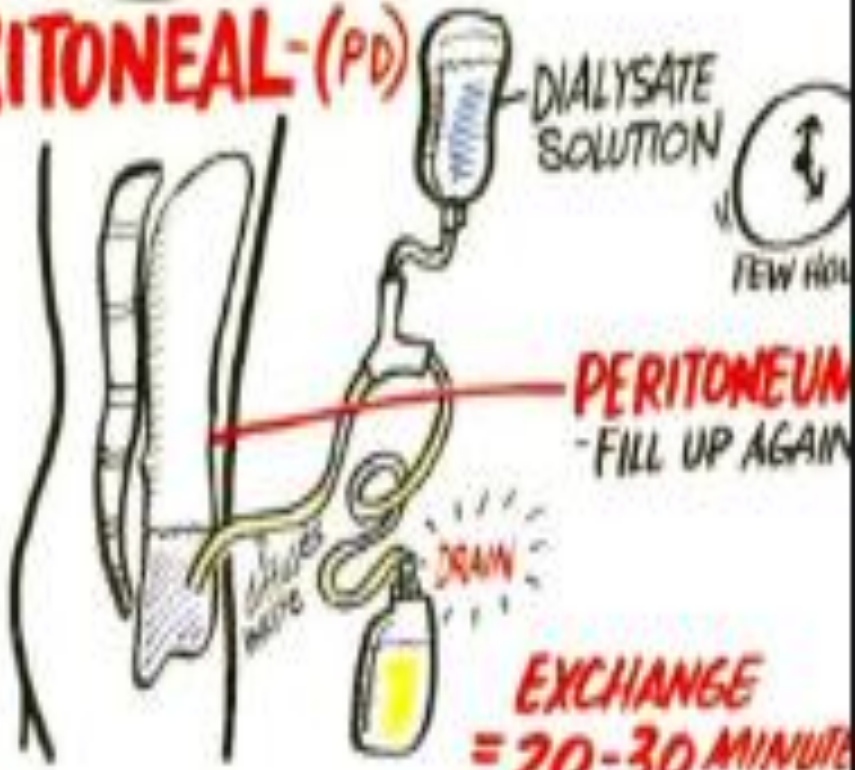


FISTULA

CONNECTING AN ARTERY and a VEIN IN YOUR ARM.

* CAN TAKE UP TO **3 MONTHS** TO BE READY.

PERITONEAL (PD)



Advantages of Haemodialysis vs. Peritoneal dialysis

Haemodialysis

- Done by trained health professionals who can watch for any problems.
- Allows contact with other people having dialysis, which may give you emotional support.
- Not done by oneself, as with peritoneal dialysis.
- Done for shorter amount of time and on fewer days each week than peritoneal dialysis.

Peritoneal dialysis

- Gives you more freedom than hemodialysis.
- Can be done at home.
- You can do it when you travel.
- You may be able to do it while you sleep.
- You can do it by yourself.
- It doesn't require as many food and fluid restrictions as hemodialysis.
- It doesn't use needles.

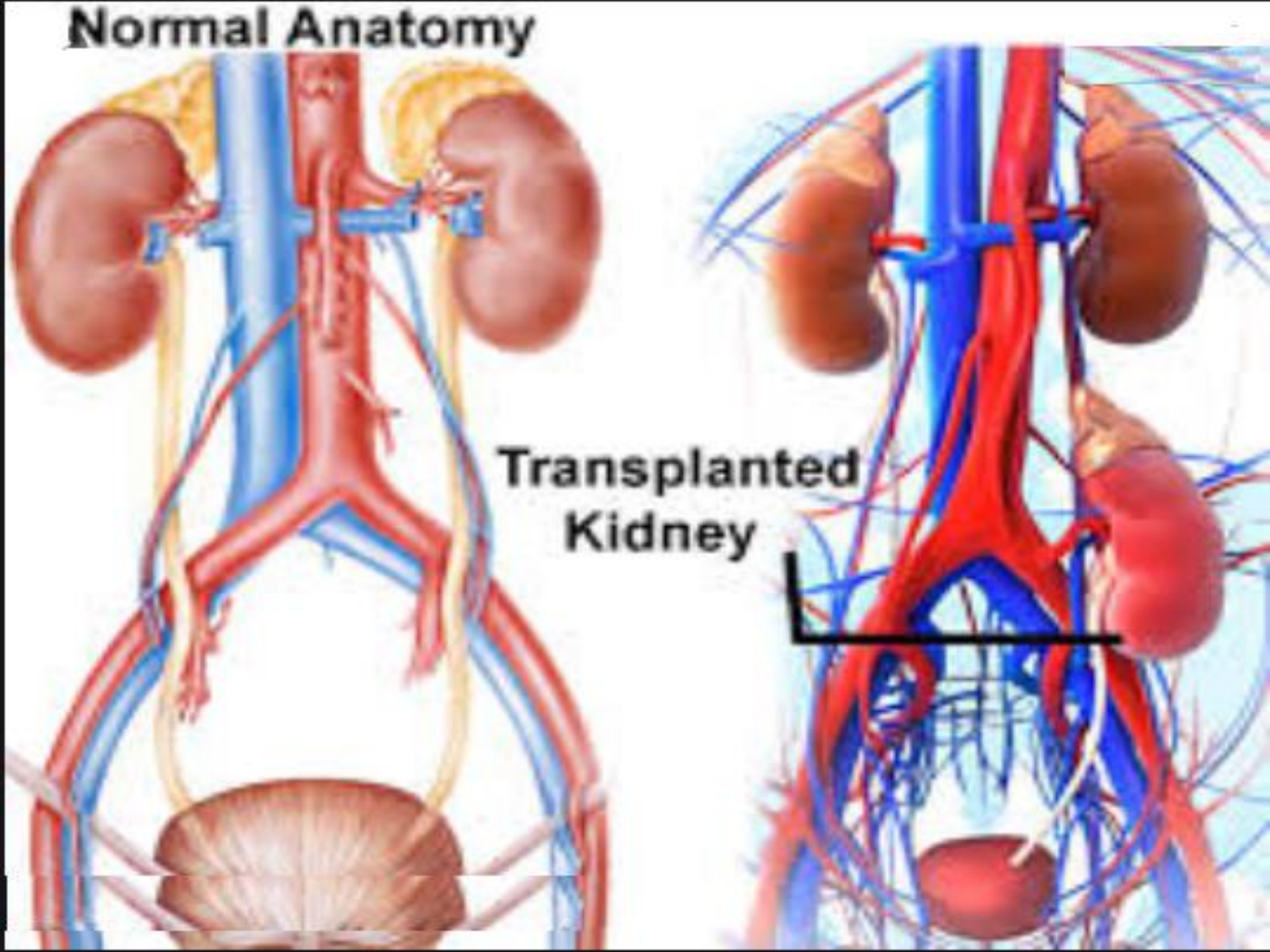
Kidney Transplant:

Dialysis needs to be repeated after every few days and su n t for patients and attendants. Another treatment for the end-stage kidney failure is kidney transplantation.

Kidney transplant is the replacement of patient's damaged kidney with a donor healthy kidney by cellophane paper and Kidney may be donated by a deceased-donor or living donor. The donor may or may not be a relative of the patient. Before transplant, the tissue proteins of donor and patient are matched. The donor's kidney is transplanted in patient's body and is connected to the patients' blood and urinary system.

Problems faced by kidney transplant:

The average lifetime for a donated kidney is ten to fifteen years. When a transplant fails, the patient may be given a second kidney transplant in this situation, the patient is treated through dialysis for some intermediary time Problems after a transplant may include transplant rejection Infections imbalances in body salts which can lead to bone problems and ulcers.


Normal Anatomy
Transplanted Kidney

WORKSHEET1

Short Questions and Answers

Q1. Write a note on dialysis.

Q2. Write a note on kidney transplant.

Q3. Rationalize why dialysis machine is considered as artificial kidney.

CLOSURE

MCQs.

1. A complete or partial failure of kidneys is called;
   a. Kidney stone b. Kidney failure
2. _____ means the cleaning of blood by artificial ways;
   a. Lithotripsy b. Dialysis
3. In _____, the dialysis fluid is pumped for a time in to the peritoneal cavity;
   a. Peritoneal dialysis b. Surgical treatment
4. During Peritoneal dialysis, the waste martials move from;
   a. The abdomen to the dialysis fluid
   b. the dialysis fluid to the peritoneum blood vessels
   c. the peritoneum blood vessels to the dialysis fluid
   d. The dialysis fluid to the abdomen
5. _____ is the replacement of patient's damaged kidney with a donor healthy kidney;
   a. Kidney failure b. Kidney transplant

WORKSHEET - Home work

Q1. Rationalize why dialysis machine is considered as artificial kidney?

OR

Q2. Recognize the right treatments of kidney problem by searching on internet.


Any
Questions?


Thank You!
Prepared By
Shahnaz Riasat