MANAGING FLUIDS ON PERITONEAL DIALYSIS (PD)

What you will learn:

• Understanding fluid in your body
• Understanding fluid balance
• What you can do to keep your fluid balance in check every day
• Fluid overload—what happens with too much fluid?
• Dehydration—what happens with too little fluid?
• My Guide for PD Treatments
Healthy kidneys work to balance the fluids in your body, removing extra fluids and waste products from your blood. While some fluids and waste products are removed during your PD treatments, some are left behind. If you have too much fluid in your body, it can cause symptoms such as swelling. It is important to monitor your fluid intake and output to help to keep the fluids in your body balanced.
Understanding Fluid in Your Body

Your body has two kinds of weight:

- **Fluid weight**: Made up of the liquid part of your tissues and blood. It can increase quickly if you drink more than your kidneys or dialysis can remove.

- **Body weight**: The combined weight of your bones, tissues, muscles, and fat. Body weight stays the same from day to day, unless you are eating way too much—and then body weight increases gradually over time.

- **Total weight**: The combination of fluid weight and body weight.
Understanding Fluid Balance

Healthy kidneys maintain the right amount of fluid in your body by removing excess water from your blood. In other words, healthy kidneys help maintain a healthy fluid balance.

When your kidneys aren’t working properly, the following things can affect the amount of fluid in your body:
- The amount of salt (sodium) you consume (this affects how thirsty you are, and in turn, how much fluid you drink and how much fluid you retain)
- The amount of fluid you drink
- The amount of fluid removed by PD
- Your urine output

Your PD nurse and/or dietitian will help you determine the amount of fluid you should drink each day.

Keeping your fluid in balance will help you and your physician manage your health.

Too much fluid can lead to
- Rapid weight gain
- Swelling
- High blood pressure
- Trouble breathing

Too little fluid can lead to
- Rapid weight loss
- Low blood pressure
- Dizziness
- Nausea

By balancing your fluids, you may avoid issues such as fluid overload and dehydration.
PD solution options for treatments

There are three strengths of dextrose (sugar) dialysis solutions for PD. The numbers tell you how much sugar is in the solution bag. Solutions with higher amounts of sugar remove more water from the blood than solutions with lower amounts of sugar.

- 1.5% (yellow)—Low sugar solution, which removes the least amount of fluid
- 2.5% (green)—Mid-range solution
- 4.25% (red)—High sugar solution, which removes the greatest amount of fluid compared to 1.5% and 2.5% solution

Your doctor and PD nurse will work very closely with you to select the best solution strength to help balance your fluids. For some treatments, you may use a combination of different solution strengths or use all of the same strength of solution.
# What You Can Do to Keep Your Fluid Balance in Check Every Day

## 1. Weigh yourself

Weigh yourself as you were taught in training.
- Place the scale on a hard floor surface and not on carpeting.
- Your doctor and PD nurse will determine what your target weight (ideal weight) should be. This may need to be adjusted from time to time as your body changes.
- Record your weight on the home record sheet provided by your clinic. Take this information to your clinic visits.

## 2. Take your blood pressure

Take your blood pressure as you were taught in training.
- Your blood pressure measures the force of blood pushing against the blood vessel walls (mmHg are the units of blood pressure that measure this pressure).
- Record your blood pressure. It is useful information for your healthcare provider.

## 3. Check for swelling

- In the morning and later in the day, check for swelling around your eyes, in your hands, lower legs, and ankles.

## 4. Record your ultrafiltration information

- Ultrafiltration is the excess fluid that is removed by dialysis. The ultrafiltration amount is the difference between the volume you filled with and the volume you drained. A cycler may automatically calculate your total ultrafiltration for each treatment. Refer to your cycler’s Operator’s Manual.
• Record your treatment information. Your PD nurse will provide you with home record sheets to record your treatment information. If you are using an APD cycler, your cycler will automatically record the treatment information that can be shared with your PD nurse at each visit.

The amount of urine your kidneys make may change over time.
• It is important to monitor your urine output and tell your PD nurse if there is a change in output.
• More or less urine output may mean a change is needed in your PD prescription.
• Your nurse will review how to measure your urine output.

If you notice more or less urine output, call your PD nurse, as directed.

• Be aware of how you feel each day. Record and immediately report to your clinic any symptoms of excessive weight gain, weight loss, swelling, dizziness, nausea, or trouble breathing.

Doing PD treatments and controlling the fluid you take in will help balance the fluid in your body.
• PD solution removes the extra fluid in your body.
• Doing PD treatments as prescribed by your doctor will help control your fluid balance.

Based on your PD prescription, your doctor and PD nurse will help you plan which strength of solution to choose for your treatments.
Fluid Overload—What Happens with Too Much Fluid?

- Fluid overload means having too much water in your body
- Fluid overload can happen when you drink too much fluid, PD treatments remove too little fluid from your body, or your urine output decreases

Fluid overload may cause some or all of the following symptoms:
- Rapid weight gain
- High blood pressure
- Swelling or puffiness in your face, around your eyes, and in your hands, lower legs, and ankles, especially in the morning or evening
- Tightness in rings, waistbands of your clothing, and shoes
- Trouble breathing when walking, climbing stairs, or lying down
What you can do if you experience fluid overload

**Problem:** Too much fluid in your body

**Action:**
- Check your weight and blood pressure
- Check to make sure you are using the correct PD solution
- Consume less fluid
  - Divide your fluid for the day between meals and snacks
  - Know how much fluid a cup or mug holds and use the same one all of the time
- Limit salt (sodium) intake
- If you are not able to remove fluid with one or two treatments, **call your PD nurse, as directed**
- If your blood pressure is higher than normal or if you have trouble breathing, follow clinic procedures and **call your PD nurse immediately**

In the case of an emergency, call 911.
Dehydration—What Happens with Too Little Fluid?

- Dehydration means you have too little fluid in your body
- Dehydration can happen when you eat or drink too little fluid, PD treatments remove too much fluid from your body, or your urine output increases
- Symptoms include:
  - Rapid weight loss
  - Low blood pressure
  - Feeling dizzy
  - Nausea

What you can do if you experience dehydration

**Problem:** Too little fluid in your body

**Action:**
- Consume more fluid
- After checking with your PD nurse, use a lower strength of PD solution
- Eat or drink some salty foods such as crackers, pretzels, and salty broths such as chicken broth
New Words

**Blood pressure**
Measurement of the force of blood pushing against the blood vessel walls. Blood pressure varies with sex, health, age, and stress levels.

**Body weight**
The combined weight of the bones, tissue, muscles, and fat.

**Dehydration**
A condition in which the body does not have enough fluid, caused by not drinking enough fluid, removing too much fluid with PD treatments, or an increase in urine output.

**Fluid balance**
The maintenance of the right amount of salt and water in the body.

**Fluid overload**
A condition in which the body contains too much fluid, caused by drinking too much fluid, not removing enough fluid with PD, or a decrease in urine output.

**Fluid weight**
The measurement of the liquid part of your tissues and blood.

**Salt (sodium)**
A mineral found in almost all foods. Eating lower-salt foods leads to less thirst, which helps control fluid intake.

**Strength (of PD solution)**
Refers to the dextrose concentration of the PD solution. A higher-strength solution removes more fluid than a lower-strength solution.

**Total weight**
The combination of fluid weight and body weight.

**Target weight**
A term used to describe when there is neither too much nor too little fluid in the body, when the fluid is in good balance.

**Ultrafiltration**
The excess fluid that is removed by dialysis.
My PD Solution Chart

The chart below can be used as a guide when trying to determine which solutions to use. You and your nurse should fill out this chart together so that it is customized for you. Your symptoms/measurements may not fit perfectly under one of the options, but with the help of your PD nurse, you can determine which solution to use.

<table>
<thead>
<tr>
<th>Date:</th>
<th>My target weight is:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>My Guide for PD Treatments</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Your Weight Range</th>
<th>Weight range of:</th>
<th>Weight range of:</th>
<th>Weight range of:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>★</td>
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<td>★</td>
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<table>
<thead>
<tr>
<th>Your Blood Pressure (BP)</th>
<th>BP reading of:</th>
<th>BP reading of:</th>
<th>BP reading of:</th>
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<tbody>
<tr>
<td></td>
<td>• Systolic ★</td>
<td>• Systolic ★</td>
<td>• Systolic ★</td>
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<tr>
<td></td>
<td>• Diastolic ★</td>
<td>• Diastolic ★</td>
<td>• Diastolic ★</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level of Body Swelling</th>
<th>No swelling</th>
<th>No swelling, or some swelling or puffiness in face, tightness in hands, lower legs, or ankles</th>
<th>Swelling or puffiness in face, hands, lower legs, or ankles</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Strength of Dialysis Solution</th>
<th>YELLOW pull ring</th>
<th>GREEN pull ring</th>
<th>RED pull ring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.5% Dextrose Solution</td>
<td>2.5% Dextrose Solution</td>
<td>4.25% Dextrose Solution</td>
</tr>
</tbody>
</table>

! If you are considering using 4.25% Dextrose Solution or have any questions about which solutions to use, call your PD nurse.
## My Guide for PD Treatments

<table>
<thead>
<tr>
<th>Your Weight Range</th>
<th>Weight range of:</th>
<th>Weight range of:</th>
<th>Weight range of:</th>
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</thead>
<tbody>
<tr>
<td>My target weight is: [STAR]</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Your Blood Pressure (BP)</th>
<th>BP reading of:</th>
<th>BP reading of:</th>
<th>BP reading of:</th>
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<tbody>
<tr>
<td>• Systolic</td>
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<tr>
<td>• Diastolic</td>
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<td>[ ]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level of Body Swelling</th>
<th>No swelling</th>
<th>No swelling, or some swelling or puffiness in face, tightness in hands, lower legs, or ankles</th>
<th>Swelling or puffiness in face, hands, lower legs, or ankles</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Strength of Dialysis Solution</th>
<th>YELLOW pull ring 1.5% Dextrose Solution</th>
<th>GREEN pull ring 2.5% Dextrose Solution</th>
<th>RED pull ring 4.25% Dextrose Solution</th>
</tr>
</thead>
</table>

## Notes

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My Guide for PD Treatments

<table>
<thead>
<tr>
<th>Your Weight Range</th>
<th>Weight range of:</th>
<th>Weight range of:</th>
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<tbody>
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<td>Your Blood Pressure (BP)</td>
<td>BP reading of:</td>
<td>BP reading of:</td>
<td>BP reading of:</td>
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<td></td>
<td>• Systolic</td>
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<td></td>
<td>• Diastolic</td>
<td>• Diastolic</td>
<td>• Diastolic</td>
</tr>
<tr>
<td>Level of Body Swelling</td>
<td>No swelling</td>
<td>No swelling, or some swelling or puffiness in face, tightness in hands, lower legs, or ankles</td>
<td>Swelling or puffiness in face, hands, lower legs, or ankles</td>
</tr>
<tr>
<td>Strength of Dialysis Solution</td>
<td><strong>YELLOW</strong> pull ring 1.5% Dextrose Solution</td>
<td><strong>GREEN</strong> pull ring 2.5% Dextrose Solution</td>
<td><strong>RED</strong> pull ring 4.25% Dextrose Solution</td>
</tr>
</tbody>
</table>

Notes
1. Keeping your fluid in balance will help you prevent fluid overload and dehydration.  
   True          False

2. Too much fluid can lead to swelling, high blood pressure, trouble breathing, and rapid weight gain.  
   True          False

3. If you notice less urine output, tell your PD nurse, as directed.  
   True          False

4. PD solution comes in just one strength.  
   True          False

5. What should you do each day to check your fluid balance?  
   a. Weigh yourself and record it  
   b. Take your blood pressure and record it  
   c. If you use a cycler, record your ultrafiltration information  
   d. All of the above

6. In the morning, check for swelling around your eyes.  
   True          False

7. If you have too much fluid (fluid overload) in your body, you should:  
   a. Consume less fluid  
   b. Limit salt (sodium) intake  
   c. Talk to your PD nurse about using a higher-strength PD solution  
   d. All of the above

8. If you have too little fluid in your body (dehydration), you should:  
   a. Consume more fluid  
   b. Talk to your PD nurse about using a lower-strength PD solution  
   c. Eat some salty foods  
   d. All of the above

9. When choosing PD fluids, a 1.5% dextrose solution will remove the least amount of fluid.  
   True          False

10. What are some of the actions you should take if you have swelling or puffiness in your face, hands, lower legs, or ankles?  
    a. Check your weight and blood pressure  
    b. Check to make sure you are using the correct PD solution  
    c. Decrease your fluid and salt intake  
    d. All of the above

Patient Signature:  

Date: __________________________

Answers: 1–True, 2–True, 3–True, 4–False, 5–True, 6–False, 7–True, 8–d, 9–d, 10–d
**PD Training: Patient Checklist**

**Managing Fluids on Peritoneal Dialysis (PD)**

Patient Name: ____________________________________________

Person Trained: ____________________________________________

Relationship to Patient: ___________________________________

Completed by (Signature): ___________________________ Date: __________

**Patient Training/Retraining Checklist Instructions**

- The Patient Training Checklist should be used to help track the patient’s progress while being trained, to refresh the learning of a current patient/caregiver or to retrain a returning patient.
- Place the date in the appropriate box as the patient verbalizes understanding of a topic or successfully completes a return demonstration of a procedure.
- If the topic is not applicable (N/A) to the patient, place the date in the N/A column.
- Use Notes section as needed to indicate future training needs.

<table>
<thead>
<tr>
<th>Patient demonstrates or verbalizes understanding of:</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
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<tbody>
<tr>
<td><strong>Fluid in your body</strong></td>
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<tr>
<td>- Body has two kinds of weight</td>
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<tr>
<td>- Fluid weight</td>
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<tr>
<td>- Body weight</td>
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<tr>
<td>- Fluid Weight + Body Weight = Total Weight</td>
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<tr>
<td>Patient demonstrates or verbalizes understanding of:</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
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<tr>
<td>What affects fluid in your body when your kidneys don’t work</td>
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<tr>
<td>• Salt (sodium) you consume affects how much fluid you drink and retain</td>
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<tr>
<td>• Fluid you drink or eat</td>
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<tr>
<td>• Urine output</td>
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<tr>
<td>• Amount of fluid removed by PD</td>
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<tr>
<td>• Your PD nurse and/or dietitian will help you set how much fluid you can drink each day</td>
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<tr>
<td>• Patient understands daily amount of fluid to drink</td>
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<table>
<thead>
<tr>
<th>How fluid balance affects your health</th>
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<tbody>
<tr>
<td>• Keeping fluid in balance helps you and your physician manage your health</td>
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<tr>
<td>• Too much fluid can lead to swelling, high blood pressure, trouble breathing or rapid weight gain</td>
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<td></td>
<td></td>
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<tr>
<td>• Too little fluid can lead to low blood pressure, dizziness, nausea or rapid weight loss</td>
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<table>
<thead>
<tr>
<th>Fluid balance is important because it may help you avoid issues such as:</th>
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</thead>
<tbody>
<tr>
<td>• Too much fluid (fluid overload)</td>
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<td></td>
<td></td>
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<tr>
<td>• Too little fluid (dehydration)</td>
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<td></td>
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<tr>
<td>• If you notice more or less urine output, call your PD nurse, as directed</td>
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<table>
<thead>
<tr>
<th>Checks to do every day</th>
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</thead>
<tbody>
<tr>
<td>• Weigh yourself and record it</td>
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<td></td>
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<tr>
<td>• Take your blood pressure as you were taught and record it</td>
<td></td>
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<tr>
<td>• Record your ultrafiltration information if you use a cycler</td>
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<tr>
<td>• Record this information on your home treatment record sheets or as directed. Bring these records to your next doctor visit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Checks to do every day (continued)</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
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<td>-----------------------------------</td>
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</tr>
<tr>
<td>Urine output: keep track of it</td>
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<tr>
<td>Swelling: check morning and later in the day around your eyes and in your hands, lower legs, ankles</td>
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<tr>
<td>How you feel</td>
<td></td>
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<tr>
<td>Tell your PD nurse if you have symptoms of sudden weight gain or weight loss, high or low blood pressure, swelling, difficulty breathing, dizziness, or nausea</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Fluid overload</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid overload is having too much fluid in your body</td>
<td></td>
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<tr>
<td>Can occur when PD treatments remove too little fluid from your body, when you drink too much fluid, or your urine output decreases</td>
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</tr>
<tr>
<td>Fluid overload may cause some or all of these symptoms:</td>
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<td></td>
<td></td>
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<tr>
<td>Rapid weight gain</td>
<td></td>
<td></td>
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<tr>
<td>High blood pressure</td>
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<tr>
<td>Swelling and puffiness in your face and around eyes, hands, lower legs and ankles, especially in the morning and evening</td>
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<tr>
<td>Tightness in rings, waistbands, shoes</td>
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<td></td>
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<tr>
<td>Trouble breathing when walking, climbing stairs, lying down</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>What to do for fluid overload</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consume less fluid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divide your fluid for the day between meals and snacks</td>
<td></td>
<td></td>
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<tr>
<td>Know how much fluid a cup or mug holds and use it all the time</td>
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<tr>
<td>Talk to your PD nurse about using a higher-strength PD solution and how long you should use it</td>
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<tr>
<td>Limit salt intake</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>If your symptoms do not improve, call your PD nurse as directed</td>
<td></td>
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</tbody>
</table>
### Dehydration
- Dehydration is having too little fluid in your body
- Can occur when PD treatments remove too much fluid from your body, if you are not drinking enough fluid, or if your urine output increases
- Symptoms: rapid weight loss, low blood pressure, feeling dizzy or sick, nausea or vomiting

### What to do for dehydration
- Consume more fluid
- Talk to your PD nurse about using a lower-strength PD solution and how long you should use it
- Eat salty foods like crackers
- If your symptoms do not improve, call your PD nurse as directed

### Choosing PD fluids
- There are three strengths of dextrose (sugar) dialysis solution
- The numbers tell you how much dextrose the bag contains
- Solution with higher amount of dextrose removes more fluid from your body than solution with lower amount of dextrose
  - 1.5% - Low dextrose solution, which removes the least amount of fluid
  - 2.5% - Mid-range solution
  - 4.25% - High dextrose solution, which removes the most fluid compared to 1.5% and 2.5% dextrose solutions
- Your PD nurse will work with you to select the best solution strength for your needs
- For some treatments, you may use two different concentrations of solution or all of the same strength
- Talk to your PD nurse if you have questions about solution or about choosing a higher-or lower-strength solution
Patient demonstrates or verbalizes understanding of:  

Yes | No | N/A
---|---|---

Using *My Guide for PD Treatments* to choose strength of PD solution

- Factors to record in chart:
  - Weight
  - Blood pressure
  - Body swelling

Final checks  

Yes | No | N/A
---|---|---

Lesson reviewed
New words reviewed
Self-test completed

Patient Signature: ____________________________  Date: ____________________

Notes

(If topic not completed or retraining required, specify reason. Procedure training may be documented if applicable.)
Notes

Additional Resources on PD

www.livenow.info  www.renal.org
www.kidney.ca  www.kidney.org
www.kidneycampus.ca  www.agir.ca
www.ontariorenalnetwork.ca  www.kidneyhealth.ca/wp
www.bcrenalagency.ca  www.nshealth.ca/renal-program