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Types of PD

There are two main types of PD therapy and although many choose to do the therapy at home, there are also in-center options and combination therapies.

Continuous cycling peritoneal dialysis (CCPD) is just how it sounds. It uses a machine called a cycler to continuously/automatically do your exchanges at night while you sleep. Generally three to five exchanges are done each night and you empty the drainage bag when you wake up in the morning. This program gives you more freedom because you aren?t hooked up to a machine during the day. Each nightly session lasts at least eight to ten hours. Some programs also have you start an exchange in the morning and the dialysate dwell lasts the entire day.

Benefits of CCPD:

- No exchanges necessary to do during the day.
- Some data indicate potentially lower risk of infections since there are less contact opportunities than with CAPD, however data is mixed.
- Potentially lower risk of infections if you do a dry day as compared to a full day dwell since an empty stomach could increase the immune response (1)
- Continuous ambulatory peritoneal dialysis (CAPD) doesn?t use a machine and is something that you do during the day. Here you use gravity to move the dialysate through your abdomen with a series of exchanges. Normally patients need three to four exchanges each day with one longer dwell during the night. The exchanges can be done in any clean environment and you are free to be active during each dwell.
- Additional therapies exist that use a combination of CAPD and CCPD. This type of therapy allows exchanges between the day and the night. Combination therapy more closely mimics the natural activity of your kidneys that work 24/7/365. It also might not be covered under many health plans and your providers will be able to determine if this is the right plan for you.

Benefits of CAPD:

- More control as a patient since you primarily perform the exchanges and determine when and where you do them.
- You are also free to move around during dwells so less time spent dialyzing.
- Less equipment needed and less chance for mechanical failure.

- A combination therapy could allow for automated exchanges during the night and manual exchanges during the day. The potential benefit of combination therapy is that it is more constant dialysis, which more closely mimics your natural kidney functions and leads to less fluid and dietary restrictions.
- PD isn?t an option for everyone and you and your team of doctors will determine what treatment plan works best.

1.Piraino, Beth Bernardini, Judith Brown, Edwina et al., ISPD Position Statement on Reducing the Risks of Peritoneal Dialysis- Related Infections. *Peritoneal Dialysis International* . 2011 Vol 31 no.6, 614-630. Retrieved from http://www.pdiconnect.com/content/31/6/614.full [1] .

Equipment needed

For CAPD

Adequate clean space to do your exchanges ? the room or area you choose shouldn?t have a lot of traffic in or out, shouldn?t have open windows and should if possible have enough room for your other PD supplies.

Normally delivered monthly, you will need space for around 30 boxes of supplies. Your supply company will help you, but you might need a helper to organize the boxes within your residence. The boxes are pretty heavy and do need to be kept in a dry space.

You will also need:

- A chair ? this is where you will do your exchanges
- Table ? a clean surface that you can place your supplies on to perform an exchange
- Toilet ? used to dispose of dwell waste products
- I.V. pole ? or any other surface used to hang your dialysate bags from
- Heating pad ? to bring the dialysate up to body temperature. This provides both comfort and helps to speed along the exchange of fluids.
- Scale ? used to help track your weight and progress during treatment
- Disinfectant ? used to keep you and your work surfaces clean
- Masks ? needed for you and your partner to minimize the risk of infection
- Dialysis supplies (bags of dialysate, waste bags, connection devices) ? monthly supplies that you will use to do each exchange

- Supplies for documenting your care such as paper and pencil or a computer document

For CCPD

Similar equipment is needed for CCPD, but the main difference is the need for an automated cycling machine.

Machines currently available include:

- The Baxter HomeChoice and HomeChoice Pro information found here [2].
- The HomeChoice is a pump based cycler that helps you perform PD treatments at night.
- The HomeChoice Pro captures information during a dialysis session and sends this information to your providers. This allows your doctor to update your treatment and monitor your condition.
- The Fresenius Medical Care Liberty Cycler and Newton IQ Cycler information can be found here [3].
- The Liberty cycler features a large color touch screen and can be used for both time-based and cycle based programs.
- The Newton IQ Cycler works similarly to the HomeChoice Pro system and enables your providers to monitor your treatment progress and make updates based off of your information.

Beyond the machine you will also need:

- Dialysis supplies (larger bags of PD solution, drain bag or drain line, cassettes and tubing and other connection devices)
- Masks
- Disinfectant
- Space for your machine and supplies
- Scale
- Table
- Depending on the machine type, supplies for documenting your care such as paper and pencil or a computer document.

Benefits and challenges of PD

Benefits:

- Less travel expenses than in-center treatments
- Potential for higher care satisfaction compared to in-center treatments[1]
- Choosing PD more closely mimics the natural action of your kidneys and is done more consistently than hemodialysis, which can lead to better health outcomes[2]
- Increased flexibility since treatments are either done as you sleep or can be completed at work and at your convenience
- Less dietary restrictions than hemodialysis
- You don?t need a needle to engage in treatment
- Being at home means that you don?t need to be around other patients that could be sick
- More flexibility to travel as compared to in-center dialysis
- Your blood stays in your body and does not go through a machine
- Works for patients that are not strong candidates for a fistula or an arterio-venous graft

Drawbacks:

- You do need substantial space to perform exchanges and to store supplies
- Catheters run a higher risk of infection (peritonitis), especially if they are not well maintained[3]
- Unless precautions are made, you can?t take a bath above your waste or swim
- More control over the therapy does mean you are more involved and there are no full off-days
- Depending on the type of treatment, you might have to dwell during the day and this can make you feel bloated or impact your appearance
- The dialysate solution contains sugar, which can lead to weight gain if not closely monitored
- Due to dextrose used in the dialysate, diabetic patients might have trouble managing their disease. However, new substances are being used that have little impact on blood sugar levels[4]
- Some patients also will need a dedicated caregiver or partner to help in exchanges or supply management
- Risk of changes to the peritoneum may cause patients to need to switch to hemodialysis
- Risk of back strain, hernias and muscle injuries caused by extra abdominal weight and pressure[5]
- Potential for a decrease in lean body mass and protein loss during treatments.[6]

1. Rubin Haya R., Fink Nancy E., Plantigna Laura C., et al. Patient Ratings of Dialysis Care with Peritoneal Dialysis vs Hemodialysis. *Journal of the American Medical Association*. 2004; 291(6): 697-703. Retrieved from http://jama.jamanetwork.com/article.aspx?articleid=198181#qundefined [4].

2. Chertow GM., Levin NW., Beck GJ., et al. In-Center hemodialysis six times per week versus three times per week. *New England Journal of Medicine*. 2011 Jan 6;364(1):93. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/21091062 [5].

3. Lafrance Jean-Philippe, Rahme Elham, Iqbal Sameena, et al. Association of Dialsis Modality with Risk for Infection-Related Hospitalization: A propensity Score-Matched Cohort Analysis. *Clinical Journal of the American Society of Nephrology*. 2012. Published online at http://cjasn.asnjournals.org/content/early/2012/08/15/CJN.00440112.full [6].

4. Dasgupta Mrinal K., Management of Patients with Type 2 Diabetes on Peritoneal Dialysis. *Advances in Peritoneal Dialysis.* 2005 Vol 21. Retrieved from http://www.advancesinpd.com/adv05/Adv20053d-1.pdf [7].

5. Mahale AS., Katyal A., Khanna R., Complication of peritoneal dialysis related to increased intra-abdominal pressure. *Advances in Peritoneal Dialysis.* 2003; 19:130-5. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/14763049 [8].

6. Stenvinkel Peter, Lindholm Bengt, Lonnqvist Fredrik., Increases in serum leptin levels during peritoneal dialysis are associated with inflammation and a decrease in lean body mass. *Journal of the American Society of Nephrology*. 2000 Vol 11:7 1303-1309. Retrieved from http://jasn.asnjournals.org/content/11/7/1303.full [9].

Links
[1] http://www.pdiconnect.com/content/31/6/614.full
[2] http://www.baxter.com/patients_and_caregivers/products/homechoice.html
[3] http://www.fmcna.com/fmcna/HomeTherapies/home-therapies.html
[4] http://jama.jamanetwork.com/article.aspx?articleid=198181#qundefined
[5] http://www.ncbi.nlm.nih.gov/pubmed/21091062
[6] http://cjasn.asnjournals.org/content/early/2012/08/15/CJN.00440112.full
[7] http://www.advancesinpd.com/adv05/Adv20053d-1.pdf
[8] http://www.ncbi.nlm.nih.gov/pubmed/14763049
[9] http://jasn.asnjournals.org/content/11/7/1303.full