

# What Fluid Removal and Blood Sugar Have in Common with Peritoneal Dialysis (PD)



**Do** you like strawberry shortcake? Have you ever made it or watched your mother or grandmother make it? A few quarts of fresh strawberries, hulled and sliced in an extra-large bowl; a cup or two of sugar sprinkled over the top and stirred in with a big spoon; then into the refrigerator it goes for a couple of hours. When it comes out, oh let the copiously sweet strawberry juices flow! How does that happen? It's the sugar that chemically draws the fluid out of the strawberries. The dextrose, or sugar in the PD solution, acts the same way as the sugar on the strawberries do to draw extra fluid out of your bloodstream and into the drain bag. However, when you are a patient with diabetes, there is sometimes a higher concentration of sugar than

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normal in your bloodstream. This can be controlled by adding insulin to your PD solution. Is your blood sugar controlled, or does it run 200 mg/dL or higher? If a blood sugar is uncontrolled at 200 mg/dL or above, then the fluid will not come out of the bloodstream because the sugar in the bloodstream is almost or equal to the sugar in the fresh solution dwelling in your peritoneal cavity.

I once had a patient who came into my office extremely angry. He wanted off PD because “it doesn’t work!” His legs were extremely swollen; he had shortness of breath and just feeling miserable. He said that he had been using 4.25% for several days and no extra fluid was being removed at all.

The patient didn’t realize that his consistently very high blood sugars prevented any fluid movement. In other words, the sugar in his bloodstream was close to or equal to the concentration of sugar he had dwelling. So, in order for PD to work, the sugar level in your blood must be lower than the concentration of sugar in the solution. A

very important point here is that if your sugar is high, it makes you thirsty. When you’re thirsty, you drink. The more you drink, the more fluid your body will hold on to making your tissues very puffy. So naturally one would choose the highest concentration, or 4.25%, to take off the swelling. When this patient checked his blood sugar in my office, it was 380 mg/dL. So, he was caught in this vicious cycle. Once he got control of his blood sugars, he was able to keep from getting fluid overloaded. To get help with his blood sugars, he contacted his Endocrinologist who helped him improve his blood sugar control. So, what do fluid removal and blood sugar have in common? Sugar. To get the fluid off, use a high concentration sugar in the PD solution; to keep the fluid off, maintain a blood sugar level well below 200 mg/dL at the most. That way you won’t get thirsty, and drink and get caught in the vicious cycle. If you have trouble controlling your blood sugar, please see your Endocrinologist or ask your Primary Care Physician for a referral. ■