

Our Mission

Fostering a culture of innovation.
Leading healthcare solutions.
Simplifying complex care.



www.soleohealth.com

Soleo Pharmacy Phone: _____

Home Health Agency: _____

Soleo Dietitian Name/Phone: _____

Total Parenteral Nutrition Overview



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INTRODUCTION

This booklet will provide an overview of total parenteral nutrition (TPN) and step-by-step instructions on your infusion. TPN infuses necessary nutrients into your bloodstream through a central venous catheter. Your provider should tell you whether you can eat or drink while on TPN.

Since you will receive TPN at home, you and/or a caregiver must learn how to infuse it and care for your catheter. If you are hospitalized, before you go home, a nurse may teach you about TPN so that you can begin learning how to:

- Operate the infusion pump
- Start and stop your TPN infusion
- Flush your catheter when infusion is complete

Soleo Health will deliver supplies to your home before the scheduled care begins. A Soleo Health or home health nurse will teach you or your caregiver everything you need to know to infuse your TPN. The nurse may make multiple visits at first to help you feel more comfortable with your TPN therapy. Soon, you or your caregiver will be able to care for your catheter and infuse your TPN independently. Generally, a nurse will visit you once a week to change the catheter dressing and draw blood work.

You will be provided contact information for nurses and pharmacists who are available 24 hours a day, 7 days a week, to help you with any problems that may arise. You will work closely with your Soleo pharmacist and dietitian during your time on TPN. They will review the results of your blood work and communicate with your provider and nurse regularly to ensure you receive a personalized patient experience.



THE TPN SOLUTION

Your TPN solution contains nutrients in the form of carbohydrates, protein, fat, vitamins and minerals, electrolytes, and water, similar to what you would receive with a balanced oral diet. Your body requires these nutrients to perform daily functions. Without the needed calories, the body will break down its tissues to produce energy if it does not receive adequate nutrition. This can cause weight loss, weakness, poor healing, and other negative side effects. The number of calories you need is determined by your weight, height, age, activity, and how much weight you may need to gain or lose. Your Soleo dietitian will work closely with you to determine your nutrient needs and goals.

CARBOHYDRATES

Carbohydrates are the primary energy source in your diet and fuel almost every body system, including your brain. Sources of carbohydrates are found in foods like potatoes, pasta, rice, fruit, dairy, and whole grains. All carbohydrates are broken down in the body into their simplest form, sugar (also known as glucose). TPN contains dextrose as the carbohydrate source.

FAT

Fat is a source of energy in your diet and provides essential fatty acids and calories, protects your major organs, and insulates your body against heat loss. Fat also helps carry specific vitamins for your body to utilize. Fat is found in oil, nuts, meat and dairy products. TPN contains lipids as the source of fat and is white in color. Your TPN may or may not contain lipids daily, so you may find that your TPN is clear on some days and white on other days. Your Soleo team will guide you on your infusion schedule. Lipids contain egg, soy and sometimes fish oil.

PLEASE NOTIFY YOUR SOLEO HEALTH TEAM IF YOU HAVE OF ANY FOOD OR DRUG ALLERGIES.

PROTEIN

Protein in your diet is vital for growth, building new tissue, and repairing injured tissue. It is also needed for healthy bones, muscles, skin, nails and hair. Food sources of protein include meat, dairy, nuts and beans. Protein is broken down in the body into amino acids, the protein source in TPN.

VITAMINS AND MINERALS

TPN contains suggested doses for 13 vitamins and 4 minerals as a standard. Your provider may also prescribe additional vitamins or minerals. Your nurse will teach you or your caregiver how to add vitamins to your TPN bag before infusing. Once you add vitamins, you must infuse the TPN bag within 24 hours. Call your pharmacist or dietitian if you have questions.

ELECTROLYTES

Electrolytes are essential for bone, nerve, organ, and muscle function. The electrolytes that can be added to your TPN solution are calcium, phosphorus, magnesium, sodium, potassium, chloride, and acetate. Electrolytes in your TPN are adjusted based on your clinical picture and blood work.

WATER

Water makes up over half of your body weight and plays a vital role in every cell in your body. It is especially important for your kidneys. TPN provides you with water to maintain your hydration based on your clinical picture and blood work.

MEDICATIONS

Some medications, such as antacids or insulin, can be added to your TPN. Once you add these medications, you must infuse the TPN bag within 24 hours. Call your Soleo Health pharmacist if you have questions.

SAFE PRACTICES FOR TPN

ASEPTIC TECHNIQUE

Aseptic technique keeps bacteria away from your TPN solution, catheter, and supplies. If bacteria enters your catheter or insertion site, a blood infection can occur, making you very ill. It is important to wash your hands and the work area carefully to help prevent infections.

HAND WASHING

It is imperative to wash your hands to remove bacteria before touching the catheter or infusion supplies. This will help prevent an infection of your catheter. Use an antibacterial liquid soap.

- 1

Turn on the water.
- 2

Wet your hands and wrists.
- 3

Apply the soap to your hands and rub your hands together to generate a good lather.
- 4

Scrub your hands thoroughly for at least 20 seconds.
- 5

Rinse your hands holding them with your fingers pointing downward.
- 6

Allow the water to run down from your wrists to your fingers.
- 7

Dry your hands with a clean paper towel.
- 8

Turn off the faucet using a paper towel. Do not touch the faucet handles with your clean hands.

Once you have washed your hands, do not touch anything except your catheter and supplies. If you touch anything, such as personal items or furniture, wash your hands again.

SELECTING A WORK AREA

Tables and surfaces in homes typically have dust and bacteria. The area where you set up your TPN should be clean and dry. Consider these factors when selecting your work area:

The surface should be easy to clean with an antibacterial wipe or soap and water, such as a countertop or table. If the surface is not washable, wipe it free of dust and spread a sterile drape or clean paper towels before preparing your TPN.

The area should be clear and free of clutter.

Keep pets and children away from the area once cleaned.

Avoid coughing or sneezing over the surface once cleaned.

FOR VIDEO INSTRUCTIONS ON HAND WASHING SCAN THE QR CODE ON PAGE 7



HOME TPN ADMINISTRATION

STEP BY STEP INSTRUCTIONS

SCAN THE QR CODE TO VIEW VIDEO FOR YOUR HOME TPN ADMINISTRATION

THIS INSTRUCTION GUIDE DOES NOT REPLACE THE FULL TEACHING SESSION TO BE PROVIDED BY A TRAINED NURSE



2-4 HOURS PRIOR TO INFUSING

- 1

Wash your hands
- 2

Clean work surface
- 3

Remove the TPN bag from the refrigerator and place it on the clean surface

WHEN READY TO START YOUR TPN



STEP 1

Wash hands for at least 20 seconds with anti-bacterial soap and water.

STEP 2

Clean your workplace and gather your supplies.

1. TPN BAG


2. ADDITIVES (IF PROVIDED)


3. IV TUBING SET


4. ALCOHOL WIPES


5. EMPTY SYRINGES


6. NEEDLES (IF NOT ALREADY ATTACHED TO A SYRINGE)


7. FLUSH SYRINGES





STEP 3

Inspect your IV site for:

- REDNESS
- SWELLING
- TENDERNESS
- WARMTH
- IF THERE IS A CHANGE, DO NOT INFUSE AND CONTACT YOUR NURSE

STEP 4

Inspect your medication.

- IS IT EXPIRED?
- IS YOUR NAME ON THE LABEL?
- IS IT THE RIGHT MEDICATION?
- ARE THERE ANY VISIBLE SPECKS OR FLOATING PARTICLES IN THE MEDICATION?



STEP 5

If you have medications or vitamins to add, verify the dose on both the additive label and TPN label. For example, the vitamin dose may be 10 mL. If they do not match, contact your Soleo Health pharmacist.

SPIKE YOUR TPN BAG

STEP 1

Remove the IV tubing from the wrapper and close the clamps.



STEP 2

Break off the yellow tab from the free flow valve.



STEP 3

Remove protective covers from the bag administration port and IV tubing spike.



STEP 4

Push the spike into the administration port on the IV bag. Twisting as you insert the spike can be helpful. **DO NOT** touch the spike or the end of the administration port.



STEP 5

Remove the air from the tubing by squeezing the yellow free flow clamp. This allows the tubing to fill with fluid.



STEP 6

- Hold the filter upright until completely filled with fluid and you see fluid continue past the filter to the end of the line
- Clamp the tubing and ensure the end of the line does not touch anything



LOAD THE TPN TUBING INTO THE INFUSION PUMP

(FOR VIDEO INSTRUCTIONS SCAN THE QR CODE ON PAGE 7)

STEP 1

Open the door of the pump by lifting the lever on the top of the pump.



STEP 2

Swing the door arm of the pump to the open position.

STEP 3

Place the tubing into the pump by inserting the yellow clip into the slot marked with the yellow arrow.



STEP 4

Insert the blue clip into the slot marked with the blue arrow.

STEP 5

Close the door arm of the pump. Be careful not to pinch the tubing in the door lock.



STEP 6

Click the door lever down to lock the door in the closed position.

STEP 7

Swab the end of your needleless connector using an alcohol wipe. Allow to air dry. Do not blot or fan.



STEP 8

Remove the cap from the saline flush. Holding the syringe upright, gently pull the plunger back to loosen it, and then push the plunger up to remove the air from the syringe.

STEP 9

Attach saline flush syringe to catheter adapter by firmly pushing and twisting. Gently, but firmly flush catheter with saline as prescribed (see label for dose). *Call your nurse if you are unable to flush the catheter or it is more difficult than usual.*



STEP 10

Connect the IV tubing to the needleless connector and unclamp IV tubing.



STEP 11

Turn the pump on by pressing the orange ON/OFF key. The pump will perform a self-test and then beep three times.



STEP 12

A screen with **PROGRAM** will appear. The cursor (highlighted area) will be on **PROGRAM**.



STEP 13

Select **PROGRAM** by pressing the **YES/ENTER** key. The screen will change to display **REPEAT Rx** and **NEW PROGRAM**.



STEP 14

Your pump should be preprogrammed by your Soleo Health pharmacist or nurse. Move the cursor (highlighted area) to **REPEAT Rx** by pressing the down arrow key.



STEP 15

Select the **REPEAT Rx** option by pressing the **YES/ENTER** key.



STEP 16

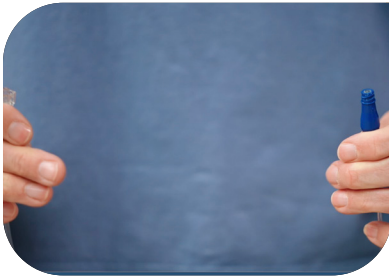
Your programmed settings will appear in the next two display screens for you to review. The display screen will scroll automatically. The **RUN OPTIONS** screen will now appear. Press the **RUN/PAUSE** button to start your infusion.



WHEN YOUR INFUSION IS COMPLETE

STEP 1

Once the infusion is complete, push the **RUN/PAUSE** button, then push the **ON/OFF** button to turn off your pump.



STEP 4

Disconnect the tubing from your IV needleless connector.



STEP 2

Wash hands thoroughly using soap and water for at least 20 seconds. Dry with a paper towel. Use your towel to turn off the faucet. Then clean the work surface

STEP 5

Flush your catheter. Swab the end of your needleless connector using an alcohol wipe. Allow to air dry. Do not blot or fan.



STEP 3

Collect needed supplies

1. ALCOHOL WIPES



2. FLUSH SYRINGES



3. ANTIMICROBIAL CAP



STEP 6

Remove the cap from the saline flush. Holding the syringe upright, gently pull the plunger back to loosen it, and then push the plunger up to remove the air from the syringe.



STEP 7

Attach saline flush syringe to catheter adapter by firmly pushing and twisting. Gently, but firmly flush catheter with saline as prescribed (see label for dose). Repeat with additional flushes as prescribed (for example, heparin). *Call your nurse if you are unable to flush the catheter or it is more difficult than usual.*



STEP 10

Remove the tubing from the pump.



STEP 8

- Flush your catheter. Swab the end of your needleless connector using an alcohol wipe. Allow to air dry. Do not blot or fan.
- Screw on the anti-microbial cap to the end of the IV needleless connector.
- If you have more than one lumen on your IV catheter, repeat the flush procedure above and screw on the anti-microbial cap.



STEP 11

Discard used medication bag and tubing in the appropriate waste container. Your TPN will have a small amount of fluid left in the bag (50-100 ml). If you feel there is more than that remaining in the bag, contact your Soleo pharmacist or dietitian.



STEP 9

To remove the tubing from the pump, lift the lever on the top of the pump and swing the door arm of the pump to the open position.



MONITORING GUIDELINES

It is important to pay attention to any changes in how you feel or look when you are on TPN. Reactions are rare, however do not hesitate to contact your Soleo pharmacist, nurse or dietitian should you experience a reaction.

CALL 911 OR REPORT TO THE NEAREST HOSPITAL SHOULD YOU EXPERIENCE A LIFE-THREATENING REACTION.

TEMPERATURE

Having an IV catheter puts you at risk for infection, which is why aseptic technique (see page 5) is so important. You should check your temperature daily. Your physician may give you specific guidelines for temperature to follow. If they have not, if it is 101° or higher report to the emergency room.

If you experience intense chills or shaking that does not subside quickly (with or without a fever), report to the nearest hospital immediately.

HYDRATION MONITORING

As reviewed previously, your body contains a lot of water. Your healthcare team will assist with monitoring your body's water level, or hydration. It is also important for you to monitor and report any changes to your healthcare team, such as the following:

- Swelling or fluid retention
- Sudden weight gain or weight loss
- Reduced urine volume or frequency, or dark color urine
- Dry mouth or increased thirst
- Feeling dizzy or lightheaded when standing

WEIGHT MONITORING

Your weight can fluctuate depending on the time of day and the scale used. It is best to check your weight at the same time of day, on the same scale, if possible. Report weight changes to your Soleo dietitian. Your Soleo dietitian will work closely with you to ensure you are meeting your weight goals.

INTAKE AND OUTPUT MONITORING

Intake is the fluid you consume by mouth or through your IV, like TPN or IV fluids. Output is the fluid you lose or secrete, like urine, vomit, liquid stool or fistula drainage.

Your dietitian or doctor may ask that you record your intake and/or output. You can use the log provided at the end of this booklet. It can help to have designated measuring cups for both intake and output measurements. You can measure in cups, fluid ounces or milliliters, just be consistent. When measuring your intake, include anything you drink as well as anything that turns to liquid at room temperature, such as popsicles, Jello, and ice cream.

GLUCOSE MONITORING

In some cases, blood sugar or glucose monitoring is necessary during your TPN infusion. TPN can change your glucose level, but it should not go too high or low. It is important to know the signs and symptoms if it is too high or too low.

HYPERGLYCEMIA

Hyperglycemia is a high glucose level (150 or higher) and can occur when the TPN is running. Glucose can also be high if you eat foods high in sugar or carbohydrate, have an infection or take steroids. Symptoms include thirst, nausea, weakness, and/or headache. If you are experiencing these symptoms, report them to your physician, nurse or Soleo Health pharmacist, nurse or dietitian.

HYPOGLYCEMIA

Hypoglycemia is a low glucose level (70 or lower) and can occur after the TPN infusion is complete or if you stop the TPN infusion abruptly. Symptoms include feeling weak, dizzy, shaky and sweaty. You can also become faint or confused. Hypoglycemia must be treated immediately with eating or drinking something with sugar. Examples include 4 ounces of fruit juice, a tablespoon of sugar or honey, or glucose tablets (available at retail pharmacies). Notify your physician and Soleo pharmacist, nurse or dietitian immediately.

IF YOU HAVE ANY QUESTIONS OR CONCERNS ABOUT YOUR TPN, OR PLAN TO TRAVEL WITH TPN SOLUTION, PLEASE CONTACT YOUR SOLEO HEALTH PHARMACIST, NURSE, OR DIETITIAN.

HOME MONITORING LOG

Keeping a log can be helpful to review with your dietitian and physician.

Date	Time	Weight	Temp	Blood Sugar	Intake	Output	Notes

Date	Time	Weight	Temp	Blood Sugar	Intake	Output	Notes

SOLEO’S NUTRITION SUPPORT CLINICIANS CAN BE REACHED AT: Nutrition_Support@soleohealth.com