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Kidneys

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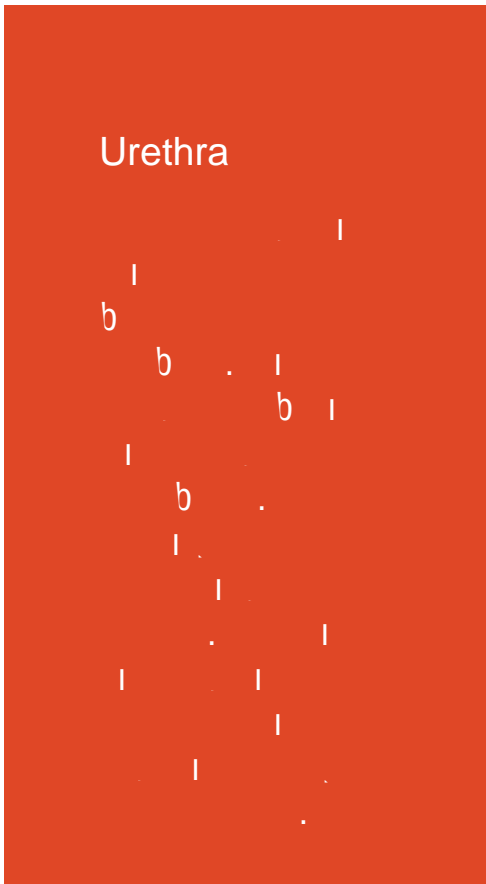
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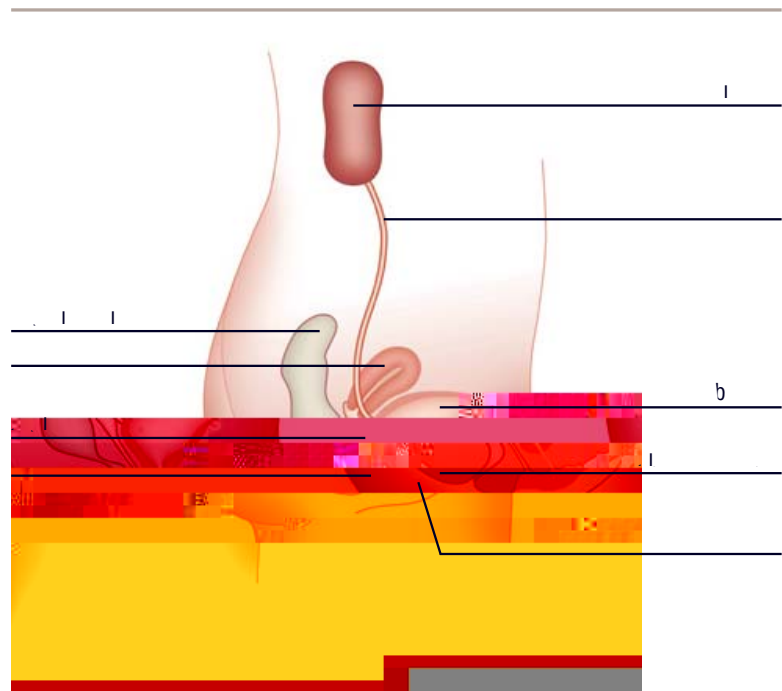
Bladder

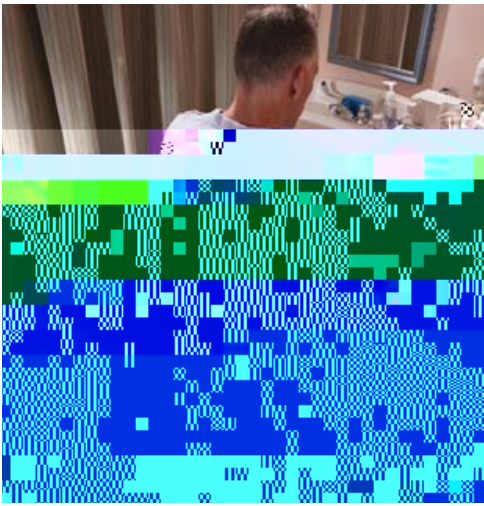
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Females



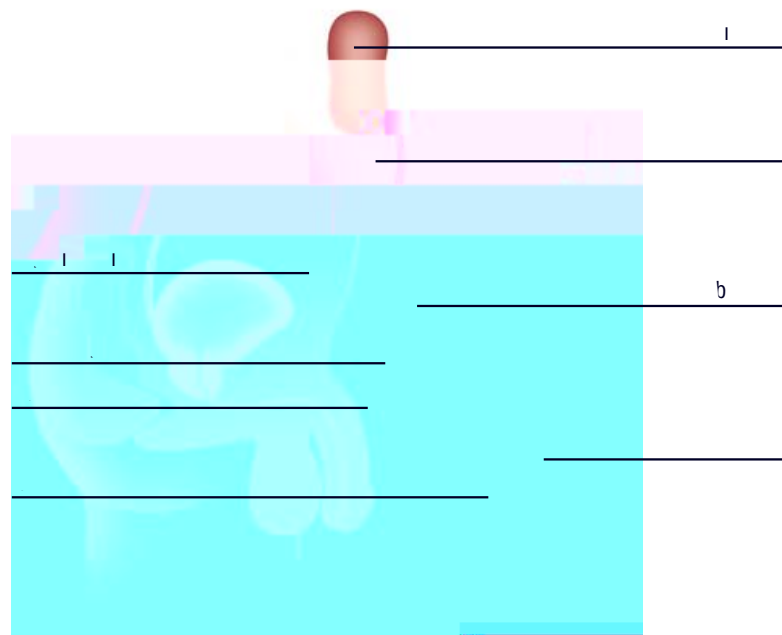
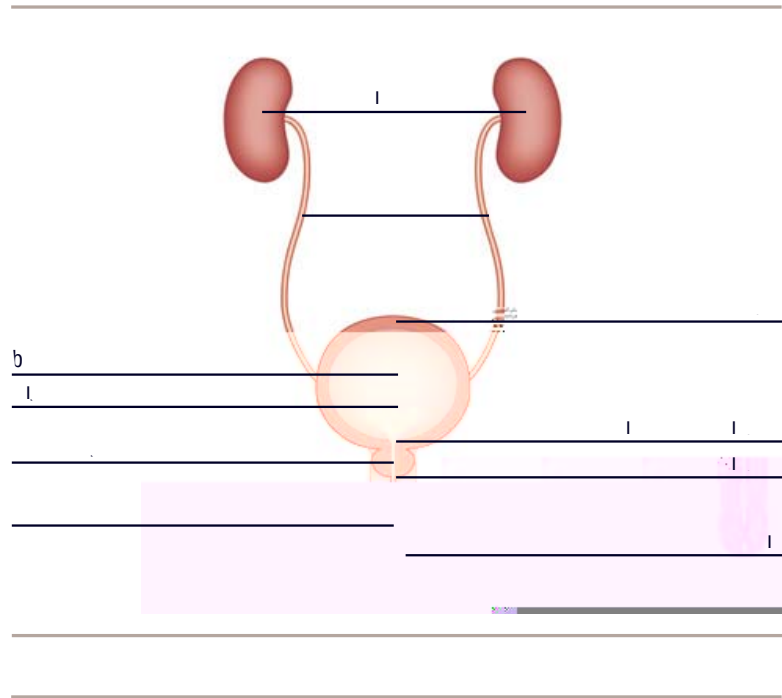
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Males

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Common Issues

Neurogenic Bladder Disorder

You may experience these signs if you have a urinary tract infection:

• Pain

• Burning

• Frequency

• Urgency (the need to urinate immediately)

• Cloudy

• Blood in the urine

• Fever

Urinary Tract Infections

Urinary tract infections (UTIs) are common bacterial infections that affect the urinary system, which includes the kidneys, ureters, bladder, and urethra. The most common type of UTI is a bladder infection (cystitis), which is caused by bacteria entering the bladder through the urethra. Symptoms of a UTI include pain or burning during urination, frequent urination, urgency, cloudy or bloody urine, and fever. UTIs are most common in women and can be prevented by drinking plenty of water, urinating frequently, and practicing good hygiene. If you experience any of these symptoms, it is important to see a healthcare provider for diagnosis and treatment.

Timely Recognition

Recognizing the signs of a urinary tract infection (UTI) early is crucial for effective treatment and preventing complications. Common symptoms include pain or burning during urination, frequent urination, urgency, cloudy or bloody urine, and fever. If you experience any of these symptoms, it is important to see a healthcare provider for diagnosis and treatment. Early recognition and treatment can help prevent the infection from spreading to the kidneys, which can lead to more serious complications. Additionally, timely treatment can help relieve symptoms and prevent further discomfort. If you are unsure if you have a UTI, it is always best to consult with a healthcare professional for a proper diagnosis.

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Medications

1. **Antibiotics**
a. **Penicillins**
i. Penicillin G (aqueous suspension)
ii. Penicillin V (oral tablets)
iii. Amoxicillin (oral tablets)
iv. Amoxicillin-clavulanate (oral tablets)
v. Cloxacillin (oral tablets)
vi. Dicloxacillin (oral tablets)
vii. Nafcillin (oral capsules)
viii. Oxacillin (oral capsules)
ix. Piperacillin-tazobactam (IV infusion)
x. Ticarcillin-clavulanate (IV infusion)

2. **Antifungals**
a. Fluconazole (oral tablets)
b. Itraconazole (oral capsules)
c. Voriconazole (oral tablets, IV infusion)
d. Isavuconazole (oral tablets)

3. **Antivirals**
a. Acyclovir (oral tablets, IV infusion)
b. Valacyclovir (oral tablets)
c. Ganciclovir (IV infusion)
d. Foscarnet (IV infusion)
e. Zidovudine (oral tablets)
f. Zalcitabine (oral tablets)
g. Didanosine (oral tablets)
h. Zalcitabine (oral tablets)
i. Zalcitabine (oral tablets)
j. Zalcitabine (oral tablets)

4. **Antiparasitics**
a. Metronidazole (oral tablets, IV infusion)
b. Flagyl (oral tablets, IV infusion)
c. Tinidazole (oral tablets)

5. **Anticancer drugs**
a. 5-Fluorouracil (oral tablets, IV infusion)
b. Capecitabine (oral tablets)
c. Gemtuzumab (IV infusion)
d. Irinotecan (IV infusion)
e. Mitomycin (IV infusion)
f. Prochlorperazine (oral tablets, IV infusion)
g. Prochlorperazine (oral tablets, IV infusion)
h. Prochlorperazine (oral tablets, IV infusion)
i. Prochlorperazine (oral tablets, IV infusion)
j. Prochlorperazine (oral tablets, IV infusion)

Fluids

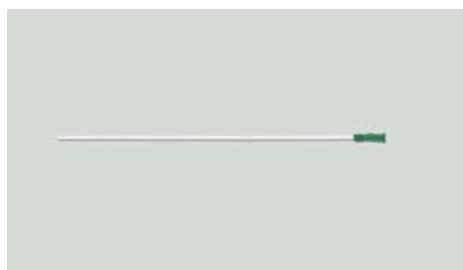
1. **Crystalloids**
a. Normal Saline (0.9% NaCl)
b. Lactated Ringers (LR)
c. D5W (5% Dextrose in Water)
d. D5NS (5% Dextrose in Normal Saline)
e. D5LR (5% Dextrose in Lactated Ringers)
f. D5 1/2NS (5% Dextrose in 1/2 Normal Saline)
g. D5 1/2LR (5% Dextrose in 1/2 Lactated Ringers)
h. D5 1/4NS (5% Dextrose in 1/4 Normal Saline)
i. D5 1/4LR (5% Dextrose in 1/4 Lactated Ringers)
j. D5 1/8NS (5% Dextrose in 1/8 Normal Saline)
k. D5 1/8LR (5% Dextrose in 1/8 Lactated Ringers)

2. **Colloids**
a. Albumin (5%, 10%, 20%)
b. Dextran (40, 50, 70, 100)
c. Hydroxyethyl starch (130, 130-0.5, 130-0.6, 130-0.7, 130-0.8, 130-0.9)
d. Tetrahydrozoline (10%)
e. Tetrahydrozoline (10%)
f. Tetrahydrozoline (10%)
g. Tetrahydrozoline (10%)
h. Tetrahydrozoline (10%)
i. Tetrahydrozoline (10%)
j. Tetrahydrozoline (10%)

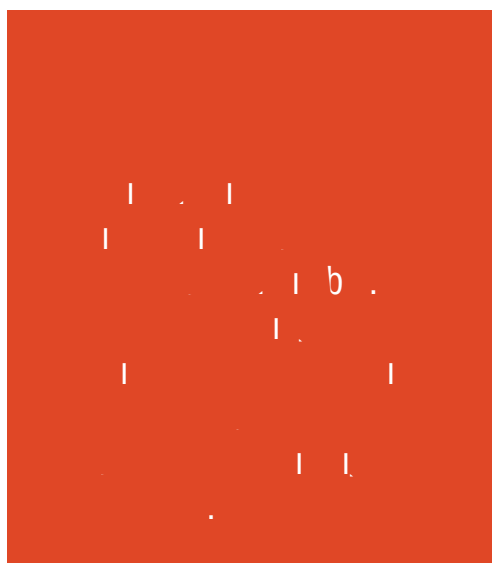
3. **Electrolyte Solutions**
a. 0.9% NaCl
b. 0.45% NaCl
c. 0.225% NaCl
d. 0.18% NaCl
e. 0.15% NaCl
f. 0.12% NaCl
g. 0.1% NaCl
h. 0.09% NaCl
i. 0.08% NaCl
j. 0.07% NaCl
k. 0.06% NaCl
l. 0.05% NaCl
m. 0.04% NaCl
n. 0.03% NaCl
o. 0.02% NaCl
p. 0.01% NaCl

4. **Other Solutions**
a. 5% Dextrose in Water
b. 5% Dextrose in Normal Saline
c. 5% Dextrose in Lactated Ringers
d. 5% Dextrose in 1/2 Normal Saline
e. 5% Dextrose in 1/2 Lactated Ringers
f. 5% Dextrose in 1/4 Normal Saline
g. 5% Dextrose in 1/4 Lactated Ringers
h. 5% Dextrose in 1/8 Normal Saline
i. 5% Dextrose in 1/8 Lactated Ringers

Catheters



1. Catheters are used for various purposes, including monitoring, drainage, and delivery of medication.



2. Catheters are typically made of plastic or silicone and are inserted into a patient's body.

(Cont'd)

Clean technique

Sterile Technique

Other Types of Catheters

If you are unable to insert and remove a catheter to drain your bladder, you may need to use an indwelling catheter. This type of catheter is held in the bladder by an inflatable balloon and it provides continuous drainage. Complications of indwelling catheters may include urinary tract infections, blood infections (septicemia), urethral injury, bladder stones, and/or blood in the urine (hematuria)*. Long-term indwelling catheters are replaced once a month or as recommended by your healthcare professional.

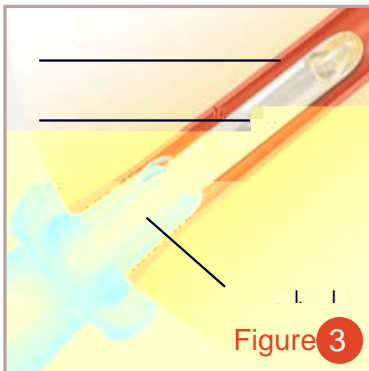
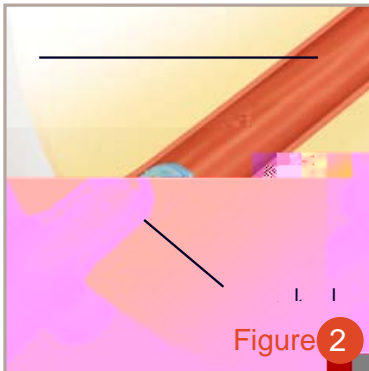
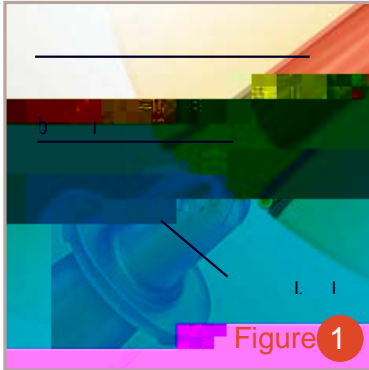
A suprapubic catheter is an alternative for individuals who have difficulty managing intermittent catheterization, such as those with paralysis of the arms or those for whom a urethral indwelling catheter is not an option. A suprapubic catheter is an indwelling catheter that is placed directly into the bladder through the skin above the pubic bone. This catheter must be placed by a urologist during outpatient surgery or an office procedure. The tube must be changed periodically as recommended by your healthcare professional.

With indwelling catheters, a drainage bag is required. There are two main types of drainage bags. One type is a leg bag that attaches by straps to the leg. A leg bag is usually worn during the day since it fits discreetly under pants or skirts, and is easily emptied into the toilet. The other type of drainage bag is larger. It may be used during the night and is usually hung on the bedside.

*Citation:

AU Hollingsworth JM, Rogers MA, Krein SL, et al. Determining the noninfectious complications of indwelling urethral catheters: a systematic review and meta-analysis. *Annals of Internal Medicine* 2013;159:401-410.

Size and Design



The size and design of the instrument are important factors in determining the effectiveness of the procedure. The instrument should be able to reach the site of the procedure and be able to perform the required task. The size of the instrument should be appropriate for the patient's anatomy and the procedure being performed. The design of the instrument should be ergonomic and comfortable to use.

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Protective Tip

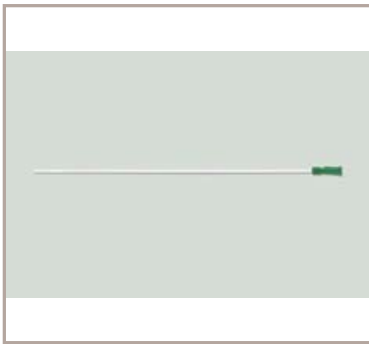
The protective tip is a feature of the instrument that helps to protect the patient's teeth and soft tissues. It is a small, rounded tip that is located at the end of the instrument. The protective tip is made of a soft material and is designed to be gentle on the patient's teeth and soft tissues.

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Catheter made from PVC

Catheter Materials

• PVC is a common material used for catheters. It is a thermoplastic polymer that is easy to process and has good mechanical properties. However, PVC is not biocompatible and can cause irritation and inflammation when used in contact with the body. It is also known to be cytotoxic and can release plasticizers over time.



Hydrophilic catheter

Lubrication

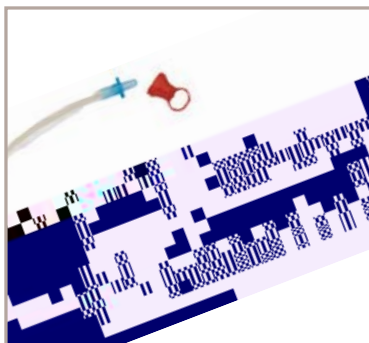
• Hydrophilic catheters are designed to be highly lubricated, allowing for easier insertion and removal. They are made from a material that absorbs water, creating a thin layer of water on the surface that reduces friction. This makes them more comfortable for the patient and reduces the risk of trauma and infection.



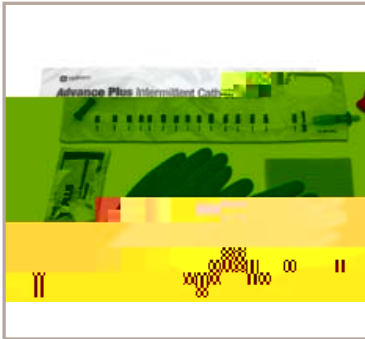
Closed system catheter

Closed System Catheters

• Closed system catheters are designed to prevent contamination and infection. They have a closed, sterile system that allows for intermittent catheterization without the need for a separate collection bag. This reduces the risk of urinary tract infections and other complications. They are often used in patients who are unable to void naturally and require intermittent catheterization.



No Touch System



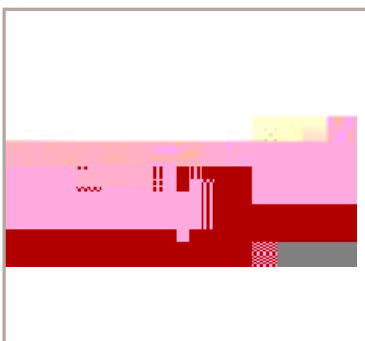
Catheter kit

Catheter Kits

Catheter kits are pre-packaged sets of supplies used for intermittent catheterization. They typically include a catheter, a collection bag, and other necessary components. These kits are designed for convenience and ease of use, allowing patients to perform catheterization at home without the need for a healthcare professional. They are commonly used for patients with urinary retention or those who are unable to void naturally.

No Touch Systems

No touch systems are designed to minimize the risk of infection during catheterization. These systems typically feature a closed, sterile collection bag that is connected to the catheter. The bag is designed to prevent the user from touching the catheter or the bag during the process. This design helps to reduce the risk of contamination and infection, making it a preferred option for patients who are at a higher risk of urinary tract infections. No touch systems are often used in hospital settings and for long-term catheterization.



Straight Catheter

Straight Catheter

A straight catheter is a single-use catheter that is used for intermittent catheterization. It is typically made of plastic and has a bulbous end that is used to draw urine from the bladder. The catheter is inserted into the urethra and connected to a collection bag. After use, the catheter is discarded. Straight catheters are commonly used for patients who are unable to void naturally or who have urinary retention. They are also used for patients who are unable to void due to medication or surgery.

Q: What is intermittent catheterization?

Intermittent catheterization (IC) is a procedure in which a catheter is inserted into the bladder to drain urine. It is used for people who cannot urinate on their own. IC is different from indwelling catheters, which are left in place for a long time. IC is usually done 4-6 times a day, depending on the person's needs. It is a safe and effective way to manage urinary incontinence.

Q: How do I learn intermittent catheterization?

Learning intermittent catheterization (IC) involves several steps. First, you need to be trained by a healthcare professional, such as a nurse or urologist. They will show you how to insert the catheter, how to drain the bladder, and how to care for the catheter. It is important to practice regularly to become comfortable with the procedure. You may also need to learn how to recognize when you need to catheterize. Some people use a bladder diary to track their urination patterns. It is also important to follow the instructions of your healthcare provider and to report any problems or complications.

Q: How often should I catheterize?

The frequency of intermittent catheterization (IC) depends on the individual's bladder capacity and the amount of urine produced. Most people catheterize 4-6 times a day. It is important to catheterize before the bladder becomes too full, as this can lead to complications. Some people may need to catheterize more often if they have a smaller bladder capacity or if they are taking medications that affect bladder function. It is important to follow the instructions of your healthcare provider and to report any problems or complications.

Q: What size catheter should I use?

A: The size of the catheter should be determined by the patient's anatomy and the clinical situation. For example, a 16-gauge catheter is typically used for central venous access, while a 22-gauge catheter is used for peripheral venous access. The size of the catheter should also be determined by the patient's age and weight.

Q: What features should a catheter have?

A: A catheter should have several features to ensure its safety and effectiveness. These features include:

- A lumen that is large enough to allow for the flow of fluids and medications.
- A catheter that is made of a material that is biocompatible and does not cause irritation or damage to the patient's tissues.
- A catheter that is flexible and easy to insert and remove.
- A catheter that has a secure connection to the patient's vein or artery.
- A catheter that has a low risk of infection and other complications.
- A catheter that is easy to use and maintain.

Q: Can I perform catheterization during pregnancy?

A: Yes, you can perform catheterization during pregnancy. However, you should be aware of the following risks:

- Infection
- Bleeding
- Pain
- Urinary tract infection
- Kidney damage
- Urinary incontinence

Q: Why do I have large amounts of urine when I catheterize at night?

A: If you have a urinary tract infection, you may have a large amount of urine when you catheterize at night. This is because the infection causes the bladder to produce more urine. You may also have a large amount of urine when you catheterize at night if you are taking a diuretic. A diuretic is a medicine that helps you get rid of extra fluid in your body. This can cause you to produce more urine.



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Q: How do I catheterize on a trip?

A: If you are going on a trip and you have a urinary tract infection, you may want to catheterize on a trip. This is because you may not have access to a bathroom. You can use a portable catheter to collect your urine in a container. This is a small, portable device that you can use anywhere. You can also use a portable catheter to collect your urine in a container. This is a small, portable device that you can use anywhere.

Aseptic Intermittent
Catheterization

Bladder

Bladder Control

Bladder Neck



External Sphincter

French

HealthHistory

Incontinence

Infection (Urinary)

Intermittent Catheterization

Internal Sphincter

Kidneys

Kidney Infection

Meatus

Neurogenic Bladder

Nocturia

(Cont'd)

Overactive Bladder

Ultrasound	I	b	I	I
	II	I		
	b	I		
Underactive Bladder	b	I	I	I
	I	I	I	I
	I	b		
	ibb			
Ureters	b	I	I	
	b			
Urethra	b	I	I	b
	I	b		
Urge Incontinence	I	I	I	I
	I	I	()
Urinalysis	I	I	I	I
	I	I	I	I
	b	I	(I b
	I	I	I	b
	I	I	b	I
Urinary Incontinence	I	I	I	I
Urinary Tract Infection (UTI)	I	b	b	I
	I			
Urine	I	I	I	I
	b	I	I	I
Urine	I	I	b	b
	I	I	I	I
Urinary Retention	I	b	I	b
	I	b	b	I
	b	I		
Urodynamic	I	I	I	I
	I			
Voiding (I)		

The American Urological Association

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Christopher and Dana Reeve Foundation

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The Miami Project to Cure Paralysis

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National Association for Continence (NAFC)

1. 00.
(1. 00.252.3337)

National Rehabilitation Information Center

1. 00.346.2742

Paralyzed Veterans of America

1. 00.232.17 2

The Simon Foundation for Continence

1. 00.23
(1. 00.237.4666)

National Multiple Sclerosis Society

1. 00.344.4 67

Spina Bi"da Association of America

1. 00.621.3141

Spinal Cord Injury Information Network

1.205. 34.32 3

Seekwellness

1. 00. 40. 301

United Spinal Association

1. 00. 62. 62

Wheel:Life

