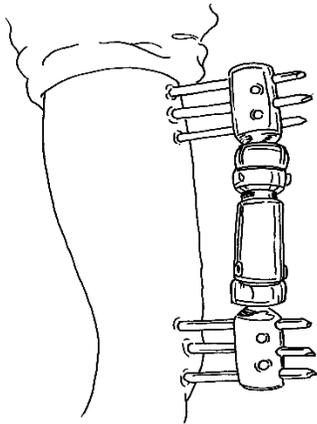
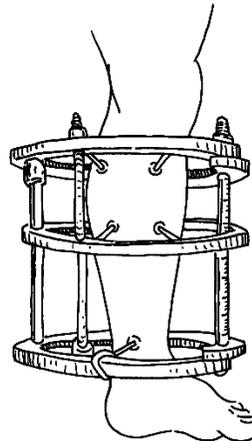


## What is an external fixator?

There are 2 types of external fixators: the monolateral fixator and the ring fixator. Both are special devices that hold an arm or leg in place with pins or wires while the bone mends or lengthens. These devices help to straighten, lengthen or turn the bone.



**Monolateral fixator**



**Ring fixator**

## Why is pin care important?

It is important to do pin care to keep the fixator, pins, wound and skin clean.

- The device is fitted to the outside of the arm or leg. Pins or wires that pass through the skin and into the bone hold it in place.
- Germs live on the outside of the fixator, pins and skin. They can cause an infection at the pin site.
  - Infection can cause pain and swelling and prevent the bone from healing.
  - Infection at the pin site can also cause a deeper infection close to or in the bone.

## What are the signs of infection?

Check for signs of infection every time you do pin care. Signs may include:

- Changes in skin color, increased redness or streaking of the skin around the pin
- Swelling
- Increased tenderness, pain or hardness at the pin site
- Increased drainage
- Change in color or smell of drainage
- Increased warmth to touch at the pin site
- Fever of 100.4°F or higher without other signs of sickness

**In case of an urgent concern or emergency, call 911 or go to the nearest emergency department right away.**

# Pin care, continued

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## What supplies do I need?

You will need these supplies:

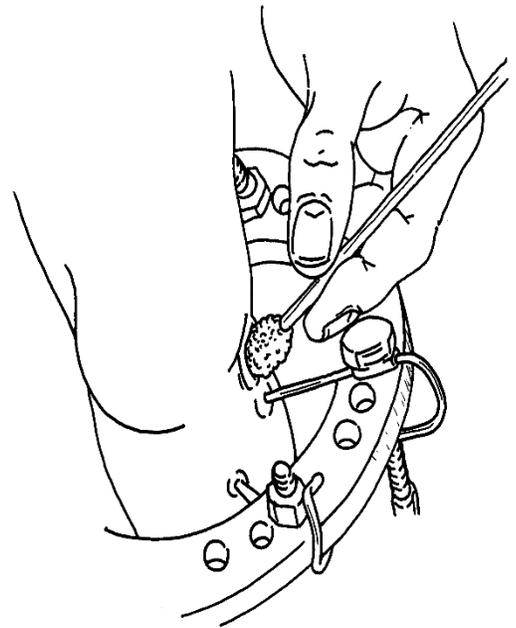
- Sterile saline (salt water)
- Clean cotton swabs
- 4 x 4 gauze squares (if there is drainage)
- New, soft bristle toothbrush
- 2 clean, dry towels
- Foam sponges for ring fixator device (if ordered by your child's doctor)
- Roll of surgical tape

## How do I clean the pin sites and wound?

Clean your child's pin sites and wound as your doctor tells you.

Some guidelines include:

1. Gather all of the supplies.
2. Wash your hands well with soap and water for at least 20 seconds.
3. Place a clean, dry towel under the arm or leg.
4. Wipe any drainage or loose crust from around the pin with a clean cotton swab.
5. Dip a clean cotton swab into the sterile saline.
6. Clean the skin around the pin in a circle.
  - Push the skin down and away from the pin. This prevents the drainage from building up at the pin sites. It also keeps the skin from sticking to the pins.
  - **Make sure no crust is left at the pin site or on the skin around the pin.**
7. Repeat these steps for each pin and wire site. Use a clean cotton swab for each pin site. Do not touch or use the same swab from one site to another.
8. If you have an incision or wound where the bone was cut:
  - The doctor may have used stitches or Steri-Strips to close the wound.
  - Check the site closely for any signs of infection. Change the bandage only if there is a lot of drainage, if it has fallen off, or as your doctor tells you.



**Use a cotton swab to clean skin around pin site**

**In case of an urgent concern or emergency, call 911 or go to the nearest emergency department right away.**

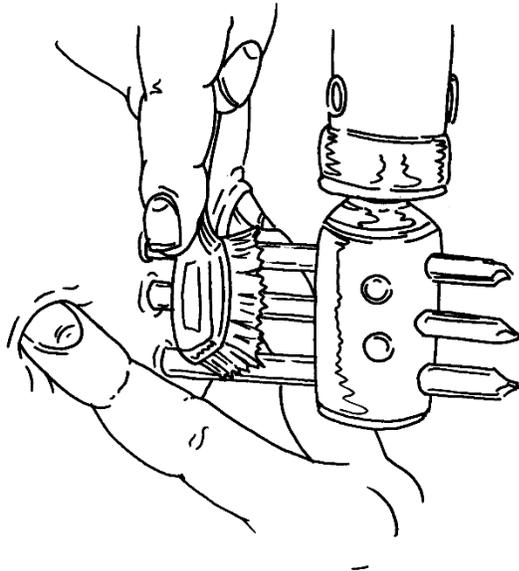
# Pin care, continued

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## How do I clean the pins and wires?

Clean your child's pins and wound as your doctor tells you. Some guidelines include:

1. Dip a clean cotton swab and soft bristle toothbrush into the sterile saline.
2. Clean the metal parts of each pin and wire that you can see. Do this all the way up to the fixator and down to the skin.
  - **Remove all crust, dried blood and scabs from the pins and wires.**
  - If the crust is hard to remove with the cotton swab, gently scrub the pins and wires with the toothbrush. Wipe clean with a new cotton swab.
  - You may need to do extra cleaning on pins with threads or screw lines.
3. Rinse the toothbrush and container with sterile saline after each cleaning. Wipe them dry, and store them in a clean area.



**Use soft bristle  
toothbrush to clean  
pins and wires**

## How do I clean the fixator?

1. Use a clean cotton swab or clean washcloth soaked with sterile saline to clean the device. Remove all dust or dirt.
2. Dry with a clean towel.
3. After the doctor says it is OK, your child may shower or take a bath.
  - In the shower or tub, gently clean the fixator with soap and water. Dry with a clean towel.
  - Also clean the pin sites and pins as you have been taught. Use a clean, soft bristle toothbrush to remove crust, dried blood and scabs if needed.
  - If the doctor says it is OK, you may add a little baking soda to the bath water to help soften the crust around the pins.

**In case of an urgent concern or emergency, call 911 or go to the nearest emergency department right away.**

# Pin care, continued

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## How do I make sterile saline?

You may buy sterile saline (salt water) at the drug store, or you can make your own at home. To make your own:

1. Wash your hands well with soap and water for at least 20 seconds.
2. Add one-quarter ( $\frac{1}{4}$ ) level teaspoon (tsp) of salt to 1 cup of clean tap water. Do not use iodized salt. Mix well with a spoon.
3. Pour the mix into a clean glass jar. Screw the lid on **loosely**.
4. Place the jar in a pan of water. Make sure the water level in the pan is at least three-quarters ( $\frac{3}{4}$ ) the height of the jar.
5. Put a lid on the pan.
6. Bring the water to a boil. Boil for 25 minutes.
7. Allow to cool.
8. Remove the jar, and tighten the lid.
9. Label the jar with the date and time. Store it in the refrigerator.
10. Throw away the saline and make a new mix after 3 days. Also throw away the saline if it becomes discolored or cloudy.

## How can I protect the pin sites and gauze bandages?

- Right after the surgery, the pin sites and wires are wrapped in 4 x 4 gauze bandages.
- Put clean 4 x 4 gauze squares on the sites after each cleaning if there is drainage from the pin site.
  - Unfold the gauze square, making it long (4 x 8). Fold it longways so it is about 1 x 8. This about 1 inch wide and 8 inches long.
  - Wrap the longer, thicker gauze around the pin site.
  - Hold it in place by adding a small piece of surgical tape.
- As your child heals, the drainage from the pin sites will decrease and you may not need to use gauze. The doctor will tell you when you can stop using gauze bandages.
- Drainage may increase after exercise, walking, increased activity and pin care. Try not to worry – this is normal.

## How can I help my child's pain?

- The doctor may give you a prescription for pain medicine to give at home. Your child should need less pain medicine over time. Call the doctor if you need a refill.
- You may give acetaminophen (Tylenol or less costly store brand) or ibuprofen (Motrin, Advil or less costly store brand) for pain when your child no longer needs the prescription pain medicine. Follow the directions on the box carefully, or ask your child's doctor how much medicine to give.

**In case of an urgent concern or emergency, call 911 or go to the nearest emergency department right away.**

# Pin care, continued

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## DO NOT:

- Give your child more than 5 doses of acetaminophen in 24 hours.
- Give acetaminophen to babies younger than 3 months old without talking with your child's doctor.
- Give ibuprofen to babies younger than 6 months old without talking with your child's doctor.
- Give acetaminophen and ibuprofen together.
- Raise the fixator arm or leg on pillows to help decrease swelling. This should help decrease pain.
- Your child may also do these things to help:
  - Play a favorite game.
  - Watch TV or listen to music.
  - Relax and meditate.
  - Massage gently around the fixator area with their fingers.
  - Think about doing their favorite things in a faraway place, like the beach.
  - Talk with friends.

## When should I call the doctor?

Call your child's doctor **right away** if you notice any of these changes at the pin or wound sites:

- Changes in skin color, increased redness or streaking of the skin around the pin
- Swelling that does not go away when the arm or leg is raised
- Increased tenderness, pain or hardness at the pin site
- Increased drainage
- Change in color or smell of drainage
- Increased warmth to touch at the pin site
- Numbness (feeling like the area is "asleep") at the site or in the arm or leg
- Loose parts, pins or screws

Also call if your child has:

- Fever of 100.4°F or higher without other signs of sickness
- Changes in how they move or walk
- Problems with turning the device to lengthen the bone
- Pain that is not helped with medicine

Call the doctor if you have any questions or any other concerns about how your child looks or feels.

**In case of an urgent concern or emergency, call 911 or go to the nearest emergency department right away.**

# Pin care, continued

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## Your checklist

This list can help you keep track of what you need to know about your child’s pin care before your child goes home. Ask your child’s nurse, therapist or doctor for help if you need more details.

### Before your child goes home, make sure you know:

- Why your child needs pin care.
- How to wash your hands before and after doing your child’s pin care.
- What to use to clean your child’s skin and pins.
- How to clean your child’s skin and pins.
- How to put a bandage on the area if needed.
- How to clean the equipment.
- How to get supplies.
- When to call the doctor or care team with questions or problems.

Notes: \_\_\_\_\_  
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**This teaching sheet contains general information only. Talk with your child’s doctor or a member of your child’s healthcare team about specific care of your child.**

**In case of an urgent concern or emergency, call 911 or go to the nearest emergency department right away.**