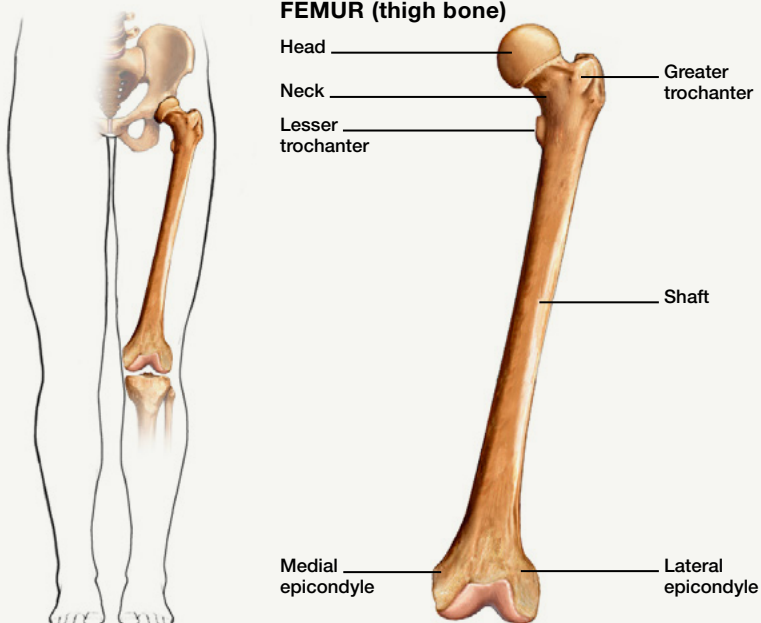




# Intramedullary Nailing for Femur Fracture Management

## A Guide for Parents

The femur is the longest bone in the body. It begins at the hip joint and ends at the knee. A femur fracture is typically sustained from high-energy impact such as motor vehicle collisions, falls from playground equipment, falls from furniture or resulting from a twisting mechanism. Children who have sustained a femur fracture are hospitalized on the Surgical/Trauma Unit in order to receive appropriate medical, nursing and rehabilitation care.



# FEMUR FRACTURE MANAGEMENT

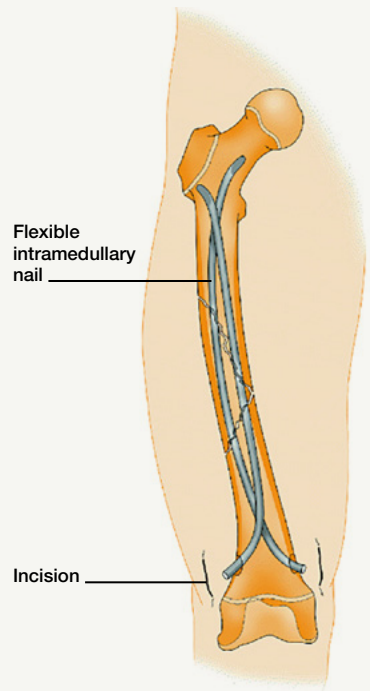
The pediatric Orthopedic Surgeon will assess your child in order to determine the optimal treatment method. Treatment goals include: achieving proper bone realignment, rapid healing, and the return to normal daily activities. The treatment method chosen is primarily based on the child's age but also taken into consideration are: fracture type, location and other injuries sustained if applicable. Prior to the surgery, your child may be placed in skin traction. This will ensure the bone is in an optimal healing position until it is surgically repaired. Occasionally, traction may be used for a longer period of time. The surgeon will determine if this management is needed based on the specific fracture type and/or location.

## ELASTIC/FLEXIBLE INTRAMEDULLARY NAILING

This surgery is performed by the Orthopedic Surgeon in the Operating Room under general anesthesia. The surgeon will usually make two small incisions near the knee joint in order to insert two flexible titanium rods (intramedullary nails) through the femur. Occasionally, additional small incisions may be necessary to realign the bone or insert the rod. The rods will maintain the bone's optimal healing position.

In most cases, neither a cast nor brace will be required post-surgery. Your child will therefore be able to move his hip, knee and ankle on the affected side. The joints will remain flexible and muscle strength will be maintained.

You can expect that your child's hip will appear swollen and you will notice small incisions on the sides. Your child will not be permitted to walk on the affected leg for approximately six weeks after the injury in order for the bone to heal. Usually the rods are removed within 6-12 months post-surgery. Removal of the flexible intramedullary nail is a quick procedure which is done in Day Surgery.



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Surgical Technique: Basic Principles, Flexible Intramedullary Nailing  
in Children, 2010, Pierre Lascombes and Jean-Damien Métaizeau,  
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## TYPICAL FEMUR FRACTURE MANAGEMENT

Age Range	Intervention
0-5 years old	Spica cast*
5-10 year old females	Flexible IM nailing
5-12 year old males	Flexible IM nailing
10 years and older females	Rigid IM nailing
12 years and older males	Rigid IM nailing

\* See Spica Cast brochure



## RIGID INTRAMEDULLARY NAILING

This surgery is also performed by the Orthopedic Surgeon in the Operating Room under general anesthesia. The surgeon will make an incision near the hip joint in order to insert a rigid rod (intramedullary nail) through the femur. The rod is fixed by screws at both ends and will keep the bone stable in order to ensure proper healing. In most cases, neither a cast nor brace will be required post-surgery. Your child will be able to move his hip, knee and ankle on the operated side. The joints will remain flexible and muscle strength will be maintained.

The hip will be swollen and you will notice small incisions on the side.

Depending on the fracture pattern, your child will be permitted to walk on the affected leg. In some instances weight bearing on the affected leg is not permitted for up to six weeks. Once the fracture has healed, the rod will remain within the femur and is typically not removed.

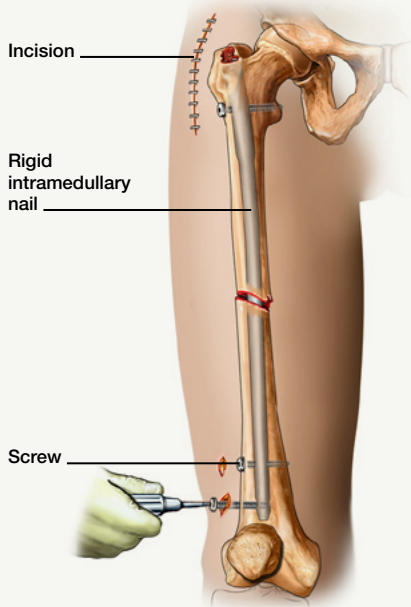


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# YOUR CHILD'S HOSPITALIZATION

Your child will typically remain in the hospital for 3-5 days post-surgery. In order to ensure his safety at home, he will need to be medically stable, comfortable and mobile. The MCH Trauma Interprofessional Team will follow him in order to ensure his well-being and progress.

In order to facilitate the recovery process, it is essential that your child moves as much as tolerated in order to prevent complications resulting from immobility. Your child will be given exercises for the affected leg and will be shown how to transfer from a wheelchair. He will also be shown how to stand and ambulate using a walker or crutches depending on his abilities.

Teaching for going up and down the stairs will be provided. He can do this on his buttocks or using crutches.

## Useful Tips

- **Practice physiotherapy exercises outside of the scheduled sessions. Nurses and/or Patient Care Attendants can assist you as needed**
- **Practice transfer techniques in order to become comfortable with the maneuvers as you are the primary care giver for your child at home**
- **Teach the transfer techniques to anyone closely involved in your child's care**

# CARE AT HOME

Throughout your child's hospitalization, the Trauma Coordinator and the Physiotherapist will help prepare you for your child's discharge home. Your child will be discharged when deemed medically appropriate and when his safety and comfort at home is assured.

The following information will be requested in order to facilitate a safe return home:

- Do you have stairs at home? If so, are they inside or outside, or both?
- Where is your child's bedroom situated?
- Where is the bathroom situated?
- Who will care for your child at home during recovery?
- What mode of transport does your child use to get to school?
- Does your child have access to an elevator at school?

Some children are discharged using crutches, others require a walker and some use a wheelchair for a period of time depending on their abilities, tolerance and comfort.

Equipment can be rented or purchased. You will be provided with vendor information.

## Useful Tips

- **During automobile travel, support the injured leg using pillows**
- **Reach out to family and friends for help when your child returns home from the hospital**

## Circulation

Verify the blood flow circulation to the injured leg by comparing the following to the uninjured leg:

- Color – your child’s foot and toes should remain its normal skin color
- Warmth – your child’s foot and toes should feel warm to the touch
- Sensation – your child should be able to feel you touching his foot and toes
- Movement – your child should be able to move his foot and toes

Verify the circulation every four hours for the first 24 hours, then twice daily for the remainder of the time.

## Pain

Children typically experience pain and discomfort following the surgery. You will be provided with a prescription for pain medication. Give the medication as prescribed and instructed by the doctor and/or nurse.

It is strongly recommended that you give the medication on a regular basis for the first 24-48 hours. This will help ease your child’s pain and/or discomfort.

## Swelling

Elevate your child’s leg as much as possible in order to help decrease swelling and pain. Follow the exercise recommendations provided by the Physiotherapist in order to prevent swelling and joint stiffness.

## Bathing

Your child will not be permitted to take a shower or a bath until the incision has healed. The Orthopedic Surgeon will inform you when this will be possible.

## Bathroom

Your child may use a regular toilet seat if he is able and comfortable doing so. A urinal and/or bedpan can also be used and is available for purchase in local pharmacies.

### Useful Tips

- **Place a stool in front of the toilet seat in order for your child to rest the injured leg**

## School

Your child may return to school when comfortable and once the school has been determined safe and accessible. Guidance will be provided by the Trauma Coordinator and the Physiotherapist. Most schools have an elevator accessible to students as needed. Contact your child’s school administrator for more information on elevator accessibility. For those children who cannot attend school due to the injury, homebound teaching can be arranged with the school. The Trauma Coordinator will provide you with the necessary documentation.

### Useful Tips

- **Some families find a progressive return to school helpful. Start with half-days as tolerated. Contact your child’s school in order to discuss this gradual return option**
- **In order to avoid crowds, request that your child be allowed to leave class 5 minutes before or after all other students**
- **Arrange for a classmate to help carry books and supplies**

You will receive the following documentation before you are discharged:

- Prescription for analgesics
- Prescription for equipment
- Follow-up appointment with the Orthopedic Surgeon
- Follow-up appointment with the Physiotherapist (if needed)
- Home exercise program
- Medical note for school and gym

**I Should Call my Doctor if:**

- Persistent numbness or tingling despite change of position
- Reddening or blue toes
- Swelling which increases or does not resolve
- Decreased mobility in toes
- Pain not relieved with medication
- Persistent fever for more than one day
- Foul odor or any drainage from the dressing

## RETURN TO SPORTS AND ACTIVITIES

If your child is not permitted to walk on the injured leg it is expected that within 6-8 weeks he will be able to resume weight bearing (as indicated by the Orthopedic Surgeon). The Physiotherapist will follow-up with you regularly in order to progress exercises to promote the return of strength and flexibility in the affected leg. Once your child is able to run and jump, he will be permitted to progressively return to physical activities and/or sports. This typically takes about 3-4 months post injury. Higher level sports may be delayed for a longer period. Always follow the recommendations provided by the Orthopedic Surgeon and Physiotherapist!

Complications and residual problems following a femur fracture in children are rare. If you or your child notices any new difficulty functioning since the injury or persistent discomfort in the affected leg, contact the Orthopedic Surgeon.

## IMPORTANT CONTACT INFORMATION:

**Alternative Care Module Nurse**

Monday to Friday 8h00-18h00  
514-412-4400, extension 23535

**Pediatric Orthopedic Clinic**

Monday to Friday 8h00-16h00  
514-412-4265

**Surgical/Trauma Unit**

Available at all times  
514-412-4400, extension 22433

**Trauma**

Monday to Friday 8h00-16h00  
514-412-4400, extension 23310

**Physiotherapy Department**

Monday to Friday 8h30-16h00  
514-412-4407