



Lawn Mower Injuries in Children

Many homeowners have gas or electric powered lawn mowers. Because lawn mowers are easy to use, children and adolescents are often charged with the weekly chore of mowing the lawn.

Although mowing the lawn may seem a routine chore, both push and riding lawn mowers are powerful machines with the potential to cause severe and life threatening injuries. Contact with the moving blades or the engine can result in a wide range of injuries, including burns, broken bones, and even amputation of limbs.

The American Academy of Orthopaedic Surgeons recommends children be at least age 12 before operating a push mower, and age 16 before using a riding lawn mower.

Risk for Injury

In 2010, more than 235,000 adults and 17,000 children in the U.S. were injured by lawn mowers, according to the US Consumer Product Safety Commission. Boys sustain 80% of lawnmower injuries, which most often occur on the arms or the hands.

Riding lawn mowers cause more injuries each year than push mowers, because they can tip and even roll over, placing a child at risk of being run over and severely injured.

Types of Injuries

Cuts

The sharp blades of a mower can injure the skin or go deeper into the muscles, ligaments, tendons, and bones. Cuts from lawn mowers can occur anywhere on the body, but most often occur on the hands and feet which can most easily get past the blade protectors.

Burns

The hot engine or gas tank of a lawn mower, or the exhaust from a petroleum powered mower can cause burns. Burns can happen anywhere on the body. They can damage the skin, or go deeper into the tissues injuring muscles, ligaments, tendons, and bones.

Broken Bones (Fractures)

The sharp, rotating blades of a mower can cause broken bones. Open fractures — in which the skin over a broken bone is cut or torn — are very common in lawn mower injuries. In addition to the broken bone, open fractures can cause serious injury to the surrounding muscles, tendons and ligaments, and increase the likelihood of infection and other complications in the wound and the bone. As a result, the treatment and recovery time is greater than a closed fracture.



A cut from a lawn mower that is being treated in the emergency room.

Amputation

In addition to causing cuts and tears, the sharp blades of a mower can sever part of an arm, leg, hand, or foot. Burns, cuts, and fractures can be so severe that the injured part of the body requires amputation to prevent infection and further complications.

First Aid Treatment

Immediately following a lawn mower accident, make sure that the child is away from further harm. Then, call emergency medical services (911 in most areas of North America), or bring the child to a doctor or emergency room.

Before the child is transported to a hospital or medical center, try to identify and stabilize the injury.

Wounds

An open wound can be covered lightly with a clean, dry bandage or cloth. If there is bleeding, apply gentle, direct pressure to the wound. Raising the child's arm above the heart will help minimize bleeding.

Fracture

If you think there might be a broken bone, it is best not to move the limb. If a broken bone is sticking out of the skin (open fracture), do not push the bone back in.

Amputation

If there has been an amputation, the separated body part should be brought to the hospital with you. In some cases the doctor may be able to reattach it. Wrap the amputated part in a clean, damp bandage, and place it in a plastic bag. Put the plastic bag in a container of water mixed with ice.

Doctor Examination and Tests

In the emergency room or doctor's office, your doctor will conduct a comprehensive examination of the injury, and assess soft tissue, nerve, and blood vessel damage. He or she will also check for additional injuries.

Depending upon how severe an injury is, your doctor may start antibiotic treatment to prevent infection. A tetanus shot may also be required.

If your doctor suspects a bone is broken, x-ray tests will be necessary. X-rays create images of dense structures like bone, and can show your doctor whether there is a fracture and, if so, how complex it is.

Findings from the examination and any tests help your doctor determine a treatment plan that will promote healing and future function.

Treatment

Some injuries can be treated in the emergency department and the child can go home the same day. More serious injuries may require admission to a hospital for days, weeks, or even months. Severe injuries may require one or more surgeries.

Cuts

Mild cuts may only need cleaning and bandaging.

More serious cuts that are deeper or involve muscles, tendons, or ligaments may require irrigating — the use of saline or other solution to remove debris and bacteria to prevent infection. This procedure can take place either in the emergency department or in the operating room.

Depending upon how much skin and tissue is lost, a cut may require surgery to ensure healing. During surgery, a piece of skin (skin graft) is taken from another site and used to cover the injury.

Burns

Severe burns may require surgery and treatment from a plastic surgeon. If a wound is contaminated with grass, clothing, or other material, it may require more than one operation to avoid infection and to ensure that the wound is clean enough to heal.

Fractures

Broken bones can sometimes be treated with just a cast or splint. If the bones are in a poor position, and do not line up properly to heal, the doctor may have to move or realign the bones before placing a cast or splint over the injured area.

Open fractures. If the skin is open over a broken bone, the injury needs to be cleaned and irrigated before surgery to fix the fracture. During surgery, the broken bones are put back into place and then fixed using devices like wires, screws, plates, or rods. This type of procedure is called internal fixation.

Sometimes an external fixator is used to secure the bones when damage to the skin and soft tissues prohibits an internal fixation. An external fixator is a metal frame that holds the broken bones in place with small pins that go through the skin and into the bone above and below the break.

Growth plate fractures. When a child breaks a bone, there can be injury to the growth plate (physis). Growth plates are areas of developing cartilage tissue near the ends of long bones. These plates regulate and help determine the length and shape of mature bone. When a growth plate is severely injured, it can slow or stop growth in the bone. This can cause differences in the length or the size of limbs. Damaged growth plates also can cause limbs to grow crooked.

Many growth plate fractures can be treated with cast immobilization, but surgical treatment may be necessary. Growth plate fractures require regular follow-up visits with your doctor to ensure proper long-term results.

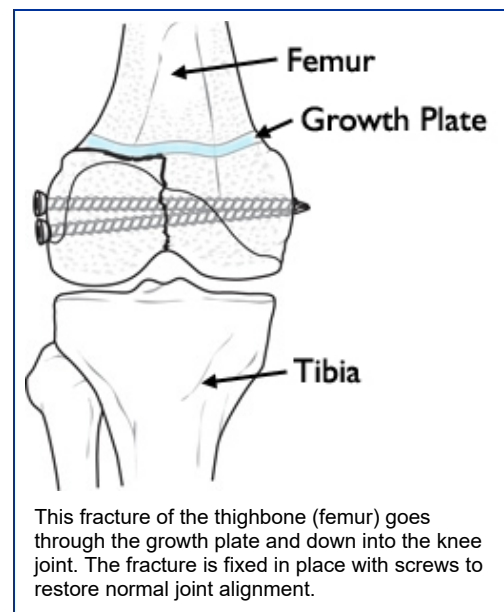
Amputation

If part of a limb is amputated or nearly amputated, the surgeon will decide if the injured part can be reattached. If the body part has been detached for too long, or the injury is too severe, reattachment may not be possible.

Severe Injuries

Severe injuries may require reconstructive surgery. In these procedures, the surgeon may need to shift healthy bones, muscles, tendons, or skin to new positions where they can compensate for body parts that are missing or working poorly. Depending on the type of injury, reconstructive procedures can be performed within days or weeks of the initial treatment, or it may be months before reconstructive surgery is recommended.

Reconstructive surgery can improve the way the body works and how it looks. It typically requires a team approach with orthopaedic surgeons working alongside plastic surgeons and vascular surgeons to ensure the best possible outcome.



Complications

Because of the severity of lawn mower injuries, they may take longer to heal than other injuries. In addition, the body may look and function differently after these injuries. Many complications can occur, including:

- Infection of the wound
- Loss of sensation (feeling on the skin) or strength
- Adhesions (fused skin, muscle, tendons, or ligaments)
- Decreased motion
- Slow fracture healing (delayed union)
- Lack of fracture healing (non-union)
- Healing with the bones in a poor position (malunion)

Rehabilitation

Depending on the severity of the injury, it may take days, weeks, months, or even years to heal from a lawn mower injury. Physical rehabilitation aids the healing process, although most injured limbs need a period of rest before the start of a consistent rehabilitation regimen. There are many aspects of a comprehensive rehabilitation program.

Physical Therapy

Some children need to do special exercises to improve strength, joint motion, and flexibility. These exercises are often done with a physical therapist.

Strategies for Living with the Injury

Some injuries may make school and home activities difficult. In these cases, children usually can learn to do daily activities in different ways, often with the guidance of an occupational therapist.

Prosthesis

Children who have had an amputation may need a prosthesis, which is an artificial replacement for the body part that is missing (arm, leg, hand, foot). These devices are custom-made made by a prosthetist.

Assistive Devices

Casts, splints, slings, crutches, walkers, or wheelchairs may be required to protect the injured area while it heals.

Regular Check-ups

Once the injuries have healed, your doctor may continue to do regular check-ups every few months or years. This is to ensure that function, appearance, and growth are improving and maintained.

Outcomes

How well the body works and how the child and family feel about the appearance of the injured body part depends on the severity of the injury. Children with severe injuries may have a permanent disability or visible scar, while other children may heal completely. The best solution to this devastating problem is to be aware of the danger of lawn mowers and to prevent these injuries from happening.

Prevention

Fortunately, most lawn mower injuries can be prevented. The list below provides some useful guidelines for staying safe around lawn mowers. Most importantly, both adults and children must be aware of a lawn mower's inherent dangers.

- Only use a mower that has protection over hot and sharp parts.
- Riding mowers should have the reverse switch behind the driver, forcing the driver to look behind when placing the machine in reverse.
- Push mowers should have a control that stops forward motion when the handle is released.
- If children must be in the yard during mowing, they should remain at least 20 feet away from the running lawn mower at all times. Ideally, children should not be allowed outside in the yard when the grass is being cut.
- Children should be at least age 12 years before operating a push lawn mower, and age 16 to operate a riding lawn mower.
- Children should never be passengers on ride-on mowers.
- Always wear sturdy shoes while mowing the lawn - do not wear sandals.
- Remove stones, toys, and debris from the lawn before mowing to prevent injuries from flying objects.
- Always wear eye and hearing protection.

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Reviewed by members of POSNA (Pediatric Orthopaedic Society of North America)

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