PROCEDURE

Traction

Traction uses a controlled pulling force to align or stabilise bones and joints.

PURPOSE
Align or stabilise bones, joints, or the spine

PROCEDURE TYPE
Therapeutic; bedside, sometimes surgical for skeletal pin placement

WHERE IT IS DONE
Bedside, outpatient clinic, or operating theatre

ANAESTHESIA
None for skin traction; local or general for skeletal pins

HOW LONG IT TAKES
15-60 minutes to apply; treatment may continue much longer

PREPARATION
Skin and circulation checks; fasting if anaesthesia is planned

RECOVERY
Activity advances gradually; driving after safe mobility returns

MAIN RISKS
Skin injury, infection, nerve damage, stiffness

RESULTS
Alignment and symptom response assessed during treatment

Overview

Traction is the use of a steady, controlled pulling force on part of your body. It may help align a broken or dislocated bone, hold an injured area still, or reduce pressure around a joint or spinal nerve.

Several methods are called traction. Skin traction uses straps, adhesive material, a boot, or a splint attached to the skin. Weights or a mechanical device provide the pull. It is usually temporary and uses less force than skeletal traction.

Skeletal traction uses a metal pin or wire placed through a bone. Weights are connected to the pin. This allows a stronger and more precise pull, but it is an invasive procedure because the pin passes through the skin and bone.

Spinal traction stretches the neck or lower back using a therapist's hands or a mechanical table

or device. Its benefit is not the same for every spinal condition, and it is usually considered as part of a wider rehabilitation plan rather than a stand-alone treatment.

Why the procedure is performed

Traction may be used to:

For many fractures, traction is now a short-term measure rather than the final treatment. A cast, brace, or operation may provide more reliable long-term stability.

Routine traction is not useful for every injury. For example, major guidance does not recommend routine traction before surgery for a hip fracture because research has not shown a clear overall benefit.

- Temporarily stabilise certain fractures before surgery
- Improve or maintain the position of a broken bone
- Reduce muscle spasm around an injury
- Help with the controlled reduction of some joint dislocations
- Hold a limb in position while swelling settles
- Treat selected neck or back problems as part of physical therapy

Who should and should not have it

You may be offered traction if your healthcare team needs to stabilise an injury, control alignment, or protect tissues while planning further treatment. The choice between skin and skeletal traction is based on the injury, how much force is needed, your skin condition, and how long treatment is expected to continue.

Traction may be avoided, modified, or delayed if:

Some spinal conditions can be made worse by traction. Extra caution may be needed with a recent fracture, severe bone weakness, spinal instability, inflammatory disease affecting the spine, or pressure on the spinal cord. Your team should identify the specific condition being treated before recommending spinal traction.

- The skin where straps would sit is damaged, infected, or very fragile
- Blood flow or sensation in the limb is poor
- A suitable pin site has infection or damaged bone

- The pulling force could worsen an unstable injury
- You cannot safely remain in the required position
- Imaging has not confirmed that traction is appropriate
- The expected benefit is lower than that of a splint, brace, or surgery

How to prepare

Your treating facility's own instructions take priority because preparation differs between skin, skeletal, and spinal traction.

Tell the team about medicines you take, allergies, previous reactions to anaesthesia, bleeding problems, and any numbness or circulation problems. Do not stop a blood thinner like warfarin or apixaban unless the team responsible for the procedure tells you to do so.

For skin traction or outpatient spinal traction, little preparation may be needed. Wear loose clothing and remove jewellery from the area. The skin will be checked for wounds, rashes, or pressure-sensitive areas.

Skeletal traction requires sterile pin placement. You may need to stop eating and drinking beforehand if sedation or general anaesthesia is planned. The facility will give you exact fasting instructions.

Before limb traction, the team will document your skin colour, temperature, pulse, movement, and sensation. These checks provide a baseline for comparison after traction begins.

What happens during the procedure

For skin traction, the team positions your limb and applies padding, straps, adhesive material, or a traction boot. Ropes connect the device to weights, often through pulleys at the end of the bed. The weights must hang freely to provide the intended pull.

For skeletal traction, the skin is cleaned and local anaesthetic is usually used to numb the pin site. Sedation or general anaesthesia may be used in some settings. A clinician places a sterile pin or wire through the selected bone and attaches a frame, ropes, and weights. Sterile dressings protect the pin sites.

You may feel pressure or pulling. Tell the team promptly if you develop increasing pain, burning, numbness, or tingling. The force can be adjusted, but you should not move or remove the weights yourself.

Spinal traction may be applied by hand or with padded straps attached to a mechanical device. The force is increased gradually and released after the planned session. Treatment should stop if it causes significant pain, new numbness, weakness, dizziness, or other concerning symptoms.

Imaging may be used before or after traction to check alignment.

Recovery and what to expect afterward

Mild soreness, pressure, or muscle aching can occur. Pain should be monitored, especially while traction is in place. New or worsening pain may mean the position, pressure, or force needs reassessment.

You can usually eat normally after skin or mechanical traction. After sedation or general anaesthesia, begin eating and drinking according to the facility's instructions.

Activity is restricted while continuous traction is in place. Staff will help with turning, washing, toileting, and exercises that can be done safely. Prolonged immobility can weaken muscles and increase the risk of blood clots, so you may receive movement exercises, compression devices, or blood-thinning medicine when appropriate.

Do not drive while traction affects your ability to move safely. You also must not drive home after sedation or general anaesthesia. After traction is removed, return to driving only when you can control the vehicle, turn comfortably, and perform an emergency stop without restriction.

Returning to work may be quick after a short outpatient spinal traction session. Recovery after fracture traction is mainly determined by the underlying injury and any later surgery, so time away may be several weeks or longer.

Risks and possible complications

Skin traction can cause pressure sores, blisters, skin tearing, or irritation from adhesive material. A strap that is too tight may affect nerves or blood flow.

Skeletal traction has additional risks. The pin site can become infected, and infection can sometimes spread into the bone. Pins may loosen or move. Nearby nerves, blood vessels, or growth areas in a child's bone can be injured during insertion.

Other possible problems include:

Careful positioning, regular skin and circulation checks, pin-site care, and follow-up imaging

help the team identify problems early.

- Loss of fracture alignment
- Excessive pulling or joint separation
- Muscle weakness and joint stiffness
- Blood clots related to prolonged immobility
- Constipation or chest problems from extended bed rest

Results and follow up

The immediate result is assessed by checking your comfort, limb position, movement, sensation, pulse, and skin temperature. An X-ray may show whether a fracture or joint is better aligned.

While traction remains in place, routine checks may include the weights and ropes, skin condition, pin sites, circulation, sensation, and pain level. Follow-up imaging may be needed because alignment can change.

Traction does not always complete treatment. Your next step may be a cast, brace, physical therapy, or an operation. Ask how long traction is expected to continue and what would cause the plan to change.

Alternatives

The realistic alternatives are based on the injury or spinal problem being treated.

A splint, cast, or brace is less invasive than skeletal traction and may allow easier care. It may not provide enough control for an unstable or badly displaced fracture.

A closed reduction moves a bone or joint back into position without an incision. It can correct alignment more quickly, but often requires pain medicine or sedation, and the corrected position may not remain stable.

Surgery with plates, screws, rods, or nails can provide stronger internal stability and may allow earlier movement. It brings anaesthetic, infection, bleeding, and wound-related risks.

For some stable injuries, pain control, protected movement, and observation may be enough. This avoids traction but may not be suitable when alignment must be corrected or maintained.

For neck or back problems, alternatives include activity changes, exercise-based physical therapy, pain treatment, and other rehabilitation methods. These avoid sustained pulling,

although improvement may be gradual. Mechanical traction has limited or mixed evidence for several spinal conditions and should not replace assessment of new weakness or other neurological problems.

When to call your healthcare team

Contact your healthcare team promptly for increasing pain, new tingling or numbness, skin breakdown, a loose strap, drainage around a pin, fever, or traction equipment that is no longer positioned correctly. Do not replace weights or adjust ropes yourself.

Seek urgent medical assessment if the affected limb becomes unusually pale, blue, cold, very swollen, or difficult to move.

Call emergency services for trouble breathing, chest pain, coughing up blood, fainting, or sudden severe weakness. These can indicate a serious circulation, blood clot, or neurological problem and are not routine effects of traction.

Common questions

Will I be asleep?

Usually not for skin or mechanical spinal traction. Local anaesthetic is commonly used for skeletal pin insertion. Sedation or general anaesthesia may be used based on the pin site, your age, and whether another procedure is being performed.

Can I drive home?

Not after sedation or general anaesthesia. You also should not drive if traction, pain, a splint, or the underlying injury prevents safe control of a vehicle.

How painful is traction?

You may notice pulling, pressure, or aching. Traction should not cause steadily worsening pain, burning, numbness, or a cold limb. Report these changes immediately.

How long will I stay in traction?

A spinal traction session may last minutes. Temporary fracture traction may continue for hours or days, while some skeletal traction is used longer. The injury and the next planned treatment determine the duration.

When will I know if it worked?

Your team can assess position, circulation, and symptom response immediately. An X-ray may

be needed to confirm bone or joint alignment.

Can I move while traction is on?

Only in the ways your team has shown you. Moving out of position or altering the weights can change the pulling force and affect alignment.

Sources

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