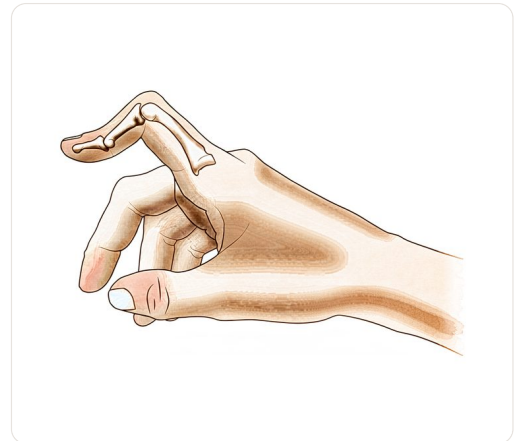


Boutonnière Deformity

Boutonniere deformity: the middle finger joint stays bent and the fingertip tilts back.

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What you're feeling

You may notice a change in how your finger looks and feels. A boutonnière deformity is a closed soft tissue injury affecting the extensor mechanism, which is the system of tendons and ligaments that helps you straighten your finger. This injury typically occurs in specific zones around the middle joint of your finger.

The most common symptom is pain at the middle joint of your finger. You might feel tenderness when you press on this area. The pain often worsens when you try to straighten your finger or when you use your hand for gripping tasks. You may find it difficult to fully extend the tip of your finger. Instead, the middle joint bends inward while the tip joint hyperextends. This creates a distinctive shape that can feel stiff and uncomfortable.

Daily tasks become challenging as the deformity progresses. Simple actions like typing on a keyboard, holding a cup, or buttoning a shirt may require extra effort or cause pain. You might notice that your finger catches on clothing or objects because of the altered joint position. The discomfort can flare up after periods of activity, such as gardening, typing for long stretches, or playing sports. Some people report increased stiffness when they first wake up in the morning.

It is important to understand that this condition can develop differently depending on the cause. In some cases, it results from trauma to the central slip of the tendon. In others, it may be associated with underlying conditions like rheumatoid arthritis. There is also a rare congenital form present from birth. Early recognition and treatment are crucial because addressing central slip injuries promptly can help prevent the deformity from becoming fixed.

If you suspect you have this injury, seeking professional evaluation is key. Differentiating between a true boutonnière deformity and a similar condition called pseudoboutonnière is critical for determining the right management plan. Your surgeon will assess the anatomy and clinical presentation to guide your treatment. Understanding the specific nature of your injury helps ensure optimal outcomes and restores function to your hand.

What's actually happening

Your finger has a complex system of tendons that act like ropes, allowing you to bend and straighten it. One key part is the central slip, a band of tissue in the middle of your finger joint. This slip helps keep your finger straight when you extend it.

When this central slip is injured, the balance of forces in your finger changes. The tendon can slip out of place, pulling the middle joint (PIP joint) into a bent position. At the same time, the tip joint may overextend. This creates the characteristic shape known as a boutonnière deformity.

You might notice snapping or catching at the middle joint. This happens because the damaged tendon is no longer gliding smoothly. Over time, progressive damage reduces your ability to straighten that joint fully. The asymmetrical position of your finger tip during extension is often a sign that the central slip is involved.

In some cases, the joint can become stuck in a bent position. This is called an irreducible dislocation. It occurs when the intact central slip gets trapped inside the joint space. Even though the joint is stuck, the prognosis is often better than if the tendon were completely torn. This is because the main structure is displaced rather than disrupted.

Early treatment is crucial. Addressing central slip injuries promptly can prevent this deformity from developing. If the condition is congenital, meaning you were born with a weaker tendon, a static hand brace can help keep the joint in extension. Understanding these mechanics helps your surgeon choose the right path to restore your finger's function.

What we can do about it

Dr Kieran Hirpara, an upper-limb surgeon at Mater Private Hospital Rockhampton, starts with the least invasive options that suit your condition. We begin by trying to restore movement without surgery. You may be asked to wear a special splint that keeps your finger in a gentle curve. This is often used after a period of casting to help straighten the joint. If you start this therapy within 6 weeks of the injury, you are more likely to see an improvement in how far you can bend and straighten your finger. We aim to help you regain flexion by wearing a relative motion splint for 3 months. This approach works well if your joint can still be positioned with less than -20° of extension. The goal is to improve the movement in your fingertip and straighten the middle joint.

If pain or inflammation is part of your condition, we may discuss medical management. This can include pain medication or anti-inflammatory drugs to reduce swelling. Injections may also be offered to calm the joint. Cortisone injections can reduce inflammation for a limited time, helping you move more comfortably during therapy. Hyaluronic acid injections aim to lubricate the joint, while platelet-rich plasma (PRP) injections use your own blood components to support healing. The duration of relief varies, but these treatments are typically used to manage symptoms while you work on your hand function. We tailor the choice to what your specific injury requires.

When conservative care has not given enough improvement, or if the deformity is long-standing, we may consider surgery. This is usually recommended when the lateral bands of your tendon have slipped out of place

and simple splinting cannot correct it. Surgical options include reconstructing the central slip or using a tendon graft to restore balance. In some cases, a simpler procedure to cut part of the tendon may be used to improve flexibility. The Y-shaped tendon graft provides good or excellent results in 16 of 18 patients in reported series. Cross-lateral band reconstruction is another option if the tendons are damaged. We discuss these options with you to decide the best path forward.

Patients are generally referred to our clinic by their GP; if a physiotherapist has suggested you see us, you will still need a referral from your GP in order to be eligible for the Medicare rebate. A clinic assessment, including history, examination, and imaging where needed, establishes the diagnosis. For degenerative or long-standing problems we usually try non-operative care – activity change, physiotherapy or hand therapy, splinting, and injections – and consider surgery when that has not given enough improvement. For structural or acute problems, surgery may be recommended straight away, without a preceding non-operative trial.

What to expect

Your outlook depends largely on whether this is a true deformity or a similar issue called pseudoboutonniere. Getting this distinction right is critical. It ensures you receive the correct care and avoid ineffective treatment. If you have rheumatoid arthritis, the condition tends to worsen over time. Without repair, the deformity progresses and causes increasing difficulty with your hand.

If the issue stems from an old central slip injury that was not treated properly, it can lead to significant disability. You may find it hard to bend your finger joint. This loss of movement can become marked if left uncorrected. However, treatment can make a real difference. Procedures such as extensor tenotomy can restore flexion to the distal joint. They also markedly lessen the disability you experience in daily life.

For chronic cases, surgical correction offers a clear path forward. In reported series, the Y-shaped tendon graft procedure provided good or excellent results in 16 of 18 patients. This suggests that with proper management, you can regain significant function and comfort.

It is also worth noting that this condition can occur in the thumb without any history of trauma or rheumatoid arthritis. In such cases, the prevalence is approximately 13%. Understanding the anatomy and treatment options helps your surgeon plan the best approach for your specific situation. Early intervention for central slip injuries can prevent the deformity from developing in the first place.

Your recovery involves regaining movement and reducing pain. While individual experiences vary, many patients find that correcting the deformity restores their ability to use their hand normally. We focus on helping you achieve the best possible function within your unique circumstances.

When to see someone

Ask for a specialist review if you have persistent pain that does not improve with rest. Seek care if you notice weakness or instability in your finger. Watch for locking or giving way during movement. Contact your doctor if symptoms interfere with sleep or work. Sudden worsening of pain is also a reason to seek help. Untreated

injuries can lead to a permanent condition called boutonnière deformity. This involves damage to the extensor mechanism, the tendons that straighten your finger. Differentiating this from similar injuries is critical for proper management. Early assessment helps avoid inappropriate treatment and prevents long-term disability.

In more depth

This section goes further than you need for your own treatment decisions. Boutonnière deformity is worth the extra reading because the instinctive treatment for a painful, swollen, bent finger – rest it and keep it still – is the one thing the evidence specifically does not support.

EARLY MOBILISATION, NOT PROLONGED IMMOBILISATION

A systematic review of treatments for central slip injury found the evidence base limited, with the roles of different strategies for both open and closed injuries **not well supported**. Within that limitation, the evidence from individual studies **tentatively supports early mobilisation and does not support prolonged immobilisation** [1].

That is worth stating plainly because it runs against the reflex. The distinction is between protecting the healing central slip – which requires the middle joint to be held straight – and immobilising the whole finger, which allows the fingertip joint to stiffen in extension and the whole digit to become rigid. The splint is intended to hold one joint while the others keep moving.

WHY THE DEFORMITY GETS WORSE RATHER THAN STAYING STILL

Boutonnière is a progressive deformity, which is unusual and worth understanding. The central slip attaches to the base of the middle bone and straightens the middle joint. When it fails, that joint drops into flexion – and the two lateral bands, which normally run above the joint's axis, slip below it.

Once they are below the axis, the same tendons that previously helped straighten the middle joint begin to bend it, while pulling the fingertip into hyperextension. The deformity therefore self-reinforces: every attempt to straighten the finger tightens the structures now holding it bent. This is why an injury that looked minor can produce a fixed deformity weeks later, and why the window for simple splinting is early.

THE DEFORMITY THAT IS NOT A BOUTONNIÈRE

A finger can adopt the same posture without a central slip injury at all, and the treatments differ entirely. Boutonnière and **pseudoboutonnière** deformities differ in pathoanatomy, diagnosis and management [2] – the pseudo variety arising from a volar plate injury at the middle joint, where the fingertip joint retains normal passive flexion rather than being drawn into hyperextension.

Distinguishing them at the bedside rests on the fingertip. In a true boutonnière the tip is held hyperextended and resists being bent, particularly with the middle joint straightened; in a pseudoboutonnière it flexes freely. Splinting a pseudoboutonnière as though it were the real thing addresses the wrong joint.

IT BELONGS TO A FAMILY OF INJURIES DEFINED BY WHERE THE TENDON FAILS

Boutonnière sits alongside mallet finger and sagittal band injury as one of three closed extensor mechanism injuries, categorised by the zone in which the mechanism fails [3]. All three can present as a swollen finger held abnormally within days of an injury, and each requires a different splint position – which is the practical reason a definite diagnosis is worth reaching before committing to weeks of splinting.

REFERENCES

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