

# Improving Outcomes with Minimally Invasive Bunion Surgery

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**Minimally invasive or 'keyhole' surgery is an increasingly popular and viable surgical option for many patients with bunions. With faster postoperative healing, it offers predictable and reproducible outcomes, and lowers the risk of certain postoperative complications.**

## INTRODUCTION

Hallux valgus (or bunions) are common in the general population. Studies show that up to 35% of adults develop a bunion in their lifetime.<sup>1</sup> With more Singaporeans embracing an increasingly active lifestyle, pain and discomfort from this deformity is becoming a real problem. In fact, over the last five years at Singapore General Hospital (SGH), we have seen a 30% increase in patients seeking specialist consultation for bunion-related complaints.



## THE CASE FOR MINIMALLY INVASIVE SURGERY

For patients with significant pain which is affecting their function, treatment options have long been limited to traditional open surgery to correct this foot deformity.

**In recent years, the Foot and Ankle Service at SGH has taken the lead in offering a cutting-edge 'keyhole' procedure to correct this deformity.**

By minimising the surgical incision, this results in less pain, less swelling, less scarring and a much faster recovery. As such, this procedure can be performed as a day surgery with the patient walking home with minimal discomfort.

## ADVANTAGES OF MINIMALLY INVASIVE BUNION SURGERY

The foot is a particularly delicate area of the anatomy with a much thinner soft tissue envelope. As such, any large incisions around the foot put the patient at risk of wound healing problems.

Swelling is also a common problem following any procedure in the foot as it is the most dependent part of the body. As such, there has been a move in recent years towards minimally invasive surgery of the foot, in particular for bunion surgery.

**With improved techniques and implants, we are able to achieve predictable and reproducible outcomes. Our department has offered this procedure for the last five years, and our published local data suggests that it is a safe and effective treatment option.<sup>2</sup>**

## HOW THE SURGERY IS PERFORMED

This technique involves tiny incisions around the big toe, through which a specialised burr is inserted to make the necessary cuts in the bone. The bone is shifted to realign the big toe, and titanium screws are inserted through tiny incisions to stabilise the bone. This is opposed to open surgery which requires a 10-12 cm incision over the inside of the foot.

## POSTOPERATIVE RECOVERY

The patient is able to walk immediately following the surgery, but will have to use a pair of post-surgery sandals to protect the feet.

**For the first two weeks**, the foot will be bandaged, following which a toe alignment splint will be applied.

**At approximately six to eight weeks**, the patient can transition to regular footwear and return to work.

**At three months**, he or she is able to return to sports and high-impact activities.

## BENEFITS

### 1. Lower wound complication rate

Advantages include a lower risk of wound complications in view of the 'keyhole' nature of the surgery. This is particularly beneficial in patients who are diabetic or smokers as they have a higher risk of wound complications to begin with.

### 2. Less scarring

Patients who are predisposed to keloid formations will also benefit from minimising the post-surgical scarring using this technique.

### 3. Less postoperative pain and swelling

There is significantly less pain and swelling during the early postoperative period.

### 4. Faster recovery

Less pain and swelling also results in a much quicker recovery.

### 5. Day surgery procedure

## LIMITATIONS

Minimally invasive surgery can only be done for **mild-to-moderate deformities**. Once the deformity progresses beyond a certain degree, open surgery will be necessary to attain an adequate correction.

## HOW TO EASE BUNION PAIN WITHOUT SURGERY

Surgery is the only way to address the bunion permanently, but there are other treatment modalities short of surgery to alleviate the patient's symptoms.

### 1. Analgesia

Anti-inflammatory medication can help to relieve the acute pain from bursitis as a result of the prominent bunion.

### 2. Footwear advice

Shoes with a wide toe box help to minimise pressure over the deformity. In certain instances, this is enough to alleviate one's symptoms. Avoiding or minimising wearing high heels and narrow shoes helps too.

### 3. Bunion pads and insoles

Padding over the bony prominences of the foot helps to cushion the painful areas. Insoles or orthotics help to minimise pressure over the inside of the foot where the bunion is. This is particularly helpful if the patient has an associated pes planus (flatfoot).

### 4. Splints and braces

Splints and braces help to hold the toe in a straightened position and minimise any discomfort from the bunion. However, they have not been shown to reverse the deformity or slow down the natural progression of the bunion.

## WHEN TO REFER A PATIENT

- Significant bunion pain
- Progressive deformity over a short period of time
- Difficulty with footwear
- Symptoms affecting function and activities

Bunion surgery is not indicated if there is no significant pain or limitation in function. It should not be performed for cosmetic reasons.

## CASE STUDY

A lady in her 30s, who works as a secondary school teacher, had bunion pain which was progressively worsening over the past few years. This was exacerbated by the many hours she had to spend on her feet. She opted for minimally invasive bunion surgery.

The procedure was performed in the morning and she was discharged on the same day of surgery. She reported minimal discomfort and was walking independently with her postoperative sandal. She returned to work as a teacher approximately six weeks following surgery and was back to jogging at ten weeks.

### PRE-OPERATIVE



Pre-operative Clinical Photo and X-ray

### POSTOPERATIVE



Postoperative Clinical Photo and X-ray



Minimal swelling and scarring following surgery



Postoperative Sandal



Postoperative Toe Alignment Splint

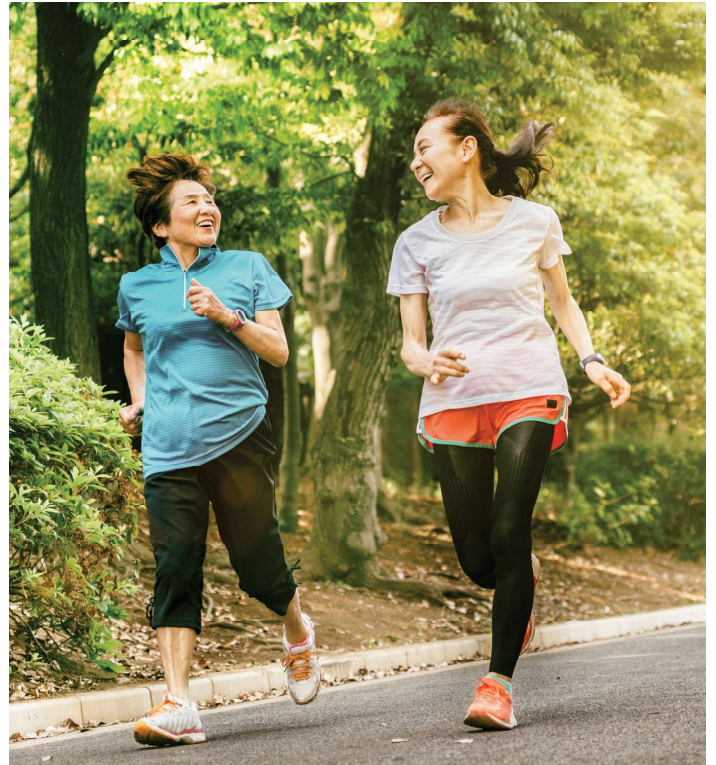


## CONCLUSION

Minimally invasive surgery is an excellent option for patients with painful mild-to-moderate bunions. It results in less postoperative pain, swelling and scarring. This in turn allows for a much quicker recovery and return to an active lifestyle.

## REFERENCES

1. Prevalence of hallux valgus in the general population: a systematic review and meta-analysis. Nix et al. J Foot Ankle Res. 2010;3:21
2. Two year outcomes of minimally invasive hallux valgus surgery. Chan et al. Foot Ankle Surg. 2019 Apr;25(2):119-126.



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Dr Nicholas Yeo is a Consultant with the Department of Orthopaedic Surgery at Singapore General Hospital. He also serves as the Director of the Foot and Ankle Service.

He was awarded the Health Manpower Development Plan (HMDP) Scholarship from the Ministry of Health to pursue sub-specialty training in foot and ankle surgery. He completed a year-long fellowship at the University of British Columbia, Canada. In addition, he was awarded the AO fellowship at the University Hospital Carl Gustav Carus, Germany in trauma and reconstructive surgery of the foot.

Dr Yeo's practice is largely centred around complex foot and ankle deformities and sports injuries. Of note, he is a strong advocate of minimally invasive or keyhole surgery to achieve the best outcomes for his patients.

GPs who would like more information on this topic, please contact Dr Yeo at **9732 1850** or [nicholas.yeo.e.m@singhealth.com.sg](mailto:nicholas.yeo.e.m@singhealth.com.sg).



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