

# Easy Taping Technique for the Lower Extremities



高國峰 醫師

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# Taping

- A form of strapping
- Non-invasive treatment:
  - It is a procedure that uses tape, attached to the skin, to physically keep in place **muscles, bones, tendons or ligaments** at a certain position.
- Used to help recover from **overuse** and other **injuries**.



# Goal

- Fixed and limited joint activities to allow the tissues repair under the stable condition
- **Neutral repair mechanism**



# 鎮醫師十字貼 庄腳人也能DIY

疼痛自己來 貼紮手法超簡單 屏東潮州醫師高國峯、林仲宇 拿自己當白老鼠實驗一年多



DIY

高國峯和林仲宇是高雄醫學院相差二屆的校友，畢業後同在潮州一家骨科醫院服務，看盡痠痛病人飽受折磨；而坊間貼布除了簡易的片狀，其餘均是卷狀，依療效須裁剪貼成x、y、o形等各種形狀，一般人根本不會。

高國峯本身也是病號，因長年開刀、寫病歷、打電腦，罹患俗稱「媽媽手」的狹窄性肌腱滑膜炎，手腕疼痛；加上扁平足、大拇指外翻等困擾，一手歸痛了，他苦思打針、吃藥外的止痛方法。

偶然接觸貼紮技術後，兩人決定重新嘗試，高國峯自己當白老鼠試驗，反覆測試，花了一年多時間，終於克服痠痛的「休邁運動貼布」，特點是不論任何部位，不用考慮形狀，貼成十字狀即可。

他們刻意避開紅、藍、綠等敏感的政治色彩，以明度最高的黃色上市，更貼近民眾需求效果，吸引年輕族群。取得專利後，高國峯曾蒐集廿六人、共卅五隻腳，疼痛一個月至二年的患者，進行臨床研究，以十分作評分，分數愈高代表疼痛愈輕，貼後立刻即痛感，從平均七點二分，降至二點一分，卅二歲在金融界服務的「小姐大拇趾」，早與高跟鞋絕緣，穿平底鞋，走再遠的路都不痛，「邁過一刀」。

「記者林秀美／高雄市報導」市售運動貼布琳瑯滿目，貼紮手法複雜，消費者霧煞煞。兩名屏東的小鎮醫師花了一年多時間，研發出簡易克服痠痛的「十字貼」，號稱庄腳人也能DIY。



**便利貼**

- ←醫師高國峯（左）、林仲宇（右）研發的「十字貼」，延展性佳且透氣，已取得國內專利。
- ←「十字貼」貼法超簡單，人人易學，而且止痛效果佳。
- 不同顏色的肌內效貼布，使用部位也不同，紮貼手法也會影響效用。記者林秀美／攝影

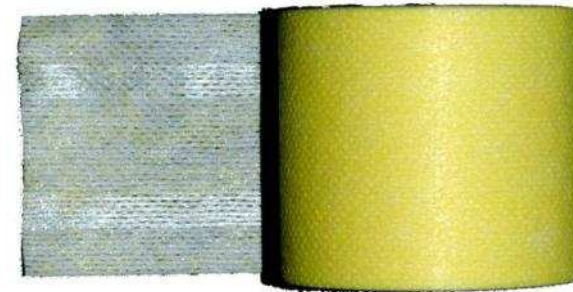


# Tape Feature

- Elastic adhesive tape
  - Kinesio<sup>®</sup> Tape



- Directional elastic adhesive tape
  - Ez Peel<sup>®</sup> Tape



- Nonelastic adhesive tape
  - 白貼



## 貼布比一比

	種類	特性	功能	適應症	市場價格
不含藥	白貼	不透氣、無延展性	固定性高，但不舒適	運動員比賽用，預防受傷	225元/卷
	肌內效貼布	透氣；縱向有延展性、橫向無延展	促進淋巴循環、保護肌肉；無法固定關節	肌肉拉傷、關節、韌帶扭傷等	600-700元/卷(5m)
	休護運動貼布	透氣；縱向無延長性、橫向有延展性	固定關節，仍可維持關節特定方向功能性活動	同上	400-500元/卷(5m)
含藥	如肌立、撒隆巴斯	塊狀，無縱橫向之分	止痛、促進血液循環適應症	肌肉關節痠痛	100-150/包(4-6片裝)

資料來源／林仲宇醫師、蔡建章藥師

製表／林秀美

■聯合報

# EZ PEEL® EPRA 休護運動貼布

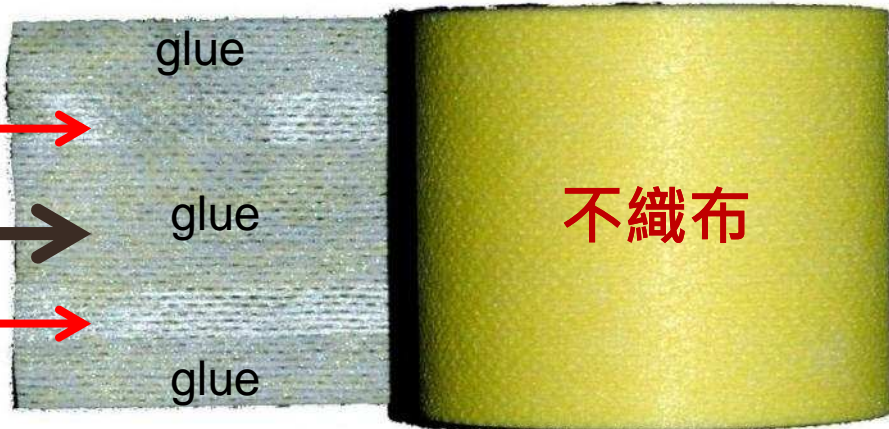
縱向無延展性



橫向延展性  
140%



無膠區  
低敏膠  
無膠區



# Advantages of Ez Peel<sup>®</sup> Tape

- The advantages of Elastic Tape and Non-Elastic Tape ( Directional Non-Elastic Tape )

1 Longitudinal Non-Elastic :

Ensure the fixation strength

2. Transverse Elastic :

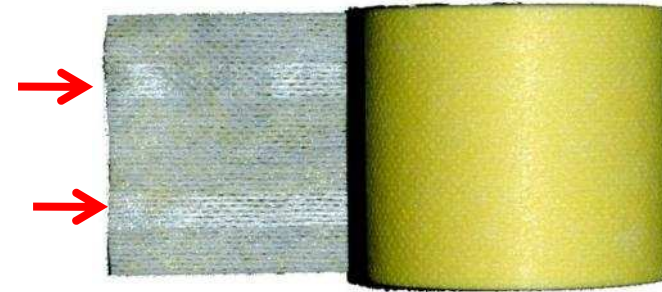
Provide the joint activity



# Keep well alignment



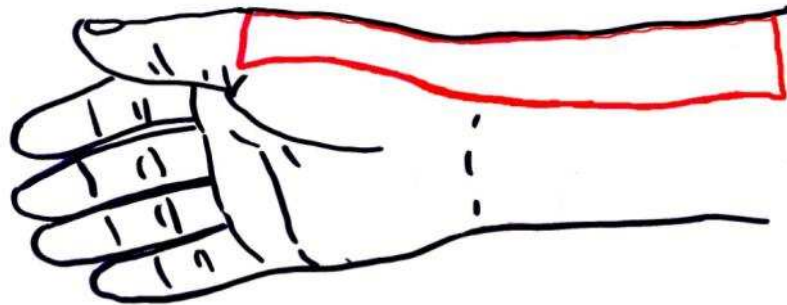
## No Plastic (Glue) Zone



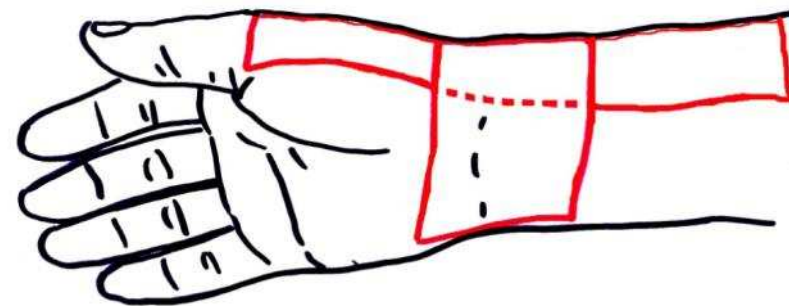
1. High permeability
2. Reduce the injury of skin
3. Provide **Massage** effect during the activities

## Strapping principles: Cross Fixation

- Longitudinal - Step1 : restrict the joint range of motion
- Transverse - Step2 : provide the strength of fixation



Step1

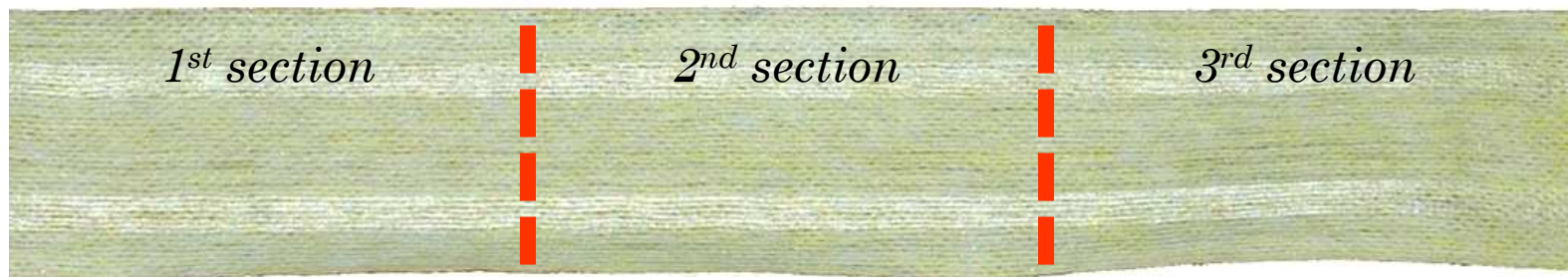


Step2



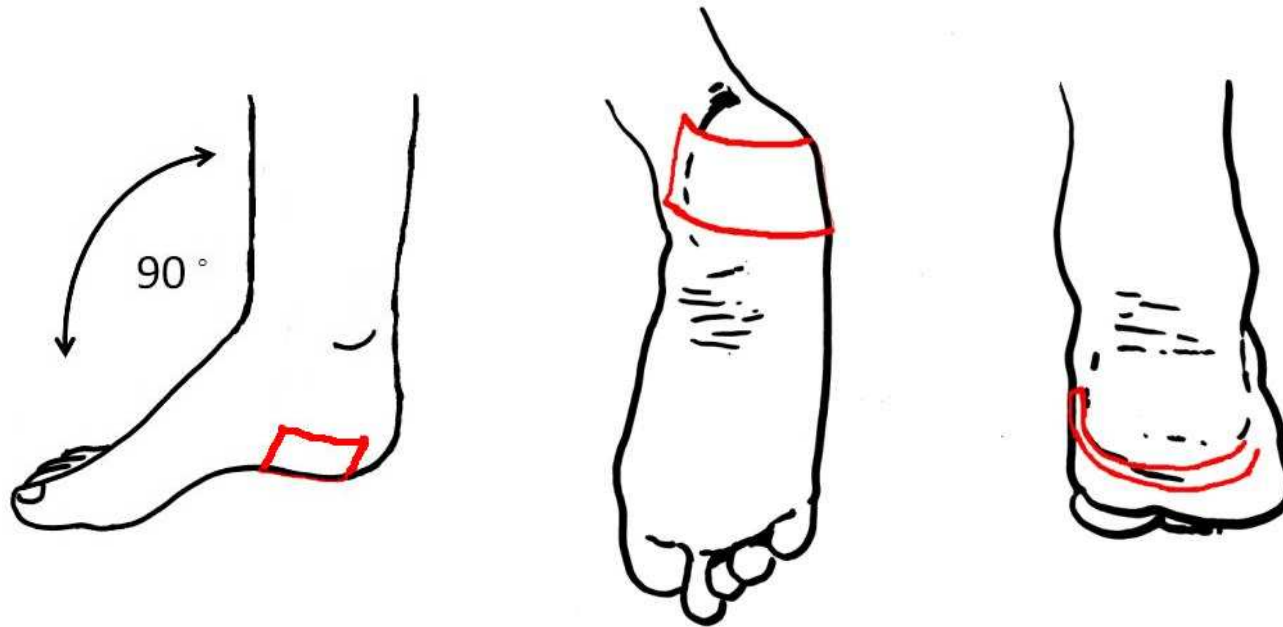
## 3 Section Applying

- *1<sup>st</sup> section*
  - *Attached the 1<sup>st</sup> section of the tape to the skin firmly. No stretch force applied.*
- *2<sup>nd</sup> section*
  - *For limitation.*
  - *Pull the 1<sup>st</sup> section of the tape to the opposite side of the skin where the 3<sup>rd</sup> section of the tape will attach to with appropriate stretch force applied.*
- *3<sup>rd</sup> section*
  - *Attached the 3<sup>rd</sup> section of the tape to the skin firmly. No stretch force applied.*



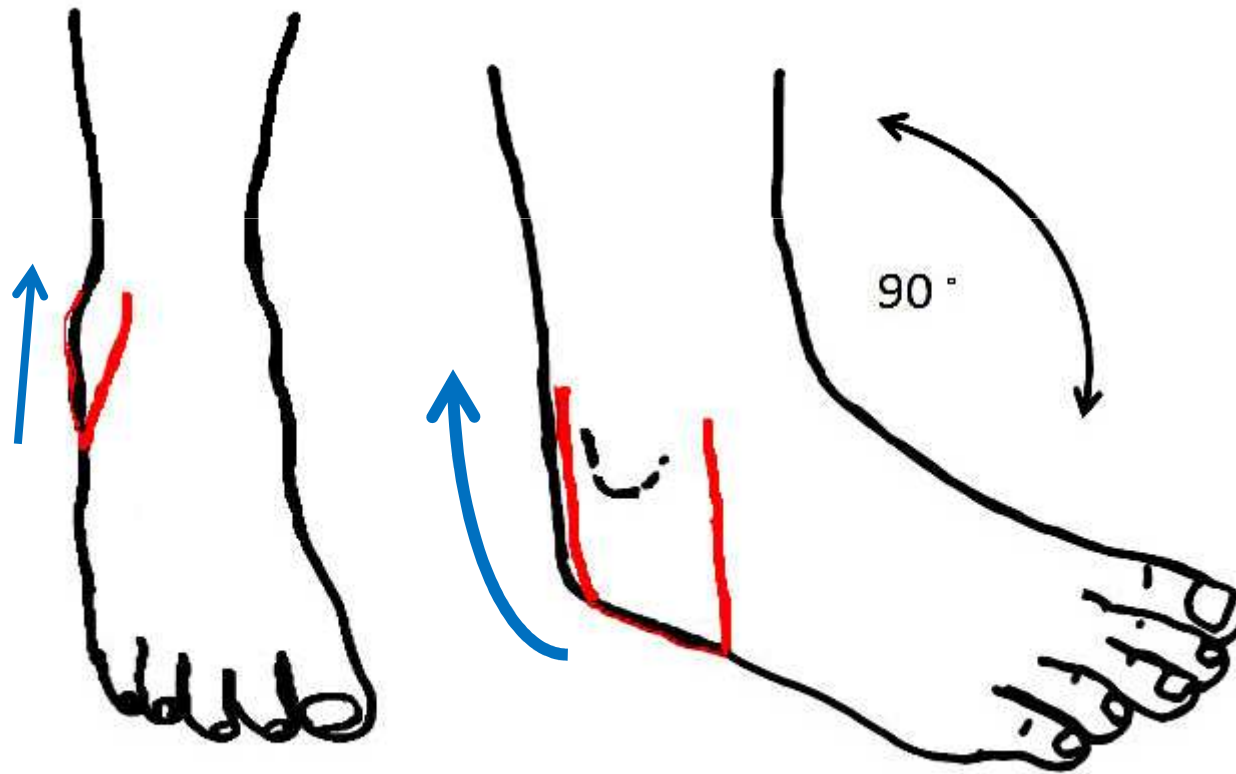
## *ANKLE TAPING 1-1 Lateral malleolar cross taping*

- *Attach the 1<sup>st</sup> section of the longitudinal tape from the medial side of the heel to the lateral edge of the heel.*



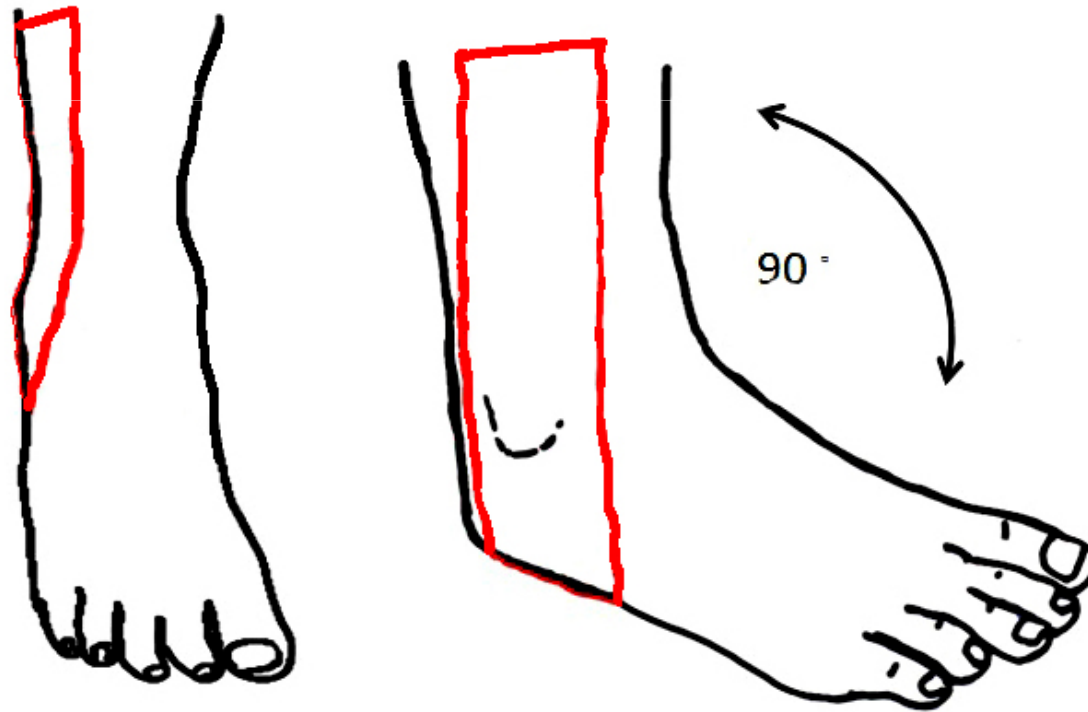
## ANKLE TAPING 1-2

*Pull 2<sup>nd</sup> section of the longitudinal tape from the lateral edge of the heel to the lateral malleolus.*



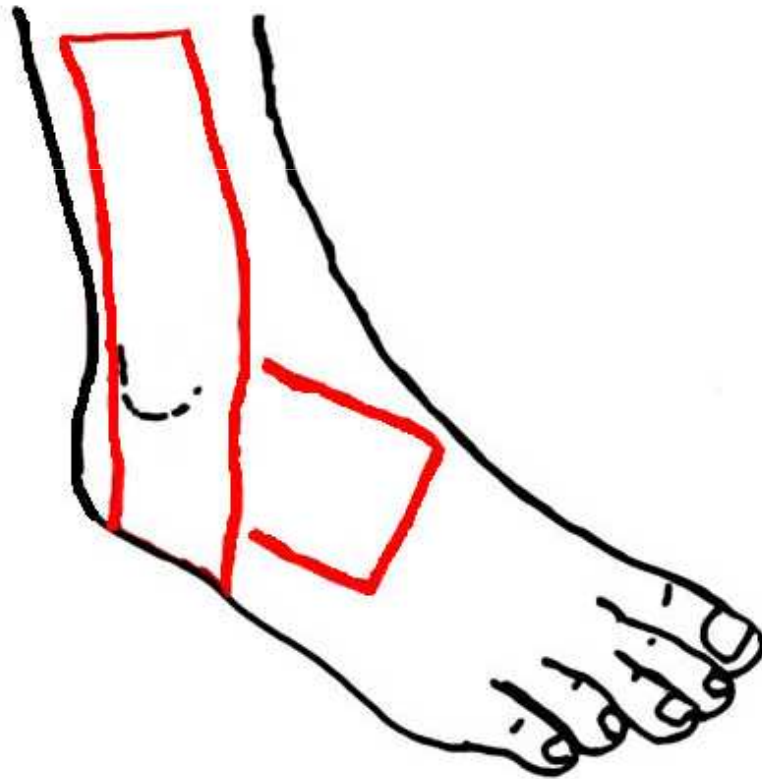
## ANKLE TAPING 1-3

- *Attach the 3<sup>rd</sup> section of the longitudinal tape from the lateral malleolus upwards to the point of the distal 1/3 – 1/2 of lateral lower leg.*



## *ANKLE TAPING 2-1 Lateral malleolar cross taping*

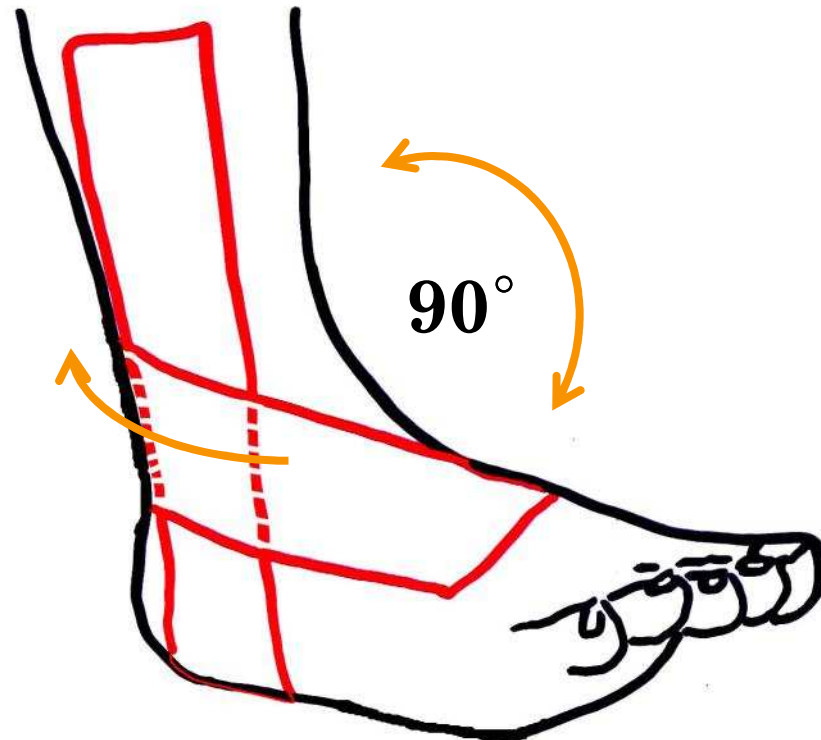
- *Attach the 1<sup>st</sup> section of the transversal tape from dorsal foot to the anterior edge of the longitudinal tape.*





## ANKLE TAPING 2-2

- *Pull 2<sup>nd</sup> section of the transversal tape from the anterior edge of the longitudinal tape to the posterior edge of the longitudinal tape.*

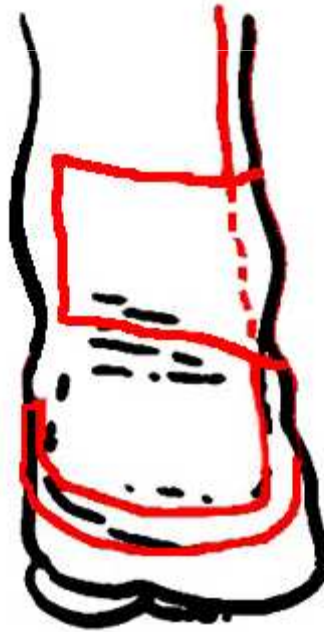


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## ANKLE TAPING 2-3

- *Attach the 3<sup>rd</sup> section of the transversal tape from posterior edge of the longitudinal tape to the medial side of the Achilles tendon insertion.*

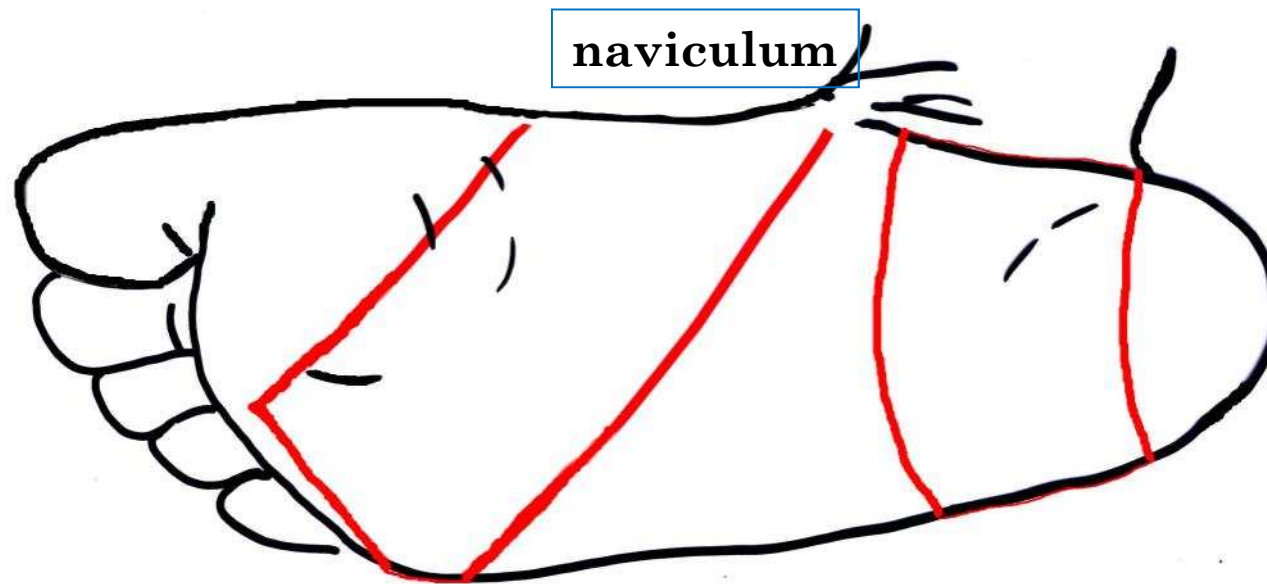


Ez Peel®



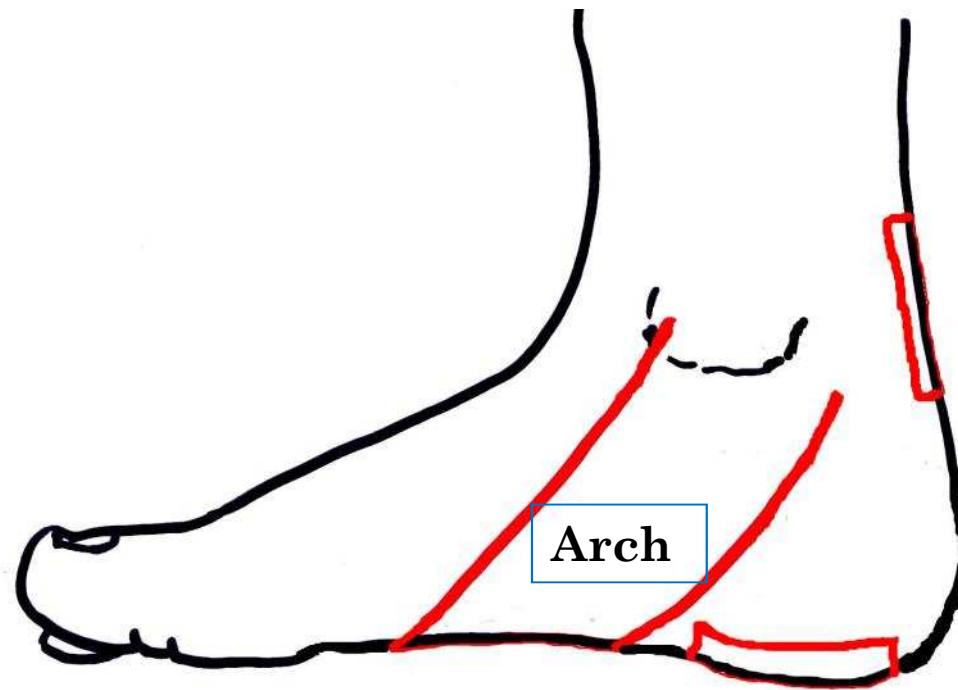
## *ANKLE TAPING 3-1 Medial foot arch taping*

- *Attach the 1<sup>st</sup> section of the tape from the middle dorsal forefoot to the lateral edge of the foot located proximal to the MTPJs.*



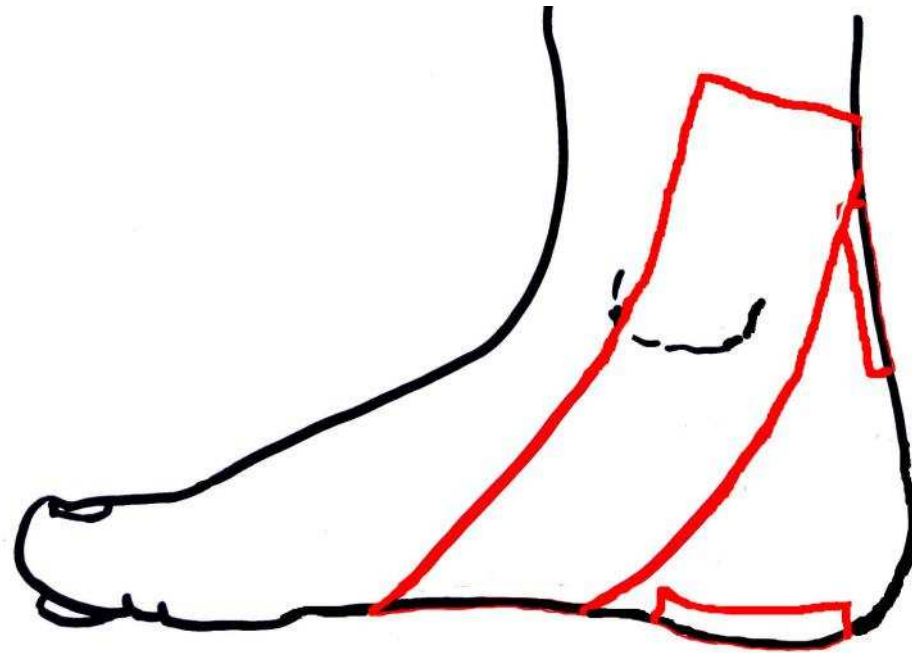
## ANKLE TAPING 3-2

- *Pull 2<sup>nd</sup> section of the tape from the lateral edge of the plantar foot to navicular bone of the medial foot.*



## ANKLE TAPING 3-3

- *Attach the 3<sup>rd</sup> section of the tape from navicular bone, passing the medial malleolus to the point of the medial distal third lower leg*



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# Combination Therapy

- Topical cream or spray
- Local injection
- Prolotherapy
- Orthotics

# Complication of Taping

- 水泡 (Tape Blisters)

切記Ez Peel® EPRA貼布為新一代白貼，縱向無延展性。切勿以肌貼之貼紮方式將其貼附於關節之主要活動面上（當貼紮目的為固定關節時除外），

- Generate shear force on the skin, causing skin lesions, redness, pain, and even the formation of blisters



Ez Peel®



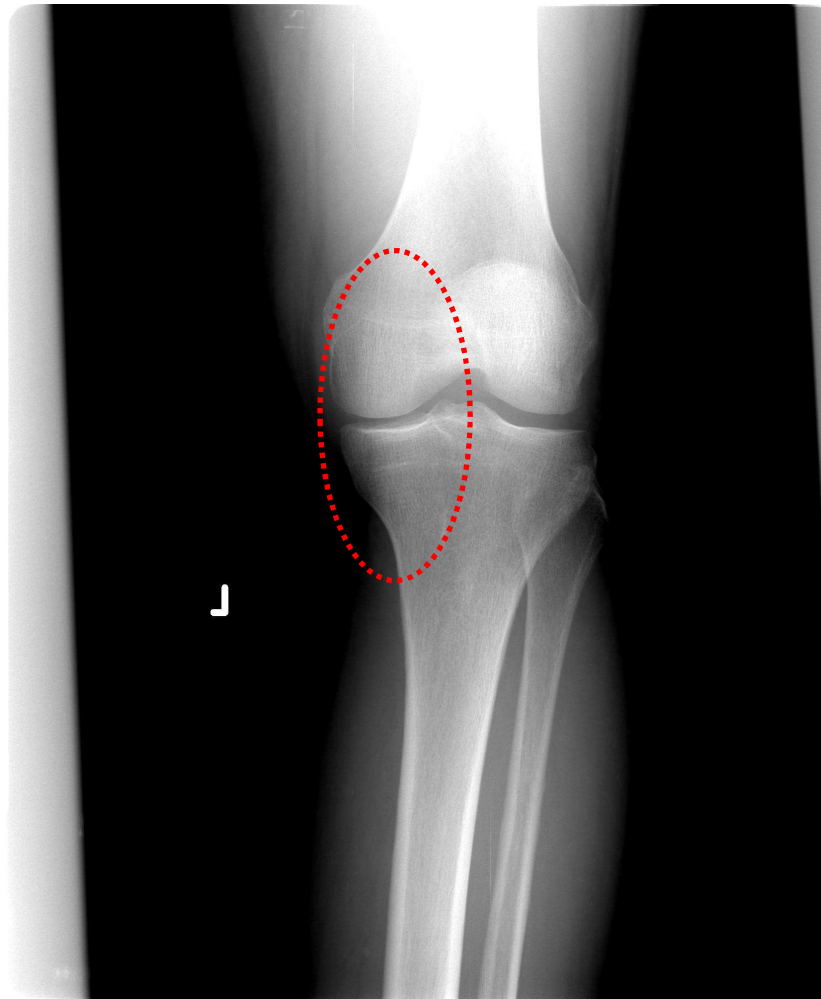
# 酸痛傷病介紹

- 膝蓋痛 Knee OA
- 足踝扭傷 Ankle sprain
- 足底筋膜炎 Plantar fasciitis
- 大拇趾外翻 Bunion

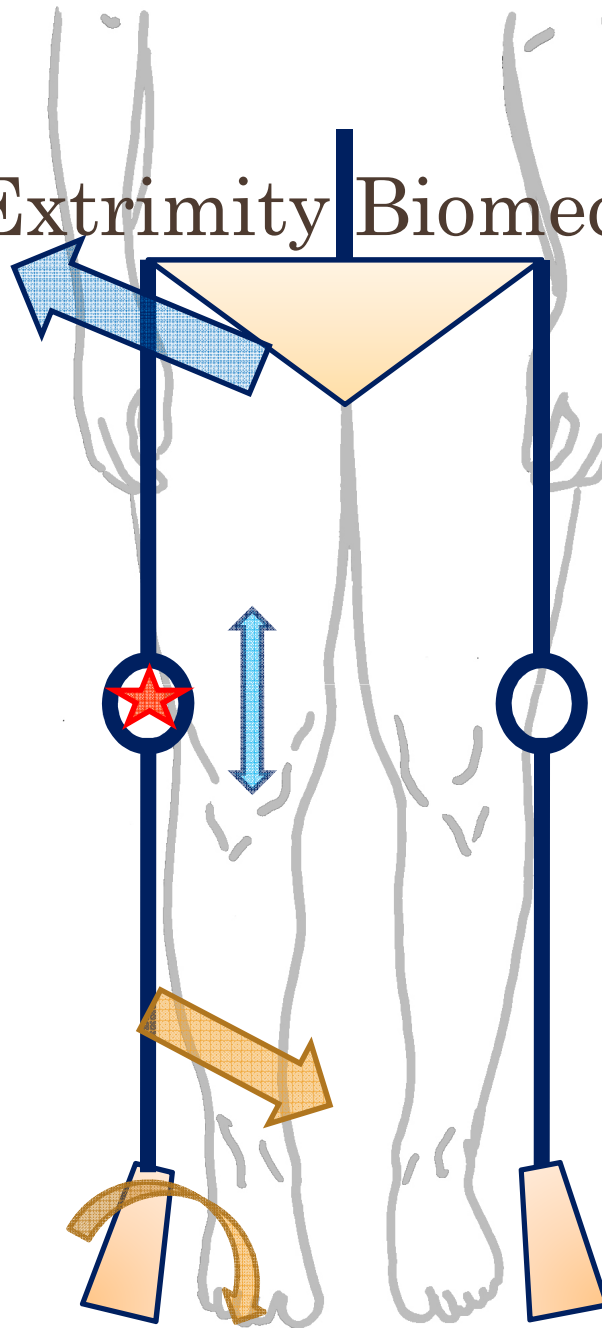




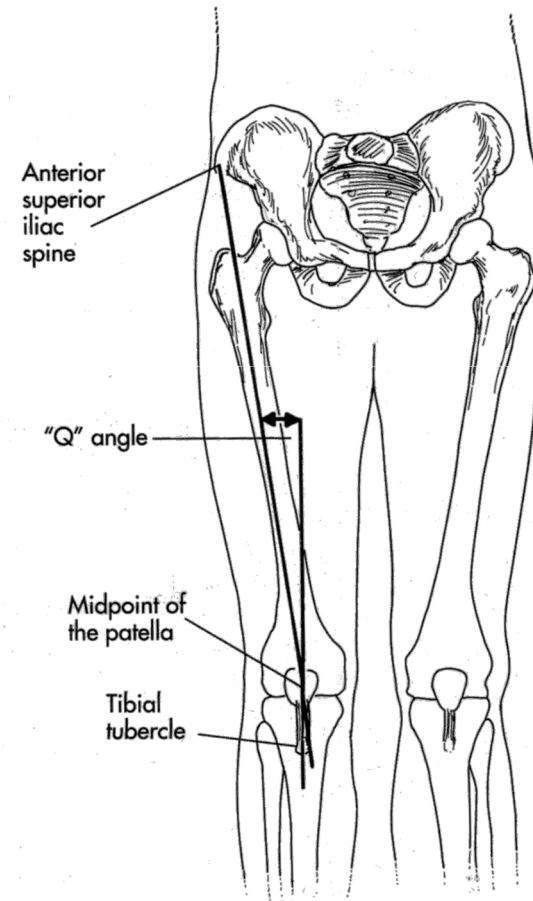
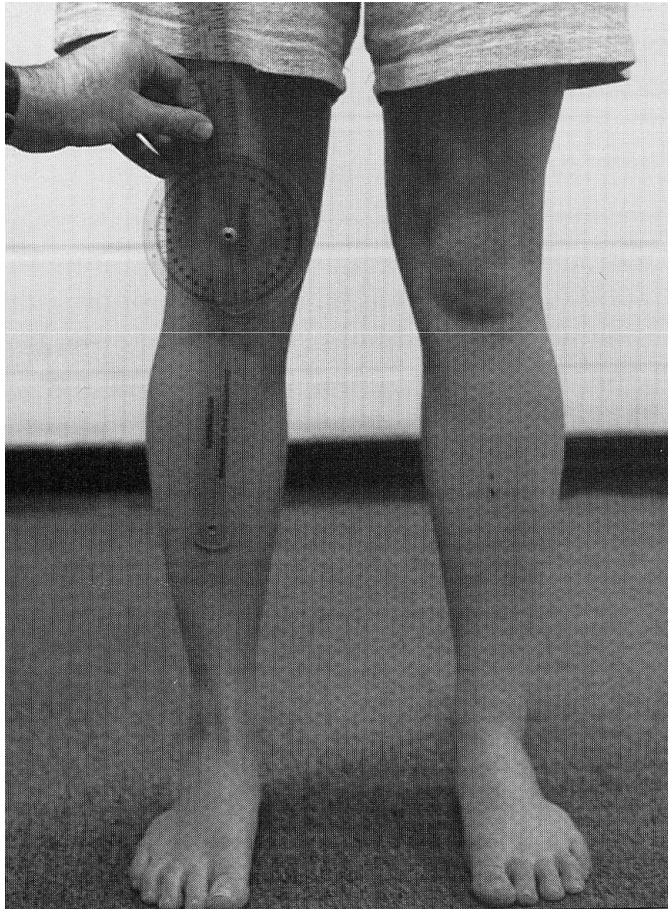
# Knee pain-OA 膝蓋痛-關節炎



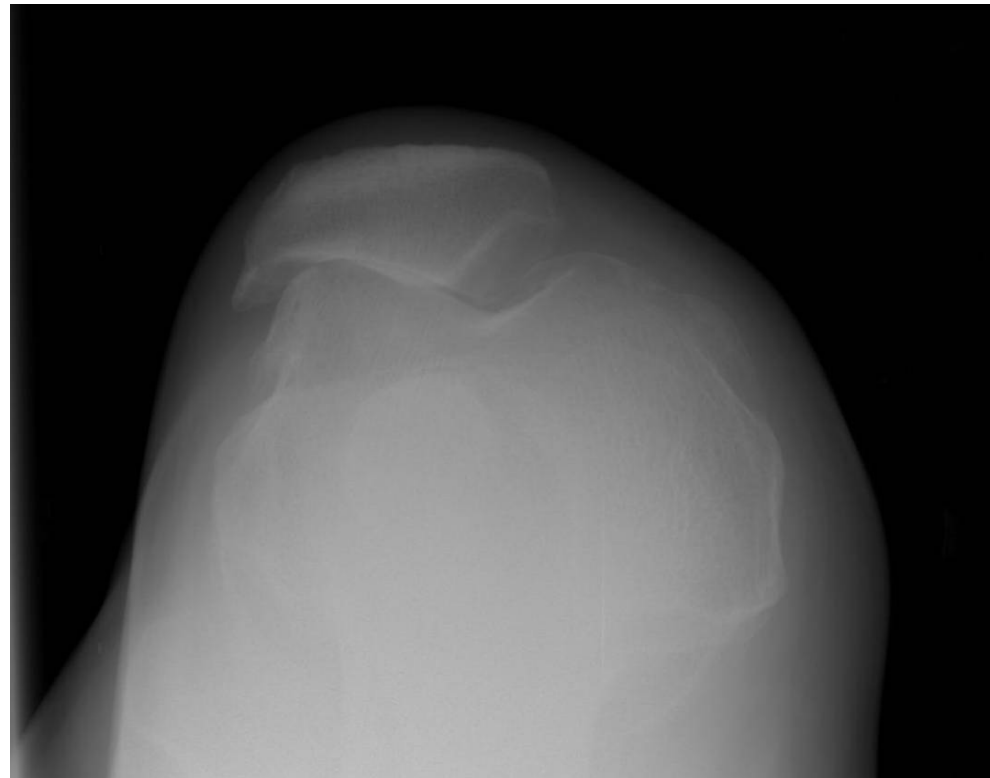
# Lower Extremity Biomechanics



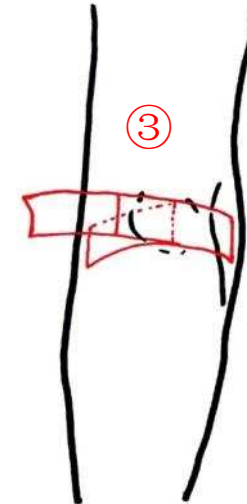
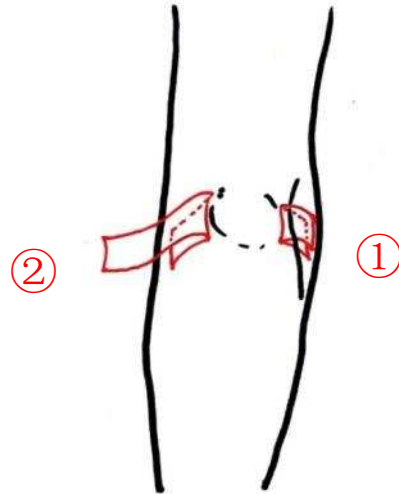
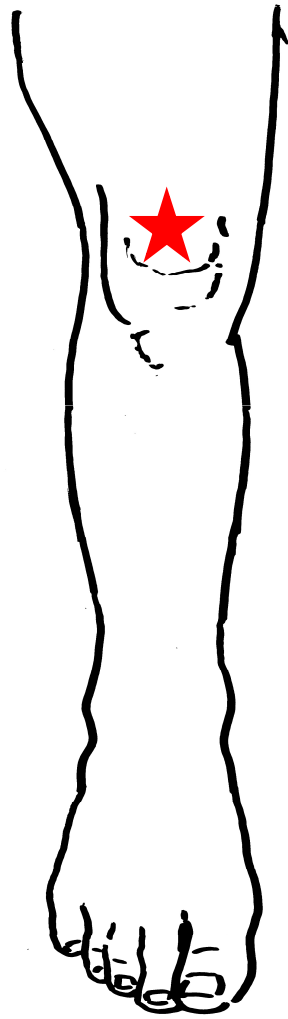
# Q angle



# Lateral patella subluxation, attrition



# 前膝疼痛 Anterior Knee Pain, 1/2



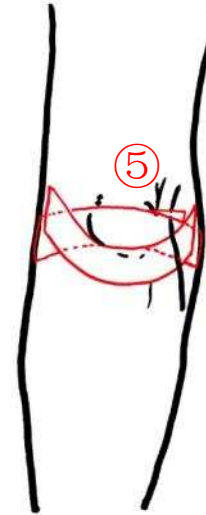
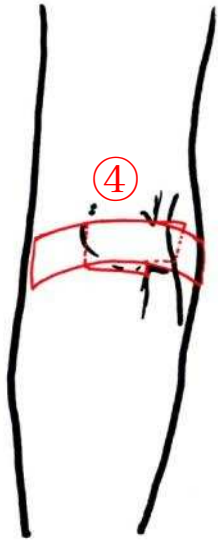
Medial patella taping  
Ez Peel®



# 前膝疼痛 Anterior Knee Pain, 1/2

- 準備三條貼布—2長、1短
- 在膝蓋伸直的情況下，先使用兩條貼布—1長、1短。
- 先將短貼布的一端貼於內側(如圖①)，長貼布的一端貼於外側(如圖②)；而貼的位置大約位於髌骨處。
- 之後將這二條貼布的另一端同時往中間拉，把二條貼布的黏著面相對互貼於髌骨前(如圖③)。

# 前膝疼痛 Anterior Knee Pain, 2/2



Medial patella taping



Infra-patella taping



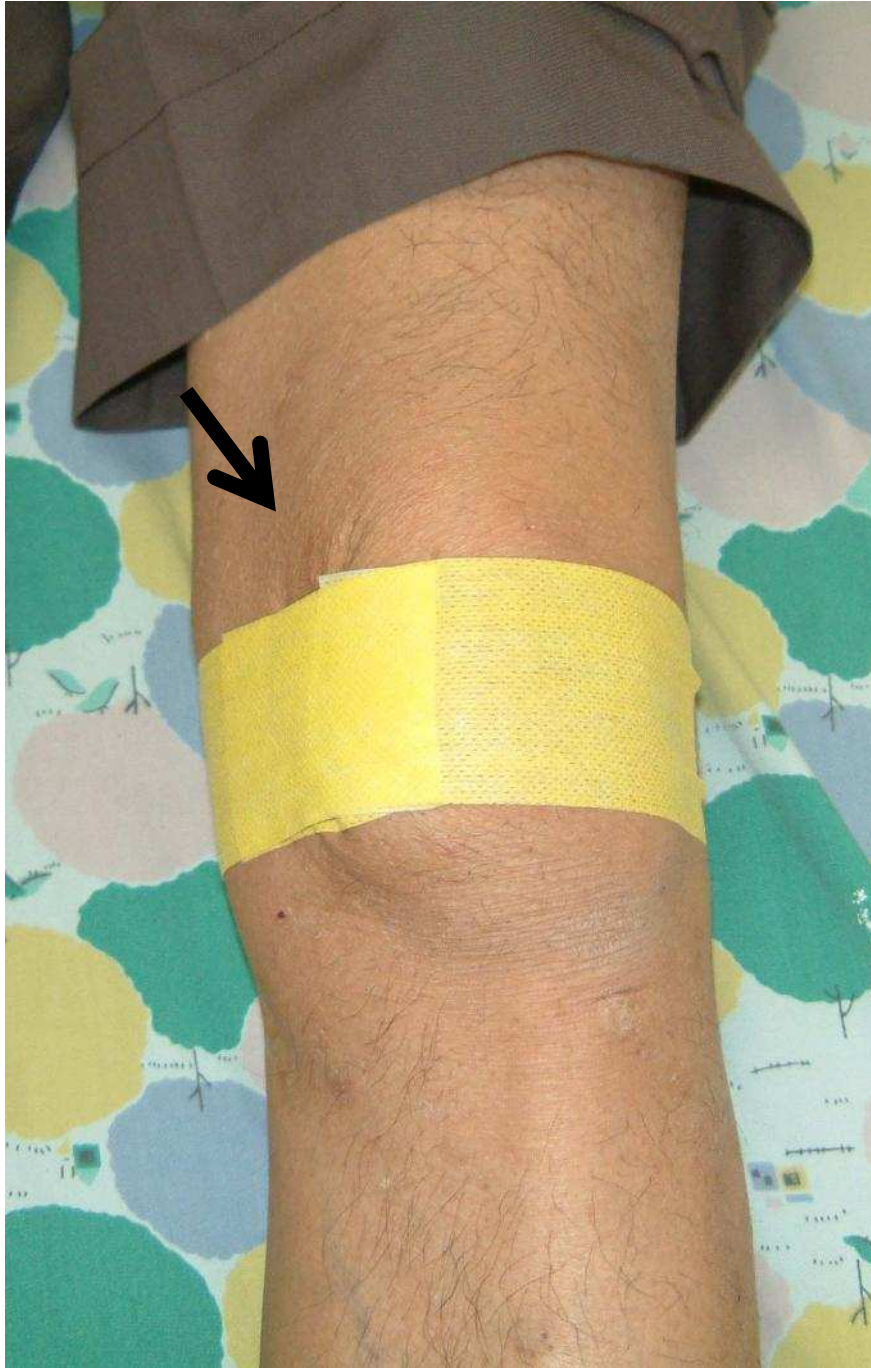
## 前膝疼痛 Anterior Knee Pain, 2/2

- 由於在外側的長貼布比較長，將互貼後的部分一起往內側拉，務必讓髌骨內側皮膚稍微產生皺褶後，再黏於內側膝蓋處(如圖④)。
- 接著膝蓋彎曲約30度角，再於髌骨下橫貼另一條長貼布(如圖⑤)即可完成。



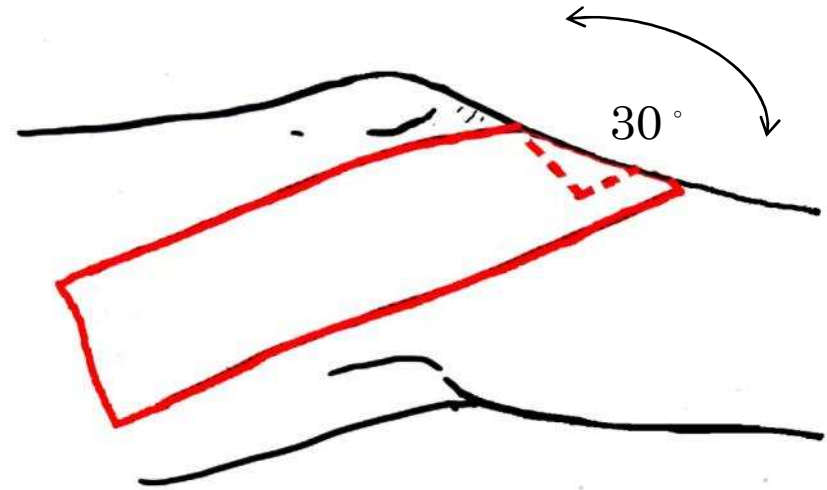
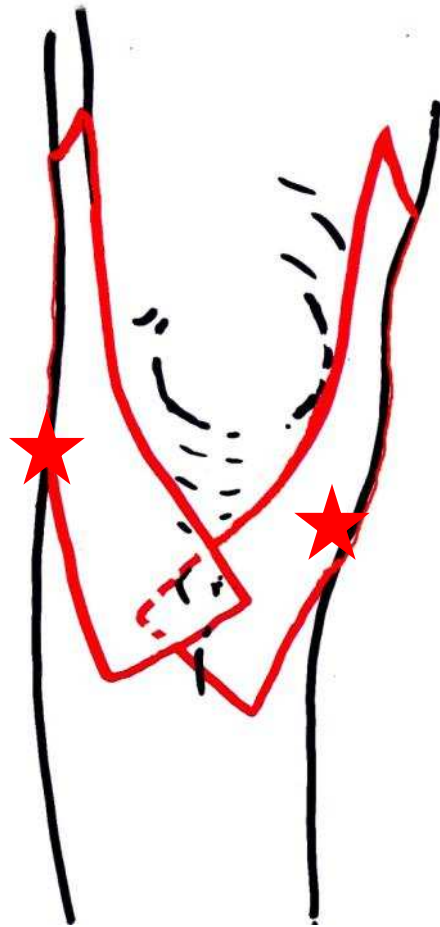
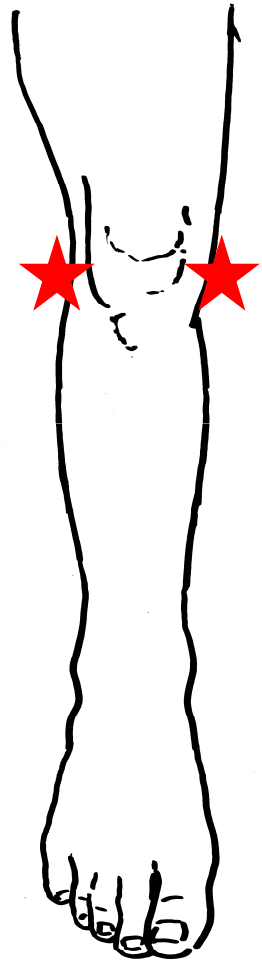




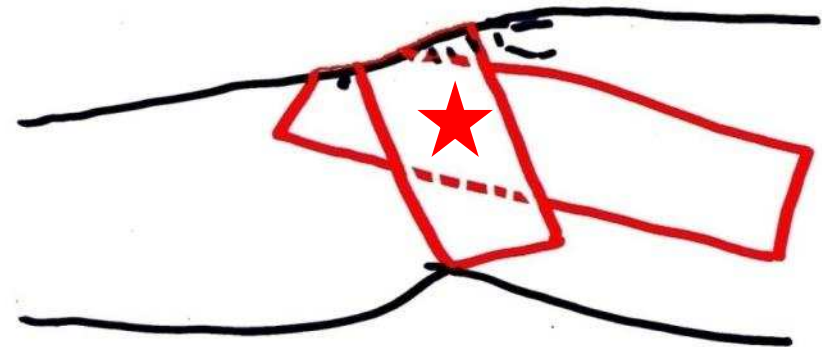
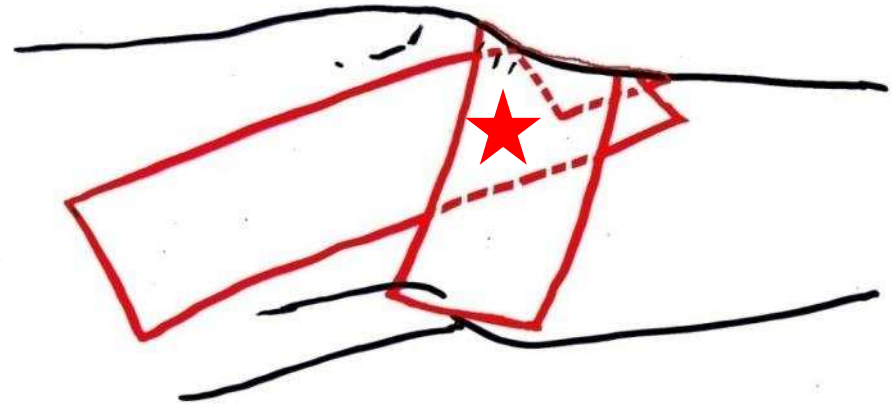
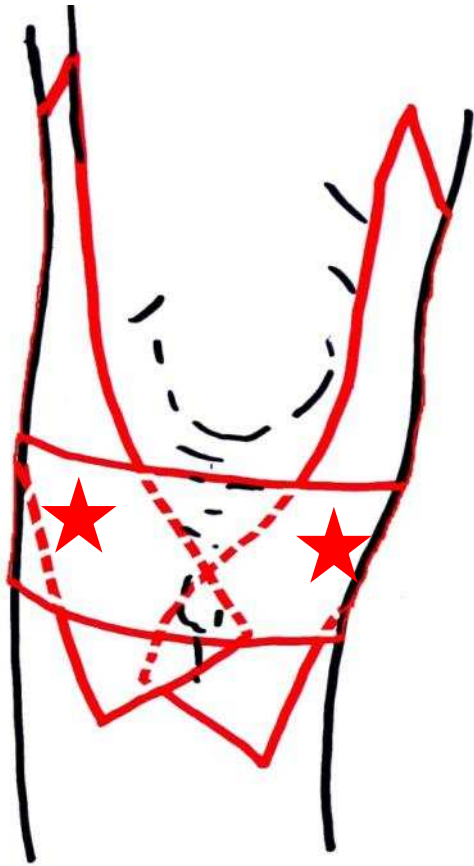


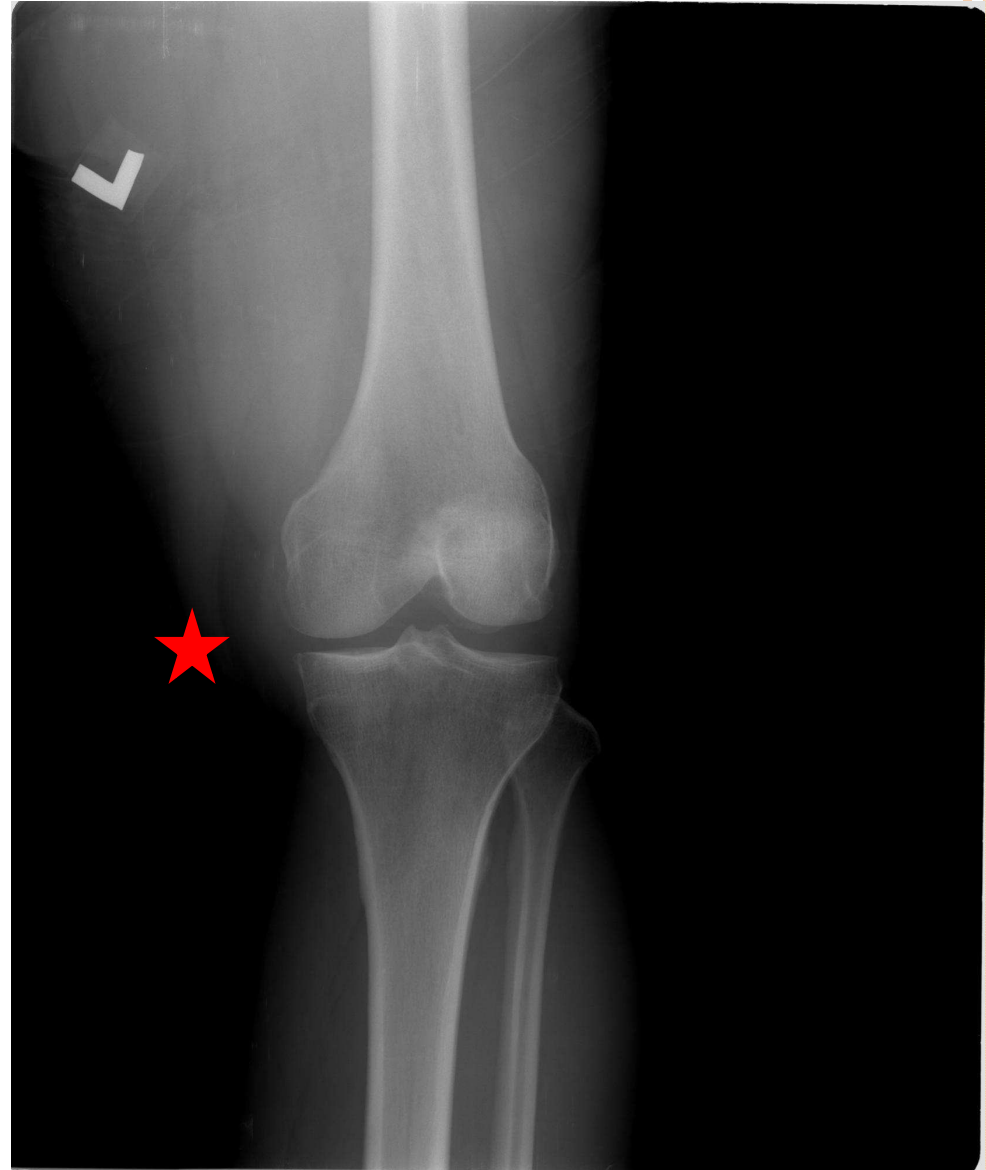


# 膝疼痛 Knee Pain 1/2



# 膝疼痛 Knee Pain 2/2











# 外踝扭傷 Ankle sprain

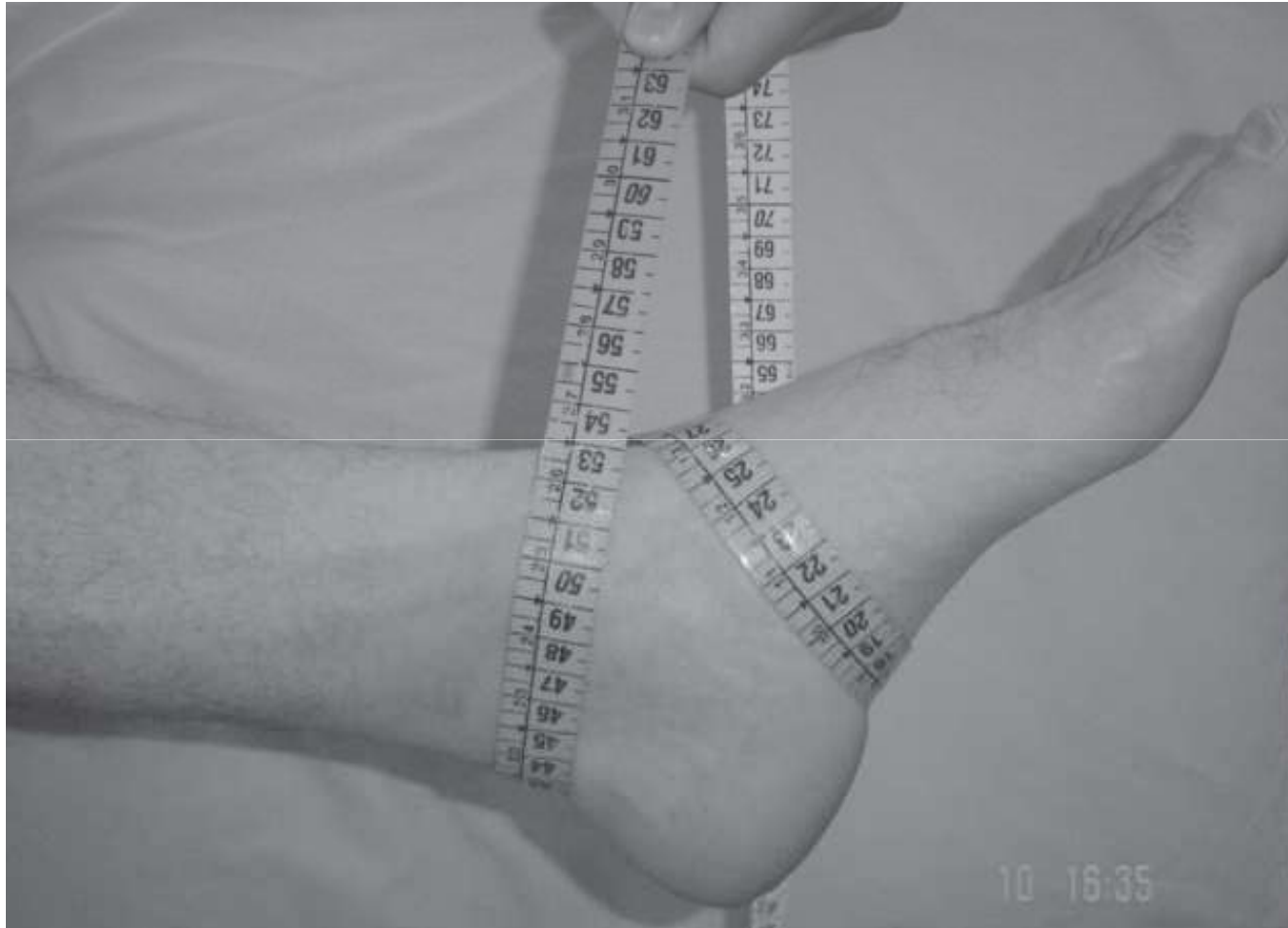
For 2 days

L't Figure of 8: 56cm

R't: 51cm

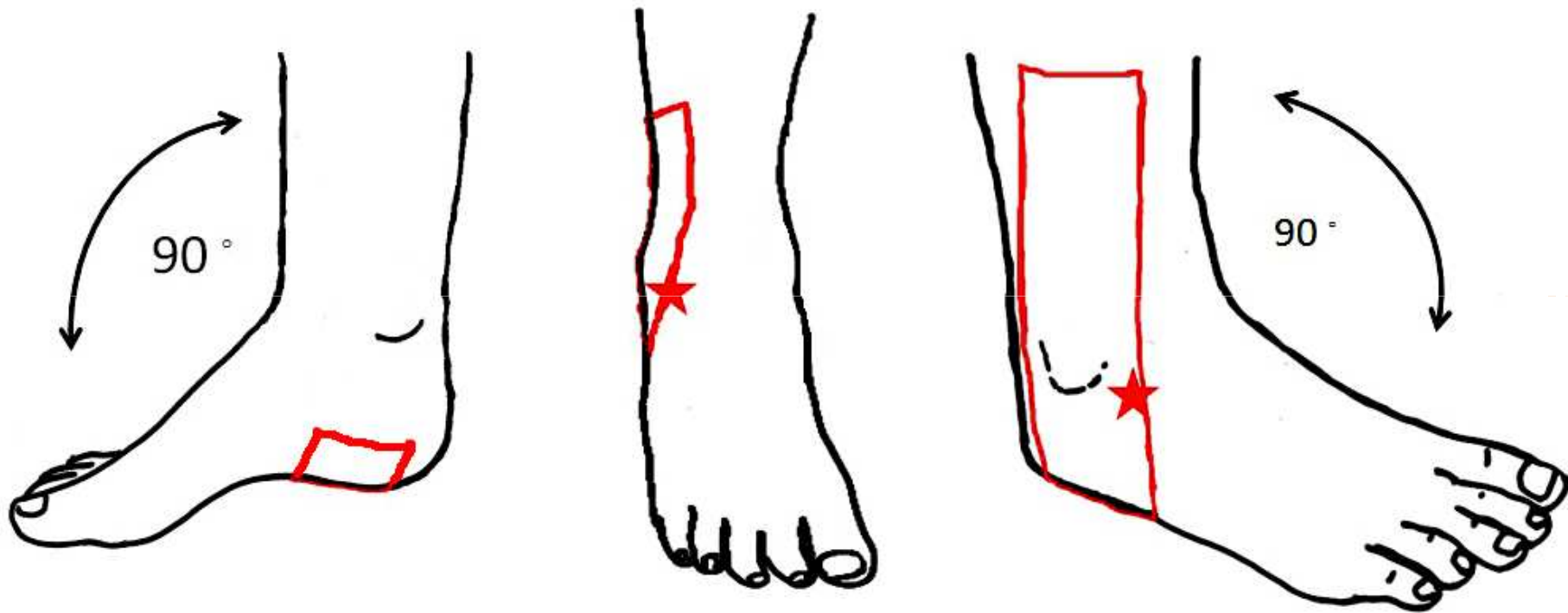


Measurement of ankle joint swelling  
**Figure-of-Eight method**

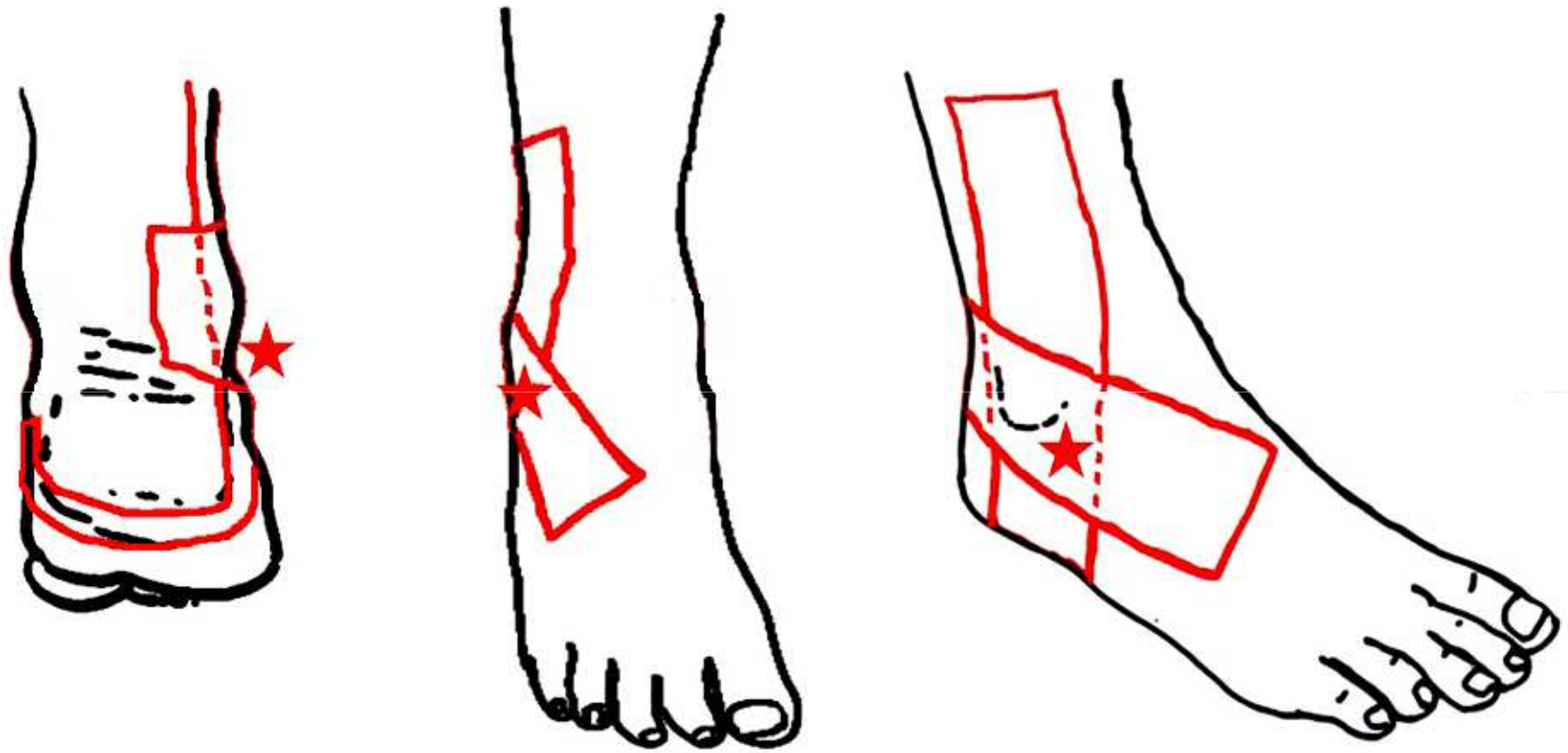


Esterson PS.. J Orthop Sports Phys Ther 1979

# 踝關節防護 Ankle Protection 1/2

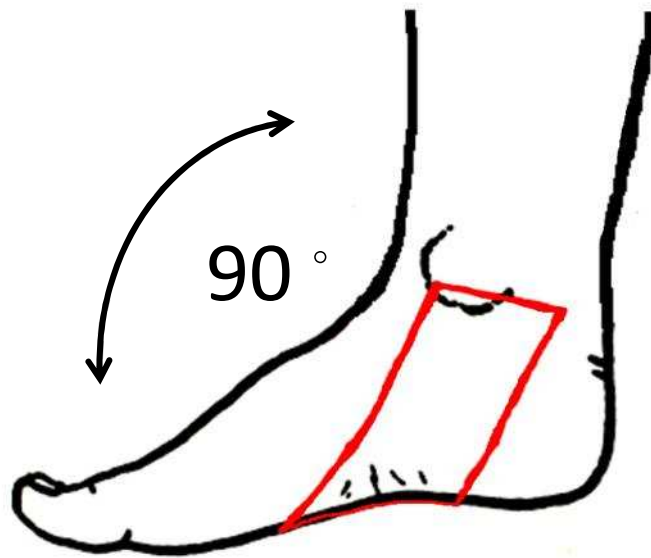


# 踝關節防護 Ankle Protection 2/2

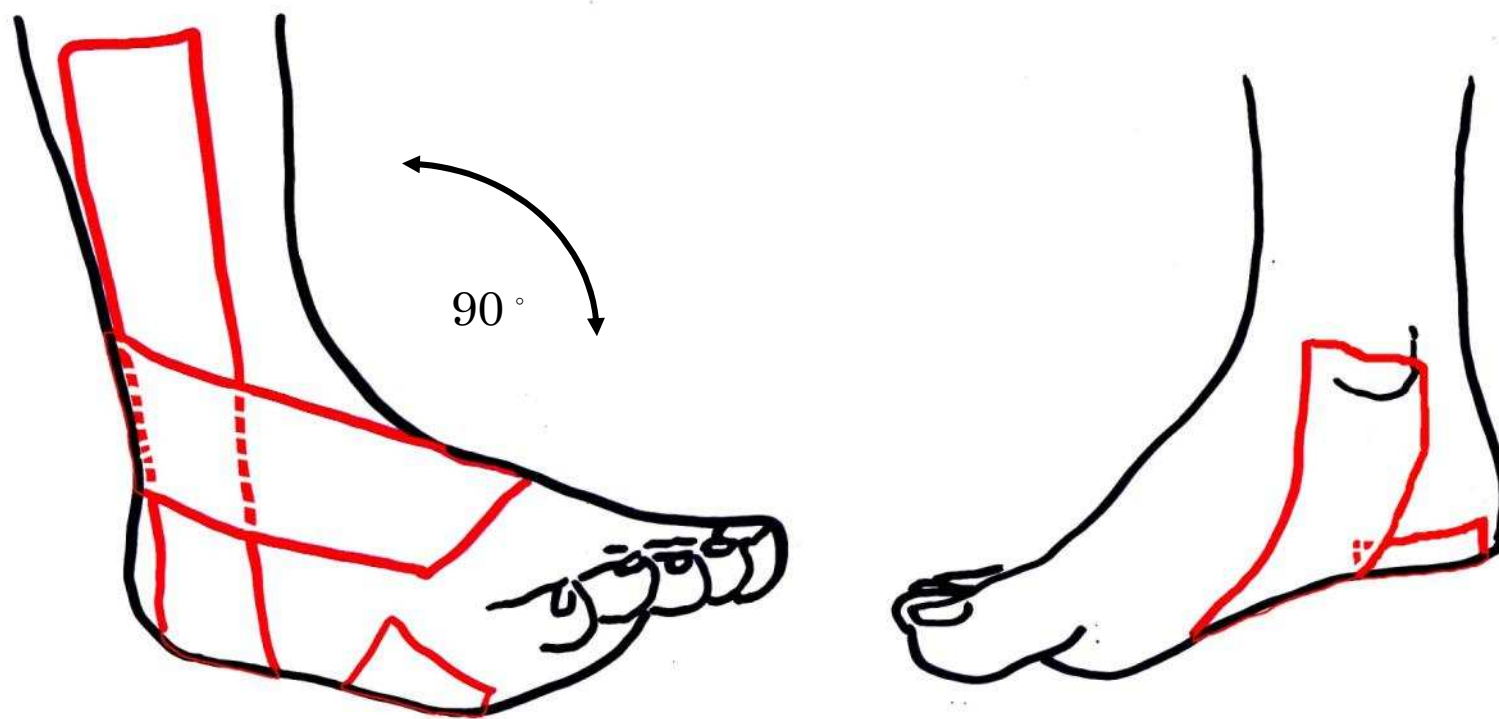


# 足弓支撐 Arch Support Taping

Ankle Protection Taping後，得加上Arch Support Taping



# 足弓支撐 + 踝關節固定 Arch Support Taping + Ankle Protection



# A case of Ankle sprain

1<sup>st</sup> day



1<sup>st</sup> day





# Ankle sprain

7 days later



F8: 53cm



# Taping for the ankle sprain

- Prevention injury

*Br J Sports Med 2005*

- Mechanical stabilization

*Br. J. Sports Med. 1990*

- Improves proprioception

*Br. J. Sports Med. 1995*

- External support and early mobilization

*BMJ 2006*

- Improves ankle-foot edema



# Lateral ankle sprain



# Lateral ankle sprain



# Lateral ankle sprain



# Plantar fasciitis 足底筋膜炎



- 足底筋膜炎為**腳底足弓之最主要支撐**，其主要功能為吸收在正常步態週期中著地期所產生之反作用力。
- 任何可能導致足底筋膜不正常拉力之因素，皆可能導致筋膜對附著端之骨骼及其相連之組織產生牽拉及傷害



## Plantar *Fasciitis* vs *Fasciosis*

- A **degenerative process** without inflammation
- Histologic findings :
  - myxoid degeneration with fragmentation
  - degeneration of the plantar fascia
- Treatment suggestion:
  - serial corticosteroid injections ?
  - Shockwave for regeneration

## Cause of Plantar Fasciosis

- Decreased blood supply to the area
- Entrapment of the posterior tibial artery by the flexor retinaculum





# Conservative Treatments

- **Medical**
  - NSAID
  - Steroid injection
  - Prolotherapy
- **Physical Therapy**
  - Resting
  - Combination cold and heat therapy
  - Stretching, massage
  - Night splints
- **Biomechanical**
  - Shoes
  - Shoe inserts
  - Taping
  - Custom orthotics



# Conservative Treatment

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# Stretching and Massage



# Massage



# Essential oil

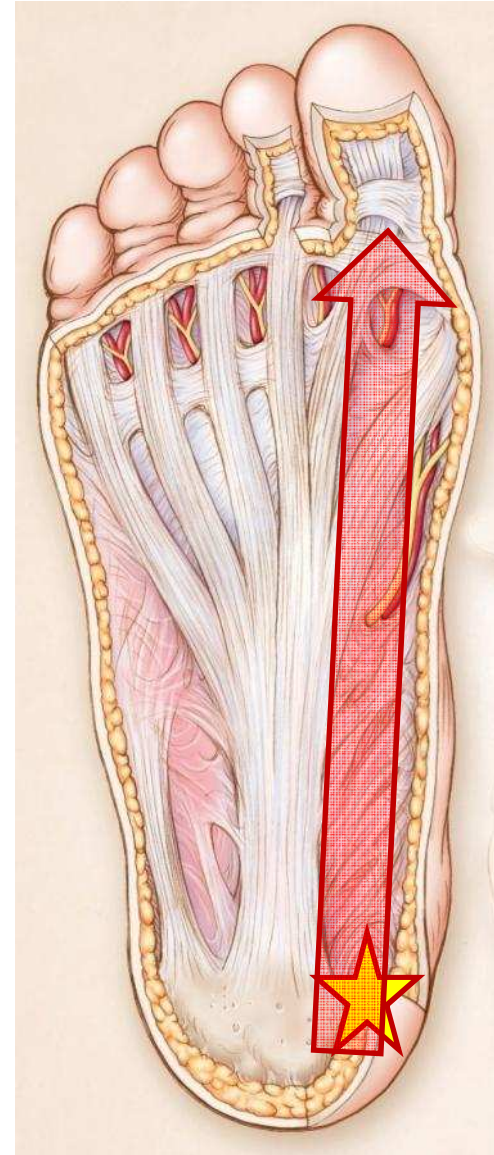


# Massage with a ball



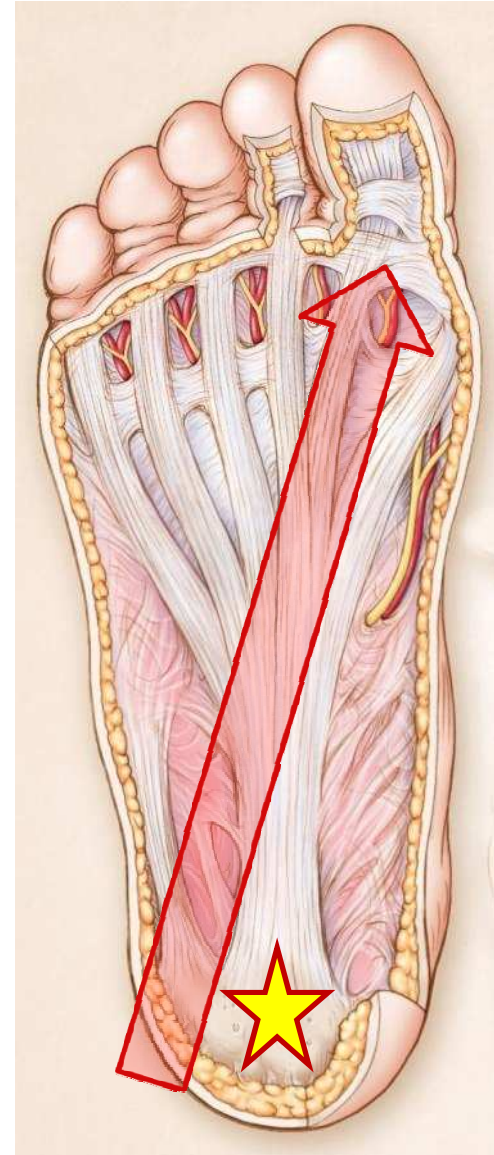
# Medial heel pain

- Pronation
- Medial plantar fascia to elongate and injury away from the calcaneal attachment



## Central heel pain

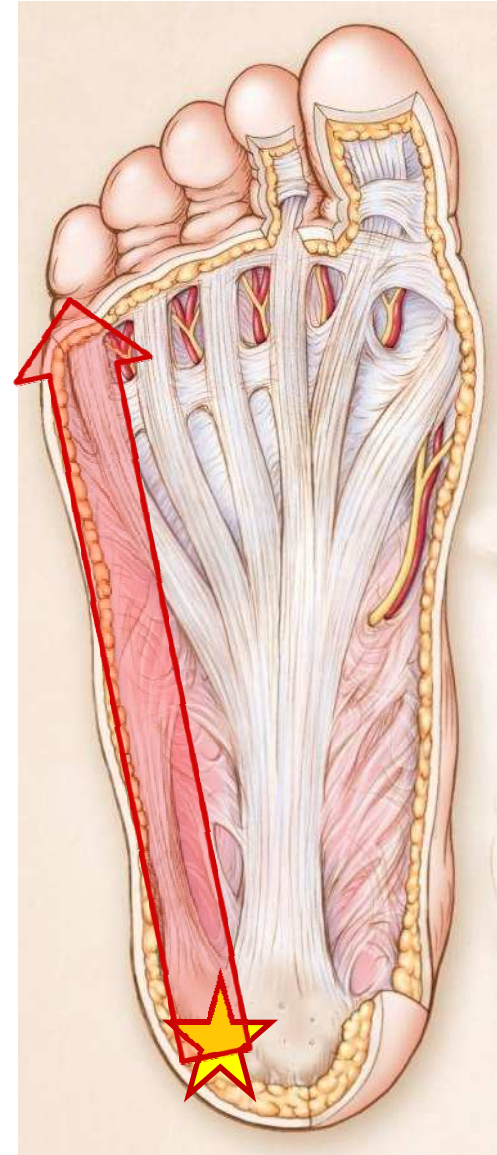
- Supination, pronation
- **Lateral heel strike** in gait to mid-foot collapse
- **Pronation** at mid stance of gait





# Lateral heel pain

- Supination
- Pes cavus
- Excessive forefoot valgus
- Lateral plantar fascia to strain from the attachment



# Treatment

## 1. Plantar specific stretches 足底筋膜拉扯運動

- 將患肢至於對側膝上，用同側手握住腳趾朝腳背拉，腳底要有拉扯感覺，每次持續10秒，每階段做10次，一天作3階段。

## 2. Massage 局部按摩

- (可與外用藥膏一起使用)



# Treatment 治療

3. **Taping** 貼紮

4. **Orthotics** 利用足弓支撐鞋墊及足跟墊來減少組織壓力

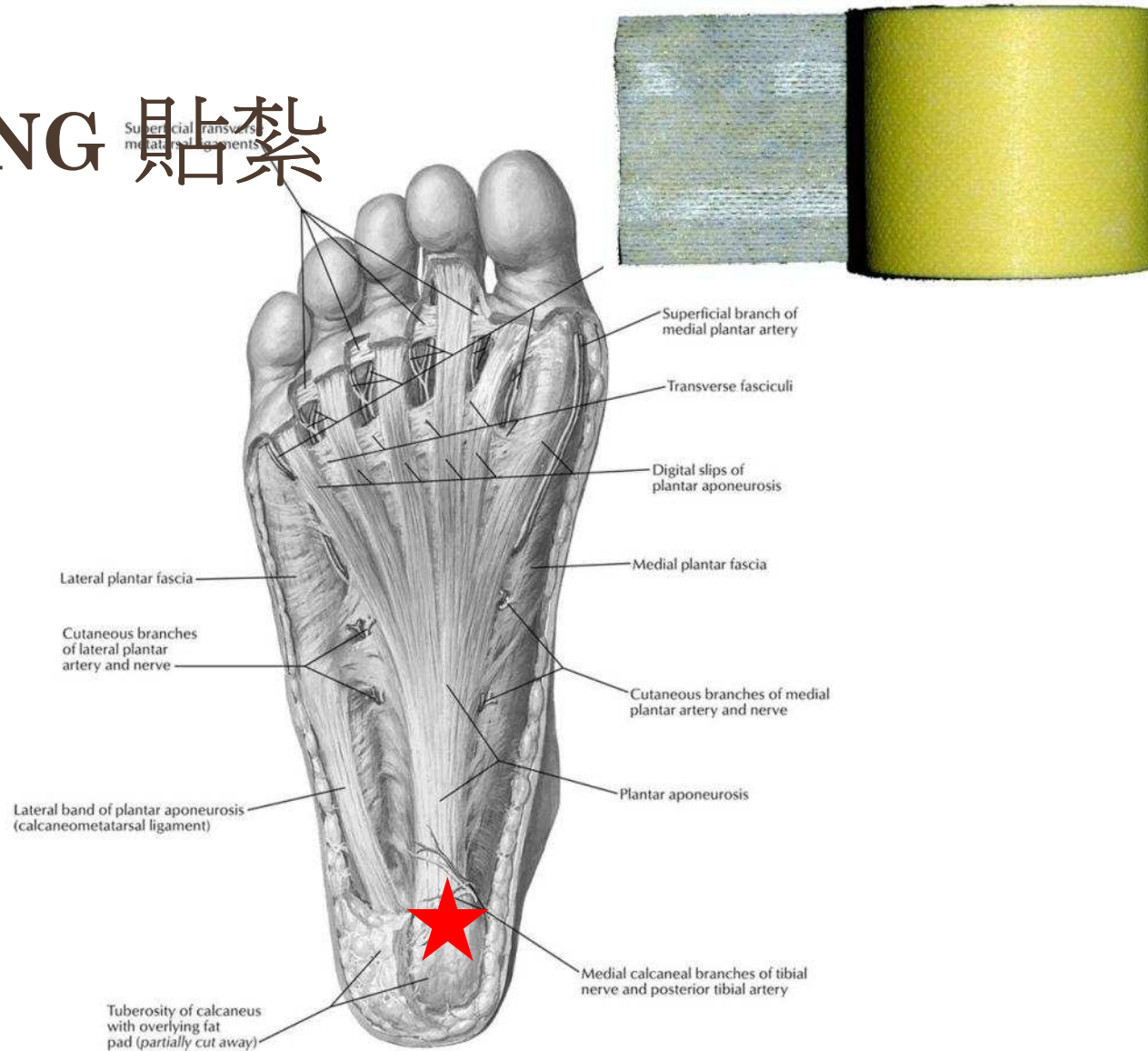
5. **Local injection , NSAID medication**  
局部注射或口服抗發炎藥物

6. **Surgery** 手術

主要是在保守療法無效時才會被建議



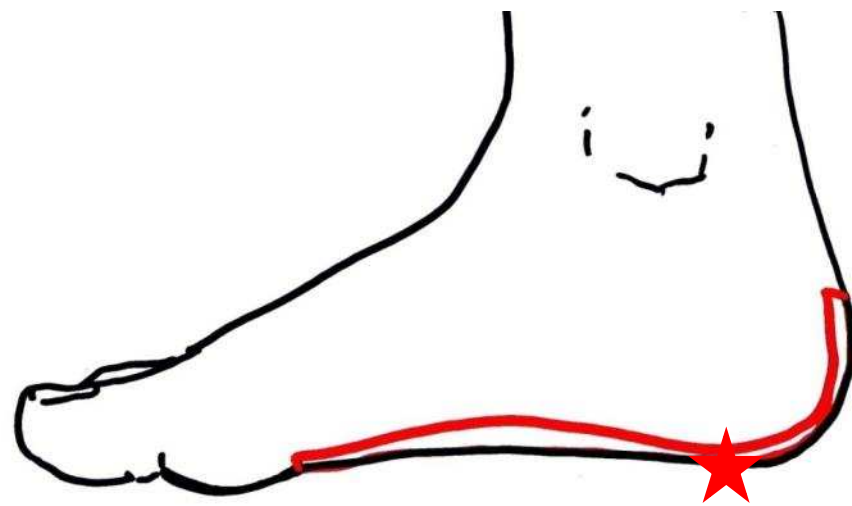
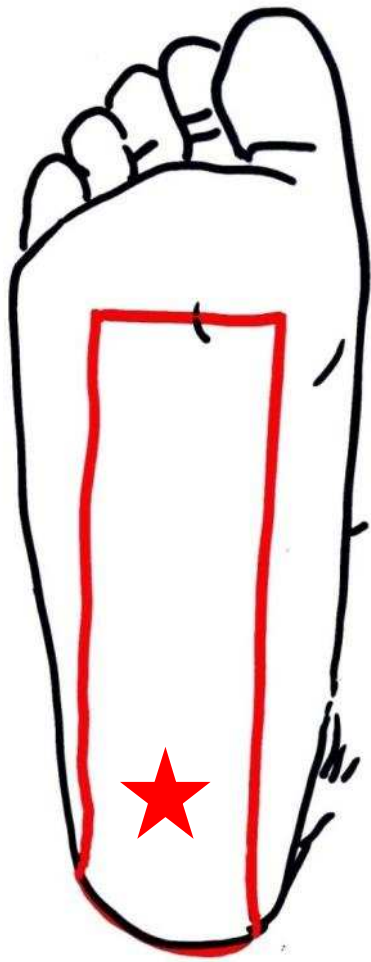
# TAPING 貼紮



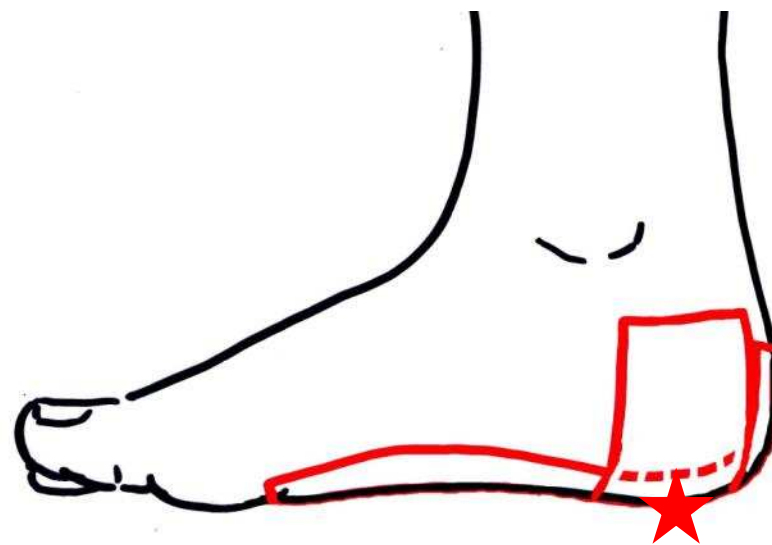
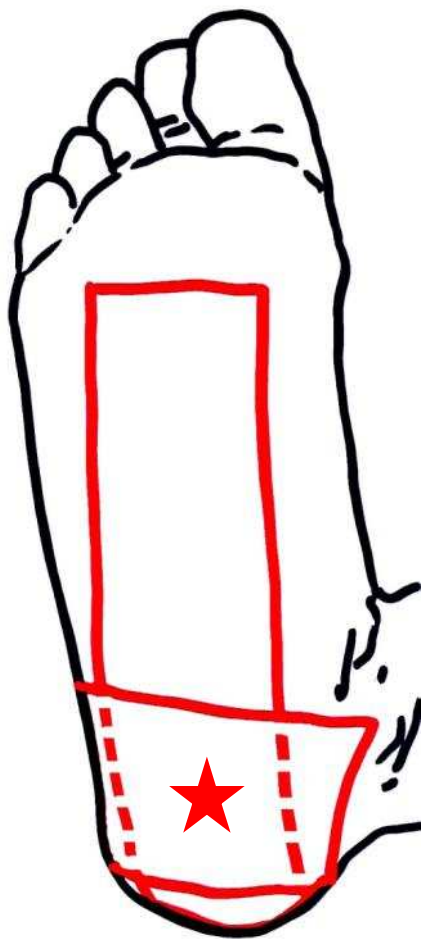
*Netter image of the plantar fascia anatomy. Netter illustrations used with permission from Icon Learning systems, a division of MediMedia USA, Inc. All rights reserved.*



# 足底筋膜炎 Plantar Longitudinal Taping

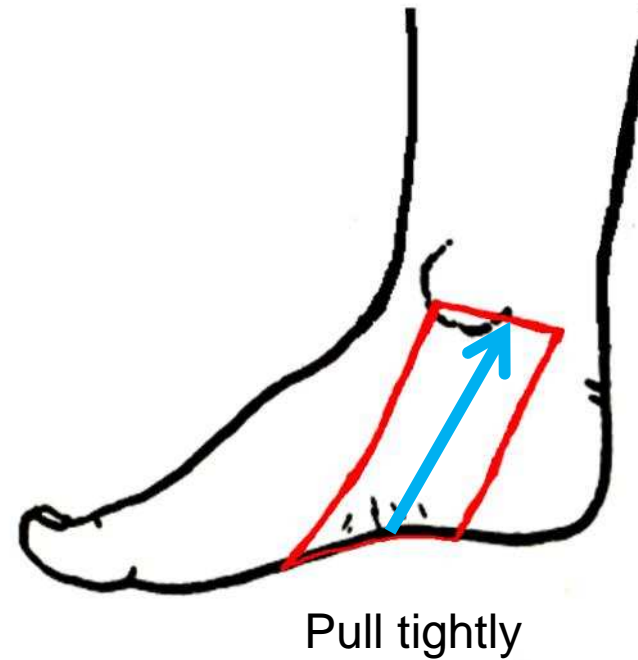
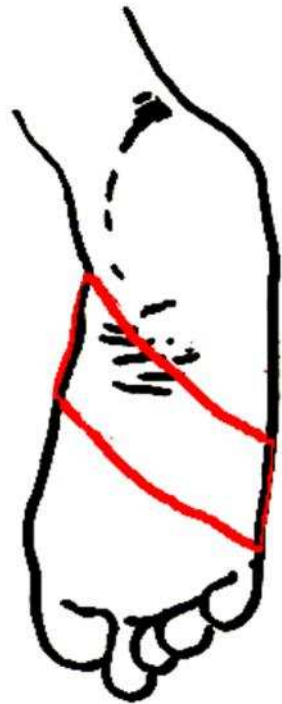


# 足底筋膜炎 Plantar Heel Transverse Taping

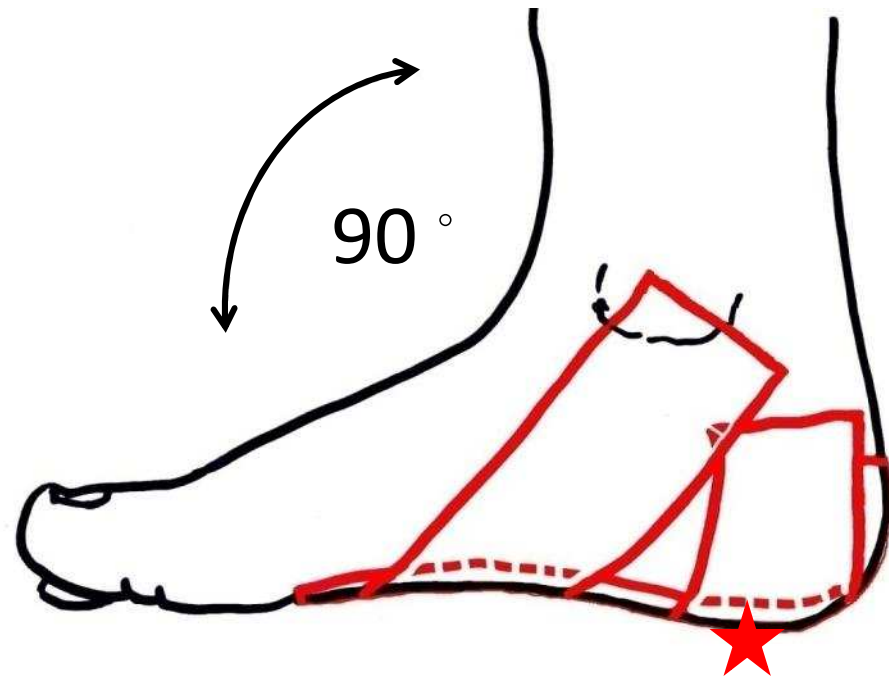
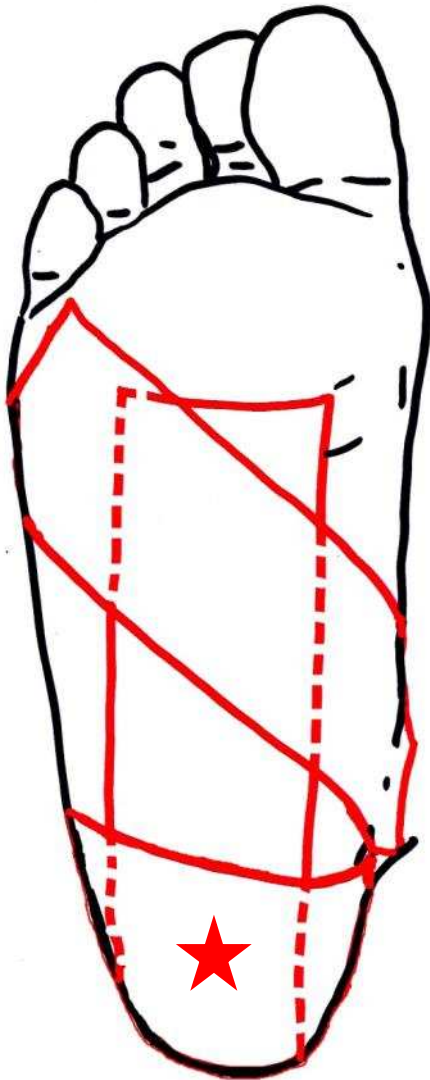


# 足弓支撐 Arch Support Taping

足跟底部疼痛點位於中間或內側時，得在 Plantar Taping前先加上 Arch Support Taping



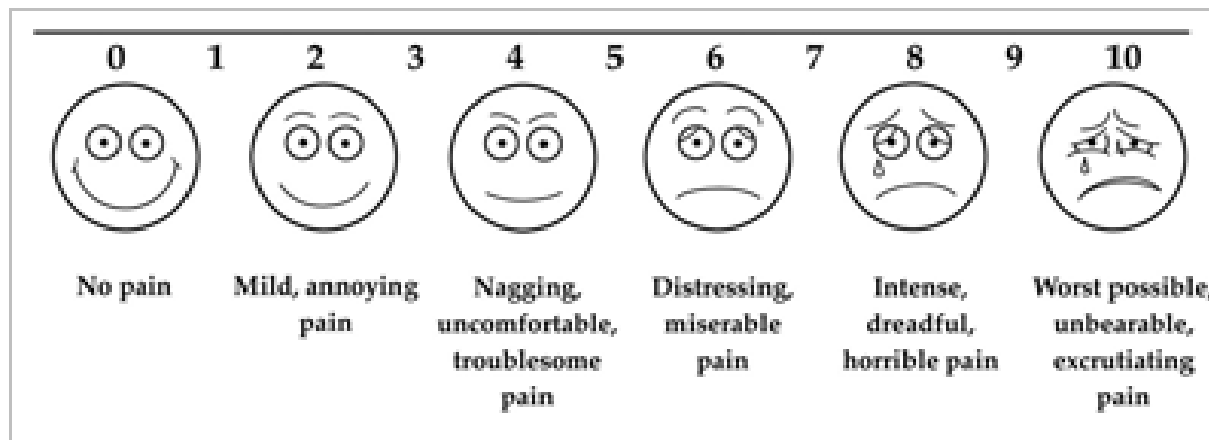
# Plantar Protection + Arch Support Taping





# Immediate effect after taping

- From Jan 2010 to May 2010
- 31 patients, 33 feet
- Symptoms: 1 month to 10 years
- VAS( visual analogue scale: 0-10)



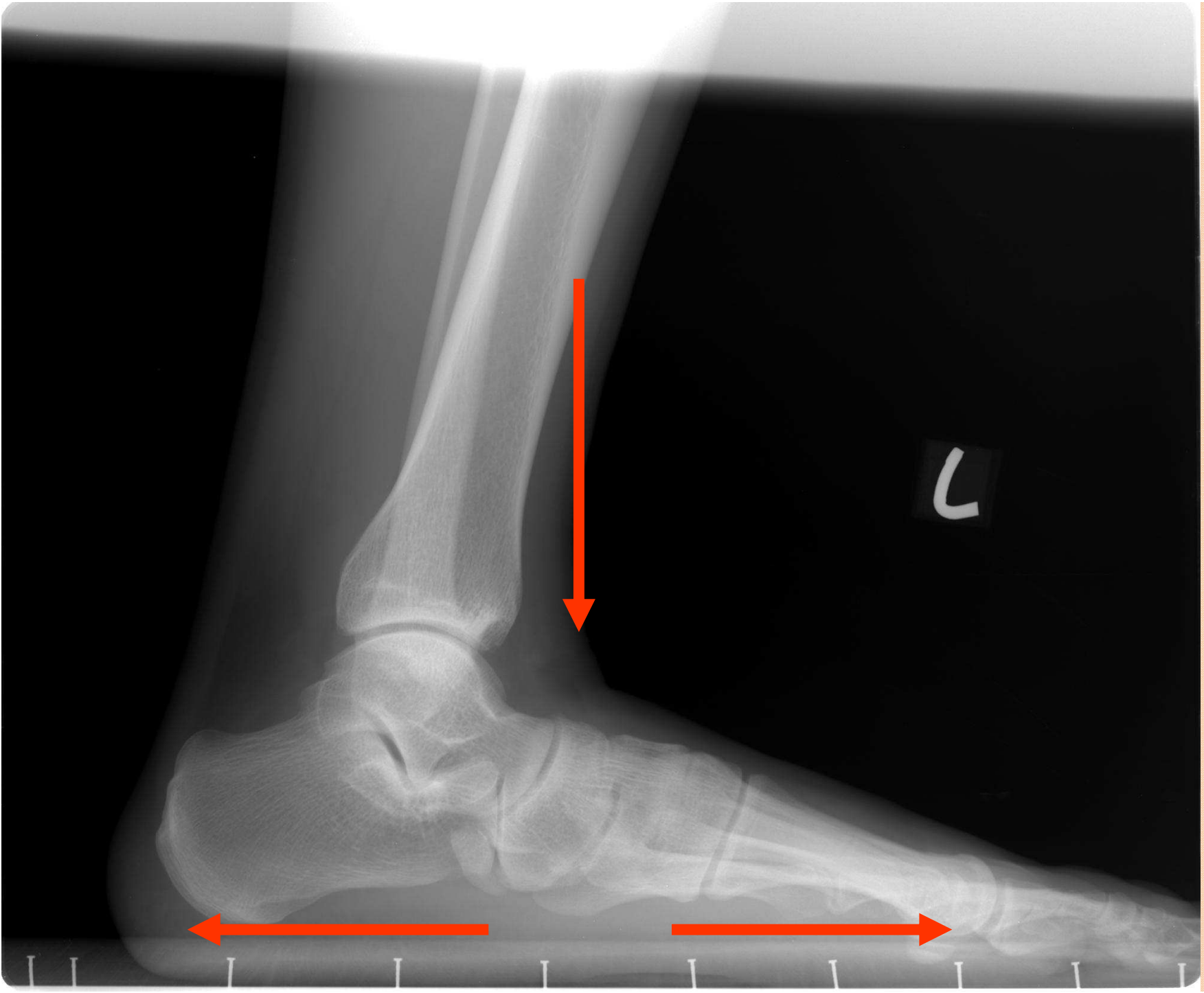
# Immediate Effect after Taping -Result

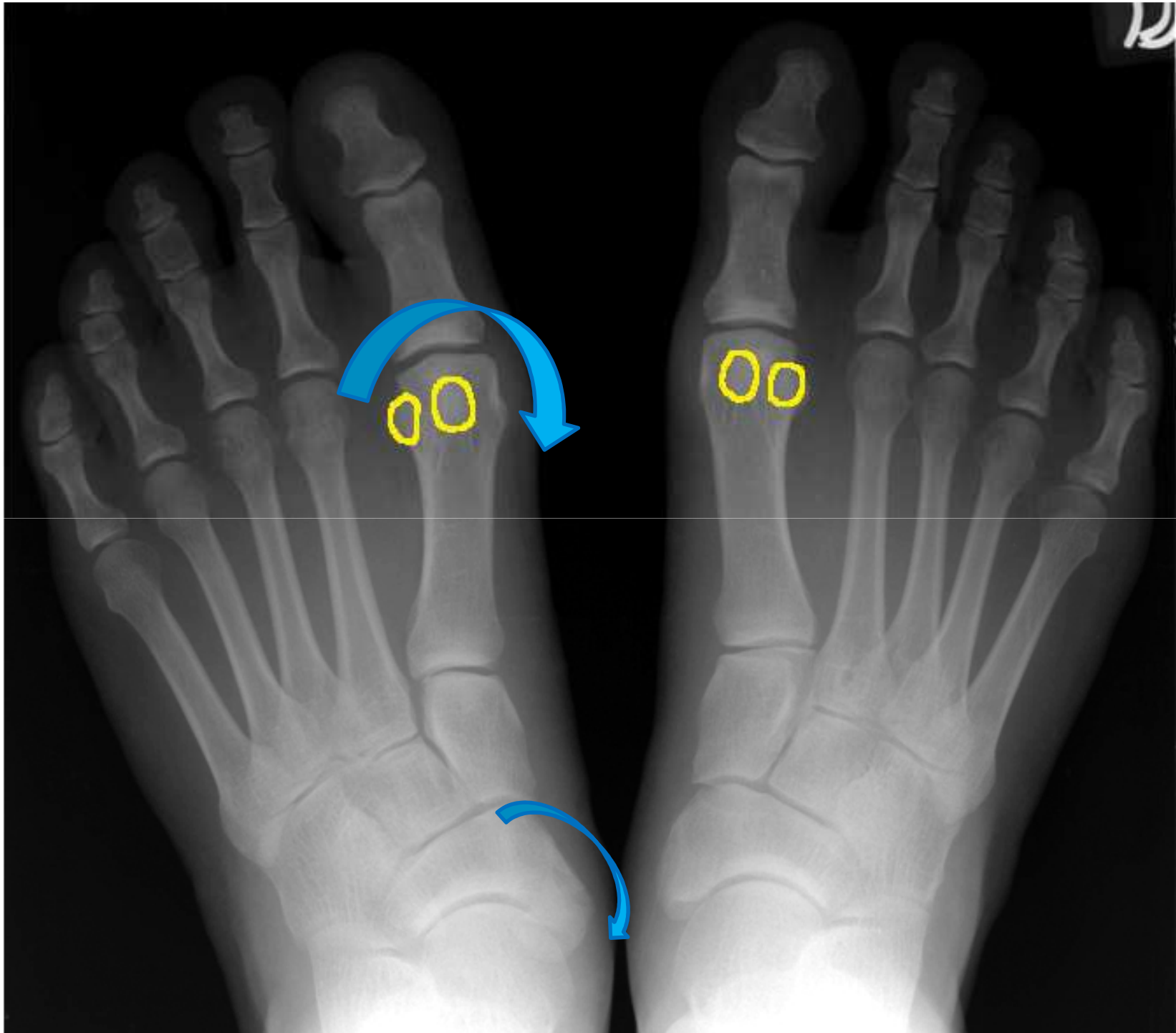
- Immediate improvement: 25 feet
  - VAS: **6.5**  $\Rightarrow$  **2.75**
  - 25/33: **76%**
- No immediate improvement: 8 feet
  - 8/33: 24%



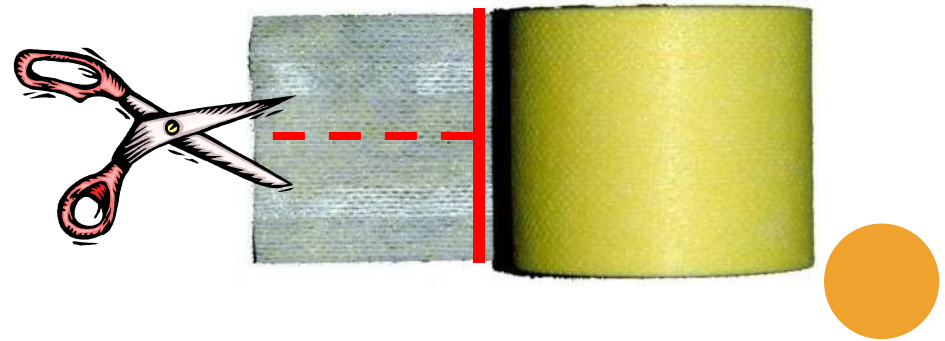
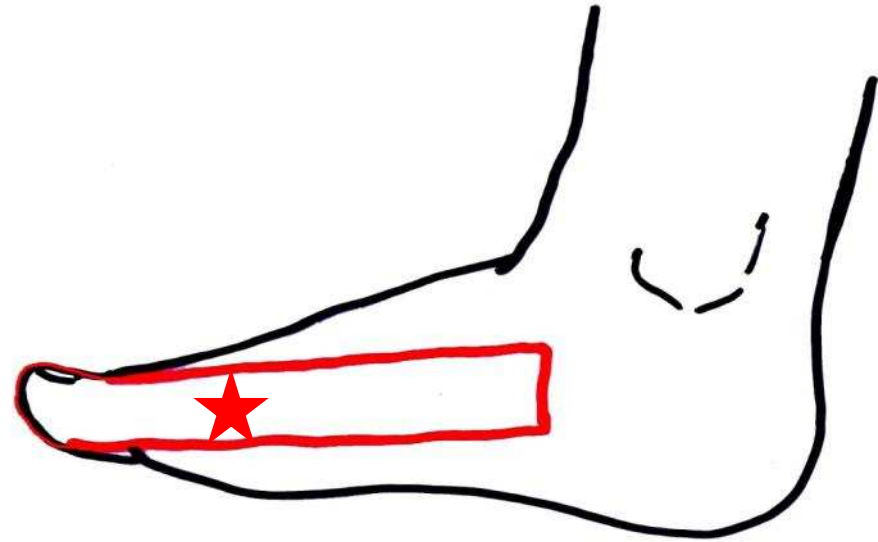
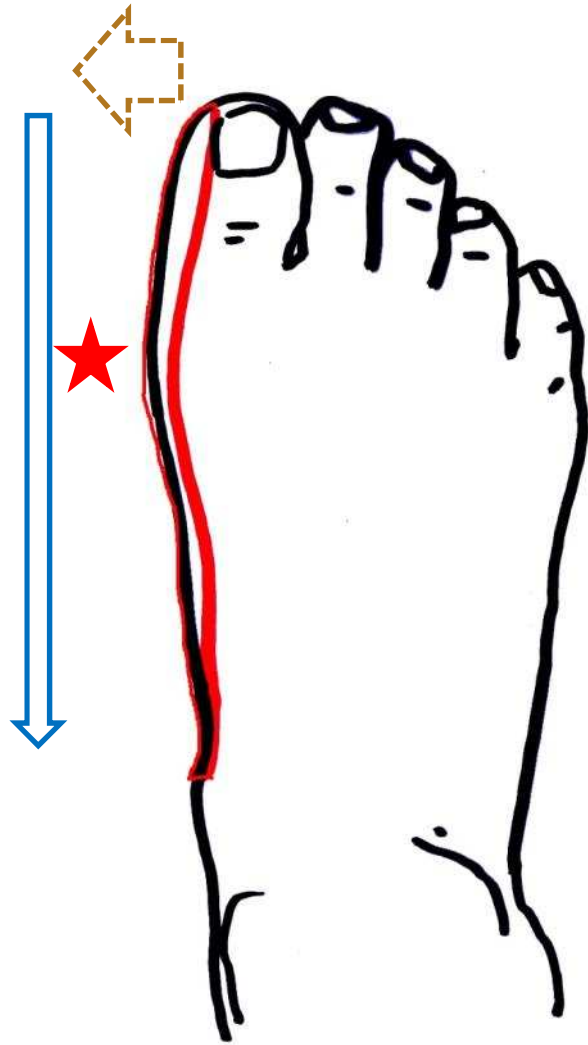
# Hallux valgus, Bunion



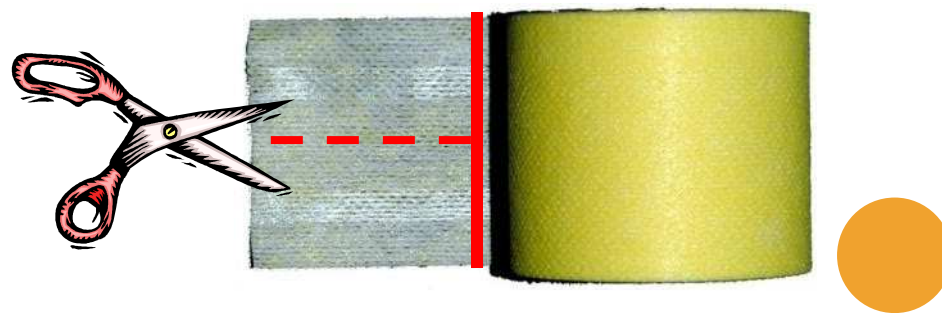
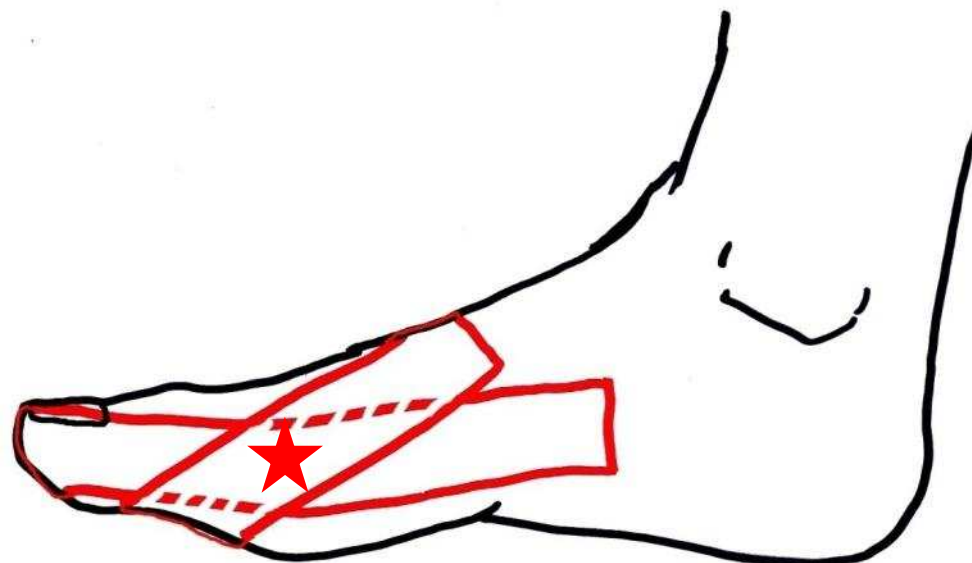
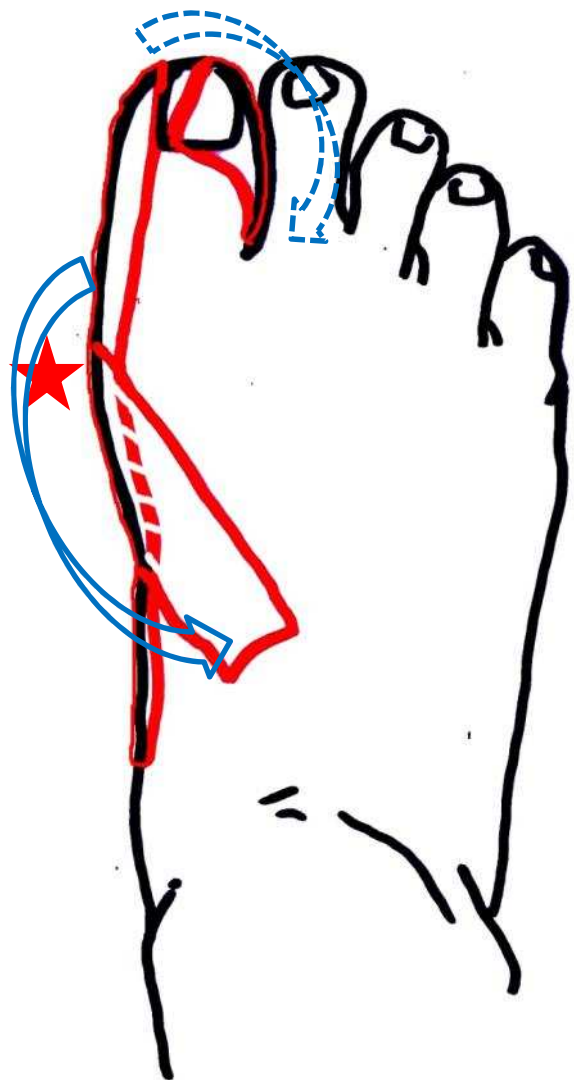




# 大姆趾內側痛 Hallux Valgus, Bunion 1/3

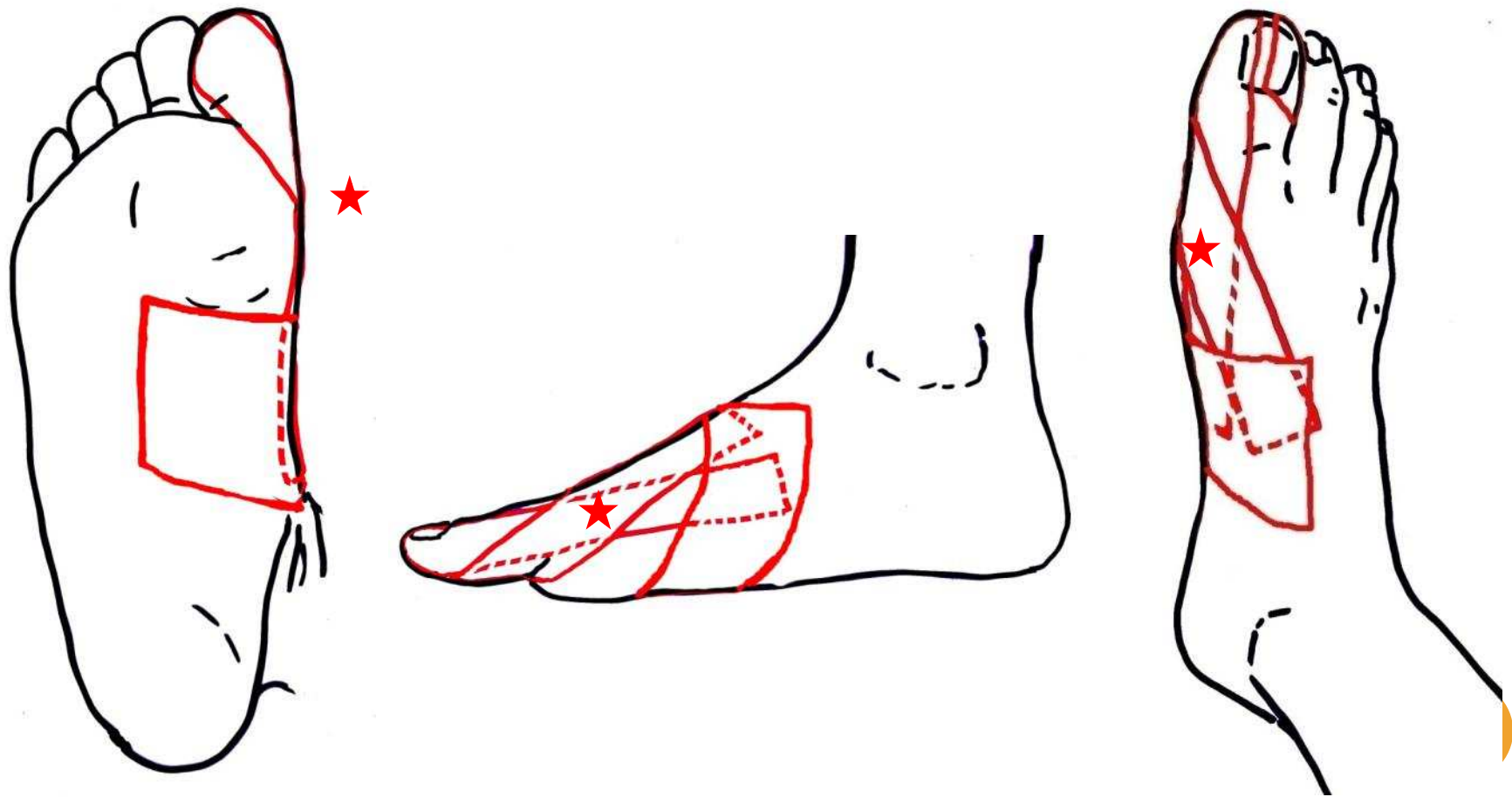


# 大姆趾內側痛 Hallux Valgus, Bunion 2/3



# 大姆趾內側痛 Hallux Valgus, Bunion 3/3

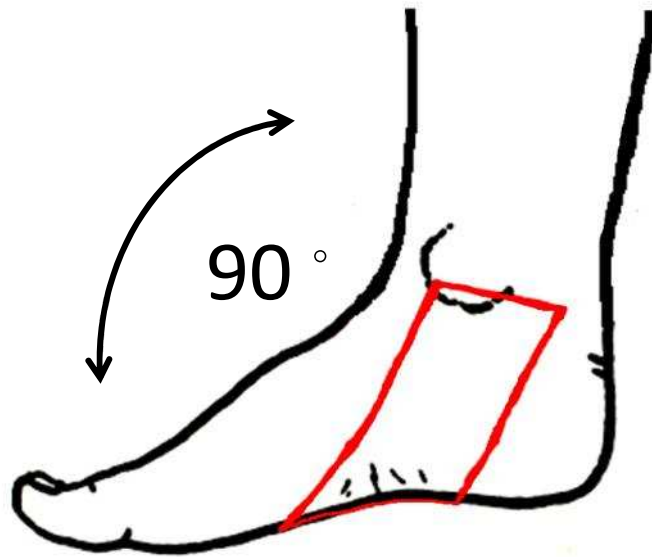
- 橫向貼布固定 Anchor Taping





## 足弓支撐 Arch Support Taping

- Hallux Valgus Taping之後，得再加上Arch Support Taping



# L't Hallux valgus, bunion



# 大姆趾內側痛 Supinated Rotation Taping



# Bunion+ plantar fasciitis

大姆趾內側痛 + 足底筋膜炎



CVA with R't hemiplegia  
R't bunion, swelling foot





**1** day later



**4** days later



## **Conclusion** 休護運動貼布 功能總結

- 維持肢體對齊( **Keep limb alignment**)
- 軟組織固定 (**Soft fixation**)
- 提供關節的穩定性 ( **Joint stability**)
- 減少過度拉扯 (**Less stretches**)
- 降低過度使用 (**Less over-used**)
- 按摩 (**Massage**)
- 降低腫漲 (**Minimize swelling**)
- 不刺激腸胃之新型態投藥方式 (**PDVT: para dermo via tape**)











**Thank You**