



聖保祿醫院  
St. Paul's Hospital

# NEWSLETTER 院訊

St. Paul's Hospital  
2, Eastern Hospital Road,  
Causeway Bay, Hong Kong  
Tel: 2890 6008  
Fax: 2576 4558  
Website: www.stpaul.org.hk

聖保祿醫院  
香港銅鑼灣東院道2號  
電話: 2890 6008  
傳真: 2576 4558  
網址: www.stpaul.org.hk

"I made myself all things to all men" (1 Cor. 9:22)  
“我為一切人成為一切” (格前 9:22)

Issue 66 | June / July 2010  
第六十六期 | 二零一零年六月及七月

 Medical Information  
醫療資訊

## Orthotic Therapy in Musculoskeletal Medicine

**F**oot orthosis is a shoe insert prescribed by a musculoskeletal physician to alter or modify foot function so as to treat, adjust, and support various biomechanical foot disorders. In other words, it is an external mechanical restraining and realigning device designed to reduce the effects of pronation and supination and treat poor foot mechanics – a device that restores the natural shock absorbing qualities of the foot.

### Abnormal Lower Limb Biomechanics with Compensatory Cascade

Our bodies were designed to be adaptive and to be able to traverse many different types of terrains. However, in our modern world, man has changed this environment and created new more stable foundations by covering it with hard unyielding surfaces such as concrete and paving.

When the ground is too hard and does not provide any 'give', the foot compensates by collapsing on the medial side, flattening the arch, in an attempt to gain ground contact. Pronation is the resulting compensatory mechanism and gives detrimental effects on the body structure not just the feet and legs.

When we walk on soft ground, the soft ground provides accommodative compensation by collapsing on the lateral side and compacting on the medial side. The ground then supports the foot and then allows the foot structure to pronate approximately 4° the amount of acceptable pronation required for shock absorption.

Biomechanical problems in the foot can transmit up to the other parts of the body resulting in pain at the knees, hips or even back and neck. Bilateral pronation of feet will throw the pelvis into anterior position whilst allowing the lower



lumbar area to sit in a lordotic position, which will stress on L1-L5. When the pelvis anteriorly rotates, it may have a contributing factor to spondylolisthesis in L5-S1 region. As the body engages compensatory mechanisms, tightness can be experienced in the thoracic area and a kyphotic curve may develop, the rhomboids will start to tighten to pull the body back to the centre of gravity in an attempt to reduce the stoop effect of the upper body.

### Common conditions that an orthotic can treat include

- Bunions usually caused by a short first metatarsal shaft and aggravated by pronation.
- Ball of Foot pain collapsing and rotating of the metatarsals caused by pronation.
- Plantar fasciitis/ heel spur pronation causes the fascia to elongate and tear from the calcaneus. Spurs are a secondary compensation.
- Severe Disease (children's heel pain) related to pronation and growth spurts in children and affects sporting children more than sedentary ones.
- Achilles Tendonitis- repetitive over- stretching of the medial and lateral attachments of the Achilles tendon caused by pronation and supination creates a point of pain stress point.
- Shin Splints can be lateral/ medial/ anterior: pronation and supination are the key contributing factors.
- Knee pain collateral ligament strain due to pronatory and supinatory factors.
- Children's knee pain "Osgood Schlatters Syndrome" occurs due to a combination of tibial torsion, growth spurts and pronatory factors.
- Hip pain due to structural or functional leg length and supinatory factors including tight external hip rotators and long leg jamming action.
- Low back pain: Unilateral and bilateral pronation and structural and functional leg length causing stress on the lower back L1-5



- Leg length syndrome when a structural leg length difference is evident the long leg may excessively pronate to level the pelvis and so the orthotic will correct the long leg pronation and a heel lift will be added to the orthotic on the short leg.

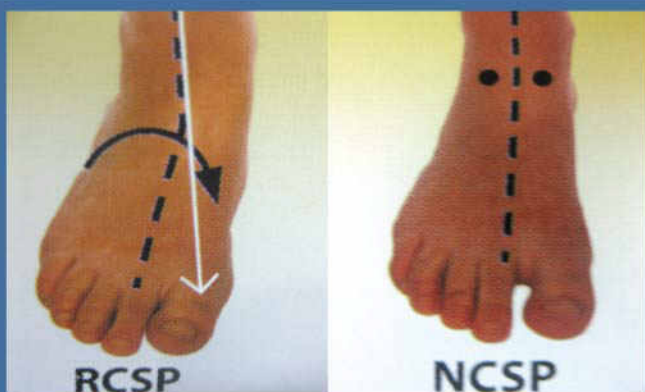
### Introduction of Heat-mould Orthotics to relieve abnormal lower limb biomechanics



A dual density 100% EVA (Ethylene Vinyl Acetate) orthotics is available in the market which is a combination of two densities covalently bonded together in the one orthotic to offer both support and comfort therapeutic effectiveness. EVA is a material that can be repeatedly heated and moulded under the application of heat and pressure in such a way that custom-made orthotics can be applied to patient's foot when combined with a special lower limb assessment system.

## Systemic Assessment of Lower Limb and Orthotics Prescription

1. Choose EVA material and size according to patient's body weight and size of footwear



2. Identify the Resting Calcaneal Stance Position (RCSP) and Normal Calcaneal Stance Position (NCSP)



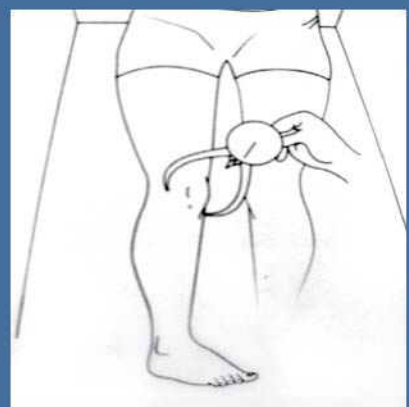
3. Check the leg length discrepancy for any structural differences



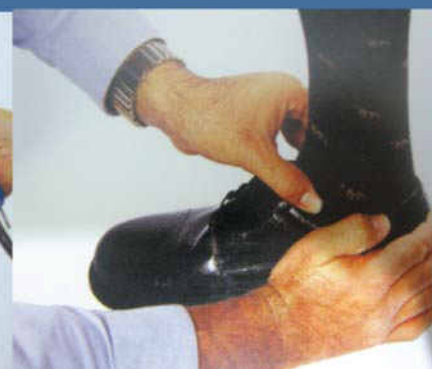
4. Assess malleolar Torsion



5. Check forefoot valgus or forefoot varus.



6. Measure hip range of motion



7. Heat and mould orthotics into corresponding shoe by maintaining subtalar joint neutral position



## Conclusion

Orthotics prescription is a common practice in musculoskeletal medicine to restore normal biomechanics of lower limbs. Following the above basic techniques of systemic assessment, 80-85% of cases will respond well with the orthotics. Orthotic additions and modifications will be applied in specific clinical condition and will be discussed in future chapter.



*Dr Paco Lee*

*Specialist in Family Medicine*

*Postgraduate Diploma in Musculoskeletal Medicine (Otago)*

## 聖保祿醫院外展活動與澳門社會服務中心合辦 「齊來做體檢確保體安康」免費體檢活動

## Hospital activities 醫院活動



聖保祿醫院與澳門社會服務中心聯合舉辦一個為長者、獨居老人及弱勢社群而設的免費健康檢查活動，並於2010年6月6日（星期日）假座於澳門金碧文娛中心順利舉行。檢查服務包括：量血壓、脂肪測試、乙型肝炎快速測試、膽固醇快速測試、尿液測試、骨質密度測試、週邊血管測試及眼科檢查等，藉此為當地居民推廣注重身體健康之訊息。當日約有六百多名澳門市民包括長者、街坊及三十多位義工參與是次活動。

## 旺角區長者免費健康檢查外展活動



聖保祿醫院與扶輪社（九龍金域社區）聯合舉辦一個為旺角區居住之長者而設的免費健康檢查活動，並於二零一零年四月二十五日（星期日）假座於旺角街坊福利會陳慶社會服務中心順利舉行。是次活動，主要服務對象為長者、獨居老人及大眾市民，當日多

名長者及街坊踴躍參與是項活動。

義工個人分享：

『我很高興能夠成為香港聖保祿醫院病人資源中心的義工！雖然只是做過短短四次義工，我感受獲益良多！因為透過這幾次的義工經驗，我自覺提升了與人溝通的能力並且更體驗到團隊合作的精神是非常重要的！每次我做完義工後，都感到很開心。正所謂「助人為快樂之本」，看見受助的人快樂，自己都很快樂。在此，我特別要感謝香港聖保祿醫院註冊護士一嚴晞如姑娘，感謝她給予我當義工的機會，讓我這位護士學生有更多的學習機會。如果香港聖保祿醫院再舉辦義工活動，我一定會再次參加！』

游嘉寶

香港公開大學護理學系  
二年級學生







## 聖保祿醫院主保瞻禮日

聖保祿宗徒為本院之主保聖人，每年本院均以他的瞻禮日作為本院之院慶。為慶祝這個特別的日子，沙爾德聖保祿女修會聯同本院於二零一零年六月二十九日(星期二)下午五時三十分於基督君王小堂舉行『聖保祿瞻禮感恩聖祭』，由湯漢主教蒞臨主祭。當日，同時舉行沙爾德聖保祿女修會修女之進會週年感恩禮及聖保祿之友收錄禮，入會同事合共三位。本院各部門同事及代表均踴躍出席，約有百多位同事參加。於感恩祭完畢後，修會於聖保祿小學禮堂為各來賓及同事設置簡單自助美食。此外，院方亦安排免費午膳及晚餐，讓全院同事一起享受瞻禮日歡樂的氣氛。

As per editorial arrangement, the June's Newsletter was combined its publishment with July's Newsletter.



www.rauland.com

The One-Touch Communication Solution for your Entire Facility



*The Responder 5, IP Network Healthcare System with Touch Screen Terminal*



**NIXON TECHNOLOGY COMPANY LIMITED**

1/F, Glorious Sun Group Building, 97 How Ming Street, Kwun Tong, Kowloon, Hong Kong  
Tel: (852) 2892 2188 Fax: (852) 2831 9973  
Web Site: www.nixon.hk E-mail: nixon@nixonhcl.com

