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## **"Footnotes" on Knee Pain**

### **PARAMETERS AND CLINICAL PRESENTATION**

Many of knee problems are created or compounded by the knee being subjected to transverse plane motion generated by internal or external tibial rotation secondary to the foot's excessive pronation or supination respectively. On this basis, stabilisation of the foot will often lead to a reduction in the knee symptoms by reducing both the



magnitude and velocity of transverse plane motion within the last 15 degrees of motion that precedes full knee extension. Hyperpronation with a secondary increase in transverse plane motion of the Tibia often leads to eccentric loading of the patella including over use of the Vastus Lateralis and under utilisation of the Vastus Medialis, with ensuing cartilaginous irritation and destruction. Formthotics offer significant stabilising control of Hyperpronation, thus enhancing efficient motion and pain reduction at the knee joint by controlling the magnitude and velocity of Tibial transverse plane motion, aiding the concentric loading of the patella which results in less wear and tear on the ligamentous and articular anatomy.

### **EXAMINATION and DIAGNOSIS**

The key to successful treatment begins with a careful and detailed history of the problem. Thorough examination can then lead to an accurate diagnosis. Radiographic studies and an opinion from the orthopaedic specialist are important factors in the multidisciplinary approach to knee problems. Common findings will be coxa vara-genu valgum, moderate to severe gastrocsoleus equinus, increased Q angle, external tibial torsion, genu recurvatum and pes planus or pes cavus foot types. A common clinical picture is excessive pronation, excessive internal transverse plane motion of the tibia, accentric loading of the patella including over use of the vastus lateralis and under utilisation of the vastus medialis, with ensuing cartilaginous irritation and destruction. A similar but reversed scenario is possible with excessive supination.

## **TREATMENT**

A multidisciplinary approach to treatment of the knee is the best option. The team's orthopaedic surgeon may require an arthroscopic evaluation to aid diagnosis with subsequent arthroscopic surgery. The less severe injuries will benefit from the basic physiotherapy modalities of rest, ice, massage; strapping, muscle stretching and strengthening. Footwear and training advice are also required. The benefit of stabilising the foot against excessive pronation or supination can be investigated using a trial of padding and strapping. If the symptoms are significantly reduced during a trial of the related activity, it is a good indicator that an orthotic device will be effective. For the average person, a medium density Formthotic can be used at this stage with an initial wear in period of 7 days prior to follow up for further posting of the rear foot and/or forefoot. Formthotics offer significant stabilising control for hyperpronation or support for the excessively supinated foot. Formthotics promote efficient motion and pain reduction at the knee joint by controlling the magnitude and velocity of tibial transverse plane motion and by aiding the concentric loading of the patella which results in less wear and tear on the ligamentous and articular anatomy.

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