

Motion analysis report for Feet In Focus at 09/11/2011**Personal data:****Mathew Vaughan**
SAMPLEREPORT**Primary sport:** Running**Secondary sports:****Weight:** 80Kg **Size:** 169 cm**Body Mass Index (BMI):** 28

moderately overweight

Birthday: 03/05/1972**1. Medical History****knee:*****Medial knee pain left***

Cause: The exact diagnosis and cause of medial knee pain is difficult to determine since there are a number of structures which may become injured (e.g. partial/total rupture of the meniscus, articular cartilage damage, inflammation of the tendon attachment). Consequently, accurate diagnosis of the injury is often just as difficult as the rehabilitation. Over-pronation is a common cause, however this is not the case for all patients.

foot:***Inflammation/partial rupture of the Achilles tendon left***

Cause: Inflammation of the Achilles tendon sheath is often caused by tight/shortened calf muscles, floors that are too hard (gyms) or too soft (sand). Other possible causes include forefoot over-supination, rearfoot over-pronation, forefoot varus, weak foot musculature, poor running technique, stiff big toe (hallux rigidus), increased training load or running up hills/mountains.

Pelvic tilt/Pelvic Rotation:***The pelvis is tilted 2 cm to the left***

The pelvis is tilted 2 cm to the left. A pelvic tilt is commonly caused by a muscle imbalance.

Pelvic rotation right

Static pelvic rotation to the right (anti-clockwise)

2. Static**Assessment of findings foot left**

Initial examination established that you have 'high arched' feet.

Additional information left

Left foot is the pronating (flattening) more than right.

**right**

Initial examination established that you have 'flat feet'.

Additional information right

Right foot pronating (flattening) more than left
The asymmetry (difference) in foot types is largely due to the leg length difference

**Static leg axis**

A 'valgus' leg axis (knock knee) was determined under static observation.

**Flexibility of the upper ankle joint both sides**

The deep squat position could not be reached. This poor flexibility of the upper ankle joint could occur for a number of reasons including: tight dorsal extensors of the foot, a shortened flexor muscle groups or abnormal biomechanics of the musculoskeletal system.

Additional information left

Muscle tightness was noted and flexibility exercises need to be performed by patient.

Additional information right

Ankle joint equinus from tight posterior leg and ankle structures

3. Dynamics**Dynamic leg axis both sides**

In both static observation and dynamic mid-stance phase there is a clear 'valgus' leg axis (Genu varus). This causes internal rotation of the knee joint.

Additional information left

Muscle weakness at the hip is largely responsible for the excessive internal rotation of the legs

**Pelvis stability**

Significant pelvic instability is evident during mid-stance phase over both the right and the left sides. This is caused by a weak gluteal muscles. Strengthening exercises should be carried to address this.

Additional information

This may be due to the limb length and muscle weakness

**Overcrossing**

During the stance phase both feet over cross the body median. This often indicates a muscles imbalance in the pelvis region.

**Rotation of the foot about its longitudinal axis left**

Normal foot rotation is evident, this means that you stand with your feet in a slight 'V' position.

**right**

The foot clearly rotates outwards during movement. This causes the heel to pronate.

4. Stride pattern**Initial contact both sides**

If the heel makes first contact with the ground during a normal running stride, the individual is categorised as a 'heel striker'.

**Stance phase**

During the stance phase the foot over-pronates and the longitudinal arch drops.

Additional information left

Left is pronating more than right.

Additional information right

Right Moderate overpronation

**Toe-off both sides**

Toe-off occurs over the hallux (big toe).

5. Recommendation



Shoe recommendation

During the stance phase you moderately over-pronate. This occurs as the foot collapses medially (inwards) on impact and throughout the stance phase. Consequently, your optimal footwear must offer additional stability and support to the foot. You may benefit from an orthotic if the shoe alone cannot adequately control this moderate over-pronation.



Orthopedic measures

As the right leg is longer than the left by 2cm the right foot is rolling in to a greater extent to make the limb shorter, the left is doing the opposite rolling outwards to try and length the shorter limb. This is quite a common problem. The solution is to lift the shorter left leg with a heel raise and encourage the foot to roll inward and to add support the flatter right foot with a pair of custom foot orthoses. Foot orthoses are supports that fit into all shoes they vary quite considerably in their type, shape and hardness depending on the requirements of each individual.

6. Conclusion



Following your extensive biomechanical assessment and gait analysis our podiatrist has recommended a combination of foot orthotics, specific exercises and has given some recommendations on suitable footwear.

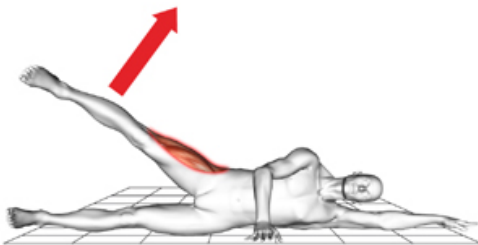
Personal exercise plan for Mathew Vaughan Kindly recommended by Feet In Focus at 09/11/2011

The basics about strengthening

Strong, fatigue resistant, trained muscles will help protect against injury and optimise running efficiency, speed and technique. The following exercises are recommended specifically for you as they address areas of weakness. Ensure you follow these guidelines:

1. Complete 3-4 sets of each dynamic exercise, with 15-25 repetitions in each set. Complete each static exercise 3-4 times, holding each position for 10-30 seconds. Ideally you should do strength training 3-4 times a week.
2. Take care to perform each exercise correctly.
3. Breathe deeply and regularly as you perform each exercise.
4. Hold you head up.
5. Always perform the exercises slowly and in a controlled manner.
6. This is a program for healthy individuals. Please consult a medical professional if you have any doubts about your cardiovascular or physical health before starting

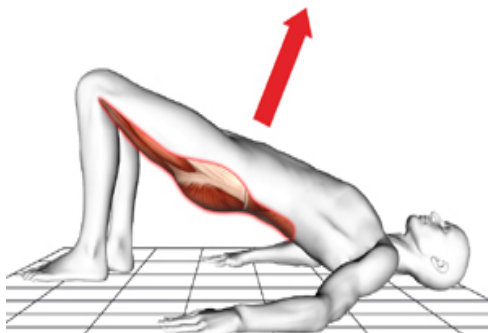
Thigh Abductors



Start position: Lie down on your side with the leg nearest the floor slightly bent.

Execution: Lie on your side. Now raise the upper leg as far as is comfortably possible. Then gently lower the upper leg until it is resting on the lower leg again. Repeat the movement sequence.

left and right Gluteus



Start position: Lie on your back, with your knees bend to 90 degrees (as if you were going to do a sit-up).

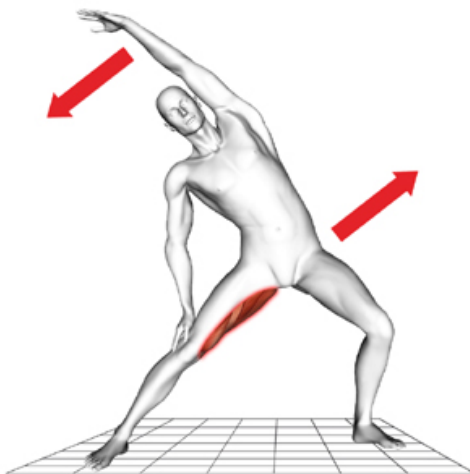
Execution: Lift your pelvis up so that your shoulders, pelvis and knees create a straight line. Hold this position.

The basics about stretching

specific muscle tightness is one of the leading causes of injury amongst runners. Stretching effectively relieves muscle tightness, helping attain muscle balance and synergy. Consequently it is imperative to stretch regularly and properly:

1. Only stretch when you are warm, e.g. after your run or other form of cardiovascular exercise.
2. Get in to the correct position and push until you feel tension in the muscle you are stretching. However, don't try to increase flexibility too quickly by forcing yourself. Stretch no further than the muscles will go without pain.
3. Hold the stretch for up to 40 seconds. Repeat each stretch 3 times, alternating sides.
4. Breathe deeply and regularly while you are stretching. Try to keep your core stable at all times

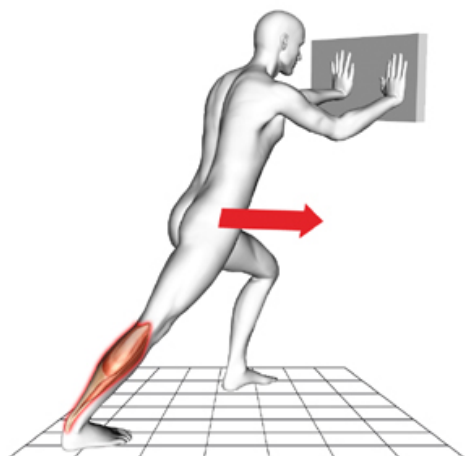
Warning: Avoid stretching painful muscles/tendons!



Adductors (thigh flexor)

Start position: Stand with you legs in a straddle position, with your feet facing forward. Bend one knee.

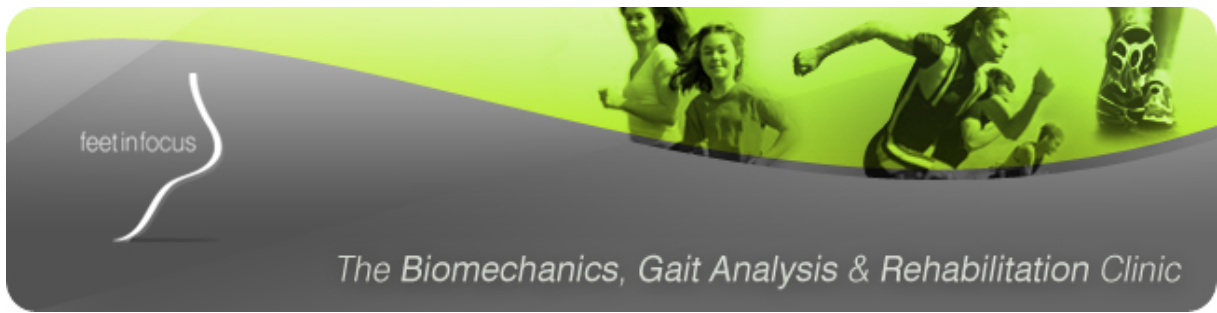
Execution: Now bring your arm up over the head and lean your upper body towards the bent knee. You should feel the stretching on the inner side of your thigh.



Gastrocnemius (calf muscles)

Start position: Stand tall with one leg in front of the other, with hands pressing against a wall at shoulder height. Ease your back leg further away from the front leg, keeping it straight (but not locked) and press the heel firmly into the floor. Keep your hips facing forward and the rear leg and spine in a straight line. You will feel the stretch in the calf of the rear leg.

Execution: Push your hips forward until you feel a stretch in the calf.









Shoe recommendation after computer analysis from 09/11/2011
for Mathew Vaughan created by:

Feet In Focus

You moderately over-pronate during the stance phase. Therefore you require running shoes that offer extra medial support to control this movement.

- ★★★ Optimal stability and cushioning for you.
- ★★★ Optimal stability and good cushioning for you.
- ★★☆ This shoe will provide good stability and cushioning for you.

- ★★☆ This shoe offers your foot good stability, the cushioning properties acceptable.
- ★★☆ The stability of this shoe is insufficient, the cushioning properties are perfect for you.
- ★★☆ This shoe is both insufficiently cushioned and stabilised for you.

	Model	Suitability	Width	Application
	New Balance MR 1225	★★★		Training
	Asics GEL-KAYANO 16	★★★		Training
	Asics GT-2150 G-TX	★★★		Training