

Repaired meniscus tear on the left knee

Medical background

This 59 year old patient underwent surgery on his left knee to repair a meniscus tear. A gait analysis was performed every week from week 1 to week 5. At the end of week 6 he completed his physiotherapy.

A healthy person's knee profile

The knee range of motion (ROM) is for a typical healthy person is 53-70° at a stride rate of 1-1.2s. A healthy person should have similar knee flexion profile on both legs, but typical variations can be up to 9°. A typical left and right profile (left blue, right green) is shown overleaf.

Stride duration

At the end of week 1 the stride duration was very slow at 1.66s. The person was still in some considerable pain at this time. By the end of week 2 the pain had reduced considerably and there was a corresponding reduction in the stride duration to 1.38s. By the end of week 3 there was a further slight improvement to 1.29s and by the end of week 5 it had continued to reduce to 1.16s. This is within the range that has been obtained from 140 healthy subjects.

Knee range of motion and flexion on stance

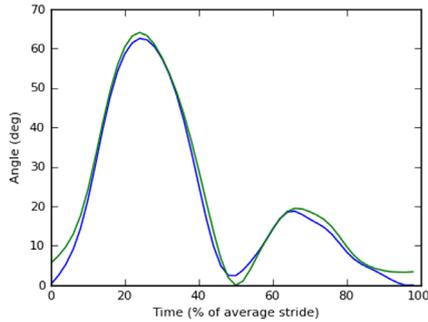
At week 1 the ROM was poor on both knees, with the patient maintaining symmetry rather than good range. By week 2 the ROM of both knees increased significantly to within normal limits, but with poor flexion on load. By week 3 the ROM remained good and the flexion on stance also improved. The ROM and flexion on stance reduced slightly in week 4 which corresponded to a reoccurrence of pain and a cortisone injection. By week 5 the ROM on the untreated right leg had increased significantly, whilst the left remained unchanged. The flexion on stance was acceptable on both legs.

Asymmetry

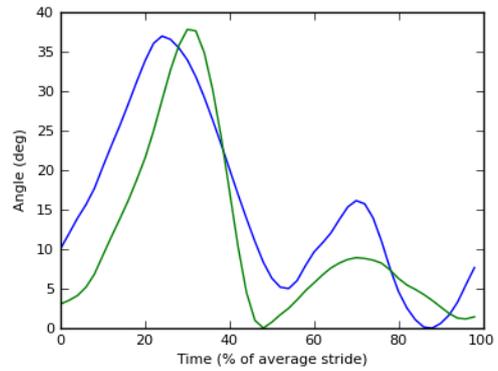
Generally, when a person has surgery on one knee, immediately after surgery the operated knee has less ROM than the good knee. However, in this case, through the initial recovery phase ROM reduced on both knees. As the operated knee improved, asymmetry gradually appeared, and by week 3 there was a 6° asymmetry between the left and right knee, which further increased to 13° by week 5. This asymmetry is outside the normal range and indicates that the patient hasn't fully recovered after 5 weeks. The healthy ROM for this individual is expected to be around 69°, that of the healthy knee at week 5.

Summary

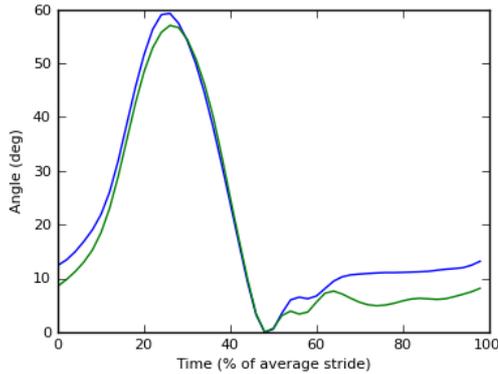
The recovery process of this patient who has undergone surgery to repair a torn meniscus in the left knee has shown that a normal gait profile has not been obtained 5 weeks after surgery. From week 3 to 4 the patient suffered a recurrence of pain, which resulted in a reduction in knee ROM. The doctor associated this with too much physiotherapy and this was reduced to massage and hot/cold treatment in week 5. So the increase in knee flexion from week 2 to weeks 3 and 4 was more than should be expected for a normal painless recovery. The asymmetry in knee ROM at the end of treatment by week 5 was not good, with the subject having less ROM on the operated knee. The flexion on stance was however within normal limits, as was the stride duration. The non straightening of the knees at the end of the load phase is fairly common in healthy people and should not be of concern.



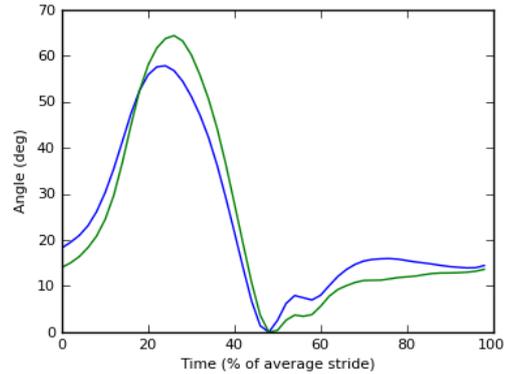
Typically healthy person



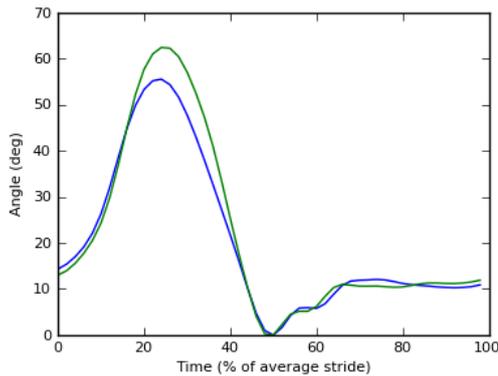
Week 1



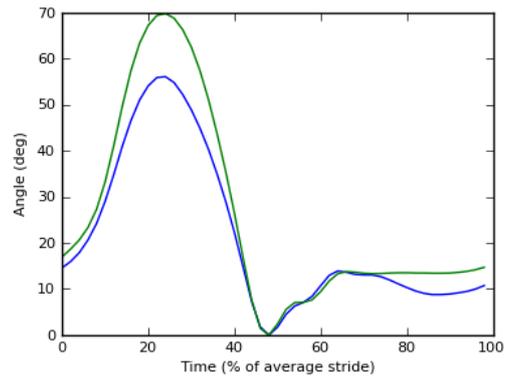
Week 2



Week 3



Week 4



Week 5

Week from start	Stride duration (s)	Knee ROM (°)		Symmetry %
		Left	Right	
Typical	1.0	69	69	0
1	1.66	37	38	-2.6
2	1.38	59	56	5.3
3	1.29	58	64	-10.3
4	1.21	55	61	-10.9
5	1.16	56	69	-23

These values are for a normal healthy person.

These values are within range.

Shaded values are out of normal range and need attention. Red needs medical attention, amber requires further investigation.

If your score is -ve there is less movement on the left than the right, +ve means less movement on the right than left.



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