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Case Study

Evaluation and follow-up of Achilles tendonitis treated with foot orthotics and the Stanish protocol using DigitsolePro

The practitioner

Fabrice Millet has been a sport podiatrist since 2003, specialising in running and cycling, and is an instructor in the Sport Podiatry D.U. in Lyon.

He has a highly varied patient clientele, including athletes and ranging from children to the elderly. In an ad hoc manner, he uses a pressure platform as well as a video device to analyse running for athletes.

Since November 2019, Fabrice Millet has used DigitsolePro for all of his podiatry consultations, which allows him to detect problems with mobility in both walking and running, and to obtain a better evaluation of his patients by measuring objective biomechanical data that cannot be observed with the naked eye.



Patient information & reason for the consultation

Man who runs regularly (3 to 5 times per week) and specialises in the 400m.

He has experienced a sharp pain in the left Achilles tendon for several months, preventing him from training normally.

What information was collected during the clinical examination?

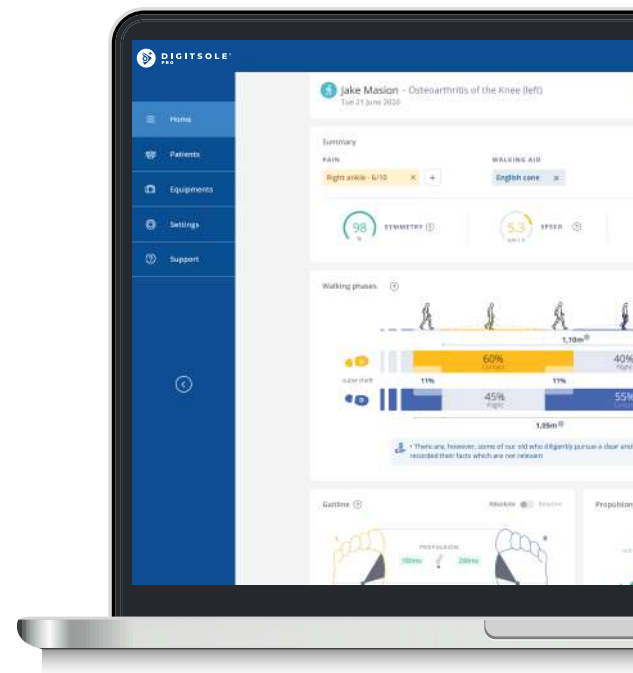
During the first examination, the patient complained of pain in the left Achilles tendon.

The pain increases when running and especially during stages of acceleration.

In the examination, the tendon is fusiform and does not have nodules, the pain is low and a slight bilateral decrease in the tibio-talar amplitude is observed.

The stationary left foot is slightly varus.

During the second examination, the pain had disappeared, and the patient was able to resume his running sessions normally and was able to accelerate.



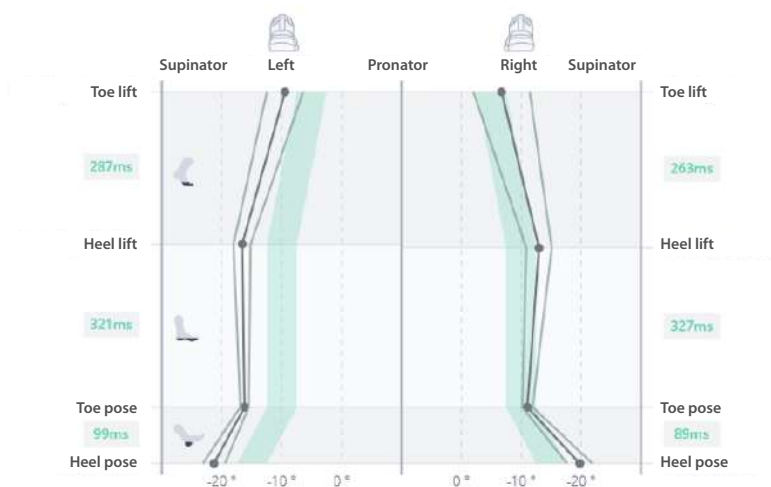
Information collected using DigitsolePro during the walking examination.

Fabrice Millet uses DigitsolePro for the dynamic analysis (walking or running depending on the patient). He collects data on the walking and running activity of the patient using the web interface available online at <https://app.DigitsolePro.com>.

The results are then presented to the patient, medical staff and loved ones, allowing the patient to integrate them into the treatment process and facilitating acceptance.

Different parameters will be used to complete the clinical examination:

During the first exam, the goal was to see all the factors that could have an impact on the inflammation of the tendon:



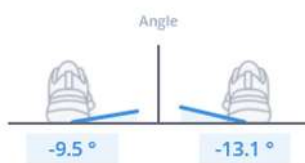
When walking, left foot varus and rolling of the foot in supination, which increases the tension on the tendon.

Foot orthotics intended to limit supination of the left foot will be made. They also support the midfoot and therefore help to relax the suro-achilles-plantar system

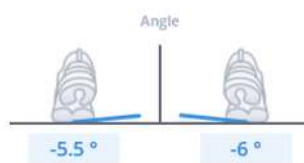
When running, the two feet have a supinator roll, but it is more pronounced in the right foot this time.

Forefoot strike when running increases tension on the tendon. The patient needs to adapt his way of running (strike more midfoot) in a manner that alleviates the tendon.

Angle of attack ?



Propulsion Angle ?



Angle of attack ?



From certain information, we can also assess the patient's pain.

Patients suffering greatly from the Achilles tendon often have decreased contact time in the heel and propel themselves differently.

Gait line  Absolute  Relative



The contact times correspond perfectly with the norms for this patient (colour green) with no significant difference.

Propulsion ratio 



Slight difference in propulsion between the two sides, with a left side that uses the plantar flexors more.

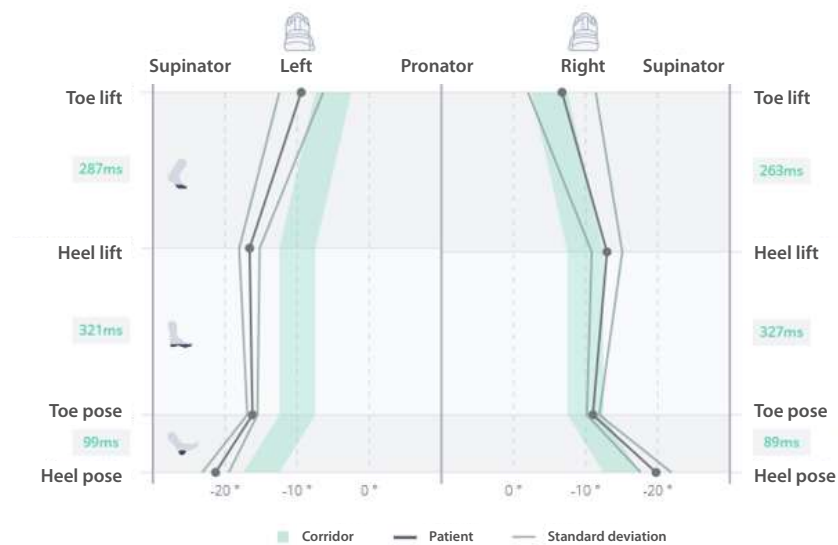
Summary of the first session:

The patient has pain with few implications for walking. In addition to the apparatus that will be made for him, footwear recommendations will be provided to him (running shoes favouring midfoot support).

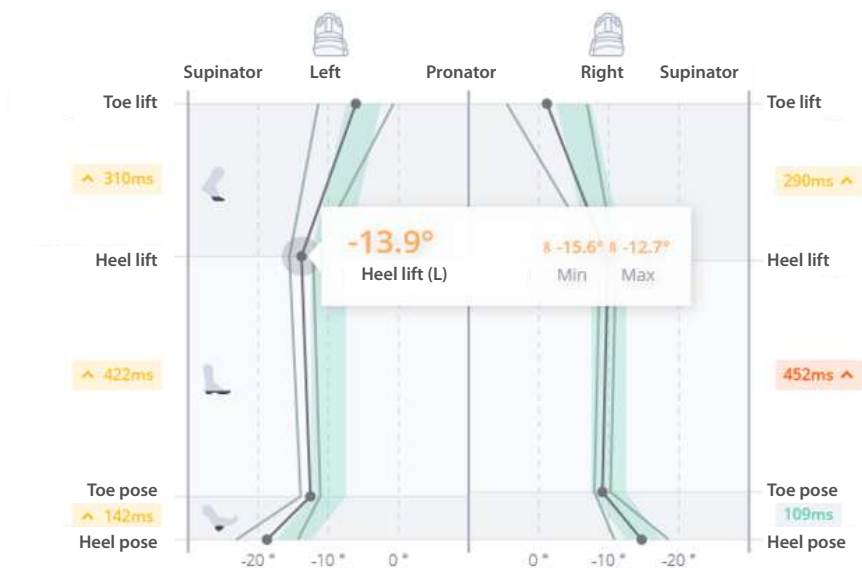
He will also be advised to see a physical therapist to begin a rehabilitation program.

During the second session, 10 months later, the patient no longer experiences pain.

We observe the development of certain parameters:

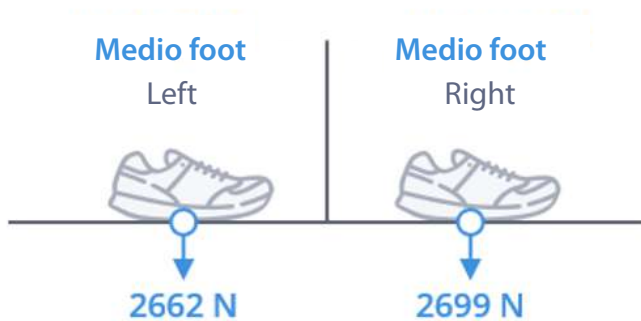


10 months later



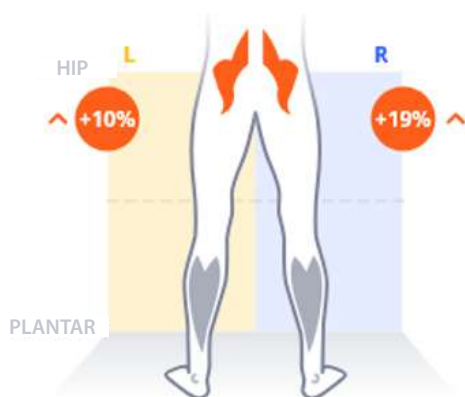
Between the two sessions, decrease in the supinator roll on both sides.

Attack type ?



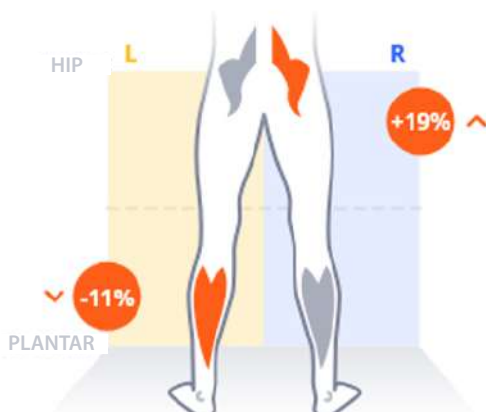
Midfoot striking rather than the previous forefoot striking, which is a good change in his running.

Propulsion ratio ?



We note a positive development between the two analyses with a patient who uses his plantar flexors much more to propel on the left side. After questioning, the patient explains that he continued his rehabilitation at home (Stanish protocol), but that he only does the left side (the side with pain).

Propulsion ratio ?



In view of the results, the patient understands that he should also apply the same protocol to the right side (at least the strength training portion)

Conclusion

The objective was attained. The patient no longer has a painful tendon and can resume normal activity.

Digitsole Pro helped to identify what could increase or trigger inflammation of the Achilles tendon, and helped to monitor the evolution of all these parameters over time.

However, the fact that he stopped rehabilitation on the unaffected side created a disequilibrium at the time of propulsion. He should now work on the right side to obtain a more even foot propulsion ratio.

Digitsole Pro, an international Establishment



ISO 27001 : 2017

International standard for information security. It's a requirement for establishing, implementing, maintaining and continually improving an information security management system (ISMS) –We make the information assets we hold more secure.



ISO 13485 : 2016

Regulatory requirements are increasingly stringent throughout every step of a product's life cycle, including service and delivery. Increasingly, organizations in the industry are expected to demonstrate their quality management processes and ensure best practice in everything they do. This internationally agreed standard sets out the requirements for a quality management system specific to the medical devices industry.



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