UTC IMAGING
A NOVEL APPROACH TO TENDON IMAGING
BENEFITS OF UTC IMAGING
• Operator independent meaning you get the same quality scan every time;
• 3D visualisation and tissue characterisation into 4 distinct categories;
• Quantification of tendon structure for monitoring;
• Validated in research as being able to detect change in tendon structure;
• Early detection of overstrain and degeneration;
• Ability to predict potential pathology;
• Capability to differentiate tears from generalised pathology and focal tendon lesions;
• Ability to identify plantaris involvement;
• Facilitates the management of safe athlete training loads.

‘Much more than just another imaging modality, it is a state of the art tool that will change your management of tendinopathy forever!’

INTERESTED IN REFERRING A PATIENT FOR A SCAN TO GUIDE YOUR MANAGEMENT?
Call us on: 1800 777 360 OR email us at: marsdenpark@p360.physio

TENDON INJURIES ARE A MAJOR PROBLEM AMONG THE SPORTING POPULATION!
Studies by Orchard and colleagues1 across all AFL clubs between 2011 - 2013 showed not only the prevalence but also the impact of tendon injuries amongst teams:
• Patella tendon injuries accounted for 2.7 missed games per season;
• Achilles tendon injuries resulted in 3.7 missed games per season.

Hagglund et al., 20112 showed the problem patella tendinopathy posed in elite male soccer players:
• Patella tendon injuries accounted for 1.48% of all injuries;
• 2.4% of all elite soccer players missed training or match playing time because of patella tendinopathy;
• 20% of all Patella Tendon injuries were recurrences.
POOR FUNCTION LEADS TO POOR PERFORMANCE!
Tendon pain has a direct impact on an individual’s function and hence performance. It has been shown that patella tendon pathology results in changes in landing muscle recruitment patterns. Those with patella tendinopathy have stiffer strategies at the hip and knee, and patients often complain of inhibited performance (Edwards et al., 2010; Rudavsky & Cook, 2014).

ULTRASOUND TISSUE CHARACTERISATION IS A DIAGNOSTIC FORM OF IMAGING THAT CAN ADDRESS THESE ISSUES!
UTC can quantitatively evaluate tendon structure and thereby discriminate symptomatic and asymptomatic tendons.

“The ability to semi-quantify the structural integrity of the tendon has allowed for classification of the tendon pathology based on a continuum, treatment efficacy to be investigated, detection of subtle changes in response to load and demonstration that the asymptomatic achilles tendon is structurally compromised in individuals with unilateral tendon pain.” (Docking et al., 2015).

UTC-imaging is an innovative technique that adds new dimensions to diagnostic ultrasound, namely unique 3D imaging capabilities next to the novel tissue characterisation properties. As such it can be used for lesion-prone tendons like achilles and patella.

I. Intact & aligned bundles, Ø ≥ 0.38 mm
II. Discontinuous, waving bundles, Ø ≥ 0.38 mm
III. Mainly fibrillary, Ø < 0.38 mm
IV. Mainly cellular and fluid, Ø < 0.38 mm

“Ultrasound tissue characterization (UTC) captures continuous transverse ultrasound images over the length of the tendon and semi-quantifies the stability of the echo texture over the length of the tendon into 4 echo types” (Docking et al 2015)
DIAGNOSE

The unique features of UTC scanning technology allow visualisation in the region of interest and the ability to characterise the tissue gives far greater diagnostic capabilities than regular ultrasound imaging or MRI ever can.

This information is critical when it comes to identifying the more difficult to manage tendons pathologies.

TREAT

Insight in the architecture and integrity of the collagenous matrix offered through UTC tissue characterization facilitates staging of lesions which is essential for precise treatment and rehabilitation programs.

It is the point of difference in ensuring that return to full function for your patients happens as soon as possible.
**MONITOR**

Being very sensitive, UTC will already detect minimal effects of exercise or interventions, even within days after changing exercise-level or interventions like regenerative medicines (e.g PRP) and surgery.

*This is the ability to demonstrate changes in the collagen matrix of tendon in as little as 2 days.*

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**PREVENTION**

A systematic review and meta-analysis by McAuliffe et al., 2016⁶ indicates that tendon abnormalities visualised using ultrasound in asymptomatic tendons are predictive of future tendinopathy and are associated with at least a fourfold increased risk.

“There is overwhelming evidence that structural disorganization predates the development of symptoms and tendon rupture” (Docking et al., 2015⁵)

*Identifying and modifying load and training patterns of at risk individuals, will reduce time-loss due to tendinopathies and allow individuals to perform at their optimal best!*

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<tbody>
<tr>
<td>I</td>
<td>intact bundles</td>
<td>80-85 %</td>
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<tr>
<td>II</td>
<td>discontinuous, wavy bundles</td>
<td>10-15 %</td>
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<tr>
<td>III</td>
<td>fibrillar matrix</td>
<td>&lt; 5 %</td>
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<td>IV</td>
<td>amorphous matrix, cellular &amp; fluid</td>
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HOW IT WORKS

1. A referral is made into Performance 360 for a UTC Tendon Scan conducted by a qualified and trained UTC tendon consultant;

2. We then provide the referring Physician/Physiotherapist/General Practitioner with a comprehensive report outlining:
   a. 3D tendon view in tranverse, sagittal, coronal and 3D coronal views;
   b. Transverse slices of the tendon highlighting the areas of interest;
   c. Quantitative and Qualitative analysis of tendon;
   d. Report on findings and interpretation of the scan, allowing a complete understanding of the pathology.

3. Patient is then referred back to the Physician/Physiotherapist for ongoing management.

*Integrating this report with your own clinical findings and treatment will allow you to develop a comprehensive management plan for your patient and a successful return to function as quickly as possible.*