

Appendix 1

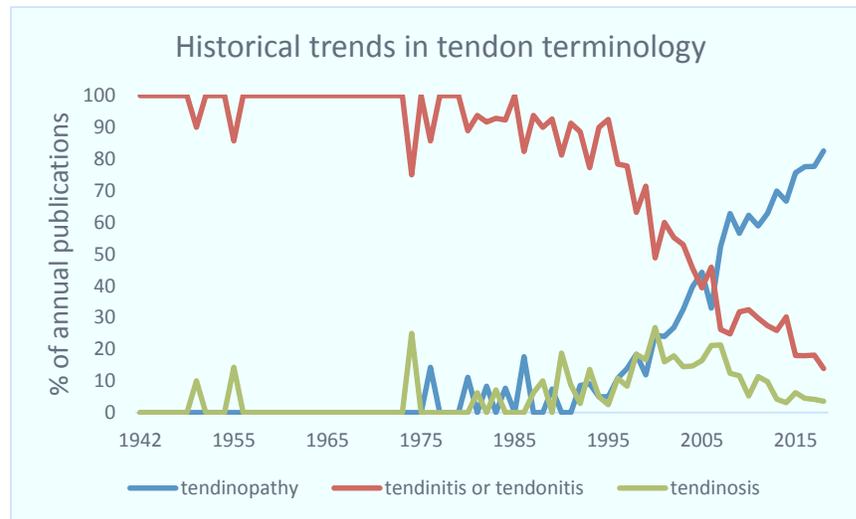


Figure S1. Changes over time in the relative distribution of three commonly used terms for chronic tendon pain, as indicated by the number of Pubmed-indexed publications.

Appendix 2

The following two statements were originally considered by the core author group:

1. *“Tendinosis refers to a loss of tendon microstructure as demonstrated by imaging.”*
2. *“Tendinosis refers to a loss of tendon microstructure as demonstrated by histology.”*

Before circulation to the wider author group, they were collapsed into one statement:

3. *“Tendinosis refers to a loss of tendon microstructure.”*

This next statement (#4) was deleted prior to the consensus document being circulated:

4. *“Specialized terminology may be used to classify patients with chronic overuse tendinopathy if relevant to clinical management.”*

The following statement was added:

5. *“To be able to state that an individual has tendinopathy, imaging is necessary.”*

Following editing, the final statements for Delphi and consensus were:

Statement 1 *“Tendinopathy is the preferred term for chronic tendon pain and loss of function related to mechanical loading.”*

Statement 2 *“Tendon tear (partial or complete) refers to a macroscopic discontinuity of load-bearing tendon.”*

Statement 3 *“Tendinosis refers to a loss of tendon microstructure”*

Statement 4 *“Imaging is necessary for a diagnosis of tendinopathy.”*

Statement 5 *“In imaging reports, tendon morphology may be classified and/or described using specific terminology related to tissue pathology.”*

If you agreed with statement 5, please offer a definition for each of these terms, and add any additional terms. Paratendonitis, Calcification, Enthesitis, Tenosynovitis, Bursitis, Thickening. Please provide any additional thoughts you would like to share about Statement 5. Please add any additional terms you think should, or should not, be used, and why.

Statement 6 *“Achilles tendinopathy is the preferred term for chronic Achilles tendon pain and loss of function related to mechanical loading.”*

Statement 7 *“Patellar tendinopathy is the preferred term for chronic patellar tendon pain and loss of function related to mechanical loading.”*

Statement 8 *“Peroneal (fibularis) tendinopathy is the preferred term for chronic peroneal (fibularis) tendon pain and loss of function related to mechanical loading.”*

Statement 9 *“Persistent tendon pain and loss of function related to mechanical loading of the medial or lateral elbow tendons should be referred to as medial or lateral elbow tendinopathy and not medial or lateral epicondylalgia.”*

Statement 10 *“Rotator cuff tendinopathy is the preferred term for chronic rotator cuff pain and loss of function.”*

Appendix 3

Groningen, The Netherlands, June 30 2018

Invitation to participate in Groningen Consensus Statement(s) on Tendinopathy

Dear colleague,

As you know, many different terms are used to describe the clinical condition of chronic tendon pain, thickening/swelling and impaired performance with repetitive loading. Furthermore (clinical) tendinopathy research often lacks uniform selection criteria and an agreed set of commonly used tendon outcome measures. This hampers transparent research, valid comparison(s) between studies and ultimately also clinical outcome.

In order to achieve consensus on these 3 important issues, we are organizing an expert meeting on the 26th of September 2018, the day before the start of the 5th ISTS 2018 congress in Groningen the Netherlands.

Aims of this project/meeting are to reach consensus on:

1. Clinical terminology of different tendinopathies to be used in clinic and tendinopathy studies (project leader Alex Scott)
2. A set of minimal selection criteria to be used in the reporting in clinical tendinopathy studies (project leader Ebonie Rio)
3. A Core Outcome Set for tendinopathy to be used in reporting of clinical tendinopathy studies (project leader Bill Vicenzino)

We aim to publish these in the BJSM and also want to disseminate our statements to relevant organisations.

Since you are an expert in the field of tendinopathy we would like to ask for your input and feedback to a survey/list of statements which will be sent to you by the end of July.

We also like to invite you to join the preconference consensus meeting in Groningen.

Two weeks before the meeting you will receive a first draft of the statements which will be further discussed during the meeting.

We believe this is an excellent opportunity to share your tendon related knowledge and to work together to take tendinopathy research to the next level. Workload for you will be limited and of course you will be co-author of the paper(s).

In order to run this project smoothly we believe some rules for participation are necessary.

Rules for participation

1. *Agree with rules of participation and authorship*
2. *Participation on invitation; however, since we are on a limited budget we unfortunately cannot provide reimbursement for travel and lodging*
3. *Only those who actually give input are considered project members, advisors and co-authors*
4. *Please provide timely response. Respond to mailing/questionnaires/input drafts within 10 days; otherwise your input and authorship will not be incorporated*
5. *If you cannot be present at preconference meeting but give input before and after the consensus meeting:*
 - a. *You will be considered advisor and will be co-author*

- b. It will not be possible for you to change the main parts of the agreements made on the day by the live group or make major edits to the paper (to prevent never-ending discussions via mail after composing final draft)
- c. If you disagree with the paper and prefer to opt-out of authorship, this will be reported in the manuscript, but respectfully and protecting your anonymity.
6. During the consensus process (online survey) an item for consideration for inclusion into the consensus statement will be presented and explained. There will then be 3 levels of agreement:
- Yes (agree)
 - No (disagree)
 - Unsure / I do not know.
- Further, in the online survey, there will be opportunity for you to provide your rationale/reasoning for your responses, to identify any missing items (including rationale for inclusion), and if there is a need to aggregate any overlapping items.
7. During the consensus meeting in Groningen results of the online survey will be summarized. Items for which no agreement was reached in the survey will be presented and discussed and again considered for inclusion into the consensus statement. There will then be 2 levels of agreement:
- Yes (agree)
 - No (disagree)
8. Both in the survey and the meeting consensus on items will be defined as $\geq 70\%$ agreement.
9. During the whole process (survey, meeting, preparation of manuscript) project members have the possibility to opt out in case they strongly disagree with the process and/or content. The project member will then be excluded from the list of authors.

Rules for Authorship

First author: project leader

Second author: to be determined by first author depending on contribution before/during project (not necessarily as part of the consensus process)

In between: Attendants and advisors in alphabetical order

Last author: Chair ISTS2018

As stated above, unfortunately we have no funding for this project so **travel and accommodation will be at your own expense**. We will provide lunch and refreshments during the meeting on the day.

For now we have two questions

- 1. Do you want to participate in this tendinopathy consensus project?**
- 2. Will you come to ISTS2018 in Groningen and will it be possible for you to join the preconference meeting?**

Looking forward to your response,

Best regards,

On behalf of,

Ebonie Rio, Alex Scott, Bill Vicenzino, project leaders
and Adam Weir, project advisor

Hans Zwerver, chair ISTS2018

Appendix 4 – Results of online survey

Statement	Number responded	Yes	No	Unsure/Don't know	Consensus achieved?
1	28	25	1	2	Y
2	28	23	2	3	Y
3	28	14	7	7	
4	27	3	20	4	Y
5	28	12	6	10	
6	28	22	2	4	Y
7	28	23	2	3	Y
8	28	19	3	6	
9	28	15	3	10*	
10	28	15	6	7	

For statement 9, an additional choice was "Neither agree or disagree, and can be either tendinopathy or epicondylalgia. For statement 9, 4 were unsure, and 6 chose neither agree nor disagree.

Table A1. Responses to online survey (Stage 2). Number of responses is shown. As described in the text, one response was missing due to a technical failure of the survey system.

Appendix 5 – Report sent to attendees of in-person meeting

Introduction

Various terminology has been used when discussing chronic tendon pain conditions. The goal of this section was to identify terms on which we agree and would like to continue using, terms on which we disagree and should therefore consider dropping, and areas potentially requiring further study.

According to the pre-agreed workflow which was described to all respondents in the invitation letter, items which achieved 70% agreement in a given response category are considered to have achieved consensus. This report presents an analysis or summary of the responses, along with some suggestions for follow-up discussion and motions to the floor that could be considered at the meeting. The group is also encouraged to make alternate suggestions for discussion and/or courses of action!

The first set of questions (31 – 38) related to terms that are commonly used to refer to chronic tendon pain conditions. Question 39 was a general question regarding the necessity (or not) of imaging as part of the definition of tendinopathy, and question 40 was a branching question to assess the group's level of agreement/certainty with the use of imaging terminology. Questions 41-47 were only answered by those who responded "yes" to question 40 (see below), and pertained to specific terminology which is sometimes used in association with tendinopathy imaging.

Response rates

For questions 31 – 38 and 40, there were 28 responses / 28 respondents, with no skipped or missing responses. For question 39 (imaging), there was one missing response (27/28 available), which was found to be due to a technical error, and the data were treated as missing. For questions 41-47, twelve individuals did not answer this section, but did complete the ensuing questions of the survey.

Statements which achieved 70% agreement in any once response category

Q31: Tendinopathy is the preferred term for persistent tendon pain and loss of function related to mechanical loading.	Agreed – 89 %.
Q32: Tendon tear (partial or complete) refers to a macroscopic discontinuity of load-bearing tendon.	Agreed – 82%
Q35: Patellar tendinopathy is the preferred term	Agreed – 82%

for chronic patellar tendon pain and loss of function related to mechanical loading.	
Q34: Achilles tendinopathy is the preferred term for persistent Achilles tendon pain and loss of function related to mechanical loading	Agreed – 79%
Q39: Imaging is necessary for a diagnosis of tendinopathy.	Disagreed – 74%

Statements which did not achieve consensus

The remaining statements are listed in order of agreement, from highest to lowest.

Q 36: Peroneal (Fibularis) tendinopathy is the preferred term for persistent peroneal (fibularis) tendon pain and loss of function related to mechanical loading

Agreed 68%

NO/Disagree 11%

Unsure 21%

Notes.

This statement fell just short of our threshold for agreement. Some within this group did not feel qualified to comment due to the rarity of the presentation and/or difficulty of diagnosis, which left them in the “unsure” category. Consensus may be possible following discussion? Or potentially further work required or a different expert group with confidence to make statements about this condition? Future ISTS sub-specialty group who see this condition more frequently could be tasked with looking at issues surrounding diagnosis (including prevalence, role of imaging and functional tests). If agreeing on task forces, there may be other tendinopathies which take priority? (e.g. shoulder, gluteal)

Q36

- as above [Tendinopathy relates to demonstrating pathology]
- Again-delete loss of function.
- peroneal
- It can be more difficult to exclude other structures
- with or without imaging abnormalities?
- I dont see this much in practice - but in keeping with achilles and patella - would seem ok
- same argument as above [can be associated with different causes. When patients come for help, their conditions may fall in the early or late phase. Hence, the word ... tendinopathy can't tell much]
- relatively rare presentation

Q 38: Persistent tendon pain and loss of function related to mechanical loading of the medial or lateral elbow tendons should be referred to as medial or lateral elbow tendinopathy and not medial or lateral epicondylalgia.

Agreed 54%

NO/Disagree 11%

Unsure 14%

Neither agree nor disagree – can be either tendinopathy or epicondylalgia 21%

Notes.

For the elbow, the majority of respondents preferred the term tendinopathy, but a significant group are also in support of **both** terms, tendinopathy and epicondylalgia. Several comments clustered on the issue of whether pain is localized to the elbow tendons, and the difficulty in distinguishing involvement of tendon vs other structures/systems (e.g. nervous system). This condition may be accompanied by hyperalgesia, where pain is felt in structures other than the tendon, in which case the “-algia” terminology may be preferable. There were comments that losing the “itis” would be appropriate, and there was an expressed desire for consistency with other tendinopathies. Potential alternate statement could be “**Persistent tendon pain related to mechanical loading of the medial / lateral elbow tendons should be referred to as medial / lateral elbow tendinopathy, or medial / lateral epicondylalgia.**” ??

Q38

- I like tennis elbow
- As above.
- Would need to specify where the pain is localised (extensor tendon only). If secondary hyperalgesia is present epicondylalgia may be more appropriate
- Is consistent with previous
- wrist extensor related elbow pain?
- Tendinopathy or epicondylalgia seem fine as they both imply we have little understanding of what is going on, happy with either used interchangeably
- I agree with this
- hard to lose the epicondylitis misnomer, but we should.
- prefer tendinopathy of extensors/flexors with or without imaging abnormalities?
- Depends on if the it can be determined that the tendon is involved or not.
- For the meeting i would have mild preference for tendinopathy to keep terms consistent across different conditions - we dont have patella tendon-algia.
- same beast different part of the body, do not use anatomical terms anywhere else
- But it is not needed to be persistent (reactive, short living cases can also be labeled as tendinopathy). Furthermore, I would advocate to use the term 'localized' in this description. This is very specific for most tendinopathies and certainly for the Achilles.

Q37: Rotator cuff tendinopathy is the preferred term for persistent rotator cuff pain and loss of function

Agreed 54%

NO/Disagree 21%

Unsure 25%

Notes. The concept of shoulder tendinopathy was problematic for some experts. There was comment from this group that (unlike Achilles or patellar tendon), it is a common occurrence that neither the patient nor clinician can confidently localize their pain to a tendon structure (i.e. problematic diagnosis). In addition, rotator cuff dysfunction is often accompanied by involvement of other structures, including other tendons.

- can't really make this diagnosis. I prefer rotator cuff dysfunction.
- Can we confidently say that rotator cuff is source of pain? There is a lot of uncertainty as regards diagnosis/features of shoulder pain.
- As above [Loss of function is not always seen.]
- imo the term should be rotator cuff related shoulder pain
- The other terms above name a specific tendon, although this is an umbrella term it is probably appropriate
- In the shoulder it gets difficult - there may be pain and restriction from ACJ OA and a bursitis with a normal tendon
- To be consistent with the above recommend including ..."loss of function related to loading"
- with or without imaging abnormalities?
- The issue here could be that the rotator cuff is not just one tendon, and the diagnosis is probably the most uncertain of all tendinopathies - in terms of specific tendon and if it is at all a tendon problem. The Groningen process - i propose, should lead to the formation of an international special interest group that undertakes a systematic process and developing recommendations for shoulder tendinopathy - first in terms of its terminology, but also diagnostic criteria, as well as the outcome measures matched to domains. This could involve the following steps: (i) a systematic review of the terminologies and diagnostic criteria/labels, (ii) informing and leading into an expert consensus Delphi process (survey and meeting(s)), (iii) leading to some recommendations for: (a) research directions/priorities, (b) reporting in research reports and clinical notes/reports and (c) clinical practice.
- I practice I struggle with the shoulder a lot in practice - is rotator cuff tendinopathy different that sub acromial impingement, or general "throwers shoulder". I have the impression that there are huge number of possible diagnoses and these have significant overlap. In my mind what i call shoulder pain doesnt matter that much when i see a patient. I am bust determining what i think will be the best treatment and i generally only try and specify something anatomical if would want to refer for surgery.
- I prefer anterior shoulder pain because quite often more than rotator cuff tendons are being involved. The common one is the biceps tendon.
- not my area
- Please refer to Muscles Ligaments Tendons J. 2013 Aug 11;3(3):196-200. eCollection 2013 Jul. Impingement is not impingement: the case for calling it "Rotator Cuff Disease". McFarland EG1, Maffulli N2, Del Buono A3, Murrell GA4, Garzon-Muvdi J1, Petersen SA1. In the shoulder, the issue is a lot more complex
- But in the shoulder it is much more complicated. When should this term be used?

Q 33: Tendinosis refers to a loss of tendon microstructure

Agreed 50%

NO/Disagree 25%

Unsure 20%

Notes:

Concept of tendinosis is deemed by this group to be problematic. There is division within this expert group over the meaning of this term - whether it reflects features associated with repair response (e.g. angiogenesis), "degenerative" appearance, loss of structure, features which can be detected on imaging or visually at surgery such as thickening, disagreement on role of inflammation as part of the definition. Some experts use this term, others question its usefulness, others suggested it should be dropped.

Q 33

- histological - you will have to decide if you approve 'imaging tendinosis' - I wouldn't allow 'imaging tendinosis' but the papers show that clinical and imaging positive usually reflects loss of tendon microstructure
- a bit vague
- This is an ambiguous term. It may mean degeneration to some, or loss of structure to others.
- Are we fully confident that this is an adequate definition of tendinosis - why is imaging only use as terminology - does it have other features that may differentiate it?
- Too simplified and misleading. -Thickened tendon with irregular structure, high conc of Gags and neovascularisation.
- Yes but on occasions it infers no inflammation as well
- Similar definition to tendinopathy, in my mind.
- do we need imaging or microscopic findings for this?
- 'osis' is a non-descript suffix that ought be removed from the tendon genre vernacular
- I like it when tendinosis is defined by histology and tendinopathy on clinical/imaging Here happy to go with the flow of the group - its not deep seated belief - just something I am

accustomed to

- do not like the term loss of tendon microstructure, do not know what it means, could be termed better
- Loss of tendon microstructure is just a feature of tendinopathy. Tendinosis should refer to an actual appearance of degeneration.
- But I don't use this term and loss of structure is only one of the features of tendinosis.
- In my mind (or rather, the way I've tried to use these terms when writing papers) tendinosis is a histopathological term, which requires a biopsy. And tendinopathy is a painful tendon with structural changes on imaging (requiring US/MRI). While e.g. jumper's knee is a painful tendon, but there is no imaging to show whether there are structural changes or not.

Q 40: In imaging reports, tendon morphology may be classified and/or described using specific terminology related to tissue pathology.

Agreed 43%

NO/Disagree 21%

Unsure 36%

Notes: A significant portion of the group selected “unsure”, and this was reflected in the commentary that several respondents felt unqualified to answer. In the questionnaire sections on Domains and Reporting Standards, there was no consensus to include imaging. Should we consider changing the statement to something like “*It is recommended that in imaging reports, tendon morphology should not be described using histopathological terminology*”? Or, recommend creation of clinical radiology specialist interest group to investigate current status of tendon imaging?

Q40: In imaging reports, tendon morphology may be classified and/or described using specific terminology related to tissue pathology.

- Not sure of the question. Hence 'I don't know' Radiologists cannot tell the difference between partial tears and tendinosis etc and shouldn't try. They should report the sizes of areas of abnormal signal but not pretend to be able to teal 'partial tear'

- Not sure what you mean
- Yes, call a spade a spade, but just put it in the appropriate context for the patient.
- Not sure we are at the point where we know enough about the respective morphology features for it to be used as specific terminology
- I guess you mean when referred to pathology report-lipoid, mucoid etc.?
- Unsure there a clear radiological guidelines for use of all terminologies utilised.
- not if pathology = pain
- variability in interpretation
- I think this is what this paper is all about. However imaging does not really tell us what is happening at a tissue level so I border on no
- But is often mis-classified or described.
- Morphology does not necessarily imply pathology. Eg tendon thickness or collagen fibre orientation
- important for adequate treatment
- Only as far as macroscopic changes - tears, signal changes on MRI, calcification but does not provide specific information on tendon microstructure or histo-biological processes.
- I do not feel qualified to make a call on this, but I do hold the view that there is more 'subjectivity' in the reporting and imaging techniques on behalf of radiologists and the actual technician who takes the images than is implied by the portrayal of objectivity of seeing the structure. This ought to be considered here.

Combined notes on questions 41 – 47

Only a minority of respondents (n=16, 57%) answered the ensuing questions related to specific imaging terminology (41-47). Among those that answered, there was substantial variation in opinion on the use of imaging terminology and the impression of the underlying science/evidence for different terms/concepts. A common theme throughout the comments could be summarized as, “is this valid?” A theme for this question set seems to be, higher agreement for terms which are more objective (calcification, thickening), and experts voluntarily suggested such terms in the free form comment boxes (i.e. increased signal, hypoechogenicity, % of tissue disruption, etc), rather than terms which imply knowledge about pathological processes.

Because only a minority answered these questions, the number of responses rather than percentages are given.

Q41: The term 'paratendonitis' may be used as a term to define (classify/describe) specific tissue

pathology on imaging.

Agreed 6

NO/Disagree 3

Unsure 3

- inflammatory change around the tendon - fluid, inflammation - on imaging with symptoms of activity related pain I would use it only in some tendons - e.g. achilles, but not lateral elbow
- how can itis be seen on imaging?
- weird and I have no idea what it would mean.
- a/ inflammation peri- and or paratendon b/ anti-inflammatory treatment peritendinitis?
- a. Inflammation of the paratenon - of the Achilles generally b. Without histology, can we truly determine an inflammatory process? Not sure that it is useful in guiding management. Would be more guided by pain/load behaviour.
- I think i would defined this as a layer of fluid around a tendon on imaging - you can occasionally see this clinically - and hear it with crispy crepitus - anterior ankle tendon or wrist region.
- This is again a clinical diagnosis. It cannot be just an imaging appearance

Q42: The term 'calcification' may be used as a term to define (classify/describe) specific tissue pathology on imaging.

Agreed 12

NO/Disagree 0

Unsure 0

- finding of calcification within a tendon on imaging may be relevant or not. May not change management but in the shoulder may be the whole focus Often indicates chronic tendinopathy rather than a primary calcification so I would prefer to describe calcification as primary calcific tendinopathy, or secondary to chronic tendon disease
- rotator cuff related calcific tendinopathy
- IF true calcification seen on PLAIN FILMS only.

- a/ calcified structure in tendon b/ chronic tendon disease / ESWT more description than diagnosis
- a. Calcific deposits within a tendon. b. I don't have a problem with including it on imaging reports for research/professional purposes. It appears to indicate a more long-standing problem and duration may moderate effect of intervention. But would duration of symptoms be more predictive than such imaging findings? - likely in most situations, so I'm not convinced as to how much more helpful this is in guiding outcome expectations. A report of calcification does not change my management. Patients do sometimes get over-focused on a report of calcification and may form a belief that the calcification needs to be surgically removed. Education and reassurance is important here.
- A: Definition would be formation of bone/calcium in a tendon. B: I think it does sometimes alter management if large spur present that may impinge a tendon, then I could envisage a point in management where you try and remove this - either percutaneous or surgically,
- Presence of calcific deposits in the tendon Imaging should not be a guide to management: a calcific deposit may be incidental and asymptomatic

Q43: The term 'enthesitis' may be used as a term to define (classify/describe) specific tissue pathology on imaging.

Agreed 4

NO/Disagree 5

Unsure 3

- Implies inflammation. Given uncertainty best to avoid terms that suggest a specific underlying biological process when it relates to the tendon.
- insertional tendinopathy associated with bony changes that suggest an inflammatory enthesopathy (cortical erosive change and/or bone oedema) Managed as a mechanical enthesopathy but with patient counselling about inflammatory nature and link to rheumatic diseases. If possible I would use biologics e.g. anti-tnf drugs / others but currently only can do this if the patient has a wider inflammatory arthropathy / spondyloarthritis
- vague and misleading.
- a/ insertional tendinopathy b/ link to rheumatological diseases? better use enthesiopathy?
- a. Inflammatory process occurring at the tendon enthesis. b. I don't have a problem with the use of this term in specific rheumatological conditions where a systemic inflammatory process has been established. Outside of this, I don't think using this term is helpful in the diagnosis/management of load-related tendinopathy.

- I prefer sticking with the term tendinopathy - and then saying insertional tendinopathy. The way i would work now - and enthesitis or enthesiopathy would be reserved for someone with a known rheumatological condition who has insertional tendon pain - for example - ankylising spondylitis and bilateral insertional Achilles tendinopathy - then I could call this "enthesitis". This is the way I do it now but its not a strong belief.
- Again, it should be a clinical diagnosis

Q44: The term 'tenosynovitis' may be used as a term to define (classify/describe) specific tissue pathology on imaging.

Agreed 6

NO/Disagree 2

Unsure 4

- inflammation of tendon sheathes, with / without adhesions. Fluid, increased blood flow
One of few situations I would use steroid injection - only in some types of tendons
Remember to look for any other pathology underlying it (e.g. bone prominence causing friction) May represent inflammatory rheumatic disease
- You cannot see this on imaging. It is a clinical diagnosis made in situ.
- a/ inflammation peritendinous synovium b/ anti-inflammatory treatment
- a. Inflammation of the tendon sheath b. This is not something I treat regularly. May be useful for guiding management of the more acute upperlimb issues such as DeQuervain's tenosynovitis?
- Now i see this term I think of "paratendon" from 4q and my answer there applies better to this - which means i have no idea how I would define paratendon problem!
- Please do consider to drop the imaging issue. All these diagnoses should be clinically based, not imaging based

Q45: The term 'bursitis' may be used as a term to define (classify/describe) specific tissue pathology on imaging.

Agreed 7

NO/Disagree 3

Unsure 2

- Fluid increased blood flow in bursa, possible thickening May contribute to pain Typically not the only source of issue May be a target for direct injection but proximity to tendon means often not possible. In lower limb usually biomechanics Consider rheumatic disease
- how can itis be seen on imaging?
- a/ inflamed Bursa b/ inflammatory tretament more indicated not a real tendon problem but adjacent structure
- a. The term indicates inflammation of a bursa b. I don't believe the term is helpful and an inflammatory condition of the bursa cannot be established on imaging. This diagnosis is however often used as the primary basis for interventional medicine such as cortisone injection, which may not be the most appropriate intervention for the patient. I don't have a problem with bursal thickening or enlargement as purely descriptive terms - bursal response to some loading scenario which can usually be successfully addressed with attention to that load profile.
- A: Clear collection of fluid in a bursa on imaging or clinical examination B: If bursa present I would consider more "anti-inflammatory" added into treatment - either NSAIDs or possibly injection. C: some bursas always have fluid in so you need an idea of "normal" to define abnormal

Q46: The term 'thickening' may be used as a term to define (classify/describe) specific tissue pathology on imaging.

Agreed 8

NO/Disagree 1

Unsure 3

- Can be a non specific term but may be only finding in an early tendinopathy So it is relevant because it indicates pathology is there
- Not sure whether thickening indicates pathology of a specific tissue.
- <https://bmjopensem.bmj.com/content/3/1/e000279.info>
- One can tell when tissues LOOK thicker than normal.

- pathology or adaptation? just a descriptor
- a. Change in thickness of a tendon or bursa relative to other side, established norms, previous imaging. b. This is a purely descriptive term and I don't have a problem with this on imaging reports. I don't think it has a significant impact on management however. This would again be more influenced by pain/load response behaviour.
- Should be a specified definition for what is increased thickness versus thickening (what is the comparator i.e. within the same tendon or other side or just tendon does not have uniform thickness).
- To define thick you need to know normal. This can be overcome with people with unilateral pain - then you can image contralateral side (but there are catches to this being considered "normal". Or if thickening is focal - fusiform. So in general i feel you can use thickening but there are catches. I would not guide management for me - and in long standing cases i would expect there to be some degree of thickening. I do not feel it helps me prognostically either.
- "thickening" is a description
- Again, a tendon will be diagnosed to be thicker on clinical examination. Imaging will just quantify the thickening

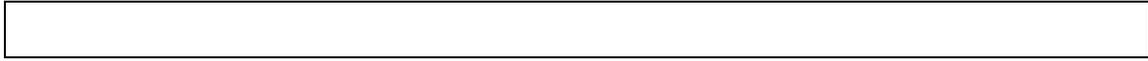
Q47: There are other terms I would recommend being used to define (classify/describe) specific tissue pathology on imaging.

Agreed 4

NO/Disagree 6

Unsure 2

- The degree of tissue disruption (did you mention that earlier?!) Surrounding bony changes
- macroscopically intact no evidence of instability (ie biceps LH) within normal age and activity related limits
- increased signal - indicating micro or macroscopic tissue abnormality (as opposed to partial tear)
- Maybe relation with fat pads Plantar fascia?
- I you get 41-47 sorted this would already be great!
- increase in echogenicity, swelling, stiff



Appendix 6 –Results of in-person meeting

Statement	Number responded	Yes	No	Consensus achieved?
3		40%	60%	N
5	Abstained as a group	NA	NA	NA
8		100%		Y
9		100%		Y
10	Abstained as a group			NA

Table A2. Responses following in person discussion (Stage 3). Number of responses is shown.