

Supplementary table 1: inclusion and exclusion criteria for healthy subjects**Inclusion criteria**

Age 18-80 years

Exclusion criteria

Previous/current inflammatory joint disease (including crystal arthropathy)

Visual analogue score (VAS) for joint pain > 10/100.

Any history of joint trauma in the last month.

Fulfilling hand osteoarthritis ACR criteria

Any clinical joint inflammation as identified by a physician.

Previous or current inflammatory bowel disease.

History of culture-proven enteric and/or genitourinary infection in the last month

Current or previous corticosteroids use in the last 4 weeks.

Current non-steroidal anti-inflammatory use.

Supplementary table 2: Ultrasound machines and transducers used by centres

| Centre | Contributors | Years of ultrasound experience | Ultrasound qualifications | Machine | Linear Transducer |
|--|-----------------------------|--------------------------------|--|-------------------|------------------------------------|
| Institute of Inflammation and Ageing, University of Birmingham, UK | Andrew Filer | 15 | EULAR teach the teacher EULAR level 2 (max) | GE Logiq E9 | 8-18MHz; 6-15MHz |
| | Ilfita Sahbudin | 9 | MSc in Musculoskeletal Ultrasound, University of Bournemouth | | |
| | Jeanette Trickey | 6 | BSR Basic Ultrasound Course | | |
| University College London, UK | Coziana Ciurtin | 10 | EULAR level 2 (max) | GE Logiq E8 | 8-15MHz |
| Hôpital Ambroise Paré, Paris, France | Maria-Antonietta D'agostino | 25 | EFSUMB level 3 (max), EULAR level 2 (max) | ESAOTE MyLab70 | 6-18MHz PD 11 MHz, PRF 750Hz |
| | Hélène Gouze | 6 | French Musculoskeletal Ultrasound Course, EULAR Ultrasound intermediate Course | XVG | |
| Department of Rheumatology Cliniques Universitaires Saint-Luc, Brussels Belgium | Maria Stoenoiu | 15 | EFSUMB level 3 (max), EULAR level 2 (max) | GE Logic E9 | M L6-15; L8-18i |
| | Mihaela Maruseac | 5 | EULAR intermediate, EFSUMB level 2 | | |

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|---|---------------------------|----|--|---------------------------|---|
| Ghent University, Belgium | Ruth Wittoek | 15 | EULAR level 2 | ESAOTE MyLab 60 | |
| | Philippe Carron | 13 | EULAR level 3 | | |
| University of Ferrara, Italy | Alessandra Bortoluzzi | 12 | Basic EULAR ultrasound course; advanced MSUS course endorsed by the Italian Society for Rheumatology | ESAOTE MyLab 70XVG | 14–18 MHz |
| University of Ferrara, Italy | Georgios Filippou | 20 | EULAR level 2 (max) | Samsung RS80A | 4-18 MHz; 3-12MHz |
| Università degli Studi di Torino, Turin, Italy | Annamaria Iagnocco | 37 | EFSUMB level 3 (max), EULAR level 2 (max) | ESAOTE MyLab8 | L4-15 (4-15 MHz); LA 435 (6-18MHz) |
| | Teodora Şerban | 11 | EFSUMB level 1, EULAR level 2 (max), Romanian Ministry of Health Certified Sonographer | | |
| | Irene Azzolin | 5 | Musculoskeletal Ultrasound in Rheumatology -EULAR Basic Course | | |
| University of Pavia, Italy | Garifallia Sakellariou | 11 | none | ESAOTE Mylab 70 XVG | ESAOTE LA435 (6-18 MHz) PRF 0.75; |
| Sacro Cuore Hospital, Negrar, Verona, Italy | Ilaria Tinazzi | 16 | EULAR intermediate ultrasound course in 2007 | ESAOTE MyLabClassC | 10-18 MHz PRF 750 Hz |
| Copenhagen University Hospital, Denmark | Lene Terslev | 22 | EFSUMB level 3 (max), EULAR level 2 (max) Danish Rheumatology Association level 5 (max) | GE Logiq E9 | ML 6-15 Colour Doppler (CD) 7.5 MHz, PRF 0.4 |
| | Mads Ammitzball Danielsen | 10 | EFSUMB level 2, EULAR level 1, Danish Rheumatology Association level 4 | | |
| Aarhus University Hospital, Denmark | Ellen-Margrethe Hauge | 16 | Danish Rheumatology Association level 3 (max) | Hitachi Noblus | 18-5 L64 Colour Doppler (CD) 6.5 MHz |
| | Mads Nyhuus Bendix Rasch | 10 | Danish Rheumatology Association level 4 | | |
| Diakonhjemmet | Hilde Berner Hammer | 20 | EFSUMB level 3 (max), | GE Logiq E9 | 6-15 MHz |

| | | | | | |
|--|------------------|----|--|----------------------|------------------|
| Hospital, Oslo, Norway | | | EULAR level 2 (max) EULAR faculty US courses | | |
| Leiden University Medical Center, The Netherlands. | Marion Kortekaas | 16 | EULAR level 2 (max), US level of the Dutch Rheumatology Association (max) | GE logic E9 | 5-18 MHz |
| | Sarah Ohrndorf | 14 | EULAR level 2 (max) | | |
| Pomeranian Medical University, Szczecin, Poland | Marcin Milchert | 13 | Large Vessel Vasculitis Ultrasound courses attendances and tutorship (Hospital of Southern Norway Trust, Kristiansand, Norway) Tutorship of Large Vessel Vasculitis Ultrasound courses Southend Hospital, UK and others. Certificates in Vascular Doppler Sonography and MS Sonography of Polish Ultrasonography Society and Polish Rheumatology Society | Phillips Epiq 5 | 18 MHz |
| | Jacek Fliciński | 12 | Level 1 of EULAR Competency Assessment in MSUS Teach the Teachers course Certificate of Proficiency Musculoskeletal Sonography Polish Rheumatological Society | | |
| Medical University of Vienna, Vienna, Austria | Peter Mandl | 16 | EFSUMB level 3 (max), EULAR level 2 (max) | GE Logiq E9 | 6-15MHz, 8-18MHz |
| | Carina Borst | 3 | none | | |
| Iuliu Hatieganu University of Medicine and Pharmacy, Cluj-Napoca, Romania | Daniela Fodor | 25 | EFSUMB level 3, EULAR level 2 | GE S7 | L8-18I |
| University of Medicine and Pharmacy, Craiova, | Florentin Vreju | 15 | EULAR intermediate course, EULAR advanced course, EULAR teach-the- | ESAOTE Mylab 25 Gold | 18MHz |

| | | | | | |
|--|----------------------------|----|--|-------------------------------------|---|
| Romania | | | teachers course, EFSUMB | | |
| Medical University of Plovdiv, Bulgaria. | Rositsa Karalilova | 13 | EULAR level 2 (maximum), EULAR Certificate for Ultrasound Trainers in Rheumatology | ESAOTE MyLab 7 | 3-18 MHz |
| Hospital Universitario Fundación Jiménez Díaz, Madrid, Spain. | Esperanza Naredo | 25 | EFSUMB level 3 (max, EULAR level 2 (max) | GE Logiq E9 | ML6-15 (6-15MHz) |
| | Cesar Sifuentes-Cantu | 5 | Certifications by the Mexican College of Rheumatology | | |
| | Giuliana M.C. La Paglia | 6 | EULAR intermediate ultrasound course, EFSUMB level 1 | | |
| Instituto Nacional de Rehabilitacion, Mexico City, Mexico | Carlos Pineda | 23 | PANLAR Level 3, ECOMER Level 3 (max) | GE Logiq e | 8-18 MHz |
| | Marwin Gutierrez | 17 | EFSUMB Level 3; EULAR Level 2; PANLAR Level 3 | | |
| | Gustavo Leon | | | | |
| | Cristina Reategui-Sokolova | 6 | Fellowships in Peruvian and Mexican hospitals. | | |
| Zagazig University, Egypt | Mohamed Mortada | 17 | EULAR advanced course of musculoskeletal ultrasonography | Hitachi Aloka F37 | 18 MHz |
| Japanese Red Cross Medical Center, Tokyo, Japan | Takeshi Suzuki | 17 | EULAR intermediate course, EULAR teach-the-teachers course, JCR-certified sonographer | HI VISION Avius | 5-18 MHz PD frequency 7.5MHz, PRF 800Hz |
| Chiba University Hospital, Japan | Kei Ikeda | 18 | EULAR intermediate course, EULAR advanced course, EULAR teach-the-teachers course, JCR-certified sonographer | HI VISION Avius; HI VISION Ascendus | EUP-L75 (5-18MHz) |

Supplementary table 3: complete ultrasound grade results for tenosynovial hypertrophy, tenosynovial Power Doppler and tendon sheath effusion in Healthy Subjects and patients with Rheumatoid Arthritis

Healthy Subjects

| | HS Y (18-39 years) | | | HS M (40-59 years) | | | HS O (60-80 years) | | | p value* HS Y vs M vs O |
|------------|--------------------|--------------|--------------|--------------------|--------------|--------------|--------------------|--------------|--------------|-------------------------------|
| | G 1 n (%) | G 2 n (%) | G 3 n (%) | G 1 n (%) | G 2 n (%) | G 3 n (%) | G 1 n (%) | G 2 n (%) | G 3 n (%) | |
| TSH | | | | | | | | | | |
| DF 1 | 1 (0.1) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1 (0.3) | 0 (0.0) | 0 (0.0) | 0.490 |
| DF 2 | 1 (0.1) | 0 (0.0) | 0 (0.0) | 2 (0.3) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0.602 |
| DF 3 | 2 (0.2) | 0 (0.0) | 0 (0.0) | 1 (0.1) | 0 (0.0) | 0 (0.0) | 2 (0.6) | 0 (0.0) | 0 (0.0) | 0.432 |
| DF 4 | 2 (0.2) | 0 (0.0) | 0 (0.0) | 1 (0.1) | 0 (0.0) | 0 (0.0) | 1 (0.3) | 0 (0.0) | 0 (0.0) | 1.000 |
| DF 5 | 1 (0.1) | 0 (0.0) | 0 (0.0) | 4 (0.6) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0.220 |
| ECU | 7 (0.9) | 0 (0.0) | 0 (0.0) | 8 (1.1) | 1 (0.1) | 0 (0.0) | 1 (0.3) | 0 (0.0) | 0 (0.0) | 0.293 |
| TPD | | | | | | | | | | |
| DF 1 | 1 (0.1) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1 (0.3) | 0 (0.0) | 0 (0.0) | 0.490 |
| DF 2 | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1 (0.1) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0.568 |
| DF 3 | 1 (0.1) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1.000 |
| DF 4 | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1 (0.3) | 0 (0.0) | 0 (0.0) | 0.194 |
| DF 5 | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | n/a |
| ECU | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | n/a |
| TEF | | | | | | | | | | |
| | Present n (%) | | | Present n (%) | | | Present n (%) | | | |
| DF 1 | 19 (2.3) | | | 7 (1.0) | | | 6 (1.7) | | | <0.001 |
| DF 2 | 6 (0.7) | | | 10 (1.4) | | | 5 (1.4) | | | 0.001 |
| DF 3 | 5 (0.6) | | | 10 (1.4) | | | 7 (1.9) | | | <0.001 |
| DF 4 | 4 (0.5) | | | 5 (0.7) | | | 10 (2.8) | | | <0.001 |
| DF 5 | 7 (0.8) | | | 15 (2.1) | | | 10 (2.8) | | | <0.001 |
| ECU | 30 (3.7) | | | 18 (2.6) | | | 9 (2.5) | | | 0.001 |

HS, healthy subject; G, grade; TSH, tenosynovial hypertrophy; TPD, power Doppler within the tendon sheath; TEF, tenosynovial effusion; DF, digit flexor tendon; ECU, extensor carpi ulnaris tendon. * Fisher's exact test

Patients with Rheumatoid Arthritis

| | Grade 1 n (%) | | | Grade 2 n (%) | | | Grade 3 n (%) | | |
|------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| | Grade 1 n (%) | Grade 2 n (%) | Grade 3 n (%) | Grade 1 n (%) | Grade 2 n (%) | Grade 3 n (%) | Grade 1 n (%) | Grade 2 n (%) | Grade 3 n (%) |
| TSH | | | | | | | | | |
| DF 1 | 10 (3.5) | 5 (1.8) | 0 (0.0) | DF 1 | 6 (2.1) | 4 (1.4) | 0 (0.0) | | |
| DF 2 | 21 (7.3) | 28 (9.7) | 1 (0.4) | DF 2 | 17 (5.9) | 15 (5.3) | 4 (1.4) | | |
| DF 3 | 29 (10.1) | 17 (5.9) | 4 (1.4) | DF 3 | 19 (6.6) | 19 (6.6) | 2 (0.7) | | |
| DF 4 | 18 (6.3) | 10 (3.5) | (0.0) | DF 4 | 10 (3.5) | 10 (3.5) | 0 (0.0) | | |
| DF 5 | 22 (7.6) | 13 (4.5) | 1 (0.4) | DF 5 | 12 (4.2) | 11 (3.9) | 0 (0.0) | | |
| ECU | 27 (9.4) | 32 (11.2) | 6 (2.1) | ECU | 18 (6.3) | 37 (12.9) | 7 (2.5) | | |

TSH, tenosynovial hypertrophy; TPD, power Doppler within tendon sheath; TEF, tenosynovial effusion

Supplementary Table 4: Healthy subjects and RA patients with grade 0 for ultrasound findings

| | TSH all grade 0 n (%) | TPD all grade 0 n (%) | TEF all grade 0 n (%) | TSH, TPD and TEF all grade 0 n (%) |
|------------------------------------|--------------------------|--------------------------|--------------------------|--|
| Healthy subjects n= 939 | 907 (96.6) | 931 (99.1) | 808 (86.0) | 791 (84.3) |
| RA patients n= 144 | 68 (47.2) | 81 (56.3) | n/a | n/a |

HS, healthy subjects; RA, patients with Rheumatoid Arthritis; TSH, tenosynovial hypertrophy; TPD, power Doppler within tendon sheath; TEF, tenosynovial effusion

Supplementary table 5: Distribution ultrasound findings of grade ≥ 1 in left and right tendons in healthy subjects

| | HS Y (18-39 yrs) | | HS M (40-59 yrs) | | HS O (60-80 yrs) | | All age groups | | p value* L vs R |
|------------|------------------|----------------|------------------|----------------|------------------|----------------|----------------|----------------|--------------------|
| | Left n (%) | Right n (%) | Left n (%) | Right n (%) | Left n (%) | Right n (%) | Left n (%) | Right n (%) | |
| TSH | | | | | | | | | |
| DF1 | 0 (0.0) | 1 (0.2) | 0 (0.0) | 0 (0.0) | 1 (0.5) | 0 (0.0) | 1 (0.1) | 1 (0.1) | 1.000 |
| DF2 | 1 (0.2) | 0 (0.0) | 0 (0.0) | 2 (0.6) | 0 (0.0) | 0 (0.0) | 1 (0.1) | 2 (0.2) | 1.000 |
| DF3 | 1 (0.2) | 1 (0.2) | 1 (0.3) | 0 (0.0) | 1 (0.5) | 1 (0.6) | 3 (0.3) | 2 (0.2) | 1.000 |
| DF4 | 1 (0.2) | 1 (0.2) | 1 (0.3) | 0 (0.0) | 0 (0.0) | 1 (0.6) | 2 (0.2) | 2 (0.2) | 1.000 |
| DF5 | 1 (0.2) | 0 (0.0) | 2 (0.6) | 2 (0.6) | 0 (0.0) | 0 (0.0) | 3 (0.3) | 2 (0.2) | 1.000 |
| ECU | 3 (0.7) | 4 (1.0) | 5 (1.4) | 4 (1.1) | 1 (0.6) | 0 (0.0) | 9 (1.0) | 8 (0.9) | 1.000 |
| TPD | | | | | | | | | |
| DF1 | 0 (0.0) | 1 (0.2) | 0 (0.0) | 0 (0.0) | 1 (0.5) | 0 (0.0) | 1 (0.1) | 1 (0.1) | 1.000 |
| DF2 | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1 (0.3) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1 (0.1) | - |
| DF3 | 1 (0.2) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1 (0.1) | 0 (0.0) | - |
| DF4 | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1 (0.6) | 0 (0.0) | 1 (0.1) | - |
| DF5 | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | - |
| ECU | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | - |
| TEF | | | | | | | | | |
| DF1 | 7 (1.7) | 12 (3.0) | 4 (1.1) | 3 (0.8) | 3 (1.6) | 3 (1.6) | 14 (1.5) | 18 (1.9) | 0.481 |
| DF2 | 2 (0.5) | 4 (1.0) | 6 (1.7) | 4 (1.1) | 3 (1.6) | 2 (1.1) | 11 (1.2) | 10 (1.1) | 1.000 |
| DF3 | 3 (0.7) | 2 (0.5) | 6 (1.7) | 4 (1.1) | 2 (1.1) | 5 (2.7) | 11 (1.2) | 11 (1.2) | 1.000 |
| DF4 | 2 (0.5) | 2 (0.5) | 3 (0.8) | 2 (0.6) | 4 (2.2) | 6 (3.2) | 9 (1.0) | 10 (1.1) | 1.000 |
| DF5 | 5 (1.2) | 2 (0.5) | 8 (2.2) | 7 (1.9) | 4 (2.2) | 6 (3.2) | 17 (1.8) | 15 (1.6) | 0.845 |
| ECU | 14 (3.5) | 16 (4.) | 9 (2.6) | 9 (2.6) | 3 (1.7) | 6 (3.3) | 26 (2.8) | 31 (3.3) | 0.442 |

HS, healthy subject; TSH, tenosynovial hypertrophy; TPD, power Doppler within tendon sheath; TEF, tenosynovial effusion; L, left; R, right. *Fisher's exact test

Supplementary table 6: Difference in proportion of TEF grade ≥ 1 compared to TSH grade ≥ 1 and TPD grade ≥ 1 in HS

| | DF TSH grade ≥ 1 n (%) | DF TEF grade ≥ 1 n (%) | p value* |
|--|--------------------------------|--------------------------------|----------|
| Total number of tendons at each level | 1873 | 1873 | |
| DF1 TSH vs DF1 TEF | 2 (0.1) | 32 (1.7) | 0.000 |
| DF2 TSH vs DF2 TEF | 3 (0.2) | 21 (1.1) | 0.000 |
| DF3 TSH vs DF3 TEF | 5 (0.3) | 22 (1.2) | 0.000 |
| DF4 TSH vs DF4 TEF | 4 (0.2) | 19 (1.0) | 0.001 |
| DF5 TSH vs DF5 TEF | 5 (0.3) | 32 (1.7) | 0.000 |
| ECU TSH vs ECU TEF | 17 (0.9) | 57 (3.0) | 0.000 |
| DF1 PD vs DF1 EF | 2 (0.1) | 32 (1.7) | 0.000 |
| DF2 PD vs DF2 EF | 1 (0.1) | 21 (1.1) | 0.000 |
| DF3 PD vs DF3 EF | 1 (0.1) | 22 (1.2) | 0.000 |
| DF4 PD vs DF4 EF | 1 (0.1) | 19 (1.0) | 0.000 |
| DF5 PD vs DF5 EF | 0 (0) | 32 (1.7) | n/a |
| ECU PD vs ECU EF | 0 (0) | 57 (3.0) | n/a |

TSH, tenosynovial hypertrophy; TPD, power Doppler within tendon sheath; TEF, tenosynovial effusion; DF, digit flexor tendon; ECU, extensor carpi ulnaris tendon. *McNemar's test

Supplementary table 7: Comparison of ECU tenosynovial hypertrophy with DF tendons 1-5 in healthy subjects

| | ECU TSH grade ≥ 1 n (%) | DF TSH grade ≥ 1 n (%) | p value* |
|--------------------------------|---------------------------------|--------------------------------|----------|
| Total number of tendons | 1867 | 1867 | |
| ECU TSH vs DF1 TSH | 17 (0.9) | 2 (0.1) | 0.001 |
| ECU TSH vs DF2 TSH | 17 (0.9) | 3 (0.2) | 0.003 |
| ECU TSH vs DF3 TSH | 17 (0.9) | 5 (0.3) | 0.017 |
| ECU TSH vs DF4 TSH | 17 (0.9) | 4 (0.2) | 0.007 |
| ECU TSH vs DF5 TSH | 17 (0.9) | 5 (0.3) | 0.017 |

TSH, tenosynovial hypertrophy; TPD, power Doppler within tendon sheath; TEF, tenosynovial effusion; DF, digit flexor tendon; ECU, extensor carpi ulnaris tendon. *McNemar's test

Supplementary table 8: HS with grade ≥ 1 TSH, TPD and TEF in manual workers vs non manual workers

| | Manual worker Tendon number (%) | Non manual worker Tendon number (%) | p value* |
|--|------------------------------------|--|----------|
| Total number of tendons at each level | 136 | 1735 | |
| TSH | | | |
| DF 1 TSH G ≥ 1 | 1 (0.7) | 1 (0.1) | 0.140 |
| DF 2 TSH G ≥ 1 | 0 (0.0) | 3 (0.2) | 1.000 |
| DF 3 TSH G ≥ 1 | 0 (0.0) | 5 (0.3) | 1.000 |
| DF 4 TSH G ≥ 1 | 0 (0.0) | 4 (0.2) | 1.000 |
| DF 5 TSH G ≥ 1 | 0 (0.0) | 5 (0.3) | 1.000 |
| ECU TSH G ≥ 1 | 1 (1.5) | 16 (0.9) | 1.000 |
| TPD | | | |
| DF 1 TPD G ≥ 1 | 1 (0.7) | 1 (0.1) | 0.140 |
| DF 2 TPD G ≥ 1 | 0 (0.0) | 1 (0.1) | 1.000 |
| DF 3 TPD G ≥ 1 | 0 (0.0) | 1 (0.1) | 1.000 |
| DF 4 TPD G ≥ 1 | 0 (0.0) | 1 (0.1) | 1.000 |
| DF 5 TPD G ≥ 1 | 0 (0.0) | 0 (0.0) | n/a |
| ECU TPD G ≥ 1 | 0 (0.0) | 0 (0.0) | n/a |
| TEF | | | |
| DF 1 TEF G ≥ 1 | 5 (3.7) | 27 (1.6) | 0.175 |
| DF 2 TEF G ≥ 1 | 2 (1.5) | 19 (1.1) | 0.768 |
| DF 3 TEF G ≥ 1 | 0 (0.0) | 22 (1.3) | 0.588 |
| DF 4 TEF G ≥ 1 | 0 (0.0) | 19 (1.1) | 0.583 |
| DF 5 TEF G ≥ 1 | 3 (2.2) | 29 (1.7) | 0.658 |
| ECU TEF G ≥ 1 | 4 (2.9) | 52 (3.0) | 1.000 |

HS, healthy subject; G, grade; TSH, tenosynovial hypertrophy; TPD, power Doppler within the tendon sheath; TEF, tenosynovial effusion; DF, digit flexor tendon; ECU, extensor carpi ulnaris tendon. * Fisher's exact test

Supplementary table 9: Ultrasound tendon findings in healthy subjects with high impact vs low impact hobbies

| | High impact upper limb hobbies Tendon Number (%) | Low impact upper limb hobbies Tendon Number (%) | p value* |
|--|---|--|----------|
| Total number of tendons at each level | 376 | 1502 | |
| TSH | | | |
| DF 1 TSH G ≥ 1 | 1 (0.3) | 1 (0.1) | 0.361 |
| DF 2 TSH G ≥ 1 | 0 (0.0) | 3 (0.2) | 1.000 |
| DF 3 TSH G ≥ 1 | 0 (0.0) | 5 (0.3) | 0.590 |
| DF 4 TSH G ≥ 1 | 0 (0.0) | 4 (0.3) | 0.590 |
| DF 5 TSH G ≥ 1 | 0 (0.0) | 5 (0.3) | 0.590 |
| ECU TSH G ≥ 1 | 0 (0.0) | 17 (1.1) | 0.033 |
| TPD | | | |
| DF 1 TPD G ≥ 1 | 1 (0.3) | 1 (0.1) | 0.361 |
| DF 2 TPD G ≥ 1 | 0 (0.0) | 1 (0.1) | 1.000 |
| DF 3 TPD G ≥ 1 | 0 (0.0) | 1 (0.1) | 1.000 |
| DF 4 TPD G ≥ 1 | 0 (0.0) | 1 (0.1) | 1.000 |
| DF 5 TPD G ≥ 1 | 0 (0.0) | 0 (0.0) | n/a |
| ECU TPD G ≥ 1 | 0 (0.0) | 0 (0.0) | n/a |
| TEF | | | |
| DF 1 TEF G ≥ 1 | 3 (0.8) | 29 (1.9) | 0.199 |
| DF 2 TEF G ≥ 1 | 1 (0.3) | 20 (1.3) | 0.145 |
| DF 3 TEF G ≥ 1 | 1 (0.3) | 21 (1.4) | 0.123 |
| DF 4 TEF G ≥ 1 | 1 (0.3) | 18 (1.2) | 0.189 |
| DF 5 TEF G ≥ 1 | 3 (1.8) | 29 (1.9) | 0.199 |
| ECU TEF G ≥ 1 | 18 (4.8) | 39 (2.6) | 0.049 |

HS, healthy subject; G, grade; TSH, tenosynovial hypertrophy; TPD, power Doppler within the tendon sheath; TEF, tenosynovial effusion; DF, digit flexor tendon; ECU, extensor carpi ulnaris tendon. * Fisher's exact test

Supplementary table 10: Ultrasound tendon findings in age and sex matched healthy subjects and patients with RA

| | HS tendons grade ≥ 1 Number (%) | RA tendons grade ≥ 1 Number (%) | p value* HS vs RA (age and sex matched) |
|---|---|---|--|
| Total number of tendons at each level | 288 | 288 | |
| DF 1 TSH grade ≥ 1 n (%) | 0 (0) | 15 (5.2) | < 0.001 |
| DF 2 TSH grade ≥ 1 n (%) | 0 (0) | 50 (17.4) | < 0.001 |
| DF 3 TSH grade ≥ 1 n (%) | 1 (0.3) | 50 (17.4) | < 0.001 |
| DF 4 TSH grade ≥ 1 n (%) | 1 (0.3) | 28 (9.7) | < 0.001 |
| DF 5 TSH grade ≥ 1 n (%) | 5 (1.7) | 36 (12.5) | < 0.001 |
| ECU TSH grade ≥ 1 n (%) | 6 (2.1) | 60 (20.1) | < 0.001 |
| DF 1 TPD grade ≥ 1 n (%) | 0 (0) | 10 (3.5) | 0.002 |
| DF 2 TPD grade ≥ 1 n (%) | 0 (0) | 36 (12.5) | < 0.001 |
| DF 3 TPD grade ≥ 1 n (%) | 0 (0) | 40 (13.9) | < 0.001 |
| DF 4 TPD grade ≥ 1 n (%) | 0(0) | 20 (6.9) | < 0.001 |
| DF 5 TPD grade ≥ 1 n (%) | 0 (0) | 23 (8.0) | < 0.001 |
| ECU TPD grade ≥ 1 n (%) | 0 (0) | 58 (20.3) | < 0.001 |

HS, healthy subject; TSH, tenosynovial hypertrophy; TPD, power Doppler within the tendon sheath; TEF, tenosynovial effusion; DF, digit flexor tendon; ECU, extensor carpi ulnaris tendon. * Fisher's exact test.