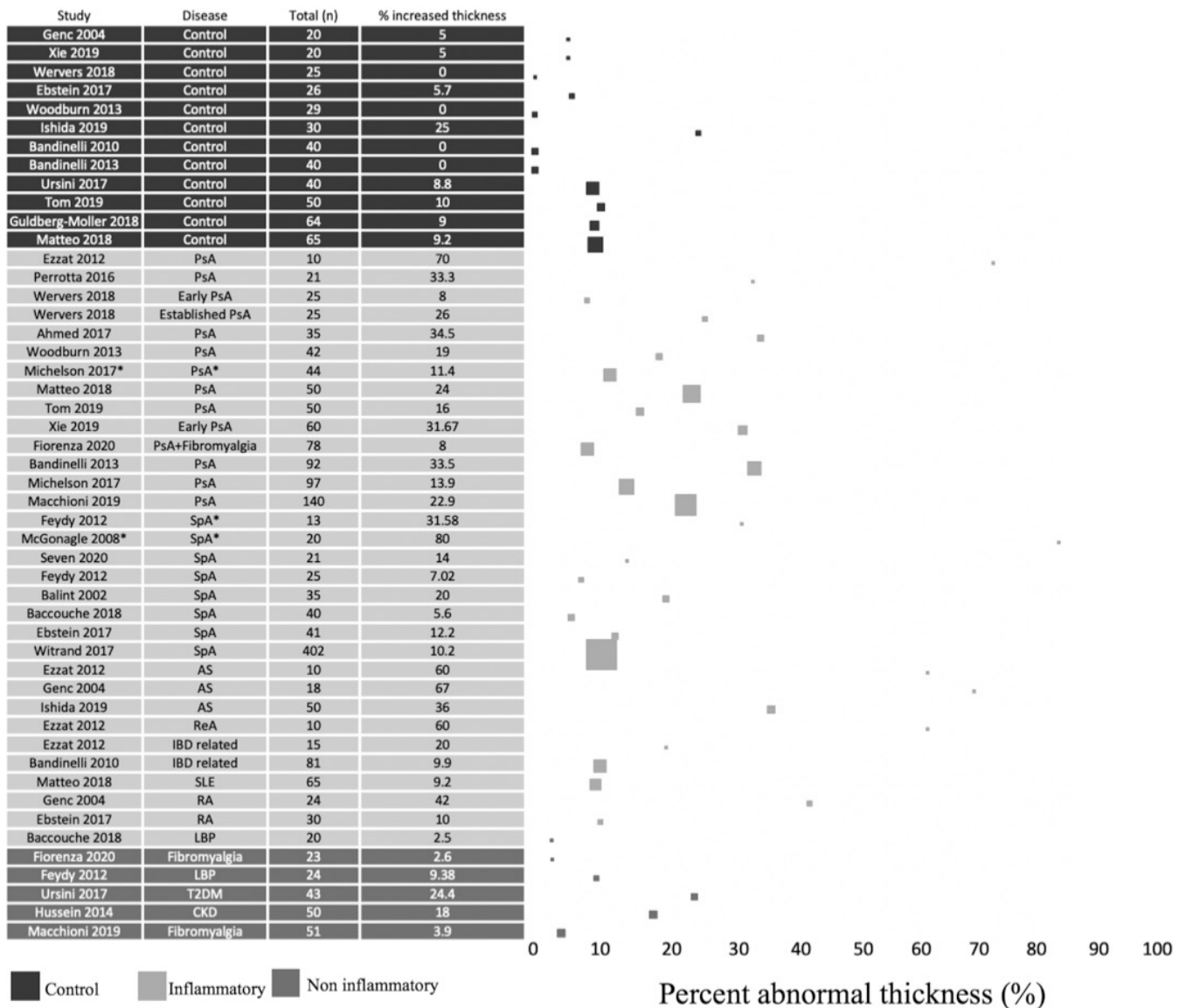


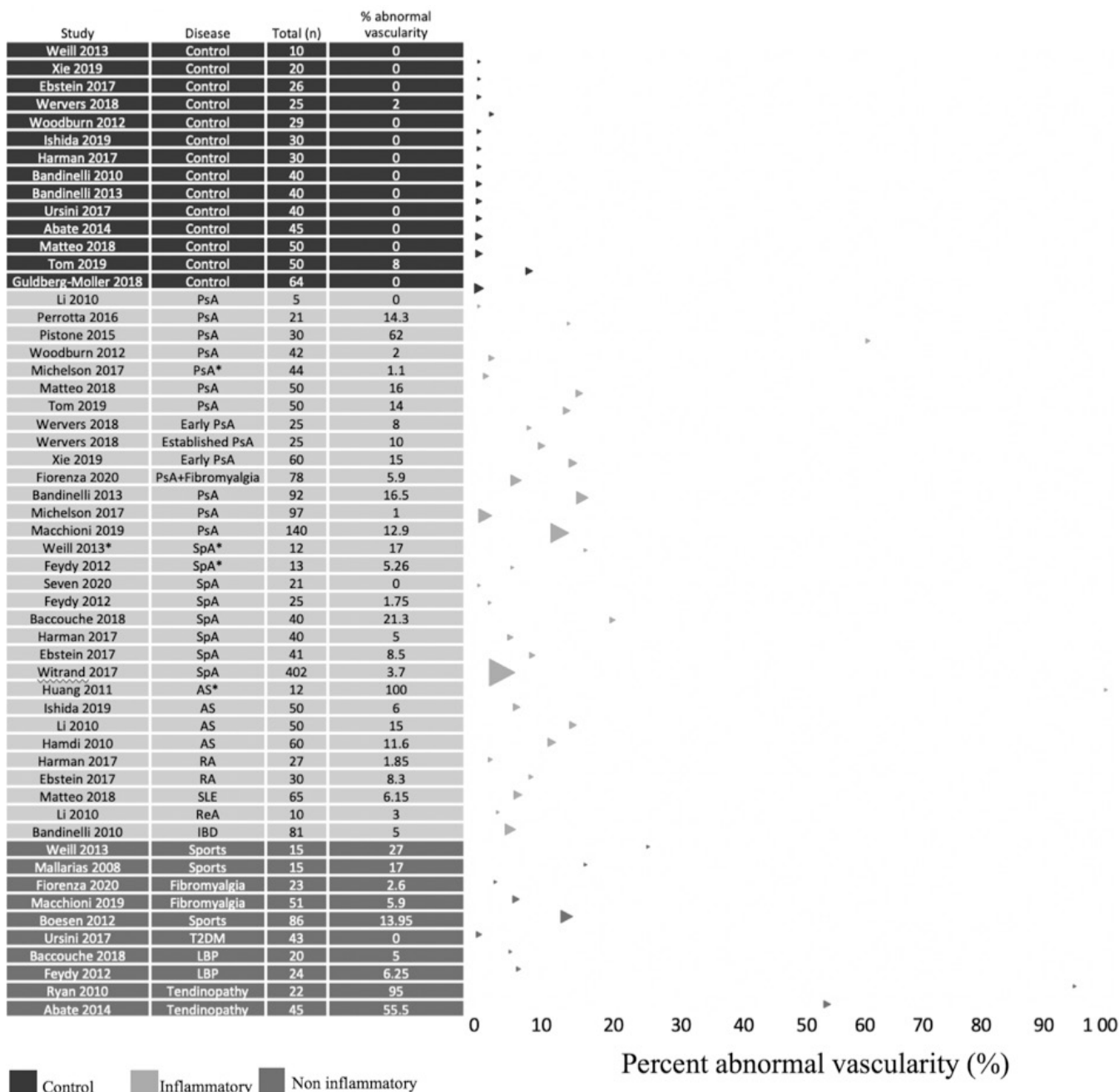


**Supplementary Table S1.** Studies with thickness noted at the Achilles enthesis.

Control: healthy controls per study description; PsA: psoriatic arthritis; SpA: spondyloarthropathy; ReA: reactive arthritis; AS: ankylosing Spondylitis; IBD: inflammatory bowel disease; RA: rheumatoid arthritis; SLE: systemic lupus erythematosus; DM: diabetes mellitus.

Studies arranged in order of lowest to highest (n) in each disease category.

\* Indicates a study focusing only on symptomatic tendons in underlying inflammatory disease.

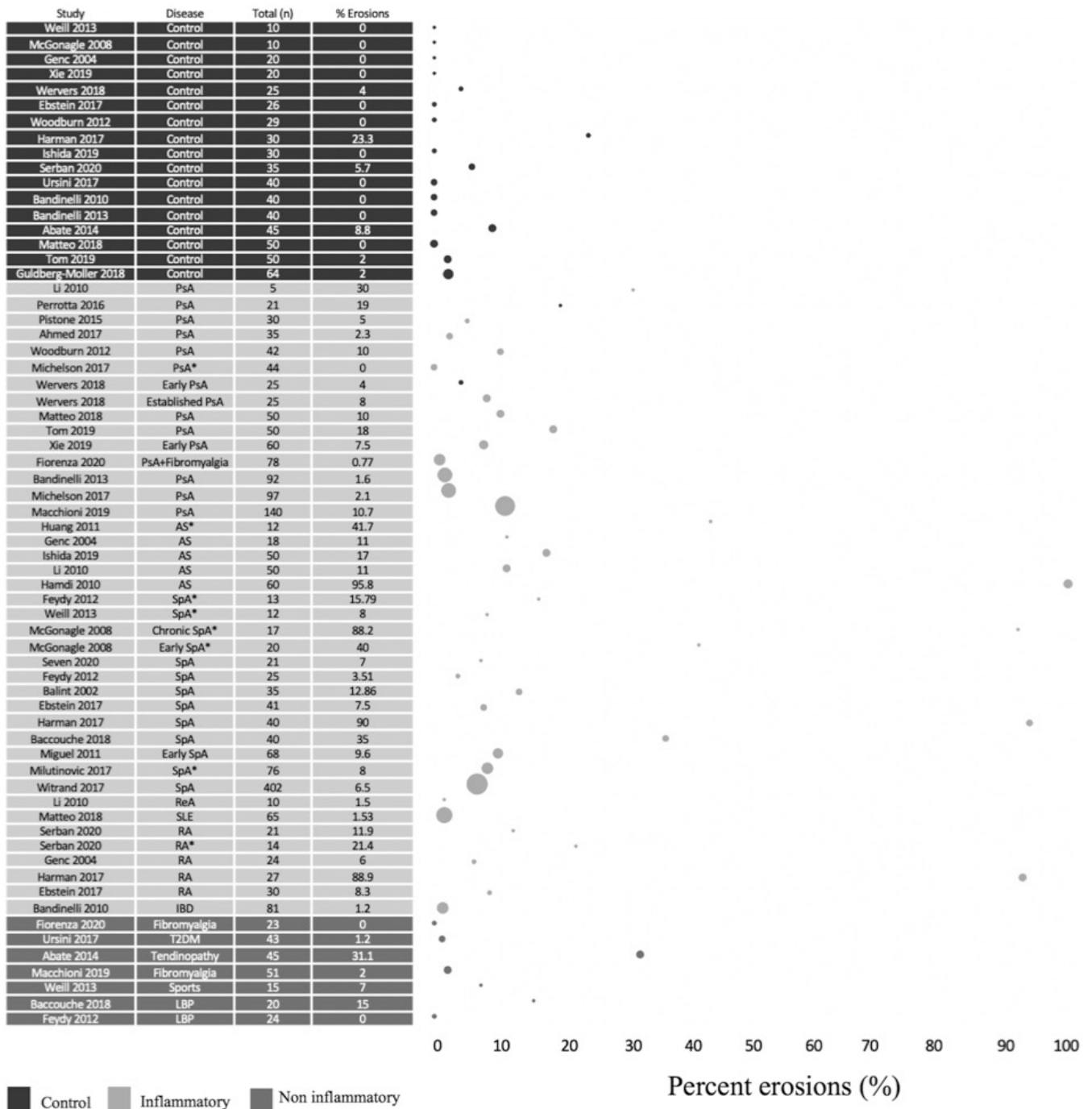


**Supplementary Table S2.** Studies with Doppler signal noted at the Achilles enthesis.

Control: healthy controls per study description; PsA: psoriatic arthritis; SpA: spondyloarthritis; ReA: reactive arthritis; AS: ankylosing Spondylitis; IBD: inflammatory bowel disease; RA: rheumatoid arthritis; SLE: systemic lupus erythematosus; DM: diabetes mellitus.

Studies arranged in order of lowest to highest (n) in each disease category.

\* Indicates a study focusing only on symptomatic tendons in underlying inflammatory disease.



**Supplementary Table S3.** Studies with erosions noted at the Achilles enthesis.

Control: healthy controls per study description; PsA: psoriatic arthritis; SpA: spondyloarthritis; ReA: reactive arthritis; AS: ankylosing Spondylitis; IBD: inflammatory bowel disease; RA: rheumatoid arthritis; SLE: systemic lupus erythematosus; DM: diabetes mellitus.

Studies arranged in order of lowest to highest (n) in each disease category.

**Supplementary Table S4.** Characteristics of included studies (looking at thickness as a parameter).

| Author               | Population                                               | Participant demographics                               | Mean age (std dev) [range]                                                       | BMI (std dev)                                                         | Criteria     |
|----------------------|----------------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------------------------|-----------------------------------------------------------------------|--------------|
| Ahmed 2017           | PsA                                                      | n=35 (20M/15F)                                         | 44.77 (10.11)                                                                    | 26.42 (4.8)                                                           | PA           |
| Baccouche 2018       | SpA<br>Mechanical LBP                                    | n=40 (12F/28M)<br>n=20 (16F/4M)                        | 41.9 (14.3)<br>51.1 (11.5)                                                       | NR<br>NR                                                              | OMERACT      |
| Balint 2002          | SpA                                                      | n=35 (10F/25M)                                         | 48 (14)                                                                          | NR                                                                    | GUESS        |
| Bandinelli 2010      | IBD-associated<br>HC                                     | n=81 (43F/38M)<br>n=40 (22F/18M)                       | 41.3 (12.3) [18-68]<br>49.6 (11.1)                                               | 22 (3.1)<br>24 (2)                                                    | GUESS        |
| Bandinelli 2013      | PsA<br>HC                                                | n=92 (51F/41M)<br>n=40 (22F/18M)                       | 51.6 (15.4)<br>49.6 (11.1)                                                       | 22 (2.6)<br>24 (2)                                                    | GUESS        |
| Comin 2012           | Ballet Dancers                                           | n=79 (44F/35M)                                         | M: 28.7 (5.8)/F:26.4 (6.6)                                                       | NR                                                                    | PA           |
| Ebstein 2017         | RA<br>SpA<br>HC                                          | n=30 (25F/5M)<br>n=41 (13F/28M)<br>n=26 (17F/9M)       | 55.7 (14.8)<br>45.3 (15.4)<br>50.4 (17.3)                                        | NR<br>NR<br>NR                                                        | GUESS, MASEI |
| Ezzat 2012           | PsA<br><br>AS<br>ReA<br>IBD-associated                   | n=10 (22F/23M for whole group)<br>n=10<br>n=10<br>n=15 | 50.9 (13.3)<br><br>30.2 (2.9)<br>27.8 (6.4)<br>UC-31.8 (7.1)/ Crohns- 37.6 (4.8) | NR<br>NR<br>NR<br>NR                                                  | GUESS        |
| Feydy 2012           | Asymptomatic SpA<br>SpA with heel pain<br>Mechanical LBP | n=25 (12F/13M)<br>n=13 (3F/10M)<br>n=24 (12F/12M)      | 45<br>43<br>50                                                                   | NR<br>NR<br>NR                                                        | PA           |
| Fiorenza 2020        | Fibromyalgia<br>PsA+Fibromyalgia                         | n=23 (22F/1M)<br>n=78 (61F/17M)                        | 49 (IQR 20)<br>PsA- 56 (IQR 9); PsA+<br>Fibromyalgia- 53 (IQR 10)                | 28.12 (6.38)<br>PsA- 28.58 (6.75); PsA+<br>Fibromyalgia- 28.58 (4.48) | OMERACT      |
| Genc 2004            | HC<br>RA<br>AS                                           | n=20 (15F/5M)<br>n=24 (22F/2M)<br>n=18 (4F/14M)        | 42.6 (10.51) [28-61]<br>44.37 (7.44) [32-62]<br>41.38 (8.49) [29-60]             | 26.78 (3.16)<br>25.6 (3.45)<br>26.46 (3.67)                           | GUESS        |
| Guldborg-Moller 2018 | HC                                                       | n=64 (32F/32M)                                         | 39.8 (IQR 30.2, 49.7)                                                            | 24.1 (3.7)                                                            | OMERACT      |
| Huang 2011           | AS- group 1<br>AS- group 2                               | n=5 (0F/5M)<br>n=7 (1F/6M)                             | NR<br>NR                                                                         | 30.8 (8.1)<br>23.1 (5.5)                                              | GUESS        |
| Hussein 2014         | CKD                                                      | n=50 (27F/23M)                                         | 51.58 (12.5)                                                                     | NR                                                                    | PA           |
| Ishida 2019          | AS<br>HC                                                 | n=50 (10F/40M)<br>n=30 (7F/23M)                        | 43.44 (9.91)<br>38.7 (8.52)                                                      | 25.2 (4.93)<br>26.92 (10.01)                                          | MASEI        |
| Leung 2007           | AT<br>HC                                                 | n=21 (12F/9M)<br>n=50 (28F/22M)                        | 49.6 (14.6)<br>43.2 (14.1)                                                       | NR<br>NR                                                              | PA           |
| Macchioni 2019       | PsA<br>PsO<br>FMS                                        | n=140 (70F/70M)<br>n=51 (28F/23M)<br>n=51 (47F/4M)     | 48 [40-58]<br>51 [44-57]<br>50 [42-57]                                           | 25.6 [22-29]<br>27.1 [24.3-30.4]<br>23.4 [21.5-24.7]                  | GUESS        |
| Matteo 2018          | SLE<br>PsA<br>HC                                         | n=65 (60F/5M)<br>n=50<br>n=50                          | 41.8 (14)<br>NR<br>NR                                                            | 23.5 (4)<br>NR<br>NR                                                  | OMERACT      |
| McGonagle 2008       | Early SpA<br>Chronic SpA                                 | n=20 (8F/12M)<br>n=17 [8F/9M]                          | 43 [26-64]<br>52.8 [27-70]                                                       | NR<br>NR                                                              | OMERACT      |
| Michelson 2017       | PsA                                                      | n=141 (71F/70M)                                        | 52.4 (10.2)                                                                      | 28.3 (4.3)                                                            | OMERACT      |
| Mutlu 2020           | CKD<br>HC                                                | n=30 (13F/17M)<br>n=30 (11F/19M)                       | 46.7 (16)<br>52.8 (11)                                                           | NR<br>NR                                                              | PA           |
| Perrotta 2016        | PsA                                                      | n=21 (7F/14M)                                          | 50.2 (12.4)                                                                      | NR                                                                    | OMERACT      |
| Ryan 2010            | AT                                                       | n=22 tendons                                           | 54 (10.8)                                                                        | NR                                                                    | PA           |
| Seven 2020           | SpA                                                      | n=21 (9F/12M)                                          | 39.4 (9.4)                                                                       | NR                                                                    | OMERACT      |
| Tom 2019             | PsA<br>HC                                                | n=50 (20F/30M)<br>n=50 (21F/29M)                       | 55 (12.2)<br>55.1 (8.3)                                                          | 28.9 (4.8)<br>24.7 (3.8)                                              | OMERACT      |
| Ursini 2017          | T2DM<br>HC                                               | n=43 (18F/25M)<br>n=40 (19F/21M)                       | 60.8 (9.4)<br>58.4 (7.0)                                                         | 29.2 (4.8)<br>28.6 (3.7)                                              | PA           |
| Wervers 2018         | PsA (early)<br>PsA (established)<br>HC                   | n=25 (12F/13M)<br>n=25 (12F/13M)<br>n=25 (13F/12M)     | 50 [30-72]<br>44 [26-53]<br>22 [20-26]                                           | NR<br>NR<br>NR                                                        | MASEI        |
| Witrand 2017         | SpA                                                      | n=402 (207F/195M)                                      | 33.5 [26.7-39.4]                                                                 | NR                                                                    | OMERACT      |
| Woodburn 2012        | PsA<br>HC                                                | n=42 (25F/17M)<br>n=29 (18F/11M)                       | 45.3 (12.7)<br>40 (10.5)                                                         | NR<br>NR                                                              | GUESS        |
| Xie 2019             | PsA (early)<br>PsO<br>HC                                 | n=60 (27F/33M)<br>n=100 (45F/55M)<br>n=20 (9F/11M)     | 43.4 (15.2)<br>43.5 (18.1)<br>42.4 (16.7)                                        | 22.6 (2.6)<br>23.1 (2.3)<br>22.5 (3.4)                                | GUESS        |
| Zuliani 2019         | HC                                                       | n=20 (12F/8M)                                          | 47 (16)                                                                          | 24 (4.3)                                                              | OMERACT      |

PA: specified within the article; BUSES: Belgrade Ultrasound Enthesitis Score; GUESS: Glasgow Ultrasound Enthesitis Scoring System; MASEI: Madrid Sonography Enthesitis Index; OMERACT: Outcome Measure in Rheumatology Ultrasound Working Group.

**Supplementary Table S5.** Characteristics of included studies (looking at vascularity as a parameter).

| Author               | Population                                               | Participant demographics                                     | Mean age (std dev) [range]                                        | BMI (std dev)                                                         | Criteria     |
|----------------------|----------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------|--------------|
| Abate 2014           | AT<br>HC                                                 | n=45 (16F/29M)<br>n=45 (16F/29M)                             | 57.4 (4.2)<br>58.1 (5.1)                                          | 25.9 (3)<br>23.8 (2.8)                                                | GUESS        |
| Baccouche 2018       | SpA<br>Mechanical LBP                                    | n=40 (12F/28M)<br>n=20 (16F/4M)                              | 41.9 (14.3)<br>51.1 (11.5)                                        | NR<br>NR                                                              | OMERACT      |
| Bandinelli 2010      | IBD-associated<br>HC                                     | n=81 (43F/38M)<br>n=40 (22F/18M)                             | 41.3 (12.3) [18-68]<br>49.6 (11.1)                                | 22 (3.1)<br>24 (2)                                                    | GUESS        |
| Bandinelli 2013      | PsA<br>HC                                                | n=92 (51F/41M)<br>n=40 (22F/18M)                             | 51.6 (15.4)<br>49.6 (11.1)                                        | 22 (2.6)<br>24 (2)                                                    | GUESS        |
| Boesen 2012          | AT (badminton players)                                   | n=86 (30F/56M)                                               | 21.7 (5)                                                          | 22.8 (2.4)                                                            | PA           |
| Ebstein 2017         | RA<br>SpA<br>HC                                          | n=30 (25F/5M)<br>n=41 (13F/28M)<br>n=26 (17F/9M)             | 55.7 (14.8)<br>45.3 (15.4)<br>50.4 (17.3)                         | NR<br>NR<br>NR                                                        | GUESS, MASEI |
| Feydy 2012           | Asymptomatic SpA<br>SpA with heel pain<br>Mechanical LBP | n=25 (12F/13M)<br>n=13 (3F/10M)<br>n=24 (12F/12M)            | 45<br>43<br>50                                                    | NR<br>NR<br>NR                                                        | PA           |
| Fiorenza 2020        | PsA+Fibromyalgia<br><br>Fibromyalgia                     | n=78 (61F/17M)<br><br>n=23 (22F/1M)                          | PsA- 56 (IQR 9); PsA+<br>Fibromyalgia- 53 (IQR 10)<br>49 (IQR 20) | PsA- 28.58 (6.75); PsA+<br>Fibromyalgia- 28.58 (4.48)<br>28.12 (6.38) | OMERACT*     |
| Guldborg-Moller 2018 | HC                                                       | n=64 (32F/32M)                                               | 39.8 (IQR 30.2, 49.7)                                             | 24.1 (3.7)                                                            | OMERACT*     |
| Hamdi 2010           | AS                                                       | n=60 (12F/48M)                                               | 36(11) [20-74]                                                    | NR                                                                    | PA           |
| Harman 2017          | SpA<br>RA<br>HC                                          | n=40 (19F/21M)<br>n=27 (14F/13M)<br>n=15 (0F/15M)            | 43.37 (9.55)<br>45.63 (11.76)<br>42.13 (4.93)                     | 27.52 (3.95)<br>27.18 (5.23)<br>26.47 (3.65)                          | MASEI        |
| Huang 2011           | AS- group 1<br>AS- group 2                               | n=5 (0F/5M)<br>n=7 (1F/6M)                                   | NR<br>NR                                                          | 30.8 (8.1)<br>23.1 (5.5)                                              | GUESS        |
| Ishida 2019          | AS<br>HC                                                 | n=50 (10F/40M)<br>n=30 (7F/23M)                              | 43.44 (9.91)<br>38.7 (8.52)                                       | 25.2 (4.93)<br>26.92 (10.01)                                          | MASEI        |
| Li 2010              | AS<br>ReA<br>SpA<br>PsA                                  | n=50 (12F/38M)<br>n=10 (7F/3M)<br>n=5 (2F/3M)<br>n=5 (2F/3M) | 33 (10)<br>34 (9)<br>35 (11)<br>50 (16)                           | NR<br>NR<br>NR<br>NR                                                  | PA           |
| Macchioni 2019       | PsA<br>PsO<br>FMS                                        | n=140 (70F/70M)<br>n=51 (28F/23M)<br>n=51 (47F/4M)           | 48 [40-58]<br>51 [44-57]<br>50 [42-57]                            | 25.6 [22-29]<br>27.1 [24.3-30.4]<br>23.4 [21.5-24.7]                  | GUESS        |
| Mallarias 2008       | AT                                                       | n=13 (7F/6M)                                                 | 40 [25-57]                                                        | NR                                                                    | PA           |
| Matteo 2018          | SLE<br>PsA<br>HC                                         | n=65 (60F/5M)<br>n=50<br>n=50                                | 41.8 (14)<br>NR<br>NR                                             | 23.5 (4)<br>NR<br>NR                                                  | OMERACT*     |
| Michelson 2017       | PsA                                                      | n=141 (71F/70M)                                              | 52.4 (10.2)                                                       | 28.3 (4.3)                                                            | OMERACT*     |
| Perrotta 2016        | PsA                                                      | n=21 (7F/14M)                                                | 50.2 (12.4)                                                       | NR                                                                    | OMERACT      |
| Pistone 2015         | PsA                                                      | n=30                                                         | NR                                                                | NR                                                                    | GUESS        |
| Ryan 2010            | AT                                                       | n=22 tendons                                                 | 54 (10.8)                                                         | NR                                                                    | PA           |
| Seven 2020           | SpA                                                      | n=21 (9F/12M)                                                | 39.4 (9.4)                                                        | NR                                                                    | OMERACT*     |
| Tom 2019             | PsA<br>HC                                                | n=50 (20F/30M)<br>n=50 (21F/29M)                             | 55 (12.2)<br>55.1 (8.3)                                           | 28.9 (4.8)<br>24.7 (3.8)                                              | OMERACT*     |
| Ursini 2017          | T2DM<br>HC                                               | n=43 (18F/25M)<br>n=40 (19F/21M)                             | 60.8 (9.4)<br>58.4 (7.0)                                          | 29.2 (4.8)<br>28.6 (3.7)                                              | PA           |
| Weill 2013           | SpA<br>AT<br>HC                                          | n=12 (9F/3M)<br>n=15 (5F/10M)<br>n=10 (6F/4M)                | 38.5 [27-59]<br>47 [31-60]<br>41.5 [35-58]                        | NR<br>NR<br>NR                                                        | PA           |
| Wervers 2018         | PsA (early)<br>PsA (established)<br>HC                   | n=25 (12F/13M)<br>n=25 (12F/13M)<br>n=25 (13F/12M)           | 50 [30-72]<br>44 [26-53]<br>22 [20-26]                            | NR<br>NR<br>NR                                                        | MASEI        |
| Witrand 2017         | SpA                                                      | n=402 (207F/195M)                                            | 33.5 [26.7-39.4]                                                  | NR                                                                    | OMERACT*     |
| Woodburn 2012        | PsA<br>HC                                                | n=42 (25F/17M)<br>n=29 (18F/11M)                             | 45.3 (12.7)<br>40 (10.5)                                          | NR<br>NR                                                              | GUESS        |
| Xie 2019             | PsA (early)<br>PsO<br>HC                                 | n=60 (27F/33M)<br>n=100 (45F/55M)<br>n=20 (9F/11M)           | 43.4 (15.2)<br>43.5 (18.1)<br>42.4 (16.7)                         | 22.6 (2.6)<br>23.1 (2.3)<br>22.5 (3.4)                                | GUESS        |

PA: specified within the article; BUSES: Belgrade Ultrasound Enthesitis Score; GUESS: Glasgow Ultrasound Enthesitis Scoring System; MASEI: Madrid Sonography Enthesitis Index; OMERACT: Outcome Measure in Rheumatology Ultrasound Working Group (Wakefield 2005).

OMERACT\*: updated Outcome Measure in Rheumatology Ultrasound Working Group criteria utilising Doppler signal at <2mm from enthesitis (Balint 2018, Terslev 2014)

**Supplementary Table S6.** Characteristics of included studies (looking at erosions as a parameter).

| Author               | Population                                               | Participant demographics                                     | Mean age (std dev) [range]                                           | BMI (std dev)                                                         | Criteria     |
|----------------------|----------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------|--------------|
| Abate 2014           | AT<br>HC                                                 | n=45 (16F/29M)<br>n=45 (16F/29M)                             | 57.4(4.2)<br>58.1(5.1)                                               | 25.9(3)<br>23.8(2.8)                                                  | GUESS        |
| Ahmed 2017           | PsA                                                      | n=35 (20M/15F)                                               | 44.77 (10.11)                                                        | 26.42(4.8)                                                            | PA           |
| Baccouche 2018       | SpA<br>Mechanical LBP                                    | n=40 (12F/28M)<br>n=20 (16F/4M)                              | 41.9(14.3)<br>51.1(11.5)                                             | NR<br>NR                                                              | OMERACT      |
| Balint 2002          | SpA                                                      | n=35 (10F/25M)                                               | 48 (14)                                                              | NR                                                                    | GUESS        |
| Bandinelli 2010      | IBD-associated<br>HC                                     | n=81 (43F/38M)<br>n=40 (22F/18M)                             | 41.3 (12.3) [18-68]<br>49.6 (11.1)                                   | 22 (3.1)<br>24 (2)                                                    | GUESS        |
| Bandinelli 2013      | PsA<br>HC                                                | n=92 (51F/41M)<br>n=40 (22F/18M)                             | 51.6 (15.4)<br>49.6 (11.1)                                           | 22 (2.6)<br>24 (2)                                                    | GUESS        |
| Ebstein 2017         | RA<br>SpA<br>HC                                          | n=30 (25F/5M)<br>n=41 (13F/28M)<br>n=26 (17F/9M)             | 55.7(14.8)<br>45.3(15.4)<br>50.4(17.3)                               | NR<br>NR<br>NR                                                        | GUESS, MASEI |
| Feydy 2012           | Asymptomatic SpA<br>SpA with heel pain<br>Mechanical LBP | n=25 (12F/13M)<br>n=13 (3F/10M)<br>n=24 (12F/12M)            | 45<br>43<br>50                                                       | NR<br>NR<br>NR                                                        | PA           |
| Fiorenza 2020        | PsA+Fibromyalgia<br>Fibromyalgia                         | n=78 (61F/17M)<br>n=23 (22F/1M)                              | PsA- 56 (IQR 9); PsA+<br>Fibromyalgia- 53 (IQR 10)<br>49 (IQR 20)    | PsA- 28.58 (6.75); PsA+<br>Fibromyalgia- 28.58 (4.48)<br>28.12 (6.38) | OMERACT      |
| Genc 2004            | RA<br>AS<br>HC                                           | n=24 (22F/2M)<br>n=18 (4F/14M)<br>n=20 (15F/5M)              | 44.37 (7.44) [32-62]<br>41.38 (8.49) [29-60]<br>42.6 (10.51) [28-61] | 25.6 (3.45)<br>26.46 (3.67)<br>26.78 (3.16)                           | GUESS        |
| Guldborg-Moller 2018 | HC                                                       | n=64 (32F/32M)                                               | 39.8 (IQR 30.2, 49.7)                                                | 24.1 (3.7)                                                            | OMERACT      |
| Hamdi 2010           | AS                                                       | n=60 (12F/48M)                                               | 36 (11) [20-74]                                                      | NR                                                                    | PA           |
| Harman 2017          | SpA<br>RA<br>HC                                          | n=40 (19F/21M)<br>n=27 (14F/13M)<br>n=15 (0F/15M)            | 43.37 (9.55)<br>45.63 (11.76)<br>42.13 (4.93)                        | 27.52 (3.95)<br>27.18 (5.23)<br>26.47 (3.65)                          | MASEI        |
| Huang 2011           | AS- group 1<br>AS- group 2                               | n=5 (0F/5M)<br>n=7 (1F/6M)                                   | NR<br>NR                                                             | 30.8 (8.1)<br>23.1 (5.5)                                              | GUESS        |
| Ishida 2019          | AS<br>HC                                                 | n=50 (10F/40M)<br>n=30 (7F/23M)                              | 43.44 (9.91)<br>38.7 (8.52)                                          | 25.2 (4.93)<br>26.92 (10.01)                                          | MASEI        |
| Li 2010              | AS<br>SpA<br>ReA<br>PsA                                  | n=50 (12F/38M)<br>n=5 (2F/3M)<br>n=10 (7F/3M)<br>n=5 (2F/3M) | 33 (10)<br>35 (11)<br>34 (9)<br>50 (16)                              | NR<br>NR<br>NR<br>NR                                                  | PA           |
| Macchioni 2019       | PsA<br>PsO<br>FMS                                        | n=140 (70F/70M)<br>n=51 (28F/23M)<br>n=51 (47F/4M)           | 48 [40-58]<br>51 [44-57]<br>50 [42-57]                               | 25.6 [22-29]<br>27.1 [24.3-30.4]<br>23.4 [21.5-24.7]                  | GUESS        |
| Matteo 2018          | SLE<br>PsA<br>HC                                         | n=65 (60F/5M)<br>n=50<br>n=50                                | 41.8(14)<br>NR<br>NR                                                 | 23.5(4)<br>NR<br>NR                                                   |              |
| McGonagle 2008       | Early SpA<br>Chronic SpA                                 | n=20 (8F/12M)<br>n=17(8F/9M]                                 | 43 [26-64]<br>52.8 [27-70]                                           | NR<br>NR                                                              | OMERACT      |
| Michelson 2017       | PsA                                                      | n=141 (71F/70M)                                              | 52.4 (10.2)                                                          | 28.3 (4.3)                                                            | OMERACT      |
| Miguel 2011          | SpA                                                      | n=68 (35F/33M)                                               | 32 (7)                                                               | NR                                                                    | OMERACT      |
| Milutinovic 2017     | SpA                                                      | n=76 (27F/49M)                                               | 45.7 (11.9)                                                          | NR                                                                    | BUSES        |
| Perrotta 2016        | PsA                                                      | n=21 (7F/14M)                                                | 50.2 (12.4)                                                          | NR                                                                    | OMERACT      |
| Pistone 2015         | PsA                                                      | n=30                                                         | NR                                                                   | NR                                                                    | GUESS        |
| Serban 2020          | RA<br>HC                                                 | n=35 (30F/5M)<br>n=35 (30F/5M)                               | 59.2 (11.25)<br>58.91 (11.59)                                        | 26.49 (5.64)<br>25.72 (3.4)                                           | OMERACT      |
| Seven 2020           | SpA                                                      | n=21 (9F/12M)                                                | 39.4 (9.4)                                                           | NR                                                                    | OMERACT      |
| Tom 2019             | PsA<br>HC                                                | n=50 (20F/30M)<br>n=50 (21F/29M)                             | 55 (12.2)<br>55.1 (8.3)                                              | 28.9 (4.8)<br>24.7 (3.8)                                              | OMERACT      |
| Ursini 2017          | T2DM<br>HC                                               | n=43 (18F/25M)<br>n=40 (19F/21M)                             | 60.8 (9.4)<br>58.4 (7.0)                                             | 29.2 (4.8)<br>28.6 (3.7)                                              | PA           |
| Weill 2013           | SpA<br>AT<br>HC                                          | n=12 (9F/3M)<br>n=15 (5F/10M)<br>n=10 (6F/4M)                | 38.5 [27-59]<br>47 [31-60]<br>41.5 [35-58]                           | NR<br>NR<br>NR                                                        | PA           |
| Wervers 2018         | PsA (early)<br>PsA (established)<br>HC                   | n=25 (12F/13M)<br>n=25 (12F/13M)<br>n=25 (13F/12M)           | 50 [30-72]<br>44 [26-53]<br>22 [20-26]                               | NR<br>NR<br>NR                                                        | MASEI        |
| Witrand 2017         | SpA                                                      | n=402 (207F/195M)                                            | 33.5 [26.7-39.4]                                                     | NR                                                                    | OMERACT      |
| Woodburn 2012        | PsA<br>HC                                                | n=42 (25F/17M)<br>n=29 (18F/11M)                             | 45.3 (12.7)<br>40 (10.5)                                             | NR<br>NR                                                              | GUESS        |
| Xie 2019             | PsA (early)<br>PsO<br>HC                                 | n=60 (27F/33M)<br>n=100 (45F/55M)<br>n=20 (9F/11M)           | 43.4 (15.2)<br>43.5 (18.1)<br>42.4 (16.7)                            | 22.6 (2.6)<br>23.1 (2.3)<br>22.5 (3.4)                                | GUESS        |

PA: specified within the article; BUSES: Belgrade Ultrasound Enthesitis Score; GUESS: Glasgow Ultrasound Enthesitis Scoring System; MASEI: Madrid Sonography Enthesitis Index; OMERACT: Outcome Measure in Rheumatology Ultrasound Working Group.

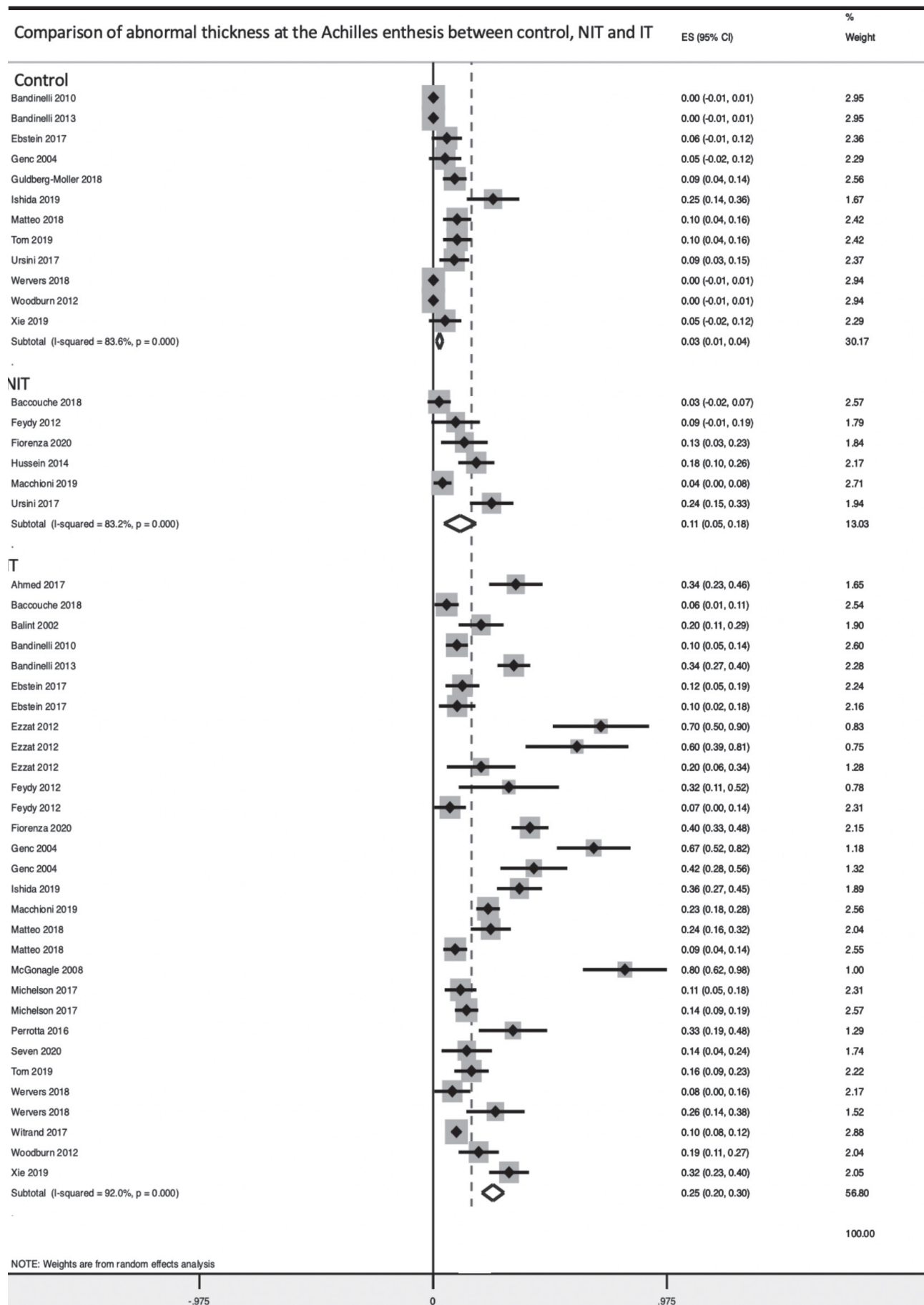
**Supplementary Table S7.** Assessment of study quality using the QUADAS-2 tool for bias.

|                      | Patient selection | Index test | Reference standard | Flow and timing |
|----------------------|-------------------|------------|--------------------|-----------------|
| Abate 2014           | Low               | Unclear    | Low                | Unclear         |
| Ahmed 2017           | Unclear           | Unclear    | Unclear            | Unclear         |
| Baccouche 2018       | Low               | Low        | Low                | Low             |
| Balint 2002          | Unclear           | Low        | Low                | Low             |
| Bandinelli 2010      | Unclear           | Low        | Low                | Low             |
| Bandinelli 2013      | Low               | Low        | Low                | Unclear         |
| Boesen 2012          | Low               | Low        | Low                | Low             |
| Comin                | Unclear           | Unclear    | Unclear            | Unclear         |
| Ebstein 2017         | Low               | Low        | Low                | Low             |
| Ezzat 2012           | Unclear           | Low        | Low                | Unclear         |
| Feydy 2012           | Unclear           | Low        | Low                | Low             |
| Fiorenza 2020        | Low               | Low        | Low                | Low             |
| Genc 2004            | Low               | Low        | Low                | Unclear         |
| Guldborg-Moller 2018 | Low               | Unclear    | Unclear            | Unclear         |
| Hamdi 2010           | Low               | Low        | Low                | Low             |
| Harman 2017          | Low               | Low        | Low                | Low             |
| Huang 2011           | Unclear           | Unclear    | Low                | Low             |
| Hussein 2014         | Unclear           | Unclear    | Unclear            | Low             |
| Ishida 2019          | Unclear           | Low        | Low                | Unclear         |
| Li 2010              | Unclear           | Low        | Low                | Low             |
| Leung                | Unclear           | High       | Low                | Unclear         |
| Macchioni 2019       | Unclear           | Low        | Low                | Low             |
| Mallarias 2008       | Unclear           | Low        | Low                | Low             |
| Matteo 2018          | Low               | Low        | Low                | Low             |
| McGonagle 2008       | Unclear           | Low        | Low                | Low             |
| Michelson 2017       | Low               | Low        | Low                | Low             |
| Miguel 2011          | Low               | Low        | Low                | Low             |
| Milutinovic 2017     | Low               | Low        | Low                | Low             |
| Mutlu 2020           | Low               | Unclear    | Unclear            | Unclear         |
| Perrotta 2016        | Unclear           | Low        | Low                | Low             |
| Pistone 2015         | Unclear           | Unclear    | Unclear            | Low             |
| Ryan 2010            | Unclear           | Unclear    | Low                | Low             |
| Serban 2020          | Low               | Low        | Unclear            | Unclear         |
| Seven 2020           | Low               | Low        | Unclear            | Low             |
| Tom 2019             | Unclear           | Low        | Unclear            | Unclear         |
| Ursini 2017          | Low               | Low        | Low                | Unclear         |
| Weill 2013           | Low               | Low        | Low                | Low             |
| Wervers 2018         | Low               | Low        | Low                | Unclear         |
| Witrand 2017         | Low               | Low        | Low                | Low             |
| Woodburn             | Low               | Unclear    | Unclear            | Unclear         |
| Xie 2019             | Unclear           | Low        | Low                | Unclear         |
| Zuliani 2019         | Low               | Low        | Low                | Unclear         |

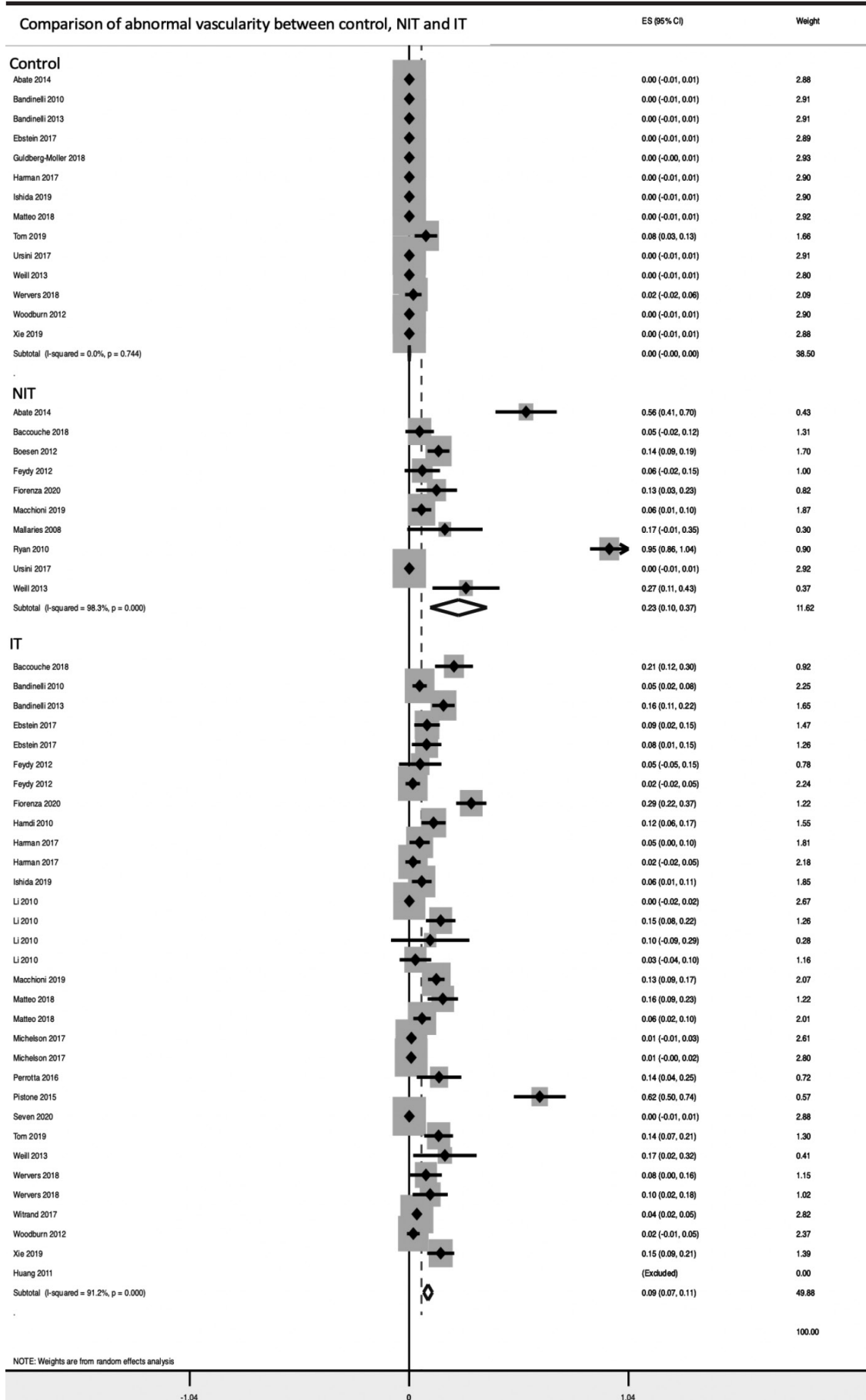
**Supplementary Table 8.** Assessment of study quality using the QUADAS-2 tool for applicability.

|                      | Patient selection | Index test | Reference standard |
|----------------------|-------------------|------------|--------------------|
| Abate 2014           | Low               | Low        | Low                |
| Ahmed 2017           | Low               | Low        | Low                |
| Baccouche 2018       | Low               | Low        | Low                |
| Balint 2002          | Low               | Low        | Low                |
| Bandinelli 2010      | Low               | Low        | Low                |
| Bandinelli 2013      | Low               | Low        | Low                |
| Boesen 2012          | Low               | Low        | Low                |
| Comin                | Low               | Low        | Low                |
| Ebstein 2017         | Low               | Low        | Low                |
| Ezzat 2012           | Low               | Low        | Low                |
| Feydy 2012           | Low               | Low        | Low                |
| Fiorenza 2020        | Low               | Low        | Low                |
| Genc 2004            | Low               | Low        | Low                |
| Guldborg-Moller 2018 | Low               | Low        | Low                |
| Hamdi 2010           | Low               | Low        | Low                |
| Harman 2017          | Low               | Low        | Low                |
| Huang 2011           | Low               | Low        | Low                |
| Hussein 2014         | Low               | Low        | Low                |
| Ishida 2019          | Low               | Low        | Low                |
| Li 2010              | Low               | Low        | Low                |
| Leung                | Low               | Low        | Low                |
| Macchioni 2019       | Low               | Low        | Low                |
| Mallarias 2008       | Low               | Low        | Low                |
| Matteo 2018          | Low               | Low        | Low                |
| McGonagle 2008       | Low               | Low        | Low                |
| Michelson 2017       | Low               | Low        | Low                |
| Miguel 2011          | Low               | Low        | Low                |
| Milutinovic 2017     | Low               | Low        | Low                |
| Mutlu 2020           | Low               | Low        | Low                |
| Perrotta 2016        | Low               | Low        | Low                |
| Pistone 2015         | Low               | Low        | Low                |
| Ryan 2010            | Low               | Low        | Low                |
| Serban 2020          | Low               | Low        | Low                |
| Seven 2020           | Low               | Low        | Low                |
| Tom 2019             | Low               | Low        | Low                |
| Ursini 2017          | Low               | Low        | Low                |
| Weill 2013           | Low               | Low        | Low                |
| Wervers 2018         | Low               | Low        | Low                |
| Witrand 2017         | Low               | Low        | Low                |
| Woodburn             | Low               | Low        | Low                |
| Xie 2019             | Low               | Low        | Low                |

**Supplementary Table S9.** Comparison of abnormal thickness between control, NIT and IT.



**Supplementary Table S10.** Comparison of abnormal vascularity between control, NIT and IT.



**Supplementary Table S11.** Comparison of abnormal erosions between control, NIT and IT.

