contains ten items of which the last three concerns tasks that some patients cannot and some do not perform. No manual for the use of ATRS has been developed. The purpose was to investigate how ATRS responds at 4, 6 and 12 months after rupture and develop a manual for the use of ATRS.

Materials and methods This study was performed as a retrospective registry study analysing prospectively gathered data from the Danish Achilles tendon Database. The data was gathered 4, 6 and 12 months after rupture. The original score based on 10 items was compared with a score based on the first 7 items adjusted to the same scale as the original score. Density- and scatterplots were made and differences between the scores were tested by t-test or Mann-Whitney U test.

Results 2790 completed ATRS scores were included. The 7-item score statistically significantly overestimated the value of the 10 items score at all time points (p<0.001) but only at 4 months the difference was clinical relevant (9.7 points).

Conclusion The ATRS cannot be recommended for use at 4 months past rupture, as the last 3 items skew the score. If the ATRS is used before 6 months the last three items could be omitted. A manual for the use of the ATRS will be developed defining how and when the score should be applied.

Introduction Elongation of the Achilles tendon after rupture is a frequent and overlooked complication. The Achilles Tendon Length Measure (ATLM) and the Achilles Tendon Resting Angle (ATRA) are indirect length measures using the resting angle of the ankle. Copenhagen Achilles Length Measure (CALM) is a direct ultrasound measure. Examination of the association of elongation to valid clinical measures of the length of the Achilles tendon are needed. The purpose was to examine the concurrent validity of ATLM and ATRA in relation to CALM within one year of rupture.

Materials and methods The study was performed as a validity study. Data were collected from patients included in a randomized controlled trial. Mixed linear regression, controlling for time after injury, age and gender, was performed investigating the three models (dependent-independent): CALM-ATRA, CALM-ATLM and ATRA-ATLM.

Results 130 patients were included (23 women, 107 men) mean age 41.8 years (SD 10.5). All three regression models demonstrated a statistical significant (p<0.01) linear relationship. For each degree ATRA increased, CALM increased with 1.7 mm. For each cm ATLM increase, ATRA increase with 1.6 degrees.

Conclusion ATRA and ATLM were found to have a linear relationship to CALM and seems valid as surrogate measurements for the assessment of tendon elongation after an Achilles tendon rupture.
including heading and non-heading exercises; they also completed two regular football sessions. For each accelerating event recorded, PLA, PRA and PRV outputs were compared to video recordings. Receiver operating characteristic curves were used to determine the sensor’s discriminatory capacity in both on-field settings, determining cut-off values for predicting outcomes.

Results For the laboratory tests, the random error was 11% for PLA, 20% for PRA and 5% for PRV, respectively; the systematic error was 11%, 19% and 5%. For the structured training protocol, heading events yielded higher absolute values (PLA=15.6±11.8 g) than non-heading events (PLA=4.6±1.2 g); the area under the curve (AUC) was 0.98 for PLA. In regular training sessions, AUC was >0.99 for PLA. A 9 g cut-off value yielded a positive predictive value of 100% in the structured training protocol, compared to only 65% in regular football sessions.

Conclusion The sensor displayed systematic overestimation with considerable random error. Despite excellent on-field accuracy for discriminating head-impacts from other accelerative events, secondary means of verifying events are still necessary.

Introduction Wearable sensor systems may be useful for measuring head-impact exposure. Here, we tested the validity of in-ear sensors developed to improve head coupling.

Methods First, the sensor was mounted to a Hybrid III headform (HIII) and impacted with a linear impactor or football. Peak linear acceleration (PLA), peak rotational acceleration (PRA) and peak rotational velocity (PRV) were obtained from both systems; random and systematic error were calculated using HIII as reference. Then, six youth football players wore sensors and performed a structured training protocol including heading and non-heading exercises; they also completed two regular football sessions. For each accelerating event recorded, PLA, PRA and PRV outputs were compared to video recordings. Receiver operating characteristic curves were used to determine the sensor’s discriminatory capacity in both on-field settings, determining cut-off values for predicting outcomes.

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Conclusion The sensor displayed systematic overestimation with considerable random error. Despite excellent on-field accuracy for discriminating head-impacts from other accelerative events, secondary means of verifying events are still necessary.