TITLE:

Achilles Tendons Measurements in Asymptomatic Saudi Subjects using High Frequency Ultrasound

AUTHOR INFORMATION:

Khalid S. Alzimami (PhD)[1*], Mustafa Z. Mahmoud (PhD)[2,3], Mohammed Alkhorayef (PhD)[1], A. M. M. Yousef (PhD)[2,4], Maram A. Fagiri (MSc)[3]

Khalid S. Alzimami (PhD)[1*]

[1*]King Saud University, College of Applied Medical Sciences, Department of Radiological Sciences, PO. Box: 10219, Zip Code: 11433, Riyadh- Saudi Arabia, kalzimami@ksu.edu.sa, Telephone No.: 00966114693571.

Mustafa Z. Mahmoud (PhD)[2,3]

[2]Prince Sattam bin Abdulaziz University, College of Applied Medical Sciences, Radiology and Medical Imaging Department, PO. Box: 422, Zip Code: 11942, Al-Kharj- Saudi Arabia, m.alhassen@sau.edu.sa, Telephone No.: 00966115886331.

[3]Sudan University of Science and Technology, College of Medical Radiological Sciences, Basic Sciences Department, PO. Box: 1908, Zip Code: 11111, Khartoum-Sudan, zuhairmustafa4@hotmail.com, Telephone No.: 00249183771818.

A. M. M. Yousef (PhD)[2,4]

[2]Prince Sattam bin Abdulaziz University, College of Applied Medical Sciences, Radiology and Medical Imaging Department, PO. Box: 422, Zip Code: 11942, Al Kharj- Saudi Arabia, ahmedyousef1435@yahoo.com, Telephone No.: 00966115886331.

[4]South Valley University, Faculty of Science, Physics Department, PO. Box: 83523, Qena- Egypt, ahmedyousef1435@yahoo.com, Telephone No.: 00966115886331.

Maram A. Fagiri (MSc)[3]

[3]Sudan University of Science and Technology, College of Medical Radiological Sciences, Basic Sciences Department, PO. Box: 1908, Zip Code: 11111, Khartoum-Sudan, maramfagiri@gmail.com, Telephone No.: 00249183771818.

ABSTRACT

INTRODUCTION:
Ultrasound is an excellent modality for initial imaging of suspected Achilles tendon pathology because of patient comfort during the examination, availability, and accuracy of the test in expert hands. This study was designed with an aim to measure Achilles tendons length, thickness, and cross sectional area in asymptomatic Saudi subjects to investigate possible changes of these measurements with different ages.

METHODS:
Prospective cohort study was performed between February 2014 and February 2015. A Hundred asymptomatic male between the ages of 14 and 65 years; mean age of 25±1.7 years were scanned at the Radiology and Medical Imaging Department of Prince Sattam bin Abdulaziz University. Ultrasound scans for Achilles tendons was performed using Hitachi HI Vision Avius ultrasound machine. Ultrasound scanning protocols met the standards established by the American Institute of Ultrasound in Medicine (AIUM) to measure Achilles tendons length, thickness, and cross sectional area. The statistical package for the social sciences (SPSS) was used to analyze the results.

RESULTS:
In the 100 Achilles tendons, the mean ± SD of length, thickness, and cross sectional area was 109.6 ± 2.1 mm, 4.1 ± 0.7 mm, and 53.9 ± 1.1 mm^2 respectively. Study results reveal also that there is no significant difference between the length and thickness with the cross sectional area of the Achilles tendons among different ages of subjects ($P \geq 0.05$). In males less than 45 years, Achilles tendons cross sectional area was significantly smaller than that in males of older age ($P \leq 0.05$).

DISCUSSION AND CONCLUSION:
Variations of the tendons morphological characteristics should be considered in the clinical diagnosis. Additional study correlates the Achilles tendons length, thickness, and cross sectional area to subject length is suggested.