

# ANTHROPOMETRY OF THE HUMAN SCAPHOID WAIST BY THREE DIMENSIONAL COMPUTED TOMOGRAPHY RECONSTRUCTION

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## Background

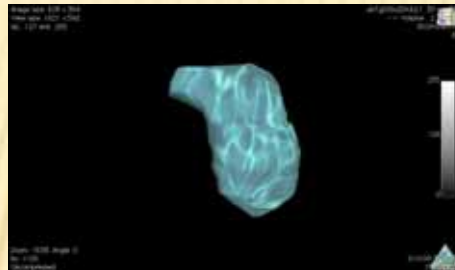
- Scaphoid fractures are very common in the active duty population
- Maximizing the clinical outcome after this injury is beneficial to maintaining military readiness
- Approximately 5-25% of scaphoid fractures can result in nonunion
- Possible poor outcomes with scaphoid nonunions in military population include: lost days at work, missed deployments, and possible early end of military service

## Methods

- Reviewed all pre-existing CT scans of scaphoid at NMCS D from Jan 2007 to May 2011
- Total of 44 patients met inclusion criteria
- All images were analyzed using the Osirix imaging program
- 3 physicians obtained 2 sets of measurements, at 2 separate sittings, to acquire desired data
- Primary measurements obtained: scaphoid waist in two dimensions (coronal and sagittal) and volume.

## Purpose

Provide average measurements of the scaphoid waist from CT scans of live subjects using novel 3-D imaging software



## Results

- The mean diameter in the sagittal plane was 1.1460cm  
Range 0.5450cm - 1.6540cm  
SD +/- 0.1911cm
- The mean diameter in the coronal plane was 0.8714cm  
Range 0.5860cm - 1.2030cm  
SD +/- 0.1265cm
- The mean volume of the scaphoid waist was 0.7246cm<sup>3</sup>  
Range 0.3153cm - 1.4048cm  
SD +/- 0.2340cm
- The mean volume of the scaphoid waist in **male** subjects was 0.8613cm<sup>3</sup>  
Range 0.4068 - 1.4048cm<sup>3</sup>  
SD +/- 0.2064cm<sup>3</sup>
- The mean volume of the scaphoid waist in **female** subjects was 0.5969cm<sup>3</sup>  
Range 0.3153 - 1.1928cm<sup>3</sup>  
SD +/- 0.1887cm<sup>3</sup>

## Conclusions and Future Directions

- ❖ First study to obtain anthropometric data of scaphoid waist from living subjects
- ❖ Gives surgeons tangible understanding of size and shape of human scaphoid waist
- ❖ This knowledge will be utilized for the selection of an autologous graft for the treatment of nonunions

