



DEPARTMENT OF THE ARMY
US ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND
NATICK SOLDIER RESEARCH DEVELOPMENT AND ENGINEERING CENTER
GENERAL GREENE AVENUE
NATICK MA 01760-5019

RDNS-SEW-THA

14 April 2017

MEMORANDUM FOR RECORD

SUBJECT: 2012 US Army Anthropometric Working Databases

Background

1. This memorandum outlines the contents of the ANSUR II Working Databases and provides a brief explanation of each variable contained in the databases. These databases and this memorandum have been reviewed and cleared for UNLIMITED PUBLIC RELEASE.

2. The 2012 US Army Anthropometric Survey (ANSUR II) was executed by the Natick Soldier Research, Development and Engineering Center (NSRDEC) from October 2010 to April 2012 and is comprised of personnel representing the total US Army force to include the US Army Active Duty, Reserves, and National Guard. In addition to the anthropometric and demographic data described below, the ANSUR II database also consists of 3D whole body, foot, and head scans of Soldier participants. These 3D data are not publicly available out of respect for the privacy of ANSUR II participants. The data from this survey are used for a wide range of equipment design, sizing, and tariffing applications within the military and has many potential commercial, industrial, and academic applications.

3. The ANSUR II working databases contain 93 anthropometric measurements which were directly measured, and 15 demographic/administrative variables explained below. The ANSUR II Male working database contains a total sample of 4,082 subjects. The ANSUR II Female working database contains a total sample of 1,986 subjects. The databases are reported in the associated spreadsheet files:

- a. "ANSUR II MALE Public.csv"
- b. "ANSUR II FEMALE Public.csv".

Data Content

4. **Demographic/Administrative Data:** The following variables are included in the ANSUR II working databases for each subject and were assigned to or collected from subjects at the time of their participation.

- **subjectid** – A unique number for each participant measured in the anthropometric survey, ranging from 10027 to 920103, not inclusive
- **SubjectBirthLocation** – Subject Birth Location; a U.S. state or foreign country
- **SubjectNumericRace** – Subject Numeric Race; a single or multi-digit code indicating a subject's self-reported race or races (verified through interview). Where 1 = White, 2 = Black, 3 = Hispanic, 4 = Asian, 5 = Native American, 6 = Pacific Islander, 8 = Other
- **Ethnicity** – self-reported ethnicity (verified through interview); e.g. "Mexican", "Vietnamese"
- **DODRace** – Department of Defense Race; a single digit indicating a subject's self-reported preferred single race where selecting multiple races is not an option. This variable is intended to be comparable to the Defense Manpower Data Center demographic data. Where 1 = White, 2 = Black, 3 = Hispanic, 4 = Asian, 5 = Native American, 6 = Pacific Islander, 8 = Other
- **Gender** – "Male" or "Female"
- **Age** – Participant's age in years
- **Heightin** – Height in Inches; self-reported, comparable to measured "stature"
- **Weightlbs** – Weight in Pounds; self-reported, comparable to measured "weightkg"
- **WritingPreference** – Writing Preference; "Right hand", "Left hand", or "Either hand (No preference)"
- **Date** – Date the participant was measured, ranging from "04-Oct-10" to "05-Apr-12"
- **Installation** – U.S. Army installation where the measurement occurred; e.g. "Fort Hood", "Camp Shelby"

- **Component** – “Army National Guard”, “Army Reserve”, or “Regular Army”
- **Branch** – “Combat Arms”, “Combat Support”, or “Combat Service Support”
- **PrimaryMOS** – Primary Military Occupational Specialty

5. **Anthropometric Data:** the following variables are included in the ANSUR II working databases for each subject and were directly-measured dimensions of the participant’s body. All measurements are recorded in millimeters with the exception of the variable “weightkg”.

- **abdominalextensiondepthsitting** – Abdominal Extension Depth, Sitting
- **acromialheight** – Acromial Height
- **acromionradialelength** – Acromion-Radiale Length
- **anklecircumference** – Ankle Circumference
- **axillaheight** – Axilla Height
- **balloffootcircumference** – Ball of Foot Circumference
- **balloffootlength** – Ball of Foot Length
- **biacromialbreadth** – Biacromial Breadth
- **bicepscircumferenceflexed** – Biceps Circumference, Flexed
- **bicristalbreadth** – Bicristal Breadth
- **bideltoidbreadth** – Bideltoid Breadth
- **bimalleolarbreadth** – Bimalleolar Breadth
- **bitragionchinarc** – Bitragion Chin Arc
- **bitragionsubmandibulararc** – Bitragion Submandibular Arc
- **bizygomaticbreadth** – Bizygomatic Breadth

- **buttockcircumference** – Buttock Circumference
- **buttockdepth** – Buttock Depth
- **buttockheight** – Buttock Height
- **buttockkneelength** – Buttock-Knee Length
- **buttockpopliteallength** – Buttock-Popliteal Length
- **calfcircumference** – Calf Circumference
- **cervicaleheight** – Cervical Height
- **chestbreadth** – Chest Breadth
- **chestcircumference** – Chest Circumference
- **chestdepth** – Chest Depth
- **chestheight** – Chest Height
- **crotchheight** – Crotch Height
- **crotchlengthomphalion** – Crotch Length (Omphalion)
- **crotchlengthposterioromphalion** – Crotch Length, Posterior (Omphalion)
- **earbreadth** – Ear Breadth
- **earlength** – Ear Length
- **earprotrusion** – Ear Protrusion
- **elbowrestheight** – Elbow Rest Height
- **eyeheightsitting** – Eye Height, Sitting

- **footbreadthhorizontal** – Foot Breadth, Horizontal
- **footlength** – Foot Length
- **forearmcenterofgriplength** – Forearm-Center of Grip Length
- **forearmcircumferenceflexed** – Forearm Circumference, Flexed
- **forearmforearmbreadth** – Forearm-Forearm Breadth
- **forearmhandlength** – Forearm -Hand Length
- **functionalleglength** – Functional Leg Length
- **handbreadth** – Hand Breadth
- **handcircumference** – Hand Circumference
- **handlength** – Hand Length
- **headbreadth** – Head Breadth
- **headcircumference** – Head Circumference
- **headlength** – Head Length
- **heelanklecircumference** – Heel-Ankle Circumference
- **heelbreadth** – Heel Breadth
- **hipbreadth** – Hip Breadth
- **hipbreadthsitting** – Hip Breadth, Sitting
- **iliocristaleheight** – Iliocristale Height
- **interpupillarybreadth** – Interpupillary Breadth
- **interscyei** – Interscye I

- **interscyeii** – Interscye II
- **kneeheightmidpatella** – Knee Height, Midpatella
- **kneeheightsitting** – Knee Height, Sitting
- **lateralfemoralepicondyleheight** – Lateral Femoral Epicondyle Height
- **lateralmalleolusheight** – Lateral Malleolus Height
- **lowerthighcircumference** – Lower Thigh Circumference
- **mentonsellionlength** – Menton-Sellion Length
- **neckcircumference** – Neck Circumference
- **neckcircumferencebase** – Neck Circumference, Base
- **overheadfingertipreachsitting** – Overhead Fingertip Reach, Sitting
- **palmlength** – Palm Length
- **poplitealheight** – Popliteal Height
- **radialestylionlength** – Radiale-Stylion Length
- **shouldercircumference** – Shoulder Circumference
- **shoulderelbowlength** – Shoulder-Elbow Length
- **shoulderlength** – Shoulder Length
- **sittingheight** – Sitting Height
- **sleevelengthspinewrist** – Sleeve Length: Spine-Wrist
- **sleeveoutseam** – Sleeve Outseam

- **span** - Span
- **stature** - Stature
- **suprasternaleheight** – Suprasternale Height
- **tenthribheight** – Tenth Rib Height
- **thighcircumference** – Thigh Circumference
- **thighclearance** – Thigh Clearance
- **thumbtipreach** – Thumbtip Reach
- **tibialheight** – Tibiale Height
- **tragiontopofhead** – Tragion-Top of Head
- **trochanterionheight** – Trochanterion Height
- **verticaltrunkcircumferenceusa** – Vertical Trunk Circumference (USA)
- **waistbacklength** – Waist Back Length (Omphalion)
- **waistbreadth** – Waist Breadth
- **waistcircumference** – Waist Circumference (Omphalion)
- **waistdepth** – Waist Depth
- **waistfrontlengthsitting** – Waist Front Length, Sitting
- **waistheightomphalion** – Waist Height (Omphalion)
- **weightkg** – Weight (in kg*10)
- **wristcircumference** – Wrist Circumference
- **wristheight** – Wrist Height

Recommendations

6. The ANSUR II working databases are a representative sample of the US Army at the time of data collection and may or may not be representative of other populations of interest, to include later instances of the US Army. Other US military services maintain anthropometric databases of their service members which are distinct from the US Army’s anthropometric databases (ANSUR II). The US Army also maintains separate anthropometric databases representing Male and Female US Army pilots which are distinct from ANSUR II.

7. The ANSUR II working databases are presented as two separate databases – one Female, one Male. In almost all cases, these databases should be treated and analyzed separately. Combination of the databases will result in a sample that is not representative of any real population and could easily lead to erroneous conclusions.

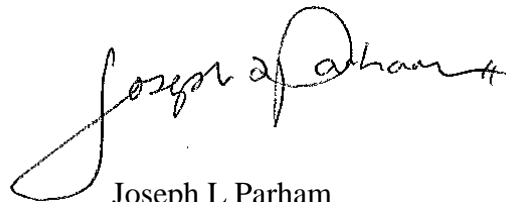
8. Much more information about the data collection methodology and content of the ANSUR II Working Databases may be found in the following Technical Reports, available from the Defense Technical Information Center (www.dtic.mil) through the hyperlinks provided:

- a. [2010-2012 Anthropometric Survey of U.S. Army Personnel: Methods and Summary Statistics. \(NATICK/TR-15/007\)](#)
- b. [Measurer’s Handbook: US Army and Marine Corps Anthropometric Surveys, 2010-2011 \(NATICK/TR-11/017\)](#)

9. The primary POC for the ANSUR II working databases is Joseph L Parham, Research Anthropologist, Email: joseph.l.parham2.civ@mail.mil.



Steven P Paquette
Anthropometry Team Leader
Natick RD&E Center, Natick, MA



Joseph L Parham
Research Anthropologist
Natick RD&E Center, Natick, MA