Three-Dimensional (3D) Anthropometric Data Acquisition and Analysis

What It Is:

What is the geometry of a body shape? And how do body shapes differ among different human populations? These questions are answered in a branch of research known as three-dimensional anthropometry.

Why It's Needed:

We need information about human shape differences to optimize the fit of military clothing and equipment.

How It Works:

Step 1. Collect accurate 3-D data of the body.

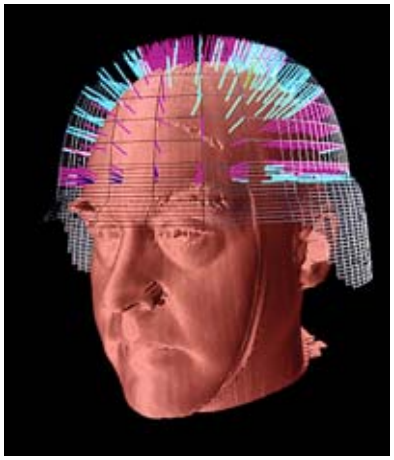
Using laser-based digitizing systems purchased from Cyberware, Inc., we record the three-dimensional (3-D) shape of a soldier's body surface.
A head-and-face scanner gives us 3-D data on a single head; a whole-body system lets us scan 95% of a standing person's body.

Step 2. Use the data to make models of the human form.

We're finding the best methods for analyzing and summarizing our 3-D surface data-and from that information we'll derive models of the human form that represent all the body shape differences in the Army.

Step 3. Use computer software to design clothes and make prototypes.

3-D models of the human form can be imported to commercially available computer-aided design (CAD) software. CAD lets us design and quickly prototype new clothing concepts.
The Army is developing computer-aided fit testing (CAFT) software that helps us evaluate how well clothing and equipment fits the human wearer — before we begin prototyping. We're also using our ability to rapidly scan the whole body (see Step 1) in new software that will provide standard body dimensions and body surface area for clothing design.



Benefits:

Less Time, Less Money…We can collect 3-D data quickly and accurately, and we can use that data in computerized design-two fast, cost effective tools for developing military clothing and equipment.

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