VA-DXAMOI Background

VA-DXAMOI is a Matlab-based software package used to calculate the density-weighted moment of inertia from a DXA scan of cross-sections perpendicular to the longitudinal axis of the femur. MATLAB is required to use the software. VA-DXAMOI was developed to process raw data acquired from a Hologic QDR-1000W pencil-beam scanner. At this point in time, the software will not work with data acquired using scanners made by GE/Lunar, Norland or others manufacturers, nor with data acquired using Hologic fan beam scanners. The software may work with data acquired using a Hologic QDR-2000 pencil-beam scanner, but we have not confirmed that ourselves. Also note that VA-DXAMOI was validated using scans of the distal half of human cadaver femurs scanned in a water bath to simulate the presence of soft tissue. The software should work for other human and animal long bones, although validation studies for other bones have not yet been conducted. While the software has only been validated from *in vitro* scans, we believe it will also work for *in vivo* scanning. Note that if scanning the distal femur *in vivo,* the section to be analyzed must not include any portion of the patella. The software should work equally well for cross-sections from just proximal to the patella up to the lesser trochanter.

1. While every attempt has been made to eliminate errors in programming and logic, we do not guarantee the accuracy of this code. Any errors brought to our attention will be corrected when future versions of VA-DXAMOI are developed.

2. While we support distribution of this software, we can not be responsible for the integrity of the source code. The most current version of the software can be obtained at https://simtk.org/projects/va-dxamoi

3. If you modify the source code in any way, please clearly indicate (with comments in the code and in the documentation) exactly what you have changed. If you believe your addition may help other researchers, please let us know about it. If appropriate, we will include it (with proper credit) in future versions of VA-DXAMOI.

4. If you publish or present any results obtained with the help of VA-DXAMOI, we ask that you acknowledge its use. We ask that you reference the following article:

   Baker AM, Wagner DW, Kiratli BJ, Beaupre GS: Pixel-Based DXA-Derived Structural Properties Strongly Correlate with pQCT Measures at the One-Third Distal Femur Site. *Annals of Biomedical Engineering,* In Press.

5. Finally, if you have any suggestions or comments about VA-DXAMOI, please let us know.

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