

University of Windsor

Scholarship at UWindsor

UWill Discover Undergraduate Conference

UWill Discover 2017

Mar 31st, 1:00 PM - 2:00 PM

Iliac crest and greater trochanter soft tissue thicknesses of living people from whole body DXA scans

Zoe E. Ellis
ellis119@uwindsor.ca

Danielle L. Gyemi
gyemid@uwindsor.ca

Andrew C. Laing
Department of Kinesiology, University of Waterloo

David M. Andrews
Department of Kinesiology, University of Windsor, dandrews@uwindsor.ca

Follow this and additional works at: <https://scholar.uwindsor.ca/uwilldiscover>

Ellis, Zoe E.; Gyemi, Danielle L.; Laing, Andrew C.; and Andrews, David M., "Iliac crest and greater trochanter soft tissue thicknesses of living people from whole body DXA scans" (2017). *UWill Discover Undergraduate Conference*. 1.
<https://scholar.uwindsor.ca/uwilldiscover/2017/posters2017/1>

This Event is brought to you for free and open access by the Conferences and Conference Proceedings at Scholarship at UWindsor. It has been accepted for inclusion in UWill Discover Undergraduate Conference by an authorized administrator of Scholarship at UWindsor. For more information, please contact scholarship@uwindsor.ca.

The soft tissues overlying the hip joint have been shown to play a protective role during hip impacts. Documenting the thickness of the soft tissues surrounding the hip in a large sample of living men and women of different ages has not been completed previously, due in part to the high cost and limited availability of imaging approaches such as Dual Energy X-ray Absorptiometry (DXA). Therefore, the purpose of this study was to determine the thickness of the soft tissues overlying the iliac crest (IC) and greater trochanter (GT) bilaterally for female and male participants across a range of ages. A total of 203 participants (102 females, 101 males) from 17 to 66 years of age underwent full body DXA scans (supine). Using anatomical landmarks visible on the DXA scan images, bilateral measurements of IC and GT soft tissue thickness were taken in the horizontal plane by a trained measurer. Significant differences in IC and GT soft tissue thickness ($p < 0.05$) were found between the left (L) and right (R) sides of the body (IC: L = 2.95 ± 1.80 cm; R = 3.32 ± 1.88 cm; GT: L = 4.03 ± 1.83 cm; R = 4.32 ± 1.87 cm, respectively). Significant main effects for sex (female, male) and age group (younger, older) and a significant interaction effect of sex and age group were found for the left and right IC and GT soft tissue thicknesses ($p < 0.05$). There was also a significant positive correlation between left and right IC and GT ($r = 0.810$ and $r = 0.815$, respectively). This work is the first step towards establishing regression equations to predict IC and GT soft tissue thickness for different populations of living people. Equations such as these will help researchers to quantify protective measures such as soft tissue thicknesses more efficiently and cost effectively than by using more expensive imaging technologies such as DXA.