Bio-electrical impedance (BEI) is now widely used for estimation of body composition in a variety of fields including clinical nutrition, public health nutrition, and exercise physiology. We have previously shown (Reilly et al, In Press) that one of the more commonly used predictive equations for estimation of body fat percentage (BF%) in elderly subjects systematically overestimates fatness, and that more generally applicable software (Cranlea & Co. Ltd.) predicted fatness with less bias and narrower limits of agreement. In the present study we tested the hypothesis that estimation of fatness might be improved by use of commercial age-specific impedance software (Bodystat Ltd.).

In 35 healthy elderly subjects (19 men, 16 women, mean age 70, SD 4 years) body fatness was measured using hydrodensitometry and estimated using the Bodystat 500 system which employs standard tetrapolar technique and single frequency (50 KHZ). In the men BEI tended to slightly overestimate BF% (95% C.I. + 3.5 to + 0.1 BF%); but the bias (+1.8) and limits of agreement (+6.8) were considerably smaller than we found previously using alternative commercially available impedance software or published equations (Reilly et al, In Press). In the women the bias was in the same direction (+4 BF%) and limits of agreement were wider (+14.2) than in the men, but the agreement with hydrodensitometry was better than for some published equations and similar to that previously reported for other commercial software.

We conclude that accuracy of prediction of body fatness in elderly subjects can be improved by use of age-specific regression equations.