Extension of the Bone Health Index to adults

and reference curves of four indices of cortical bone for healthy Europeans

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Background

The BoneXpert method for automated determination of bone age from hand X-rays includes a determination of the Bone Health Index (BHI) from the cortical thickness in the metacarpals (1).

Aim

To extend the BHI method into adulthood and to present reference curves for

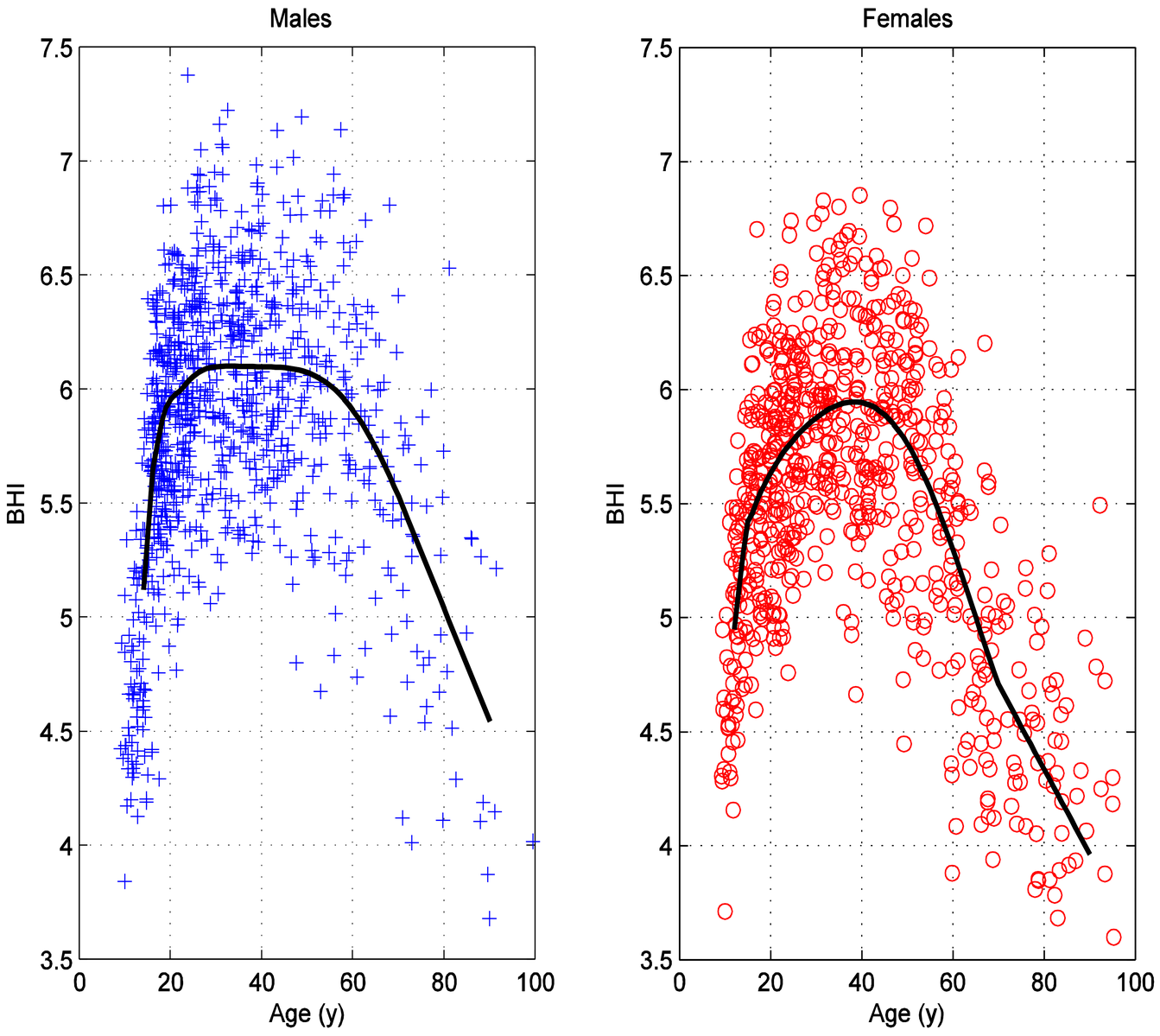
- BHI
- The metacarpal index
- The Exton-Smith index
- The volume-per-area (proportional to areal BMD)

Results

BHI was found to have smaller relative SD than the other three indices in the Jena cohort over the age range 20-80 years (2).

Methods and material

The reference curves were based on a cross-sectional study of 1662 hand radiographs of healthy subjects of age 9-100 years collected in Jena in 2001-5.



Conclusions

It is now possible to follow paediatric patients at risk of poor bone health from childhood into adulthood with the same method.

For instance, it can be useful for monitoring treatment effects of GH therapy for transition patients with GH deficiency until peak bone mass. The relevance of cortical thickness in this context has been demonstrated (3), and the new implementation in BoneXpert makes this assessment readily available to clinicians.

Disclosure: HHT is the owner of Visiana, which markets BoneXpert

References

(1) Thodberg HH, van Rijn R, Tanaka T, Martin DD, Kreiborg S: **A paediatric bone index derived by automated radiogrammetry**, Osteoporosis Int. 21, pp 1391-1400 (2009)

(2) Thodberg HH, Böttcher J, Lomholt J, Kreiborg S, Wolf G, Pfeil A: **A new implementation of digital X-ray radiogrammetry and reference curves of four indices of cortical bone for healthy European adults**. Archives of Osteoporosis, epub Apr 26 (2016)

(3) Hyldstrup L, Conway GS, et al: **Growth hormone effects on cortical bone dimensions in young adults with childhood-onset growth hormone deficiency**. Osteoporos Int 23, pp 2219-26 (2012)

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