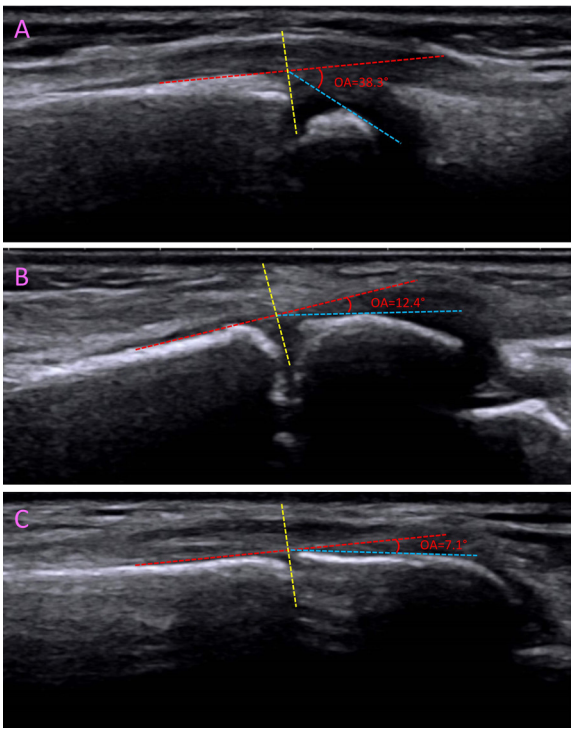

Figure S1 Measurement of the OA at the distal radius. (A-C) Representative ultrasonographic images show the OA in girls of different ages. The red line is the baseline along the diaphyseal margin. The yellow line is a perpendicular from the furthest point of the diaphysis to the baseline. The blue line is the tangent from this intersection point to the secondary ossification center. The OA is formed between the blue tangent line and the red baseline. (A) Ultrasonographic image of a 5-year-old girl demonstrating a large OA (38.8°). Note the small secondary ossification center and the extensive cartilaginous epiphysis. (B) Ultrasonographic image of a 10-year-old girl demonstrating a moderate OA (12.4°). The secondary ossification center has expanded considerably compared to (A). (C) Ultrasonographic image of a 13-year-old girl demonstrating a small (7.1°). The secondary ossification center nearly covers the entire epiphysis, and the cartilaginous zone is thin. OA, ossification angle.

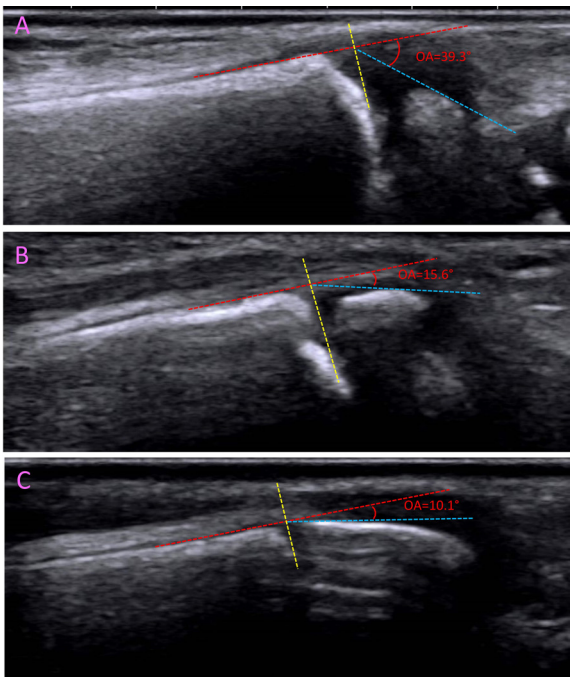

Figure S2 Measurement of the OA at the distal ulna. (A-C) Representative ultrasonographic images show the ossification angle in girls of different ages. The red line is the baseline along the diaphyseal margin. The yellow line is a perpendicular from the furthest point of the diaphysis to the baseline. The blue line is the tangent from this intersection point to the secondary ossification center. The OA is formed between the blue tangent line and the red baseline. (A) Ultrasonographic image of a 5-year-old girl with an OA of 39.3°. (B) Ultrasonographic image of a 10-year-old girl with an OA of 15.6°. (C) Ultrasonographic image of a 13-year-old girl with an OA of 10.1°. OA, ossification angle.

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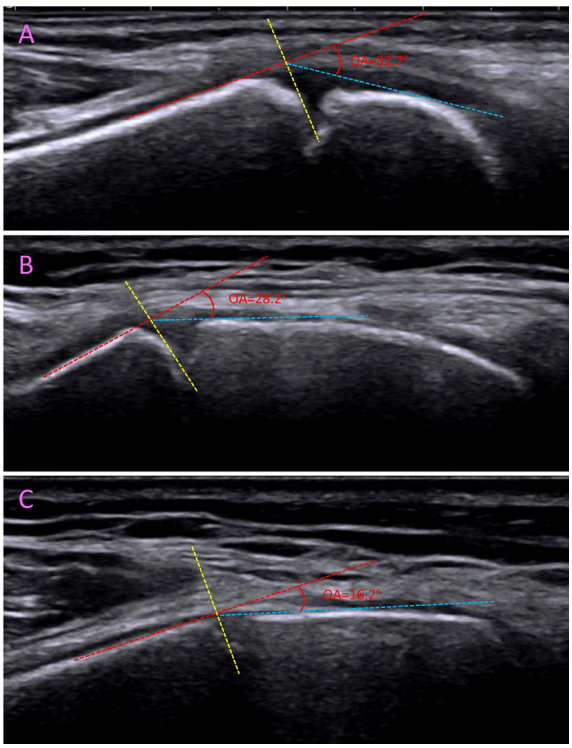

Figure S3 Measurement of the OA at the medial femoral condyle. (A-C) Representative ultrasonographic images show the ossification angle in girls of different ages. The red line is the baseline along the diaphyseal margin. The yellow line is a perpendicular from the furthest point of the diaphysis to the baseline. The blue line is the tangent from this intersection point to the secondary ossification center. The OA is formed between the blue tangent line and the red baseline. (A) Ultrasonographic image of a 5-year-old girl with an OA of 32.7°. (B) Ultrasonographic image of a 10-year-old girl with an OA of 28.2°. (C) Ultrasonographic image of a 13-year-old girl with an OA of 16.2°. OA, ossification angle.

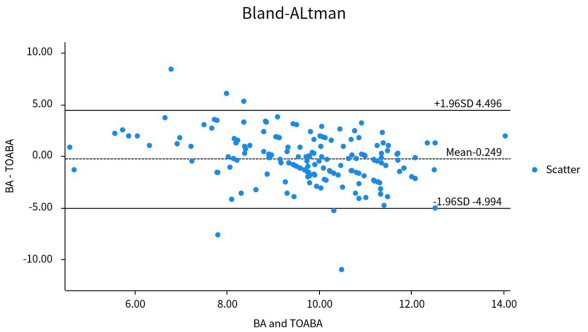

Figure S4 Bland-Altman plot for the TOA-based BA prediction model versus the TW3 standard. BA, bone age; SD, standard deviation; TOA, total ossification angle; TW3, Tanner-Whitehouse 3.

Table S1 Inter- and Intra-observer agreement for ultrasonographic measurements

Measurement site & parameter	Intra-observer ICC (95% CI)	Inter-observer ICC (95% CI)
Distal radius		
OA	0.993–0.998	0.988–0.996
OR	0.851–0.966	0.887–0.960
Distal ulna		
OA	0.988–0.997	0.997–0.999
OR	0.993–0.998	0.982–0.994
Medial femoral condyle (Left)		
OA	0.935–0.985	0.989–0.996
OR	0.733–0.940	0.937–0.978

CI, confidence interval; ICC, intraclass correlation coefficient; OA, ossification angle; OR, ossification ratio; SMS, skeletal maturity score; TOA, total ossification angle.

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