

Fig. E-1  
 Transparent three-dimensional pelvic model simulating the anteroposterior pelvic view. The pelvic tilt was standardized according to the method described by Siebenrock et al.<sup>38</sup>, with a symphysis-to-sacrococcygeal joint distance of approximately 32 mm in men and 47 mm in women. Neither hip shows a crossover sign (the anterior acetabular rim [red dotted line] does not cross the posterior rim [blue dotted line]) or ischial spine projection (ischial spine [green dotted line] does not project into the pelvic cavity).

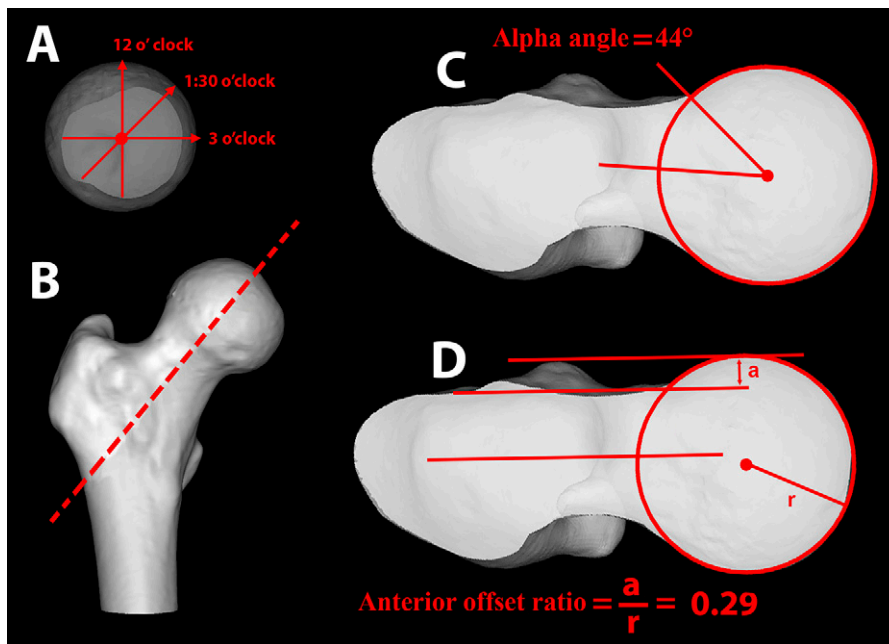


Fig. E-2  
**Fig. E-2A** For the objectivation of the femoral head-neck junction, three cuts were simulated along the femoral neck axis: the lateral head-neck junction at the 12 o'clock position, anterolateral at 1:30 o'clock, and anterior at 3 o'clock. **Fig. E-2B** Frontal view of the proximal part of the femur: the dashed line represents the oblique plane through the femoral neck along which a cut is simulated at the 3 o'clock position, thereby revealing the anterior head-neck junction. **Fig. E-2C** Alpha angle<sup>28</sup> measurement on this 3 o'clock slice. **Fig. E-2D** Anterior offset ratio<sup>29</sup> measured on this 3 o'clock slice.



Fig. E-3  
The acetabular anteversion angle is the angle between a line drawn between the anterior and posterior acetabular ridges and a reference line drawn perpendicular to a line between the posterior pelvic margins at the level of the sciatic notch (on an axial CT image)<sup>31</sup>.

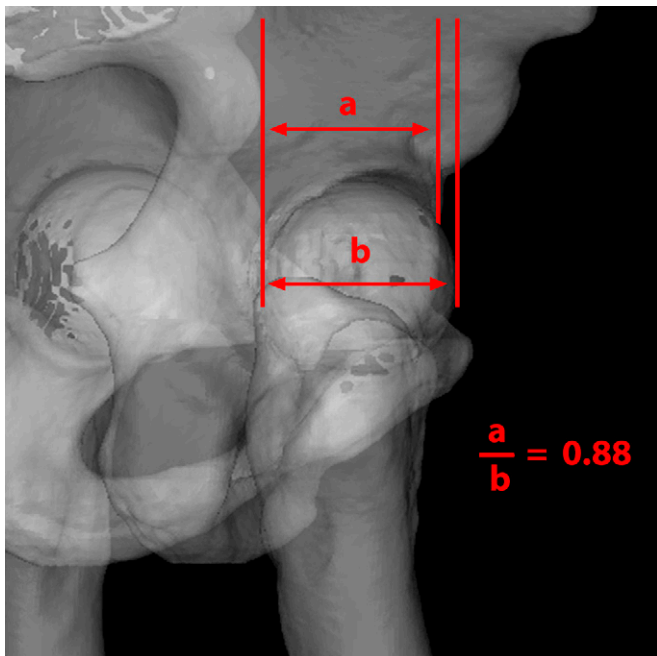


Fig. E-4  
The anterior acetabular head index was measured as a ratio between a horizontal line drawn from the most posterior aspect of the femoral head to the anterior aspect of the acetabulum (a) and a horizontal line drawn from the most posterior aspect of the femoral head to the most anterior aspect of the head (b) (on a false-profile view)<sup>37</sup>.

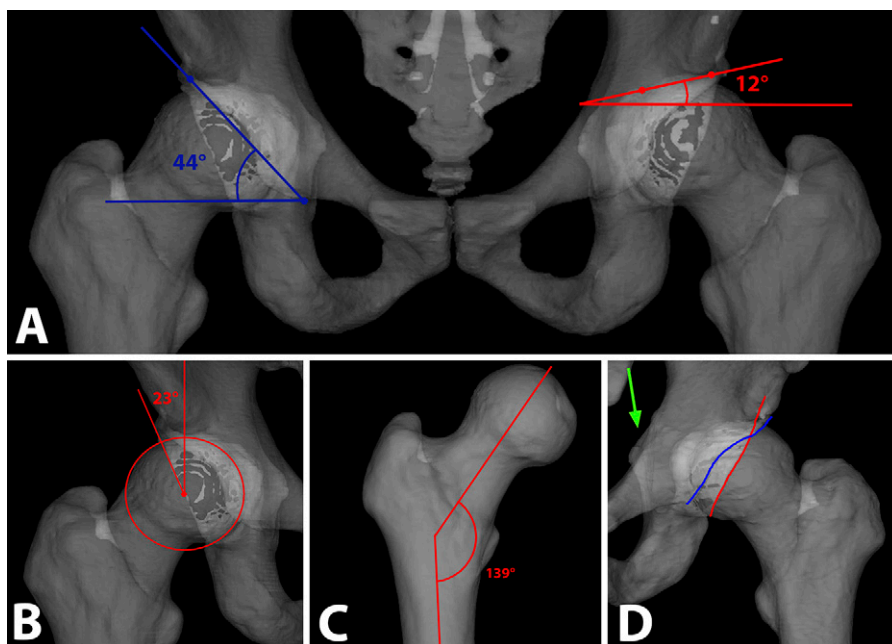


Fig. E-5

Demonstration of the measured indices on the transparent anteroposterior pelvic view. **Fig. E-5A** Acetabular angle of Sharp<sup>35</sup> measured on the right hip (blue), and the Tönnis angle<sup>36</sup> measured on the left hip (red). **Fig. E-5B** Center-edge angle of Wiberg<sup>34</sup>. **Fig. E-5C** CCD angle<sup>30</sup>. **Fig. E-5D** Left hip displaying ischial spine projection<sup>33</sup> (green arrow) and a positive crossover sign<sup>32</sup> with the anterior acetabular wall (blue line) crossing the posterior acetabular wall (red line).

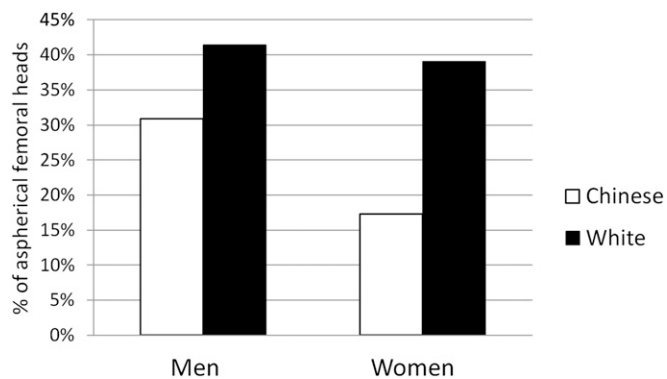


Fig. E-6

Percentages of hip joints with an aspherical femoral head at the head-neck junction in Chinese and white subjects, classified by sex. Asphericity was determined by an alpha angle exceeding 55° in the 12, 1:30, or 3 o'clock position (lateral, anterolateral, or anterior position).

<b>TABLE E-1 Ages of Chinese and White Subjects</b>				
	Chinese Men	White Men	Chinese Women	White Women
No. of hips	94	116	110	82
Age* (yr)	32 (30-33)	30 (29-32)	32 (31-34)	33 (31-34)
*The values are given as the mean and 95% confidence interval.				

<b>TABLE E-2 Interobserver and Intraobserver Repeatability of Measurements of the Ten Radiographic Features of Femoroacetabular Impingement</b>		
Radiographic Parameters	Interobserver Agreement (ICC)	Intraobserver Agreement (ICC)
Proximal part of femur		
Alpha angle: 1:30 o'clock	0.77	0.96
Anterior offset ratio	0.77	0.87
CCD angle	0.97	0.997
Acetabulum		
Central acetabular anteversion	0.92	0.95
Crossover sign	1	1
Ischial spine projection	0.91	1
Center-edge angle	0.81	0.92
Acetabular angle of Sharp	0.78	0.88
Tönnis angle	0.72	0.84
Anterior acetabular head index	0.86	0.95