

3D-echo: more information

Advanced neurosonography is used to study the fetal brain development. Pregnant women are invited for measurements between the 21st and 24th week of gestational age and between the 28th and 32th week of gestational age. 3D ultrasound volume datasets are obtained transabdominally by experienced sonographers, using a Voluson E10 (GE Healthcare, Zipf, Austria) ultrasound machine with a 2 – 6-MHz convex probe (RM6C). To acquire a 3D-ultrasound image, the probe sends out a sweep with sound waves at different angles. The returning echoes are processed and reconstructed in a multiplanar view of the three two-dimensional (2D) orthogonal planes. Five volume sweeps of the fetal brain are obtained from each participant; two volumes are acquired from the axial plane (transthalamic and transcerebellar), two from the coronal plane (transthalamic and transcerebellar), and one from the midsagittal plane. The angle of the sweeps is set at 65° and the maximum quality of acquisition is selected. The sweeps are stored for offline interpretation and analysis. In addition, each visit, fetal biometry and Dopplers are measured in 2D according to international ISUOG guidelines (head circumference, abdominal circumference, femur length, cerebral medial artery, umbilical artery and the uterine arteries).