Objective
To assess the outcome of euploid pregnancies with short fetal long bones (SFLB) as an isolated finding in the second trimester ultrasound.

Methods
This was a retrospective case-control study of pregnancies with SFLB at the second trimester routine ultrasound between January 2006 and August 2013 at Helsinki University Hospital District. We included only singleton pregnancies with previously normal first-trimester screening, either nuchal translucency (NT) < 3 mm or first trimester combined screening (FTS) risk < 1/250. The second trimester ultrasound screening was performed by a trained midwife or a sonographer. A short femur and humerus were defined as a bone length ≤ 3rd percentile on the chart based on Finnish population. The shortening of long bones were symmetrical with normal bone morphology. Since SFLB are considered as soft markers for aneuploidy, all patients were offered detailed ultrasound, counseling and fetal karyotyping at the Fetal Medicine Unit. Only pregnancies without structural abnormalities or aneuploidy were included in the study. For each case, two age-matching mothers with no SFLB and screened during the same day were selected as controls. Pregnancy and perinatal outcome was analyzed. We recorded the rate of preterm delivery (PTD), stillbirth (SB), small for gestational age newborns (SGA), pregnancy induced hypertension (PIH) and pre-eclampsia (PE). The mode of delivery and the short term neonatal outcome data was also collected.

Results
The overall odds ratio (OR) for adverse pregnancy outcome in the study group was 24.9. PTD occurred significantly more frequently in the study group (OR 20.8, p<0.001) and the risk of delivery ≤ 34 gestational weeks was even more pronounced (OR 67.4, p<0.001). One third of the study group pregnancies was complicated by pre-eclampsia (p<0.001) and the OR for a pathological umbilical Doppler flow pattern was 45.2 (p<0.001). The birthweight was significantly lower (1585.8 g vs 3427.5 g, p<0.001) in the study group and 61.5% of the newborns were born small for gestational age (SGA). There were three (10.3%) stillbirths and four cases (15.4%) of early neonatal death in the study group (p<0.01). Such complications were not recorded in the control group. An emergency cesarean section was done in 65.4% of study group pregnancies compared to 10% in the control group (p<0.001).

Conclusion
The risk of adverse pregnancy outcome is significant in euploid, non-anomalous pregnancies with isolated short long bones. It is much higher than previously reported.