**Objectives:** To evaluate the association between maternal factors and fetal thigh circumference at the 36th week of gestation.

**Methods:** A cross-sectional study involving 164 pregnant women/fetuses was carried out. The fetal thigh circumference was evaluated at 36 weeks by ultrasonography performed on a Samsung WS80 Elite, obtaining ultrasonographic cross-section cut of the thigh in the middle of the femur. The image was fixed, enlarged and the circumference of the thigh was measured in millimeters. The biochemical analysis was performed at the 36th gestational week (HDL-cholesterol, LDL-cholesterol, triglyceride, insulin and fasting glycemia). Insulin resistance was determined by HOMA-IR. The pregnant women were submitted to anthropometric evaluation (weight (kg), height (m) and BMI (kg / m²)). The project was approved by the Ethics Committee.

**Results:** Mean maternal age was 26.6 ± 5.9, ranging from 14 to 43 years. According to pre-gestational nutritional status, 56.6% were classified as eutrophic, 39.5% were overweight / obese and 3.7% were underweight. Gestational weight gain was classified as insufficient in 83.3%, adequate in 9.6% and excessive in 7.0% of pregnant women. The mean fetal thigh circumference was 17 ± 1.8cm at 36 weeks and was associated with the following maternal variables evaluated at week 36: triglycerides (16.3 ± 1.58 vs 17.3 ± 1.8 m², normal vs increased, p = 0.010), overweight (16.5 ± 1.48 vs 17.6 ± 1.84 m², adequate weight vs obesity, p <0.0001), weight gain (16.6 ± 1.59 vs. 17.5 ± 1.94 vs 17.9 ± 2.23m², insufficient vs adequate vs excessive weight gain, p = 0.003). Pre-gestational overweight was also associated with fetal thigh circumference at week 36 (16.8 ± 1.61 vs 17.6 ± 1.2 m², normal vs increased, p = 0.005).

**Conclusions:** Inadequate maternal weight, before and during pregnancy, was the main factor among the studied variables that remained associated with fetal thigh circumference in the 36th week.