

EP07.17 — Sex-specific fetal weight references for singleton and dichorionic twin pregnancies

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Twin- and sex-specific EFW standards may reduce misclassification of fetal growth restriction in dichorionic twin pregnancies.

BACKGROUND & OBJECTIVE

Twin growth trajectories diverge from singleton trajectories at 26–28 weeks. We developed sex-specific EFW references and quantified misclassification when singleton standards are applied to twins.

METHODS

Retrospective longitudinal study at Hospital Universitari Dexeus, Barcelona (2010–2019). Hadlock EFW and multilevel models generated P3, P10, P50, P90 and P97 references from 20–41 weeks.

STUDY POPULATION

21,725 singleton pregnancies	710 dichorionic twin pregnancies
51% male fetuses	39.0 / 36.0 mean delivery GA: singleton / twin
3.9 / 5.4 mean ultrasound exams: singleton / twin	2010–2019 study period

COHORT QUALITY

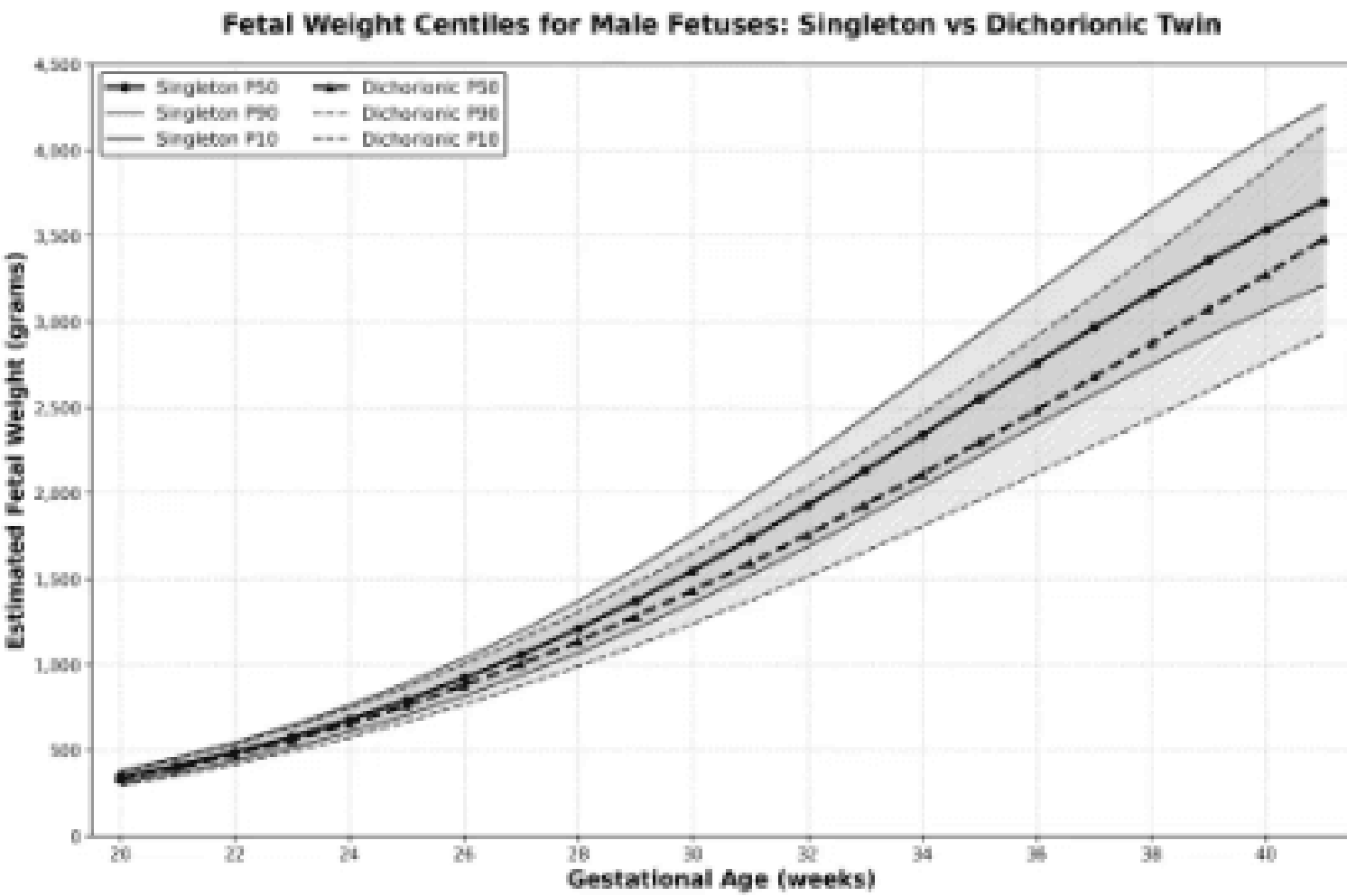
First-trimester CRL dating and chorionicity confirmation; serial scans retained for longitudinal modeling. Major anomalies, uncertain dating, unknown chorionicity and implausible biometrics were excluded.

STATISTICAL MODEL

Novel longitudinal approach: EFW was log-transformed and observations beyond ± 4 SD were excluded. A multilevel mixed-effects model used all repeated scans within each fetus, with subject-specific random intercepts and slopes. The mean and SD of $\ln(\text{EFW})$ were modeled as gestational-age fractional polynomials, separately by fetal sex and gestation type; AIC, BIC, Q–Q and worm plots guided model selection and centile construction.

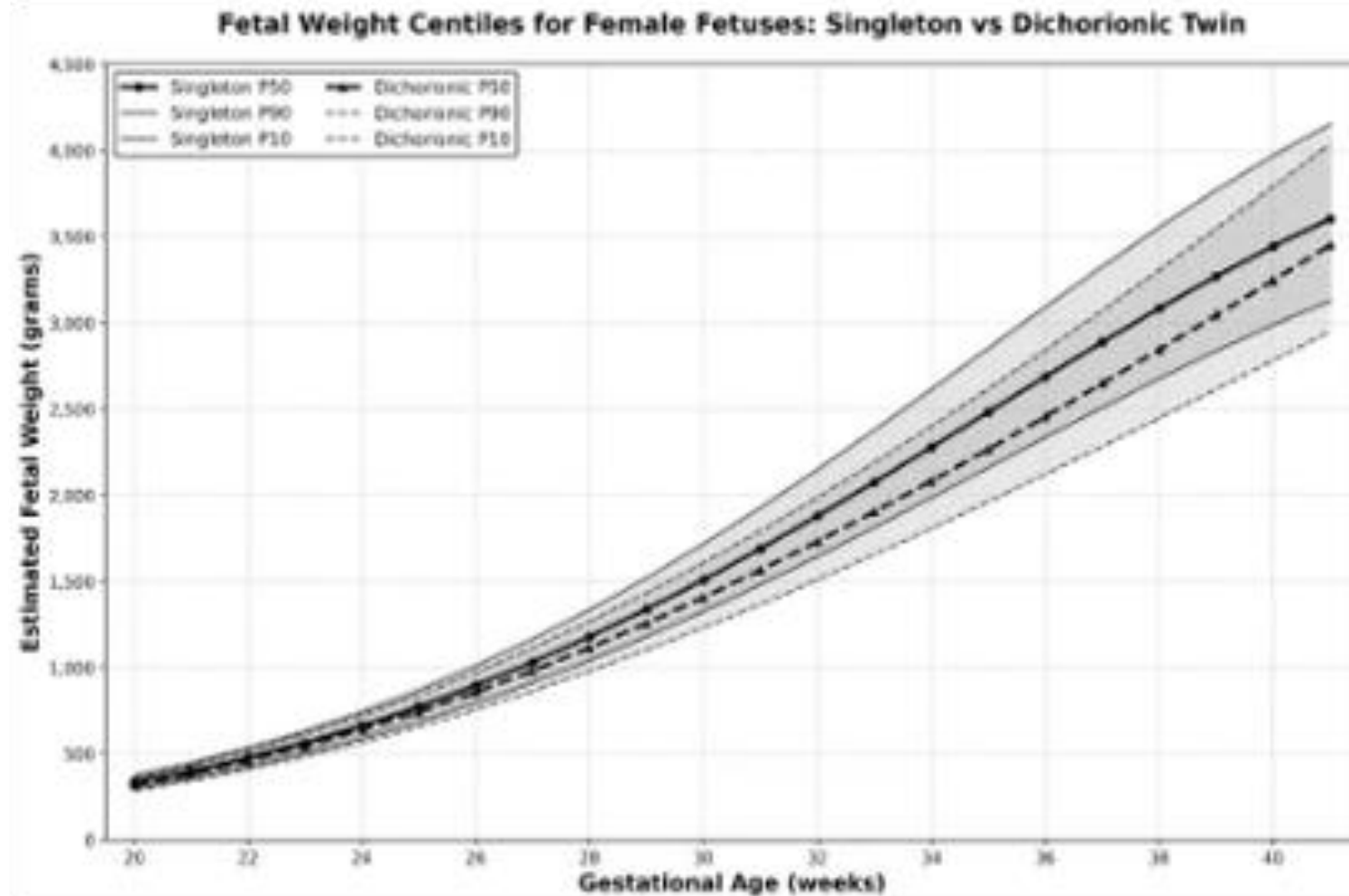
RESULTS

Figure 1. Male fetuses



Singleton versus dichorionic twin EFW centiles.

Figure 2. Female fetuses



Singleton versus dichorionic twin EFW centiles.

Table 1. Baseline characteristics

Characteristic	Overall	Singletons	Dichorionic twins
n	22,435	21,725	710
Maternal age, y	35.21	35.15	35.05
GA at delivery, wk	38.92	39.03	35.96
Fetal weight, g	3,186	3,247	2,221
Male sex, n (%)	11,921 (51)	11,099 (51)	727 (51)
Ultrasounds/pregnancy	3.97	3.91	5.37

Mean values unless otherwise stated. GA, gestational age.

KEY RESULT

Male fetuses had 2–4% higher EFW than female fetuses. Singleton–twin divergence was greatest at 36 weeks.

KEY RESULTS

18–31%

of appropriately grown dichorionic twins were misclassified as growth restricted when singleton P10 thresholds were applied.

–275 g

Male twins at 36 weeks
(–10.0% vs singleton)

–232 g

Female twins at 36 weeks
(–8.6% vs singleton)

26–28 wk

Onset of singleton–twin divergence

30–31%

Peak misclassification in males at 34–36 weeks

TABLE 2. SELECTED MEDIAN EFW VALUES

GA	Male S	Male T	Female S	Female T
20 wk	342	331	333	319
28 wk	1,209	1,137	1,177	1,113
36 wk	2,758	2,484	2,685	2,453
40 wk	3,536	3,276	3,442	3,245

Values in grams. S, singleton; T, dichorionic twin.

KEY INTERPRETATION

Lower EFW in dichorionic twins after 26–28 weeks is a consistent growth pattern and should not automatically be interpreted as pathological growth restriction.

CLINICAL IMPLICATION

Applying singleton standards may label 18–31% of appropriately grown dichorionic twin as growth restricted, potentially triggering unnecessary surveillance, delivery and iatrogenic prematurity. Twin- and sex-specific references support more appropriate risk stratification.

Selected references: [1] Salomon et al. ISUOG Practice Guidelines: fetal biometry and growth. *UOG* 2019;53:715–23. [2] Papageorgiou et al. INTERGROWTH-21st fetal growth standards. *Lancet* 2014;384:869–79. [3] Stirrup et al. Twin pregnancy growth reference ranges (STORK). *UOG* 2015;45:301–7. [4] Odibo et al. Customized growth charts for twin gestations. *UOG* 2013;41:637–42. [5] Figueras et al. Customized birthweight standards for a Spanish population. *EJOGRB* 2008;136:20–4. [6] Khalil et al. ISUOG Practice Guidelines: role of ultrasound in twin pregnancy. *UOG* 2016;47:247–63.