

Assessment of fetal growth in twin pregnancies: evidence-based practice

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Key content

- Twin pregnancies are at an increased risk of fetal growth restriction and require tailored growth surveillance strategies.
- Fetal growth in twin pregnancies is strongly influenced by chorionicity.
- In dichorionic twins, fetal growth restriction typically arises from uteroplacental insufficiency affecting one or both fetuses. In monochorionic twins, unequal sharing of the single placenta with its intertwin vascular anastomoses is the key determinant of fetal growth.
- Intertwin discordance and selective fetal growth restriction are key concepts in twin growth assessment.
- Singletons and twins follow different growth trajectories; hence, using singleton growth standards for twin growth surveillance may overestimate growth restriction in twins, leading to unnecessary interventions.

- Twin-specific growth charts have the potential to improve diagnostic accuracy and clinical decision-making in antenatal care of twin pregnancies.

Learning objectives

- To understand the physiological differences in fetal growth between twin and singleton pregnancies.
- To evaluate the role of twin-specific growth charts and emerging evidence surrounding their use in clinical practice.
- To review the current key recommendations in the antenatal growth surveillance of twin pregnancies.

Ethical issues

- Potential overtreatment of healthy twins due to misclassification using singleton charts.

Keywords: chorionicity / fetal growth restriction / growth charts / selective fetal growth restriction / twins

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Introduction

Twin pregnancies, although constituting approximately 2%–4% of all births, account for a disproportionately high burden of perinatal morbidity and mortality.¹ The incidence of twin births has historically risen over the past few decades, largely due to increased maternal age and the widespread use of assisted reproductive technologies. However, recent data suggest a reversal of this trend. In the United States, the twin birth rate declined by 4% between 2014 and 2018, reaching 32.6 per 1000 total births, the lowest in over a decade.² Similarly, in the United Kingdom, the multiple birth rate has fallen for three consecutive years, with 15 per 1000 women experiencing a multiple pregnancy in 2018. This decline is likely linked to changes in IVF practice: in the United Kingdom, the Human Fertilisation and Embryology Authority (HFEA) introduced a national policy in 2009 to

limit the multiple birth rate following IVF to 10%, a target achieved across all age groups by 2018. That year, just 8% of IVF-conceived pregnancies resulted in multiple births.³

Despite the declining incidence, twin pregnancies remain at significantly higher risk than singleton pregnancies. While national data show an encouraging decline in perinatal mortality, potentially attributable to the publication and implementation of national and international guidance on care of multiple pregnancy – stillbirths in twins nearly halved from 11.07 to 6.16 per 1000 total births between 2014 and 2016, and neonatal deaths fell by one-third, from 7.81 to 5.34 per 1000 live births – these improvements were not sustained beyond 2016.^{4–6} The 2021 MBRRACE-UK (Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries across the UK) report indicates a continued decline in stillbirth rates among singleton pregnancies in the United Kingdom.⁷ In contrast, the risk of stillbirth in twin

pregnancies remains approximately double that seen in singletons.⁷

Inadequate growth surveillance has been identified as a key area of substandard care in twin pregnancies. The MBRRACE-UK report highlights issues such as inconsistent labelling, insufficient scan frequency, and failure to perform appropriate growth or Doppler assessments or refer to specialist services when needed.⁷ These shortcomings reflect wider uncertainty in clinical practice, compounded by inconsistent standards and a lack of specific training. An international survey of clinicians managing monochorionic twins revealed marked variation in diagnostic thresholds and management strategies for selective fetal growth restriction (sFGR), particularly in more severe cases. Improving awareness and clinical confidence in twin growth monitoring is therefore essential.⁸ This review aims to provide an up-to-date overview of the evidence on assessing growth in twin pregnancy, as well as key areas of ongoing debate, to support evidence-based care.

General factors affecting growth in twin pregnancies

Several factors affect the growth of twins. Fetal growth is influenced by a complex interplay of genetic, maternal, environmental and pregnancy-specific factors. Among these, maternal nutritional intake and uterine capacity are recognised as important determinants.⁹ Although observational data and theoretical assumptions suggest a role for maternal nutrition in twin growth, a Cochrane review by Bricker et al. found no randomised trial evidence to confirm the benefit of specialised diets in multiple pregnancies.¹⁰ There is conflicting evidence regarding optimal gestational weight gain and its association with fetal growth in twins. While Mustafa et al.¹¹ found no significant increase in small-for-gestational-age (SGA) rates with lower-than-recommended weight gain in obese women, Lipworth et al.¹² reported an increased risk of SGA and preterm birth with inadequate weight gain, particularly in women with normal body mass index (BMI).

Environmental exposures, including high altitude, air pollution and endocrine-disrupting chemicals, can negatively affect growth, while uterine artery resistance and poor placental function further compromise nutrient delivery.

A recent UK pilot study across six hospitals confirmed the feasibility of investigating modifiable risk factors for adverse neonatal outcomes in twin pregnancies.¹³ Among 181 participants (65% response rate), key associations were identified with low BMI (OR 8.36), maternal age ≥ 41 years (OR 9.0), high stress levels (OR 1.96) and inadequate antenatal screening (OR 1.44). Differences in exposure

frequency were noted compared with singleton pregnancies, particularly around fertility treatment, sleep behaviour and fetal movement awareness. While chorionicity-specific analysis was limited by sample size, findings highlight the need for larger, twin-specific studies to guide prevention strategies and reduce perinatal morbidity and mortality in this high-risk group.

Growth considerations in dichorionic versus monochorionic twins

Fetal growth in twin pregnancies is strongly influenced by chorionicity, which determines both placental architecture and the mechanisms underlying deviations in growth. In dichorionic twins, fetal growth restriction typically arises from uteroplacental insufficiency affecting one or both fetuses.¹⁴ This may be further compounded by individual variations in genetic growth potential, maternal conditions such as chronic hypertension or pre-eclampsia, congenital infections, structural anomalies (genetic or non-genetic), or, less commonly, abnormal placental cord insertion. Given the shared underlying pathophysiology and the absence of high-quality evidence specific to twins, dichorionic twin pregnancies complicated by selective fetal growth restriction are generally managed in accordance with singleton FGR protocols.^{15,16}

In contrast, monochorionic twins share a single placenta, presenting a more complex pathophysiological landscape. Unequal placental sharing is the principal factor contributing to growth discordance in MC twins. Antenatally, ultrasound assessment of placental cord insertion can serve as a surrogate for the relative placental territory. Approximately one-quarter of MC twins with a birthweight discordance exceeding 20% exhibit discordant cord insertions, such as a combination of central and velamentous attachments allocated to each twin¹⁷ (Figure 1). Similarly, in a retrospective cohort of 497 twin pregnancies, velamentous cord insertion was significantly associated with sFGR (OR 9.24) and birthweight discordance $\geq 25\%$ (OR 6.81) in MCDA twins but showed no significant impact on growth outcomes in dichorionic pregnancies.¹⁸ Early identification of cord insertion, ideally in the first or second trimester, is considered good practice, as it can be more reliably assessed during this period.

However, in monochorionic twins, intertwin vascular anastomoses add a further layer of complexity, with both protective and deleterious effects on growth. Arterio-arterial (AA) anastomoses, for instance, may help maintain perfusion to the growth-restricted twin and prolong latency to deterioration, up to 10 weeks compared with 3–4 weeks in their absence.¹⁹ This phenomenon also explains why the smaller twin is at greater risk of fetal demise following fetoscopic laser surgery, which interrupts these protective

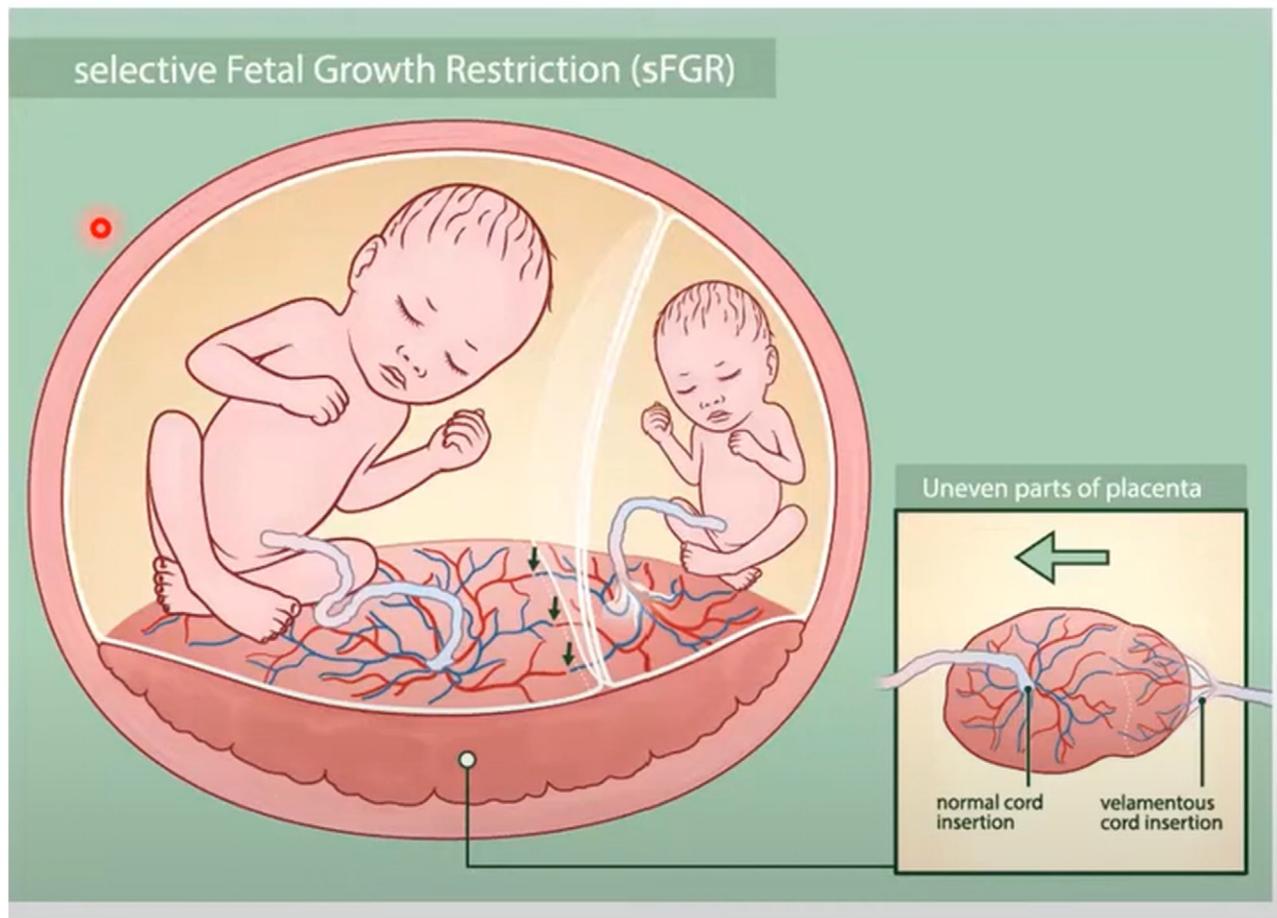


Figure 1. Schematic illustration of selective fetal growth restriction (sFGR) in monochorionic twin pregnancy. The image depicts unequal placental sharing and discordant cord insertion, central versus velamentous, leading to a disparity in fetal size.

vascular connections. Conversely, large AA anastomoses may lead to acute haemodynamic shifts, resulting in unpredictable fetal compromise or intrauterine demise, a hallmark of Type III selective fetal growth restriction (sFGR), characterised by intermittent absent/reversed end-diastolic flow (AREDF) in the umbilical artery of the smaller twin. This will be discussed further later in the review.

Early-onset (<24 weeks) sFGR in MC twins is often associated with more severe placental inequality, abnormal Doppler findings, larger vascular anastomoses and increased risk of fetal demise (up to 20%).²⁰ In contrast, late-onset sFGR (≥ 24 weeks) tends to involve milder placental discordance and smaller anastomoses and warrants surveillance for coexisting twin anaemia–polycythaemia sequence.

Finally, these growth distinctions extend beyond the antenatal period. Emerging evidence suggests that chorionicity influences postnatal growth trajectories as well, with smaller MC twins demonstrating earlier catch-up in

weight, length and head circumference compared to their DC counterparts.²¹

Given these fundamental differences in aetiology and clinical trajectory, growth surveillance strategies must be tailored to chorionicity, with chorionicity-specific approaches essential for optimising perinatal outcomes.

Discordant growth and selective fetal growth restriction in twin pregnancies

Discordant growth in twin pregnancies refers to a significant difference in estimated fetal weight (EFW) between co-twins, commonly attributed to disparities in placental sharing, vascular supply or genetic growth potential. Intertwin fetal weight discordance may be a more reliable predictor of perinatal outcomes in twin pregnancies than individual fetal size alone, with recent evidence showing that combining EFW and cerebroplacental ratio (CPR) discordance significantly improves the prediction of perinatal loss.^{22,23}

Discordance is typically calculated as: (EFW of larger twin – EFW of smaller twin) ÷ EFW of larger twin × 100%, expressed as a percentage.¹⁶

Although some degree of discordance (up to 10%) is considered physiological, particularly in dichorionic pregnancies, thresholds for clinically significant discordance vary widely in the literature, ranging from 10% to 30%. The ESPRIT study,²⁴ a prospective multicentre cohort of over 1000 twin pairs, identified an 18% cut-off for both dichorionic and monochorionic twins without twin-to-twin transfusion syndrome (TTTS), above which the risk of adverse perinatal outcomes, affecting both fetuses, was significantly increased. The Royal College of Obstetricians and Gynaecologists (RCOG)²⁵ and National Institute for Health and Care Excellence (NICE)²⁶ guidelines currently have adopted a 25% discordance threshold, while the American College of Obstetricians and Gynaecologists (ACOG)²⁷ has adopted a 20% cut-off. The International Society of Ultrasound in Obstetrics and Gynaecology (ISUOG)¹⁶ recommends ≥25% discordance with one twin <10th centile as part of the diagnostic criteria for sFGR.

While intertwin growth discordance is a well-established risk factor for adverse outcomes in twin pregnancies, recent evidence suggests that longitudinal assessment of discordance trajectories offers greater prognostic value than single-point measurements. Static size differences fail to capture the timing of onset or rate of progression, both of which may carry important clinical implications. In a retrospective cohort study, distinct patterns of discordance, particularly those involving early and progressive divergence in growth, were more strongly associated with outcomes such as preterm birth and pre-eclampsia than discordance measured at a single gestational age point.²⁸

A more recent UK study²⁹ of 823 twin pregnancies incorporated serial biometry and Doppler assessments, identifying five discordance patterns using machine learning. The high-stable discordance group had significantly higher rates of perinatal morbidity and mortality. The predictive accuracy was improved when the growth trajectory was combined with cerebroplacental ratio discordance (CPR) at the final scan, as indicated by an area under the curve (AUC) of 0.802.

Definition of selective fetal growth restriction

To address inconsistencies in the diagnosis of sFGR in twin pregnancies, an international panel of experts conducted a Delphi consensus process to define standardised diagnostic criteria.³⁰ The panel agreed that an EFW <3rd centile in one twin constitutes a solitary diagnostic criterion for sFGR, applicable to all twin pregnancies regardless of chorionicity, with additional contributory criteria³⁰ (Box 1). These

Box 1. Delphi consensus criteria for the diagnosis of selective fetal growth restriction (sFGR) in twin pregnancies³⁰

Solitary criterion, irrespective of chorionicity	Estimated fetal weight (EFW) of one twin <3rd centile	
Additional criteria (by chorionicity):	<i>Monochorionic twins</i>	<i>Dichorionic twins</i>
Diagnosis requires ≥2 of the following	- EFW <10th centile - Abdominal circumference <10th centile - EFW discordance ≥25% - Umbilical artery pulsatility index (UA-PI) >95th centile (in smaller twin)	- EFW <10th centile - EFW discordance ≥25% - UA-PI >95th centile (in smaller twin)

consensus-based thresholds aim to support more uniform reporting and clinical research, although external validation is still required before widespread implementation.

The Gratacós³¹ classification (Figure 2) further categorises sFGR in monochorionic twin pregnancies based on umbilical artery Doppler findings in the smaller twin. It has been shown to correlate with both clinical outcomes and placental vascular architecture. Type I is defined by positive end-diastolic flow in the umbilical artery and is generally associated with a stable clinical course and favourable perinatal outcomes.³¹ Type II is characterised by persistently absent or reversed end-diastolic flow, reflecting severe placental insufficiency and a high risk of deterioration in the growth-restricted twin, often leading to earlier delivery.³¹ Type III features intermittent, absent or reversed flow, which indicates hemodynamic instability and is associated with an elevated risk of sudden intrauterine fetal demise and neurological complications in the larger co-twin. The Gratacós classification is now incorporated into several guidelines, including those of the RCOG and ISUOG, and serves as a useful tool to inform surveillance strategies and guide clinical decision-making in sFGR.

Growth trajectories of twins versus singletons

The intrauterine growth trajectory of twins differs significantly from that of singletons, particularly in the third trimester. Although fetal growth patterns in twin and singleton pregnancies are largely comparable during early gestation, divergence in growth velocity typically begins around 28 weeks' gestation, with the disparity becoming more marked as pregnancy advances (Figure 3). This phenomenon is observed across populations and persists even in uncomplicated twin gestations. From approximately

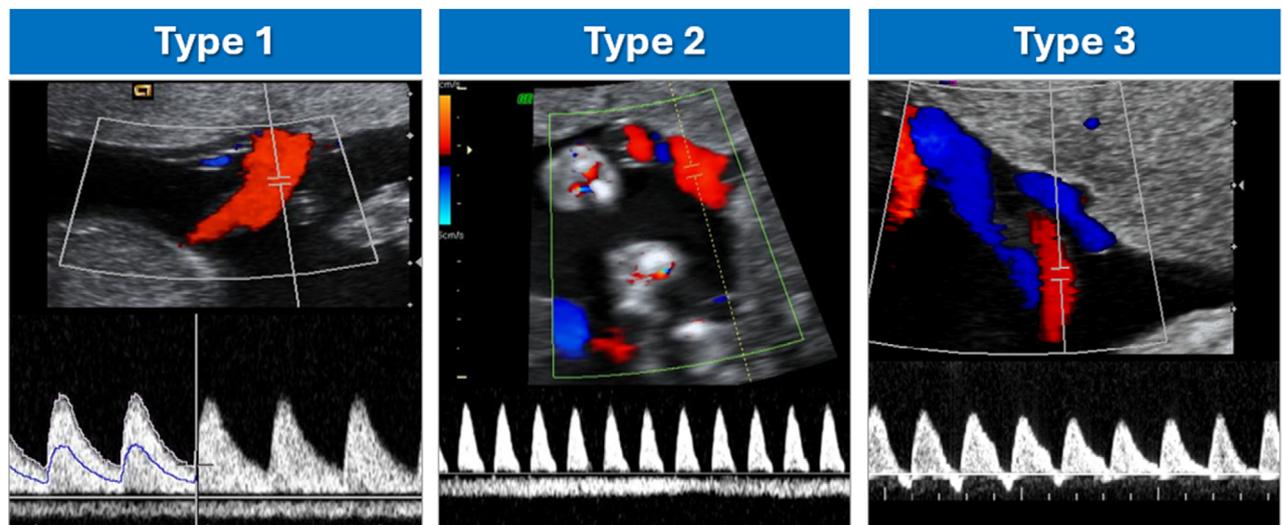


Figure 2. Gratacós classification of selective fetal growth restriction in monochorionic twin pregnancy, according to the umbilical artery Doppler flow pattern in the smaller twin: type I (positive end-diastolic flow), type II (persistent absent/reversed flow) and type III (intermittent absent/reversed flow).

28–30 weeks' gestation, twin and singleton growth trajectories begin to diverge, with the average combined weight of twins at 30 weeks equivalent to that of a 37-week singleton. In a prospective US cohort of dichorionic³⁴ twin pregnancies, growth trajectories diverged significantly from singletons from 32 weeks' gestation, with twins showing asymmetric growth patterns and lower EFW. By 35 weeks, nearly 40% of twins would be misclassified as SGA if assessed using singleton growth standards, despite many being appropriately grown for their gestational context.

A large-scale modelling study³² using over 4000 twin pregnancies found that for dichorionic twins, EFW at 24 weeks corresponded to the 50th centile on singleton charts. However, by 36 weeks, the same median EFW had declined to the 22nd centile, highlighting a slowing of growth velocity in late gestation. For monochorionic diamniotic (MCDA) twins, this decline was even more pronounced – from the 36th centile at 24 weeks to the 12th centile at 36 weeks.

This growth deceleration is now recognised as a primarily physiological adaptation to the constrained intrauterine environment and the increased metabolic demands of multiple fetuses, rather than a manifestation of placental insufficiency or pathological growth restriction in all cases. The concept of adaptive growth lag in twins is supported by the observation that many twins classified as SGA by singleton standards are, in fact, constitutionally small but otherwise healthy, with normal Doppler studies, adequate amniotic fluid volumes and favourable neonatal outcomes.³⁵

Conversely, identifying pathological growth restriction, particularly sFGR, affecting one twin disproportionately, is

crucial, as it is associated with adverse outcomes including stillbirth, preterm birth and neurodevelopmental impairment. This distinction between physiological and pathological growth lag is therefore vital for determining appropriate surveillance and intervention strategies.

Limitations of using singleton growth charts

As we noted above, twins naturally follow a different growth trajectory, especially in the third trimester, yet singleton-based reference ranges do not account for this divergence.

Recent studies report that the application of singleton charts may lead to an inflated prevalence of SGA in twins. For instance, when using the Hadlock singleton reference, Shea et al.³⁶ found that 17% of dichorionic twins were classified as SGA compared with only 8% when a twin-specific reference was used. A similar pattern was also reported by Kalafat et al.,³⁷ who demonstrated a substantial reduction in SGA classification when using twin-specific centiles.

This misclassification has meaningful clinical consequences. Labelling a twin as SGA may prompt escalation of surveillance, increased antenatal corticosteroid administration and iatrogenic preterm birth, all of which carry potential harms. Inappropriately timed delivery, particularly before 34 weeks, exposes neonates to increased risks of respiratory distress, sepsis and longer NICU admissions, without demonstrable benefit in those mislabelled as growth restricted. Shea et al.³⁶ demonstrated that twins diagnosed as SGA by singleton but not by twin-specific charts had no increased risk of mild or severe neonatal morbidity, suggesting these cases represent

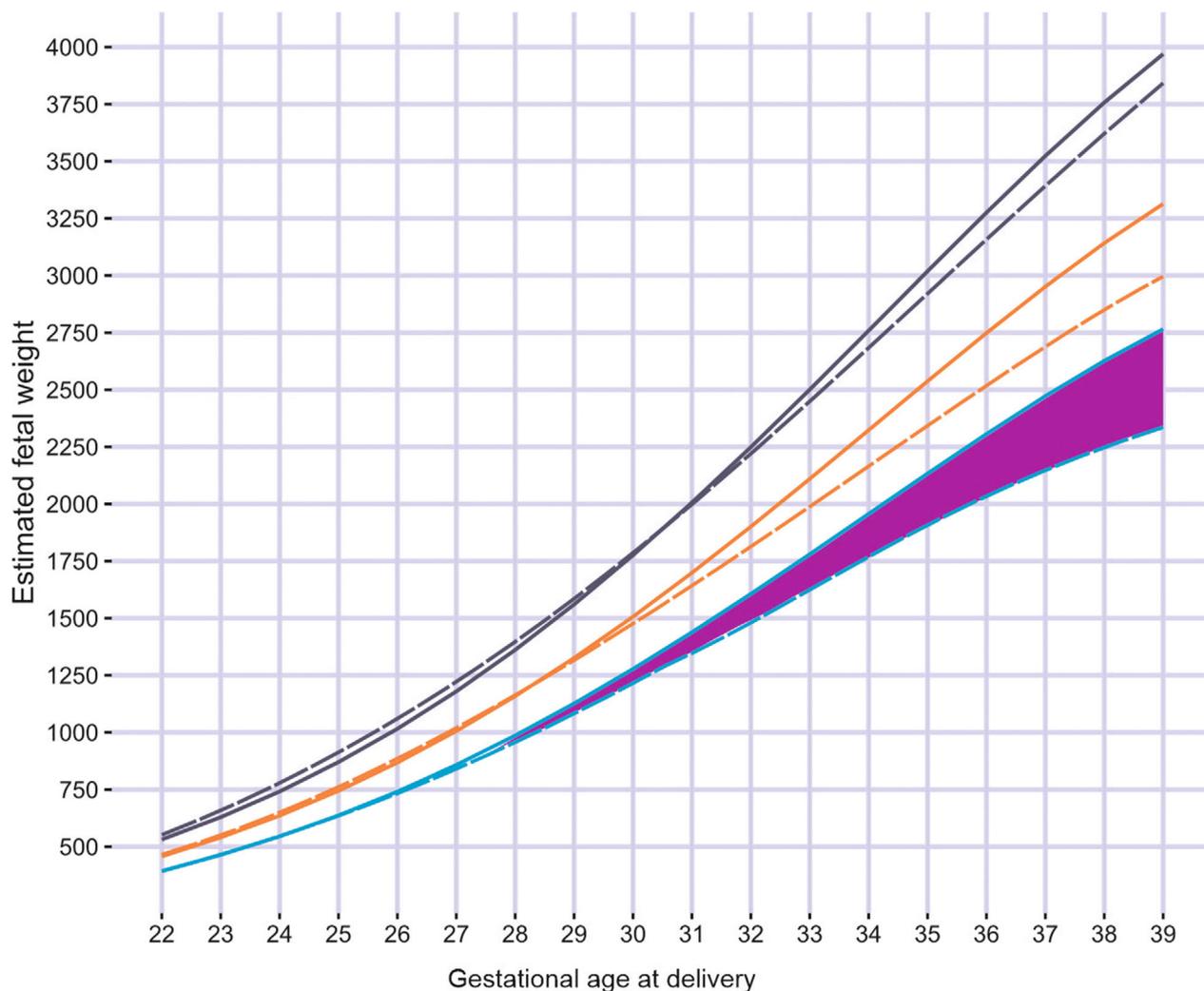


Figure 3. Singleton (straight line)⁵¹ and twin-specific (dashed line)³³ estimated fetal weight standards. Fetuses in the purple shade are classified as small by the singleton but not by the twin standard.

physiologically small rather than pathologically restricted fetuses.

Moreover, using singleton references may mask true associations between complications. Proctor et al.³⁸ demonstrated that when singleton charts were used, there was no significant association between hypertensive disorders of pregnancy and SGA in dichorionic twins. However, when twin-specific centiles were applied, the association became clearer, mirroring that observed in singleton pregnancies (adjusted relative risk, 2.37; 95% CI, 1.69–3.34).

Development of twin-specific growth charts

The limitations of applying singleton growth standards to twin pregnancies have driven efforts to establish growth references that reflect the distinct physiology of multiple

gestations. Table 1 summarises the key twin-specific growth charts developed with their salient features.

One of the early initiatives was the NICHD Fetal Growth Studies, which produced chorionicity-specific reference curves based on longitudinal prospective ultrasound data from dichorionic twin pregnancies in the United States.³⁴ This study provided centile charts for EFW, offering a twin-specific alternative to the widely used Hadlock singleton reference. The charts revealed consistently lower median EFWs in twins from mid-pregnancy onwards and were instrumental in highlighting the natural divergence in growth patterns.

In parallel, the STORK (Southwest Thames Obstetric Research Collaborative) group,⁴⁰ a UK-based multicentre initiative, undertook the development of chorionicity-specific birthweight charts based on data from over 2100 twin births. Kalafat et al.³⁷ demonstrated that these charts improved the

Table 1. Summary of key twin-specific growth charts and their methodological characteristics

References	Sample size (twin pairs)	Chorionicity specific	Study design	Customised/universal	GA range (weeks)	Setting	Notable features
Odibo et al. ³⁹	1608	Yes	Retrospective	Customised	22–40	The United States	
STORK Stirrup et al. ⁴⁰	2125	Yes	Retrospective	Universal	14–38	The United Kingdom	Includes twins with pathologies
NICHD Grantz et al. ³⁴	171	Dichorionic	Longitudinal prospective cohort	Universal	15–37	The United States	Small sample size
Fetal Medicine Foundation Wright et al. ³²	4391	Yes	Retrospective	Universal	16–37	Europe (multicentre)	Expresses twin growth relative to singleton norms; integrated twin/singleton Z-scores
Ghi et al. ⁴¹	1780	Yes	Retrospective	Customised	16–34	Italy	

identification of twins at risk of adverse perinatal outcomes, particularly stillbirth, when compared to traditional singleton-based standards. Further work by Briffa et al.³³ contributed to the refinement of growth standards by modelling EFW trajectories separately for monochorionic and dichorionic twins, based on a UK cohort.

In contrast, The Fetal Medicine Foundation (FMF) growth models³² assess twin growth relative to singleton percentile standards, allowing comparison across both reference populations. Developed from data on about 4000 twin pregnancies across several European centres, the models were externally validated in a Danish national cohort⁴² of more than 10,000 twin pregnancies, where mean Z-scores approximated zero in uncomplicated term deliveries. While these findings suggest reasonable population-level performance, further validation is needed, particularly across diverse settings and clinical subgroups, before widespread clinical adoption.

Collectively, these studies establish a clear trajectory: from recognition of the inadequacy of singleton charts to the development and validation of evidence-based, chorionicity-adjusted twin growth standards, which now form part of emerging recommendations for clinical practice, which we will discuss later in the review.

Evidence supporting twin-specific growth standards

A growing body of evidence supports the clinical superiority of twin-specific growth charts over singleton-based

references, not only for identifying SGA fetuses but also for predicting a wider spectrum of adverse perinatal outcomes. Importantly, these charts demonstrate greater clinical relevance by more accurately identifying fetuses who are not only small but also at increased risk of morbidity or mortality. Several studies have shown that when twin-specific standards are used, the subset of fetuses classified as small exhibits stronger associations with outcomes such as stillbirth,^{35,37,39,43} neonatal morbidity,^{35,36,43,44} and hypertensive complications,^{35,38} compared to those identified using singleton charts. A recent meta-analysis by Sorrenti et al., including over 10,000 twin pregnancies, found that SGA twins identified using twin charts were at significantly higher risk of adverse neonatal outcomes than those identified using singleton charts, suggesting that twin charts may better capture clinically relevant growth restriction.⁴⁵

Emerging evidence supporting their clinical relevance has led to a gradual shift in guidance from professional bodies. Several international societies have acknowledged the limitations of applying singleton-based charts to twin gestations and are increasingly advocating for chorionicity-appropriate, twin-specific references. ISUOG¹⁶ endorses the use of twin-specific growth standards; however, it cautions that reduced third-trimester growth velocity in twin pregnancies may, in some instances, reflect underlying uteroplacental insufficiency, necessitating enhanced surveillance. In contrast, the ACOG²⁷ and the Society for Maternal–Fetal Medicine (SMFM) have not issued specific recommendations regarding the preferred growth standard in

Table 2. Comparative summary of key recommendations on antenatal growth surveillance in twin pregnancies (adapted from Weitzner et al.⁴⁸)

Parameter	NICE (updated 2024) ²⁶	RCOG GTG no. 51 (2025) ²⁵	ISUOG (2023) ¹⁶	FIGO (2021) ⁴⁷	SOGC (2023) ⁴⁶	United States ²⁷ (practice bulletin 231)
Chorionicity determination	By 11+0–13+6 weeks	By 11+0–13+6 weeks	By 11+0–13+6 weeks	First trimester	By 11+0–13+6 weeks	First and early second trimester
Scan frequency (DCDA twins)	4-weekly from 20 weeks	Not applicable	4-weekly from 20 weeks	4-weekly from 20 weeks	3/4-weekly from 24 to 25 weeks	4-weekly from 20 weeks
Scan frequency (MCDA twins)	2-weekly from 16 weeks	2-weekly from 16 weeks	2-weekly from 16 weeks	2-weekly from 16 weeks	2-weekly from 16 weeks	2-weekly from 16 weeks
EFW discordance cut-off	≥20%	≥20%	≥20%	≥25%	≥20%–25%	≥20%
sFGR definition (MCDA)	EFW discordance >25% and EFW of smaller twin <10th centile	Delphi: EFW <3rd centile OR ≥2 of (EFW <10th, AC <10th, discordance ≥25%, UA-PI >95th)	Delphi criteria	EFW discordance >25% and EFW of smaller twin <10th centile	Delphi criteria	-
sFGR definition (DCDA)	EFW discordance >25% and EFW of smaller twin <10th centile	Delphi: ≥2 of (EFW <10th, discordance ≥25%, UA-PI >95th)	Delphi criteria	Delphi may be used with caution	Delphi criteria	-
Role of Doppler surveillance	Targeted: Umbilical artery Doppler if EFW discordance >20% or EFW of either twin <10th centile	Routine in MCDA	Recommended	-	Not routinely recommended	Not routinely recommended
Frequency of surveillance once growth restriction has been identified	Weekly for MCDA 2 weekly for DCDA	Weekly for MCDA	Weekly for MCDA 2 weekly for DCDA	-	-	Individualised
Growth charts	-	-	Twin growth charts should be used However, the use of such charts is controversial	Twin growth charts should be used	Consider using twin-specific charts	-

Table 2. (Continued)

Parameter	NICE (updated 2024) ²⁶	RCOG GTG no. 51 (2025) ²⁵	ISUOG (2023) ¹⁶	FIGO (2021) ⁴⁷	SOGC (2023) ⁴⁶	United States ²⁷ (practice bulletin 231)
Timing of delivery in growth-restricted dichorionic twins	Should be individualised	Not applicable	Same as in singletons – based on Dopplers	Same as singletons	Same as in singletons – based on growth velocity, Dopplers	Should be individualised
Timing of delivery in growth-restricted monochorionic twins	Should be individualised	Type I: Consider planned birth by 34+0–35+6 weeks Type II/III: Planned birth by 32 weeks	Should be decided based on assessment of fetal wellbeing, interval growth, biophysical profile, DV waveform and/or computerised cardiotocography (CTG), when available	-	-	Should be individualised

twins. The Society of Obstetricians and Gynaecologists of Canada (SOGC)⁴⁶ has recently revised its guidelines to recommend the adoption of twin-specific charts, while the International Federation of Gynaecology and Obstetrics (FIGO)⁴⁷ also advises considering twin-specific growth standards.

Implementation challenges and controversies

Despite emerging evidence supporting the use of twin-specific growth charts, their adoption into routine clinical practice remains variable and, in many settings, limited. Several conceptual, technical and logistical challenges continue to impede widespread implementation.

One ongoing debate concerns the optimal type of reference chart: should there be a universal twin growth standard, or should growth assessment be individualised by chorionicity? While chorionicity-specific charts reflect the physiological differences between monochorionic and dichorionic twins, they require more complex interpretation and may not yet be integrated into routine reporting systems. Universal twin charts offer simplicity but may overlook meaningful differences in growth trajectories, particularly in the context of shared placentation in monochorionic pregnancies.

A related controversy is the choice between population-based references and customised growth standards. Population-based charts, like those from NICHD and STORK, are widely validated and easier to apply. However, some argue that customised charts, adjusted for maternal characteristics, parity and ethnicity, may provide a more tailored assessment of fetal growth potential. Ghi et al.⁴¹ proposed a twin-specific, customised standard incorporating maternal and pregnancy factors, but its clinical utility remains to be validated across broader populations.

Several practical barriers also limit implementation. First, many ultrasound software platforms continue to default to singleton references or lack functionality to incorporate twin-specific or chorionicity-adjusted charts. Second, training is required for sonographers and clinicians to interpret twin-specific centiles appropriately, particularly when managing discordance or when charts present data relative to singleton percentiles, as in the FMF model.

Perhaps most significantly, there remains a lack of international consensus on which growth standards should be used. Until a unified approach is adopted, clinicians are likely to continue using a combination of growth standards based on institutional protocols, software limitations and personal preference. Bridging the gap between evidence and practice will require concerted efforts in education, digital integration and international guideline harmonisation.

Current recommendations on growth surveillance in twin pregnancies

Given the ongoing debate surrounding growth standards in twin pregnancies, it is important for clinicians to be familiar with established guidance. Table 2 provides a comparative summary of key recommendations from major national and international guidelines, with a focus on antenatal growth surveillance in twin pregnancies. It includes scan intervals, preferred growth charts and diagnostic thresholds for fetal growth restriction, stratified where applicable by chorionicity.^{48,49} This synthesis is intended to support practical implementation in routine care and to clarify areas of consistency and divergence across existing guidance.

Future directions

The long-term significance of being classified as SGA by different growth standards remains unclear, particularly in relation to neurodevelopment and later health outcomes. In parallel, formal evaluation of cost-effectiveness is desirable to determine whether the use of twin-specific charts reduces unnecessary interventions and improves neonatal outcomes in a resource-efficient manner. Lastly, the management of early-onset fetal growth restriction in monochorionic twin pregnancies remains a clinical challenge, and further prospective data are awaited. The ongoing Fetal Growth Restriction in Twins (FERN) study, expected to report this year, will provide prospective cohort data that may inform evidence-based approaches to early-onset growth restriction in monochorionic gestations.⁵⁰

Disclosure of interests

At the time of submission, Asma Khalil is the Vice President (Academia and Strategy), RCOG; this had no involvement in the decision to publish.

Contribution to authorship

SP and AK conceptualised the review, prepared the first draft of the manuscript and revised and approved the final version.

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Ethics approval

Not required.

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