



## **Intrauterine Growth Restriction & Small for Gestational Age**



**Child  
Growth  
Foundation**





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The Child Growth Foundation (CGF) is a UK charity, focused on the support, understanding and management of rare growth conditions and concerns.



We work to improve the lives of everyone affected by a growth condition. We support children, young people, adults and their families – whether or not they have a diagnosis.

### **About this booklet**

This booklet is for anyone wanting to know more about Intrauterine Growth Restriction (IUGR) and Small for Gestational Age (SGA).

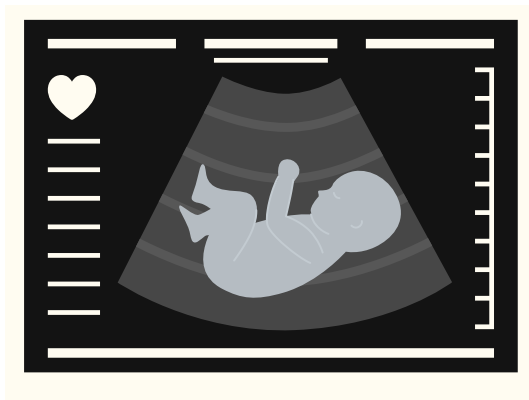
## WHAT IS IUGR AND HOW IS IT DIAGNOSED?

Intrauterine growth restriction (IUGR), sometimes called fetal growth restriction (FGR), describes a situation where a baby does not grow as expected during pregnancy.

IUGR is diagnosed during pregnancy, based on:

- Serial ultrasound scans
- Growth patterns and measurements taken over time. These are used to estimate the baby's weight and growth which are compared with babies of the same sex and gestational age
- Blood flow measurements (Doppler studies)
- Amniotic fluid volume

IUGR is not defined by birth weight, and a baby with IUGR may be born with a weight within the normal range.



## WHAT IS SGA ?

Small for gestational age (SGA) is a term used when a baby is smaller than expected at birth, compared with other babies of the same sex who were born at the same number of weeks of pregnancy.

In the UK, SGA is usually identified using birth weight (as this is done more often than length), but a baby can be classed as SGA using length or weight.

A baby is considered SGA if:

- Their birth weight or length is below the 2nd centile on the UK recommended growth chart, or
- Their measurement is less than, or equal to,  $-2$  standard deviation scores (SDS) for birth weight or length compared with a reference population

**Being born SGA does not always mean there is a health problem. Some babies are naturally small, particularly if their parents are small.**

Babies with IUGR or SGA may be described as:

- 'Symmetrically small', meaning they are small all over (weight, length, head size)
- 'Asymmetrically small', meaning there's some disproportion eg normal length and head size, but a lower weight

Important points to remember:

- A baby may be born SGA without having had IUGR
- A baby may have IUGR but not be SGA at birth
- Some babies have both IUGR and SGA



The causes of SGA and IUGR are often similar and can be divided into maternal, placental and fetal causes. In many cases, more than one factor may be involved.

<p><b>Maternal:</b> <b>Factors related to the mother that may affect a baby's growth include -</b></p>	<ul style="list-style-type: none"> <li>• Smoking, alcohol or drug use</li> <li>• Poor nutrition</li> <li>• Certain infections during pregnancy</li> <li>• Medical conditions such as high blood pressure, kidney disease, diabetes or autoimmune conditions</li> <li>• Some medications</li> <li>• Very heavy physical work or exercise</li> <li>• Maternal age (very young or older mothers)</li> <li>• Short time between pregnancies</li> <li>• A history of previous babies being small</li> </ul>
<p><b>Placenta:</b> <b>The placenta supplies oxygen and nutrients from mother to baby. If it does not work effectively, this can limit growth. Potential complications are -</b></p>	<ul style="list-style-type: none"> <li>• Insufficiency, where the placenta does not develop or function properly</li> <li>• Abruptio, where the placenta partially or completely separates from the uterus before birth</li> </ul>
<p><b>Fetal:</b> <b>Factors related to the baby may include -</b></p>	<ul style="list-style-type: none"> <li>• Chromosomal / genetic conditions</li> <li>• Infections</li> <li>• Congenital or metabolic conditions</li> <li>• Multiple pregnancy (such as twins or triplets), where babies share space and nutrients</li> </ul>
<p><b>Genetics -</b></p>	<ul style="list-style-type: none"> <li>• Small parents</li> <li>• Previous small babies</li> </ul>

## MONITORING AND MANAGEMENT: IUGR

**Care during pregnancy focuses on close monitoring and supporting the baby to remain in the womb safely for as long as possible.**

This may include:

- Accurate dating of the pregnancy early on
- Regular ultrasound scans to:
  - Monitor growth
  - Assess blood flow in the umbilical cord and placenta
  - Measure amniotic fluid
- Fetal monitoring such as CTG (cardiotocography) to assess the baby's heart rate

General measures may include:

- Treatment of maternal medical conditions
- Advice on nutrition and activity
- Support for stopping smoking, alcohol or substance use

In some cases, early delivery may be recommended. This decision carefully balances the risks of prematurity against the risks of continued poor growth.

Babies affected by IUGR may need ongoing monitoring after birth, regardless of their size at delivery.

**Most babies born SGA are healthy and grow well.**

- Growth (weight, length/height and head circumference) should be measured and accurately plotted:
  - Every 3 months in the first year
  - Every 6 months after the first year
- Around 90% of babies show catch-up growth by 2 years of age
- Most catch-up growth happens in the first year of life
- Babies born prematurely and SGA may take up to 4 years to reach expected height ranges

**If growth is not as expected:**

- Further investigations may be needed
- Other growth conditions should be considered
- Referral to a specialist may be recommended

Growth hormone treatment is licensed in the UK for children born SGA who have not shown catch-up growth by 4 years of age, following specialist assessment.

**Development and longer-term considerations**

- There is a small association between SGA and neurodevelopmental difficulties
- Any concerns about development should be identified early so support can be put in place
- There are small increased risks of early puberty and/or metabolic conditions later in life which can be monitored as part of routine paediatric care



## MONITORING & SUPPORT

Support and treatment depend on the underlying cause and the baby's needs.

This may include:

- Careful assessment and monitoring after birth
- Support with feeding
- Regular growth and development checks
- Referral to specialists such as endocrinology if needed

Although most babies born SGA catch up in growth, ongoing monitoring is important to ensure that any underlying conditions are identified early.

If you have concerns about your child's growth or development, discuss them with your healthcare team, who can arrange further assessment or specialist referral if required.

**More information on childhood growth and genetic target height can be found in our Parent/Carer guide here.**



## SGA & GROWTH HORMONE TREATMENT

In the UK babies born SGA, who do not experience 'catch up growth' by the age of 4 years, are eligible for growth hormone treatment.

### **What is "catch-up growth"?**

Catch-up growth means a child grows faster than average after birth, allowing them to move closer to the normal height range for their age and genetic target height.

Catch-up growth usually:

- Occurs mainly in the first year of life
- Is mostly complete by 2–3 years of age

### **What does "no catch-up growth" mean?**

A child may be considered to have failed to show catch-up growth if:

- Their height remains well below the normal range for their age, usually below  $-2.5$  standard deviation scores (SDS)
- Their growth rate (growth velocity) is slower than expected over time
- There is no sustained improvement in height centile despite careful monitoring

These assessments are made using accurate, repeated growth measurements plotted on the recommended UK growth charts.

## NICE GUIDANCE FOR GROWTH HORMONE TREATMENT FOR SGA

**NICE recommends that growth hormone treatment may be offered to some children born SGA if all of the following apply:**

- The child was born small for gestational age
- They have not shown catch-up growth
- Their height remains significantly below average for their age and genetic target height
- They are 4 years of age or older
- Other possible causes of poor growth (such as medical, genetic or hormonal conditions) have been carefully investigated and excluded
- Assessment has been carried out by a Paediatric Endocrinologist

Children born SGA do not need to have growth hormone deficiency to be eligible for treatment. But they may undergo a growth hormone stimulation test to check if they are deficient.

Scan this QR code to read the  
NICE guidance for Growth  
Hormone Therapy



## GROWTH HORMONE TREATMENT FOR SGA

### **Why is treatment not started earlier?**

Growth hormone treatment is not started in infancy or early toddlerhood because:

- Most children born SGA catch up naturally
- Early treatment could expose children to unnecessary medication
- Growth patterns need to be monitored over time

Careful observation over a period of time helps ensure that treatment is offered only to children who are unlikely to catch up on their own.

### **How is growth hormone treatment given?**

- Growth hormone is given as a daily injection
- Parents or carers are taught how to give the injection at home
- Treatment usually continues for several years, depending on response

### **How is progress monitored?**

Children receiving growth hormone treatment will have:

- Regular height and weight measurements
- Monitoring of growth response and general health
- Dose adjustments if needed
- Ongoing review by the specialist team

If a child does not respond, or seem not to be benefitting, treatment may be stopped.

## Facebook groups

The CGF maintains and oversees a number of closed Facebook groups covering the conditions we support. These offer peer support, which can be vital in helping those living with rare conditions.

IUGR/SGA facebook group:  
[facebook.com/groups/iugrsga](https://www.facebook.com/groups/iugrsga) or scan the black QR code, right.



## CGF's IUGR/SGA webpage

Our website has a dedicated IUGR/SGA page at:  
[childgrowthfoundation.org/](https://childgrowthfoundation.org/) or via the blue QR code, right. This page has specialist information and resources, plus personal stories from families affected by SGA & IUGR





## GLOSSARY OF TERMS

**We hope you have found this booklet easy to understand and that the medical terminology has been explained simply within each section. Below are further explanations of some of the terms used. However, if you have any questions or would like to speak to someone about the content of this booklet, please don't hesitate to get in contact with the CGF (details on page 17).**

**Amniotic fluid** - Amniotic fluid is a liquid that cushions a baby in the amniotic sac during pregnancy

**Cardiotocography (CTG)** - measures a baby's heart rate. At the same time, it also monitors any contractions in the womb (uterus)

**Chromosomal and Genetic conditions** - occur due to changes in the structure or number of chromosomes. These alterations can result in various health conditions and developmental issues

**Congenital** - describes any condition, disorder, or physical difference that is present at the time a baby is born

**Doppler studies** - is a non-invasive test that can be used to measure the blood flow through blood vessels

**Early puberty** - puberty is when a child's body begins to develop and change as they become an adult. Early puberty is when these changes begin earlier than expected. For girls this would be before 8 years of age, for boys this would be before 9 years of age

**Genetic target height** - is the expected height range of an individual based on both their parent's heights

**Growth velocity** - refers to the rate at which an individual grows over a specific period of time, usually measured in terms of height or weight

**Metabolic condition** - is the name for a group of health problems such as type 2 diabetes or conditions that affect your heart or blood vessels

**Serial ultrasound scans** - involve repeated ultrasound exams at regular intervals during pregnancy. Ultrasound scans use sound waves to build a picture of the baby in the womb.

## FURTHER SUPPORT FROM THE CGF

*"The CGF are unique as they support people with a wide range of growth-affecting conditions. Their team, supported by Medical Advisors, encompass extensive expertise and importantly includes those with lived experience. The CGF is a very friendly and approachable charity that provides numerous opportunities for patients and families to connect with each other and Medical Advisors."*

–Professor Helen Storr,  
Professor and Honorary Consultant in Paediatric Endocrinology

Our charity supports hundreds of children, young people, adults and families each year through our in-person and virtual events, and we help thousands of people in the UK and beyond with our online information, guidance and support.

We provide peer support including our Virtual Cuppa & Chats run by our nurses and involving parents and carers, alongside closed Facebook groups, and also opportunities to meet other families in the child growth community through our in person Meet Ups and convention – and much more! See our full range of support at: [childgrowthfoundation.org](http://childgrowthfoundation.org)

*"I just wanted to say a big thank you. The information was so helpful. It was a comfort to talk to you and the other parents, I feel less alone with what we are going through."*

–Virtual Cuppa & Chat attendee feedback

If you have any questions regarding the information contained in this booklet, or any other queries, please get in touch with our friendly team.

How to contact our nurse led Support Line:

- Call our dedicated Support Line number: 020 8995 0257
- Complete our Support Line online contact form:  
[childgrowthfoundation.org/supportline](https://childgrowthfoundation.org/supportline)
- Email us at: [support@childgrowthfoundation.org](mailto:support@childgrowthfoundation.org)
- Book a slot at: [childgrowthfoundation.org/bookings](https://childgrowthfoundation.org/bookings)
- Scan the QR code, below:



*By contacting the Child Growth Foundation Support Line, you are providing consent for us to collect, process and store your data to provide you with the information or services you are contacting us about, in line with our Support Line Privacy Statement [childgrowthfoundation.org/supportlineprivacy](https://childgrowthfoundation.org/supportlineprivacy) and our charity's Privacy Policy at: [childgrowthfoundation.org/privacy](https://childgrowthfoundation.org/privacy)*

**GET INVOLVED**

The CGF is an independent charity that depends entirely on your support to continue it's work. If this resource has helped you, we'd be grateful if you'd consider becoming a member or making a donation via the QR codes below.

**Make a donation****Become a member****Fundraise****Volunteer**

Help us continue making a difference wherever growth is a concern. Find out more on how to get involved at:

[childgrowthfoundation.org/get-involved](https://childgrowthfoundation.org/get-involved)

## Acknowledgements

With thanks to:

- Professor Helen Storr

## Disclaimer

We have taken every care to ensure the accuracy of the information contained in this booklet. The information enclosed should not be used as a substitute for the advice from a clinician, GP or other healthcare professional.

## Feedback

Your feedback helps us to ensure we are delivering information to the highest standard. If you have any comments or suggestions, please contact us at [info@childgrowthfoundation.org](mailto:info@childgrowthfoundation.org) or on 020 8798 2139.



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