

IUGR vs SGA:

A Q&A session with Dr Justin Davies, Consultant Paediatric Endocrinologist.

What is the difference between the terms “intrauterine growth retardation” and “being born small for gestational age”?

Some health professionals use the terms “intrauterine growth retardation (IUGR)” and “being born small for gestational age (SGA)” interchangeably. This terminology is not, strictly speaking, the same and communicates different aspects of growth.

Intrauterine growth retardation or restriction (IUGR)

To assess the growth of a baby in the womb, accurate knowledge of the gestational age is important so that fetal growth can be correctly interpreted on a growth chart. An assessment of gestational age is made from a first trimester ultrasound scan and serial antenatal ultrasound scan measurements of estimated fetal weight and abdominal circumference are used to evaluate fetal growth.

IUGR describes inhibited growth whilst the baby is in the womb. The growth rate of a fetus with IUGR is slower when compared to the expected normal fetal growth rate. If a fetus has IUGR it implies there is a pathological restriction of genetic growth potential.

Babies born small for gestational age (SGA)

A standard deviation score (SDS) is a useful way of comparing birth weight measurements between children by correcting for the effects of age and sex on birth weight. For example, if a baby boy was born prematurely at 32 weeks gestation, to understand whether the birth weight was normal, the birth weight

should be compared to other male babies born at 32 weeks gestation in a comparable population. As there is a difference in birth weight between males and females, the birth weight should be compared to male babies. The distribution of birth weight for all boys and girls is normally distributed. A birth weight SDS of zero equates to a baby born on the 50th centile for weight on a growth chart.

Babies are classified as born SGA when their birth weight or birth length is more than two SDS below the mean i.e. less than -2 SDS. In the UK, birth length is not routinely measured. Therefore, in practice, as the second centile on a growth chart approximates very closely to -2 SDS, this means that those babies with a birth weight less than the second centile for weight are considered as being born SGA.

What are the causes of IUGR and SGA?

The causes of IUGR or being born SGA are similar and can be broadly classified as maternal causes e.g. poor nutrition; placental causes e.g. infection; fetal causes e.g. multiple pregnancy such as twins or genetic causes; and demographic causes e.g. short parents.

It should also be noted that it can still be normal for a baby to have a birth weight less than the second centile or less than -2 SDS, it just occurs less frequently in the population.

What are the differences between IUGR and being born SGA?

IUGR describes a reduction of the fetal growth rate but is not defined by the subsequent birth weight, whereas birth weight is used to define SGA.

It is therefore possible for a baby to be born SGA but with no prior IUGR. In this case, the baby would have been small throughout the pregnancy and with a normal growth rate and born with a low birth weight i.e. born SGA but with no IUGR. Alternatively, a baby could have had IUGR but be born with a normal birth weight. In this case, the baby's growth in the womb would be poor leading to IUGR, but not to the extent that the poor growth rate caused a low birth weight.

Knowing whether a baby had IUGR or was born SGA may help the clinician identify the cause of abnormal growth during childhood.

Dr Justin Davies, Consultant Paediatric Endocrinologist,
Southampton Children's Hospital, UK.