

# The hormone IGF-1: A trigger of puberty

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Puberty is triggered by pulsatile release of GnRH from specific nerve cells in the the brain. What signals tell these nerve cells to release GnRH in this manner has not been determined, although it has been suggested that hormones associated with good nutritional status (such as IGF-1) have a role. New research has now confirmed that in mice IGF-1 does indeed have a key role in coordinating the timing of puberty onset.

The onset of puberty is triggered by pulsatile release of the [hormone](#) GnRH from [nerve cells](#) in a region of the [brain](#) known as the hypothalamus. Exactly what signals tell these nerve cells to release GnRH in this manner has not been determined, although it has been suggested that hormones associated with good nutritional status (such as insulin and IGF-1) have a role. A team of researchers, led by Sara DiVall, at Johns Hopkins University, Baltimore, has now confirmed that in mice IGF-1 does indeed have a key role in coordinating the timing of puberty onset.

To study the issue, the team generated mice lacking either the receptor for insulin or the receptor for IGF-1 in GnRH-producing nerve cells. Male and female mice in which the receptor for [insulin](#) had been deleted displayed normal timing of puberty and fertility, but male and female mice with the receptor for IGF-1 deleted showed delayed pubertal development but normal fertility.

Furthermore, administration of IGF-1 to normal female mice triggered the onset of puberty. The authors therefore conclude that IGF-1 signaling is necessary for timely triggering of pulsatile GnRH production at puberty and that it helps coordinate puberty with a specific stage of body development.

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