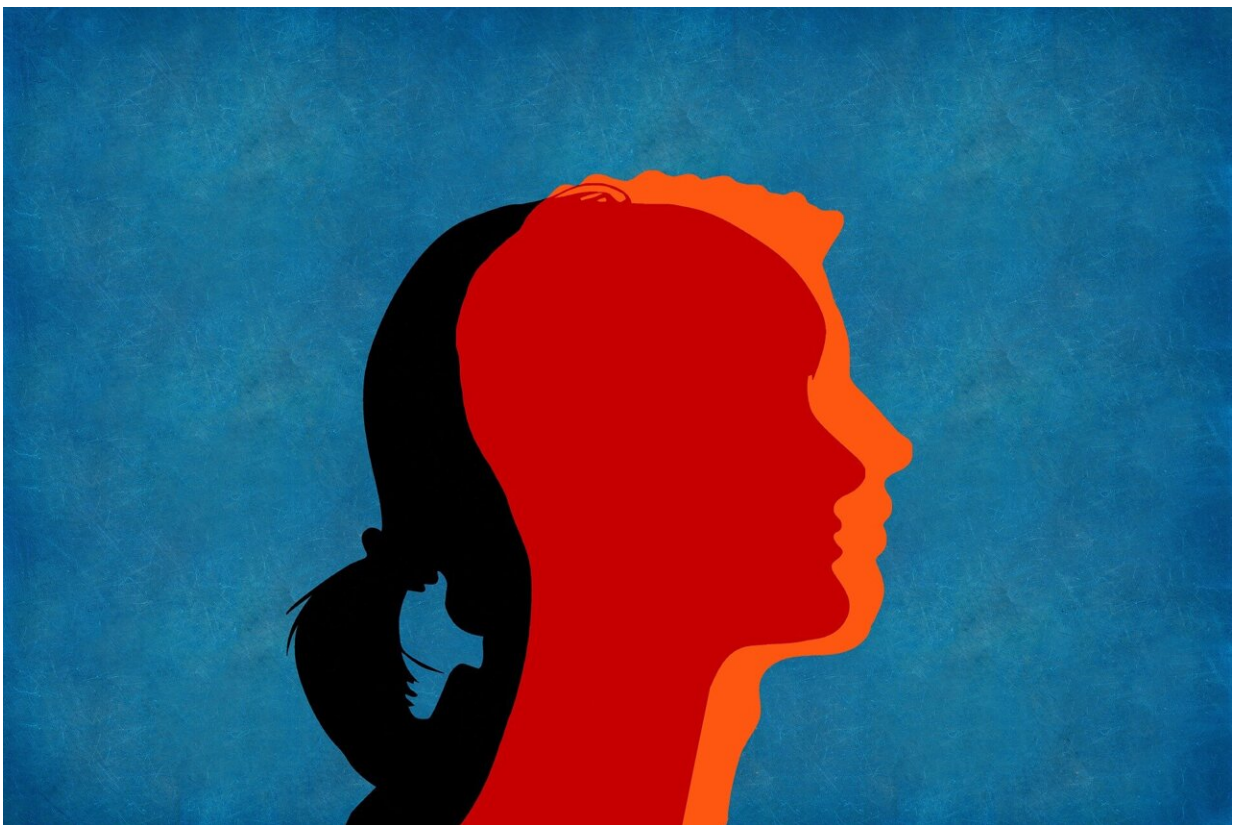


What are puberty blockers? What are the benefits and risks for transgender children?

August 30 2024, by Sasha Bailey, Cristyn Davies, Ken Pang and Rachel Skinner



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Puberty blockers are medications that stop the body from producing estrogen and testosterone. In the clinic, they're called gonadotropin-

releasing hormone agonists (GnRHa).

If adolescents take these medications during puberty, bodily changes associated with puberty are prevented. If these medications are stopped, these bodily changes resume.

Puberty blockers have been used [since the early 1980s](#) to treat early-onset puberty in [young children](#).

[Beginning in the 1990s](#), puberty blockers have also been used in transgender adolescents to help prevent the unwanted development of masculinizing or feminizing [physical changes](#) that occur during puberty.

What are the benefits for transgender adolescents?

Many transgender children [describe anxiety](#) about unwanted physical changes that will occur because of puberty, especially as adolescence approaches.

For those presumed female at birth, these unwanted changes include breast development and starting periods. For those presumed male at birth, these unwanted changes may include the development of a deeper voice, an Adam's apple, facial hair and a masculine physique.

Many of these physical changes are irreversible and result not only in [gender dysphoria](#) but also misgendering. This is when [transgender people](#) are mistakenly assumed to be the gender they were presumed at birth. Misgendering can be a significant and lifelong [source of distress](#).

Some transgender people will seek out surgery to address these unwanted irreversible changes. This might be to masculinize their chest, feminize their face, alter their voice, or reduce their Adam's apple.

For transgender young people and their families, the most obvious benefits of puberty blockers are to [avoid unwanted changes](#) that come with puberty. It can also reduce misgendering and prevent the need for future surgery.

Several studies have assessed the potential benefits of puberty blockers. A [2024 systematic review](#) of the research found consistent evidence showing they effectively suppressed puberty.

The study the review authors identified as being the [highest quality](#) found significantly improved psychological outcomes. Puberty blockers reduced suicidal thoughts and actions in transgender adolescents compared to those who had not accessed the treatment.

When should puberty blockers be started?

Puberty blockers can only be started once puberty has commenced. The age at which this occurs varies considerably between individuals. To avoid unwanted physical changes, puberty blockers should ideally begin in early to mid-puberty.

However, many transgender adolescents have been started on puberty blockers in late puberty or even after puberty has finished.

In [England](#), for example, at least 12 months of puberty-blocker treatment was previously mandatory for any transgender [adolescent](#) under 18 who wished to access estrogen or testosterone. This resulted in many young people starting puberty blockers well after their puberty was complete.

One potential problem with commencing puberty blockers beyond early or mid-puberty is that unwanted physical changes have already occurred, so many benefits of this treatment are no longer expected to occur.

The recent [systematic review on puberty blockers](#) noted that, while many studies saw improvements in psychological well-being, others failed to observe a difference. One possible explanation is that none of these studies accounted for the stage of puberty at which treatment was commenced.

Notably, [a more recent study from Harvard University](#) confined the analysis to treatment with puberty blockers in early to mid puberty. It found treatment was associated with significant reductions in anxiety, depression and suicidal thoughts.

Risks of puberty blockers for transgender adolescents

Puberty blockers are generally well-tolerated. But as with any medical intervention, they can also cause [unwanted effects](#). This includes reductions in bone density and fertility, and changes in adult height.

When started beyond early to mid puberty, they are more likely to cause menopausal-like side effects, such as hot flashes. This is due to a reduction in sex hormone production.

There are also potential long-term effects of puberty blockers that are still being investigated.

Brains mature substantially during adolescence. But it remains unclear what effect puberty blockers may have on cognitive development. While the use of puberty blockers in early-onset puberty has [not been shown](#) to affect cognitive functioning, [studies in transgender adolescents](#) are ongoing.

Where are the randomized controlled trials of puberty blockers?

[Randomized controlled trials](#) are typically considered the gold-standard way to study the effectiveness of medical interventions.

To date, there have been no randomized controlled trials of puberty blockers for transgender adolescents, which has led some to label this treatment as experimental. However, [conducting such trials of hormonal interventions](#) in transgender youth is problematic, as it would be unethical to withhold treatment for research purposes.

It's common not to have data from randomized controlled trials in pediatric care [more broadly](#). The use of puberty blockers for early puberty displays similar research gaps.

However, the politicization of trans young people has seen the use of puberty blockers in transgender adolescents held to a different standard.

How are puberty blockers accessed in different clinical settings?

In the [United Kingdom](#), puberty blockers will now only be [accessed by transgender adolescents](#) via the National Health Service (NHS) in a research setting, following the adoption of recommendations by the Cass review, which reviewed gender identity services available to children and young people via the NHS.

One of the main criticisms of the review was it failed to consider the likely harms of denying transgender adolescents hormonal interventions.

In Australia, [health experts](#) have also cautioned against comparing our health system to the NHS and highlighted that many of the review's recommendations align with existing practices within Australian specialist gender services.

Puberty blockers in Australia are accessed by transgender adolescents as part of a comprehensive, team-based approach to gender-affirming care. This emphasizes holistic, individualized care which considers the young person's stage of [puberty](#), while balancing potential benefits and risks.

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Provided by The Conversation

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