

# Why is Puberty Starting Earlier for Kids? | Dr. Andrew Huberman

We know that one of the things that can trigger the onset of puberty in particular in females is that when enough body fat accumulates that body fat releases a hormone called leptin. And that hormone leptin travels in the bloodstream across the blood brain barrier and goes to the hypothalamus and can trigger the onset of puberty by activating the neurons that release gonadotropin releasing hormone. So many people believe that one of the reasons that puberty is happening earlier and earlier in females is because of the accumulation of more body fat at younger ages than was observed 30 or 40 certainly 100 years ago. Now I can already imagine a number of people are thinking oh this must relate to the obesity crisis. And indeed there is a crisis of obesity. Obesity uh is something that is causing all sorts of um problems with people's health at various levels. Brain and body and that is far more frequent today than it was even 20 years ago. So it is indeed a crisis because it has enormous detrimental effects for so many aspects of of uh brain and body health and longevity. But this whole process of thinking about body fat signaling leptin into the hypothalamus and the onset of puberty doesn't necessarily have to do with the obesity crisis. It might relate but it could also relate to for instance improved nutrition which is allowing body fat stores to accumulate maybe not to the level of obesity but to accumulate earlier and at younger ages and females which is then causing earlier puberty in females. So just highlight how that might be possible. I want I want to review some data to talk about the onset of Menzies menstruation that is puberty in females according to country and according to age over the last 100 or more years. So what are the general trends in terms of the onset of puberty in females. Well that's an easy one to answer over the last 100 years or so. The onset of puberty has been occurring much earlier with each passing decade. It's really an incredible set of statistics. Um I'll I will provide a link to these data since I know a number of you are listening and not just uh watching on youtube. Um This is from a study in which the onset of puberty has been analyzed from as early as the 18 fifties right. In certain countries there are data on that out to the 19 seventies and another country starting at about 1900 um extending out to about 1990. These are ongoing collections of data but just to give you a sense to how the data are falling out in a couple of different countries just to give you a a flavor. But for those of

you listening and for those of you watching the essence of all of these findings is that puberty is happening much much earlier with each passing decade So for instance in the United States around 1900 or 1903 the average age of men or the onset of puberty in females was about 14 years old Whereas in 1990 the average age is 11 So that's a pretty significant um we can say acceleration of the onset of puberty Now of course these are averages So there will be exceptions there's a distribution of data today Still there will be uh young females who will undergo puberty at age 11 or 10 or maybe even nine and others who will undergo puberty at age 13 14 maybe even 16 or 17 However if we look at for instance the data from Norway which dates back uh quite far they have excellent record keeping to 1850 What we see is that the average age of the onset of female puberty in 1850 in Norway was 17 years old whereas in 1970 it's 13 years old So this is a dramatic acceleration of the onset of puberty and you see a similar trend in other countries as well So if we were to look in uh for instance in the UK Um they have a a smaller data set Um Meaning it only extends back to about 1940 but the average age of the onset of puberty in the UK uh in 1940 was 13.5 years old Again this is just uh for females and in 1970 it was closer to 13 with uh a trend towards declining even further Unfortunately they didn't continue to collect data out to uh 2022 And as a final point if we were to look at for instance in uh Germany and Finland uh the average uh onset of puberty in 1870 was 16.5 years old Uh By 1940 it was down to 13.5 years old So all of these data have borne out over and over again regardless of location in the world which is important because when you start to think about the obesity crisis you could say well that's mainly in developed countries believe it or not or perhaps not surprisingly And maybe it has to do with the obesity crisis And yet I don't think we can conclude that at all something is happening However it could be increased body fat stores due to overeating and obesity However it could also be unrelated to obesity It could be for instance improved nutrition and the avail availability of quality nutrition which can signal the maturation of the brain and body mechanisms that trigger the onset of puberty ovulatory cycle and menstruation So we want to be very careful about leaping to conclusions about what these trends mean but the trends themselves are very very apparent And as a final point I should also mention that there are a number of different behavioral and psychosocial as they're called interactions that can influence puberty as well This has been most strikingly observed in animals And so I don't want anyone to be alarmed or to leap to any great conclusions about the onset of

timing of puberty in humans But I'd be remiss if I didn't tell you about a certain result which shows that if a young female is exposed to the odor not necessarily the pheromones right There's a distinction between odors that we perceive and pheromones which are subconscious right that we don't actively perceive but that can impact our biology and pone effects in humans are very controversial But we know for instance that if you take a female animal and there's some evidence from humans that if you take a young prepubertal female and you expose her to the scent of a reproductively competent male for series of days but maybe even as short as a few hours and she is also not regularly being exposed to the scent of her father that she can undergo puberty earlier That's right There is something about the odor and or pheromones or perhaps something else that occurs when a young prepubertal female is in the has a father that she's in regular contact with he wouldn't necessarily have to live at home But that is around a lot that her his smell excuse me is registered by her biological systems that I don't wanna say protects because it kind of skews the uh the valence of the conversation But that that offsets or buffers the otherwise observed effect which is that the scent of a reproductively competent male if it's present often enough or perhaps intensely enough that it can trigger the onset of puberty In that female In other words the scent of a of a male that is not the father And we think also that is not biologically related to her can trigger earlier onset of puberty And that effect can at least be partially buffered by her being in the presence of the scent from her biological father Now some of you are probably already leaping to conclusions about what this means you know should you uh not allow your daughter to be exposed to any males who are of reproductive age et cetera And that's certainly not what I'm saying There's a huge number of considerations that um that go into that calculation for everybody in circumstances et cetera But the point is that the odors of individuals both related in particular closely related and non related individuals can shape the neural systems and the hormone systems that can trigger the onset of puberty or suppress the onset of puberty