Questions and Answers

Q1: Are there any time periods you think would be particularly illuminating to target for future research?

We have started to gather data from the Roman, medieval and post-medieval periods in England, and Bronze Age in Europe. These data are population specific and so the more information we have from different society types in each of these periods would be beneficial, as well as adolescents from outside Europe.

Q2: I am aware that in some time periods the concept of the 'teen' didn't seem to exist. Do you have advice about how to discuss issues of puberty/adolescence etc. in a way that does not apply anachronistic modern baggage that we have attached to a teenager?

Historians disagree about whether there was any concept of teenagers/adolescents in the past. I would argue that in medieval England at least they were very aware of young people and their behaviours (which we can get at through Court Rolls and Apprenticeship Contracts). Whatever the culturally specific aspects of this life stage, this group of individuals are changing biologically and this change would have been overt. The changes in the brain also mean they behave differently to adults (more impulsive) but whether this transition or behaviour is seen as positive or negative depends on the norms of the society in which they are raised. Their experience is not universal, and not all teenagers suffer the stereotypical 'angst'. I agree we need to be aware not to transpose modern ideas of a ‘teenager’ into the past, but we should not ignore that they are different to children and adults.

Q3: Regarding the energy trade-off, do females tend to have their menarche earlier, or are those with earlier menarche preferred through selection?

The age of menarche is so complex there is no easy answer to this. The understanding is that these trade-offs are at the epigenetic level (i.e. fetal programming having an immediate effect on that individual), but more research suggests epigenetic changes can be transgenerational. The age of menarche of a girl is also linked to that of their mother and 25-50% seen as genetic. Obviously, in groups where high death rates mean you may die before you can reproduce, becoming fertile earlier means you have a better chance of passing on your genetic material than those who reach sexual maturity later.

Q4: You said that with high mortality could lead to early menarche, reproduction hence short stature. You explained it’s an energy trade-off because the body focuses on reproduction rather than growth. Yet, your medieval data shows late onset, which is in line with research on modern societies (with good nutrition,
etc.) where onset is earlier yet mortality is low for young people and children in general. Could you comment, please?

Hopefully, it’s becoming clear just how complex the age of menarche is. There are so many factors at play and clinical studies often find contradictory results. I’m going to refer you to our recent paper (DeWitte and Lewis 2020) for a discussion of the issues. It is Open Access.

Q5: In regard to evidence for respiratory diseases - how do the differences in sex present in the adolescents compare to the difference in adults? i.e. is that difference still present in adults?

Today, men are more likely to contract TB than females, and women are more resistant. The fact we recorded more female adolescents with chronic TB (when only c.5% skeletons with TB show changes) might also suggest they were stronger – with males dying in the acute stages before changes appeared. Maxillary sinusitis is not fatal but adult females have higher rates in archaeological studies (e.g. see Roberts C, 2007. A bioarcheological study of maxillary sinusitis. American Journal of Physical Anthropology 133(2): 792-807). I think this is occupational. Women were more likely to be indoors. The most common occupation for females in medieval towns was domestic service.

Q6: My research is based on estimating the sex of subadult individuals in skeletal remains. Could understanding the onset of puberty and changes in hormones/skeletal growth between females and males potentially help find a more accurate way in estimating the sex of subadult descendants?

Potentially. The pubis is influenced by the sex hormones. I don’t know if this has been studied in non-adults to see if it is more sexually dimorphic after the age of 10 years.

Q7: You mentioned consistency of the onset as surprising. Is this onset consistent across populations in the same period (e.g. all medieval populations) or between periods (e.g. between roman and medieval)?

Arthur et al. (2016) provide an excellent review on some of the limitations of the method, esp. with regards to our use of estimated age and average ages of stage attainment.

Q8: I’m interested in the differences found in the skeletons from London. I know you mention that they likely had more stresses. Can you expand on what you think was the most likely factors?

I discuss this in my 2016 paper (On the Threshold…). I suspect the nature of medieval London with its exposure to pollution, diseases, and violence had an impact. Some of these adolescents would have been poor and malnourished, but I suspect the psychological stress played a role here – it is normally invisible to us. However, there would have been a lot of young migrants in London so the later average age of menarche would have been the result of many factors.
Q9: Is it possible that the pandemic could influence future adolescent population?

I have no doubt that human biologists and psychologists will be looking at the impact of this global pandemic on the age of puberty onset, menarche and adolescent mental health in individuals who were in the womb during 2020. Sharon DeWitte and explored similar questions in our recent paper on the impact of the Black Death.

Q10: When you have been collecting data have you been exclusively looking at the age range suggested by the WHO (e.g. 10-24)? If you were looking for more data for your database would this be the specific range you are looking for? Or would it be beneficial to expand out with that range?

My studies have included individuals from 9-25 years (and for the database), but we cannot assume that the growth spurt (bone fusion) will be complete after 25 years, and the brain continues to mature until 30 years!

Q11: How late does the female pelvis continue to develop?

It can continue to widen up to 30 years. See an interesting review here: Female pelvis adjusts for childbearing years https://www.sciencedaily.com/releases/2016/04/160425161209.htm

References


