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THE TRUTH ABOUT TEEN ANGST

They drink too much, sleep till lunchtime and hold adults in contempt. But it's not their fault and it may all boil down to biology. Rob Sharp investigates

Knuckles scraping the floor, a hoodie pulled over the face to conceal embarrassment, an inability to rise before two in the afternoon. Teenagers are associated with the worst of human behaviours – sloth, rudeness and excessiverisk-taking. But new research reveals that it might not be their fault.

Academics at the University of Oxford believe there are biological reasons why people aged from 10 to 20 need to stay in bed for longer than the rest of us. A study carried out by Russell Foster, chairman of circadian neuroscience Brasenose College, suggests that students perform better in the afternoon, because their “body clocks” – the mechanisms that control our urge to sleep and get up – are programmed two hours later for teenagers than for the rest of the population. This could be for hormonal reasons, he explains.

“There’s a biological predisposition for going to bed late and getting up late. Clearly, you can impose on that even worse habits, but they are not lazy,” says Foster. He even suggests that delaying the start of school by an hour or two would lead to a massive spurt in teenage productivity. The reasons for this shift in body clock are unknown. But there are plenty of hypotheses. “If sleep is important for memory and learning, dealing with emotions, and repair and recuperation, then teenage years have an awful lot of all that. That might explain the increased need for sleep, but it doesn’t explain the change in timing of sleep,” says Neil Stanley, a sleep researcher at the University of East Anglia.

Jim Horne, director of Loughborough University’s Sleep Research Centre thinks it is not just teenage body clocks that are unusual. “In puberty, the brain undergoes reorganisation and sleep provides the opportunity for the brain to do this,” he adds.

This theory is echoed by David Bainbridge, the Cambridge scientist and author of *Teenagers: A Natural History*. He says that this “rewiring” of the brain may mean that the adolescent body clock runs more slowly than an adult’s, making their day more like 26 hours long (so 8am feels more like 6am). “You see the opposite happen in hamsters, who think a day is 20 hours long,” he explains. He says it could also be because teenagers haven’t yet developed the mechanism required for registering fatigue. “They just don’t realise how tired they are.”

So if teenagers’ ostensible laziness has a scientific explanation, what other areas of their stereotypical lifestyles can we account for with science? In truth, rather a lot of them.

Untidiness

Dr Rachel Andrew, a chartered clinical psychologist and teenager expert, believes that the preconception that all teenagers are filthy little toerags living in bedrooms that smell worse than a pigsty is a false one. “It’s a bit of a stereotype,” she says. “I meet a lot of young people who are much tidier than you would expect. Some children just don’t see it as that important, and this could be because they have so much going on in their lives, emotionally speaking, that it is not a priority for them. It’s not their home so it’s probably not something they are going to attribute as much importance to as their elders do.”

Self-consciousness

We all know the familiar sight of a teenager stooping as they wander along the road (forced into their shells by their rapid, pubescent growth). “My lab focuses on specifically on this,” continues Blakemore. “We might put teenagers in a brain scanner and look at the areas of their brain that are active when they are embarrassed. What we find is that, when they are forced to think about themselves, a part of the brain called the medial prefrontal cortex becomes much more engaged.” This is much more active during such emotional moments in teenagers than adults. So what is the explanation? Some scientists say that, in evolutionary terms, younger animals that are dominant are more likely to provoke their superiors and get into fights that they cannot physically win (anyone who has walked past an office on the weekend can testify to this), so self-consciousness keeps them safe.

Risk-taking

“Teenagers will often take stupid risks that adults wouldn’t,” says Dr Sarah- Jayne Blakemore, a reader in cognitive neuroscience at University College London and author of *The Learning Brain*. “It all comes down to the relative sizes of different parts of younger people’s brains: with teenagers there is a mismatch in development.” She adds that the parts of the brain that control emotion and reward – the section of your head that will tell you, say, to “drive that car really fast” – develops quicker than other areas in young ’uns.

On the other hand, the bit in their brains that might exercise caution grows at a tardier pace. “The frontal part of the brain would normally try to slow down what we might like to do on first impulse,” she continues. “It inhibits risky behaviour. In adolescents, with all their various high levels of emotions, they don’t have so much capacity in their frontal cortex. Adolescents do take more risks, especially when they have a couple of mates behind them egging them on.”

Moodiness

Moodiness can result from a melange of emotions, hormones and physiological change, especially at such a psychologically vulnerable age as the teens. Boys and girls are pumped full of sex hormones, clouding their judgement, and this has associated psychological effects. “It is a time when someone is moving from childhood to adulthood and that throws up a lot of big issues,” says Andrew. “They move away from being solely dependent on their parents and place a greater reliance on their friends.” This also means that they begin to identify themselves with the values of their peers, which will be different to those of their family. This creates the impression of emotional distance. “We underestimate how much is going on. There are lots of stresses for them – it’s an important time educationally,” she continues. “There are pressures at home mixed with school. Parents are also going through some changes. We often forget about that.” These “old folks” also have to deal with the fact that their little princes and princesses might soon fly the nest. Physiologically, little is known about why the teenagers are behaving like this – no brain imaging study has been carried out in the area.

Love of loud music

Andrew says teenagers will often turn up loud music to help them forget about the stresses they may be undergoing during their day-to-day lives. “Whether or not you believe they hear things differently – and thus have a varied capacity to absorb noise – depends on who you talk to. But it’s just a normal for them to want some kind of distraction.” On the other hand, pumping up the stereo can be an expression of rebellion, according to Bainbridge, although it has also been linked to the release of dopamine in the brain, a chemical which he says is part of our “physiological reward-seeking pathway, which basically means enjoyment”. He’s not sure if this continues into adulthood, “but when you’re 15, the emotional part of your brain can react to music without the higher intellectual centres thinking, actually this is a bit naff. When you’re 25, you don’t have that openness any more.”

Rudeness

“The probability is that they are very selective about who they are rude and selfish towards,” says Bainbridge. “They might just exhibit such behaviour to their parents and younger siblings.” The Cambridge scientist claims that actively excluding parents by being mean and sullen is a cruel but necessary evil. He says it helps them sever their links with their parents and get used to their own independence. It is part of the same kind of developmental process as walking 10 steps ahead of your parents (so that, heaven forbid, people do not think you are related), or it might manifest itself as being annoyed at the way your father slurps his tea. “There has to be rejection if you’re going

to be a healthy adult,” he continues. “It’s important to have a strong sense of self and it’s almost as if the more you reject your parents the more you are doing that.” Andrew, on the other hand, thinks the evidence for such behaviour is scant at best. “I think they come in for bad press. I have worked as part of a youth offending team in the youth justice system and the amount of respect they show me is extraordinary. As a member of the public I am always quite surprised by how respectful teenagers are.”