

## - Convenience foods

# Are ultra-processed foods changing the shape of our jaws?

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Ultra-processed foods (UPFs) have caused concern among experts for their potential impact on human health, but now scientists have warned they might also affect how our bodies develop, in particular our jaws.



We take a look at the issue and explore what, if anything, should be done.

What has diet got to do with how our jaws develop?

A number of studies based on skull measurements of individuals from different populations have revealed the shape of the human jawbone is associated with diet.

Populations that rely on agriculture have been found to have differently shaped, typically smaller, jawbones than hunter-gatherers. This has been found in populations that lived either side of the transition to farming and in those living at a similar point in time but with a different diet. In the latter case, experts found the jawbones in children were similar before they were old enough to chew. Researchers have even found differences in the size and shape of jawbones of people who lived before and after industrialisation, a time when people began to rely more on processed foods. While teeth have also become smaller over time, experts say the size of the jawbone has reduced to a greater degree. Scientists say this could explain why many people today experience dental overcrowding, crooked teeth or misaligned bite.

“We can really see [malocclusion] accelerating when we transition to an industrialised diet,” said Dr Carolyn Rando, an associate professor in bioarchaeology and forensic anthropology at UCL.

The shift to smaller jawbones has also been linked to changes in the way we speak, helping humans form “f” and “v” sounds.

These associations are still being researched. However, one theory is that eating hard, chewy foods such as raw vegetables and meat requires a greater bite force, with research in animals finding more forceful chewing stimulates the growth of the jawbone.

What’s the link to UPFs?

UPFs are often very soft, with some experts warning this could contribute to children developing smaller jawbones.

The latest furore appears to have arisen in response to a pilot study, published last year, by a team in Spain. This work involved researchers studying the diets of 25 children aged three to five, and analysing the data alongside measurements relating to their teeth and skulls.

Among the results, the team found children whose diet mainly consisted of liquids and/or semi-solid foods had smaller gaps between their lower teeth than those who mainly had a solid diet. These gaps

are filled when adult teeth come through.

However, the study was small, did not consider whether the foods were UPFs, did not follow the children to look at the arrangement of their permanent teeth, and cannot prove cause and effect.

Prof Tim Spector, who is best known for his work on gut health, told the Telegraph: “The strongest current theory about why the jaws have been shrinking so rapidly is that we’re feeding our kids baby food really for the whole of their lives – so that they just don’t develop the jaw muscles or the size of the jaw, and you aren’t really adapted for chewing.

“This is just another sign of how western countries like the UK and the US have succumbed to this wave of soft, ultra-processed foods that is now the main diet of children, so many of whom are never really having hard proper foods.”

What do others say?

Dr Hayley Llandro, the director of external relations for the British Orthodontic Society, said changes to jaw development through diet could be possible, but this was likely to have occurred over many years of evolution. “There are not only environmental factors in skeletal and tooth development – genetics plays a significant role as well. Unfortunately, simply eating more food that needs chewing will not override our pre-existing genetic tendencies,” she said.

But Llandro added that limiting the consumption of UPFs could be beneficial, as they were often high in sugar and could result in tooth decay. “We would also say to parents not to be concerned that they need to feed their children hard foods just to prevent the need for braces, as this is not a guarantee.”

Rando said there was ongoing debate over whether the shift in jawbone shape was an evolutionary change or simply a response to an environmental shift. “Obviously, anthropologists [and] archeologists can look at long-term changes, whereas orthodontists are only looking at what they’re seeing in their clinical practice,” she said.

“It might be that small tooth size is more evolutionary, more genetic, but small jaw size seems to be more related to our environment, which is food.”

Rayon was less convinced UPFs would result in a dramatic shift to tiny jaws. “The softness [of the food], which is the big thing, it’s been similar for quite a number of years now,” Rando said, noting that even the Victorians often ate white bread and jam.

What about the TikTok trend for ‘mewing’?

The idea that the shape of one’s face can be dramatically altered by a series of exercises has given rise to a slew of videos on social media, and has been dubbed “mewing” after the controversial British orthodontists Dr John Mew, and his son Dr Mike Mew, who came up with the approach. The latter has recently been struck off.

The British Orthodontic Society said it would “like to remind the public that there is no scientific evidence to suggest patients can change the shape of their face or improve their intelligence by chewing or holding teeth and the tongue in a closed position or indeed making any kind of facial movements”.