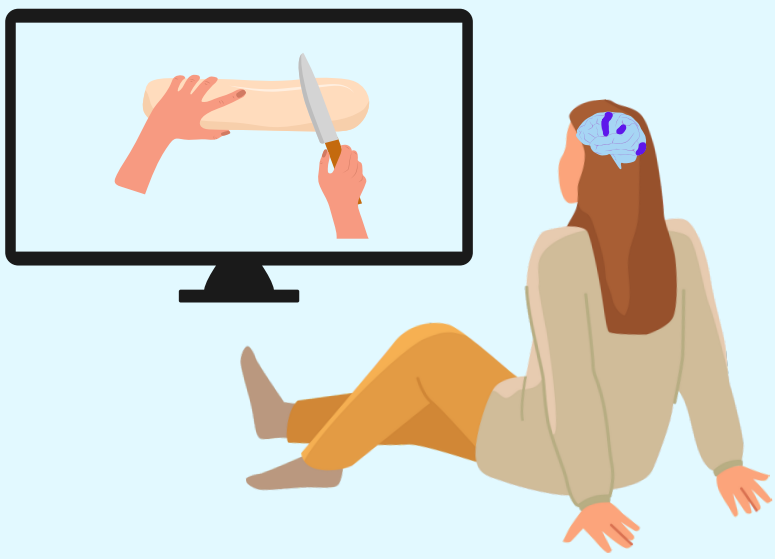
When we see what others do, our brain sees not what we see, but what we expect



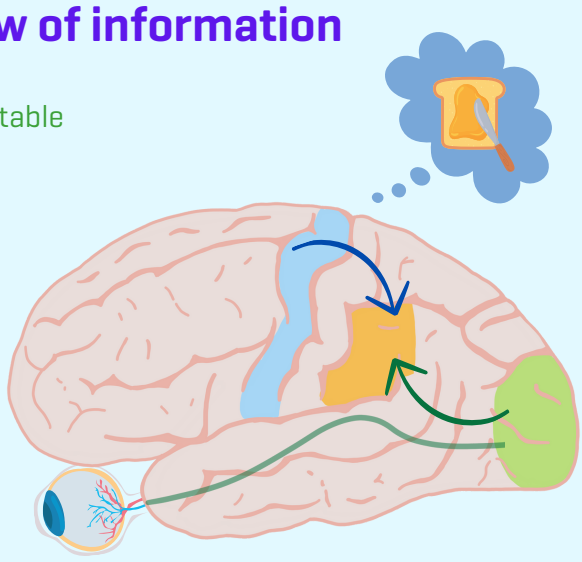
When we engage in social interactions, like shaking hands or having a conversation, our observation and predictions of other people's actions is crucial. But what exactly happens in our brain during this process: how do the different brain regions talk to each other?

It was believed that brain areas are activated in a specific sequence: first, the visual brain areas are activated, followed by the areas we use to perform similar actions ourselves (parietal and premotor areas). However, it turns out that is not always the case: 'Our brain often ignores what comes in through our eyes and relies more on predictions of what should happen.'

In our study, participants watched videos depicting everyday actions (such as making a sandwich). There were two types of videos: one type had a logical sequence (someone takes bread, slices it open, etc.), and in the other, the sequence was completely random.

Different flow of information

When participants watched the unpredictable sequence, the brain indeed exhibited an information flow as the classical model predicted: the brain relied more on what we actually perceive with our eyes. However, when participants watched the predictable scenario, the activity changed dramatically: here, your expectations determine what you ultimately 'see.'



What does this mean?

This finding is part of wider realization that our brain does not simply react to what comes in through our senses. Instead, we have a predictive brain, that permanently predicts what comes next. We see the world from the inside out, rather than from the outside in. Of course, if what we see violates our expectations, the expectation-driven suppression fails, and we become aware of what we actually see rather than what we expected to see.

Click here for more information and the press release

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