Prosopagnosia (Face Blindness)

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Prosopagnosia and the brain

Prosopagnosia (‘face blindness’) is characterized by severe difficulties in face recognition. People with the condition cannot recognize the faces of their closest friends and family, and often their own face. The pure form of the condition means people do not have any other difficulties and they can access all their stored knowledge about a person once they know their name. They can also still recognize objects. However, the pure form of prosopagnosia is very rare. Most people who acquire face recognition difficulties experience other cognitive and visual difficulties alongside this condition. This occurs because brain injury tends to affect a number of brain regions, and face recognition difficulties are one of several symptoms of brain damage rather than an isolated condition. Typically, the occipital and temporal lobes of the brain are affected. A specific region within the temporal lobe (the fusiform gyrus) is known to be particularly involved in face processing.

Patterns of prosopagnosia

The particular pattern of face processing and other cognitive and visual difficulties varies greatly between individuals with prosopagnosia. Many people have problems extracting information other than identity from a face, and may struggle to interpret a person’s gender, age or emotional expression. Some people are able to recognise that a face is familiar but not link the key contextual information known about that person to the face. Most people with prosopagnosia also have difficulties recognizing other classes of objects, such as cars, household utensils or garden tools. Many people also experience navigational difficulties alongside prosopagnosia. This can result from visual difficulties in processing angle or distance, or may be caused by poor memory for places and landmarks. Finally, more general visual impairments are frequently observed in people with prosopagnosia, such as the perception of luminance, colour, curvature, line orientation or contrast.
How do people with prosopagnosia look at faces?

People with prosopagnosia do not see faces in a distorted manner – they still see two eyes above a nose that is above a mouth. However, they find it very difficult to use this information to recognize familiar faces. They lack the ability to put the main facial features (i.e. the eyes, nose and mouth) together in order to see a face as a whole, taking into account not only the shape of the features but also the spatial distances between them.

Research suggests that people with prosopagnosia look at faces in an unusual manner. While typical people tend to only look at the inner features of the face (i.e. the eyes, nose and mouth) with a particular focus on the eyes, people with prosopagnosia tend to spend more time looking at the external features of the face (e.g. the hair and ears) and specifically avoid the eye region. As the inner features provide essential information for face recognition, an avoidance of these areas further suggests that people with prosopagnosia adopt unusual visual strategies for the processing of faces.

Diagnosis

Prosopagnosia is typically confirmed by taking part in a cognitive assessment. People with face recognition difficulties may be referred to a clinical neuropsychologist working within the NHS. Alternatively, they may be referred to a researcher who specialises in the field and is based at a nearby university. Researchers often accept self-referrals where the person with prosopagnosia or a parent/guardian contacts them directly.

A typical assessment session consists of a range of tests that assess a person’s more general cognitive and visual skills, in addition to their face recognition ability. These more generalized tests are carried out to examine whether any accompanying difficulties in memory, attention or vision may be contributing to the face recognition difficulty or affecting performance on the face recognition tests.

An assessment of IQ (Intelligence Quotient) may also be carried out to ensure that a person’s scores are compared to appropriate control data. The assessments are likely to include tests examining the ability to:

- memorise and later recognise a set of faces that have never been seen before
- recognise highly famous faces
- spot similarities and differences between faces that are presented side-by-side
• judge age, gender or emotional expression from a set of faces

Some tests will be presented on a computer, whereas flip-charts, vision charts and other materials may be used in other assessments.

**Treatment**

In most people, prosopagnosia is a permanent condition, although some people experience isolated episodes of the condition (for instance following migraine), after which their face recognition skills return to normal. However, most people’s face recognition skills do not spontaneously improve, and there is currently no known cure for the condition. Some researchers are developing training programmes that attempt to improve face recognition skills in prosopagnosia, and while these are unlikely to offer an actual cure for the condition, some published findings suggest regular training with faces may improve recognition. It is often possible for a person with prosopagnosia to directly contact a researcher to find out if they are eligible to take part in a research programme.

**Living with prosopagnosia**

Prosopagnosia can have a significant effect on a person’s everyday life, particularly when the condition is acquired after years of living with normal face recognition skills. People with prosopagnosia often worry that they appear rude, unfriendly or simply disinterested in others when they fail to recognize a person.

Prosopagnosia can also be difficult to understand for people who do not have the condition. Face recognition appears to be such an automatic process that many people cannot imagine that it is even possible to experience difficulties with this skill. Although many people with prosopagnosia cope well with the condition, others actively avoid social situations and experience social anxiety and reduced self-confidence.

Many people with prosopagnosia report the use of compensatory strategies that help them either to identify people or to disguise their failures of recognition, and some have found it useful to exchange their experiences with others. Often, people with prosopagnosia are able to identify familiar individuals when they are encountered within expected situations by putting together cues from a person’s non-facial appearance with contextual information. For instance, they might be able to say that the person operating the till at the local shop is Penny, the woman with very long hair that works in the shop every Saturday. However, when they unexpectedly bump into Penny when walking in the park, it may be much more difficult to identify her, even when her hair is styled as normal. Indeed,
compensatory strategies based on appearance and contextual cues do not always work, and may break down when a familiar person is met in an unexpected location or changes something about their appearance.

Some people with prosopagnosia describe more elaborate compensatory strategies, and may recognize others using accessories such as shoes, jewellery or handbags. Others try to avoid embarrassing situations where they fail to recognize people by ensuring that they are always the first person to arrive for a meeting (so the other person has to find them and not vice versa), by never using anyone’s name in case they have misidentified the person, and by saying ‘hello’ to everyone in case they are a familiar person.

Support for people with prosopagnosia

If you are struggling to cope or feeling socially isolated through prosopagnosia you may want to seek support and information.

- Some memory clinics and other groups for people with brain injuries may provide support and advice about this condition. The Encephalitis Society (www.encephalitis.info) runs Connection scheme, putting people with similar experiences in touch so they can get mutual support and share coping strategies .

- For a personal account of what it is like to live with prosopagnosia please see the Chapter by Barbara A Wilson and Claire "A face is not a person" in Wilson B.A, Winegardner J and Ashworth F "Life after brain injury; Survivors' Stories" (2013) Hove: Psychology Press.

Conclusion

While prosopagnosia can present as a ‘pure’ disorder where a person only experiences difficulties with face recognition, it occurs much more frequently amongst other cognitive and visual symptoms following brain injury. While some people cope well with prosopagnosia in everyday life, others may withdraw from social situations.

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