Headway
the brain injury association

Face blindness (prosopagnosia)

after brain injury

This publication has been written to help you to understand what face blindness (prosopagnosia) is, how it can be diagnosed and offers self-help tips for coping with this condition.

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What is face blindness (prosopagnosia)?

Some people with a brain injury develop a condition known as prosopagnosia, or ‘face blindness’. People with this condition cannot tell the difference between faces, including familiar faces such as their closest friends and family, or their own face in the mirror. This can be a cause of great distress, embarrassment, social isolation and loss of opportunities in careers and relationships.

Prosopagnosia is not a result of difficulties in remembering faces, visually perceiving faces or mental confusion. Instead, the difficulties are purely for facial recognition. The person can still access stored knowledge about a person once they know their name, and they can still recognise other types of objects.

Pure prosopagnosia is very rare, and most people who develop face recognition difficulties after brain injury also have other cognitive and visual difficulties alongside the condition. This occurs because brain injury tends to affect a number of brain regions, causing multiple difficulties.

This publication has been written to help you to understand what prosopagnosia is, how it can be diagnosed and offers self-help tips for coping with this condition.

The information in this publication does not replace clinical guidance from medical professionals. You should always get advice from your GP or other suitably qualified professional for help with managing the effects of brain injury.

How face blindness affects people

Face recognition comes so naturally to most people, so it can be very difficult for those without prosopagnosia to understand this condition. A good way to understand it is to think about our ability to distinguish individual animals, such as chimpanzees. Humans find it very difficult to identify chimpanzees unless they have a lot of practice looking at particular individuals. The chimps themselves, however, have no problem telling each other apart, but have great difficulty doing the same with humans.

The particular pattern of face processing and other cognitive and visual difficulties varies greatly among individuals with prosopagnosia. Many people have problems extracting information other than identity from a face, and may struggle to interpret a person's age or emotional expression. Most people with prosopagnosia also have difficulties recognising 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.

Causes of face blindness

Whether experienced alongside other difficulties or in isolation, prosopagnosia generally results from damage to specific brain areas. Typically it is parts of the occipital lobes and temporal lobes involved with perception and memory that are affected, especially a specific region within each temporal lobe known as the fusiform gyrus. The importance of this region for face recognition has led to it being commonly known as the fusiform face area (FFA). There is a fusiform gyrus in both sides of the brain, but it is the one in the right hemisphere that is usually associated with face processing.

Some evidence suggests that fusiform gyrus damage tends to bring about difficulties in face perception and recognition, whereas damage to other areas of the temporal lobes is associated with difficulties accessing memories of faces. It has therefore been suggested that there are two subtypes of prosopagnosia, one affecting the way we perceive faces (apperceptive prosopagnosia), and the other affecting our memory for faces (associative prosopagnosia).

These conditions may be caused by the precise location of the brain injury.

However, as noted above, it is rare that damage is confined to just one brain area, and prosopagnosia is often accompanied by a range of other cognitive and visual difficulties. This can sometimes make it difficult to interpret the nature of a person's face processing difficulties according to the two subtypes.

How people with face blindness perceive 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, etc.
However, they find it very difficult to use this information to recognise familiar faces.

Rather than processing faces as a whole, individuals with prosopagnosia seem to adopt a feature-by-feature strategy, in which faces are processed in a piecemeal manner and each feature is looked at in turn.
Not only does this make face recognition a longer and more difficult process, but it also ignores the spatial relations between features – information that is critical for successful recognition.

Diagnosis and treatment for face blindness

Prosopagnosia is typically confirmed following participation in a cognitive assessment session. People with face recognition difficulties may be referred to a clinical neuropsychologist working within the NHS or private practice.

Alternatively, they may be referred to a researcher who specialises in the field and is based at a nearby university. Researchers may accept self-referrals when 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 face recognition ability and also their more general cognitive and visual skills. The battery of face processing assessments is likely to include tests examining the ability to:

- Memorise and later recognise a set of faces that have never been seen before

- Recognise very 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, while flip-charts, vision charts and other materials may also be used.

More generalised 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 assessments. These tests may include an evaluation of IQ to be compared to appropriate control data.

Prosopagnosia is permanent in most cases, although some people experience isolated episodes of the condition (for instance following migraine), after which their face recognition skills return to normal. 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. While these are unlikely to offer an actual cure, some published findings suggest regular training with faces may improve recognition abilities. 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 program.

Living with face blindness

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. It can be very distressing and isolating to lack such a fundamental ability. Many people cope very well, however, some worry that they appear rude, aloof or simply disinterested in others when they fail to recognise a person. The condition may cause people to actively avoid social situations and experience social anxiety and reduced self-confidence. Relationships and career opportunities can also be affected.

Face blindness can be difficult for those without the condition to understand. Face recognition appears to be such an automatic process that many people cannot imagine that face blindness is even possible. Therefore, people with prosopagnosia may experience a lack of empathy and understanding for their difficulties.

Other than the obvious problems of failing to recognise people, the following everyday difficulties often affect people with face blindness:

- It can be very difficult to identify the characters in films and TV programmes, especially when they change their clothes. This makes understanding the plot extremely difficult. Films in which people look similar or have very similar clothing or hairstyles can be particularly confusing.

- Men can be particularly difficult to tell apart because they tend to have similar short hairstyles and casual dress.

- Many people with prosopagnosia have difficulty navigating and can be prone to getting lost.

- It can be very difficult to recognise signs of emotion in people's faces.
- Some people have difficulty telling left from right.
- Failure to recognise public figures such as celebrities and politicians means it can be very difficult to keep up with news and current affairs. This can hinder people when entering into conversations.
- Even people's race and colour aren't always easily identifiable.
- Reading books can be difficult because prosopagnosics cannot imagine characters' faces.
- Strategies for recognising people can be disrupted if familiar individuals change their appearance (a new haircut, teeth whitening, tan, etc) or their voice changes due to a sore throat.

Many people use compensatory strategies that help them either to identify people, or to disguise their failures of recognition. Often, people with prosopagnosia are able to identify familiar individuals when they expect to encounter them, by putting together cues from a person's non-facial appearance with contextual information. For instance, they might be able to infer 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.

Sadly, 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. For example, if unexpectedly bumping into Penny when walking in the park, it may be much more difficult to identify her, even when her hair is styled as normal.

Some people with prosopagnosia describe more elaborate compensatory strategies, and may recognise others using accessories such as shoes, jewellery or handbags. Others try to avoid embarrassing situations where they fail to recognise 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).

There are no easy ways of overcoming face blindness and probably the most effective technique is to be open and honest about the condition with friends and work colleagues so they will not expect you to recognise them in unexpected environments.

Tips for coping with face blindness

The following tips and strategies have been suggested by people with prosopagnosia. If you are prosopagnosic yourself then some of the suggestions may work for you, while others won't. Everyone is different and you will need to work out the right strategies for you. It can be a good idea to get someone to help you with this, such as a psychologist, occupational therapist, or even a partner, family member or friend.

Social strategies

- Avoid referring to people by name or saying anything specific until you are sure you have identified them correctly.

- At gatherings where there are some people you know, treat everyone in a friendly way. Smile and say

hello to people in passing and this will prevent people thinking you are ignoring them.

- When entering into conversation with people you can often work out their identity from what they say.
- Look for signs of recognition in people's body language.
- Try to avoid meeting too many people at once.
- Ask others to use people's names when addressing them in your company.
- When looking for someone in a group, ask someone you are sure is not the person you're looking for, such as a person of the opposite sex.
- Ask people to introduce themselves every time they see you with their names and how you know each other.
- Be careful when visitors come to the door and don't let people in until you are certain who they are. Other situations may also require caution.
- Try to take an interest in people and remember personal details from previous conversations. This can make up for an initial lack of recognition and ensures people don't think you just aren't paying attention. This is very difficult if you have memory problems as well, in which case keeping notes on people can help.
- Go to parties, meetings or other gatherings with a friend or colleague. Ask the other person to help you identify people before you talk to them.

- Ask people to wear name tags if appropriate.

Observational strategies

- Look at the rings on people's fingers. A lot of people wear their rings all the time so it can be a reliable way of identifying people in some circumstances, especially if the rings are distinctive.

- Look for other jewelry (such as necklaces and bracelets) and distinctive shoes.

- Hairstyles are one way of identifying people. This can work well when people have distinctive haircuts, but is less effective for conventional styles. Men are particularly difficult to tell apart by this method.

- Walking gaits are very individual, so some people can learn to recognise them effectively.

- With practice, people can be easily identifiable by the unique aspects of their accent, speech patterns and turns of phrase.

- Look out for distinctive mannerisms, nervous ticks, etc.

- Look at body shape and height.

- Regular acquaintances can be recognised by their car, bags, or pushchair, etc.

Memory strategies

- Invent a mnemonic for remembering someone's distinctive features, e.g., Dave's dimples; Pam's perm. You could even invent ways of remembering people by really mentally exaggerating particular features in the style of a caricature.

- Make diagrams and notes of where people are sitting in meetings.

- At meetings or parties write down what clothes people are wearing.

- Keep a notebook and make notes of people's identifiable characteristics and features.

Preparation strategies

- School teachers can create a seating plan for their classes so they know exactly where everybody is.

- You could ask if you can take pictures of people you know so you can study them. Alternatively, social media profiles can be very useful. You could add people as friends on social media and study their profile pictures.

- Some photography programmes and computer applications have face recognition technology which can suggest other pictures a person appears in. This can actually help to train you to notice things about a person's face.

Navigation strategies

- Smartphone applications can be invaluable for avoiding getting lost.
- Purchase a satellite navigation aid for car journeys.
- Learn how to read maps effectively for occasions when satellite navigation aids aren't available.

Watching films and TV

- Watch TV shows and movies with a friend who can help you identify characters. This also enhances the viewing experience by making it more of a social activity.
- Watch films with small casts of characters or one distinctive central character.

Conclusion

Face blindness can have a profound impact on everyday life. While some people cope well with prosopagnosia, others may withdraw from social situations and encounter significant problems at work. There are also issues of safety to consider. It is very important that people receive as much support, understanding and information as possible in order to manage these problems.

While prosopagnosia can present as a 'pure' disorder where a person only experiences difficulties with face recognition, following brain injury it occurs much more frequently alongside other cognitive and visual symptoms. It is very important when possible to work with rehabilitation specialists, such as neuropsychologists, who can help with the full range of problems.

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We hope that this has been a helpful resource. Please consider sharing your feedback with us by scanning the QR code or by visiting our publication feedback survey https://uk.surveymonkey.com/r/hwpublications.

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This information was last reviewed in 2023.

We're here to listen.

If you need support, or have a question about brain injury, contact our free nurse-led helpline:

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