

INFORMATION SHEET

Pica (Eating Inedible Objects) and Polydipsia (Drinking Excessively)



The following information sheet aims to explain what causes pica and polydipsia, and offers some strategies to reduce these behaviours. This sheet will focus on pica first, before exploring polydipsia (please turn to Page 7 for the polydipsia section).

What is pica?

Pica refers to eating objects which are inedible such as stones, coins, shampoo, clothing and cigarette butts. Children and adults may eat one specific inedible object, or lots of different ones.

Research into the causes, assessment and strategies for pica is very limited. This information sheet is based on the available research and current clinical practice.

What are the risks?

Whilst some objects pass through the body without harm, pica can potentially be life threatening. Risks include vomiting, constipation, infections, blockages in the gut and intestines, choking and poisoning. Sometimes surgery is needed to remove objects from the gut or to repair damaged tissue.

⇒ If you are worried about a child or adult who has eaten an inedible object it is vital that you contact their GP or your nearest accident and emergency department for medical advice.

What causes pica?

The specific causes of pica are not clear, but some conditions can increase the chance that a child or adult will develop pica. These are:

- learning disabilities
- autism
- diet lacking in iron or zinc
- pregnancy

It is estimated that between 4% and 26% of children and adults with a learning disability display pica behaviour^{1, 2, 3}. The more severe a child or adult's learning disability, the greater the chance that they will display pica behaviour⁴.

Health checks

Pica can be associated with mineral deficiencies, particularly iron and zinc⁵.

⇒ A general health check should be conducted by the individual's GP. Tests to rule out iron and zinc deficiencies should be considered.

There is some evidence which associates pica with mental health problems⁴.

⇒ A psychiatric assessment to rule out mental health problems should be considered.

Assessing pica

Functional assessment

To try to determine the causes of pica, professionals (including clinical psychologists and behavioural nurse specialists) generally use a functional assessment. This usually involves the professional interviewing the child or adult's main carer. They also include recording charts which are used to establish **why** an individual is eating inedible objects.

Together, this information is used to form a behavioural support plan, aimed at reducing or eliminating pica behaviour. Please see the Challenging Behaviour Foundation Information sheet "Finding the Causes of Challenging Behaviour" for detailed information on functional assessment and "Positive Behaviour Support Planning" for information about behaviour support plans.

In some circumstances an analogue assessment is used instead. An analogue assessment is a more rigorous experimental way of trying to establish what is causing the pica behaviour, using controlled artificial situations to 'test' what is contributing to the behaviour.

Challenging behaviour displayed by individuals with learning disabilities is usually caused by:

1. Social attention

Does the child or adult receive lots of attention after eating inedible objects? If so, they may have learned that this leads to being rewarded with lots of attention. Even negative attention e.g. shouting "no" can be rewarding. Additionally, the natural reaction to pica behaviour is concern and care, for example, a hospital visit may be needed. Being rewarded with attention, concern and care may increase the likelihood that the pica behaviour will be repeated again in the future.

2. To obtain a favourite activity, object, food or drink (tangibles)

Does the child or adult receive a favourite object, activity, food or drink after eating an inedible object? If so, they may have learned to associate this with getting a favoured item. This may lead to the behaviour being repeated again in order to get the favoured item. Additionally, the activities around going to a hospital or doctor's surgery may be rewarding for the child or adult (e.g., the ride in an ambulance/car).

3. To escape from an activity or situation

Does the child or adult escape from tasks they don't want to do, or situations that they don't want to be in, after eating an inedible object? If so, they may have learned to associate this with escape from disliked situations or tasks. This may lead to the behaviour being repeated again in order to escape situations/tasks.

4. Sensory feedback

Are the textures, tastes, smells or sights of the inedible objects a child or adult eats similar? If so, they may have learned to associate eating particular inedible objects with an enjoyable or unusual texture/taste/smell. Cigarettes are commonly eaten by individuals with a severe learning disability. Research has shown that the nicotine in cigarette butts reinforces the behaviour^{6, 7}.

Additionally, it is important that people have things and activities in their life that they enjoy to ensure that boredom doesn't lead to pica behaviour.

Note that children and adults who engage in pica for any of the reasons above will not usually be deliberately or consciously seeking the consequence. Instead in situations of need they automatically behave in ways which have been successful in the past.

Strategies for pica

The following examples of strategies are not an exhaustive list. They are examples of some of the ways clinicians and parents can work in partnership to try to eliminate or reduce pica behaviour.

Strategies based on the cause(s) of pica

1. Social attention

If pica is motivated by gaining social attention, a strategy may include ignoring the pica (if it is safe to do so) or stopping the child or adult from eating the object with the

least possible attention. This may include not giving any eye contact, keeping a 'neutral' facial expression and tone of voice, and only speaking to give instructions (no social chat). Giving the child or adult lots of positive social attention when they are not engaging in pica is vital. Trying to increase the child or adult's communication skills to give them a less dangerous way of requesting attention would be an important long term goal.

Case Study 1

After moving to a residential service, Samantha started to search out and swallow small objects around the house. The behaviour developed over the course of a year, from her picking up small items of fluff or paper from the floor and eating them, to swallowing coins, pen tops, and other larger items. This resulted in several trips to Accident and Emergency.

Staffing had been increased to monitor her continually and prevent the behaviour. Although this reduced the frequency considerably, she still managed to find small objects and swallow them, and continually looked for opportunities to do this.

She was observed for a period of several weeks, and the recordings showed that she was more likely to engage in the behaviour when there were fewer staff present. Because of the risk, staff reacted to the behaviour with lots of attention. It was felt that the behaviour attracted and kept staff attention. It was thought to have developed because she had moved from a home environment where she had continual attention to one where she had to share the attention of staff with other residents of the house. She had learned that putting things in her mouth resulted in lots of attention.

A strategy was developed where staff responded as little as possible when she ate something inappropriate, but gave her lots of attention when she was engaging in other behaviours. The behaviour reduced significantly, but still re-emerges occasionally when staffing levels are low.

2. To obtain a favourite activity, object, food or drink (tangibles)

If pica is motivated by getting a favourite activity, object, food or drink then a strategy may include making sure the child or adult can access their favourite activity or item without needing to eat an inedible item. Working towards increasing the individual's communication skills so they have another way to request their favourite activity or item (e.g., with a symbol or sign) would be an important long term goal.

3. To escape from an activity or situation

If pica is motivated by escaping from an activity or situation then a strategy may include looking for early warning signs. These can indicate that the child or adult wants to end an activity or escape from a situation. They can be any behaviours that tend to occur before the pica behaviour. If possible try to end the task/move to a new situation before the individual engages in pica. It is also important to look at why the child or adult wants to finish the activity. Is it something they don't like? Have they been doing it for too long? Is it too difficult?

Increasing the child or adult's communication skills so that they have a less dangerous way of saying "no" or "finished" or "break", e.g., signing "finished" would be an important long term goal.

Case Study 2

Susie shows a large number of repetitive behaviours that are associated with her autism. She tries to spend a lot of time on her own and away from other people. She had developed the behaviour of keeping small amounts of faecal material in her hand after visiting the toilet, and putting this in her mouth.

Clear records of the behaviour were kept, and it was found that because of the behaviour, she was interacted with far less frequently than other people she lived with. Carers openly said that they found it difficult to be with her because of the behaviour.

The observations suggested that she had developed the behaviour because she was unable to communicate to carers when she needed to spend time away from other people, but had learned that the behaviour let her do this.

A communication system was developed where Susie could clearly indicate to others when she wanted to be alone and staff would respect and facilitate this. Susie learned to use this system very effectively and the eating of faecal material disappeared. Observations were continued, and the amount of time she interacted with others actually increased. It was thought that this was because once she had a reliable way of isolating herself, she felt more in control of situations.

4. Sensory feedback

If pica is motivated by sensory feedback (e.g., the smell, colour or texture of the object) then a strategy may include giving the child or adult items which provide the same type of sensory feedback without being harmful. Once an alternative has been identified this could be scheduled in as an activity for certain times of the day to reduce the impact on the child or adult's daily routine.

Case Study 3

Ever since his family and carers could remember, Jimmy picked up cigarette butts in the street and from ash trays and would chew them and keep a ball of chewed tobacco in his hand. It had been thought that this was to get attention from others who spent a lot of time trying to prevent the behaviour, and in getting him to give them the chewed tobacco. The behaviour had significant health risks, and prevented Jimmy from participating in a number of ordinary day to day activities.

He was closely observed over a period of two weeks, and one of the important observations was that the behaviour happened when he thought he was on his own, and he would often put the tobacco that he had in his hand back into his mouth. It was also noted that Jimmy had a lot of sensory behaviours, e.g. he liked playing with water, running his hands over different textures etc. Following these observations, one idea was that the behaviour was sensory (that he liked the very strong taste). Another was that he might be addicted to nicotine.

Further observations suggested that even when he was unable to engage in the behaviour that he did not show withdrawal symptoms. A programme was devised to give him access to small amounts of very strong tasting foods (anchovies, marmite), especially when he was more likely to eat tobacco. Over a short period of time, Jimmy replaced the cigarette eating behaviour in favour of accessing the strong tasting food.

Increasing the number of structured activities and levels of engagement with other people has also been shown to reduce pica behaviour⁸. It is important to look at how many structured daily activities the child or adult takes part in and consider whether this should be increased to reduce boredom.

Other Strategies for Pica

Identifying incompatible/alternate behaviours (differential reinforcement)

Identifying behaviours which are incompatible with eating inedible objects and rewarding the child or adult for using these alternate behaviours can reduce pica. For example, if a student eats inedible objects when he is moving from one classroom to another you could tell him to keep his hands in his pockets when walking and reward him for doing so. As keeping hands in pockets is incompatible with picking up inedible objects and putting them in the mouth, this may be an effective strategy.

Providing alternative forms of oral stimulation

Chewing gum, theratubing (cylindrical rubber tube which can be used to bite on) and popcorn have been used to reduce pica. It is thought that they act as an alternative source of oral stimulation. Different tastes and textures may need to be tried before a suitable alternative is found.

Discrimination training

Does the child or adult think that everything is edible? Discrimination training involves explicitly teaching the ability to discriminate between food and non-food items. For example, a sorting task can be used and the child or adult can be asked to sort objects into edible and non-edible items. This could then be turned into a visual chart displaying edible and non-edible items.

Pica box

A pica box contains items which are safe for the child or adult to chew, mouth and/or ingest. It provides a supply of safe items on hand as an alternative to non-edible items. Items should resemble the appearance or texture of the items the child or adult has shown a preference for in the past. Initially the pica box should always be available. The amount of time the pica box is available for can then be reduced over time.

Aversive techniques

Historically unpleasant techniques which inflict physical or mental discomfort such as spraying water and using devices like helmets have all been used to treat pica. These techniques are no longer recognised as acceptable practice and every effort should be made to use non-aversive techniques.

What is polydipsia?

Polydipsia is a condition involving the constant desire to drink (even if that person is not thirsty). People with polydipsia may drink over three litres of non-alcoholic fluid in a day, and the most typical fluid drunk is water. However, individuals with polydipsia may also be at risk of drinking cleaning products such as bleach, toiletries and cooking liquids (for example cooking oil).

The aim of their behaviour is simply to drink, whenever there is an opportunity for it. This means individuals with polydipsia may also drink from inappropriate places, such as the toilet bowl or from a puddle of water.

This type of polydipsia is known as Primary Polydipsia, where excessive drinking is **not** caused by thirst. However, there is a second type of polydipsia caused by excessive thirst, in other words, individuals drink frequently because they are constantly thirsty. This constant thirst may be due to acid reflux, medication, or may

be a sign of diabetes. If an individual you know is constantly drinking because they're thirsty, you should contact your GP for advice.

For individuals with severe learning disabilities, primary polydipsia is more common and will be the focus for this section.

Polydipsia is a very serious condition; however there is a limited amount of research surrounding the causes and management of it. In a study of 110 patients in a long-stay hospital, approximately 14.5% of individuals with learning disabilities had polydipsia (Rowland, 1999).

If someone with severe learning disabilities is asking for a drink a lot, think about whether it is really a drink that they want. It is possible that they know how to request a drink (using words or signs), but aren't able to ask for other things or start an interaction with someone, so they are using a drink request as a more general communication of their needs. This would not be polydipsia and the best response would be strategies to improve the person's communication and other people's understanding of their communication.

What are the risks?

There are serious short-term and long-term risks associated with polydipsia.

Short episodes of polydipsia can lead to symptoms such as restlessness, nausea, confusion and vomiting. Drinking certain liquids, such as bleach, can lead to sudden problems for example, stomach and/or chest pain, and a burning sensation in the throat.

Hyponatraemia is a long-term risk, often caused by drinking too much liquid over a long period of time. This involves a reduction in the amount of salt in the blood. When there is less salt (sodium) in the blood, more water can flood the cells, even in the brain. One of the major problems with hyponatraemia is having too much water in the brain. Excess water in the brain could lead to swelling and severe brain damage.

What causes polydipsia?

Due to the lack of research, there are no specific causes of polydipsia. However, there are some theories as to why it may occur.

Many individuals with polydipsia will also display pica behaviour for very similar reasons. Please refer to the four functions of pica (under the Functional Assessment heading) for further explanation as to why people may display polydipsia.

There is a belief that these individuals with polydipsia (and pica) have a 'generalised tendency to ingest'. This may mean individuals are excessively drinking all different types of liquid because they can't make the distinction between safe and harmful liquids. For example, an individual may desire a drink and will reach for bleach

because it is the closest liquid available and they do not understand that this is a harmful liquid.

This difficulty in understanding also relates to distinguishing appropriate places to drink from. For example, some individuals may not understand that drinking from a puddle of water is not safe, and don't realise that they should be drinking water from the tap.

Another reason for polydipsia may be to mask any feelings of pain or anxiety. For example, a person with a stomach ache may drink lots of water to ease the pain as well as distract themselves from it.

For individuals with severe learning disabilities, polydipsia may occur because of problems with communication. This could involve individuals finding it difficult to understand what they are being told, or having difficulty in communicating to others when they want something.

Strategies for polydipsia

Due to the similarity between polydipsia and pica, some of the strategies used to help pica may also be helpful for individuals with polydipsia.

Carers could take note of what liquids are being drunk excessively and when this is happening. If it is found for example, a person drinks excessively on the day they are due to visit the dentist, it may be they are feeling particularly anxious about this trip, and drinking to mask their anxiety.

Also, for example, if a person is found to be drinking excessive amounts of cooking oil, it could be that they particularly like the taste of cooking oil. Carers could gradually try and replace these harmful liquids with a safer liquid which has a similar taste. Several drinks may have to be tried in order for an individual to begin to express their preference for the safer drink.

For individuals with polydipsia, it may be important to encourage new forms of communication. For example, if an individual could use sign language or other forms of communication to tell a carer they have a stomach ache, they could be provided with effective medication to help ease the pain, rather than relying on drinking water or other liquids to mask the pain.

What can you do?

- Request a general health check from a GP to eliminate medical problems as the cause of pica/polydipsia.
- Request a blood test from a GP to rule out iron and zinc deficiencies as the cause of pica.
- Request a mental health assessment to rule out mental health problems as the cause of pica or polydipsia.

- Ask your GP or social worker for a referral to a clinical psychologist or behavioural specialist for an assessment of pica behaviour/polydipsia and a behaviour support plan to help reduce or eliminate pica behaviour/polydipsia.

Whilst you are waiting for an assessment and behaviour support plan to be put in place, the following may be considered:

- As far as possible manage the child or adult's environment so that 'favoured' non-edible objects are out of reach/locked away. Specialist equipment may be necessary such as virtually indestructible mattresses. Please see the Challenging Behaviour Foundation information sheet "Specialist equipment and safety adaptations" for more details.
- Keep a careful record of attempts to eat inedible objects. What do they try to eat? Under what circumstances? This kind of information will be very useful to the assessment process
- Close observation may limit the ingestion of non-edible items. If the pica behaviour is severe and persistent you may wish to consider the following:

For a child: Make sure pica behaviour is included on the child's Education, Health and Care plan. As pica can be life threatening, insist that the child is supervised on a 1:1 ratio at all times. Details of hospital visits and medical appointments may be helpful as local authority budgets are stretched and obtaining this level of support may be very difficult. For more information see the Challenging Behaviour Foundation information sheet "Getting a Statement" or contact your local Parent Partnership Service.

For an adult: Make sure pica behaviour is detailed in the individual's care plan and person centred plan. If the adult requires 1:1 attention for the maintenance of their safety insist that they receive this. Details of hospital visits and medical appointments may be helpful as local authority budgets are stretched and obtaining this level of support may be very difficult. For more information on obtaining support see "Fair Access to Care Services (FACS). Guidance on eligibility criteria for adult social care", Department of Health (2003).

References for pica

¹ Danford, D. E., and Huber, A. M. (1982). *Pica among mentally retarded adults*. American Journal of Mental Deficiency, 87 (2), 141-146.

²Dudley, J. R., Ahlgrim-Delzell, L., and Calhoun, M. L. (1999). *Diverse diagnostic and behavioural patterns amongst people with a dual diagnosis*. Journal of Intellectual Disability Research, 43, 70-79.

- ³ McAlpine, C., and Singh, N. (1986) *Pica in Institutionalized Mentally Retarded Persons*. Journal of Mental Deficiency Research, 30 (2),171-8.
- ⁴ Dudley, R., Ahlgrim-Delzell., L and Calhoun, M. (1999) *Diverse diagnostic and behavioural patterns amongst people with a dual diagnosis*. Journal of Intellectual Disability Research, 43, 70-79.
- ⁵Pace, G. M., and Toyer, E. A (2000). *The effects of a vitamin supplement on the pica of a child with severe mental retardation*. Journal of Applied Behavior Analysis, 33, 619-622.
- ⁶Piazza, C. C., Hanley, G. P., & Fisher, W. W. (1996) *Functional analysis and treatment of cigarette pica*. Journal of Applied Behavior Analysis, 29, 437-450.
- ⁷Goh, H-L., Iwata, B. A., Kahng, S. W. (1999) *Multicomponent assessment and treatment of cigarette pica*. Journal of Applied Behavior Analysis, 32, 297-316.
- ⁸ Mace, F. C., & Knight, D. (1986) *Functional Analysis and Treatment of Severe Pica*. Journal of Applied Behavior Analysis. 19, 411-416.

References for polydipsia

Rowland, George, H. 'Polydipsia in adults with learning disabilities: Prevalence, Presentation and Aetiology' *The British Journal of Developmental Disabilities*, Vol. 45, Part 1, 1999, pp. 52-62

Adetoki, A., Evans, R., and Cassidy, G. 'Polydipsia with water intoxication in treatment-resistant schizophrenia' (for definition)

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