



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF BEHAVIORAL HEALTH AND DEVELOPMENTAL SERVICES

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### Office of Integrated Health – Health Supports Network **Pica Health & Safety Alert**

#### Introduction

Pica is defined by the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition (DSM5), as craving and eating non-nourishing, nonfood items over a period of at least 30 days' time (18)(14)(4).

The word 'pica' is taken from the Latin word for magpie bird, 'pica – pica'. The magpie bird, gathers, hoards, and swallows a variety of different objects whether they have any nutritional value or not, because of their curiosity (6)(18)(14).

Children under the age of 24 months are notorious for putting nonfood items in their mouths as they discover the world, this is why a diagnosis of pica is not typically done until after the second birthday. During pregnancy some women have been known to experience pica cravings and, in certain cultures, it is socially acceptable to consume nonfood items in the regular diet (18)(14)(4).

Pica is diagnosed at higher rates in individuals with intellectual and developmental disabilities (IDD), in particular those with Autism spectrum disorder (ASD). The increased rates of pica in the IDD population are thought to be connected to social isolation and secondary mental health disorders (10)(8).

Pica can affect any gender individual, or age individual over two years. The nonfood item(s) an individual chooses to eat varies per individual, but may include items such as cigarette butts, corn starch, clay, ash, charcoal, pebbles, metal, gum, paint, baby powder, chalk, soil/dirt, wool, cloth, string, hair, soap, plastic, paper, wood, nails, pins, screws, feces, vomit and even excessive ice chewing (16)(18)(14).

Eating nonfood items can lead to serious or fatal health complications such as choking, intestinal parasites, intestinal obstruction, bowel perforation, poisoning and sepsis (6)(18)(4).



## More about Pica

Pica is considered a secretive eating disorder and a serious form of self-injurious behavior (SIB) which occurs with or without apparent intent of harm to self (16)(18)(14).

Pica can be a self-stimulating behavior in which individuals take pleasure in swallowing and chewing preferred non-food items. Pica has been described as a strong craving, and/or an irresistible impulse, or obsession, which is very difficult for the individual to resist (15)(6).

Availability of items in an individual's environment may directly impact an individual's choice and selection of a particular non-food item. Clay and corn starch are the two most common items ingested (12).

Pica behaviors impact an individual's quality of life and can have a wide range of possible health consequences (3).

An individual's physical health, mental illness, culture, income level, and/or attention seeking behavior have all been connected to pica (12)(14).

## Risk of Developing Pica

Researchers are unsure why pica occurs in some individuals. Many theories exist and medical experts have varying opinions as to a definitive cause (16)(6)(14).

The ingestion of clay, dirt, and starches has been connected to iron deficient anemia, and/or the lack of certain vitamins or mineral in the body, such as zinc and magnesium (16)(14).

Iron deficiency anemia and increased oxygenation of the brain have been linked to obsessive ice chewing, which is also considered a form of pica (14).

Some experts think pica in pregnant women and very young children may be linked to hormone production during rapid periods of growth or sensory stimulation (19)(14).

Health factors connected to the development of pica include:

- Individuals with intellectual and developmental disabilities.
- Autism spectrum disorder (ASD).
- Nutritional insufficiencies of vitamins or minerals.
- Epilepsy.
- Pain relief.
- Enjoyment of taste, smell, or texture of a particular non-food item.
- Family members with a history of pica (16)(18)(14).

Mental health and behavioral factors connected to the development of pica include:

- Increased stress levels.
- Attention Seeking.
- Mental health disorders.
- Childhood neglect and/or abuse.

- Separation or emotional disturbance between a mother and their child during formative years.
- A secondary diagnosis of schizophrenia, obsessive compulsive disorder (OCD), and/or the compulsive pulling one's own hair (trichotillomania) then eating it (16)(18)(14).

Cultural and/or economic factors related to the development of pica include:

- Cultural acceptance of ingesting nonfood items, such as eating dirt to show a spiritual connection to the earth.
- Living in low-income communities with absent parents and/or increased hunger with a lack of adequate nutrition (16)(18)(14).

## **Signs & Symptoms**

Healthcare professionals have been known to miss the signs and symptoms of pica because everything may look normal during a physical assessment, depending on the items ingested (12)(20).

Mild symptoms of pica will vary depending on the item(s) swallowed and how much an individual may have ingested.

Common mild symptoms include:

- Nausea.
- Upset stomach.
- Vomiting.
- Bloating from constipation or bowel blockage.
- Blood in stool.
- Painful cramping.
- Intestine fatigue.
- Behavior issues.
- Poor nutrition.
- Tooth abrasion, decay, sensitivity, erosion, and loss.
- Unexplained weight loss (7)(4)(14).

More serious complications related to pica are:

- Malnutrition.
- Choking.
- Lead poisoning.
- Bowel obstruction or ulceration.
- Intestinal rupture.
- Mercury poisoning from high amounts of paper consumption.

- Soil-borne microbial infections from dirt and clay.
- A mass of undigested material trapped inside the stomach (Bezoar).
- Electrolyte imbalance such as zinc deficiency, hypokalemia, hyperkalemia, hyperphosphatemia, and metabolic alkalosis.
- Infection leading to sepsis.
- Major health threats from hazardous materials (12)(16)(18)(4)(14).

Serious complications of pica can result in surgery and can also lead to death (10)(16)(4)(14).

### **Medical Management of Pica**

There is no single test or lab result to identify pica. Blood tests to check for anemia, low iron, low magnesium, or zinc can be used to monitor deficiencies. Labs can be done to screen for lead poisoning, to address signs and symptoms of toxicity, and to detect parasites which can be connected to possible pica complications (12)(20)(4).

Experts believe instances of pica are under-reported and can progress undetected in individuals for many years until serious medical problems occur (10)(12).

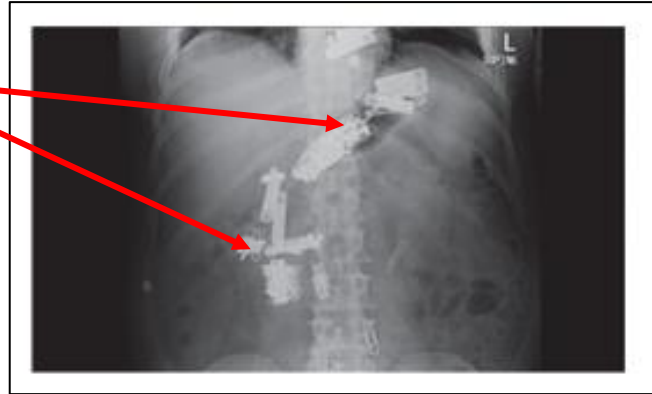
Signs and symptoms of digestive problems such as constipation, rectal bleeding when attempting to have a bowel movement, acid reflux, refusal to eat nutritious foods leading to malnutrition, complaints of pain and discomfort in the chest, stomach, and rectum, should prompt caregivers to seek a physical assessment for the individual by a healthcare professional at the emergency room (ER) for a more in-depth investigation of the problem immediately (7).

An individual may require chest and abdominal X-rays, barium studies, and/or an endoscopy to identify the objects and number of items ingested. Numerous X-rays or barium studies over time may be required to confirm non-food items have successfully passed through the intestinal tract (20)(14).

Depending on the location and size of the ingested non-food mass, endoscopy can be used to break-up, dislodge, then either wash the items through the intestinal tract to be evacuated, or grab pieces of the items to extract. Endoscopy is a less invasive alternative to surgery. It still has dangers, such as possible gastro-intestinal perforations and causing bleeding (9)(7).

Surgical intervention may be the only option to remove large obstructions or hazardous items from the gastro-intestinal tract. Numerous surgeries can cause a built up of scar tissue, limiting the number of possible surgeries to a specific area for an individual (9)(7).

*Abdominal X-ray showing multiple ingested items later identified as 50 paperclips, 50 screws, 8 batteries, and 7 razor blades covered in paper.*



Antipsychotic medications are used to treat co-occurring mental health conditions, currently there are no medications which treats pica directly (4)(14).

Some benefits from selective serotonin reuptake inhibitor (SSRI) have been shown to benefit pica related to obsessive compulsive disorder when used in combination with behavioral therapy (9)(20). Iron supplements are prescribed to address iron deficient anemia which may be related to pica behaviors (20)(4).

### **A Team Approach to Treatment**

A team approach by medical professionals to include the primary care physician (PCP), a psychologist, a Board Certificated Behavioral Analyst (BCBA), dentist, social worker and dietician or nutritionist has been shown to be the most effective for treating individuals with pica behavior (20)(14).

A PCP or other qualified healthcare professional should complete a physical assessment of all individuals with IDD and ASD who have a history of pica, along with any suspected or known individuals who engage in pica behaviors to avoid negative outcomes (20)(4)(14).

An interview of the individual, if capable, their caregivers, and family members should be conducted to include questions regarding history of aspiration, food preferences, feeding skills, food refusal, meal-time behavior issues, and nutritional intake to form an accurate picture of the level or extent of their pica disorder (10)(20)(4)(14).

Information should be collected during an interview on what types of substances are being ingested, the amounts, the date pica started, what environments the pica behaviors take place in, and a screening of any signs of toxicity (14).

A BCBA is helpful in developing behavioral management plans to treat pica behaviors which should be person-centered (4)(17). Behavioral management plans have been found to be as much as 80% effective in the treatment of pica behaviors for individuals with IDD (12)(20).

Other treatments may include increasing the amount of physical and verbal attention or replacing the pica item with alternative nutritious food items with similar characteristics of taste, smell, and texture for an individual. Replacing similar foods for the preferred pica items does not always work with individuals if it does not match the same stimuli, they received from the non-food items (20)(13).

Ensuring adequate nutritional intake for individuals with IDD to include a balanced diet of 5 fruit and vegetables, fiber, and protein daily can reduce hunger and ensure the individual is receiving the required vitamins and minerals (4).

Adaptive equipment such as helmets with face shields, or locks on cabinets within an individual's home may be considered a violation of the individual's human rights and should be taken to the local human rights committee (LHRC), for review, and approval prior to implementation.

The Department of Behavioral Health and Developmental Services (DBHDS) Human Rights LHRC link is <https://dbhds.virginia.gov/quality-management/human-rights/lhrc-shrc/>

## **Pica and Individuals with Intellectual and Developmental Disabilities (IDD)**

Pica is the most commonly diagnosed feeding/eating disorder in the IDD population (15)(10)(8).

Individuals with IDD are known to have higher rates of all types of self-injurious behaviors, including pica, when compared to their peers in the general population (10)(8).

Research suggests between 5% and 25% of individuals with IDD engage in pica, which increases with the severity level of the developmental disability (10)(16)(6)(8)(17).

Specifically, individuals with ASD and IDD have been found to engage in pica behaviors as much as 60% of the time compared to individuals with IDD alone (19).

Individuals with IDD may not be able to understand the difference between non-food items and nutritious foods. Due to this, individuals may ingest any number of items without discrimination (15).

Pica behaviors in individuals with IDD and ASD have been connected to increased seclusion, reduced socialization, boredom, a desire for more food without the ability to request it, and attention seeking due to the lack of close supportive relationships with one's mother or family members, such as regular visits or overnight stays with parents or family (15)(10)(8).

Some pica behaviors may be part of a stress response, and/or the use of hand-to-mouth behavior to self-soothe anxiety in the IDD population (10)(8).

Individuals with IDD and ASD may engage in pica behaviors as attention seeking to gain

devotion and affection from their caregivers and family (10). Pica within the IDD population has also been connected to phobic avoidance and/or sensory avoidance of certain foods which is considered Avoidant-Restrictive Food Intake Disorder (ARFID) (5).

Some individuals with IDD may swallow harmful items such as pins, needles, broken glass, batteries, and/or pieces of sharp metal when struggling to adequately adjust to their current situations or environments. This pica behavior can be connected to personality disorders, mental health issues or aggressive self-injurious behaviors (18).

## Pica and Oral Health

Various dental problems can occur from prolonged pica behaviors (20)(11).

Depending on the type of materials being chewed and swallowed depends on the extent of damage done to the mouth (21).

Pica behaviors can lead to abrasions in the mouth, tooth sensitivity, enamel erosion, tooth staining, periodontal problems, poor dental hygiene, gingivitis, dental fractures, and bad breath (halitosis) (11)(20).

The regular chewing on rocks, pebbles, and sand wears down the enamel on the tooth, the surface of the tooth, and can cause extensive tooth loss (1)(21).

The most common oral complications as a result of pica are injuries to soft oral mucosa, and dental abrasion fractures (21).



## Caregiver Considerations

- There is no specific prevention for pica (4).
- The Care Team, to include family members, staff, and other caregivers, should receive training which includes an overview of pica, common symptoms and health complications and treatments.
- The Care Team should also receive training which is specific to each individual's person-centered pica behavior plan, which is vital in assisting with reducing the risk of negative outcomes for individuals (3)(15).
- Family members, staff, and caregivers' consistent response in addressing an individual's pica behaviors is key to providing a safe environment for their well-being and has been shown to be one of the most important aspects of improving outcomes (3)(15).

- To promote safety and ‘pica-proof’ the environment, caregivers should remove items, limit access to favorite pica objects, sweep and clean flooring, and do general clean-up of the living space (3)(15)(14).
- Strict supervision of everything an individual could possibly place in their mouths is required to reduce negative outcomes as a result of pica behaviors (15)(12).
- Behavioral management should focus on teaching individuals the difference between non-food items and nutritious food items, which is helpful for some individuals with IDD (15)(20).
- Keeping individuals busy with safe sensory activities, such as supplying approved chewing items or fidget objects, is one way to distract them from their pica behaviors (3).
- Planning outings and coordinating social gatherings within the community, may give individuals the attention they desire and can help distract them from pica behaviors (3).
- Successful management and support of individuals with pica may depend on how well staff and caregivers know an individual's preference for favorite items, their frequency and severity of current and past pica behaviors, and their unique response to particular types of interventions (3)(15).
- Frequent and thorough communication among Care Team members who are assisting individuals with behavioral plans to reduce pica behaviors, can improve outcomes (3).
- Adequate staffing ratios are essential when supporting individuals with pica behaviors in order to consistently monitor what is being putting into their mouth, and to ensure they can be safely supported in community and social engagements (3).
- Purchasing specifically designed household items which lack strings or filling and are difficult to tear or rip will help to develop a pica friendly environment (3)(15).
- If caregivers observe an individual who has not been diagnosed with pica eating non-food items, they should make an appointment with the individual’s PCP as soon as possible (at the next available appointment) for an evaluation.
- All PCP orders/protocols should be documented and shared with the Care Team then implemented without delay (3)(15). Additional Care Team training may be necessary to make sure it’s members can demonstrate understanding of the aspects of the orders/protocols/safety measures.
- The Individual Service Plan (ISP) and/or Individual Education Plan (IEP) should be updated to include all orders/protocols/safety measures.
- A new Supports Intensity Scale (SIS) should be requested (2).





## Resources

- Office of Integrated Health – Health Supports Network Dental team- [dentalteam@dbhds.virginia.gov](mailto:dentalteam@dbhds.virginia.gov)
- National Eating Disorders Association- <https://www.nationaleatingdisorders.org/>
- Autism Speaks- <https://www.autismspeaks.org/>
- Families Empowered and Supporting Treatment for Eating Disorders, (FEAST)- <https://www.feast-ed.org/>, <https://www.edcatalogue.com/family-support-work-feast/>
- National Alliance for Eating Disorders- <https://www.allianceforeatingdisorders.com/>
- Parents' Guide to Managing Pica in Children with Autism- <https://www.autismspeaks.org/sites/default/files/2018-08/Pica%20Parents.pdf>

## References

1. [Advani, S., Kochhar, G., Chachra, S., & Dhawan, P. \(2014, January-April\). Eating everything except food \(PICA\): A rare case report and review. \*Journal of International Society of Preventive and Community Dentistry\*, 4\(1\), 1-4.](#)
2. [American Association of Intellectual and Developmental Disabilities \(AAIDD\). \(2015\) \*Supports Intensity Scale – Adult Version \(SIS-A\)\*.](#)
3. [Ashworth, M., and Martin, L. \(2011, November\). Perspectives of support workers on supporting persons with intellectual disability and pica. \*Journal of Developmental\*](#)

- [Disabilities, 17, 35-46.](#)
4. [Berger, F. K., & Dugdale, D. C. \(2022, April\). Pica. \*Medline Plus, National Institutes of Health \(NIH\), National Library of Medicine\*, 1-4.](#)
  5. [Bryant-Waugh, R., Micali, N., Cooke, L., Lawson, E. A., Eddy, K. T., & Thomas, J. J. \(2019, April\) Development of the pica, ARFID, and rumination disorder Interview, a multi-informant, semi-structured interview of feeding disorders across the lifespan: A pilot study for ages 10 to 22. \*International Journal Eating Disorders\*, 52\(4\), 378–387. doi:10.1002/eat.22958.](#)
  6. [Cardoso, D., Duarte, L., Pinto, V. F., & Cartaxo, T. \(2021, August\). Pica and attention deficit hyperactivity disorder: Is there a link? \*Birth and Growth Medical Journal\*, 30\(1\): 12-17. Doi:10.25753/BirthGrowthMJ.v30.i1.18910](#)
  7. [Doumbia, A., Coulibaly, Y., Amadou, I., Keita, M., Coulibaly, O., Kamaté, B., Djiré, M. K., Coulibaly, M.Y., Camara, S., Diall, H., Maiga, B., Konaté, D., & Sacko, K. \(2020, March\). Surgical complications of pica syndrome: About 03 cases. \*Open Journal of Pediatrics\*, 10, 159-167.](#)
  8. [Fields, V.L., Soke, G.N., Reynolds, A., Tian, L.H., Wiggins, L., Maenner, M., Carolyn DiGiuseppi, C., Kral, T.V.E., Kristina Hightshoe, K., & Schieve, L.A. \(2021, February\). Pica, autism, and other disabilities. \*Pediatrics\*. 147\(2\): 1-16. Doi:10.1542/peds.2020-0462.](#)
  9. [Guinan, D., Drvar, T., Brubaker, D., Ang-Rabanes, M., Kupec, J., & Marshalek, P. \(2019, February\). Intentional foreign body ingestion: A complex case of pica. \*Case Reports in Gastrointestinal Medicine\*, 1-3.](#)
  10. [Hong, E., and Dixon, D.R. \(2017\). Pica in individuals with developmental disabilities. \*Handbook of Childhood Psychopathology and Developmental Disabilities Treatment, Autism and Child Psychopathology Series\*.](#)
  11. [Lavín–Niño De Zepeda, S. \(2019\). Pica, a little-known condition in dentistry. Case report. \*Int. J. Odontostomat\*, 13\(2\):195-197.](#)
  12. [Leung, A.K.C., and Hon, K. L. \(2019, March\). Pica: A common condition that is commonly missed - an update review. \*Current Pediatric Reviews\*,15, 164-169. Doi:10.2174/1573396315666190313163530.](#)
  13. [Muething, C., Call, N. A., & Clark, S. \(2020, November\). An evaluation of differential reinforcement in the treatment of pica. \*Developmental Neurorehabilitation\*, 23\(5\), 321–327.](#)
  14. [Nasser, Y. A, Muco, E., & Alsaad, A. J. \(2022, November\). Pica. \*StatPearls\*, 1-7.](#)
  15. [Pagoria, N. \(2016, September\). Pica- The basics for caregivers. \*Advocate Health Care\*, 1-2.](#)
  16. [Rajput, N., Kumar, K., & Moudgil, K. \(2020, August\). Pica an eating disorder: an overview. \*Pharmacophore\*, 11\(4\): 11-14.](#)
  17. [Ruckle, M. M., Molly K. Bednar, M. K., Suen, K., & Falligant, J. M. \(2022, April\). Brief assessment and treatment of pica using differential reinforcement, response interruption and redirection, and competing stimuli. \*Behavioral Interventions\*, 1–13.](#)
  18. [Senthilkumar, A. T., and Shuruthi, B. \(2021, June\). Homoeopathic management for pica: A strange craving. \*International Journal of Homoeopathic Sciences\*, 5\(3\): 28-30.](#)
  19. [Singh, H., Agarwal, S., Singh, V., Rehman, R., & Patwardhan, N. \(2015, June\). Pica disorder with autism: intervention in dental settings. \*Journal of Research and Advanced Dentistry \(JRAD\)\*, 4\(3\), 281-291.](#)
  20. [Srivastava, M.C. \(2019, February\). PICA: A menace for oral health. \*Saudi Journal of Oral and Dental Research\*, 4\(2\), 78-81. DOI:10.21276/sjodr.2019.4.2.6](#)
  21. [Varotto, B.L.R., Lodi, R., Pereira De Souza, S., Nápole, R.C.O., & Antequera, R. \(2018, June\). Pica: Dental findings of an uncommon eating disorder in two clinical case reports. \*International Journal of Medical and Dental Case Reports\*, 160618, 1-4. Doi: 10.15713/ins.ijmdcr.90](#)