

Understanding ARFID.

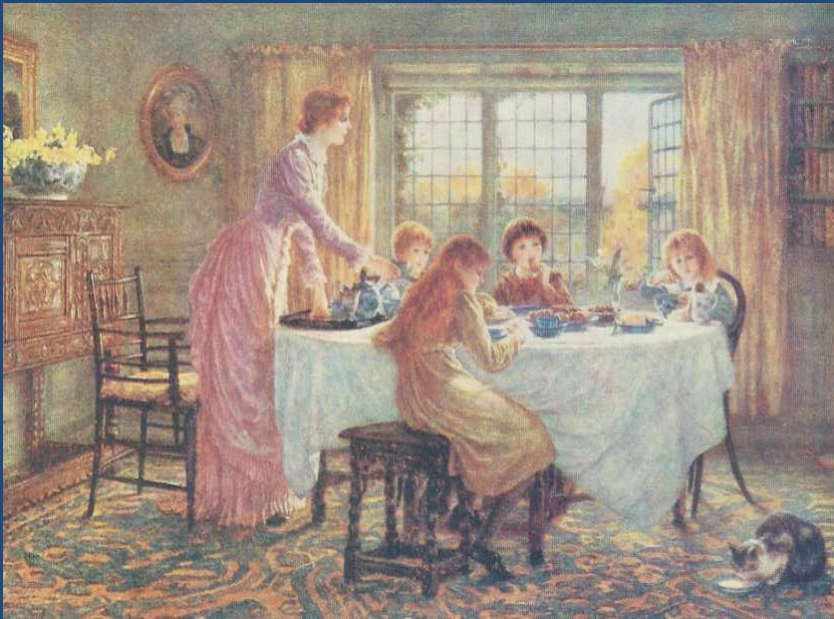
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Birmingham
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Eating problems in children are commonly reported :-

30-62% of parents of toddlers describe more than one 'feeding concern' (Reau et al., 1996)



Clinicians are often presented in clinic with extreme avoidant eating (fussiness) and/ or weight loss.

But how do we – and parents - decide which eating problems are:-

- just part of normal development
- due to genetically determined factors
- due to early years medical problems
- exacerbated by parental strategy
- warrant speedy intervention – and from whom?

On what do we base our criteria for judgement?

- and what is a 'feeding disorder'.

ARFID DSM-5 (APA, 2013)

Avoidant and Restrictive Food Intake Disorder

Replaces Childhood Feeding Disorders – which was too broad a classification to be useful.

It is a condition that can occur throughout the human lifespan.
ARFID can be used to describe adults showing the same eating characteristics as children.

Diagnostic Criteria

A) Eating/feeding disturbance *including but not limited to apparent lack of interest in eating or food; avoidance based on the sensory characteristics of food; or concern about aversive consequences of eating...*

- Apparent lack of interest in food: Parents often report that child never seems hungry, doesn't seek out food, goes for long periods without eating
- Avoidance based on sensory characteristics: Child avoids foods based on sensitivity to taste, texture, smell, or (novel) appearance
- Concern about the aversive consequences: may relate to reflux, force feeding, choking episode(s)

- Failure to achieve expected weight gain/growth in children: more likely if no access to preferred foods.
- Nutritional deficiency: related to small range of accepted foods.
- Reliance on oral supplements: usual only when preferred foods have been withheld.
- Enteral feeding: last resort - very hard to remove the tube once in.
- Marked interference with psychosocial functioning: child highly anxious around food, unable to join in mealtimes, family dynamics and activities affected.

B. There is no evidence that lack of available food or an associated culturally sanctioned practice is sufficient to account alone for the disorder.

C. The eating disturbance does not occur exclusively during the course of Anorexia Nervosa or Bulimia Nervosa, and there is no evidence of a disturbance in the way of which one's body weight or shape is experienced.

D. If the eating disturbance occurs in the context of a medical condition or another mental disorder, it is sufficiently severe to warrant independent clinical attention.

Typical clinical presentation of a child with ARFID

- will only eat very few foods (range 5-10) or foods limited in variety.
- shows brand loyalty (the packaging predicts the safety of the food).
- only eats one flavour of an accepted food.
- eating is specific to context.
- child shows extreme anxiety if offered new foods, or foods that they don't like.
- child may gag or vomit if offered disliked foods.
- usually boys.
- often associated with ASD.
- associated with strong cross modal hypersensitivity.

Additional diagnosis:

Late onset ARFID: Fear of vomiting/ choking

- No early extreme food refusal
- Anxiety related (social anxieties)
- ASD related
- Later childhood onset
- More frequently girls
- No concerns about body weight.

Interventions should be aimed at anxiety/phobia reduction rather than at sensory issues

Assessment criteria

- **Limited number of foods accepted (approx 20)**
- **Brand/flavour 'loyalty'**
- **Strong disgust response to new foods**
- **Sensory processing disorder**
- **Avoidance of others eating, and situations where food might be present**

The 'number of foods accepted' is assessed according to the range of specific foods not the amount

Daily diet; three boys aged 7 years – diagnosis ARFID

1) Good weight for height, 'well'.

ASC traits

Eats four different types of yoghurt, two different flavours, drinks water (6 foods) takes multi –vitamins.

2) Recent weight loss (started at school that has a healthy eating programme)

ASC diagnosis

Eats seven different types of potato crisps; breadsticks; strawberry squash; Ensure (9 foods).

3) Good weight for height, 'well'.

No ASC traits

Eats 3 type of pasta foods: Aldi banana and apple organic baby pouch; Lidl greek-style yogurt; Munch Bunch fromage frais (only the strawberry and raspberry split pot,) drinks water, plus 2 drinks (9 foods), takes multi vitamins.

Drinks included in food count where they add calories to diet.



Prevalence

Not known – because there is, as yet, no standard method of assessment

- 30-62% of parents of toddlers describe more than one 'feeding concern' (Reau et al., 1996) –
- but reports by parents of concerns about eating in their child rises to 70% in ASC populations. (Twachtman-Reilly, Amaral, & Zebrowski, 2008).

This is an eating/feeding disorder seen more frequently in children on the autism spectrum.

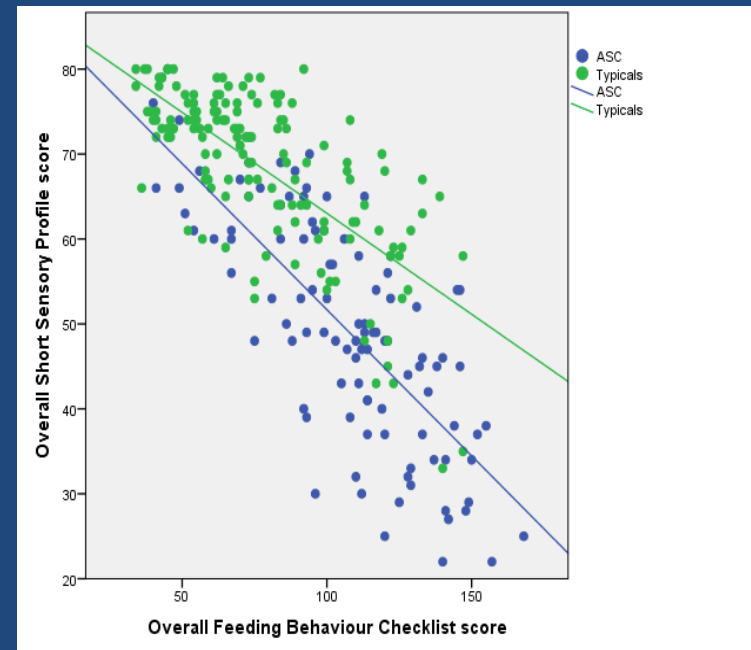
It has been suggested that this abnormal eating behaviour should be included in the symptomatology and be among the early diagnostic indicators of ASD (Ritvo & Freeman, 1977).

But this is because of the co-variance with sensory processing disorders

Sensory hypersensitivity affects reactivity to taste, smell and touch - and therefore willingness to try new foods – this trait is related to food fussiness and food refusal. It particularly affects texture acceptance.

(Coulthard & Thakker, (2015) JAND: DOI 10:1016/j.jand.2015.02.020; Harris, G. (2009). Paediatrics and Child Health.; 19 (9): 435-6; Breen, Plomin, & Wardle, . Heritability of food preferences in young children. Physiology & Behaviour 2006; 88:443-447; Coulthard, H & Blissett, J. Appetite 52 (2009) 410-415)

Sensory hypersensitivity and food restriction: ASC and controls



Impact ?

Health

- Many of the food eaten by those with ARFID are ‘fortified’, so most dietary requirements are covered – but trace elements of less common minerals might be missing.
- The range of foods accepted usually fails to include the range of vegetables and fruit now highlighted as ‘preventative’ in major life illnesses (heart disease, cancer).
- Iron deficiency anaemia can occasionally be a problem.

But - NB. Weight gain and growth in childhood is not necessarily affected –if ‘safe’ foods are given

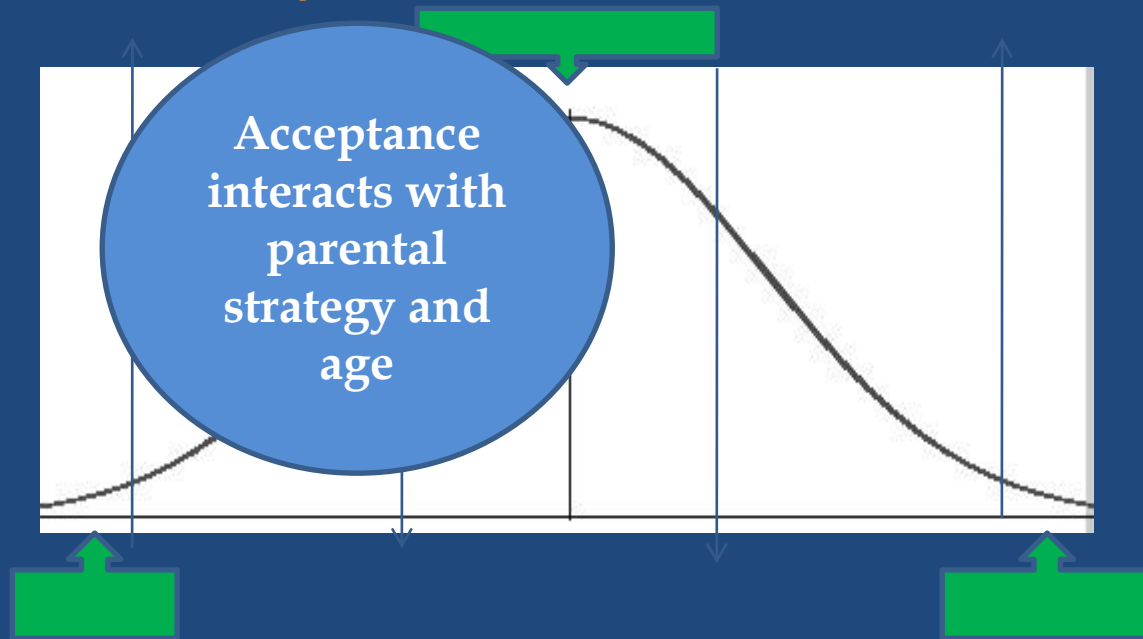
Social factors

- **Children may not want to eat with the family**
- **Siblings may object to the ‘special’ diet provided**
- **Schools may refuse to allow ‘safe’ foods to be taken in for snacks and packed lunch**
- **Children may not be able to sit in the school dining hall**
- **Away days and residential courses are a problem**
- **The family cannot eat out in restaurants**
- **Holidays are a nightmare – parents have to travel with suitcases full of ‘safe’ foods**
- **Older teenagers and adults have to order their lives around the availability of ‘safe’ foods**

**Genetic, developmental factors,
and early experience**

The normal distribution curve of food acceptance

Will eat most things you can buy from Waitrose or Lidl



Won't eat anything different; ARFID

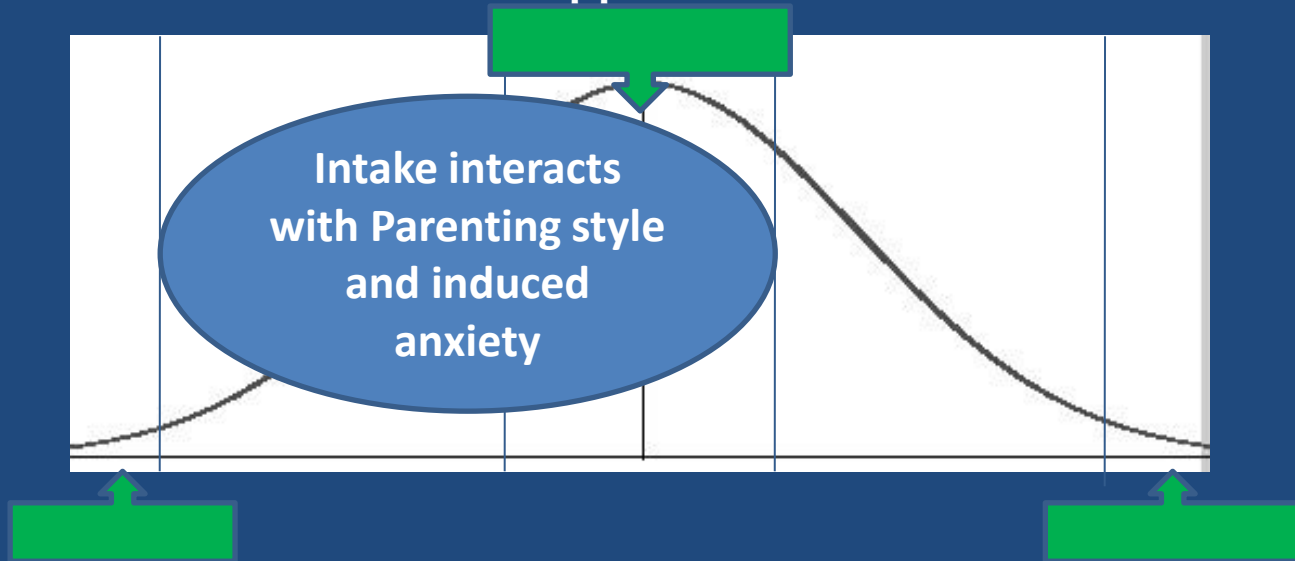
Will eat road kill (rather suspect?)

Will survive the apocalypse..... because we will watch to see what they eat – and don't die from eating!

Un/Responsive eating

Eating according to, or in the absence of, hunger.

Will respond to social cues to eat , may respond to prolonged stress with loss of appetite



Poor interoception

Does not recognise hunger,
Fails to eat when stressed

Food responsive

Eats in the absence of need,
Overeats when stressed

In early onset ARFID ->

- The avoidant response to food is a sensory overload response - related to early sensory hyper- or hypo-sensitivity
- Followed by a fear response
- Followed by a disgust response →

as the child gets older.

It is genetically determined, but with pre- and perinatal risk factors, and early infancy risk factors (reflux, allergy).

So it is a developmental rather than acquired eating disorder.

How and why does such an eating disorder develop?

Learning about food and food acceptance :-

- *The foods that we learn to like in infancy and early childhood predict those that we eat in later childhood and adulthood.*
- *We learn to eat food that is seen as 'safe' – because it is fed to us or we see other people eat it.*
- *If others dislike the food, or show anxiety about it, then it is refused.*
- *The way a food looks (or is packaged) tells us whether or not it is safe to eat.*

(Nicklaus, S. Boggio, V.Chabane., C.,Issanchou, S,A. *Food Qual Pref.* (2004)15, 805–18)



The onset of ARFID

-begins with sensory hyper-sensitivity:-



- 4 months - introduction of pureed foods - hypersensitive to taste and smell
- 6 months - introduction of solid food - tactile hypersensitivity in the mouth
- 18 months - visual hypersensitivity and onset of neophobia

At Birth:-

possibly two, innate taste preferences that will endure throughout life;—
sweet and fat

Sweet and fat are the default options if no other preferences are learned.
Tastes for salt, sour, umami, and bitter are learned through exposure.

4-6 months - Learning about tastes.

Window of acceptance for new tastes (complementary foods)

*(Median age of introduction of complementary foods
across Europe is 5 months.)*



Preference is:-

- a function of exposure
- based on taste and smell

Texture acceptance from the age of 6 months.

Infants' chewing skills develop most markedly between the ages of 6 to 10 months, but only if the infant has experience of food in the mouth, after this time infants become more orally-defensive to texture and become reliant on puree food, or milk.

Northstone et al (2001) looked at the effect of the timing of the introduction of lumpy solid foods on subsequent feeding difficulties.

Age of introduction.	Feeding difficulties at 15 months
<6mths	29.1%
6-9mths	38.6%
>10mths.	52.3%



In a follow up study, this effect was still apparent in children at 7 years of age.

(Gisel EG.. Dev Med Child Neurol. (1991) Jan;33(1):69–75; Mason SJ, Harris G, Blissett J. Dysphagia.(2005);20(1):46–61.)
 Northstone K1, Emmett P, Nethersole F;. J Hum Nutr Diet. 2001 Feb;14(1):43-54.; Coulthard,H., Harris,G., Emmett, P. & the ALSPAC team. (2009) Delayed introduction of lumpy foods to children during the complementary feeding period affects child's food acceptance and feeding at 7 years of age. Maternal and Child Nutrition.Blossfield I, Collins A, Kiely M, Delahunty C. (2007)Texture preferences of 12-month old infants and the role of early experiences. Food Qual Pref; 18:396–404.)

Sensory hypersensitivity predicts texture rejection

- Meat (chewy)
- Fish (bits of bone smelly)
- Fruit (slimy with skins)
- Vegetables (stringy)

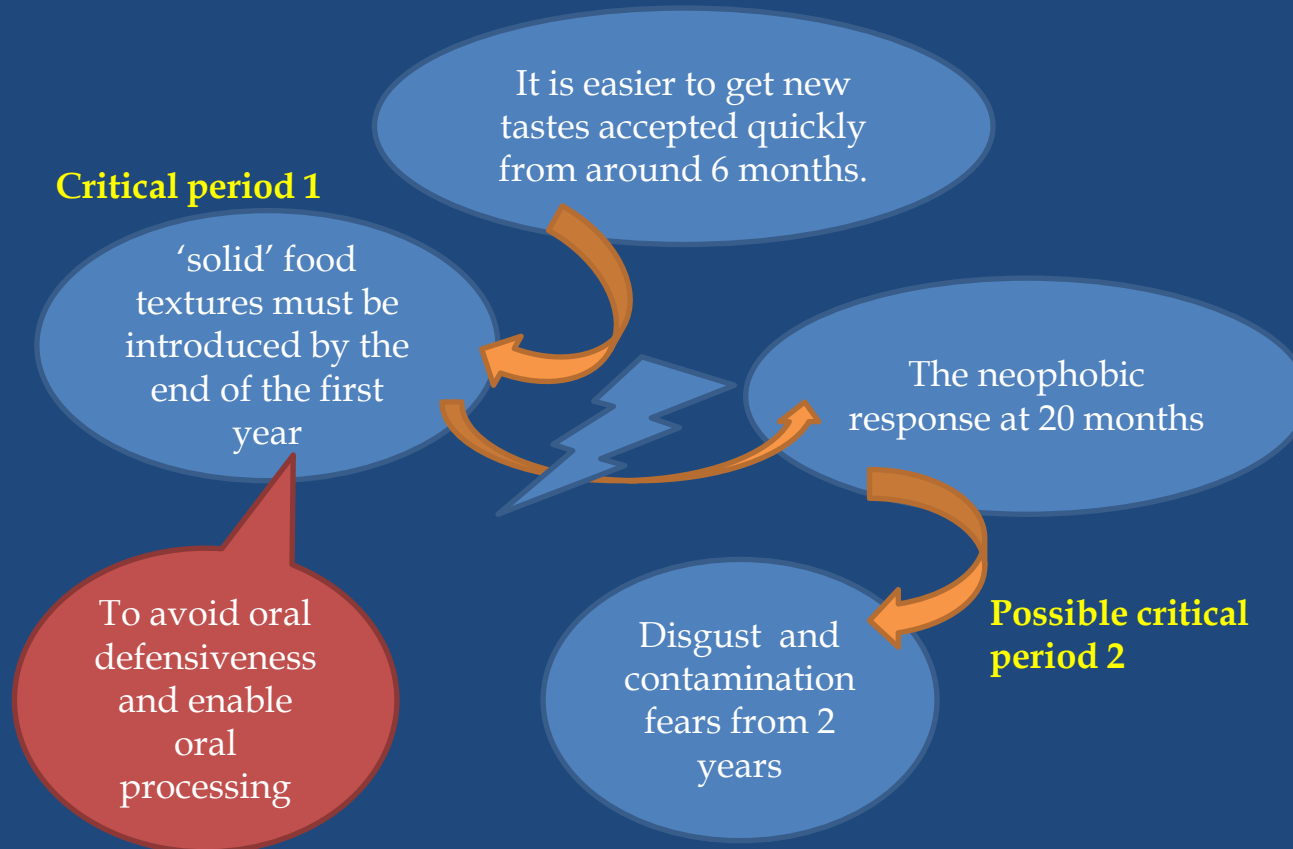


But does not predict rejection of fatty foods of smooth texture such as yoghurts.

Anything slimy/ chewy/ dusty/ stringy or mixed textured, will be refused.



Sensitive period 1



Who is more at risk of becoming a picky eater during these sensitive periods?

- Infants where the introduction of a range of tastes is delayed beyond 7 months
- Infants where lumpy textures are delayed beyond 10 months
- Infants with reflux, sensitizes the mouth and oesophagus
- Infants with food allergies, anxiety and pain related
- Premature births, and any other infants who show sensory hypersensitivity

Coulthard, H., Harris, G & Fogel, A. (2014) *Appetite*, 78, 89. Harris, G. (2009) Food refusal in the sensory sensitive child. *Paed Child Health*. 19(9): 435-436

Farrow CV, Coulthard H. (2012) Relationships between sensory sensitivity, anxiety and selective eating in children. *Appetite*. Jun;58(3):842-6.

Longflier, L., Soussignan, R., Reissland, N., Leconte, M., Marret, S., Schaal, B., Mellier, D. (2016) Emotional expressiveness of 5-6 month-old infants born very premature versus full-term at initial exposure to weaning foods. *Appetite* 107, 494e500.

Coulthard, H., Harris, G., Fogel, A. (2016) Association between tactile over-responsivity and vegetable consumption early in the introduction of solid foods and its variation with age. *Maternal and Child Nutrition*. 12, 4 848-859 DOI: [10.1111/mcn.12228](https://doi.org/10.1111/mcn.12228)

Foods introduced in the first year are recognised by their:-

- taste
- texture

And then by the way that they **look**



Food acceptance is a function of exposure:-

- I see the food
- I see others eat the food
- I recognise the food as safe to eat
- I learn to like the food and anticipate eating it with pleasure

The neophobic response – at around 20 months

A developmental stage when new foods,-
and some previously accepted foods-
will be rejected.



Children at this stage:-

- Refuse new foods on sight, *without tasting*
- Refuse food that has *mark* on it or is the '*wrong colour*'
- Refuse foods that they had before – *if they differ* on subsequent presentations

(Brown, S. & Harris, G. (2012) *International Journal of Child Health and Nutrition*,1, 72-81; Pliner P,Loewen,E. . *Appetite* 1997;28:239-2; Cooke, L., Carnell & Wardle, J. (2006) Food neophobia and mealtime food consumption in 4–5 year old children. *International Journal of Behavioral Nutrition and Physical Activity* 2006, 3:14 doi:10.1186/1479-5868-3-14.)



<- Good to eat

Not good to eat ->





*The packet tells you exactly what is inside –
and whether or not it is safe to eat*

Toddlers are more likely to refuse a known food if it differs at subsequent presentations.

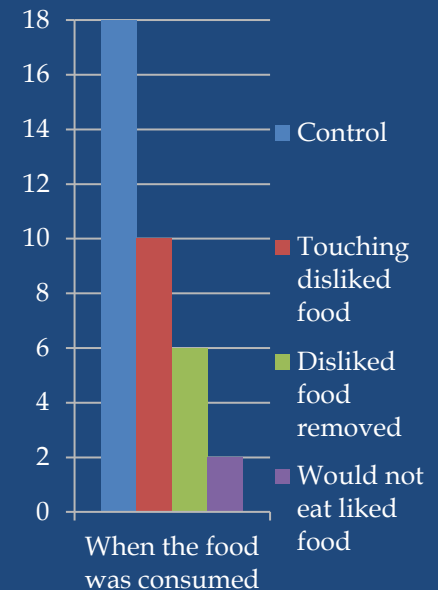


Who added the parmesan!

Hiding and disguising does not work!

Brown & Harris (2012) also found that children show a disgust and contamination response as early as 20 months.

- *Some children will reject a liked food that has been touched by a disliked food.*



(Brown, S & Harris,G. (2012) Appetite,58,2, 535-58).

Developing the ARFID diet

The neophobic response is a function of a child's response to local rather than global detail and reflects a child's ability to form categories and make generalizations to include new foods into accepted food categories.



- *Children with ARFID do not develop generalised category formation.*
- *NB. The neophobic response is dependent upon mental age rather than chronological age*

Global / category



But it is easier to form a category 'biscuits'
than it is to form a category 'vegetables'



Hence the beige/brown carbohydrate diet!

Because children and adults with ARFID pay attention to local details of food.... they are brand loyal.

They notice differences in:-

- package changes
- flavour changes
- new recipes in accepted foods
- bottle/teat changes



If the packaging changes in any way the food will be refused.

The neophobic response gradually declines with age
69% of 2 year olds refused a novel food but only -
29% of 3 year olds, 1% of 5 year olds.

As neophobia decreases with age,
the number of exposures required to induce a preference increases with
age, from one or two of certain tastes in the first 6 months, to 14 or so
in later childhood.

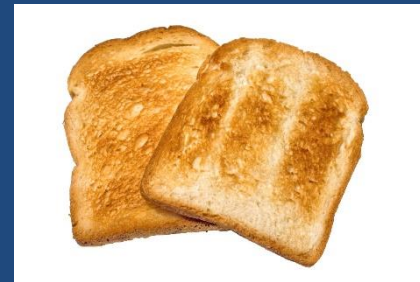
*The move out of the neophobic stage in the 2nd year of life does not occur
with children with ARFID*

- The fear of new foods remains – and can remain until adulthood
- New foods can evoke a disgust and fear response – *this can lead to a
disgust gag response*
- Texture refusal can worsen as the child becomes more orally defensive

(Birch & Marlin (1982) Appetite, 3, 4 353-360)

So we are left with:-

The beige/ brown carbohydrate ARFID diet –
with chocolate and yoghurt.



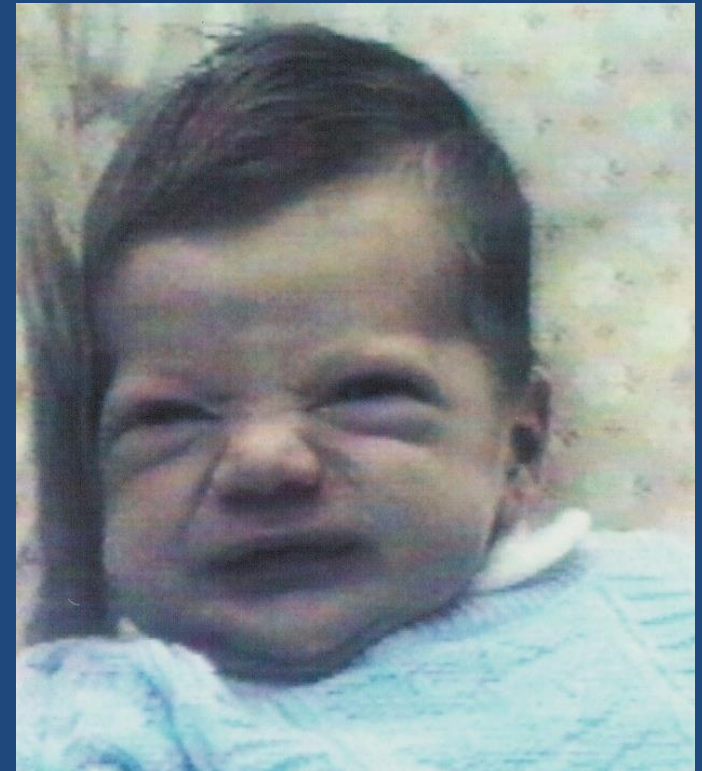
*No slime, nothing mixed, nothing stringy or
dusty ... Any other food is disgusting, and
can provoke a disgust response*



Smith, A. M. Roux, S., Naidoo, N.T. & Ventner, D.JL. (2005) Food choices of tactile defensive children. *Nutrition*, 21, 14-19. Harris, G. (2009) Food refusal and the sensory sensitive child. *Paediatrics and Child Health*, Sept. 19.9, 435-6

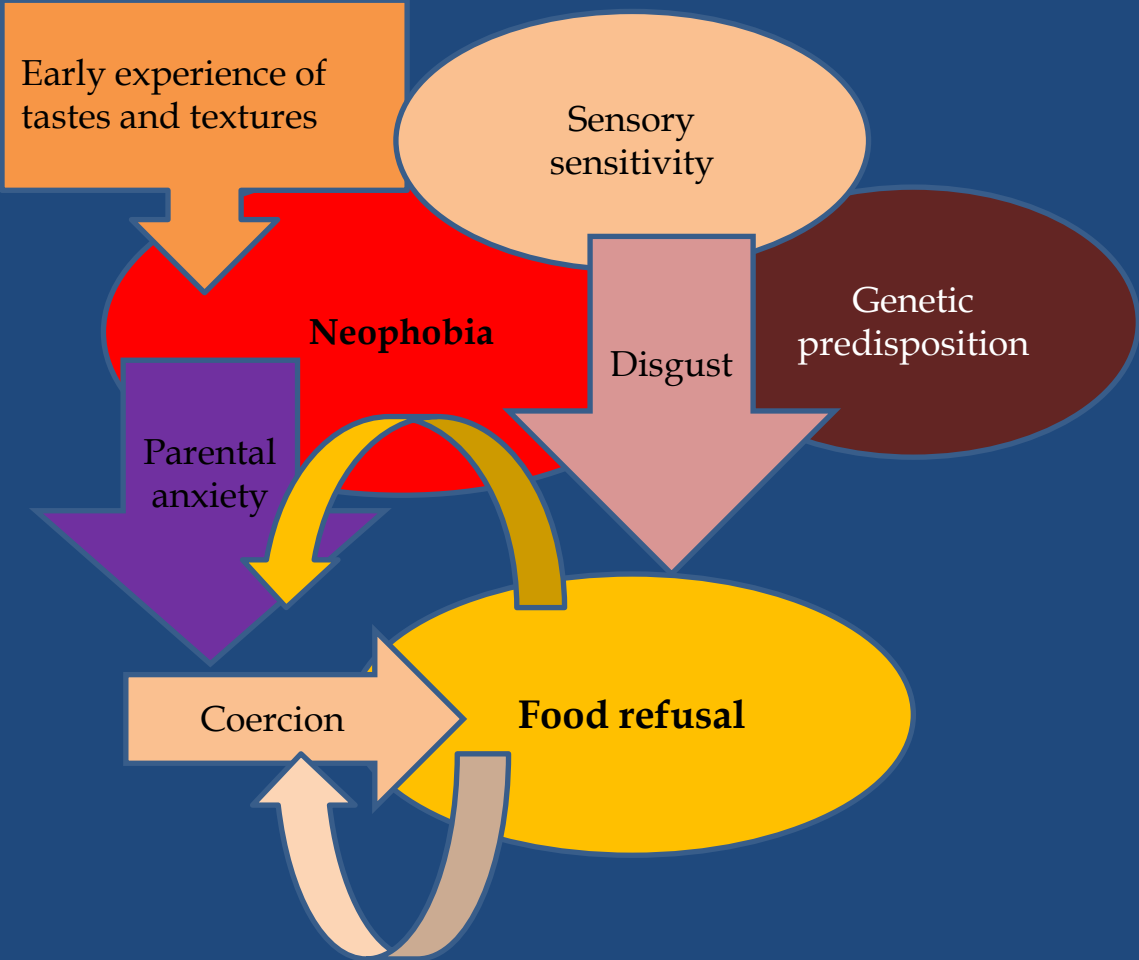
The development of the disgust response – a defining characteristic of ARFID

- The early experience of food and differences in sensory reactivity define a child's response to foods that they see as 'safe'
- It could be that the food causes them pain, or that they do not like the feel or taste of the food in their mouth, on their face, or on their fingers.
- All of these factors function to develop a somatosensory disgust response to food. This can develop at the weaning stage; it is probably present from birth.
- The smell and sight (and sound) of foods that trigger the disgust response then signal to the child that the food is not safe for them to eat.
- Foods that are disgusting can then act as contaminants to accepted foods.



Brown, S. D., & Harris, G. (2012). A theoretical proposal for a perceptually driven, food-based disgust that can influence food acceptance during early childhood. *International Journal of Child Health and Nutrition, 1*, 1-10. doi:10.6000/1929-4247.2012.01.01.01.

Stevenson, R.J., Case, T.I., Oaten, M.J., Stafford, L. & Saluja, S. (2019). A proximal perspective on disgust. *Emotion Review, 11*(3), 209-225.





So - think about strategies

that decrease acceptance:

- Pressure to eat
- Hiding & disguising foods
- Force feeding
- Sitting in front of new/unaccepted foods
- Leaving the child to go hungry
- Rewarding with other foods



Powell, F, Farrow, C, & Meyer, C.(2011) Food avoidance behaviours in children. The influence of maternal feeding practices and behaviours. *Appetite*, 57, 3, 683-692. Faith MS, Kelley S, Birch LL, Francis L, Sherry B. (2004) Parent-Child feeding strategies and their relationship to child eating and weight status. *Obesity Research*, 2004, 12, 11, 1711-1722.

What can we do to help?

Quote from mother of child with ARFID from email

“ So, Oliver is now 7 years old and still not eating, he still has the Fortini drinks and nothing else. We had to take him to ***** children's hospital as our GP wanted to start from scratch with him, we were seen by a paediatrician from ***** so we saw her and he had an endoscopy. Results came back clear which we already knew it would. Their team of specialists said that they didn't know what to suggest next.

What can I do next? Everyone we have seen has come to a dead end. Oliver really needs some support which he has never had.”



Thank you for your attention.....

ARFID
Awareness UK

www.arfidawarenessuk.org