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REFERENCES

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THE DIETARY MANAGEMENT OF AUTISM

Autism is described as a lifelong developmental disability which can present in a range of ways, including cognitive differences, sensory differences, communication differences, social differences and certain medical and mental health issues.¹⁻³ This article discusses the practical management of dietary issues in the context of children with autism.

Autism, although a lifelong disability, is also associated with unique strengths such as good memory of facts, logical thinking skills and awareness of small details.^{1,3} Some of these differences can present challenges in terms of dietary intake, which can include overeating, undereating, restrictive eating (or avoidant restrictive food intake disorder (ARFID) in severe cases), pica, difficulty with meal presentation or the eating environment, continuous grazing or ritualistic eating.¹

MONITORING DIETARY INTAKE AND GROWTH

Dietitians can support a family to maximise the nutritional adequacy of their child's diet; including advice on food substitutes and use of supplements as needed.¹ Faltering growth is more commonly seen in younger children with autism; often because of gastrointestinal issues and/or restrictive eating.² Older children with autism, however, seem more predisposed to becoming overweight; often due to a high intake of refined carbohydrates, sweet foods and savoury snacks and a low intake of fruit, vegetables, wholegrains and fish.² Although selective eating is an extremely common feature of autism, reassurance should be given if the child is growing well in order to reduce parental anxiety.¹

MICRONUTRIENT DEFICIENCIES

Severe autism is associated with lower levels of calcium, iron, zinc, vitamin C,

vitamin B3 and vitamin B6.⁴ As with the general public, it is also important to consider vitamin D status.⁵ Correcting vitamin and mineral deficiencies in children with autism using appropriate supplements is advised as a first line treatment, which should be followed by other strategies to improve overall nutritional intake.¹ However, achieving the recommended intake of micronutrients may be challenging as supplements may be refused, so a relaxed and pragmatic approach is usually best.¹ Unflavoured supplements, such as paediatric Seravit (SHS) can be better tolerated than flavoured versions; but this specific supplement needs to be combined with a fish oil supplement to provide essential or long chain fatty acids (such as Ideal Omega Swirl (Barlean's), Lem-0-3 (Cytoplan), MorEPA and MorDHA (Nutritional Intelligence).² It is also important to monitor for signs of anaemia in those with a low iron intake; as advice on iron intake and/or iron supplementation may be indicated.⁶

ENVIRONMENTAL FACTORS

In dietetic consultations, additional time is often needed and it can be helpful to alter sensory aspects of the clinic setting to suit the individual where possible. For example, if a child with autism is hyper-auditory, it is a good idea to limit the noise in the clinic room by closing windows, or if they are hyper-visual it may be helpful to reduce the amount

Table 1: Generally helpful mealtime strategies

- Try to keep mealtimes enjoyable and relaxed.
- Set a regular meal pattern, including a maximum length of time for meals.
- Mealtime hygiene - keep the meal environment clean and clear, provide sensible portions, don't present too many types of food at once.
- Family members to model good eating habits, e.g. everybody eats at least one food from each food group every day.
- Ensure a consistent approach from all family members and carers.
- Use of positive reinforcement when a new food is tried, or when good mealtime behaviour is displayed.
- The 'parent provide, child decide' approach can be useful to avoid arguments about food.
- Some people react well to a visual meal timetable or reward charts (without using food as a reward).
- Involving the child in meal preparation, unless this causes sensory overload, in which case it can be better to have meals away from the kitchen to avoid cooking smells and sounds.
- Younger children may react well to messy play and making pictures out of food.
- Older children and teenagers may respond well to a 'scientific approach' such as discussing nutrition facts, discussing psychological strategies, having tasting sessions, setting food related goals, etc.
- Placing their feet on the floor or on a stable chair to feel grounded and so reduce anxiety.
- Avoid:
 - too much coaxing or pressure to eat (as this provides attention to an unwanted behaviour);
 - force feeding or hiding food (which can result in conflict or the loss of trust);
 - giving too many options;
 - grazing' throughout the day or filling up on fluids;
 - reacting negatively if food is spat out (better to praise that the food was tried in the first place).
- Desensitisation as discussed opposite.

of visual stimuli in the room (bright lights, colourful wall displays, etc.). Equally, if a child is hypo-visual it may be useful to incorporate visual elements into the session.

In terms of mealtimes, some children with autism eat more when sitting with other people, whereas others prefer to eat by themselves.⁴ Similarly, some children find it difficult to eat in a noisy atmosphere, but others eat better when there is music or a video playing in the background.^{2,6} Extra consideration may also be needed to account for sensory preferences for: specific cutlery or utensils, foods of specific colours or textures and overall food presentation.¹ For example, children with autism often dislike mixed textures, such as milk and cereal together, so may prefer to have these presented separately.¹ If eating in a different environment (such as a restaurant), it can be helpful to prepare in advance by discussing where they will be going, who will be there, where they will be sitting and what they could speak to people about at the table.⁶

COMMUNICATION CONSIDERATIONS

Similar to environmental adjustments, it is important to adapt communication accordingly. Depending on the client, this may include the use of visual prompts, limiting the use of hand gestures, not overloading with instructions, using short closed questions, speaking more slowly, awareness of nonverbal communication, using consistent and specific language to discuss food, limiting ambiguous humour and sarcasm and incorporating the child's interests and strengths into the session.⁷

Useful visual resources include: reward charts, food planners, picture books, 'Social Stories' (developed by Carol Gray in 1991), the Picture Exchange Communication System (PECS) and 'Dinner Winner' trays.⁶⁻⁷

MEALTIME ADVICE FOR PARENTS

Reducing stress at mealtimes and creating a positive food environment is crucial.^{1,4} Successful strategies vary a lot between individuals, but sensible tips are outlined in the Table 1.^{2,6}



Figure 1: An example of ‘food-chaining’

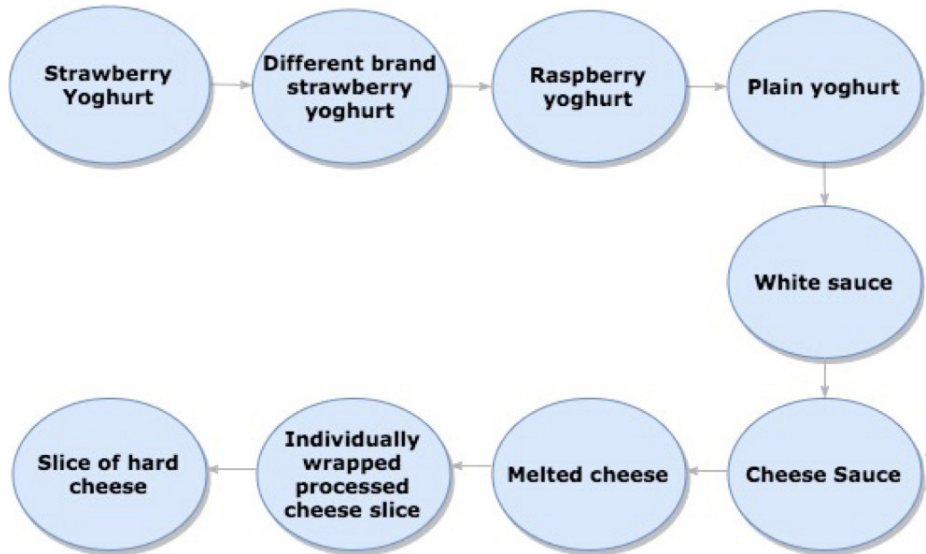


Table 2: Sensory characteristics of food exchange system (from page 180 of *The Manual of Dietetic Practice*, 5th Edition)²

Acceptable food	Colour	Shape	Texture	Taste	Temperature	Exchange foods
Bacon	Pink –brown	Rounded flat	Firm crispy	Salty	Hot	Pastrami Gammon Prawns
Cheese balls	Orange	Round	Crunchy	Salty	Ambient	Homemade salted popcorn

DESENSITISATION TO NEW FOODS

This gradual approach, also referred to as ‘food-chaining’, introduces new foods by linking from a current ‘safe food’ to a similar food (such as a different brand or shape of bread stick) and continuing in a stepwise manner as outlined in Figure 1 above.⁶

This includes encouraging the child to touch, smell, lick and taste new foods and praising these actions even if the new food isn’t tolerated.⁶ It is also important to explain that this process can take a long time. In some cases, significant progress can include accepting being in the same room as a certain food, or accepting what’s on the plate without eating it. It is usually sensible to avoid ‘contaminating’ accepted foods with new foods by presenting them on separate plates and starting with a small amount of a new food then titrating upwards if tolerated. Occupational

therapy-led oral desensitisation programs can also be very useful,¹ as these can include the use of brushes, massages, blowing bubbles, use of chewy tubes and ‘chewlery’.

A ‘food exchange’ is a similar approach where a food’s features are assessed and a food with similar qualities is exchanged for this (see Table 2).

PSYCHOLOGICAL STRATEGIES

As with any dietetic consultation, it is important to use motivational interviewing techniques to support behaviour change, such as, rolling with resistance, accurate empathy and being led by the client and/or their family. It is also key to set realistic goals in the context of autism, rather than trying to resolve all food-related issues.¹ With family members and some older children, it can be useful to explore psychological strategies

Table 3: The ABC of behaviour

A - Antidote (i.e. triggers)	A baby cried, or a new food was touching a 'safe food', etc.
B - Behaviour (i.e. what happened)	Child threw the dinner plate, or ran away from the table, etc.
C - Consequence	Parent threw food in the bin, or there was an argument about the meal, etc.

Table 4: Examples of nutritional advice

Issue	Nutritional advice
Constipation	Advice on gradually increasing fibre and fluid intake.
Tooth decay	Advice on reducing sugar intake, aiming to limit sweet foods to after meals and limiting overall snacking.
Overeating	Strategies to encourage movement, reduce portions, reduce snacking and increase fruit, vegetable and fibre intake.
Undereating	Strategies to increase portions and high energy high protein advice.
Potential food hypersensitivity	Dietary assessment, use of food and symptom diary and advice on nutritionally balanced exclusion trials if indicated. If requested by the family, exclusion trials of gluten and casein should be supported by a dietitian to ensure nutritional adequacy; as long as the limited evidence base and pros and cons of this approach are discussed with the family in advance (based on an individual dietary assessment). ¹

such as cognitive behavioural therapy to de-catastrophize fears related to food. Another relevant strategy is the 'ABC of behaviour' (as outlined in Table 3); this can help to identify whether the child is reacting to the food itself or to another environmental factor.

Keeping a food diary can also help to identify patterns of food refusal. A detailed food diary can include the time, what was eaten, where it was eaten, volume consumed, response to the meal, who was present, other environment factors, etc.⁶

MULTIDISCIPLINARY WORKING

It is crucial that all goals are clear and consistent between everybody involved in the child's care, including the client, family members and carers. Autism outreach teams and The Autism Society can provide great support and resources for families. Working with speech and language therapy for those who have poor oral motor skills or extreme oral sensitivity can also be very important. Occupational therapists can assess and clarify the child's sensory profile and develop a suitable desensitisation programme.¹

INDIVIDUALISED ADVICE

As each case is unique, it is important to provide an individualised treatment plan based on

a detailed dietary assessment. For example, The BDA report that standard healthy eating guidelines are often inappropriate for those children with autism who have an extremely limited diet (i.e. those who eat less than 20 types of food).¹ It is also important to explore the underlying issues for eating difficulties; such as sensory or social differences.⁶ Some common nutritional issues, which may need to be considered on a case by cases basis, are listed in Table 4.^{1,6}

CONCLUSION

To account for the numerous differences which can occur in autism, there are many aspects of dietary care to consider. This can include monitoring growth and nutritional intake, correcting micronutrient deficiencies, making environmental and communication adaptations, encouraging positive and relaxed mealtimes, supporting with desensitisation to new foods and the use of psychological strategies. Ensuring that treatment is individualised and working closely with other members of the multidisciplinary team, as well as family members, are also key aspects of providing consistent patient-centred care in order to improve dietary outcomes for children with autism.