

A young girl with brown hair, wearing a yellow shirt and red overalls, is smiling and holding two red apples over her eyes. She is surrounded by a large, vibrant assortment of fresh fruits and vegetables, including oranges, apples, kiwis, pineapples, eggplants, and leafy greens. The background is a colorful gradient of yellow, orange, and red.

Nutrition and dietary considerations as part of the management of autism spectrum disorder

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Nutritional patterns in individuals with ASD

Nutritional patterns observed in individuals with ASD could be affected by three autism-specific impairments which include

- social communication impairments,
- problems in sensory modulation, and
- systemic GI comorbidities.

Social communication impairments

- Social communication impairments in this population may compound their nutritional problems, thereby contributing to the development of obesity.
- The participation in group activities, such as group physical activities, is often hindered by social communication impairments in individuals with ASD.

Problems in sensory modulation

- Sensory modulation difficulties may result in individuals reacting to or having aversions to various food textures and colours.

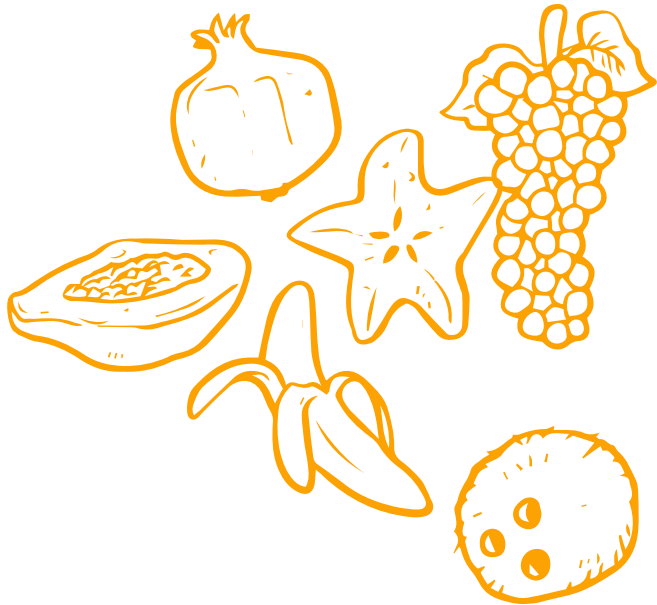
Systemic GI comorbidities

- It has been found that approximately 70% of individuals with ASDs demonstrate GI problems, which may further alter their nutritional habits.

Systemic GI comorbidities

In addition to GI problems,

- individuals with ASD may have olfactory and oral hypersensitivities which may lead to specific aversions to different food textures and smells,
- as well as reduced consumption of foods which are considered to be healthy.
- It has been reported that individuals with ASD generally prefer diets that are starchy, sweet, and energy dense and tend to avoid “low energy-dense foods, such as fruits, vegetables, lean protein, and high-fiber foods”.
- This issue has been described to be compounded by the individuals’ parents, whereby the parents also have preferences for energy-dense diets which may fortify, the unhealthy dietary pattern within the individual with ASD.
- Furthermore, overly selective food choices as well as sleep disturbances may contribute to obesity in children with ASDs.
- Sleep disturbances recounted often include premature morning awakening, late sleep onset, as well as poor sleep maintenance.



Appropriate dietary assessments and anthropometric measurements

Nutrition assessment

- A baseline nutritional assessment should be considered a standard of care for all individuals with ASD.
- Baseline nutritional assessment can be remembered by the mnemonic “**ABCD**,” which stands for an evaluation of **anthropometric**, **biochemical**, **clinical**, and **dietary** parameters.
- nutrition assessments for individuals with ASD should include all of these aspects.

- **Anthropometric measures**

Standard anthropometric measurements including *height, weight, and BMI* are the cornerstones of any nutrition assessment.

- **Biochemical measurements**

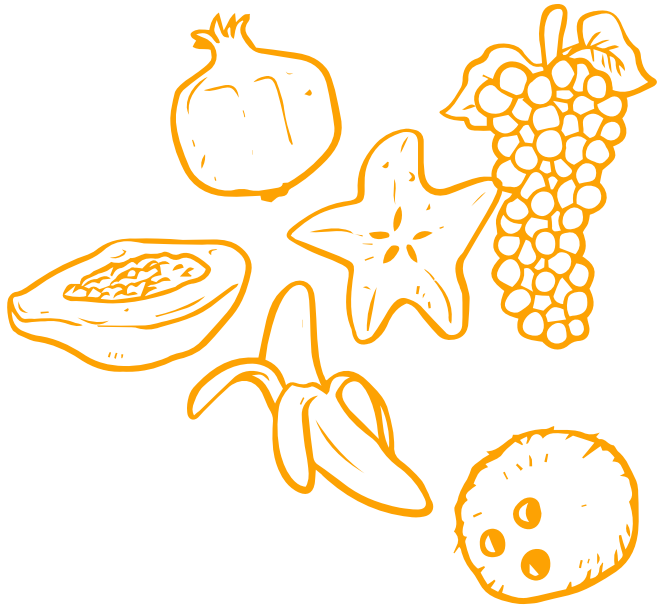
Standard tests as for regular health monitoring should be carried, e.g., *glucose and lipid tests*, and additionally, *amino acid screening shortly after birth, thyroid testing, and allergy testing* may be useful.

- **Clinical measures**

Assessments should begin with a *medical history*, where information regarding the individuals’ general condition as well as their diet will be consolidated.

- **Dietary intake**

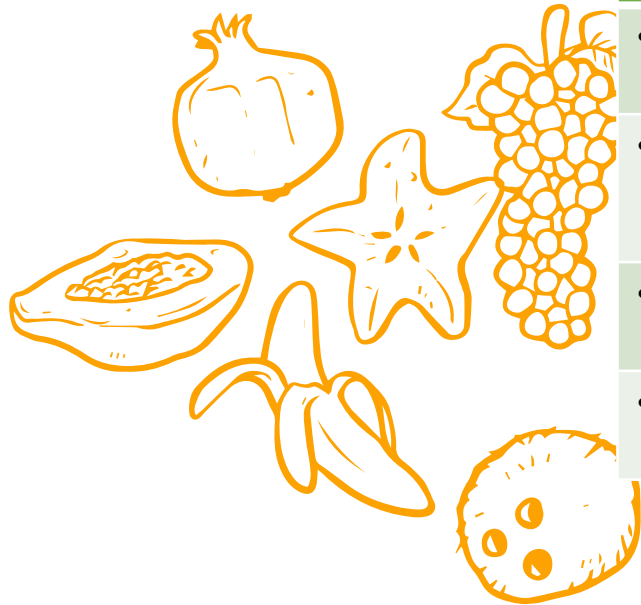
It may advised for parents and caregivers to keep a *food diary for* several days to determine macronutrient and micronutrient intake as well as provide an overall view of the eating habits of the individual.



Common nutrition/dietary concerns and considerations in individuals with ASD

Behaviour changes in children with ASD affecting nutritional status

- ❑ Children with ASD often repeat behaviours and have narrow, obsessive interests.
- ❑ These types of behaviour can affect eating habits and food choices, which can lead to the following health concerns.
- **Picky eaters**
 - Many parents find their child's sensitivity to tastes, colours, smells, and textures the biggest barriers to a balanced diet. Getting an individual to try new foods, especially those that are soft and slippery, may seem nearly impossible.
 - Picky eating may result in individuals not eating enough food, which may also be compounded by attention deficits where an individual may be unable to focus on one specific task at a time (in this case eating). This may lead to nutrient inadequacies; for example, low levels of calcium, vitamins D and E, iron, zinc, and fiber and possibly lead to reduced body compositions.



Picky Eater	Problem Feeder
• Decreased range/variety of foods, but will eat 30+ foods.	• Eats less than 20 foods.
• Foods that are lost due to burn out (eaten too often) will be regained after 2 weeks.	• If foods are lost due to burn out, will not be re-acquired.
• They will tolerate, touch and taste new foods.	• Will cry and have a melt down when a new food is introduced.
• Eats at least one food from each nutrition & texture group.	• Will refuse entire categories of food textures and nutrition groups.

Common nutrition/dietary concerns and considerations in individuals with ASD



❖ Ways to approach sensory issues:

- Tackle them outside of the kitchen. For example, taking a child with to visit the supermarket to choose a new food, or research the food with the child with ASD to stimulate interest in the new food, or getting the child involved in the food preparation itself.
- Simply becoming familiar with new foods in a low-pressure, positive way may eventually help a child to become a more flexible eater.

➤ Mealtime routines

- Children with ASD often have highly restricted interests, and these may be difficult to share with other individuals, once again leading to lone participation and isolation.
- Furthermore, a child with ASD will have to “work harder” at mealtimes because a busy kitchen, bright lights, and even the way the furniture is arranged all are potential stressors for him/her.
- ❖ Therefore making meals as predictable and routine as possible can help. Serving meals at the same time every day is one of the simplest ways to reduce stress levels.
- ❖ Stress levels may be further reduced by making simple concessions e.g., if a child is sensitive to light, dining by candlelight may be an option or allowing a child to choose a favourite food to include at every meal or allow a child to choose a favourite seat at the table.

❖ SOS (Sequential Oral Sensory Approach to Feeding (<https://sosapproachtofeeding.com>))

➤ Step by Step approach (8 steps)

➤ Food allergies

- It has been described that young children with ASD may be more vulnerable to sensitization to common food proteins because of an immature gut mucosal immune system. Nutritional assessments information regarding potential and confirmed FAs should be obtained so that these foods may be removed from the diet.

Common nutrition/dietary concerns and considerations in individuals with ASD

➤ **Gastrointestinal tract disturbances**

- Common gastrointestinal tract (GI) problems experienced by individuals with ASD may include chronic constipation, abdominal discomfort, diarrhea, and reflux.
- Constipation often results from an individuals' limited food choices, reduced consumption of fiber in the diet, and medication.
- ❖ It typically can be remedied through a high-fiber diet, plenty of fluids, and regular physical activity. In instances where individuals may experience abdominal discomfort, investigations should be carried out to try and identify the cause of the problem.
- ❖ Commonly lactose and gluten intolerance may lead to inflammatory reactions, as well as abdominal bloating and pain, thus simply limiting them or removing them from the individuals' diet may reduce the pain.
- ❖ Similarly the cause of diarrhea and reflux need to be determined to manage appropriately.

➤ **Medications**

- Medication may influence nutritional patterns in individuals with ASD.
- For example, some stimulant medications used in individuals with ASD, such as Ritalin, may lower appetite, often reducing the amount of food an individual may eat, which in turn, may affect growth and general body composition.
- Other medications may increase appetite or affect the absorption of certain vitamins and minerals.
- ❖ Information regarding the side-effects of all medications should be obtained from relevant health-care providers.
- ❖ If adverse effects regarding diet are observed in individuals with ASD; for example, if a particular medication is making eating behaviours/patterns worse, prescription of the medication may need to be modified, exchanged, or terminated following consultation by a relevant health-care professional

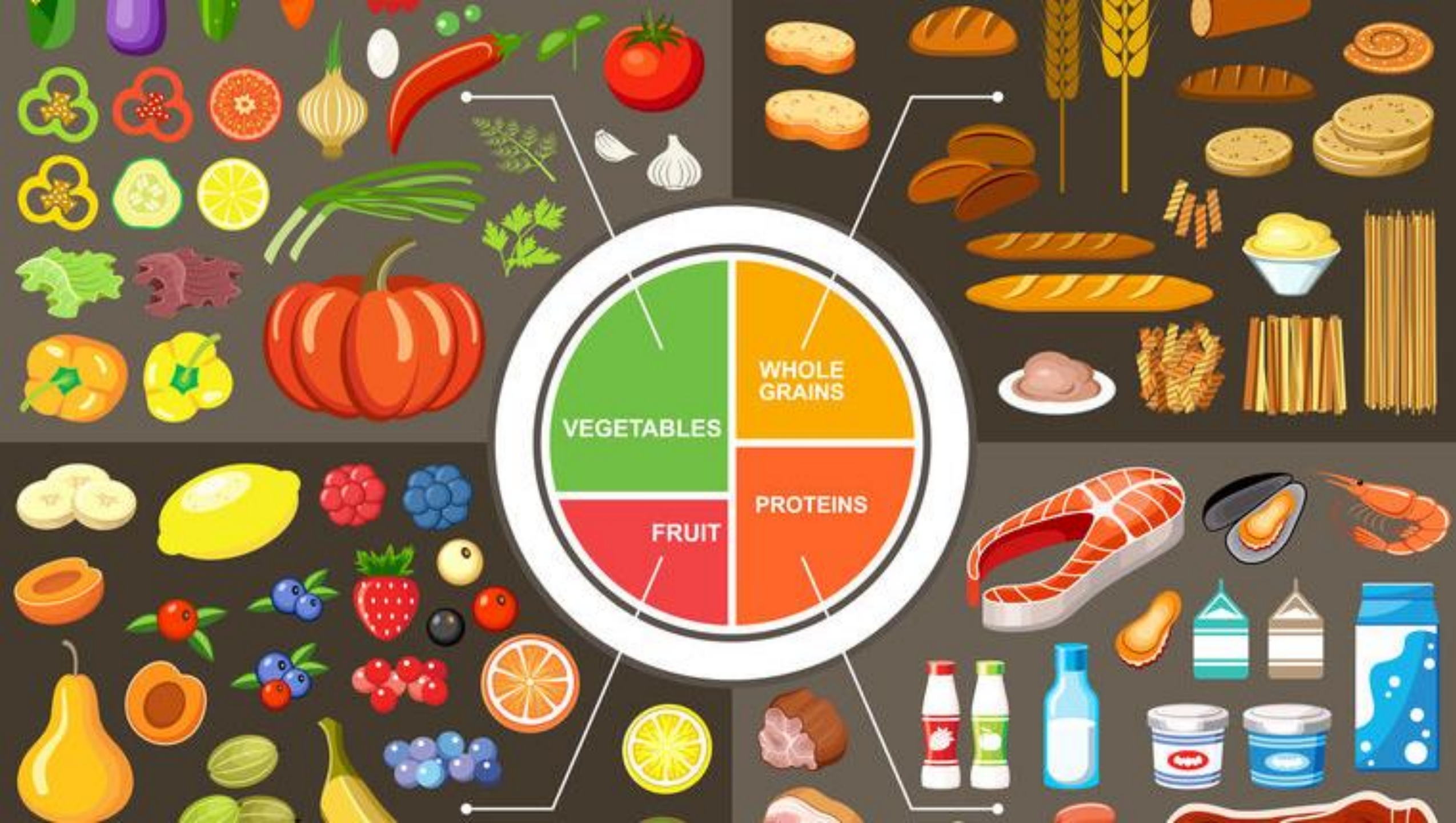




❖ **SOS (Sequential Oral Sensory Approach to Feeding)**
(<https://sosapproachtofeeding.com>)

➤ **Step by Step approach (8 steps)**

- 1. Choose a new food**
- 2. Smell the food**
- 3. Pick up the food on a spoon or fork**
- 4. Pick up the food with fingers**
- 5. Touch the food**
- 6. Lick the food**
- 7. Bite and chew the food**
- 8. Gradually increase the portion size**



Mealtime tips for autistic children with eating challenges

1. Rule out physical problems.
2. Ease into mealtimes.
3. Sit together at a table for meals.
4. Support your child's posture (90 hips, 90 knees, 90 ankles)-
focuses on eating.
5. Build acceptance to new foods through gradual exposure.
6. Have set times for meals and stick to them.
7. Expand what your child already eats.
8. Take food out of their brand boxes or containers.
9. Encourage your child to explore, play and get messy with food.
10. Concentrate on the food not your child's behaviour.



Conclusion

- Caring for an individual with ASD can be challenging on many levels, and healthful eating is no exception.
- In individuals with ASD, a nutritious, balanced diet can make a world of difference in their ability to learn, how they manage their emotions, and how they process information.
- Therefore, if impaired eating behaviours/poor nutritional habits are suspected, appropriate dietary assessment and intervention is recommended.

Reference:

Tatyana El-Kour, Melissa Olive, Natalia Neophytou, **Sandra Pretorius** (2020). Dietary interventions to prevent autism spectrum disorders, in Das U, Papaneophyto N, El-Kour T (ed.). Autism 360°. London, Elsevier, pp. 87 – 97.

Thank you

