



11th Cyprus Dietetic & Nutrition Association International Conference

19-21 November, 2021

AUTISM SPECTRUM DISORDER & DIET

DR. MACHI CLEANTHOUS, MD
CHILD PSYCHIATRIST



OBJECTIVES

1. Diagnostic Understanding of ASD.
2. Define and discuss the prevalence of feeding issues in ASD.
3. Develop an understanding of the medical & behavioural factors contributing to and maintaining the feeding issues.
4. Identify appropriate interventions.
5. Develop an understanding of the importance of multidisciplinary approach and intervention.



AUTISM SPECTRUM DISORDER:

”Lifelong complex developmental condition involving persistent challenges with Social Communication, Restricted Interests, and Repetitive Behaviour. The degree of impairment in functioning because of these challenges varies between individuals”

(AMERICAN PSYCHIATRIC ASSOCIATION)

PREVALENCE:

According to WHO, 1:160 children

According to CDC, 1: 54 children in the US

(data updated on the 01.06.2021)



Social Communication deficits may include*:

- Decreased sharing of interests with others
- Difficulty interpreting own & others' emotions
- Decreased quantity or quality of eye contact
- Decreased use and interpretation of non verbal communication (gestures, body language, facial expressions)
- Non existent or stilted/scripted speech
- Interpreting ideas literally
- Difficulty making and keeping meaningful interpersonal relationships

***American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (DSM-5). Arlington, VA: American Psychiatric Association Publishing.**



Restricted Interests and Repetitive Behaviours may include*:

- Inflexible behaviour, extreme difficulty coping with change
- Being overly focused on niche subjects to the exclusion of others
- Expecting others to be equally interested in those subjects
- Being routine bound
- Sensory Hyper- or Hyposensitivity, e.g., aversion to food textures, tolerating severe pain etc
- Stereotypical movements, e.g., hand flapping, rocking, spinning
- Arranging things in a very particular manner

***American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (DSM-5). Arlington, VA: American Psychiatric Association Publishing.**



Risk factors:

- Certain specific genetic conditions, i.e., Fragile X Syndrome, Tuberous Sclerosis
- Certain medications such as valproic acid and thalidomide*
- Having a sibling with autism increases the likelihood of a child diagnosed with autism
- Parents being older, particularly fathers, at the time of pregnancy has been linked with a greater risk
- Being male. The ration currently is 1 girl to 4 boys, albeit this ratio is changing over time.

***Dietert, R.R, Dietert, J.C., Dewitt, J.C (2011). Environmental Risk Factors for Autism, Emerg. Heath Threats J., 2011.**



TREATMENT:

Currently, there's **no** "cure" for autism. There are however several effective and evidence based interventions that can improve a child's functioning.

- Social Skills Training
- Speech & Language Therapy
- Occupational Therapy
- Parents Management Training
- Special Education Services
- Treating co- occurring conditions & Medication (anxiety, irritability, insomnia, attention deficit, depression etc)



Several complementary and alternative interventions involving **special diets** and **supplements** have been tried over the years by parents/caregivers seeking ways to help their child with autism. To date: **compelling evidence has NOT been found** to clearly recommend any such interventions. Research into these types of interventions continues, and parents interested in them should discuss them with the child's treating clinician and/or multidisciplinary team.



Article PDF Available Literature Review

Truths, Myths and Needs of Special Diets: Attention-Deficit/Hyperactivity Disorder, Autism, Non-Celiac Gluten Sensitivity, and Vegetarianism

June 2016
68(1):1-10

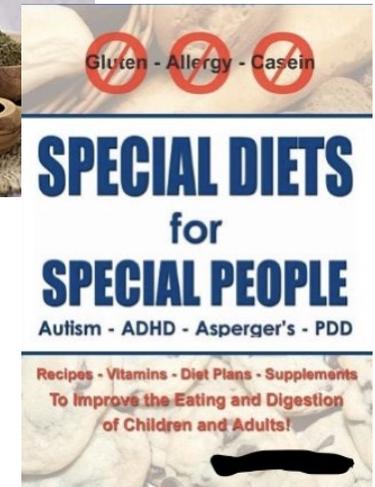
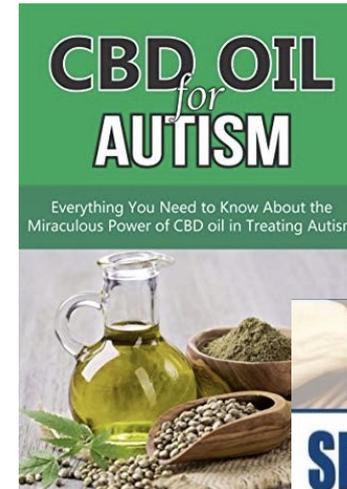
FOCUS

Healthy nutritional habits should be encouraged in all children independently of the existence or non-existence of neurodevelopmental disorders

Ann Nutr Metab 2016;68(suppl 1):43-50

Truths, Myths and Needs of Special Diets: Attention-Deficit/Hyperactivity Disorder, Autism, Non-Celiac Gluten Sensitivity, and Vegetarianism

by Sylvia Cruchet et al.

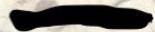


Gluten - Allergy - Casein

SPECIAL DIETS
for
SPECIAL PEOPLE

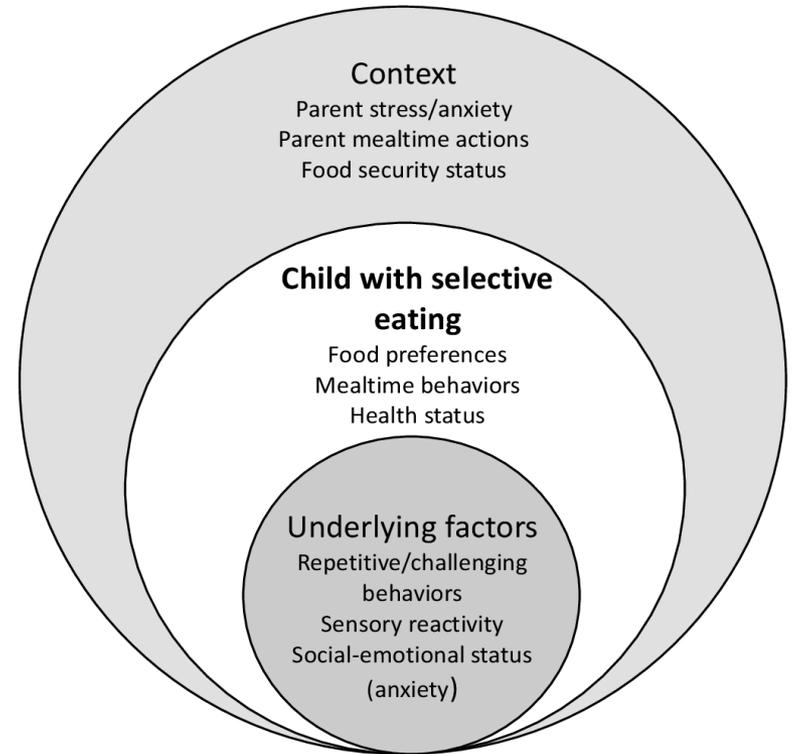
Autism - ADHD - Asperger's - PDD

Recipes - Vitamins - Diet Plans - Supplements
To Improve the Eating and Digestion
of Children and Adults!



Most common difficulties:

1. Being very routine bound
2. Food's colour and texture
3. Taste and Smell
4. Oral cavity and hypersensitivity
5. Feeling of hunger and satiety ("feeling full")
6. Gastrointestinal issues
7. Allergies and oversensitivities
8. Autistic person's own ideas and theories
9. Eating skills
10. Social co- existence
11. Other, i.e., comorbid intellectual difficulty, behaviours negatively reinforced etc



Let's have a closer look...



Bound by routine & coming up with own ideas or theories...

Fact: individuals in the spectrum prefer and enjoy routine!

But: routines may be interfering with daily function and cause irritation to the rest of the family.

Examples: specific way of serving food, specific seating arrangements, same dishes and cutlery, "divided" plates, use of electronics etc

Fact: Individuals in the spectrum all too often come to their own conclusions, thus theories about eating.

Examples: considering food as the body's fuel more like how fuel works for a car. You do not need to fill the fuel tank everyday, right? Becoming fat if using a fatty body cream? No need to eat after drinking lots of water.



Sensory Processing Issues...

Fact: Autistic people's brains can't do what most people take for granted. That is, process all the information coming in through the senses to provide a clear picture of what's happening both internally and externally. Senses: touch, hearing, taste, smell, sight, body awareness (proprioception) and movement (vestibular).

"It's like traffic jam in your head"

Examples: the girl that only ate yellow food, the 5 year old that eats only puréed food, food should be eaten category by category, extreme use of salt, pepper or ketchup, gagging, smells that make one nauseous.

Results: dramatic mood swings, tantrums, fight-or-flight response



Comorbid Intellectual Difficulties &/or behavioural difficulties...

The lower the cognitive abilities, the more difficult the feeding difficulties become.

Examples: rumination and pica in the lack of underlying organic causes.

Understimulated, cognitively challenged children might get stimulated by eating non-edible stuff. I.e., the boy who ate cigarettes and was getting a kick out of the nicotine, the girl who was eating ice cubes as to alleviate the tingling sensation in her mouth.

Some children are merely exhibiting a specific behaviour as to get a specific reaction.

I.e., the boy that was playing with and eventually eating his faeces only to be stimulated happily by his parents' angry reactions.



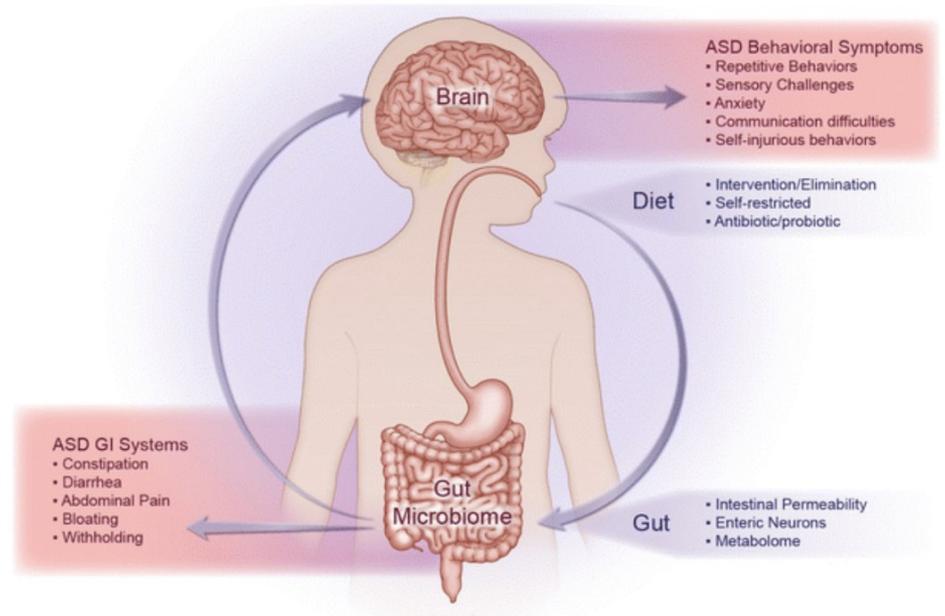
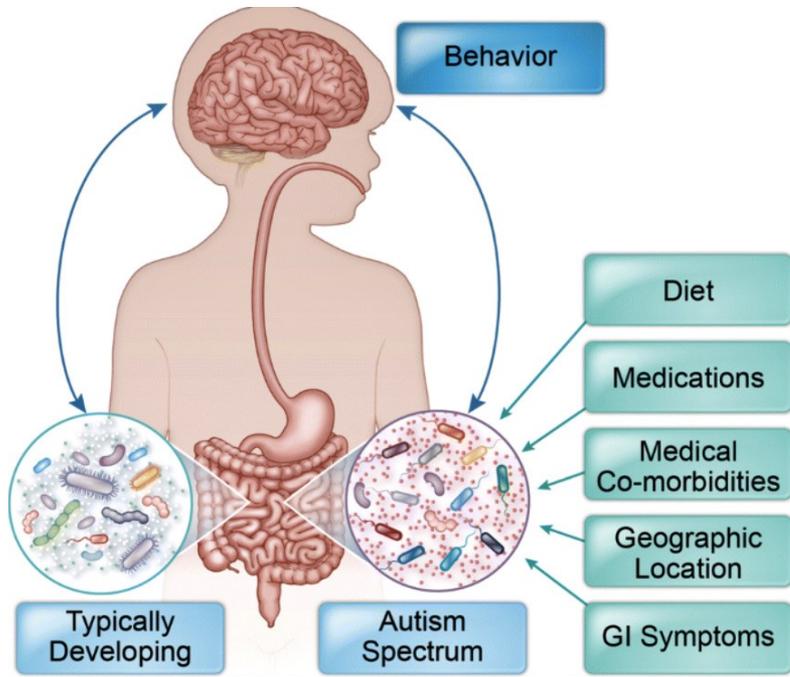
Gastrointestinal issues etc...

”in paediatric settings, parents often raise concerns about possible GI symptoms in ASD, yet the specificity of these concerns are not well studied. Children with ASD experience more general GI symptoms than comparison groups, with a standardised mean difference of 0.82 and a corresponding odds ratio of 4.42. Analysis also indicated higher rates of diarrhea, constipation, and abdominal pain without underlying organic reason” *

There’s rising evidence suggesting that the Brain- Gut- Microbiome axis plays a critical role in ASD. While various factors can influence the gut microbiome, including diet and anti- microbial use, the interconnectivity of the enteric and central nervous systems can affect both behavioural and GI manifestation in paediatric ASD.

***GI symptoms in ASD: A Meta-analysis, McElhanon et al; Pediatrics (2014)**





Everything previously discussed leads to:

FOOD SELECTIVITY

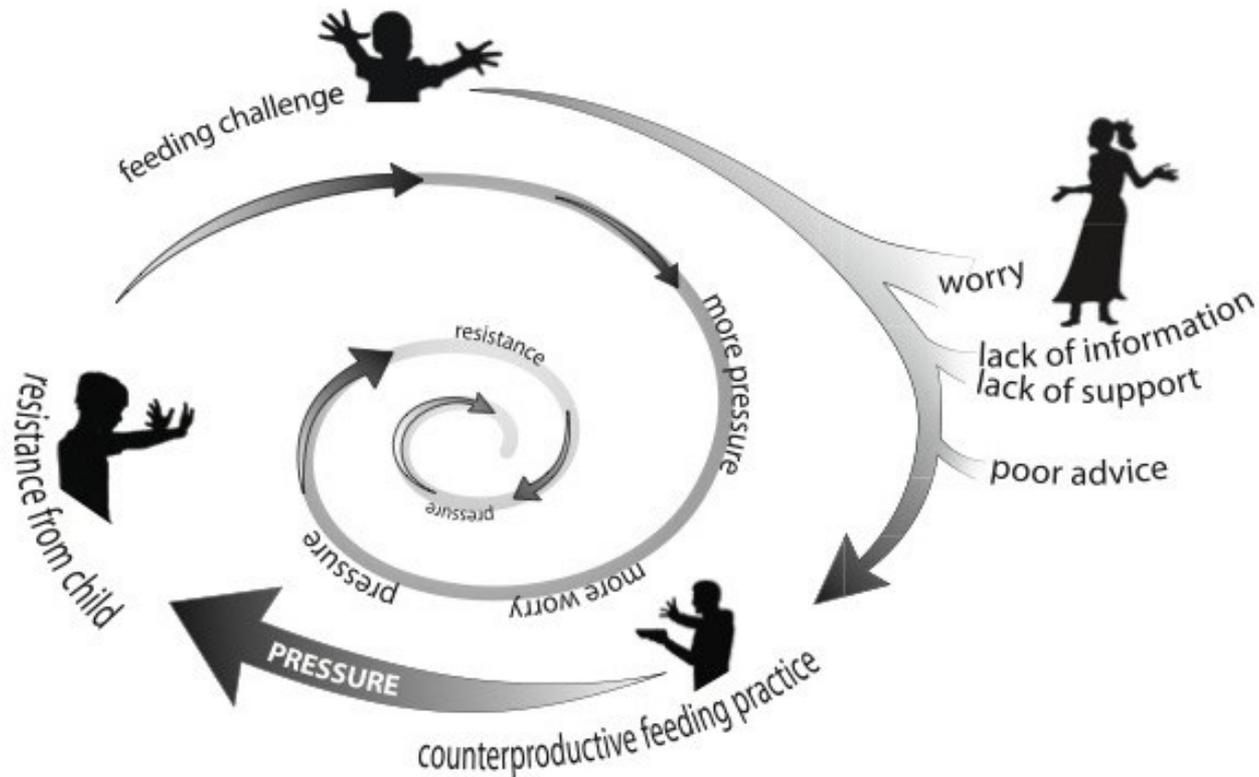
Umbrella term that includes food refusal, limited food repertoire, and high frequency single food intake. It is often the result of past traumatic experiences with feeding &/or eating that result in a behavioural aversion to foods, whereas, **Food Sensitivity** is often caused by sensory sensitivities that result in aversions to certain textures, tastes, &/or smells

(Bandini et al., 2010)

In the Autistic population, the delayed or wrong intervention concerning the latter, all too often leads to the former.



Feeding difficulties in individuals with Autism present with food refusal, extreme selectivity, inadequate intake, inadequate range and challenging behaviours. Efforts of caregivers to intervene may be met with escalations of challenging behaviours, and with increased refusal to eat.



Consequences on Health:

- Megaloblastic anemia due to folate deficiency (tiredness, disturbed vision, mouth ulcers etc)
- Iron deficiency anemia (pale skin, headaches, cold extremities, fatigue, cravings for non- nutritive substances such as ice, dirt or starch)
- Constipation
- Underweight or overweight children
- Increased risk for social difficulties and poor academic performance
- Health consequences of food selectivity include Rickets, diverse Vitamin Deficiencies, Bone Loss, and Stunted Growth (Williams, 2010).
- The effects on caregivers are also significant. Family members often express high stress surrounding eating and mealtimes (Singer, Song, Hill, & Jaffe, 1990)



DIET

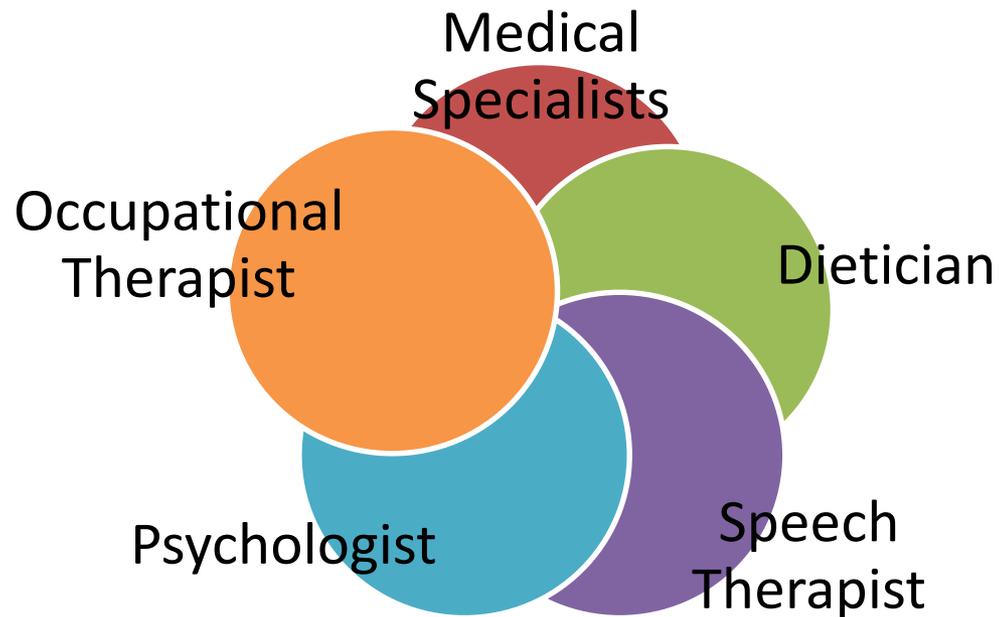
One of the **most challenging areas** of intervention clinicians are asked to deal with!!

- Autism's intrinsic characteristics
- Parents reading misleading information on the internet or getting it from questionable sources.

MULTIFACETED PROBLEMS REQUIRE MULTIDISCIPLINARY INTERVENTIONS!!



- Clinicians must possess an impressive set of skills in order to successfully treat feeding issues.
- Feeding issues in ASD require the expertise of medical doctors, S&L pathologists, OTs, Psychologists trained in behavioural analysis, and Dieticians. Simultaneously!



Upon analysing behaviour of Autistic individuals, it was noticed that *ESCAPE* was often a maintaining factor. That is, children who protested and refused food often had the food taken away, thus the expectation to eat was removed too.

Most commonly utilised intervention ➡ Positive Reinforcement(PR)&Escape Extinction(EE)

PR: involves access to preferred stimuli for desired eating

EE: involves no longer permitting escape or avoidance (Tricky!! Beware of potential behavioural escalation!)

Therefore,

From Non- Removal of the spoon (1994) to Non Contingent Reinforcement (2004)

where access to preferred stimuli is provided, shaping, fading, food chaining and so on....



Plate A/Plate B protocol

2-3 tiny bites of new or non preferred foods are contained in Plate A

2-3 preferred foods are contained in Plate B

The individual must eat a small bite from Plate A as to get a food item (or drink) from Plate B



Sounds easy right?

Well... it is not!

Background and previous multidisciplinary work: tremendous!

Example:

6 year old male, non-verbal child, treated in an inpatient feeding clinic as he only consumed 3-5 foods consistently. Foods preferred were fried and processed. Previously received the majority of his daily calories from a gastrostomy tube as he was diagnosed with Failure to Thrive. Presented with pharyngeal (gag) reflex, severe hypersensitivity in the oral cavity as well as olfactory sensitivities, threw tantrums upon presentation of non preferred food that escalated to severe self-harm (biting himself, banging his head on hard surfaces).



Team Work:

- Physicians addressed medical issues, i.e., specialist in C&A Psychiatry, in Gastroenterology, in Developmental Paediatrics, in Paediatric neurology etc.
- Psychologists collected detailed info, mapped the behavioural and emotional difficulties and suggested psychotherapeutical interventions as to alleviate the stress for both the child and the caregivers.
- Speech Therapists addressed the communication issues, i.e., verbal vs non- verbal child, AAC (unaided, aided, low tech, high tech), other issues involving the oral cavity.
- Occupational Therapists addressed issues such as Sensory Integration as well as ADL
- (Social Workers help families/caregivers recover from the adversities they have to withstand)



Dietician:

- Evaluated the nutritional status of the individual by collecting and assessing anthropometric data and biochemical data.
- Evaluated potential underlying conditions, i.e. deficiencies, health issues, diverse medications with physicians.
- Evaluated the daily mealtime routine of family and concurrent sensory difficulties.
- Examined potential restrictions imposed by the family due to cultural, religious reasons.
- Suggested a tailor-made diet based on all of the above and continues to monitor the individual's weight, height, BMI, fat etc.



Summary:

- Feeding disorders in ASD are complex and cannot be attributed to one cause
- Medical and neurodevelopmental concerns should be addressed before the behavioural
- Support patients and families with evidence based practise that is tailor-made to the individual
- Work collaboratively with the caregivers. They should be trained!
- Multidisciplinary care is essential
- All members of the multidisciplinary team should be experienced in Autism. If not, study!

Make meals fun!!



*Thank you
for your
attention!

