



NUTRITION BOOKLET 2

GUIDE TO COMBAT CHALLENGES FACED BY
CHILDREN WITH DOWNS SYNDROME

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WEIGHT GAIN

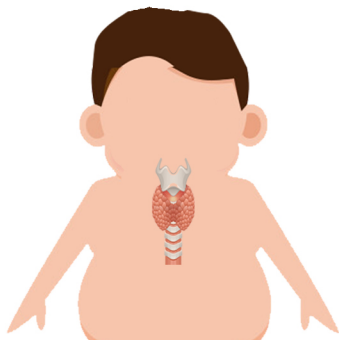
IN CHILDREN WITH SPECIAL NEEDS

Some children are more prone to gain body weight than others. This may be partly owing to their body constitution, with additional factors adding to the risks of gaining weight.

Increase in weight can affect different aspects of the child's health. If left unchecked the child may be at a high risk for lifelong obesity. Obesity comes with its own set of troubles such as cardiovascular disease, diabetes, arthritis, to name a few.



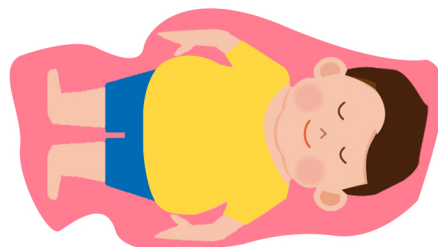
REASONS FOR EASY WEIGHT GAIN



Low thyroid hormone levels in the body can cause an increase in body weight.



Consumption of processed food



Physical inactivity, which may be attributed to overall lethargy in the child, or in some instances (e.g. Down's syndrome) the child's weak muscle tone makes him/her more prone to inactivity if not forced to exercise regularly.

What to do about it?

<p>Eat real food that is natural and healthy</p>	
<p>Consuming a balanced diet is more important – Choose foods from all the food groups</p>	
<p>Eat nutrient dense food (e.g. soup with daal and vegetables)</p>	
<p>Serve meals and snacks at regular intervals</p>	
<p>Sit together and eat. Avoid watching television during mealtimes</p>	
<p>Involve children in other creative activities (e.g. singing, playing instruments , arts & crafts)</p>	
<p>Ensure the child engages in daily physical activity (e.g. walking in the park, exercising, yoga, dance)</p>	
<p>Get regular assessment of thyroid hormone levels (to rule out weight gain due to hormonal imbalance)</p>	

What NOT to do about it?

Avoid processed, packaged foods such as chips, fries, chocolates, sweets. They provide no nutrients at the cost of consuming bad fats that lead to weight increase.



Prevent the child from engaging in **excessive eating**. Check on portion size. This is essential to ensure the child doesn't overeat leading to weight gain.

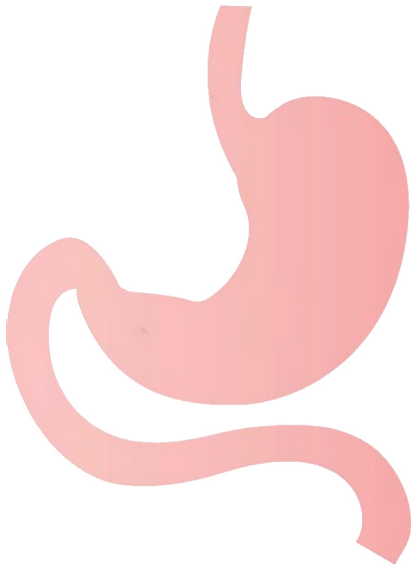


COW MILK ALLERGY

IN CHILDREN WITH SPECIAL NEEDS

DEFINITION OF COW MILK ALLERGY

Cow milk protein causes allergy in some individuals.



Normal Stomach



Cow Milk Allergy
in stomach

REASONS FOR COW MILK ALLERGY

They are unable to fully digest the protein in milk. Deficiency of enzyme in small intestine can cause digestive issues.

EFFECTS OF COW MILK ALLERGY

- Diarrhea
- Bloating
- Gas
- Nausea
- Abdominal cramps

What to do about it?

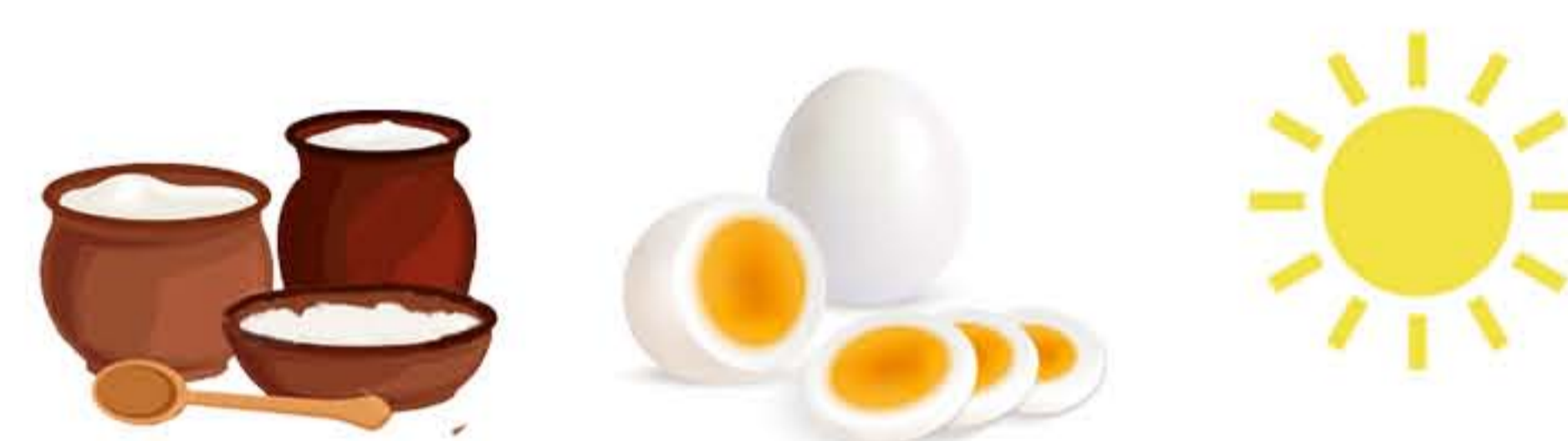
If milk is taken from the diet, the calcium is not lost, there are **other food sources**: green leafy vegetables, raagi, oranges, broccoli.



Other **alternative sources of milk** that can replace cow milk are Almond milk, soy milk, cashew milk, coconut milk and rice milk.



Get enough **Vitamin D** to enhance the calcium absorption— egg, liver and yoghurt, sun exposure



Use **Calcium supplements** when necessary, after consulting with your doctor.



What NOT to do about it?

Avoid lactose containing dairy products such as milk, butter or cheese.

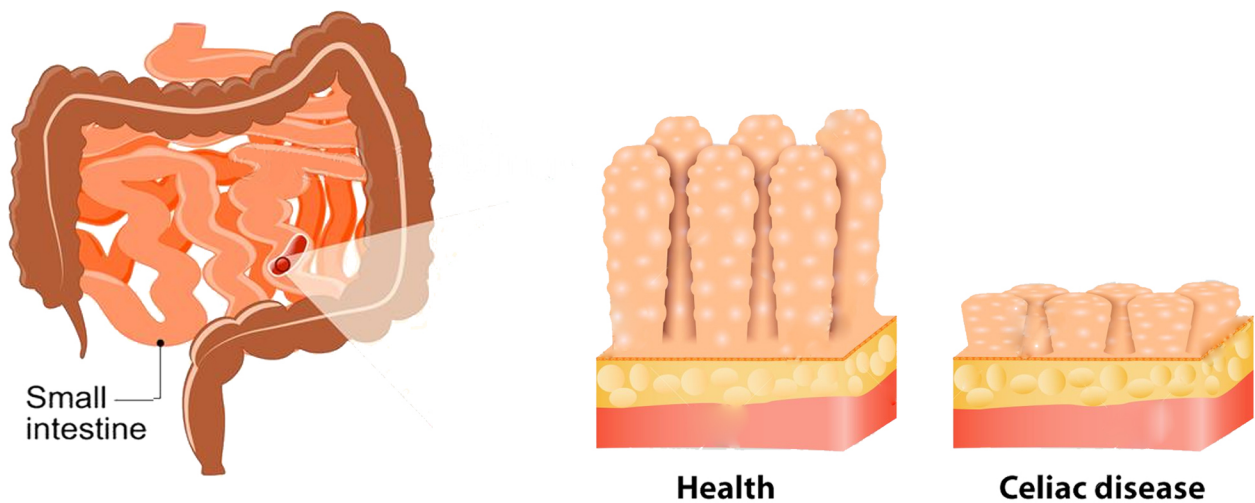


CELIAC DISEASE

IN CHILDREN WITH SPECIAL NEEDS

DEFINITION OF CELIAC DISEASE

A condition in which the small intestine of the person becomes sensitive to the gluten content present in some food types (for e.g. wheat, rye or barley). The consumption of foods with gluten causes an adverse reaction in the intestine that disrupts the regular absorption of nutrients, leading to gastrointestinal complications.



REASONS FOR CELIAC DISEASE

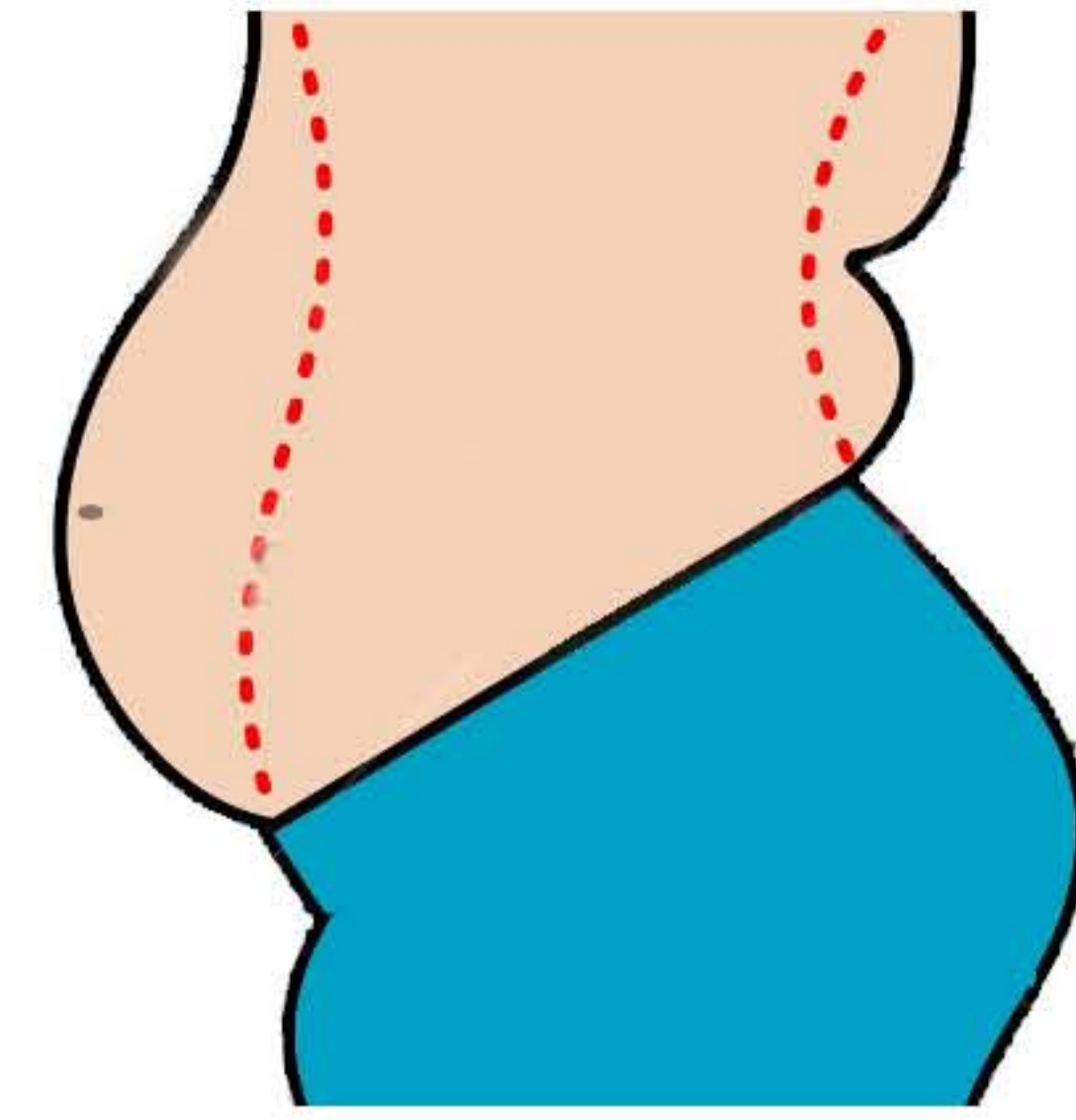
While there is no specific reason for developing Celiac disease, the risk has been shown to be increased due to genetic predisposition. Some children are more prone to Celiac disease than others, for e.g. children with Downs syndrome, Turner's syndrome, Addison's disease, Autoimmune thyroidism.

EFFECTS OF CELIAC DISEASE





Abdominal pain or discomfort



Bloating



Feeling tired and lack of motivation

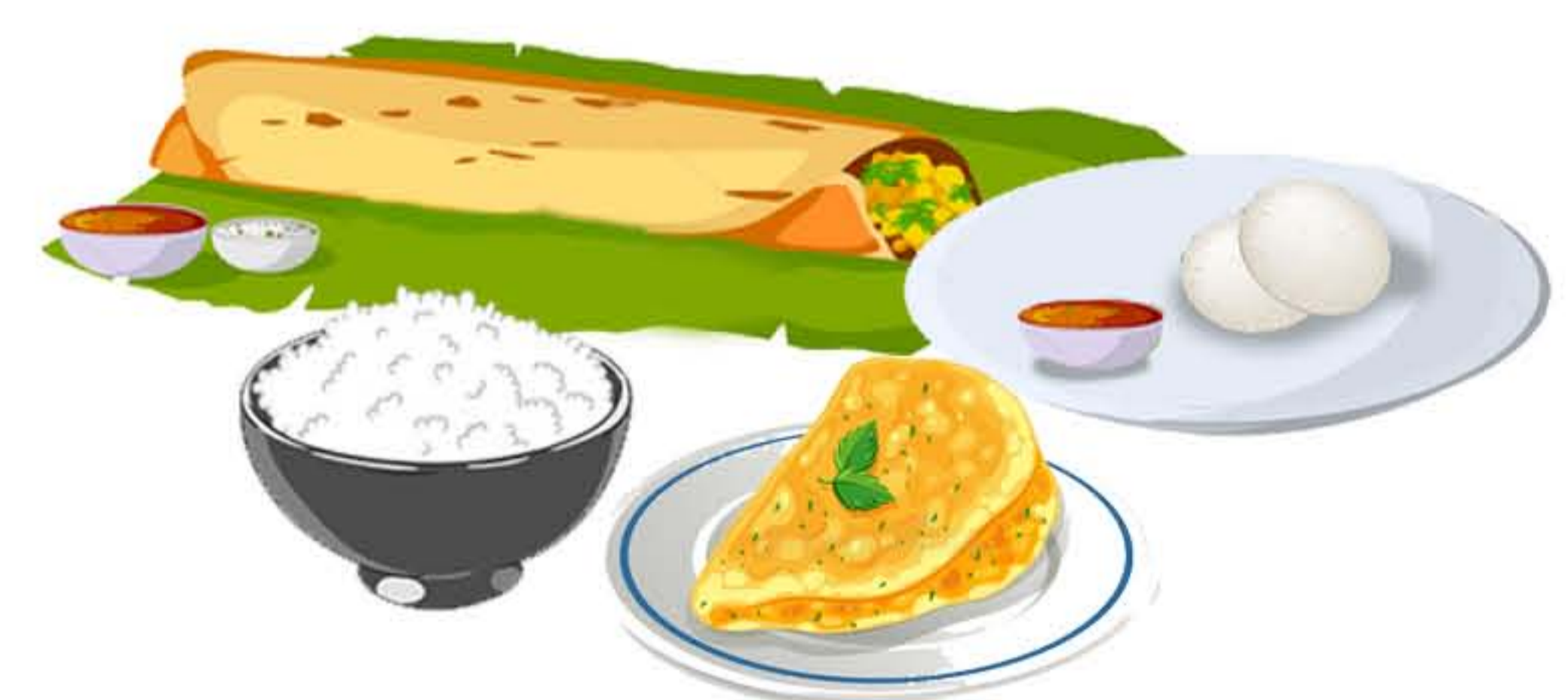


Not growing at the expected rate

Note: Please ensure correct diagnosis of Celiac disease with a physician through diagnostic tests. This is to ensure the symptoms observed in your child are indeed due to Celiac disease.

What to do about it?

- Consume a diet that is free of Gluten – avoid wheat, oats, rye, barley
- Ideas for gluten free diet
 - Rice, rice upma, rice roti
 - Millet varieties (upma, dosa, kichadi, idli)
 - Poha, idli, dosa, Chillas (Besan and moong)
 - Pongal varieties (using rice, millet)
 - Quinoa, amaranth (rice, upma, kichadi, pulao)
 - Omelette, egg dosa, scrambled egg
 - Porridges (Ragi, or any other health mix varieties available in super markets)



What NOT to do about it?

- Avoid biscuits, other packaged foods – read label before consuming any food.



CONSTIPATION

IN CHILDREN WITH SPECIAL NEEDS

DEFINITION OF CONSTIPATION

A condition in which the child has

- Difficulty emptying his/her bowels for 2 or more days
- Stools appear **hard** and **lumpy**
- Child has high levels of pressure while passing stools



Normal



Constipation

REASONS FOR CONSTIPATION

The main reason is an inherent problem associated with a pre-existing condition, such as low muscle tone seen in children with Down's syndrome.

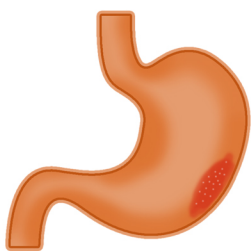
In addition to the pre-existing condition, the following also further worsen constipation.



Low fluid intake



Lack of fiber in the diet

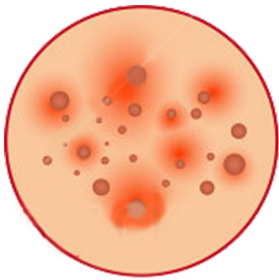


Existing yeast infection
in the gut



Intake of too much
processed food

EFFECTS OF CHRONIC CONSTIPATION



Yeast infection



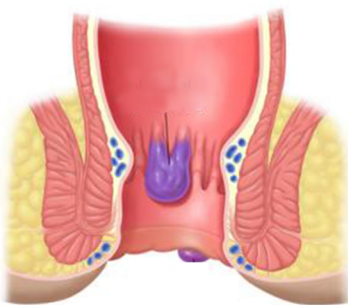
Stomach ache due to bloating and flatulence



Mood changes – irritability, hyperactivity



Sleep disturbances



Piles



Build-up of toxins in the blood

DIETARY SOLUTIONS FOR IMPROVING CONSTIPATION

What to eat....and, why?



Nutrients in their natural form

a) Fluids



Lack of harmful additives

b) Fiber

c) Probiotics

Provide necessary fluids and fiber for easier digestion



d) Good oils

Good oils are useful for lubrication and in the absorption of fat soluble vitamins such as A,D,E,K



What NOT to eat....and, why NOT?



Processed food

- No fibre
- High in sugar
- High in unhealthy fats
- High in additives

DIETARY SOLUTIONS FOR IMPROVING CONSTIPATION

What to eat?

- **More fluid intake**

Water

If the consumption of water in sufficient amounts is a challenge, fluids can be consumed in varied forms



Fruit/vegetable juice
Without sugar



Buttermilk



Coconut water



Vegetable or chicken soup



Daal water
Such as *Masoor, Tuar* or *Moong*

DIETARY SOLUTIONS FOR IMPROVING CONSTIPATION

What to eat?

- **More fiber intake**

Soluble



Vegetables such as onions, beets, garlic



Flax seeds



Oats



Sprouts
Like *Moong* and *Matki*



bananas, oranges,
apples ,guavas and prunes

Insoluble



Green leafy vegetables



Root vegetables



Nuts



Whole grains

DIETARY SOLUTIONS FOR IMPROVING CONSTIPATION

What to eat?

● Consumption of good cold-pressed oils

- Coconut oil
- Mustard oil
- Sesame oil



● Consumption of probiotics

- Fermented foods such as konji, and pickled vegetables
- Fermented foods like Dosa ,Idli etc.
- Dahi or Yoghurt
- Supplements



DIARRHOEA

IN CHILDREN WITH SPECIAL NEEDS

DEFINITION OF DIARRHOEA

A condition in which the

- child has frequent bowel movements
- stools appear watery
- child lacks control over bowel movements

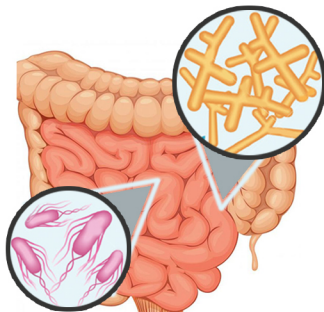


Normal



Diarrhoea

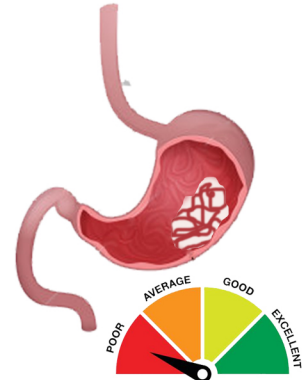
REASONS FOR DIARRHOEA



Lack of good gut bacteria



Food intolerance and allergies



Poor digestion

- One more reason for frequently diarrhoea in special need children is mouthing the inedible things.

EFFECTS OF DIARRHOEA

- Severe dehydration, causing a loss of fluid balance in the body



DIETARY SOLUTIONS FOR IMPROVING DIARRHOEA

What to eat....and, why?



Probiotics

Good bacteria increase nutrient absorption
Soft foods aid in digestion and absorption
Soft foods replenish energy



Soft foods

Replenish good gut bacteria

What NOT to eat....and, why NOT?



Processed food

- High in sugar
- High in unhealthy fats
- High in additives
- Low in nutrients

Complex carbohydrates

- Low nutrient value
- Complex carbohydrates are difficult to digest during prolonged diarrhoea



Fiber-rich foods

What to eat?

Probiotics

- Fermented foods such as konji, and pickled vegetables
- Supplements
- Dahi or Yoghurt
- Supplements



Soft foods

- Rice
- Upma
- Khichdi
- Porridge, made with for eg. sabudana
- Mashed potato
- Daal water
- Soup



HANDLING OTHER NUTRIENT DEFICIENCIES

VITAMIN A

Signs and symptoms of vitamin A deficiency

- Dryness of eyes
- Vision problems
- Night blindness
- Skin problems
- Hair loss, dandruff

What foods to have

- Orange, red, yellow colored fruits and vegetables
- Sweet potatoes
- Eggs
- Butter
- Organ meats



IRON

It occurs when the body does not have enough iron, this leads to low red blood cells, low hemoglobin.

Signs and symptoms of Iron deficiency

- Tiredness
- Paleness of skin, eyes
- Dry hair, hair fall
- Headache, dizziness
- Restless legs
- Altered sleep patterns

What foods to have

- Liver, fish, mutton
- Chicken peas, kidney beans, peanuts
- Green leafy vegetables
- Sesame(til)
- Roasted bengal gram



CALCIUM

Signs and symptoms of Calcium deficiency

- Numbness and tingling sensations around the mouth or in the fingers & toes
- Muscle cramps, particularly in the back and legs; may progress to muscle spasm (tetany)
- Wheezing
- Difficulty swallowing
- Irritability, impaired intellectual capacity, depression, anxiety, & personality changes

What foods to have

- Ragi
- Milk
- Cheese
- Green leafy vegetables
- Nuts and seeds



MAGNESIUM

Closely associated to skeletal system

Widely distributed in foods, so include variety of nuts and seeds, pulses,

Signs and symptoms of Magnesium deficiency

- Teeth grinding
- Some forms of stinging
- Constipation

What foods to have

- nuts, seeds, pulses and legumes.



BREAST FEEDING A BABY WITH DOWN SYNDROME

IMPORTANCE OF BREASTFEEDING



Breast milk is **nature's food** for all babies.



It provides comfort, food and stimulation of the baby's senses



Babies with Downs syndrome have increased risk of infection – breastfeeding provides **immunity** to the child



Babies with Downs syndrome have low muscle tone – with breastfeeding it gets strengthened



Find a lactation consultant who can help you through your breastfeeding journey



Understand that there could be factors that may impact your ability to breast feed your baby with down syndrome



When possible allow **skin to skin contact** with the baby



Have a breast pump ready to go and be prepared to pump



Stimulate the baby before breastfeeding



Learn the **position, to hold the baby**, adjust accordingly



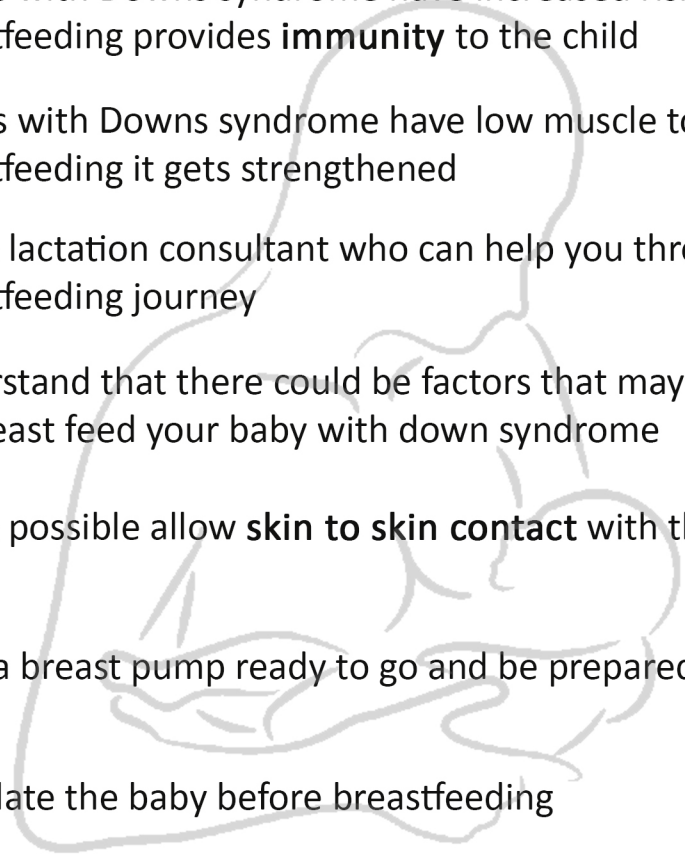
Boost your supply for frequent needs by using supplements (e.g. **methi consumption** has known to increase milk production)



Consume **adequate water**



Enjoy your **baby**, do not stress yourself



RECIPES OF ALTERNATE MILK RECIPES



ALMOND MILK PREPARATION

INGREDIENTS



Soaked almond-
20



Filtered water
– 200 ml

METHOD:

Soak almonds overnight or 6-8 hours
Drain the water.

Add almonds, water to the blender –
almond milk is ready.

Filter the milk from blender



COCONUT MILK PREPARATION

INGREDIENTS



Coconut – ½



Water- 200 ml

METHOD:

Shred the fresh coconut

Add coconut and water to the blender

Filter milk, store and use it



RICE MILK PREPARATION

INGREDIENTS



Cooked rice –
2 tbsp



Water

METHOD:

Cook the rice

Blend the rice and water in a blender
until smooth

Strain the blended mixture.

TIPS TO INCLUDE WATER IN THE DIET



Lemon juice



Tender coconut water



Soups



Buttermilk



Fresh juices



Sattu (chana dal flour mixed with water)



Milk (goat)



Nut milk - soymilk, almond milk



Sarsaparilla squash with lemon juice



Rasam



Tomato juice (juice of 2 tomatoes with juice of half lemon, salt n pepper)



Infusion water (flavor plain water with tulsi leaves, mint, slice of lemon or melon or sweet lime)



Cumin seed water (add juice of half lemon + 1tsp honey)



Plain water with 2 ounces aloe or tulsi juice



Concoction of cuminseeds + Ajwain seeds+ saunf seeds (boiled in water)

TIPS TO INCLUDE MORE FRUITS & VEGETABLES IN YOUR DIET

Accommodating dietary restrictions while planning a wholesome meal to ensure your child is receiving vital nutrients and minerals can be very tricky.

To help you explore the creative chef in you we provide you with suggestions of how you may work towards incorporating more vegetables & fruits into your everyday meal plan.

WAYS TO INCLUDE VEGETABLES AND FRUITS IN A MEAL PLAN:

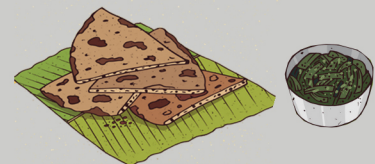
Nourish your breakfast – include vegetables in your diet – add capsicum, tomatoes, onion to omelet, dosa, chilla, idli, utthappam and sandwiches.



Different forms of presentation - Include varieties of fruits in your diet – smoothies, juices, vegetables can also be added to your smoothies. Include a new vegetable each day in your diet, include green leafy vegetables – in your soup, porridges, cutlet, kootu (mix veg), dal, subzi, poriyal curry, raita, sambar.



Innovative recipes - Prepare cutlets, stuffed paratha (spinach / fenugreek leaves) or roti with mashed vegetables, use mint chutney as a dip.



Greens powder - Include curry leaves powder or mint powder to buttermilk or rice or drumstick leaves powder with orange juice or coconut water.



Vegetable chutney - carrot, capsicum, beetroot, chow chow (chayote), palak, onion, tomato, cabbage.



Raita – onion + tomato / cucumber + tomato / cucumber + onion + tomato + carrot + beetroot / carrot + tomato + onion / coriander + onion + tomato / ladies finger / radish / white pumpkin or plantain stem or blanched spinach or amaranth greens.



TIPS TO INCLUDE MORE FIBRE IN YOUR DIET

Fibre can be included in diet as

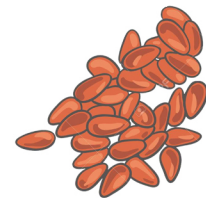
FIBRE RICH VEGETABLES

Capsicum	Bitter gourd (karela)
Beans	Ivy gourd
Radish	Broad beans (Avarakkai)
Raw papaya	Plantain stem
Bottle gourd	Plantain flower
Ridge gourd	Ladies finger
Purple cabbage	Tomato
Cluster beans	Chow chow(chayote)
Field beans	Drumstick
White pumpkin	Green and regular brinjal
Spring onions	Snake gourd



FLAX SEEDS

Sprinkle on salads, soup, salad or subzi or dal.
Mix with plain water or buttermilk.
Add to chutneys or gun powder or idli- dosa powder.



FRUITS



banana



orange



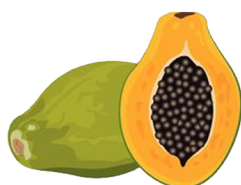
apple



guava



prunes



papaya



pomegranate



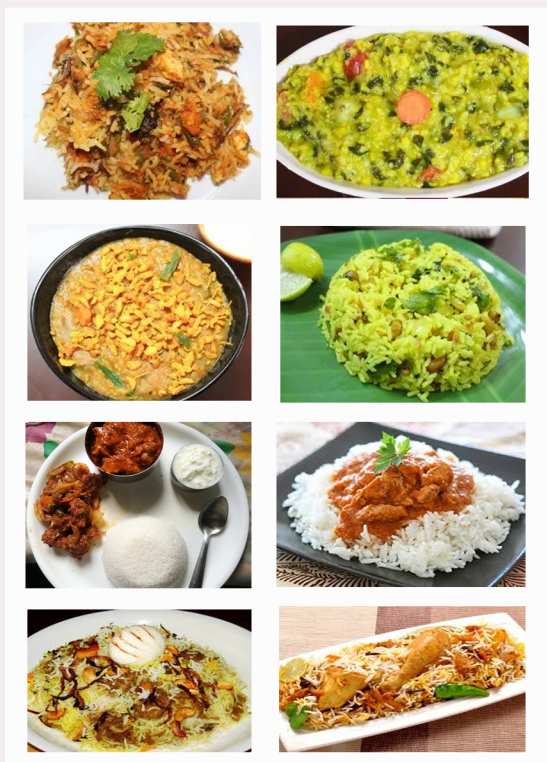
Extra notes

HEALTHY MEAL OPTIONS (SOUTH INDIAN)

Recommended by doctors

BREAKFAST & DINNER OPTIONS

- Idli + sambar or chutney or dal
- Dosa + sambar
- Adai + jaggery or chutney, sambar
- Pesarattu + chutney or sambar
- Idiyappam + coconut milk
- Appam + mixed vegetable curry
- Uthappam (add grated vegetables) + chutney
- Rice upma /semolina + sambar
- Pongal (rice / millet) + chutney
- Paniyaram + chutney
- Porridge (multigrain) + fruit -1
- Puttu + kadalai curry
- Millet sevai + grated coconut + jaggery



LUNCH OPTIONS

- Vegetable pulao + raita
- Mint pulao + aloo and peas masala
- Cauliflower and peas rice
- Paneer paratha + raita
- Curd rice + potato capsicum masala
- Bisibelabath + raita
- Brinjal rice + cabbage capsicum masala
- Keerai rice + poriyal
- Carrot or beetroot rice + keerai poriyal
- Rice + kootu + poriyal
- Rice + chicken + poriyal
- Rice + fish + poriyal
- Rice + mutton + poriyal
- Rice + egg curry + poriyal

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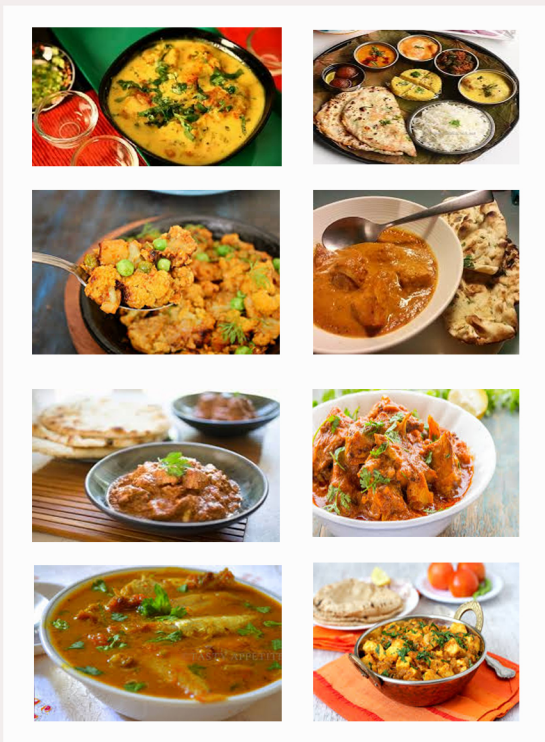
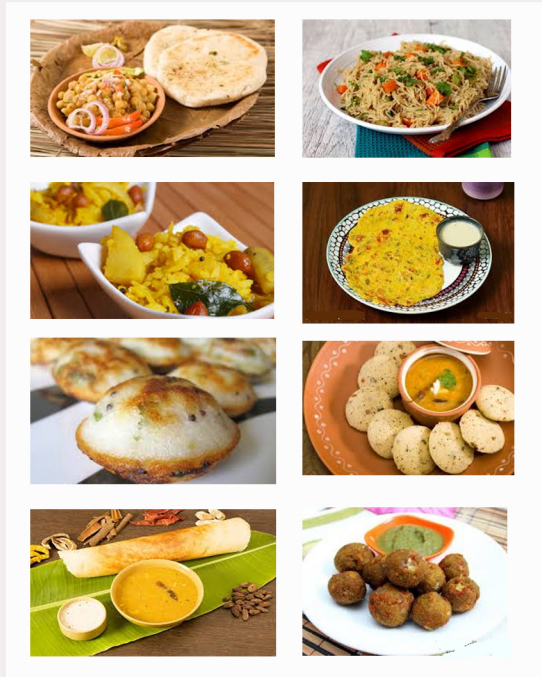
Extra notes

HEALTHY MEAL OPTIONS (NORTH INDIAN)

Recommended by doctors

BREAKFAST & DINNER OPTIONS

Palak paneer + aloo paratha
Poha with assorted vegetables
Besan chilla + chutney
Moong chilla + chutney
Dosa + dal
Matar curry + methi paratha
Chana dal + roti
Khichdi
Whole green gram curry + roti
Dhokla with mint chutney
Mint chutney sandwich
Mutton bone soup + dosa or idli or roti



LUNCH OPTIONS

Dal makhani + roti
Dal tadka + roti
Rajma curry / bhindi masala + roti
Kadhi + Chapathi
Rice + kadhi + subzi
Vegetable pulao + aloo matar
Bainganbharta + roti or rice
Roti with chicken or fish curry
Roti with mutton curry
Rajma rice + subzi
Mushroom rice + subzi
Jolada roti + subzi
Jowar roti + mixed vegetable masala

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Dry fruits laddoo

Boiled chana

Boiled kollu

Momos

Khandvi

Paneer roll

Peanut chikki

Boiled peanuts

Navadanyam sundal

Dry fruits laddoo

Boiled chana

Coriander podi dosa

Dal poli

Grated carrot
paratha

Boondi raita

Veg idli (carrot
+beans)



HEALTHY SNACK OPTIONS

Masala pori (puffed rice
+ tomatoes + grated
carrot + coriander leaves).

Tricolor sandwich (carrot+
cucumber+cheese slice+
coriander paste)

Mixed veg pasta (carrot+
capsicum)

Rainbow paratha (red+
yellow+green capsicum)

Fruit salad (carrot,
pomegranate, grapes)

Rava khichdi (peas +
carrot+ beans)

Carrot dosa + tomato
chutney

Yellow peas sundal
+ grated carrot + mango

Mini idli + Curry leaves
podi+ gingelly oil

Dry figs -2+dates -2
+almonds -5

CREDITS

Dr.Priya Biswakumar (Consultant Paediatrician) and **Ms.Shiny Surendran** (Consultant Dietitian and Nutrition Specialist) provided subject matter expertise for the development of this booklet. **Vashishta Pintu** from Nayi Disha has developed the graphics in the booklet. This booklet was developed by and the **Down syndrome Federation of India (DSFI)** and **Nayi Disha Resource Centre**.

DISCLAIMER

This disclaimer claims that none of the content in this booklet is in anyway deemed as medical advice, and be treated for information purposes only.

OTHER RESOURCES FROM NAYI DISHA RESOURCE CENTRE ON SPECIAL NEEDS AND NUTRITION

To find other resources on nutrition and special needs. Please visit

🌐 www.nayi-disha.org

RESOURCES



NUTRITION BOOKLET 1

By Shruti Kelkar



NAYI DISHA FOOD DIARY - KEEP TRACK OF YOUR CHILD'S FOOD NEEDS AND CHALLENGES.

By Shruti Kelkar



PARENT EDUCATIONAL AUDIO SERIES - NUTRITION AND SPECIAL NEEDS (HINDI)

By Shruti Kelkar

And many more...

For any further queries, please write to us at

✉ contactus@nayi-disha.org

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