Cancer Association of South Africa (CANSA)

Fact Sheet on Nutritional Guidelines for Children Diagnosed with Cancer

Introduction

Nutrition for children is based on the same principles as nutrition for adults. Everyone needs the same types of nutrients - such as vitamins, minerals, carbohydrates, protein and fat. Children, however, need different amounts of specific nutrients at different ages.

[Picture Credit: Kids Nutrition]

Rogers, P.C. & Barr, R.D. 2020.

"It is indisputable that adequate and appropriate nutrition is fundamental to the health, growth, and development of infants, children, and adolescents, including those with cancer. Nutrition has a role in most of the accepted components of the cancer control spectrum, from prevention through to palliation. The science of nutrigenomics, nutrigenetics, and bioactive foods (phytochemicals), and how nutrition affects cancer biology and cancer treatment, is growing. Nutritional epigenetics is giving us an understanding that there are possible primary prevention strategies for pediatric cancers, especially during conception and pregnancy, which need to be studied. Primary prevention of cancer in adults, such as colorectal cancer, should commence early in childhood, given the long gestation of nutritionally related cancers. Obesity avoidance is definitely a target for both pediatric and adult cancer prevention, commencing in childhood. There is now compelling evidence that the nutritional status of children with cancer, both overweight and underweight, does affect cancer outcomes. This is a potentially modifiable prognostic factor. Consistent longitudinal nutritional assessment of patients from diagnosis through treatment and long-term follow-up is required so that interventions can be implemented and evaluated."

Joffe, L. & Ladas, E.J. 2020.

"Proper nutritional status during cancer therapy has been recognised as being integral to a variety of health outcome measures, including overall survival, treatment tolerance, and quality of life. The prevalence of malnutrition, defined by WHO as either undernutrition or overnutrition, among children and adolescents with cancer is reported to be as high as 75%. Yet, over the past two

decades there have been limited advances in elucidating the underlying pathophysiological drivers of malnutrition in this population. This effect has resulted in a paucity of research aimed at improving nutritional assessment and intervention among this group. This Review presents an in-depth discussion of the role of nutritional status in paediatric cancer care, as well as evolving avenues of investigation that might propel personalised nutrition into a viable reality. Thus, nutritional science might facilitate individualised intervention strategies, and thereby help to optimise clinical outcomes for patients and survivors of childhood cancer."

Viani, K., Trehan, A., Manzoli, B. & Schoeman, J. 2020.
"A child's appropriate development stems in large part from proper nutrition. Malnutrition is an adverse prognostic factor in children with cancer, and its prevalence is highly variable. Currently, there is no standardized definition and assessment method of nutritional status in pediatric oncology. A complete nutritional assessment includes anthropometry, biochemical, clinical, and dietary assessments. In this article, we explore these methods and suggest practical approaches for pediatric cancer units depending on the levels of care that these can provide. We also advise on the monitoring and follow-up of children with cancer during and after treatment, and discuss potential areas for future research."

Consider the Following Nutrient-dense Foods

Protein - choose seafood, lean meat and poultry, eggs, beans, peas, soy products, and unsalted nuts and seeds.

Fruits **-** encourage children to eat a variety of fresh, canned, frozen or dried fruits - rather than fruit juice. If a child drinks juice, make sure it is 100 percent juice without added sugars and limit his or her servings. Look for canned fruit that says it is light or packed in its own juice, meaning it is low in added sugar. Keep in mind that one-quarter cup of dried fruit counts as one cup-equivalent of fruit. When consumed in excess, dried fruits can contribute extra kilojoules.

Vegetables - serve a variety of fresh, canned, frozen or dried vegetables. Aim to provide a variety of vegetables, including dark green, red and orange, beans and peas, starchy and others, each week. When selecting canned or frozen vegetables, look for options lower in sodium.

Grains - choose whole grains, such as whole-wheat bread, oatmeal, popcorn, quinoa, or brown or wild rice. Limit refined grains such as white bread, pasta and rice.

[Picture Credit: Kids Nutrition 2]

Dairy - encourage children to eat and drink fat-free or low-fat dairy products, such as milk, unsweetened yogurt, cheese or fortified soy beverages.

Aim, however, to limit kilojoules from:

Added sugar - limit added sugars. Naturally occurring sugars, such as those in fruit and milk, are not added sugars. Examples of added sugars include brown sugar, corn sweetener, corn syrup, honey and others.

Saturated and trans fats - limit saturated fats - fats that mainly come from animal sources of food, such as red meat, poultry and full-fat dairy products. Look for ways to replace saturated fats with vegetable and nut oils, which provide essential fatty acids and Vitamin E. Healthier fats are also naturally present in olives, nuts, avocados and seafood. Limit trans fats by avoiding foods that contain partially hydrogenated oil.

Nutrition for Children with Cancer

There is no doubt that diet is one of the main modifiable risk factors for many degenerative diseases, including cancer. More than 30% of adult cancers can be prevented or delayed by diet, being physically active and having a healthy body weight. Plant-based foods, including fruit, vegetables, and whole grains, a favourable Omega-6 to Omega-3 polyunsaturated fatty acids ratio, and fish consumption have a protective effect against cancer. On the contrary, a low intake of fruit and vegetables, high intake of red and processed meat, high intake of sodium, a diet rich in refined carbohydrates, and a high intake of total fat may increase risk of cancer. Furthermore, kilojoule restriction and having a body/mass index on the lower end of the normal range can significantly decrease or delay the onset of cancers.

Most studies were performed on adults and thus the role of diet in childhood cancer is less well-understood.

Adequate nutrition during cancer plays a decisive role in several clinical outcome measures, such as treatment response, quality of life, and cost of care. However, the importance of nutrition in children and young adults with malignancies is still an underestimated topic within paediatric oncology.

[Picture Credit: Children with Cancer]

Many paediatric cancer patients have no nutritional problems during cancer treatment: they are able to eat enough to have the strength and energy to enjoy their normal level of activity. However, some patients lose weight, grow more slowly than their healthy friends, often feel tired or irritable, and get infections easily. All of these symptoms are at least partially due to poor nutrition. Patients' inability to get enough nourishment can be due to the cancer, its type or location, as well as to the mode, frequency, and duration of its treatment. Some patients actually gain weight during therapy.

Treatments like chemotherapy, radiation, or surgery can cause nausea, vomiting, diarrhoea or constipation, and poor appetite. Other side effects of chemotherapy include chewing and swallowing problems when the mouth, throat, or oesophagus become too dry or sore.

The goals of nutrition care for paediatric cancer patients are to help achieve normal growth and weight gain, continue normal activities, and prevent problems. Meeting nutrition goals for children with cancer can be difficult.

There are many different types of and reasons for nutrition-associated problems:

- Children who have tumours of the digestive tract (mouth, stomach, intestines) are especially at risk of not getting enough nutrients
- Treatments like chemotherapy, radiation, or surgery can cause nausea, vomiting, diarrhoea or constipation, and poor appetite
- Other side effects of chemotherapy include chewing and swallowing problems when the mouth, throat, or oesophagus become too dry or sore
- In addition, the child's sense of taste may change so that he/she no longer likes favourite foods
- Radiation to the digestive tract can make it sore or keep it from working as well as it should
- Sometimes after patients are not allowed to eat for several days (as may be needed before or after surgery), they lose their interest in food
- Patients who are tired, in discomfort or pain, stressed (for example, because of family troubles), or depressed about their condition may have poor appetites
- Sometimes the patient is simply too sick to eat or drink much
    - At these times, regularly offering favourite or easily tolerated food and drink can be helpful
    - Remind patients when it is time to eat, but do not push them
    - Try to get the foods they ask for. One rule of thumb, though: if one cannot get the requested food within about an hour, do not spend time trying. Usually after this period, the child does not want it any longer. It will soon be time for the next meal or snack, so one will have another chance to see if they will eat
    - It is best not to force eating - especially in young children, who tend to do the opposite of what you want anyway
    - The reasons behind the need for good nutrition can be explained to older children and teenagers. They are then better able to take part in the steps that are required to keep their nutritional level as high as possible.

(Advances in Nutrition; St Jude Children's Research Hospital).

A Registered Dietitian – a Registered Dietitian should be consulted concerning information about ensuring that the child takes in sufficient protein and energy foods.

Diet and nutritional factors play a large role in influencing both the quality and quantity of life after the diagnosis of cancer. The Registered Dietitian is well-positioned to:

- oversee that the nutritional needs of children who are newly-diagnosed, undergoing active treatment, or those with advanced disease are met

- facilitate referrals of patients with more intensive nutritional needs.

(Barrera & Demark-Wahnefried, 2010).

Valuable Tips

To keep up their strength and deal with side effects, kids should stay hydrated, take only doctor-recommended supplements, and eat as well as possible, even though that sometimes can be hard. For some kids undergoing treatment, that might mean getting enough to eat; for others, it could mean making sure not to eat too much.

Staying hydrated - kids being treated for cancer often lose a lot of water from vomiting, diarrhoea, or by just not drinking enough. This can lead to dehydration. To avoid it, make sure the child gets plenty of fluids. Tap, filtered, or bottled water is best, but a child can also get necessary fluids from other sources, like juices (100% juice is best) and soups.

Water helps with nearly every body function - from digestion and metabolising fat, to flushing toxins from the body and maintaining body temperature. Getting enough fluids also helps prevent constipation, a condition that can make a child even less inclined to eat.

A weakened immune system - when a germ enters the body, a healthy immune system springs into action, sending an army of neutrophils to the area to attack. The next time those same germs enter the body, the immune system will "remember" them and try to head them off before they can cause any serious trouble.

Someone with cancer, though, often has fewer neutrophils patrolling the body. In some cases, that's because the cancer itself damages the bone marrow, the spongy material inside the bones where all new blood cells — including neutrophils — are made. (This is especially common with cancers like leukaemia and lymphoma.)

Other times it may be the cancer treatments themselves that are doing the damage. Both chemotherapy (powerful cancer-fighting drugs) and radiation (high-energy X-rays) work by killing the fastest-growing cells in the body — both bad and good. That means that while cancer cells are destroyed, so too are healthy blood cells, like neutrophils.

With fewer neutrophils, a person is more prone to infection. Even things the body would normally be able to fight off without much trouble, like skin infections or ear infections, become much more serious and long-lasting when someone is in a "neutropenic state."

That is why it is important to call the doctor right away if a child has a fever, shaking or chills, or any mouth or skin sores, which can be signs of infection.

Fortunately, doctors can use a blood test called an absolute neutrophil count (ANC) to judge how cautious someone needs to be about avoiding germs:

- When the neutrophil count is below 1 000 cells per microliter of blood, the risk of infection increases somewhat.
- When it falls below 500 cells per microliter, the risk increases quite a bit more.
- If it stays below 100 for many days, the risk of serious infection becomes very high.

Sometimes, medicines called growth factors can be given to encourage the body to produce sufficient or more neutrophils.

[Picture Credit: Healthy Food]

But often it is safest for a child to remain home for a length of time determined by the doctor. Places like schools, locker rooms, malls, and even churches - where people are close together and germs spread easily - are just too risky. To a child's weakened immune system, it would feel like standing at the edge of a forest fire with only a water gun for defense.

While no specific foods or diet changes are proven to increase production of white blood cells, if you have low WBC (leukopenia), it is very important to practice good hygiene, hand-washing, and food safety practices. Neutrophils are the cells that fight bacterial infection. Neutropenia, which simply means low levels of neutrophils, occurs when Absolute Neutrophil Count (ANC) falls below 1 500. When this happens, a person is more susceptible to infections.

FINDING A REGISTERED DIETITIAN FOR SUPPORT

For individualised nutritional advice, consult a registered dietitian in your area by visiting:
http://www.adsa.org.za/Public/FindARegisteredDietitian.aspx

Medical Disclaimer

These Nutritional Guidelines are intended to provide general information only and, as such, should not be considered as a substitute for advice, medically or otherwise, covering any specific situation. Users should seek appropriate advice before taking or refraining from taking any action in reliance on any information contained in these Guidelines. So far as permissible by law, the Cancer Association of South Africa (CANSA) does not accept any liability to any person (or his/her dependants/estate/heirs) relating to the use of any information contained in these Guidelines.

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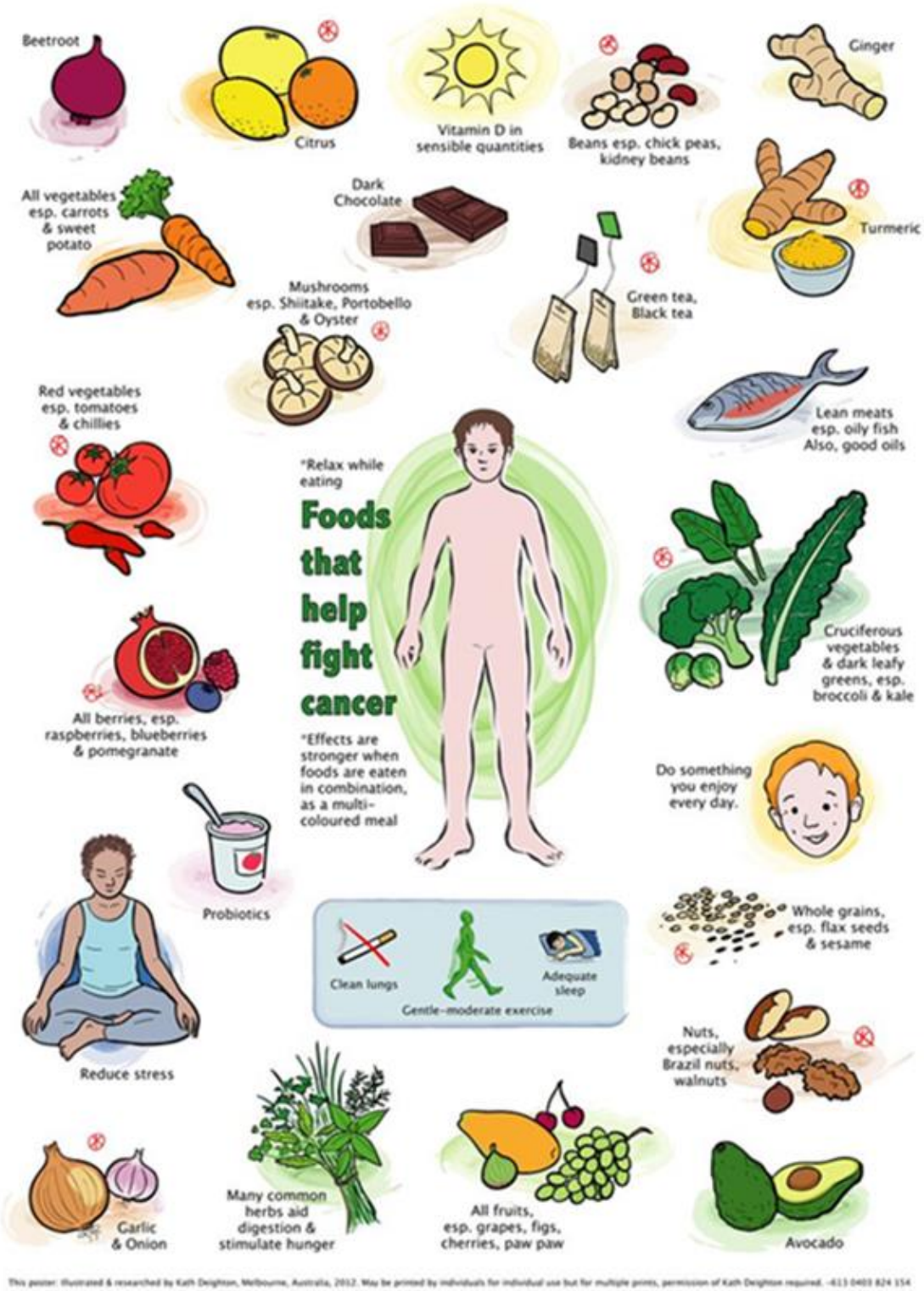

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