Cancer Association of South Africa (CANSA)

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Fact Sheet on Nutritional Guidelines for Individuals Living with an Ileostomy

Introduction

An ileostomy is used to move waste out of the body when the colon or rectum is not working properly.

[Picture Credit: Ileostomy]

The word 'ileostomy' comes from the words 'ileum' and 'stoma'. The ileum is the lowest part of the small intestine. 'Stoma' means 'opening'. To make an ileostomy the surgeon makes an opening in the wall of the abdomen, and brings the end of the ileum through the opening. The ileum is then attached to the skin.

Before someone has surgery to create an ileostomy, he/she may have surgery to remove all of the colon and rectum, or just part of the small intestine.

These surgeries include:

- Small bowel resection
- Total colectomy (complete removal of the colon or large intestine).
- Total proctocolectomy with ileostomy. Proctocolectomy is the surgical removal of the rectum and all, or part, of the colon. It is a most widely accepted surgical method for ulcerative colitis and Familial Adenomatous Polyposis (FAP).

An ileostomy may be used for a short or long time.

When the ileostomy is temporary it most often means all of the large intestine was removed but the person still has at least part of their rectum. If someone has surgery on part of the large intestine, the doctor may want the rest of the intestine to rest for a while. The patient will then use the ileostomy while he/she recovers from this surgery. When it is not needed anymore, the patient will have another surgery to reattach the ends of the small intestine. He/she will no longer need the ileostomy after this.

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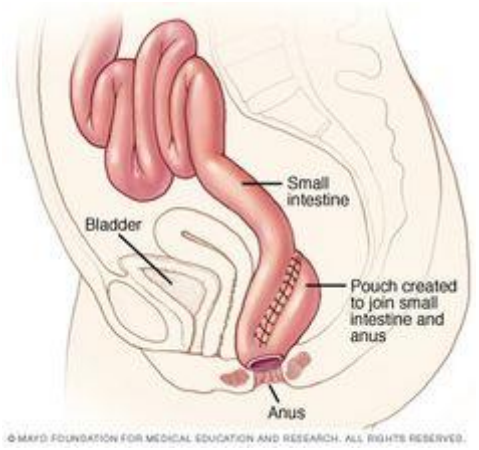
Individuals will need to use it long-term if all of the large intestine (colon) and rectum have been removed.

To create the ileostomy, the surgeon makes a small surgical cut in the wall of the abdomen. Part of the small intestine that is farthest from the stomach is brought up and used to make an opening. This is called a stoma. When one looks at the stoma, one is actually looking at the lining of the intestine. It looks a lot like the inside of one's cheek.

Sometimes, an ileostomy is done as the first step in forming an ileal anal reservoir, called a J-pouch.



[Picture Credit: J-Pouch]

In medicine, the ileal pouch-anal anastomosis (IPAA), also known as an ileo-anal pouch, restorative procto-colectomy, ileal-anal pullthrough, or sometimes referred to as a j-pouch, s-pouch, w-pouch or an internal pouch (or Kock pouch), is a surgically constructed internal reservoir - usually situated near where the rectum would normally be. It is formed by folding loops of small intestine (the ileum) back on themselves and stitching or stapling them together. The internal walls are then removed thus forming a reservoir. The reservoir is then stitched or stapled into the perineum where the rectum was. The procedure retains or restores functionality of the anus with stools passed under voluntary control of the patient.

Implications of Removal of the Colon

The vast majority of partial colon resections are well tolerated by patients and aside from a transient increase in stool frequency, this procedure is usually not associated with major physiologic consequence.

The colon is primarily an organ for water and salt absorption. The adult colon is presented with 1 to 2 litres of liquid stool per day. This volume is presented to the right colon and by the time the stool has reached the rectum, contains only about 120 ml of liquid. Water absorption is coupled with salt absorption as the colon absorbs both sodium and potassium. Total colectomy is, therefore, associated with a much greater tendency for dehydration and hyponatremia, as well as a greater frequency of defecation and a more liquid stool consistency. Hyponatremia is defined as a serum sodium level of less than 135 mEq/L and is considered severe when the serum level is below 125 mEq/L.

Most people who have a total abdominal colectomy recover fully. They are able to do most of the activities they were doing before their surgery. This includes most sports, travel, gardening, hiking, and other outdoor activities, and most types of work.

Eating Tips Before, During and After Cancer Treatment

There is no way to know if one will have eating problems and, if so, how bad they will be. One may have just a few problems or none at all. In part, this depends on the type of cancer one has, where it is in one's body, what kind of treatment one has, how long treatment lasts, and the doses of treatment one receives.

Things to do and think about before starting cancer treatment

Until treatment starts one will not know what, if any, side effects or eating problems one may have. If you do have problems, they may be mild. Many side effects can be controlled. Many problems go away when cancer treatment ends.

- Think of the cancer treatment as a time to get well and focus just on self.
- Eat a healthy diet before treatment starts. This helps to stay strong during treatment and lowers one's risk of infection.
- Go to the Dentist. It is important to have a healthy mouth before starting cancer treatment.
- Ask the Doctor, Professional Nurse, or Registered Dietitian about medicine that can help with anticipated eating problems.
- Discuss fears and worries with the Doctor or Professional Nurse. He or she can discuss ways to manage and cope with these feelings.
- Learn about an ileostomy and its care. Many people feel better when they know what to expect.

Ways to get ready to eat well

- Fill the refrigerator, cupboard, and freezer with healthy foods. Make sure to include items you can eat even when you feel sick.
- Stock up on foods that need little or no cooking, such as frozen dinners and ready-to-eat cooked foods.
- Cook some foods ahead of time and freeze in meal-sized portions.
- Ask friends or family to help you shop and cook during treatment. Maybe a friend can set up a schedule of the tasks that need to be done and the people who will do them.
- Talk with a Doctor, Professional Nurse, or Registered Dietitian about what to expect.

Ways to get the most from foods and drinks during cancer treatment

During treatment, one may have good days and bad days when it comes to food. Here are some ways to manage:

- Eat plenty of protein and calories when possible. This helps one keep up one's strength and helps rebuild tissues harmed by cancer treatment.
- Eat when one has the biggest appetite. For many people, this is in the morning. One might want to eat a bigger meal early in the day and drink liquid meal replacements later on.
- Eat those foods that one can, even if it is only one or two items.
- Stick with these foods until one is able to eat more.
- One might also drink liquid meal replacements for extra kilojoules and protein.
- One must not worry if one cannot eat at all some days. Spend this time finding other ways to feel better, and start eating when one can.
- Inform the treating Doctor if unable to eat for more than 2 days.

- Drink plenty of liquids. It is even more important to get plenty to drink on days when no feeling like eating. Drinking a lot helps one's body get the liquid it needs.
- One should take between 30 and 35ml of fluid per kilogram of body weight per day. Environmental factors such as heat may affect the amount of fluid needed.

Taking special care with food to avoid infections

Some cancer treatments can make one more likely to get infections. When this happens, one needs to take special care in the way one handles and prepares food. Here are some ways:

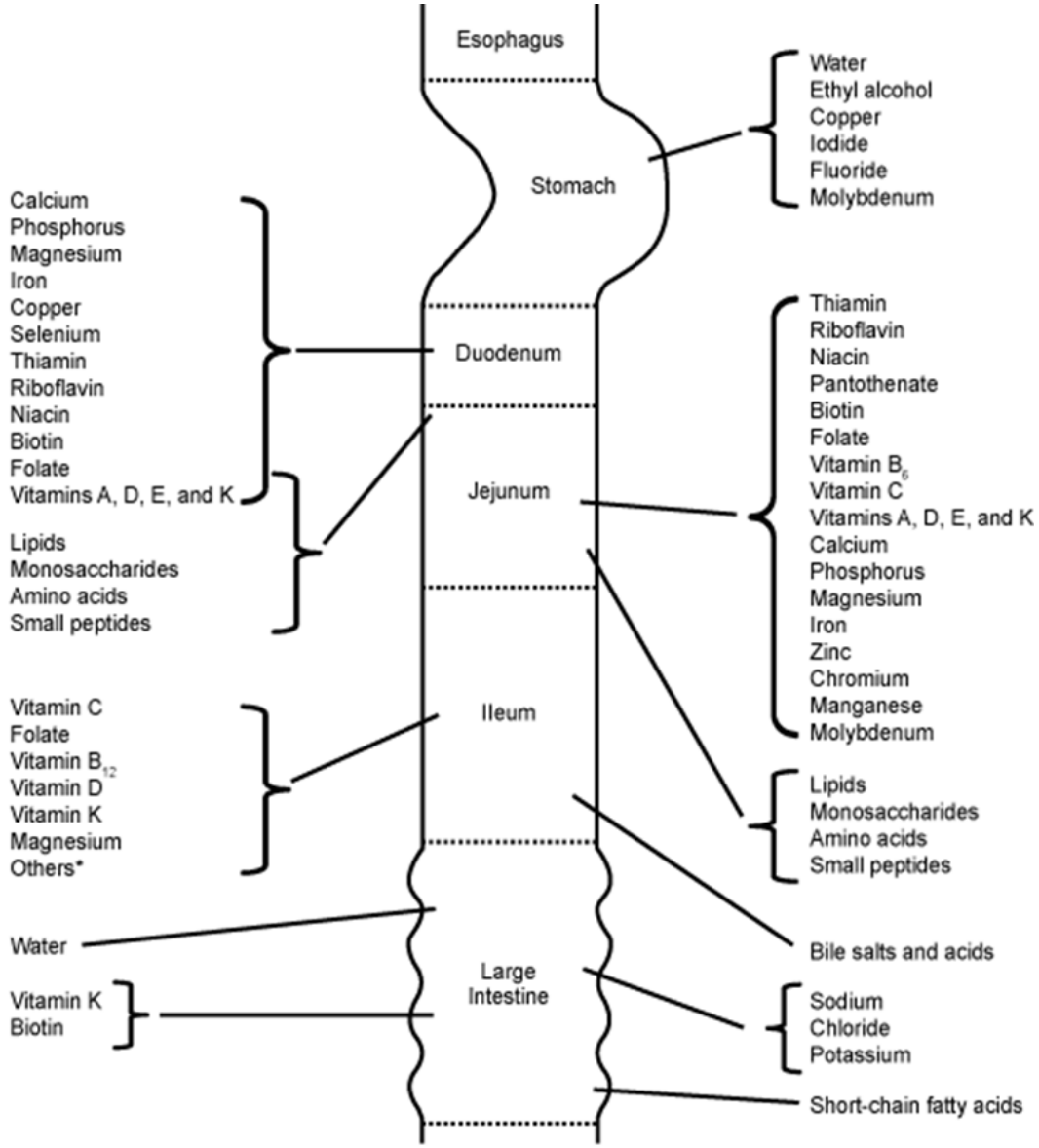
- Keep hot foods hot and cold foods cold. Put leftovers in the refrigerator as soon as one has done eating.
- Scrub all raw fruits and vegetables before eating them.
- Do not eat foods (like raspberries) that cannot be washed well. One should scrub fruits and vegetable which have rough surfaces, such as melons, before cutting them.
- Wash hands, knives, and counter tops before and after preparing food. This is most important when preparing raw meat, chicken, turkey, and fish.
- Use a different cutting board for meat and one for fruits and vegetables.
- Thaw meat, chicken, turkey, and fish in the refrigerator or defrost them in the microwave immediately before preparing them. Do not leave them sitting out.
- Cook meat, chicken, turkey, and eggs thoroughly. Meats should not have any pink inside. Eggs should be hard, not runny.
- Do not eat raw fish or shellfish, such as sushi and uncooked oysters.
- Make sure that all of juices, milk products, and honey are pasteurised.
- Do not use foods or drinks that are past their freshness date.
- Do not buy foods from bulk bins.
- Do not eat at buffets, salad bars, or self-service restaurants.
- Do not eat foods that show signs of mould. This includes mouldy cheeses such as bleu cheese.

Special diets, vitamins, minerals and supplements

- Talk with the treating Doctor, Professional Nurse, or Registered Dietitian before going on a special diet or taking any vitamins, minerals or supplements.
- To avoid problems, be sure to follow their advice.

Nutrient Absorption Chart

All of the nutrients that come from food and supplements do not get absorbed in the same place - they are absorbed in various places in one's gastrointestinal tract. Below are the 'rest stations' where nutrients get absorbed along the body's gastrointestinal (GI) tract. Because food pulls over at various spots in the intestinal tract, disease in these areas can cause nutritional deficiencies, even if one is eating the right foods.



*Many additional nutrients may be absorbed from the ileum depending on transit time.

(Gastsroenterology).

Nutrition and Diet Guidelines

One's nutritional needs will vary based on the bowel one has remaining, the health of the remaining bowel, one's overall health and other conditions or diagnoses. All individuals with ostomies have lost a portion of their bowel and will need to compensate by optimising their diet for the nutrients in question. Actual changes in one's diet may appear minor, it could be that the only one who will notice is oneself. If minor adjustments do not seem to help, a registered dietitian with experience with malabsorptive disorders can assist with determining one's personal needs.

Vasilopoulos, G., Makrigianni, P., Polikandrioti, M., Tsiampouris, I., Karayiannis, D., Margari, N., Avramopoulou, L., Toulia, G.& Fasoi, G. 2020.

Introduction: Patients undergoing ileostomy surgery often experience electrolyte disturbances and dehydration, especially during the first post-operative period. Recently, research has also begun on how the newly constructed ileostomy affects the patient's nutritional status.

Aim: The aim of the present pilot study was to assess the nutritional status of patients before and after the construction of the ileostomy as well as nutrition-related factors.

Material and method: This was a pilot study. The sample consisted of 13 adult patients diagnosed with colorectal or colon cancer who underwent scheduled ileostomy surgery. The evaluation tool used was "Original Full Mini Nutritional Assessment (MNA)". Patients underwent nutritional assessment before the surgery (time 0), on the 7th post-operative day (time 1), and on the 20th post-operative day (time 2). The statistical significance level was set at $p < 0.05$.

Results: All patients had a drop in MNA score on the 7th and 20th post-operative days. Factors associated with MNA were weight loss, mobility, body mass index (BMI), number of full meals consumed per day, portions of fruits and vegetables consumed per day, and mid-arm circumference, $p < 0.05$, respectively. Pre-operatively, 38.5%, of patients had severe weight loss (>3 kg), 23% moderate weight loss and 38.5% minimal weight loss. Pre-operatively, 92.3% of participants were able to move on their own and 69.2% on the 20th post-operatively day. Furthermore, BMI >23 kg/m^2 had 84.6% of participants pre-operatively and 30.8% on the 20th post-operative day. In terms of portions of fruits and vegetables consumed per day, 30.8% of patients consumed at least 2 times, pre-operatively and no one (0%) on the 20th post-operative day. Moreover, pre-operatively all participants (100%) had arm circumference >22 cm while on the 20th post-operative day, only 38.5% of participants had arm circumference >22 cm.

Conclusions: In the first 20 days after the construction of an ileostomy, the nutritional status of the patients is significantly affected. Decreased patient nutrition in both quantity and ingredients and reduced fluid intake appear to adversely affect the patient's nutritional status.

Migdanis, A., Koukoulis, G., Mamaloudis, I., Baloyiannis, I., Migdanis, I., Vagena, X., Malissiova, E. & Tzovaras, G. 2020.

Background and aims: The effects of ileostomy construction and colonic bypass on the general nutritional status of the patients have not yet received much attention. The aim of the present study was to assess the effect of a diverting ileostomy formation, on the nutritional intake, body composition and nutritional status biochemical markers of patients with a newly formed ileostomy.

Methods: This was an observational study. Patients scheduled for elective rectosigmoid resection at a surgical unit of a public university hospital, were considered for study inclusion. Patients in whom a diverting ileostomy was created were assigned to the ileostomy group (n = 41), and patients who underwent rectosigmoid resection without requiring a diverting ileostomy served as a control group (n = 37). Anthropometric characteristics, body composition, dietary intake and biochemical markers representative of nutritional status were assessed preoperatively and at 40 days postdischarge (NCT02036346).

Results: Anthropometric and body composition characteristics (weight, BMI and body fat percentage) significantly declined from 75 to 71.6 kg, 26.9 to 25.6 kg/m^2 and 28.6 to 25.6% respectively (p = 0.001 for all) in the ileostomy group, between the preoperative stage and 40 days postdischarge from the hospital. Furthermore, a significant reduction in mean daily energy intake from 1871 to 1713 kcal/day (p = 0.046) was observed in the ileostomy group 40 days after discharge compared to preoperative assessment. No significant changes in the above measured parameters were observed in the non-ileostomy group.

Conclusion: Diverting ileostomy can have a negative effect on general nutritional status and dietary intake of patients, during the first postoperative period. Nutritional assessment might need to be

included in the routine clinical management of this patient category to prevent weight loss and impaired energy intake.

Avoid all alcoholic beverages - Alcohol is a Group 1 cancer causing agent according to the International Agency for Research on Cancer (IARC) and is best avoided.
Eat a variety of foods based on the food groups - each food group provides a combination of key nutrients for optimum bodily function. Follow individual preferences considering food requirements, tolerances and any restrictions. If one is unable to tolerate fruits, vegetables or meats, one may need to take a daily multi-vitamin supplement – consult a registered dietitian in this regard.

Add new foods gradually to the diet to determine its effect on ostomy management - add a new food every three days to have a more accurate check on tolerance points. Keeping a food journal is helpful.

Eat at regular intervals - skipping meals increases the incidence of watery stools and flatus (gas). Avoid fasting and skipping meals. A few people benefit from eating six smaller meals. The total of the six feedings should equal three regular meals.

Balance dietary fibre - fibre (roughage) includes all food substances that digestive enzymes cannot break down (indigestible food residue). Fibre adds bulk to the stool. Its purpose is aiding the transportation of stool along the intestinal tract for elimination.

Lactose intolerance is common - if one notices gas, abdominal bloating, increase in liquid output or diarrhoea ten minutes to several hours after the ingestion of a dairy product, eliminate it for several days. One may then add milk, about 50ml at a time, to determine one's tolerance point. One may also change to lactose free milk, soy milk (can cause gas), rice milk or taking lactase tablets for lactose digestion.

Include all the fats – one's body needs different types of fats (fatty acids). If one has a fat intolerance, one may need to take some supplements. Check with the treating physician or a registered dietitian if unsure of fat tolerance. If one does tolerate fats, try to eat a variety of fats, monounsaturated (olive oil, canola oil, peanut oil), polyunsaturated (corn oil, sunflower oil) and Omega 3 fats (fish oil, flaxseed oil/seeds and walnuts).

Water – water is an essential nutrient needed by every body cell. Water controls body temperature, serves as building material and solvent, and transports nutrients. Thirst is a signal that the body needs fluids. Daily losses must be replaced.

Any liquid containing water (soda, milk, juice, etc.) helps to meet one's daily requirements. One can also get water from the food one eats (e.g. tomatoes have a 94% water content). Drinking coffee of tea will interfere with the ability to stay hydrated because they both cause the kidneys to increase urine and salt output. One should increase one's water consumption to counter balance the higher output caused by drinking coffee and/or tea.

Electrolyte Balance - electrolytes refer to the normal chemicals dissolved in body fluids needed to maintain body activity. If electrolytes are out of balance, a person may become weak or ill and may need to take medications by mouth or intravenously.

Electrolyte balance (especially potassium and sodium) is important. When the colon (large intestine) is removed, a greater risk for electrolyte imbalance can occur. Diarrhoea, excessive perspiration and vomiting can increase this risk. A person with short bowel syndrome is at high risk. Their electrolytes should be monitored closely. Your diet should include fluids and foods rich in electrolytes. A general rule is to "salt foods to taste." Do not exclude sodium in the diet.

Sit up after eating - Wait at least 1 hour before lying down. Lying down after eating encourages acid to from the stomach to flow back into the oesophagus leading to symptoms of heartburn. Stay in an upright position while food digests. This will keep the acid from the stomach in the stomach. It is not uncommon for cancer patients to have heartburn, gas, bloating, and belching. Ask a registered dietitian for guidance on which foods to avoid when experiencing heartburn, gas, bloating, and belching.

Be as active as possible - Exercise may help to stimulate appetite and endorphin production. Being able to eat more and having an enhanced feeling of wellbeing will make one's treatments more bearable.

Keep a journal - Record eating times, foods consumed, and any effects to track and determine which foods are best tolerated.

Be observant of changes in bowel habits - Certain substances can change the appearance of the stool. Bile that cannot be reabsorbed in the intestine can cause a yellow or green stool colour, especially when diarrhoea or rapid bowel action occurs. Beets make the stool appear red - it is not blood! Broccoli, asparagus, and spinach, can darken, even blacken, the stool.

Take medication as prescribed – it is important to take medication regularly as prescribed by the treating physician.

Food Reference Chart - for individuals who have had ostomy surgery, it is important to know the effects of various foods on ileal output. The effects may vary with the remaining portion of functioning bowel. Below are some general guidelines of the effects of foods after ostomy surgery. One should employ a trial and error approach to determine one's individual tolerance. One should not be afraid to try foods that one likes, just try small amounts to begin with.

Gas Producing Foods

Alcoholic beverages	Cauliflower	Nuts
Beans	Cucumbers	Onions
Soy	Dairy products	Radishes
Cabbage	Chewing gum	
Carbonated beverages	Milk	

Odour Producing Foods

Asparagus	Cod liver oil	Onions
Baked beans	Eggs	Peanut butter
Broccoli	Fish	Strong cheese
Cabbage	Garlic	

Odour Control Foods

Buttermilk	Orange juice	Tomato juice
Cranberry juice	Parley	Yogurt

Colour Changing Foods

Asparagus	Iron pills	Strawberries
Beets	Licorice	Tomato sauces
Food colours	Some jellies (especially red)	

Foods that increase Stool

Alcoholic beverages	Leafy Greens	Raw vegetables
Whole grains\Bran cereals	Milk	Spices
Cooked cabbage	Prunes	
Fresh fruits	Raisins	

Constipation Relieving Foods

Coffee (warm/hot)	Fresh fruits	Any warm or hot beverage
Cooked fruits	Fruit juices	
Cooked vegetables	Water	

Stoma Obstructive Foods

Apple peels	Corn (whole kernel)	Oranges
Cabbage (raw)	Coconuts\Dried fruit	Pineapple
Celery	Mushrooms	Popcorn
Chinese vegetables	Nuts	Seeds

Diarrhoea Control Foods

Applesauce	Peanut butter	Toast
Bananas	Pectin supplement (fibre)	
Boiled rice	Tapioca	

(Jackson Siegelbaum Gastroenterology; Medscape; The World's Healthiest Foods; WebMD; University of Otago; Cancer Treatment Centers of America; Susan Cohan Colon Cancer Foundation; Cleveland Clinic Wellness; Cancer Research UK; United Ostomy Association of America).

Fluid and Electrolyte Problems

Problem	Symptoms	Treatment
Dehydration	Increased thirst, dry mouth, dry skin, decreased urine output, fatigue, shortness of breath, headaches, dry eyes and abdominal cramping	Increase fluids (high in potassium & sodium).
Sodium depletion	Loss of appetite, drowsiness, headaches, abdominal and leg cramping, feelings of faintness particularly when standing, cold sensation in arms and/or legs	Increase intake of foods and beverages high in sodium, such as any regular soup, bouillon (a broth or soup prepared from broth or a stock cube), PowerAde.
Potassium depletion	Fatigue, muscle weakness, gas, bloating, shortness of breath, decreased sensation in arms and legs	Increase intake of foods high in potassium, such as orange juice, bananas, PowerAde

Foods high in potassium: black-eyed peas, bananas, bouillon (a broth or soup prepared from broth or a stock cube), chicken, fish, oranges, pinto beans, potatoes, raisins, tomato or vegetable soup, veal, watermelon and yogurt.

Foods high in sodium: broth, buttermilk, canned soups, canned vegetables, cheese, soy sauce, table salt, tomato juice and commercially prepared foods.

What To Avoid With an Ileostomy

- Alcohol. Alcohol has been classified as a Group 1 cancer causing chemical by the International Agency for Research on Cancer (IARC) in 29180.
- Avoid raw fruits and vegetables.
- Cook fruits and vegetables until fork tender, chew well and eat small to moderate quantities at each meal.
- Avoid fruit skins and seeds, and dried fruit.
- Avoid nuts, seeds (unless in a processed form like smooth butters) and popcorn.

Consultation with a Registered Dietitian

Patients on any type of cancer treatment (oncology surgery, radiation therapy and/or chemotherapy) should, if at all possible, consult a Registered Dietitian (RD) whenever they experience any issues with nutrition or diet. The same applies to cancer survivors between cancer treatments and upon completion of their cancer treatment.

[Picture Credit: Ask the Dietitian]

For individualised nutritional advice, consult a Registered Dietitian (RD) 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 Nutritional 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 Nutritional Guidelines.

Whilst CANSA has taken every precaution in compiling these Nutritional Guidelines, neither it, nor any contributor(s) to these Nutritional Guidelines can be held responsible for any action (or the lack thereof) taken by any person or organisation wherever they shall be based, as a result, direct or otherwise, of information contained in, or accessed through, these Nutritional Guidelines.

ADDITIONAL SUPPORT

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

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