Cancer Association of South Africa (CANSA)

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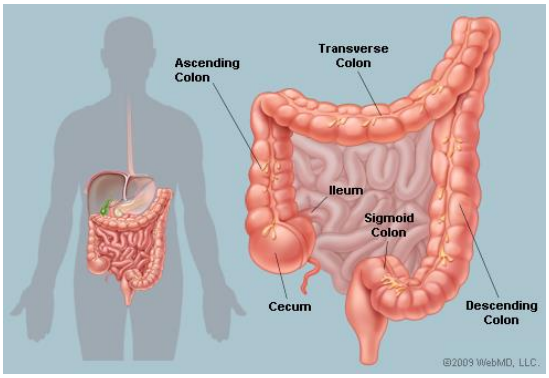
Fact Sheet on Nutritional Guidelines for Individuals Diagnosed with Colorectal Cancer

Introduction

The colon is the last part of the digestive system. It extracts water and salt from solid wastes before they are eliminated from the body. It is also the site in which flora-aided (largely bacterial) fermentation of unabsorbed material occurs. Unlike the small intestine, the colon does not play a major role in absorption of foods and nutrients. About 1.5 litres of water arrives in the colon each day.



[Picture Credit: Colon]

The length of the adult human colon is, on average, for women 155 cm (range of 80 to 214 cm) and for men 166 cm (range of 80 to 313 cm). The colon is also called the large intestine. The ileum (last part of the small intestine) connects to the caecum (first part of the colon) in the lower right abdomen. The rest of the colon is divided into four parts:

- The ascending colon travels up the right side of the abdomen
- The transverse colon runs across the abdomen
- The descending colon travels down the left abdomen
- The sigmoid colon is a short curving of the colon, just before the rectum

Colorectal Cancer

Colorectal cancer is cancer that starts in the colon or rectum. The colon and the rectum are parts of the large intestine, which is the lower part of the body's digestive system.

[Picture Credit: Colorectal Cancer Image]

During digestion, food moves through the

Researched and Authored by Prof Michael C Herbst
[D Litt et Phil (Health Studies); D N Ed; M Art et Scien; B A Cur; Dip Occupational Health; Dip Genetic Counselling; Diagnostic Radiographer; Dip Audiometry and Noise Measurement; Medical Ethicist]
Approved by Ms Elize Joubert, Chief Executive Officer [BA Social Work (cum laude); MA Social Work]

stomach and small intestine into the colon. The colon absorbs water and nutrients from the food and stores waste matter (stool). Stool moves from the colon into the rectum before it leaves the body.

Most colorectal cancers are adenocarcinomas (cancers that begin in cells that make and release mucus and other fluids). Colorectal cancer often begins as a growth called a polyp, which may form on the inner wall of the colon or rectum. Some polyps become cancer over time. Finding and removing polyps can prevent colorectal cancer.
(National Cancer Institute).

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 a 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 colorectal cancer and its treatment. 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 (National Cancer Institute).

Food Types and Bowel Cancer

Fibre is found mostly in fruit, vegetables and cereals, including flour and bread. The World Cancer Research Fund (WCRF) classifies dietary fibre as probably protective against bowel cancer. Fibre is recommended as part of a healthy diet. People who do not eat enough fibre tend to be constipated. So any cancer causing agents are in contact with the bowel lining for longer and increase bowel cancer risk.

Eating more fruit and vegetables may lower the risk of bowel cancer, according to results from the European Prospective Investigation into Cancer and Nutrition (EPIC) study. But the evidence is not conclusive. The WCRF has classified non starchy vegetables and fruit as possibly protective against bowel cancer, based on limited evidence.

The WCRF say that red and processed meats increase bowel cancer risk. It is estimated that around 1 in 5 bowel cancers are linked to eating these meats. Red meat includes lamb, pork, veal and beef. Examples of processed meat includes sausages, salami, ham, bacon, paté and tinned meat.

Poultry meats, such as chicken and turkey, probably do not increase one's risk of bowel cancer.

There is mixed evidence around whether eating fish is protective against bowel cancer. The WCRF thinks there is limited evidence on this link. Fish might protect against bowel cancer because some types of fish contain fats called long chain polyunsaturated fatty acids which have a protective action.

Cooking methods may increase the cancer risk of meat and fish. Meats cooked at very high temperatures can form chemicals that are thought to increase cancer risk. But studies have not linked these chemicals specifically to bowel cancer.

In some studies, high fat diets have been linked to bowel cancer. But many researchers think this may be tied up with meat intake.

The WCRF classifies milk as probably protective against bowel cancer.

Based on limited evidence, the WCRF classifies foods that contain sugar as a possible cause of bowel cancer.

Some studies have found an increase in risk of cancer of the large bowel (colon) for the highest intake of sugar compared to the lowest intake. But other studies have found no link between sugar and risk of colon cancer. An analysis of 13 studies found no link between colon cancer risk and sugar sweetened soft drinks.

Alcohol increases the risk of bowel cancer. A 2011 systematic review showed a 21% increase for both colon and rectal cancer. The risk increases with the volume of alcohol consumed.

The International Agency for Research on Cancer (IARC) classified smoking as a cause of bowel cancer. The risk is higher in current smokers compared with people who have never smoked. The risk increases with the volume of tobacco smoked per day.

Nutritional and Diet Guidelines

People treated for locally advanced colon cancer with surgery and/or chemotherapy can greatly improve their odds of survival by choosing a healthy way of eating. This consists of a diet high in fruits and vegetables, fish and poultry - and avoiding the food choices characteristic of the so-called Western diet, i.e., high intake of meat, fat, refined grains and dessert.

Hull, M.A. 2021.

"The preventability estimate for colorectal cancer (CRC) is approximately 50%, highlighting the huge potential for altering modifiable lifestyle factors (including diet and body fatness) in order to reduce risk of this common malignancy. There is strong evidence that dietary factors (including intake of wholegrains, fibre, red and processed meat and alcohol) affect CRC risk. The lack of positive intervention trials and limited mechanistic understanding likely explain limited public health impact of epidemiological observations, to date. An alternative strategy for nutritional prevention of CRC is use of supplements that provide higher individual nutrient exposure than obtained through the diet (chemoprevention). There are positive data for calcium and/or vitamin D and the n-3 fatty acid EPA from polyp prevention trials using colorectal adenoma as a CRC risk biomarker. Although CRC is an obesity-related malignancy, there remains a paucity of observational data supporting intentional weight loss for CRC risk reduction. Some types of obesity surgeries (Roux-en-Y gastric bypass) might actually increase subsequent CRC risk due to alteration of local intestinal factors. There is intense interest in nutritional therapy of patients after diagnosis of CRC, in order to impact on recurrence and overall survival (now often termed cancer interception). In conclusion, nutritional prevention of CRC continues to hold much promise. Increased mechanistic understanding of the role of individual nutrients (linked to intestinal microbiota), as well as a precision medicine approach to CRC chemoprevention and interception based on both tumour and host factors, should enable translation of nutritional interventions into effective CRC risk reduction measures."

Following treatment for colorectal cancer, a healthy diet is needed to optimise recovery and improve health. Recent research suggests that diet and lifestyle factors after diagnosis can also affect one's risk of colorectal cancer returning.

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 as healthy as possible as allowed by the digestive system - fruits, vegetables, lean protein, and whole grains are all nutrient dense foods. Nutrient dense foods are foods that contain protein, complex carbohydrates, healthy fat, vitamins, and minerals all needed by the body to function optimally. Consult a registered dietitian for specific recommendations based on one's level of food tolerance.

No single food will supply all the nutrients one's body needs, so good nutrition means eating a variety of foods. It is important to eat foods from each group at each meal every day.

Foods are divided into five main groups:

- Fruits and vegetables (oranges, apples, bananas, carrots, and spinach)
- Whole grains, cereals, and bread (wheat, rice, oats, bran and barley)
- Dairy products (milk, cheese, and yogurt)

- Meats and meat substitutes (fish, poultry, eggs, dried beans, and nuts)
- Fats and oils (oil, butter, and margarine)

It is important to eat foods from each food group at each meal every day. Meals and snacks should include starch/grains, protein, dairy, fruits, vegetables and fats. By eating foods from each food group at each meal, an individual ensures that his/her body has a proper balance of all nutrients it needs to function.

Frequent small meals - eat small, more frequent meals to begin with rather than 3 large meals a day. Try to avoid long gaps between meals.

Eat whole grain foods when possible - cereals, breads, brown rice, whole wheat pasta, and crackers are good whole grain choices. Whole grain foods will have "whole grain flour," "whole wheat flour," or "oats" as one of the first 3 ingredients. If diarrhoea is an issue, one may need to avoid whole grains for a while due to their higher fibre content. A registered dietitian can provide guidelines for following a low residue diet for diarrhoea.

Um, C.Y., Campbell, P.T., Carter, B., Wang, Y., Gapstur, S.M. & McCullough, M.L. 2020.
Purpose: Evidence supports a role of whole grains in colorectal cancer (CRC) prevention, but the association between gluten intake and CRC risk in healthy populations is unclear. We examined the association of grain and gluten intake with risk of CRC overall and by subsite among Cancer Prevention Study-II Nutrition Cohort participants.
Methods: In 1999, 50,118 men and 62,031 women completed food frequency questionnaires assessing grain intake. Gluten intake was estimated using the protein content of grain products. Multivariable-adjusted hazards ratio (HR) and 95% confidence interval (CI) of CRC risk were estimated using Cox proportional hazards regression.
Results: During follow-up through 2013, 1742 verified CRC cases occurred. For the highest vs. lowest quintiles of whole grain intake, HRs (95% CIs) of CRC risk were 0.77 (0.61-0.97; P trend = 0.03) among men and 1.10 (95% CI 0.88-1.36; P trend = 0.14) among women (P interaction by sex = 0.01). Men in the highest vs. lowest quintile of whole grain intake had a 43% lower risk of rectal cancer (HR = 0.57, 95% CI 0.35-0.93, P trend = 0.04). Gluten intake was not associated with CRC risk overall (HR = 1.10, 95% CI 0.93-1.32, P trend = 0.10), but was associated with risk of proximal colon cancer among men and women, combined (HR = 1.37, 95% CI 1.07-1.75, quintile 5 vs. 1, P trend = 0.001) and separately. Refined grains and grain-based sweets were not associated with CRC risk.
Conclusions: We found that higher whole grain intake was associated with lower CRC risk among older US men, but not women. The positive association of gluten intake with the risk of proximal colon cancer deserves further study.

Avoid excess sugar and sweets – because some studies have found an increase in risk of cancer of the large bowel (colon) for the highest intake of sugar compared to the lowest intake one should consider reducing the intake of excess sugary foods and fizzy drinks. These foods tend to provide the body with kilojoules but few nutrients. Too many processed or sugary foods that are high in carbohydrates can raise the odds that one's cancer will come back after treatment.

If excessive weight loss becomes an issue, one's body may need more kilojoules and it is fine if some of them come from sugar as long as one is able to tolerate sweet foods. Consult a registered dietitian if this becomes a problem.

Drink sufficient fluids to avoid dehydration - choose beverages that contain nutrients and kilojoules. A good starting point is to strive for several glasses of nutritious beverages per day. Only take small sips with meals to avoid excessive bloating, gas or feeling too full to eat. The best time to drink fluids is an hour before or after a meal. Choose beverages that contain kilojoules and nutrients such as juices, smoothies, and liquid nutrition supplements.

A registered dietitian can provide recommendations for which liquid nutrition supplement and how much is best.

Choose low-fat foods - a fatty diet brings more acid into the intestine, which might lead to cell damage and help tumours grow. Instead, eat lean poultry, low-fat dairy products, and "good" omega-3 fats like found in fatty fish (salmon, mackerel, sardines), walnuts, and canola oil.

Try to eat with others when possible - Typically this makes meal times more enjoyable and may encourage one to eat more than eating alone.

Eat slowly and chew food really well - Digestion begins in the mouth. Smaller food particles are much easier to digest and are less likely to cause discomfort during the digestion process.

Limit red meat, and avoid processed, cured, or salted kinds (like bacon) - they can 'hurt' the colon. Do not eat more than two 120g servings of red meat a week - and when eaten, opt for lean cuts with excess fat trimmed off. Avoid all processed, cured and salted meats.

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 – be observant of bowel changes and adapt diet accordingly. The assistance of a registered dietitian may be helpful.

In case of diarrhoea - radiation can cause inflammation and irritation in the lining of the intestine, which can trigger diarrhoea. In addition to being unpleasant, it puts one at risk for dehydration. Certain foods may also cause diarrhoea. Keep the gut in check by:

- Cutting back on foods such as whole wheat, apple peels, chickpeas, beans, lentils and seeds, which are high in insoluble fibre and can irritate one's colon. Insoluble fibre comes out the same way it went in (think corn), pushing waste out with it. Things are moving too fast in one's gut as it is, so one does not need any help in that department.

- Upping intake of soluble fibre, which absorbs fluid in the gut and forms a gummy paste, making the stool more solid. Good sources include: plain oatmeal, ripe bananas, applesauce and citrus fruit. However, most foods that have soluble fibre also have some insoluble fibre as well, so a dissolvable fibre supplement may be of help to help bind the stool.

Consult a Registered Dietitian for advice.

In case of nausea - some of the drugs used in colon cancer treatment can set off a series of reactions in one's brain, ultimately triggering the section that controls nausea and vomiting. Along with taking anti-nausea medications, use these tactics to combat that queasy feeling:

- Stay away from greasy foods, which cause the stomach to work harder, and spicy foods, which can irritate the stomach and cause nausea.
- Try to eat five to six mini-meals per day instead of three big ones; they will be easier to digest and more appealing when nauseated and do not feel like eating.
- Drink up! One throws up fluids as well as food, which can lead to dehydration. Since chemotherapy sometimes changes the way things taste, switching to something like sparkling water, ginger ale or diluted fruit juice can help.

In case of neuropathy - one may experience pain, numbness, tingling, swelling and muscle weakness ("neuropathy") as a result of some of the common colon-cancer-fighting drugs. Hands and feet are most often affected, but one may also sense it in one's mouth and throat, which can make eating, chewing and swallowing difficult. Avoid very cold food, which can exacerbate the tingling feeling in the throat. And if neuropathy is making it difficult to stand on one's feet to buy and prepare food, ask family and friends to help with shopping and making healthy meals.

In case of an ileostomy or colostomy - often, colon cancer treatment involves removal of the diseased section of the large intestine including a part of the ileum. Sometimes before the two healthy ends are reattached, a colostomy or ileostomy - the rerouting of waste through an opening in one's abdomen (kind of like a detour on a highway under construction) - is necessary to give the colon time to heal. For the first six to eight weeks, patients with colostomy or ileostomy will have very liquid stool (the waste is now bypassing the portion of the intestine where liquids and electrolytes used to be reabsorbed). Avoid insoluble fibres, consume more soluble fibres and make sure to drink enough fluids per day to prevent dehydration.

In case of an ileostomy (where the entire colon is bypassed and the waste is diverted out through the small intestine), one may need even more fluids. After the intestine adapts, one will be able to go back to a more normal diet.

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.

Consult CANSA's Fact Sheet on Nutritional Guidelines for Individuals Living with an ileostomy or Nutritional Guidelines for Individuals Living with a Colostomy.

Contact a Registered Dietitian for additional advice.

Radiotherapy and diet – radiotherapy to the bowel often causes diarrhoea. This can take a few weeks to settle down after the treatment ends. The treating doctor can prescribe tablets to help control the diarrhoea. If it does not improve within 4 to 6 weeks of finishing treatment, let the doctor know.

While getting over the original treatment it is best to keep taking the diarrhoea medicines. One can gradually reduce the amount one is taking. The doctor or nurse will provide advice about how to manage this.

Chemotherapy and diet - chemotherapy for bowel cancer can also cause diarrhoea and may make one feel sick. One may also have a sore mouth. These side effects will disappear after the treatment is over and one can then gradually get back to a more normal diet.

Take medication as prescribed – make sure to take all medicines regularly as prescribed by the treating physician.

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.

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

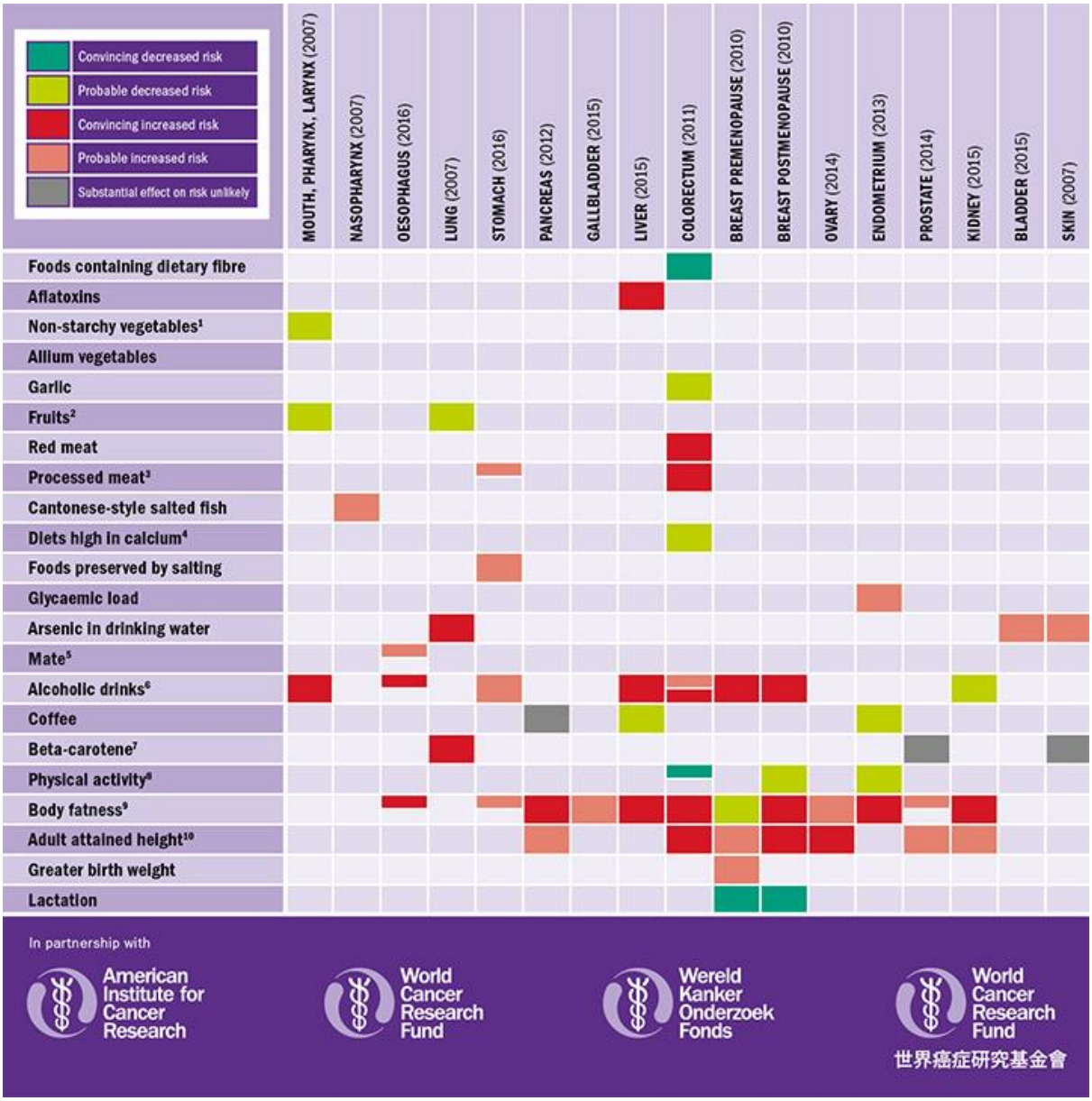
Medical Disclaimer

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 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.

Whilst CANSA has taken every precaution in compiling these Guidelines, neither it, nor any contributor(s) to these 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 Guidelines.

ADDITIONAL SUPPORT

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



1 Includes evidence on foods containing carotenoids for mouth, pharynx, larynx. 2 Includes evidence on foods containing carotenoids for mouth, pharynx, larynx and lung.
3 For stomach, probable increased risk of non-cardia cancer only. 4 For colorectum, evidence is from milk and studies using supplements.
5 Probable increased risk for oesophageal squamous cell carcinoma only.
6 For oesophagus, convincing increased risk for oesophageal squamous cell carcinoma only. For liver and stomach, based on evidence for alcohol intakes above around 45 grams per day (about 3 drinks a day). For colorectum, convincing increased risk for men and probable increased risk for women. For kidney, based on evidence for alcohol intakes up to 30 grams per day (about 2 drinks a day).
7 For lung, evidence is from studies using high-dose supplements in smokers. 8 Convincing decreased risk for colon not rectum.
9 For oesophagus, convincing increased risk for adenocarcinoma only. For stomach, probable increased risk of cardia cancer only. For prostate, probable increased risk for advanced prostate cancer only.
10 Adult attained height is unlikely to directly influence the risk of cancer. It is a marker for genetic, environmental, hormonal and nutritional factors affecting growth during the period from preconception to completion of linear growth.

(World Cancer Research Fund International).

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