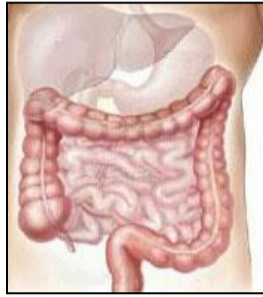


COLORECTAL CANCER RESEARCH Month Ending March 19, 2010



The following colorectal cancer research update extends from February 20 – March 19, 2010 inclusive and is intended for informational purposes only.

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DRUGS / SYSTEMIC THERAPIES

1. Malaria Drug Being Testing to Treat Colorectal Cancer (Feb. 23/10)

The Cancer Institute of New Jersey (CINJ) is looking to add a drug known for fighting malaria to traditional chemotherapy for colorectal cancer to see if the traditional treatments can be made more effective for patients. The standard treatment for colorectal cancer that has spread beyond where surgery can cure it is chemotherapy. The current standard of chemotherapy (oxaliplatin and/or irinotecan), which is given by vein, includes a drug (bevacizumab or avastin) that prevents the growth of cancer blood vessels. It also includes a pill (capecitabine or xeloda) or an injection medication similar to capecitabine (5FU). This therapy shrinks the cancer in fewer than half of the patients treated, and usually this shrinkage is only temporary. Researchers will be looking at adding a drug known as hydroxychloroquine -- commonly used to treat malaria and certain types of arthritis -- to this standard treatment because they believe that drugs such as hydroxychloroquine may prevent cancer cells from becoming resistant to chemotherapy or drugs that prevent the growth of cancer blood vessels. By adding hydroxychloroquine to the standard treatment, researchers are hoping chemotherapy will be more effective for patients with colorectal cancer and this new combination could make cancer treatment more effective and provide a better quality of life. If accepted for participation in the trial, individuals would go through multiple 21-day cycles of treatment consisting of chemo given through a vein once per cycle. Patients would also take pills by mouth each day and would need to keep both a pill diary and blood pressure diary. Participants would continue to undergo routine blood work and have regular imaging scans such as a CT to determine disease status. Adults with metastatic colon cancer who have not previously received treatment for metastatic disease are eligible to take part in the study, although other criteria must be met. All patients will receive treatment medications, not placebos. For additional information on how to participate, please call 732 235 7251.

www.vpico.com/articlemanager/

2. Gastrointestinal Symptoms Associated with Treatment For Rectal Cancer (Feb. 25/10)

It is known that standard 5FU-based chemoradiation therapy for rectal cancer causes acute gastrointestinal reactions such as abdominal pain, diarrhea, bowel urgency, cramping and so on. This study, however, sought to report on and describes those adverse events associated with chemoradiation throughout patients' treatment. 77 patients were treated with chemoradiation and were asked to complete a bowel problems scale each week. By week 5, approximately 40% of all patients developed clinically meaningful pain, bowel urgency, or tenesmus (painful evacuation of bowel content). 30% developed diarrhea, abdominal cramping and passing mucus. Overall, the researchers reported that symptoms were moderate. 75% of patients who were experiencing rectal bleeding at week 1 improved by week 3 of treatment. Researchers concluded that the current results could be used by physicians to counsel their patients before treatment initiation and to provide a benchmark against which trials that use new therapies may be compared.

Chen, Ronald, et al., Patient-reported acute gastrointestinal symptoms during concurrent chemoradiation treatment for rectal cancer. Cancer; Published online Feb. 17, 2010.

3. Xelox Found To be Better When Compared to 5FU In the Adjuvant Treatment of Stage III Colon Cancer (Feb. 28/10)

Researchers have reported that the adjuvant XELOX regimen—Xeloda (capecitabine) and Eloxatin (oxaliplatin)—was superior to 5-FU and leucovorin (5-FU/LV) for Stage III colon cancer. Randomized trials have clearly demonstrated that adjuvant chemotherapy improves survival in patients with Stage III colon cancer by approximately 30%. There is also recent data to suggest benefit in Stage II patients, but the magnitude of benefit is significantly less than for Stage III disease. In the current study, 1,886 patients with Stage III colon cancer were randomly allocated to treatment with XELOX or 5-FU/LV.

- Three-year disease-free survival (DFS) was 71% for XELOX versus 67% for 5-FU/LV.
- Four-year DFS was 68% for XELOX versus 62% for 5-FU/LV.
- Five-year DFS was 66% for XELOX versus 60% for 5-FU/LV.
- Outcomes were similar for patients <70 years of age or ≥70 years of age.

These authors concluded “XELOX is superior to bolus 5-FU/LV for DFS as adjuvant treatment for stage III colon cancer.”

Haller, DG, et al., Efficacy findings from a randomized phase III trial of capecitabine plus oxaliplatin versus bolus 5-FU/LV for stage III colon cancer (NO16968): No impact of age on disease free survival. 2010 ASCO Gastrointestinal Cancers Symposium, Abstract 234.

4. Denosumab Deemed Helpful When Addressing Bone Mets in Advanced Cancer (Feb. 26/10)

According to this study, among patients with bone metastases from cancers other than breast or prostate cancer, denosumab is at least as effective as Zometa (zoledronic acid) at reducing the risk of bone complications, such as bone fractures. These results were presented at a major European cancer conference. Metastatic cancer refers to cancer that has spread to distant sites in the body. Several types of cancer have a tendency to spread to the bone. Bone metastases can lead to serious problems such as fracture and spinal cord compression and may require treatment with surgery or radiation therapy. Bisphosphonate drugs such as Zometa are commonly used to reduce the risk of complications from bone metastases. Researchers continue, however, to explore new approaches to treatment. Denosumab is an investigational drug that targets a protein known as the RANK ligand. This protein regulates the activity of osteoclasts (cells that break down bone). Denosumab has shown promising results in the management of patients with bone metastases as well as the management of bone loss due to cancer treatment. To directly compare denosumab to Zometa among patients with bone metastases from cancers other than breast cancer or prostate cancer, researchers conducted a Phase III clinical trial among more than 1,700 patients. Patients were assigned to receive either denosumab or Zometa. The objective of the study was to determine whether the occurrence of bone complications (“skeletal related events”) differed between the two study groups. The bone complications that were evaluated were fracture, radiation to the bone, surgery to the bone, and spinal cord compression.

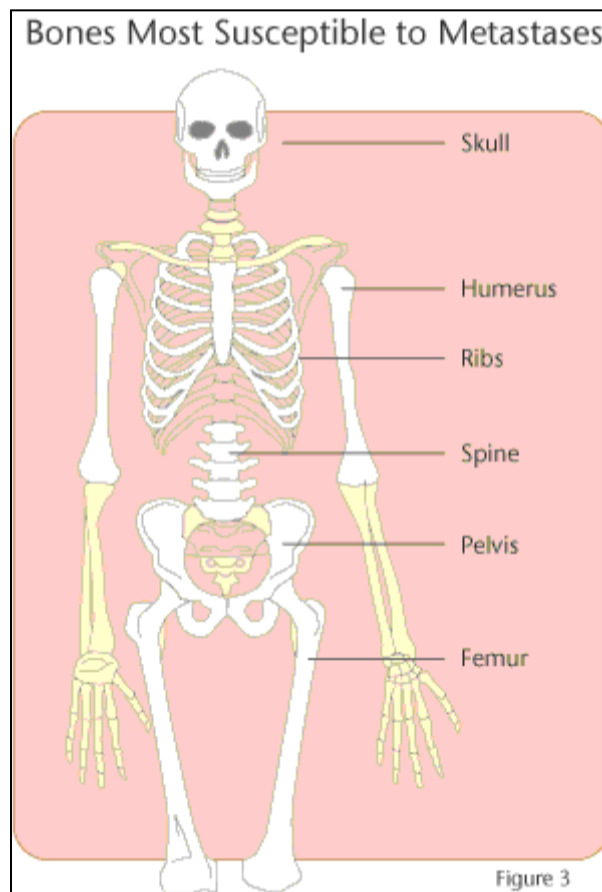


Diagram Showing the Various Skeletal Parts That Can Become Affected With Metastases
Source: <http://www.zometa.com/images/bone-metastases.GIF>

The results indicated that denosumab and Zometa were similarly effective against bone complications. Median time to first skeletal-related event was **20.6 months** among patients treated with denosumab and **16.3 months** among patients treated with Zometa. Overall survival and time to cancer progression were also similar in the two study groups. Osteonecrosis of the jaw (ONJ)—an uncommon but serious condition involving death of bone in the jaw—occurred with similar frequency in the two study groups. Out of the more than 1,700 study participants, ONJ developed in ten patients treated with denosumab and 11 patients treated with Zometa. The results of this study suggest that denosumab is at least as effective as Zometa in the management of patients with bone metastases from cancers other than breast or prostate.

Henry, D, et al., A double-blind, randomized study of denosumab versus zoledronic acid for the treatment of bone metastases in patients with advanced cancer (excluding breast and prostate cancer) or multiple myeloma. Presented at the Joint ECCO 15-34th ESMO Multidisciplinary Congress. Berlin, Germany. Abstract 20LBA

5. Comparing Neoadjuvant Radiotherapy Plus Xeloda with Radiotherapy Plus Xeloda and Oxaliplatin In Stage III Rectal Cancer (Mar. 3/10)

Neoadjuvant (preoperative) chemoradiotherapy (chemotherapy plus radiation therapy) is considered a standard practice of care for the treatment of stage III rectal cancer. In this study, researchers compared neoadjuvant radiation therapy plus xeloda to radiotherapy plus xeloda and oxaliplatin. More preoperative grade 3 to 4 toxicity occurred in the second group. Surgery was performed in 98% of patients in both groups. There were no differences between groups in the rate of conservative surgery. Though, the researchers did conclude that the benefit of oxaliplatin was not demonstrated and this drug should not be used with concurrent irradiation.

Gerard JP, et al., Comparison of two neoadjuvant chemoradiotherapy regimens for locally advanced rectal cancer: results of the phase III trial ACCORD 12/0405-ProDIGe 2. J of Clinical Oncology; Early Release. Doi: 10.1200/JCO.2009.25.8376

6. Recentin Deemed To Be Inferior to Avastin in Study (Mar 6/10)

An experimental oncology drug called Recentin failed a late-stage, head-to-head trial with Roche's Avastin as a treatment for colon cancer. The issue was that Recentin simply failed to prove non-inferiority in progression-free survival compared to Avastin. Put simply: There was "no statistically significant difference" between the results for Recentin and Avastin. High hopes surrounded the drug: Recentin is a pill that could replace the injected medication Avastin that is designed much in the same way Avastin does. It cuts off the blood supply to the tumour thereby allowing for shrinkage. But the drug's manufacturer, AstraZeneca, claimed it will wait to see the results of a second late-stage trial before it makes a decision regarding a marketing plan and whether to file for regulatory approval of the drug. The other study is testing Recentin combined with chemotherapy against chemotherapy alone, and data are expected in the coming months. The study would provide more information on whether Recentin can benefit colorectal cancer patients and will help inform decisions about the program's future.

<http://www.dailyfinance.com/story/company-news/astrazeneca-shares-drop-on-failed-colon-cancer-drug-trial/19387713/>

7. Antioxidant Micronutrients and Biomarkers of Oxidative Stress and Inflammation in Colorectal Adenoma Patients (Mar. 7/10)

There have been previous studies that have investigated the potential of antioxidant micronutrients to alter cancer risk, but some of these studies produced inconsistent results. In this pilot, randomized, double-blind, placebo-controlled clinical trial of 47 patients, researchers assessed the effects of an antioxidant micronutrient combination (consisting of 800 mg DL- α -tocopherol acetate, 24 mg β -carotene, 1.0 g vitamin C, 200 μ g L-selenomethionine, 7.2 mg riboflavin, 80 mg niacin, 60 mg zinc, and 5 mg manganese) given daily over 4 months on oxidative and inflammatory biomarkers in patients with a history of sporadic colorectal adenoma.



Source: <http://www.hairlossdomain.com/uploads/editor/vitamins.jpg>

Oxidative stress (damage caused to cells by the presence of too many oxygen molecules in them) has been deemed to be linked to the development of cancer. Oxidative and inflammatory biomarkers were measured and they were identified to be the following: Plasma tumor necrosis factor- α (TNF- α), interleukin-6, and F2-isoprostane concentrations and cystine (CySS). All decreased in the actively treated group; however, interleukin-6 and F2-isoprostane concentrations decreased in antioxidant-treated nonsmokers but **increased** in smokers, although these findings were not statistically significant. The decreases of TNF- α and CySS were more pronounced in nonsmokers. These data suggest that (a) an antioxidant micronutrient cocktail can alter biomarkers of oxidative stress and inflammation in humans and (b) the effects of antioxidant micronutrient supplementation on biomarkers of inflammation and oxidative stress may differ according to smoking status

Hopkins, Myfanwy H, et al., Antioxidant Micronutrients and biomarkers of oxidative stress and inflammation in colorectal adenoma patients: results from a randomized controlled clinical trial. Cancer Epidemiol Biomarkers prev; 19(3): pp. 850-858

8. Folfiri Administered After Folfox Study (Mar.19/10)

Researchers in this study sought to evaluate the efficacy and safety of administering Folfiri (5FU + Folinic Acid + Irinotecan) in Chinese patients after having exhausted Folfox (5FU + Folinic Acid + Oxaliplatin). The regimen was administered every two weeks and of the 57 patients, the following responses were observed: 4 had a partial response, 36 achieved stable disease, and 13 had progressive disease. The average progression free survival (time before disease got worse) was 4.8 months, and overall survival was 7.8 months. The most frequently observed side effects were low white blood cell count (27%), nausea/vomiting (12%), and diarrhea (1%). The investigators concluded that the folfiri regimen is an effective and well tolerated in patients with advanced colorectal cancer who have become resistant to 5FU and oxaliplatin in a Chinese population.

Bao, HY, et al., Phase II study of folfiri regimen in patients with advanced colorectal cancer refractory to fluoropyrimidine and oxaliplatin. Cancer Chemotherapy and Pharmacology; Online edition, doi: 10.1007/s00289-010-1301-5

SURGICAL THERAPIES

9. Transanal Endoscopic Microsurgery Combined with Endoscopic Posterior Mesorectum Resection for Stage I Rectal Cancers (Feb. 23/10)

Rectum-sparing transanal endoscopic microsurgery (TEM) has been proven to be a well-established treatment for stage I rectal cancers. However, it is associated with an increased rate of local recurrence compared with extended resection. In most cases, this failure is linked to the presence of non-detectable metastases in the regional lymph nodes. Endoscopic posterior mesorectal resection (EPMR) makes it possible to remove the lymphatic drainage of the lower third of the rectum in the minimally invasive way, which can help with adequate tumor staging. This study evaluated the influence of combined TEM and EPMR treatment on the rectal functions of this group of patients. Six patients with stage I cancer of the rectum were operated on using TEM in combination with EPMR as a two-stage procedure between 2007 and 2009.

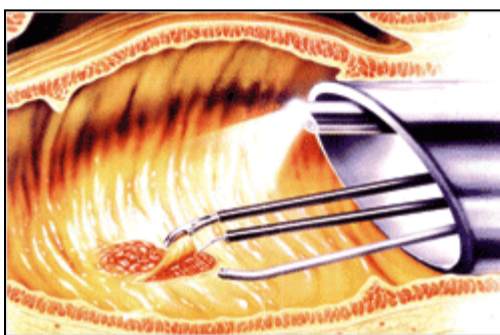


Diagram Showing Transanal Endoscopic Microsurgery

Source: http://www.cumc.columbia.edu/dept/cs/news/si/img/pic_tems.gif

After 19 months, none of the patients complained of symptoms of incontinence during the postoperative period. More important, there was no evidence of locoregional recurrence. Researchers concluded that EPMR in combination with TEM seems to be safe, feasible, and with no impact on the basic anorectal functions.

Walega, Piotr, et al., Functional and clinical results of transanal endoscopic microsurgery combined with endoscopic posterior mesorectum resection for the treatment of patients with T1 rectal cancer. World J of Surgery. Doi: 10.1007/s00268-010-0482-8

10. Young Patients Undergoing Liver Resection Fare Poorer (Mar. 6/10)

According to this study, patients under 40 appear to have more aggressive liver tumors from colorectal cancer and poorer long-term outcomes. After surgery to remove the cancer that had spread to their liver, patients who were 40 or younger had poorer overall survival and shorter time until cancer returned. The percentage of younger patients who were alive without cancer five years later was similar to older patients, which the research team attributed to more aggressive treatment for the young patients, along with repeated surgery. All patients who had surgery to remove colorectal cancer that had spread to their livers (*liver resection*) from 1990 through 2006 were studied in this French hospital.

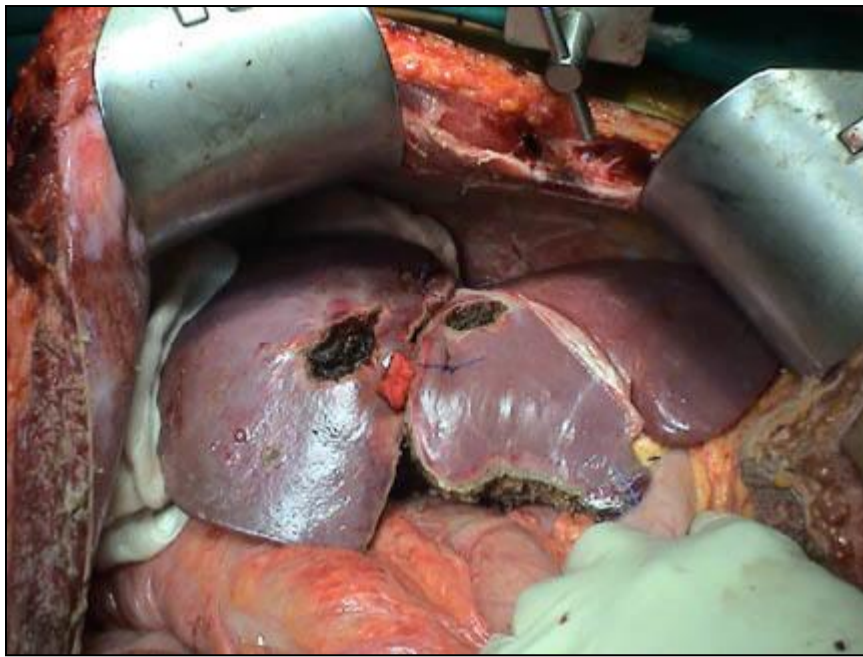


Diagram Showing Liver Resection With Tumours That Have Been RFA'd

Source: http://www.akspublication.com/paper06_jan-jun2008/Figure3.jpg

56 of 806 (7%) were 40 years old or younger. They had more liver metastases when they were diagnosed than older patients, and liver tumors were more often found at the same time as their primary tumor in colon or rectum. Comparing younger and older patients:

- Half of older patients (51%) were alive at five years (*overall survival*) compared to a third (33%) of the younger ones.
- Only 2% of young patients didn't experience a worsening of their cancer during the five years after surgery (*progression-free survival*) compared to 16% of older ones.
- *Disease-free survival* at five years was similar in both groups (17% for young, 23% for older)
- Being 40 or younger independently predicted poor progression-free survival.

Investigators concluded that in young patients, colorectal liver metastases seem to be more aggressive, with a trend toward lower overall survival, more disease recurrences, and a significantly shorter progression-free survival after liver surgery. However, disease-free survival rates were comparable between young and older patients, owing to an aggressive multimodality treatment approach, consisting of chemotherapy and repeat surgery. Therefore, physicians should recognize the poor outcome of colorectal liver metastases in young patients and should consider an aggressive approach to diagnosis and early treatment.

DeHaas, Robert, et al., Long term outcomes after hepatic resection for colorectal metastases in young patients. Cancer. Vol. 116, Issue 3, pp. 647-658

RADIATION / INTERVENTIONAL RADIOLOGY

11. Changes in Therapy Show Survival Improvements in Stage III Rectal Cancer Patients (Mar. 4/10)

Since the 1990s, treatment of patients with rectal cancer has changed in the Netherlands. This study sought to describe these changes in treatment over time and to evaluate their effects on survival. All patients in the Netherlands Cancer Registry with invasive primary rectal cancer diagnosed during the period 1989-2006 were selected. Trends in treatment over time were analyzed. In total, 40,888 patients were diagnosed with rectal cancer during the period 1989-2006. The proportion of patients with stages II and III disease receiving preoperative radiotherapy increased from 1% in the period 1989-1992 to 68% in the period 2004-2006 for younger patients (<75years) and from 1% to 51% for older patients (75years), whereas the use of postoperative radiotherapy decreased. Administration of chemotherapy to patients with stage IV disease increased over time from 21% to 66% for patients younger than 75years. Both males and females exhibited an increase in five-year relative survival from 53% to 60%. The highest increase in survival was found for patients with **stage III disease**. In the analyses performed, survival improved over time for patients with stages II-IV disease. And this improvement remained significant for patients with stages III and IV disease. Researchers concluded that the changes in therapy for rectal cancer have led to a markedly increased survival. Patients with stage III disease experienced the greatest improvement in survival.

Elferink, M.A.G., et al., Marked improvements of patients with rectal cancer in the Netherlands following changes in therapy, 1989-2006. European J of Cancer. Published online Feb. 22, 2010.

12. ThermoDox In Combination with RFA For Colorectal Liver Mets (Mar. 2/10)

A Randomized Phase II Study of Lyso-Thermosensitive Liposomal Doxorubicin (ThermoDox(R)) and Radiofrequency Ablation (RFA) for Colorectal Liver Metastases (CRLM) is going to be initiated by Celsion Corp. and is expected to commence in the second half of 2010. ThermoDox is a proprietary heat-activated liposomal encapsulation of doxorubicin, an approved and frequently used oncology drug for the treatment of a wide range of cancers including breast cancer. ThermoDox is administered intravenously and, in combination with hyperthermia (heat), has the potential to provide local tumor control and improve quality of life. Localized mild hyperthermia (39.5-42 degrees Celsius) releases the entrapped doxorubicin from the liposome. This delivery technology enables high concentrations of doxorubicin to be deposited preferentially in a targeted tumor. The study is meant to address the growing unmet medical need of colorectal liver metastases, which is globally prevalent and is currently treated by radiofrequency ablation. Celsion Corporation first began studying ThermoDox in combination with RFA for liver metastases in a Phase I safety study of 24 patients, 15 of whom had liver metastases from 9 primary sites, including CRLM. Building upon the data, they have made the decision to pursue a randomized Phase II study. CRLM is an indication which they believe has a large addressable market, and they expect that CRLM will be a label extension to liver cancer, increasing the value of ThermoDox. Researchers believe ThermoDox may play a role in treating liver metastases, particularly for larger tumors where survival rates are poor. More information will become available as it develops.

www.medicalnewstoday.com/news/newsid=180752

13. RFA Deemed to Prolong Colorectal Cancer Patients' Lives (Mar. 16/10)

According to researchers, approximately half of those living with colorectal cancer will develop liver metastases at some point during the course of their disease. Radiofrequency ablation, a minimally invasive treatment that applies heat directly in the tumor causing cancer cell death with minimal associated injury to the surrounding healthy liver, contributes to prolongation of their life by nearly three years according to study results. Patients who have recurrent colon cancer in their liver after surgery can be treated with radiofrequency ablation, or RFA, and avoid repeated liver surgery. RFA kills target cancer tissue with heat, while sparing the healthy tissue. This is particularly important for patients who develop new colon cancer in the liver after prior surgery. In general, these patients have a smaller amount of liver tissue; another surgery is usually not possible or very difficult and associated with higher risk. This research shows how interventional radiologists can treat patients who have failed a prior surgical treatment. In addition, it demonstrates how the combination of all available treatment modalities and the cooperation of medical specialists can improve the outcomes and may prolong patients' lives. While the study did not make any direct comparisons to other treatments, survival rates after RFA were comparable to those of surgery, according to the study. 56 patients were treated—a highly selective group who had multiple prior treatments with surgery, systemic and local chemotherapy—using computed tomography- (CT) guided RFA—over a six-year period and had survival rates of 9% at one year, 66% at two years and 41% at three years. More importantly, these survival rates—or life extensions—are in addition to the patients' survival rates after surgery. Radiofrequency ablation can be performed without affecting a patient's overall health, and most people can be discharged from the hospital within 24 hours and resume their usual activities in a few days. In this treatment, an interventional radiologist uses imaging to guide a needle through the skin into the tumor. The needle deposits radiofrequency energy into the target tissue, where it produces heat and kills the cancerous cells, sparing healthy tissue. See diagram below.

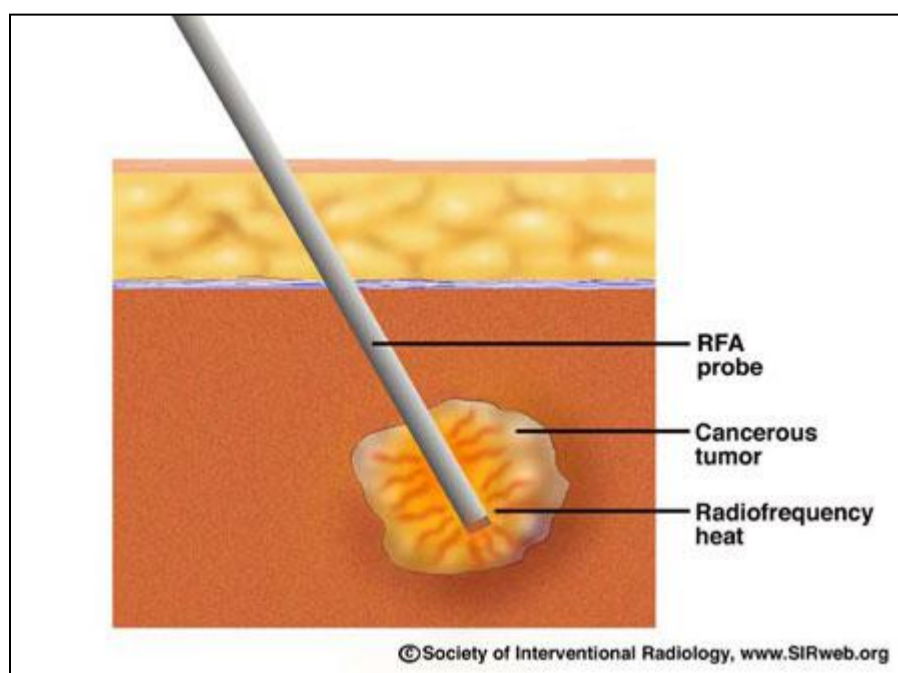


Illustration shows the through-the-skin placement of the needle electrode (RFA probe) in the cancerous tumor. (Provided by the Society of Interventional Radiology, www.sirweb.org)

Sofacleous, C.T., et al., Abstract 107: Radiofrequency Ablation of Recurrent Colorectal Cancer Hepatic Metastases After Hepatectomy. Memorial Sloan-Kettering Cancer Center, New York, N.Y., SIR 35th Annual Scientific Meeting March 13th, 2010, Tampa, Fla.

SCREENING

14. Blood Test Being Developed for Tumour Recurrence (Feb. 22/10)

Scientists at Johns Hopkins have developed a new way to test for cancer recurrence using a blood test. To do this, researchers focused on large chunks of DNA that are rearranged in cancer cells. DNA is the genetic material or instruction manual, found in nearly every cell of the body. Part of DNA is made up for four chemicals. Each DNA chemical is represented by a letter consisting of A, C, G, T. In the past, researchers looked for changes in just a single letter in the DNA that might signal cancer. For example, they might try to find that there is a G in a place where there should be a T, for example. Given that there are billions of these letters in a molecule of DNA, it is much like trying to find a needle in a haystack. With the new technique, researchers instead search for large chunks of DNA that have been rearranged. It turns out that large chunks of DNA often are rearranged in cancer cells, but not in normal cells. This makes these changes particularly useful for detecting cancer. It is also easier to find large sections of DNA that are in the wrong place, than to find a single letter in a very long book. The genetic material of cancer cells can be found in the blood of people with cancer. The new test would be a very useful way to figure out who has a cancer recurrence. The test would detect the presence of cancer much sooner than a typical scan or scope. This test also could be used to see how people are responding to treatment. Doctors could measure the baseline level of the rearranged DNA in a patient's blood. After a few treatments, the blood would be checked again. If the levels of rearranged DNA have gone down, it would signal that the tumour is shrinking. If not, the doctor can select a different, better treatment for that particular patient.

www.medicalnewstoday.com/newsid=179825

15. Colonoscopy by Non-Gastroenterologists May Increase Risk for Colorectal Cancer (Feb. 24/10)

A study, published in the journal of the American Gastroenterological Association (AGA) Institute, revealed that even if an individual has a colonoscopy that turns out negative, they could still be developing colon cancer if the test was not performed properly. For this reason, having extensive formal training matters, especially when procedures are more challenging to perform such as those in colonoscopy.

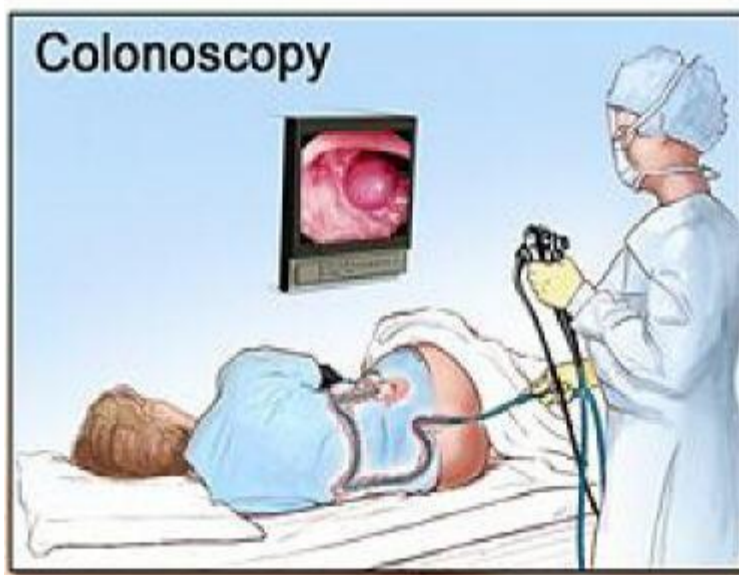


Diagram Showing Colonoscopy Procedure

Source: <http://www.anesthesia.com/images/238/colo.jpg>

Researchers found that among those physicians who perform colonoscopies in the hospital setting, gastroenterologists are more proficient at colonoscopy than other physicians, including general surgeons. According to the AGA, colonoscopies are considered to be the best way to detect colon cancer and adenomas, which are tumors that develop in the colon. In the study, doctors followed 110,402 Ontario patients, ranging from 50 to 80 years of age, who had previously had a negative colonoscopy. During the 15-year follow-up period, those who had colonoscopies performed by a doctor other than a licensed gastroenterologist, such as a general surgeon or family physician, had a significant increase in their risk for developing colon cancer. Researchers found that among those physicians who performed colonoscopy in the hospital setting, gastroenterologists were more proficient at colonoscopy than other physicians which may ultimately reflect the considerable formal training in endoscopy that forms part of gastroenterology core training requirements in the U.S. and Canada. According to the researchers, the findings confirm that endoscopist training is essential in performing an effective colonoscopy.

Rabeneck, Linda, et al., Endoscopist specialty is associated with incident colorectal cancer after a negative colonoscopy. J of Amer Gastro Assoc; Vol. 8, Issue 3: pp. 275-279.

16. Annual Colonoscopies Recommended for Lynch Syndrome (Mar. 12/10)

This study revealed that annual colonoscopies for people with Lynch syndrome (HNPCC or hereditary nonpolyposis colon cancer) successfully find cancers at an early stage. And a recent study by the German HNPCC Consortium confirmed the effectiveness of annual colonoscopies to find colorectal cancers at a curable stage. Regular colonoscopies appear to be able to find early cancers more often than did patient symptoms. (See diagram below).

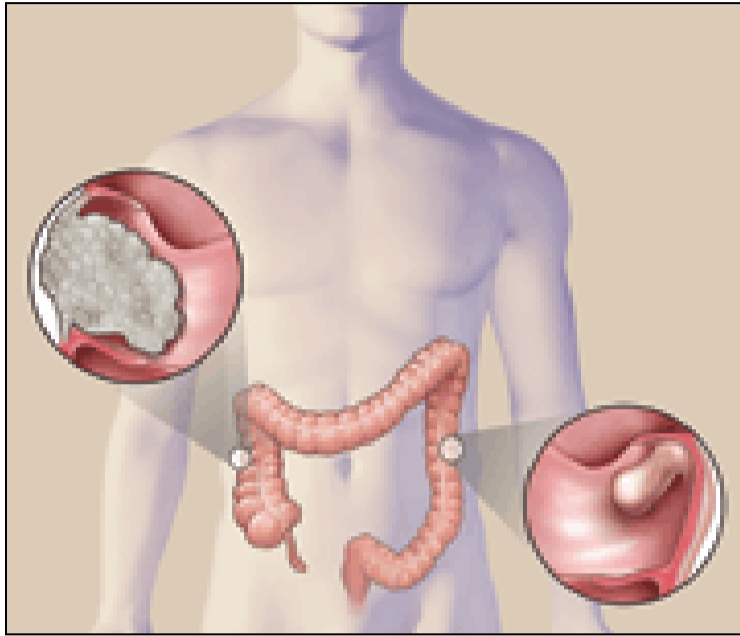


Diagram Showing Colonic Polyps Which Can Be Nicely Detected with Colonoscopy

Source: http://www.columbiasurgery.org/edu/img/pic_colon_cancer_w180.gif

Current recommendations are for surveillance colonoscopies to begin by age 25, be repeated every 1 to 2 years until age 40, and then annually. Over 1,100 individuals from families with HNPCC were scheduled for annual colonoscopies, and more than 80% were completed in less than 15 months. Ninety-nine colorectal cancers were found in 90 patients. Of those cancers:

- 17 (17%) were identified by symptoms: 8 before the first baseline colonoscopy, 8 when the time between colonoscopies was more than 15 months, and 1 in an interval between tests less than 15 months.
- 43 were found during follow-up colonoscopies, only 2 of which regionally advanced (stage III)

Tumor stages were significantly lower among those whose cancers were found by colonoscopy compared to those identified after patients experienced symptoms. The researchers divided the study patients into three groups:

- Those with an identified inherited genetic mutation for one of the Lynch mismatch repair genes (MUT group)
- Those without a mutation but with microsatellite instability (MSI group) – see item #22 for explanation
- Those with a strong family history but did not have MSI (MSS group) – see item #22 for explanation

By the age of 60, the mutation and MSI group combined had a 23% risk of getting colorectal cancer. However, risk for the MSS group was only 1.8%. Patients who had an adenomatous polyp removed during the first colonoscopy had a risk of another polyp that was two and a half times as great as those without that first polyp. Their risk of subsequent colorectal cancer was almost four times as high. The Amsterdam II criteria is used to detect families at risk for Lynch-related mutations. Each of the following criteria must be fulfilled:

- 3 or more relatives with an associated cancer (colorectal cancer, or cancer of the endometrium, small intestine, ureter or renal pelvis)
- 2 or more successive generations affected
- 1 or more relatives diagnosed before the age of 50 years
- 1 should be a first-degree relative of the other two (first degree relatives are parents, siblings, or children)
- Familial adenomatous polyposis (FAP) should be excluded in cases of colorectal carcinoma

However, genetic testing is necessary to confirm a mutation. Researchers concluded that annual colonoscopic surveillance is recommended for individuals with HNPCC. Less intense surveillance might be appropriate for MSS families.

Engel, Christoph, et al., Efficacy of Annual colonoscopic surveillance in individuals with hereditary nonpolyposis colorectal cancer. Clinical Gastroenterology and Hepatology (AGA); Vol. 8, Issue 2: pp. 174-182.

17. Making End-of-Life Care Decisions (Mar.1/10)

People have different ways of coping when faced with incurable cancer. One of the most important things you can do to help yourself or a loved one cope better is to be informed about your options. Unfortunately, many doctors are uncomfortable talking to their patients about end-of-life care. It is a painful and difficult thing to face our own mortality. It's not surprising that doctors often don't deal with this topic very well either. Sometimes, if a person is struggling to accept the incurable nature of their disease, they will ask for more treatment and more aggressive treatment. If their doctor also is struggling to explain end-of-life options in a way that makes sense, a person can end up receiving treatments that worsen quality of life significantly. This study suggests that describing end-of-life options can help people feel more secure in their decisions about their own end-of-life care. Researchers randomly selected 50 people with incurable cancer to receive one of the following:

- A discussion with the doctor about end-of-life care or
- A discussion with the doctor **plus** a video explaining options for end-of-life care

After having the discussion on end-of-life-care, 25.9% of participants preferred life-prolonging care, 51.9% basic care, and 22.2% comfort care. After having the discussion **plus** watching the video on end-of-life care, no participants preferred life-prolonging care, 4.4% preferred basic care, 91.3% preferred comfort care, and 4.4% were uncertain. Perhaps even more important than the actual selections of type of end-of-life care, is how people felt about it. Those who watched the video were more certain of their end-of-life decision-making. Most participants (83%) reported feeling comfortable watching the video. The researchers identify that there is nothing more difficult than deciding how you want to die. There most certainly isn't anything else that is harder to do. To cope with this, patients will require all the support, help, and information they can access. Patients may not be able to view a video about end-of-life care because their cancer center may not have one available. But nearly all cancer treatment facilities have a counselor, a chaplain, or another type of health professional who specializes in taking care of emotional and mental health. This, in turn, will help patients make the best decisions they can about their end-of-life medical care. And the next step is to work with a medical care team to fully understand all of the options for your end-of-life care. Do you want to keep receiving treatment is a basic question that needs to be addressed? Other questions are:

- Is the possible extra time you'll get with treatment worth the discomfort of that treatment?
- Are you willing to receive nutrition through a feeding tube or through a vein in your arm if your cancer affects your ability to eat?
- What can you expect as time goes on?

The answers to these and other concerns you have are vital to helping you cope more effectively. If you're helping a loved one face end-of-life treatment decisions, be supportive, but avoid judging their decisions. What is right for one person may not be right for another. We all like to think that we would handle our own death gracefully, but until one is in those shoes, one cannot know how it feels to deal with this level of stress.

El-Jawahri, Areej, et al., use of video to facilitate end of life discussions with patients with cancer: a randomized controlled trial. J of Clinical Oncology. Vol. 28, No. 2 (January 2010): pp. 305-310

18. Sexual Function and Colorectal Cancer Surgery (Mar. 14/10)

A recent study published in a German medical journal has found that patients who have colorectal surgery have diminished sexual function and quality of life. Men were affected more frequently than women and had a greater degree of distress about their sex lives than women did. The younger the patient was, the more they reported having problems with intimacy following surgery. A larger size wound was also associated with increased sexual difficulties. Five hundred and nineteen patients had surgery for rectal cancer between January 1997 and January 2003 and were given questionnaires before surgery, on discharge from hospital and at varying intervals after surgery. Questions asked on sexuality were, "has the operation resulted in an impairment of your sexuality? How much does this disturb you?" Both males and females experienced impaired sexuality, but this was particularly marked with men and got progressively worse with time. Sexual impairment was caused by negative effects on anal sphincter function and pelvic function and by erectile dysfunction. Men are thought to struggle emotionally with sexual problems more than women because of their higher sex drive. According to the researchers, when a patient is considering colorectal surgery, they should be made fully aware of the potential sexual side-effects in order to give fully informed consent. Psycho-sexual counseling should be made available to all colorectal cancer patients.

OTHER

19. Irritable Bowel Syndrome Not Likely to Develop Polyps or Colon Cancer (Mar.9/10)

Patients with irritable bowel syndrome are at no greater risk of having polyps, colon cancer or inflammatory bowel diseases than healthy people undergoing colonoscopies, according to new research. This study should reassure doctors and patients that typical IBS symptoms are not indicators of a more serious disease – the largest prospective evaluation of the results of colonoscopies in patients with irritable bowel syndrome. IBS symptoms include recurrent episodes of abdominal pain or cramping in connection with altered bowel habits. The condition affects 10 to 20 percent of the U.S. population and is more common among women than men. Many of those afflicted never seek treatment. IBS patients often undergo colonoscopies because physicians are particularly concerned about missing colorectal cancer or inflammatory bowel diseases like ulcerative colitis or Crohn's disease. This research shows that it is unnecessary to order colonoscopies for IBS patients, unless they show other alarming symptoms like unexplained weight loss or anemia, bleeding from the GI tract, or have a family history of colon cancer, inflammatory bowel disease or celiac disease. Research also showed that a small percentage of IBS patients older than 35 (2.5%) had an unusual disease called microscopic colitis. Microscopic colitis can masquerade as IBS in patients with diarrhea and is important to diagnose because it is treated differently than IBS, he says.

Chey, William D., et al., The yield of colonoscopy in patients with non constipated irritable bowel syndrome: results from a prospective, controlled US trial - the yield of colonoscopy in non constipated IBS. The American Journal of Gastroenterology, (23 February 2010) | doi:10.1038/ajg.2010.55

20. Two Proteins Identified To Be Involved in Spread of Colorectal Cancer (Mar. 11/10)

A discovery was made by Chinese researchers of two molecules which could be important in the fight against the metastasis of colon cancer. The molecules could be used to test whether colon cancer has metastasized – spread to other parts of the body – and could as a result potentially save lives. Half of colon cancer patients suffer a recurrence of the disease within five years of treatment because of its spread (metastasis) to other parts of the body. And according to the scientists, until now there have been no reliable chemical markers in the body to predict whether it will spread or not. The scientists started out by looking at one colon cancer patient and comparing the proteins produced by the original tumour cells to those of metastasized cells. They found 145 proteins of which 8 were important to key cell functions. When scientists checked cancer patients for these proteins they found two of the proteins, TFF3 and GDF15 were more common in patients who had cancer that had spread to the lymph nodes than those with cancer that had not spread to the lymph nodes. The researchers hope that the discovery will help identify which colon cancer patients need more aggressive treatment and those who can abstain from unnecessary toxicity.

Xue, Hua, et al., Identification of Serum biomarkers for colorectal cancer metastasis using a differential secretome approach. J of Proteome Research; 2010, 9(11): pp. 545-555

21. Inflammatory Bowel Disease Patients At Risk for Colorectal Cancer (Mar. 16/10)

Patients who are afflicted with Inflammatory Bowel Disease (or IBD – Crohn's Disease or Ulcerative Colitis) may not be aware their conditions put them at increased risk of colon cancer. There are suspicions about why IBD patients are at a higher risk for cancer. There is a thought that the inflammation promotes either new mutations within the cells or mutations that disrupt the normal regulatory process that would lead to abnormal cells dying out quicker, according to researchers. Symptoms of inflammatory bowel disease may include diarrhea, abdominal pain, fever and weight loss. And diabetics may also want to be extra vigilant for they too have been shown to be at increased risk for colon cancer. There is a theory that insulin itself is a growth factor in the body and that it may promote tumors that already exist, to grow faster, according to the lead investigator. Colonoscopies are the gold standard screening tool for heading off colorectal cancer. The procedure looks at the lining of the colon with a tiny video camera. It is recommended more often for those with a first-degree relative who have had a colon cancer diagnosis or for those who are experiencing symptoms.

<http://wcco.com/local/colon.cancer.risks.2.1569822.html>

22. Intestinal Inflammation and Colon Cancer (Mar. 17/10)

Our colon comes in contact with bacteria every day, inducing an inflammatory response that is tolerated and controlled. Sometimes the control of inflammation is lost and this can lead to inflammatory bowel disease (Crohn's or Ulcerative colitis) that may predispose patients to colon cancer. Caspase-1, an important protein involved in the mechanism of inflammation, has long been believed to be one of the culprits behind excessive inflammation in the colon. Researchers in this study suggest the opposite in a new study. Researchers from McGill University have demonstrated that Caspase-1 plays a crucial role

in inflammation regulation and intestinal tissue repair. But too much of any good thing can sometimes be bad. They also demonstrated that if Caspase-12--the protein that blocks Caspase-1--is absent, the inflammation mechanism caused by Caspase-1 goes out of control. This research opens the door to a greater understanding of and more targeted treatment strategy for preventing diseases linked to inflammation of the intestine as well as certain cancers. This discovery is of major interest from the therapeutic point of view because many pharmaceutical companies have developed Caspase-1 inhibitors since the late 1990s with the goal of relieving the symptoms of colitis. However, researchers observed that inhibition or deletion of Caspase-1 was not protective and actually caused an intense inflammatory reaction that led to severe colitis. Caspase-1 is needed to maintain the intestinal barrier and to repair it if injured. It works by stimulating the cells that line the intestinal barrier to proliferate and fill the site of damage or ulcer. This barrier shields us from the bacteria that colonize our colon. Without it, these bacteria invade to deeper tissues and trigger a persistent inflammation. According to the lead investigator, the absence of Caspase-12 leads to uncontrolled cell proliferation and higher risk of colorectal cancer. If Caspase-1 is not eventually blocked, it could lead to appearance of tumours. The challenge at present is to further the research on the action of Caspases in the immune response and also to see whether they play a role in other types of cancer.

Saleh, Maya, et al., Control of Intestinal Homeostasis, Colitis, and Colitis-Associated Colorectal Cancer by the Inflammatory Caspases. Immunity; doi: 10.1016/j.immuni.2010.02.012

NUTRITION & HEALTHY LIFESTYLE

23. Childhood Obesity and Adult Colorectal Cancer (Feb. 20/10)

According to this new study on obesity and chronic disease, children today are heavier than ever. Researchers followed three groups of young children for 6 years, beginning with the first group in 1988. The second group of kids was followed from 1994 to 2000, and the third group was followed from 2000 to 2006. The obesity rate increased from 13% at the end of the first study group, in 1994, to approximately 16% at the end of the third group in 2006. This means that nearly 1 out of every 6 children in the US are obese. Not merely overweight, but obese. The consequences of all this excess body fat are serious and long-lasting: obese children often become obese adults. And obesity is one of the leading contributors to colon cancer in the US. In fact, recent research concluded that there is convincing evidence that obesity increases the risk of colon cancer. Furthermore, it does not require a great deal of excess weight to increase that risk. Harvard researchers found that in men, approximately 30% of colon cancers are due to having a body mass index (BMI) of more than 22.5 kg/m². What does a BMI of 22.5 kg/m² look like? It's a man who is 5'11" tall and weighs no more than 161 pounds. For women, this translates into being 5'4" (64 inches) tall and weighing no more than 131 pounds. Health experts do note that plenty of exercise in childhood can ward off obesity in children. This, in turn, should decrease the chances that these kids grow up into overweight or obese adults. It also will greatly lessen their chances of developing colon cancer, other cancers, heart disease, and diabetes. The goal for every parent should be focusing on the important task of getting kids to spend less time in front of the screen, both TV and video game, and more time playing physically. Running around, biking, playing tag or kickball, playing basketball...any number of activities qualify.

To calculate your body mass index, please click on the following:

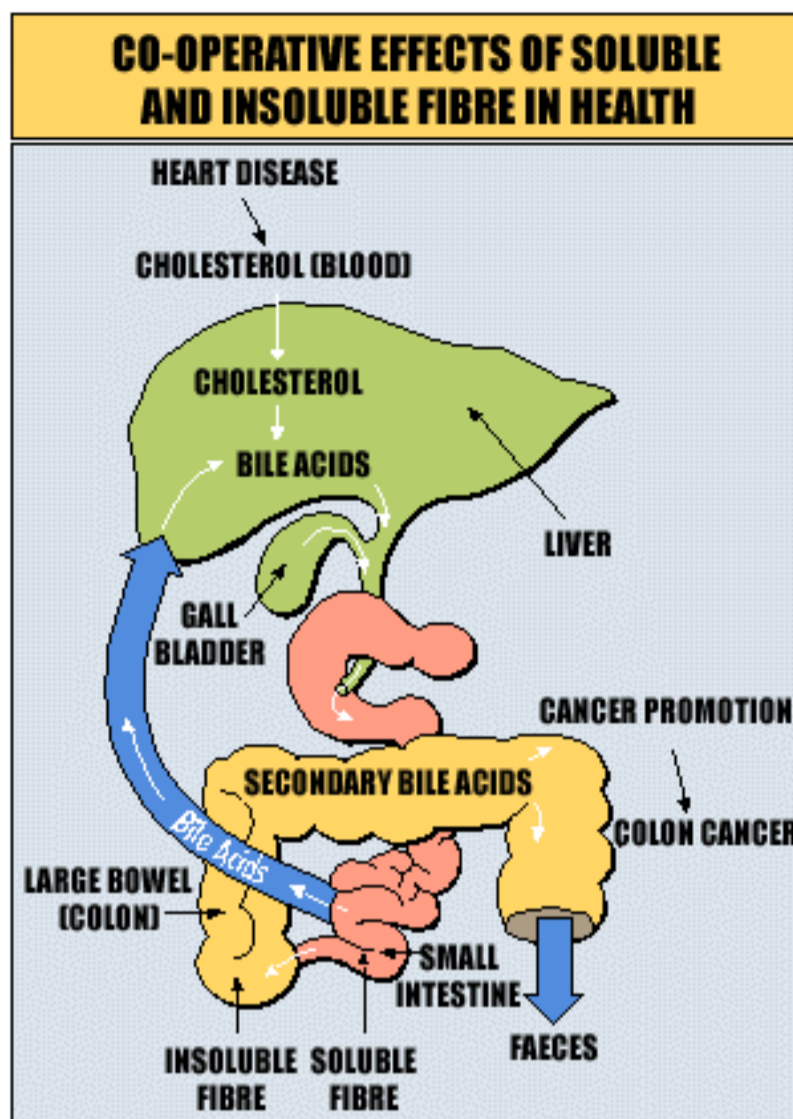
http://www.sharewarebay.com/Education/Science/Body_Mass_Index_Calculator.html

Key, Timothy, et al., Over nutrition: consequences and solutions obesity and cancer risk. J of Amer Med Association. 2010; 69: pp. 86-90

24. Fibre Able to Ward Off Cancer (Feb. 23/10)

It appears that people who eat high-fiber diets typically have lower incidence of certain cancers. In this study, researchers may have an explanation as to why that is after discovering that a nutrient called inositol hexaphosphate (IP-6) blocks a pathway some cancer cells use to multiply, recruit blood vessels and keep from dying. IP-6, also commonly known as phytic acid, is found in high concentrations in whole grains and legumes. It's also a currently available nutritional supplement. Researchers discovered that treating prostate cancer cells in a Petri dish and those transplanted into mice with IP-6 stopped the cancer from growing. Upon further investigation, he discovered that IP-6 disrupts the P13K-Akt pathway, which is shown to play a major role in the development and progression of prostate cancer, breast cancer and **colorectal cancer**. P13K-Akt is a master regulator of carcinogenesis and it's a cascade pathway, so if its action can be blocked, it stops many processes from starting. Researchers showed that IP-6 inhibits the pathway not only in cells, but also in mice transplanted with human prostate cancer cells. That's very exciting news, because cancer targets are constantly sought after and a major one has been found. The research points out how IP-6 works in cells, and may explain why people who eat diets high in fiber—and specifically high in legumes—seem to have a lower risk of cancer. If IP-6 blocks the mechanism that certain cancers use to stay alive, it makes sense that people who eat a lot of it would block that same mechanism. Now, clinical trials must be initiated to find out how much IP-6 is needed to have both preventive and therapeutic effects. Researchers are also exploring combining IP-6

with traditional chemotherapy to see if they can get a synergizing effect—if the supplement makes the cancer drugs work better.



Soluble Fibre

Soluble is the water-soluble component of fibre. It forms a gel in the digestive tract and slows the passage of food. It undergoes an extensive breakdown by bacteria in the colon. These characteristics may be responsible for its ability to lower cholesterol levels in the blood system. Only some soluble fibre is referred to as "dietary fibre". Examples of soluble fibres are beta glucans, which are found in oats and barley; and pectins which are found as part of cell walls, many fruit are rich in these.

Insoluble Fibre

Insoluble Fibre fractions absorb large amounts of water as the fibre passes through the digestive tract. Its main effects are seen in the large bowel. It binds and dilutes carcinogens and provides bulk. This is closely associated with a lower incidence of certain disorders of the intestinal tract. The insoluble fibre found in plant foods includes cellulose, lignin and resistant starches. These non-starch polysaccharides make up the major components of dietary fibre. Dietary fibre is sometimes referred to as roughage. Wheat bran is an outstanding example of roughage and has good bulking capacity in the colon. Nutritionally it would be difficult to better the combination of B-glucan rich cereals with wheat bran. Examples of insoluble fibres are cellulose, lignin and also some types of pectins.

Both types of fibre are contained in all types of bread, with whole meal breads supplying more dietary fibre than white breads. Recent research projects have discovered that white bread contains a significant quantity of soluble fibre, which is also important in our diet. A soluble to insoluble fibre ratio of 1:2 has been recommended as a suitable daily dietary intake.

Source: http://www.bakeinfo.co.nz/school/school_info/nutrition.php

Agarwal Rajesh, et al., *IP-6 suppresses growth and induces apoptosis in prostate carcinoma cells in culture and nude mouse xenograft: PI3K-Akt pathway as potential target* Cancer Research 69, 9465, December 15, 2009. Published Online First November 17, 2009

25. Vitamin D and Colorectal Cancer (Feb. 28/10)

The latest research is once again supporting vitamin D's important role in warding off colon cancer. This study comes out of a larger, long-running study called EPIC, which is short for European Prospective Investigation into Cancer. EPIC includes more than half a million people from 10 European countries. Researchers looked at a subset of 2,500 people from this larger group for the vitamin D colon cancer

study. They examined the connection between blood levels of vitamin D at the beginning of the study, and risk of later developing colorectal cancer. People with a vitamin D blood level between 50 to 75 nanomoles per liter (nm/L) had 40% lower risk of developing colon cancer, as compared with people who had blood levels *below* 50 nm/L.



Source: <http://www.vancouversun.com/health/Falling+vitamin/2616986/story.html>

There was no added benefit for blood levels above 75 nm/L. In essence, the **optimal blood level** of vitamin D for reducing colon cancer risk seems to be **between 50 and 75 nm/L**. Blood levels of vitamin D above 75 nm/L did not seem to give any additional reduction in colon cancer risk. This is important to note. Very high levels of vitamin D can be toxic. Fortunately, vitamin D toxicity is very rare, even among people who use dietary supplements. But taking very high doses of vitamin D without needing it is not a good idea. Of noteworthy importance is the fact that many nutrition experts feel that the current recommended dietary allowance (RDA) is set too low for vitamin D. It is expected that in the near future, the RDA will be raised to at least 1,000 international units (IU) per day. Some health experts feel the RDA should be raised to 2,000 IU per day. The current RDA is 400 IU per day. The best way to determine how much vitamin D you need is to get a blood vitamin D test. If your levels come back low, your doctor can help you pick the right vitamin D dietary supplement. You should speak to your doctor first though. The current safe upper limit of vitamin D intake is set at 2,000 IU per day. If you decide to take a supplement, do not take more than 2,000 IU per day, unless advised to do so by your doctor.

Jenab, Mazda, et al., Association between pre-diagnostic circulating vitamin D concentration and risk of colorectal cancer in European populations: a nested case-control study. British Medical Journal; 2010; 340: b5500, doi:10.1136/bmj.b5500

26. Obesity Linked to Colorectal Cancer Without Microsatellite Instability (Mar. 6/10)

A new study has suggested that the increased risk of colorectal cancer associated with obesity may be largely restricted to tumors that have no or low microsatellite instability or MSI (see explanation below), a common condition in most colorectal cancers. Researchers performed a case-control study of patients with colorectal cancer and their unaffected sex-matched siblings to evaluate associations between being overweight or obese (defined according to body mass index) and adult weight change and colorectal cancer risk. They evaluated the associations with cancer risk, overall and by tumour MSI status. Patients that are diagnosed with tumours that are microsatellite-stable or MSI-low may have lower 5 year survival rates than patients with tumours that are MSI-high. Recent body mass index (people over 30 kg/m² or more, the cut of for obesity) was positively associated with overall risk of colorectal cancer for men and women combined. It was also associated with risk of MSI-stable and MSI-low colorectal tumours, but not with the risk of MSI-high tumours. The data also suggest that the associations between [body mass index] and adult weight gain and the risk of colorectal cancer differ between MSI-stable and MSI-high tumors suggesting differing underlying causes for colorectal cancer according to tumor MSI.

Microsatellite Instability: Microsatellites are repeated sequences of DNA. Although the length of these microsatellites is highly variable from person to person, each individual has microsatellites of a set length. These repeated sequences are common, and normal. In cells with mutations in DNA repair genes, however, some of these sequences accumulate errors and become longer or shorter. The appearance of abnormally long or short microsatellites in an individual's DNA is referred to as microsatellite instability and it is a condition manifested by damaged DNA due to defects in the normal DNA repair process when the DNA is being copied.

Microsatellite Instability High Tumours: Contain changes in 2 or more regions of the DNA (genetic material) of the tumour

Microsatellite Instability Low Tumours: Contain changes in one region of the DNA of the tumour.

Microsatellite Instability Stable Tumours: Contain no changes in the DNA of the tumour

27. Association Between Red Meat and Colorectal Cancer (Mar. 10/10)

According to this study, US scientists may have discovered what biological mechanisms might be behind the already established link between colorectal cancer and consumption of red and processed meat, confirming that such a link exists and suggested the main players are three compounds: **heme iron (iron found in red blood cells), nitrate/nitrite (preservatives), and heterocyclic amines (compounds created when food is cooked at high temperatures)**. The authors noted that although the link between consumption of red and processed meat and colorectal cancer has been demonstrated in several studies, few have explored the **underlying mechanisms**. Researchers undertook a large prospective study that counted colorectal cancer cases in a group of over 300,000 men and women who filled in detailed questionnaires about the types of meat they consumed and how it was cooked. In their analysis they linked the questionnaire data to information kept in scientific databases about the levels of compounds present in meat cooked at different temperatures. The compounds they were interested in were heme iron, nitrate, nitrite and certain mutagens. (Mutagens are compounds that can alter DNA or other genetic material, thus increasing the rate of rogue cell production which can trigger cancer). In their analysis the researchers arranged the cohort data in "quintiles". That is, they grouped it into five bands: the bottom quintile contained the data on those who ate the least meat and the top quintile contained data on those who ate the most. The results showed that:

- After 7 years of follow up, there were 2,719 cases of colorectal cancer in the group
- Comparing the top quintile (the 20% that ate the most meat) with the bottom quintile (the 20% that ate the least meat) for both red and processed meat, showed a significantly higher risk of developing colorectal cancer for the top quintile.
- The potential mechanisms for this that showed statistical significance were intakes of heme iron, nitrate from processed meats and heterocyclic amines
- In general, the elevated risk was higher for rectal cancer than colon cancer, with the exception of two heterocyclic amines (MeIQx and DiMeIQx), which were only linked to colon cancer.

The researchers concluded that they found: "A positive association for red and processed meat intake and colorectal cancer; heme iron, nitrate/nitrite, and heterocyclic amines from meat may explain these associations."

Cross, Amanda J., et al., A large prospective study of meat consumption and colorectal cancer risk: an investigation of potential mechanisms underlying this association. Cancer Research; published online March 9, 2010. Doi: 10.1158/0008-5472

28. Fish Oil Deemed to Reduce Bowel Cancer (Mar. 17/10)

A small study suggests that taking daily capsules of purified fish oil could slow or prevent bowel cancer for people with a genetic condition that causes this type of cancer. According to the results, people who took fish oil had fewer growths on their bowel during the six months of the study. A condition called familial adenomatous polyposis, usually shortened to FAP, puts people at very high risk of colon cancer. This condition, which runs in families, means people get lots of small, fleshy growths (called polyps) on the inner surface of their bowel. See diagram below.

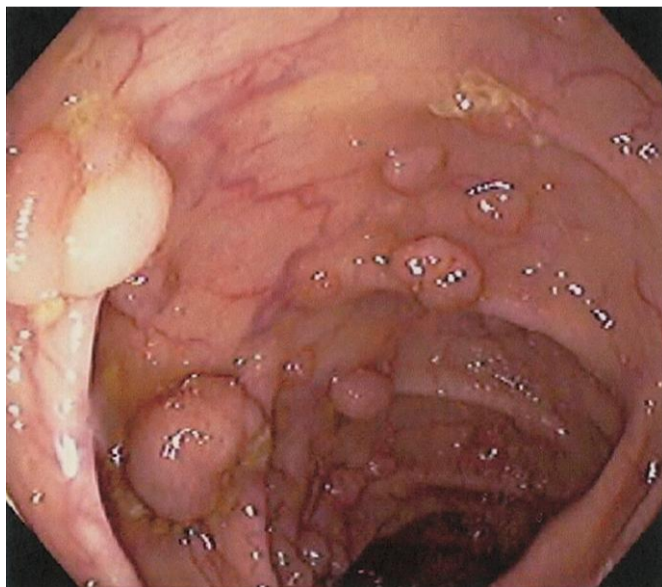


Diagram showing multiple polyps in the colon called polyposis.

Source: <http://radiographics.rsna.org/content/24/6/1535/F23.large.jpg>

If left, these growths are likely to turn into cancer. Most people with FAP need to have sections of bowel removed by surgery, to prevent their bowel becoming cancerous. Ideally, surgeons like to leave people with as much of their bowel as possible, including the rectum (the end nearest the anus), so they don't need to have a permanent colostomy bag. People who've had a section of bowel removed need regular checking of their rectum to monitor the growth of new polyps. Some people with FAP take an anti-inflammatory drug, called celecoxib, which slows the growth of new polyps. But celecoxib may increase the risk of having a heart attack, so doctors are cautious about using it in the long term, especially for older people. People who took the Fish Oil capsules (EPA capsules) for six months had fewer polyps at the end of the study than at the start. And their polyps were smaller. In contrast, people who'd taken dummy (placebo) capsules had more polyps by the end of the study, and the polyps had grown in size. The capsules were given a coating that meant they would break down in the gut, not in the stomach. This was intended to prevent the side effects that some people get from taking large amounts of fish oil, such as feeling sick, a fishy taste in the mouth, and heartburn. Slightly more people who took the EPA capsules felt sick during the study than people who took placebo capsules. But EPA didn't seem to cause other problems.

West NJ, et al. Eicosapentaenoic acid reduces rectal polyp number and size in familial adenomatous polyposis. Gut. Published online 18 March 2010.

29. **Low Intake of Vitamin B6 Can Increase Risk of Developing Colorectal Cancer** (Mar. 18/10)

Researchers from Sweden have reported: Vitamin B6 intake and blood PLP (pyridoxal phosphate, the active form of vitamin B6) levels were inversely associated with the risk of colorectal cancer in this meta-analysis. The Vitamin B6 is a water-soluble vitamin. Pyridoxal phosphate is the active form and is important in protein breakdown. B6 is metabolized in the liver. Vitamin B6 is widely distributed in foods such as meats, whole grains, vegetables, and nuts. Cooking can destroy up to 50% of vitamin B6. Classic B6 deficiency is a skin disease; dermatitis with ulceration, cheilitis, conjunctivitis, and neurologic symptoms. Absolute deficiency of B6 is rare and is often associated with other B vitamin deficiencies. Deficiencies are most notable in the elderly and alcoholics. The best indicator of deficiency is plasma PLP level. The current study looked at nine prospective studies evaluating the effect of vitamin B intake and PLP levels on the risk of developing colorectal cancer. They observed considerable variability in vitamin B6 intake but not in PLP levels. These authors reported that persons with the highest intake of vitamin B6 had a 10% lower risk of developing colorectal cancer compared with persons with the lowest intake. They observed a 48% reduced incidence of colorectal cancer in persons with the highest PLP levels compared with persons with the lowest levels. Researchers concluded that the risk of colorectal cancer decreased by 49% for every 100-pmol/ml increase in blood PLP levels

Larsson, SC., et al., Vitamin B6 and risk of colorectal cancer. J of the Amer Med Association. 2010; 303: pp. 1077-1083

30. **Magnesium Can Help With Colorectal Cancer** (Mar. 19/10)

New research from Japan underlines the importance of the mineral in preventing colon cancer for men. Most of us don't pay much attention to magnesium, a mineral found in leafy greens, nuts and legumes. Yet it's been shown to guard against high blood pressure, heart disease, Type 2 diabetes, migraines and osteoporosis. Now, a study to be published in the April issue of the Journal of Nutrition suggests that the health benefits of magnesium extend even further. According to data from Japan, if you're male, boosting your intake of the mineral can help significantly reduce the risk of colon cancer. The current study followed 87,117 Japanese men and women, aged 45 to 74, for eight years to determine whether dietary magnesium could help prevent colon cancer. Among men, those who consumed at least 327 milligrams of magnesium a day were 52 per cent less likely to develop colon cancer, compared to those whose daily diets provided less than 238 milligrams. Magnesium intake was not associated with the risk of colon cancer in women, a finding that differed from earlier research conducted among Swedish and American women. A greater magnesium intake may protect against colon cancer by minimizing free radical damage, reducing the proliferation of colon cells, and improving how the body uses insulin. The new finding that a higher magnesium intake did not alter the risk of colon cancer in Japanese women, may be due to the fact that women in this study were leaner, more active and less likely to have diabetes than their male counterparts.

<http://www.theglobeandmail.com/life/health/magnesium-rich-foods-could-reduce-cancer-risk/article1502552/>