Menu Labeling Requirements Lead to Healthier Options at Chain Restaurants

The recent Supreme Court decision on the Patient Protection and Affordable Care Act has cleared the way for national requirements about posting nutritional information at chain restaurants. Listing calories, fat content, and sodium levels of menu items at the point of purchase has been promoted as a way to address the obesity epidemic. Increased awareness may lead to healthier consumer choices, and may encourage restaurants to adapt their menus to meet demand. A new study has evaluated the real-life impact of menu labeling in King County, Washington, after new regulations were implemented, and has found some improvement, although most entrées continue to exceed recommended nutritional guidelines (1). The study is available in the August issue of the Journal of the Academy of Nutrition and Dietetics.

“Frequent consumption of food away from home is associated with higher caloric intake and higher fat. As noted by the Food and Drug Administration, the cost of the obesity epidemic to families, businesses, and the government was over $117 billion in 2010,” says lead investigator Barbara Bruemmer, Ph.D., R.D., senior lecturer emeritus of the Program in Nutritional Sciences, School of Public Health, University of Washington, Seattle. “All of these issues underscore the need for environmental approaches to help consumers who are looking for better options.”

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King County was one of the first jurisdictions to implement menu labeling, in January 2009. The regulations applied to any restaurant with 15 or more establishments in the United States and at least $1 million in annual sales. Dr. Bruemmer and her colleagues wanted to learn whether restaurants would improve their entrées by reformulating items so that they had fewer calories and would replace some menu items with healthier alternatives.

The investigators audited menus at 11 sit-down restaurants and 26 quick-serve chains. They evaluated the nutritional levels of entrées that were on the menu six months after the regulations went into effect and remained on the menu 12 months later, to determine whether individual menu items had been reformulated to improve their nutritional profiles. They also looked at whether all entrées had a better nutrition profile. “We also wanted to know how healthy foods at chain restaurants were overall. How do these meals stack up compared to what we should be aiming for in a good diet?” Dr. Bruemmer said. So they compared the nutritional values of entrées at the restaurants in their study to US Department of Agriculture dietary guidelines.

“We did find evidence of a decrease in energy, saturated fat, and sodium content after the implementation of menu regulations for items that were on the menu at both time periods,” reports Dr. Bruemmer. “We also saw a trend for healthier alternatives across all entrées over time, but only in the sit-down restaurants.”

However, the study found that the majority of entrées were still very high in energy, saturated fats, and sodium, compared to dietary guidelines. “56 percent of entrees exceeded the recommended level for 1/3 of an adult’s daily needs, while 77 percent of the entrees exceeded the guidelines for saturated fats, and almost 90 percent exceeded the sodium guidelines. Yes, we saw improvements, but there is still a long way to go. Those are pretty hefty servings for adults.”

A decline of 41 calories in entrées was seen between the two time periods. “While that doesn’t

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sound like very much, it is an improvement and it is statistically significant,” says Dr. Bruemmer. “41 fewer calories could easily translate into several pounds lost over a year for an adult. It’s modest, but it’s a start.”

With national guidelines from the Food and Drug Administration expected later this year, Dr. Bruemmer says that consumers need more options in the marketplace and clearer messages about how to use menu labeling information. “People can only respond to what’s available in the environment. If we haven’t yet seen people say, ‘Oh, I found something that meets my needs,’ well, maybe it’s because there aren’t enough moderate options available on the menu. Menu labeling will help people get a handle on this ‘list’ of calories, at the point where they’re making their decisions and putting down their money. This is where America is providing a lot of food to our children. Let’s give families a chance to make an informed decision,” she concludes.

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1. Bruemmer B, Krieger J, Saelens BE, and Chan N. Energy, saturated fat, and sodium were lower in entrées at chain restaurants at 18 months compared with 6 months following the implementation of mandatory menu labeling regulation in King County, Washington. J Acad Nutr Diet; Aug. 2012; 112(8): 1169-76.


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**Color-Coded Labels Improve Healthy Food Choices In Employees From All Backgrounds**

A program designed to encourage more healthful food choices through simple color-coded labels and the positioning of items in display cases was equally successful across all categories of employees at a large hospital cafeteria (1). In an article appearing in *American Journal of Preventive Medicine* (AJPM), a team of Massachusetts General Hospital (MGH) researchers report that the interventions worked equally well across all racial and ethnic groups and educational levels.

"These findings are important because obesity is much more common among Americans who are black or Latino and among those of low socioeconomic status," says Douglas Levy, Ph.D., lead author of the AJPM report. "Improving food choices in these groups may help reduce their obesity levels and improve population health."

The authors note that current efforts to encourage healthful food choices by labeling or posting the calorie content of foods have had uncertain results. Even individuals with relatively high educational levels may have difficulty reading and understanding nutritional labels, and the problem is probably greater among low-income or minority individuals with limited literacy. As reported earlier this year, the MGH research team – which includes leaders of the MGH Nutrition and Food Service – devised a two-phase plan to encourage more

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healthful food purchases without the need for complex food labels.

In the first phase, which began in March 2010, color-coded labels were attached to all items in the main hospital cafeteria – green signifying the healthiest items, such as fruits, vegetables and lean meats; yellow indicating less healthy items, and red for those with little or no nutritional value. The second "choice architecture" phase, which began in June 2010, focused on popular items – cold beverages, pre-made sandwiches and chips – likely to be purchased by customers with little time to spend who may be more influenced by location and convenience. Cafeteria beverage refrigerators were arranged to place water, diet beverages and low-fat dairy products at eye level, while beverages with a red or yellow label were placed below eye level. Refrigerators and racks containing sandwiches or chips were similarly arranged, and additional baskets of bottled water were placed near stations where hot food was served.

The study was designed to measure changes in employee purchases of green-, yellow- and red-labeled items by racial/ethnic categories and by job type during both phases of the program. Data reflecting purchases by more than 4,600 employees, each of whom was enrolled in a program allowing them to pay for meals through payroll deduction, was recorded by cafeteria cash registers and matched to human resources information. While it was possible to track how an individual employee’s food choices changed during the study period, no information that could identify an employee was available to the research team. Participants were categorized by self-reported race or ethnicity – white, black, Latino or Asian. Educational level was reflected by job type – service workers; administrative/support staff; technicians, including radiology technicians and respiratory therapists; health professionals, such as pharmacists and occupational therapists; or management/clinicians, which included physicians and nurses.

At the outset of the study, black and Latino employees and those in job categories associated with lower education purchased more red items and fewer green items than did white employees or those in higher-education job types. But at the end of both phases of the intervention, employees in all groups purchased fewer red items and more green items. A specific analysis of beverage purchases – chosen because the consumption of sugar-sweetened beverage is highest among black and low-income individuals and strongly linked to obesity, diabetes and heart disease – found that the purchase of healthful beverages increased for all groups. In addition, black and low-education employees, who paid the highest cost per beverage at the study’s outset, were paying significantly less per beverage purchased at the end of the study period.

All elements of the overall program remain in place at the MGH, and the color-coded labeling has been extended to all food service sites. "Further study is needed to determine the long-term effect of

Labels continued on page 5
Getting kids to pass up junk food in favor of healthier fruits and veggies has led to many a mealtime meltdown for parents everywhere. Now, researchers from the University of Alberta (U of A) offer a simple solution: give them an apron. A province-wide survey of Grade 5 students in Alberta, Canada suggests the best way to get your child to eat healthier foods—and actually enjoy them—is to have them help with meal preparation (1).

“Kids who like fruits and vegetables more tend to eat them more frequently and have better diets,” said lead author Yen Li Chu, a post-doctoral fellow in the School of Public Health. “These data show that encouraging kids to get involved in meal preparation could be an effective health promotion strategy for schools and parents.”

Published by Public Health Nutrition, the study involved a survey of students in 151 schools across Alberta to learn about kids’ experiences with cooking and food choices.

Kids Who Cook Are Hungrier For Healthy Food Choices

Nearly one-third of children reported helping with meal prep at least once a day; another one-third said they helped one to three times a week. A quarter of children helped once a month, and 12.4 percent avoided the kitchen completely.

In general, children preferred fruits to veggies, but children who helped with cooking showed a greater preference for both. Vegetable preference was also 10 percent higher among children who helped cook.

The data also showed that kids who did meal prep and cooking were more confident about the importance of making healthier food choices.

Paul Veugelers, co-author and Canada Research Chair in Population Health at the U of A, said getting children to eat healthier food promotes bone and muscle development, learning and self-esteem.

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“Good food is important for us. It keeps weight gain away—and more important than that, it keeps chronic disease away,” Veugelers said. “The overarching objective of our work is to lower the burden of chronic disease in our society. A healthy diet is right at the top.”

Chu said the results underscore the value of getting kids interested in mealtime activities in the home, but added there could be room for schools to get involved, too.

“You can go into schools and have cooking classes and cooking clubs to help them boost their fruit and vegetable intake and make healthier choices,” she said.

Though this survey dealt with Grade 5 students, the lessons are equally applicable to older youth, including post-secondary students, added Veugelers.

“For many of them, it may be the first time they leave home, the first time in their lives they’re responsible for their own diets,” he said. “There are lessons here for them too, to form groups and take turns cooking, and pay attention to good meal preparation.”

References:


Source: University of Alberta News and Events; June 26, 2012; http://www.news.ualberta.ca/article.aspx?id=87D7F4B5E2464030B084DC91F2C3F014

Parents Find Terms ‘Large’ Or ‘Gaining Too Much Weight’ Less Offensive Than ‘Obese’

If doctors want to develop a strong rapport with parents of overweight children, it would be best if physicians used terms like “large” or “gaining too much weight” as opposed to the term “obese.” These were findings recently published by medical researchers at the University of Alberta (1).

Geoff Ball, a researcher in the Faculty of Medicine & Dentistry with the Department of Pediatrics, worked with department colleagues Amanda Newton and Carla Farnesi to review articles about the important

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relationship between families and health professionals when it comes to addressing concerns about children’s weight. Their findings were recently published in the peer-reviewed journal, *Pediatric Obesity*.

They found the delicate balance was affected by: parents’ preferences about language regarding obesity, how health professionals talked about weight, how care was delivered and parents’ expectations.

“Health professionals probably shouldn’t use terms like fat, chubby, overweight or obese,” says Ball. “Terms that are more neutral, less judgmental and less stigmatizing should be used. Most of the time families will want that sensitive type of language. And that’s what clinicians should want, too, because that’s what families want.”

Some parents felt blamed for their children’s weight issues, while others found health professionals “rude and judgmental” or inattentive.

When it came to discussing sensitive issues around children’s weight, parents felt it was the role of doctors to spearhead that difficult conversation, especially if there were health concerns. But health professionals were somewhat reluctant to do this because they didn’t want to offend families and negatively affect the physician-patient relationship – especially when it came to raising concerns about weight during a medical appointment about an unrelated medical issue.

Ultimately, if parents feel ostracized by physicians, the families are less likely to follow doctor recommendations, the study concluded.

Ensuring physicians receive guidance on how to address sensitive topics like weight could be a good idea, noted the paper. It would also be worthwhile to get more feedback from parents about the issue, and to encourage families to work with doctors as a team to find solutions for children. Using more sensitive language about weight is also needed.

“If these changes are made it could lead to: families being more apt to follow the doctor’s advice, families being more apt to return for follow-up appointments, better interactions between health-care professionals and families, and families being more satisfied with their care,” says Ball. “You want to have a positive rapport with families so they stay engaged. Those are outcomes you would want.”

References:


Source: Faculty of Medicine and Dentistry University of Alberta News and Events; July 30; http://www.med.ualberta.ca/Home/NewsEvents/News/article.cfm?ID=2442
Want To Lose Weight? Keep A Food Journal, Don't Skip Meals And Avoid Going Out To Lunch, Study Suggests

Women who want to lose weight should faithfully keep a food journal, and avoid skipping meals and eating in restaurants – especially at lunch – suggests new research from Fred Hutchinson Cancer Research Center. (1)

The findings by Anne McTiernan, M.D., Ph.D., and colleagues – from the first study to look at the impact of a wide range of self-monitoring and diet-related behaviors and meal patterns on weight change among overweight and obese postmenopausal women – are published in the Journal of the Academy of Nutrition and Dietetics.

“When it comes to weight loss, evidence from randomized, controlled trials comparing different diets finds that restricting total calories is more important than diet composition such as low-fat versus low-carbohydrate. Therefore, the specific aim of our study was to identify behaviors that supported the global goal of calorie reduction,” McTiernan said.

Specifically, McTiernan and colleagues found that:

- Women who kept food journals consistently lost about 6 pounds more than those who did not
- Women who reported skipping meals lost almost 8 fewer pounds than women who did not
- Women who ate out for lunch at least weekly lost on average 5 fewer pounds than those who ate out less frequently (eating out often at all meal times was associated with less weight loss, but the strongest association was observed with lunch)

“For individuals who are trying to lose weight, the No. 1 piece of advice based on these study results would be to keep a food journal to help meet daily calorie goals. It is difficult to make changes to your diet when you are not paying close attention to what you are eating,” said McTiernan, director of the Hutchinson Center’s Prevention Center and a member of its Public Health Sciences Division.

Study participants were given the following tips for keeping a food journal:

- Be honest – record everything you eat
- Be accurate – measure portions, read labels
- Be complete – include details such as how the food was prepared, and the addition of any toppings or condiments
- Be consistent – always carry your food diary with you or use a diet-tracking application on your smart phone.

“While the study provided a printed booklet for the women to record their food and beverage consumption, a food journal doesn’t have to be anything fancy,” McTiernan said. “Any notebook or pad of paper that is easily carried or an online program that can be accessed any time through a smart phone or tablet should work fine.”

In addition to documenting every morsel that passes one’s lips, another good weight-loss strategy is to eat at regular intervals and avoid skipping meals.

“The mechanism

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Experts Warn Of Significant Cardiovascular Risk With Atkins-Style Diets

Women who regularly eat a low carbohydrate, high protein diet are at greater risk of cardiovascular disease (such as heart disease and stroke) than those who do not, a study published in the British Medical Journal suggests (1).

Although the actual numbers are small (an extra 4-5 cases of cardiovascular disease per 10,000 women per year) the authors say that this is a 28 percent increase in the number of cases and that these results are worrying in a population of young women who may be exposed to these dietary patterns and face the excess risk for many years.

At the end of the study, participants in both arms lost an average of 10 percent of their starting weight, which was the goal of the intervention.

“We think our findings are promising because it shows that basic strategies such as maintaining food journals, eating out less often and eating at regular intervals are simple tools that postmenopausal women – a group commonly at greater risk for weight gain – can use to help them lose weight successfully,” McTiernan said.

References:


Low carbohydrate-high protein diets are frequently used for body weight control. Although they may be nutritionally acceptable if the protein is mainly of plant origin (e.g. nuts) and the reduction of carbohydrates applies mainly to simple and refined ones (i.e. unhealthy sweeteners, drinks and snacks), the general public do not always recognize and act on this guidance.

Studies on the long term consequences of these diets on cardiovascular health have generated inconsistent results. So a team of international authors carried out a study on just under 44,000 Swedish women aged between 30 and 49 years from 1991-92 (with an average follow-up of 15 years).

Women completed an extensive dietary and lifestyle questionnaire and diet was measured on the low carbohydrate-high protein (LCHP) score where a score of two would equal very high carbohydrate and low protein consumption through to 20 which would equal very low carbohydrate and high protein consumption.

Factors likely to influence the results were taken into account including smoking, alcohol use, diagnosis of hypertension, overall level of activity and saturated / unsaturated fat intake.

After these variables were included, results showed that 1270 cardiovascular events took place in the 43,396 women (55 percent ischaemic heart disease, 23 percent ischaemic stroke, 6 percent haemorrhagic stroke, 10 percent subarachnoid haemorrhage and 6 percent peripheral arterial disease) over 15 years.

The incidence of cardiovascular outcomes increased with an increasing LCHP score.

Unadjusted figures show that, compared with an LCHP score of six or less, cardiovascular diseases increased by 13 percent for women with a score from 7 to 9, to 23 percent for those with a score from 10 to 12, to 54 percent for those with a score from 13 to 15, and to 60 percent for those with a score of 16 or higher.

After adjusting for other cardiovascular risk factors, there was still a significant 5 percent increase in the likelihood of a cardiovascular event or death with every two point increase in the LCHP score. The 5 percent increase resulted from a daily decrease of 20g of carbohydrates (equivalent to a small bread roll) and a daily increase of 5g of protein (equivalent to one boiled egg).

In absolute terms, the adjusted figures represent an additional four to five cases of cardiovascular diseases per 10,000 women per year compared with those who did not regularly eat a low carbohydrate, high protein diet.

Increasing level of education and physical activity reduced the risk of cardiovascular disease whilst increasing levels of smoking increased the risk.

The authors conclude that LCHP diets “used on a regular basis and without consideration of the nature of carbohydrates or the source of proteins” are associated with cardiovascular risk. This study doesn’t, however, address the questions concerning the possible benefit of short-term effects of LCHP diets that can be used to control weight or insulin.
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resistance, which the authors say needs further investigation.

An accompanying editorial argues that the short term benefits of weight loss seem outweighed by longer term cardiovascular harms. Anna Floegel from the German Institute of Human Nutrition and Tobias Pischon from the Max Delbrück Center for Molecular Medicine in Germany, say that the discrepancy between conclusions from different types of studies in this field “need to be resolved before low carbohydrate-high protein diets can be safely recommended to patients.”

In the meantime, they suggest that any benefits gained from these diets in the short-term "seem irrelevant in the face of increasing evidence of higher morbidity and mortality from cardiovascular diseases in the long term."

References:


High Blood Sugar, Obesity Increase Risk for Surgical Site Infection

Two recent studies in the Journal of Bone and Joint Surgery (JBJS) looked at surgical site infections and hyperglycemia, the technical term for high blood glucose, or high blood sugar (1,2). According to the first study “Relationship of Hyperglycemia and Surgical-Site Infection in Orthopaedic Surgery,” high blood sugar is a concern during the post-traumatic and post-operative period and it may help to preoperatively identify a population of patients with musculoskeletal injuries who are at significant risk for infectious complications (1).

Nearly, one-third of patients who are admitted to the hospital without a history of diabetes have hyperglycemia, which is associated with a longer hospital stay, higher rates of admission to the intensive care unit (ICU), and increased mortality.

Study authors reviewed data on patients 18 years or older who had isolated orthopaedic injuries requiring acute operative intervention. Patients diagnosed with diabetes or who were in the ICU were not included in the study.

Of 790 patients, there were 268 open fractures (if the bone breaks in such a way that bone fragments stick out through the skin, or a wound penetrates down to the broken bone), and 21 surgical-site infections (SSIs) at 30-day follow-up. Age, race, comorbidities, injury resistance, which the authors say needs further investigation.

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References:


severity, and blood transfusion were not associated with SSI at 30 days.

Specific study details: SSIs developed in 13 of 294 patients (4.4 percent) who had more than one glucose value greater than or equal to 200 mg/dL and 8 of 496 patients (1.6 percent) without more than one glucose value greater than or equal to 200 mg/dL. The authors concluded that hyperglycemia was an independent risk factor for thirty-day SSI in orthopaedic trauma patients without a history of diabetes.

This study suggests that recognition of the relationship between hyperglycemia and infectious complications may substantially influence postoperative care of orthopaedic patients. Large, prospective, randomized studies are necessary to further delineate this relationship.

A second study featured in the July 18 issue of JBJS, found that diabetes and morbid obesity increased the risk of infection following hip and knee replacement (2). Authors of “Obesity, Diabetes, and Preoperative Hyperglycemia as Predictors of Periprosthetic Joint Infection” analyzed 7,181 hip and knee replacements and found that 52 post-operative joint infections occurred within the first year, and that the infection rate increased from a .37 percent in patients with a normal body index to 4.66 percent in the morbidly obese group. Normal BMI was defined as a body mass index (BMI) of less than 25, while morbid obesity was defined as more than 40. (BMI is a calculation that is determined using height and weight).

Diabetes more than doubled the risk of a postoperative joint infection independent of obesity. The infection rate was the highest in morbidly obese, diabetic patients.

For patients without a diagnosis of diabetes at the time of surgery, there was a trend toward a higher infection rate in association with a pre-operative glucose level of more than 124 mg/dL.

The authors suggest that identifying and/or treating hyperglycemic patients preoperatively, especially if they are obese, would help patients achieve a better outcome by avoiding complications caused by infection. In addition, identifying patients with undiagnosed diabetes would be important for their overall long-term prognosis. Authors further conclude that the benefits of joint replacement should be carefully weighed against the incidence of postoperative infection, especially among the morbidly obese patients.

References:

Researchers Identify Evidence-Based Public Health Interventions for Policy Makers

Government policies that make healthy foods more affordable, improved sidewalk, street and land-use design to encourage physical activity, and bans on public, workplace or residence smoking are among 43 effective public health strategies identified in an American Heart Association statement (1).

The statement is published in Circulation, an American Heart Association journal, and is based on researchers reviewing and grading more than 1,000 international studies of diet, physical activity and anti-tobacco public health interventions.

“Policy makers should now gather together and say, ‘These are the things that work — let’s implement many right away, and the rest as soon as possible,’” said Dariush Mozaffarian, M.D., Dr.P.H., chair of the statement writing group. “We have compiled an evidence-based menu of effective interventions for policy makers, stakeholders and the public based on the results of numerous scientific studies.”

Examples of successful interventions include:

- School and workplace interventions, such as school garden programs, increased availability and types of playground spaces and equipment, structured physical activity breaks during class or work hours and comprehensive wellness programs.
- Economic incentives to make healthy foods more affordable, strategies to discourage consumption of less healthy foods, higher tobacco taxes to reduce use and funding for prevention programs.
- Direct mandates and restrictions that limit certain nutrients in foods (e.g., salt, trans fat), restrictions on advertising and marketing of foods/drinks to children and restrictions on public, workplace or residential smoking.
- Local environmental changes, such as better access to supermarkets near homes, walking-friendly neighborhoods, better integration of residential, school, business, and public areas and greater access to recreational sites.
- Media and education campaigns with sustained and focused messages to increase eating specific healthy foods or to reduce smoking.

In addition to identifying the 43 evidence-based interventions in these six categories, the researchers also identified several that were either ineffective or needed more study.

For example, there isn’t enough research to conclude whether nutritional labeling or icons on food packages and menus — widely used or being considered in countries such as the United States, United Kingdom, Mexico and India — encourages healthier eating. Also, there was not strong evidence that local accessibility to fast food restaurants or small convenience stores negatively affected dietary habits or weight.

“As a society, we must implement evidence-based, cost-effective public health interventions without delay — we now know they work. New initiatives and partnerships are needed to translate this knowledge into

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action,” said Mozaffarian, who is also co-director of the Program in Cardiovascular Epidemiology and associate professor of Medicine and Epidemiology at Brigham and Women’s Hospital, Harvard Medical School and the Harvard School of Public Health in Boston, Mass.

Less than one percent of Americans meet the American Heart Association criteria for ideal cardiovascular health, and poor diet, sedentary lifestyles and tobacco use are the leading causes of preventable disease.

Reference:


Research Studies Links Between Nutrients, Genes, Cancer Spread

More than 40 plant-based compounds can turn on genes that slow the spread of cancer, according to a first-of-its-kind study by a Washington State University (WSU) researcher (1).

Gary Meadows, WSU professor and associate dean for graduate education and scholarship in the College of Pharmacy, says he is encouraged by his findings because the spread of cancer is most often what makes the disease fatal. Moreover, says Meadows, diet, nutrients and plant-based chemicals appear to be opening many avenues of attack.

“We’re always looking for a magic bullet,” he says. “Well, there are lots of magic bullets out there in what we eat and associated with our lifestyle. We just need to take advantage of those. And they can work together.”

Meadows started the study, recently published online in the journal Cancer and Metastasis Reviews, with some simple logic: Most research focuses on the prevention of cancer or the treatment of the original

Lycopene, which is found in tomatoes and other red and pink fruits and vegetables, is one of the compounds identified as affecting gene activity.

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Genes (Continued from page 14)

cancer tumor, but it’s usually the cancer’s spread to nearby organs that kills you. So rather than attack the tumor, said Meadows, let’s control its spread, or metastasis.

He focused in particular on genes that suppress metastasis. As search engine terms go, it took him down many a wormhole in the PubMed research database, as the concept of nutrients and metastasis suppressor genes is rarely identified by journals. It’s even an afterthought of some of the researchers who find the genes.

"People for the most part did not set out in their research goals to study metastasis suppressor genes," says Meadows. "It was just a gene that was among many other genes that they had looked at in their study."

But Meadows took the studies and looked to see when metastasis suppressor genes were on or off, even if original authors didn’t make the connection. In the end, he documented dozens of substances affecting the metastasis suppressor genes of numerous cancers.

He saw substances like amino acids, vitamin D, ethanol, ginseng extract, the tomato carotenoid lycopene, the turmeric component curcumin, pomegranate juice, fish oil and others affecting gene expression in breast, colorectal, prostate, skin, lung and other cancers.

Typically, the substances acted epigenetically, which is to say they turned metastasis suppressor genes on or off.

"So these epigenetic mechanisms are influenced by what you eat," he says. "That may also be related to how the metastasis suppressor genes are being regulated. That’s a very new area of research that has largely not been very well explored in terms of diet and nutrition."

Meadows says his study reinforces two concepts.

For one, he has a greater appreciation of the role of natural compounds in helping our bodies slow or stop the spread of cancer. The number of studies connecting nutrients and metastasis suppressor genes by accident suggests a need for more deliberate research into the genes.

"And many of these effects have not been followed up on," he says. "There’s likely to be more compounds out there, more constituents, that people haven’t even evaluated yet."

Meadows also sees these studies playing an important role in the shift from preventing cancer to living with it and keeping it from spreading.

"We’ve kind of focused on the cancer for a long time," he says. "More recently we’ve started to focus on the cancer in its environment. And the environment, your whole body as an environment, is really important in whether or not that cancer will spread."

Reference:

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