Hormones play a big role in hunger control. Resistance to hormones that help us to feel full can develop and cause people who struggle with weight to actually experience more hunger physiologically. One hormone, leptin, is produced by our fat cells and works to decrease appetite. The effects of leptin get blocked when belly fat produces large amounts of inflammatory chemicals. This inflammation also causes insulin resistance, a common occurrence with obesity.

Ghrelin is a powerful hormone that stimulates hunger. It signals the brain, informing it that it’s time to eat. It works in a cyclic manner, increasing before meals and decreasing after meals. Studies have shown that ghrelin levels are lower, not higher, in the obese but the obese are more sensitive to the appetite-stimulating effects of ghrelin.

Dopamine, also known as “the reward hormone”, activates reward and pleasure centers in the brain. This can have an effect on both mood and food intake. Studies have shown an increase in dopamine levels with both high-fat foods and sugar intake. Consumption of these types of foods can lead to overeating and weight gain over time. More recent studies show an increase in dopamine levels with high-protein intake. Protein is made up of amino acids, some of which are the building blocks of dopamine. A breakfast containing 35 grams of high-quality protein vs a normal protein breakfast of about 13 grams, worked best at not only increasing dopamine levels, but also decreasing post-meal cravings in obese, late-adolescent girls.

Genes also play a role in how dopamine and other hormones work in the body. The DRD2 dopamine receptor gene is responsible for the production of dopamine D2 receptors. There can be a variation of this receptor gene which can cause 30-40% fewer dopamine receptors in the brain. This can contribute to food, alcohol, or even drug addiction. The DRD2 variant is carried by approximately one-third of the US population and it is prevalent in obese individuals. The variant dulls the brain’s response to food and can cause a person to overeat. The DRD2 gene variant also increases the number of fat cells in the body and it can contribute to carbohydrate bingeing. There are over 600 other genes, including serotonin and GABA (gamma-aminobutyric acid) that impact dopamine release.
The FTO (fat-mass and obesity-associated) gene can increase fat cell production and affect appetite. Those found to have at least one variant to this gene had significantly increased levels of ghrelin, the hormone that promotes hunger, and decreased levels of leptin, the hormone that causes a sense of fullness.

Just because someone carries one of the genetic variants, doesn’t mean they are destined to a life of obesity. Environmental effects on DNA, such as home life and family support, can overcome genetic traits. For instance, if someone exercises regularly, it can turn off the expression of the FTO gene, which results in less fat cells.

Bariatric surgery can affect some hormones in a positive way. Two of them, PYY (peptide YY) and GLP-1 (glucagon like peptide 1), usually increase after gastric bypass, and ghrelin levels decrease, leading to less hunger. A negative aspect to gastric bypass surgery however, can be a drop in dopamine D2 receptor availability. Some individuals carry this gene and may actually be addicted to sugar/overeating because of the dopamine release. The person’s food addiction may go away with surgery, but it may be replaced with something else like alcohol, gambling, or drugs in order to cause the release of dopamine. This is called reward-deficiency syndrome. There is a test for this syndrome that may be available in the future so people will know if they are at risk for the syndrome before going in for bariatric surgery. There are also several drugs being researched to simulate the feel-

full hormone, to promote fullness and to block dopamine. Some of these drugs have side effects or aren’t able to be absorbed properly, so more research is needed.

There are ways to manage appetite hormones that affect hunger:

- Eat on a schedule
- Eat a high-protein breakfast (20-25 grams)
- Consume omega-3 fats (flax or chia seeds, salmon, sardines, and nuts)
- Eat ghrelin-suppressing foods at each meal (high-quality lean animal products and unrefined carbs)
- Plan low-calorie meals,
- Seek pleasure from other activities
- Get adequate sleep (7-9 hours/day)
- Exercise regularly
- Obtain mental health support

(A summary of an article by Marsha McCulloch MS, RD, LD)
**Surgical Weight Loss Support Groups**

We encourage regular attendance to these groups. Attending groups is one way to re-affirm the importance of your commitment to surgery. Studies show those who attend groups, weigh themselves regularly, and record dietary intake are more likely to manage their weight. *Send your e-mail to Lynn Bolduc if you would like to be put on an e-mail reminder list for any one of the groups - lbolduc@emhs.org.*

**Bangor: EMMC (for all patients, before and after surgery)**

<table>
<thead>
<tr>
<th>When</th>
<th>Where</th>
<th>Time</th>
<th>Leader</th>
<th>Upcoming Groups</th>
</tr>
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<tbody>
<tr>
<td>1st Friday of every month</td>
<td>Brandow Conference Room at EMMC</td>
<td>4:30-6:30PM</td>
<td>Lynn Bolduc, RD</td>
<td>Jan 1st (Cancelled due to holiday) Feb 5th , 2016 – Dr. Dayhim March 4th, 2016 – Dr. Toder April 1st, 2016 – Dr. St. Jean</td>
</tr>
<tr>
<td>3rd Tuesday of every month</td>
<td>Brandow Conference Room at EMMC</td>
<td>4:30-6:30PM</td>
<td>Tama Fitzpatrick, RD</td>
<td>Jan 19th, 2016 – Dr. Toder Feb 16th, 2016 - Dr. St. Jean March 15th, 2016 – Dr. Dayhim April 19th, 2016 – Dr. Toder</td>
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**Bangor: EMMC Healthcare Mall:**

**Staying On Track Support Group** (for patients who have had weight loss surgery):

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<th>Upcoming Groups</th>
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<tbody>
<tr>
<td>2nd Wednesday of every month</td>
<td>Diabetes, Endocrine, and Nutrition Center, Classroom 905 Union Street Suite 11</td>
<td>5:00-6:00 PM</td>
<td>Dr. Nina Boulard, Clinical Psychologist</td>
<td>Jan 13th, 2016 Feb 10th, 2016 March 9th, 2016 April 13th, 2016</td>
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*Due to the small room size and sensitivity of topics discussed, we ask that you come alone to this group. This group is now open to **ANYONE** who has had weight loss surgery. The group size is typically small.

**Staying On Track Support Group via ITV at Presque Isle –TAMC**

(for patients who have had weight loss surgery):

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<tr>
<td>1st Wednesday of every month</td>
<td>Remote at TAMC through ITV</td>
<td>4:00-5:00 PM</td>
<td>Dr. Nina Boulard, Clinical Psychologist</td>
<td>Jan 6th, 2016 Feb 3rd, 2016 March 2nd, 2016 April 6th, 2016</td>
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**Presque Isle: TAMC**

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<tr>
<td>1st Wednesday of every month</td>
<td>The Aroostook Medical Center; McCain A Conference Room</td>
<td>5:00-6:00 PM</td>
<td>Nicole Doughty, RD, Kate Parsons, RD, &amp; Angel Hebert, RD</td>
<td>Jan 6th, 2016 Feb 3rd, 2016 March 2nd, 2016 April 6th, 2016</td>
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**Waterville: Inland Hospital**

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<th>Upcoming Groups</th>
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<tr>
<td>1st Wednesday of every month</td>
<td>Inland Hospital: Medical Arts Building Conference Room</td>
<td>5:30-7:00 PM</td>
<td>Ev Jackson, RD</td>
<td>Jan 6th, 2016 Feb 3rd, 2016 March 2nd, 2016 April 6th, 2016</td>
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**Ellsworth: Maine Coast Memorial Hospital**

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<th>Upcoming Groups</th>
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<tbody>
<tr>
<td>4th Wednesday of every month</td>
<td>Maine Coast Memorial Hospital: Medical Office Building Board Room</td>
<td>4:00-5:00 PM</td>
<td>Amy Henderson, RD Kaileigh Duym, RD</td>
<td>Jan 27th, 2016 Feb 24th, 2016 March 23rd, 2016 April 27th, 2016</td>
</tr>
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Support Group Updates

We are happy to announce that we are starting a new surgical weight loss support group in Ellsworth at Maine Coast Memorial Hospital, a member of Eastern Maine Healthcare Systems. The group will occur on the:

- 4th Wednesday of every month beginning January 2016
- 4-5 pm
- Location: 50 Union Street, Medical Office Building, Maine Coast Memorial Hospital
- Room: Boardroom
- Facilitators: Amy Henderson, RD and Kaileigh Duym, RD (both have led bariatric support groups before, Amy at Mount Desert and Kaileigh at EMMC)
- No registration required for this free support group

If you are interested and want to get specific email updates, please send an email to Lynn Bolduc at Lbolduc@emhs.org with subject line “Ellsworth support.”

Quarterly Newsletter

If you want to receive this newsletter electronically, please register by going to: swl.emmc.org; click on “Support after Surgery” then find “Surgical Weight Loss Newsletter.” Hard copies of the newsletter are distributed at the support groups and dietitian visits. The Skinny is published four times per year. You can also e-mail Lynn directly at Lbolduc@emhs.org and she will add you. Once on the mailing list, you will receive monthly electronic e-mail reminders about the group.

Online Info Session

The EMMC Surgical Weight Loss Comprehensive Informational Session is now available online! Those wanting to learn more about how to get the Surgical Weight Loss process started now have the option to do so from the comfort of home. This option can take the place of the live in person class taught monthly at EMMC in Bangor. The 75 minute video is broken up into 10 chapters, so it does not have to be watched all at once. If you or someone that you know is interested, please visit emmc.org/swlclass. Once you have finished watching the online class, fill out the form located below the video links or call 973-6383 if you are interested in continuing on in the program.
My Story of Weight Loss Struggles and Success

I celebrated my 5 year post-op anniversary on Sunday! Despite bumps in the road, I am doing well. I lost around 107 lbs to start and have had some gain. I keep reminding myself how awesome I felt the first time I bought clothing in size medium. Yes, I got down to small/extra small, but medium is good. I’ll take it! The past year or so has been incredibly stressful and I am trying to get myself back on track. I am blessed with some amazingly strong and fit friends who help motivate me when I’m just “too tired.”

Weight loss surgery has not been a cure for me, but it continues to be a tool that helps me remember what’s important. This tool has provided me with the means to do things I would never have contemplated in the past. One very fun example is that I am learning how to horseback ride! I even have my own horse! (Kelli)
Sugary Drinks Linked to Heart Attacks, Stroke, and Diabetes, Review Finds

The added sugar in sodas, fruit drinks, sweet teas and energy drinks affects the body in ways that increase the risk of heart attack, heart disease and stroke, according to a new study in the *Journal of the American College of Cardiology*. Consuming one or two servings a day of sugar-sweetened beverages has been linked to a 35% greater risk of heart attack or fatal heart disease, a 16% increased risk of stroke and as much as a 26% increased risk of developing diabetes, the report concluded.

Weight Loss Surgery May Prevent Cancer in At-risk Obese Women

A study on women with obesity most at risk for cancer showed bariatric surgery eliminated precancerous uterine growths, among other positive effects it had on the women's health. The surgery also reduced weight by a third, improved insulin levels and ability to use glucose, altered gut bacteria and improved overall quality of life, University of Virginia Cancer Center researchers reported in the journal *Gynecological Oncology*. "If you look at cancers in women, about a fifth of all cancer deaths would be prevented if we had women at normal body weight in the U.S.,” said Dr. Susan Modesitt, MD, UV Cancer Center. "When you're looking at obesity-related cancers, the biggest one is endometrial cancer, but also colon cancer, breast cancer, renal cancer and gall bladder cancer. We think about 40 to 50 percent of all endometrial cancer, which is in the lining of the uterus, is caused by obesity.” Researchers observed dramatic results for the 68 women who ultimately underwent the surgery and were followed for between one and three years afterward. The largest effect was an average weight loss among the women of 100 pounds. About 10% of study participants who had not had a hysterectomy showed precancerous changes in the lining of the uterus, all of which were resolved following surgery.
Surgical Weight Loss manager Lynn Bolduc and patients ran and walked the Brewer High School 34th annual three mile Turkey Trot on Sunday, November 22 in Brewer, Maine. Much fun was had and many calories burned and goals accomplished. We hope you will consider participating for 2016. If you wish to be added to the email list to receive information on the next event please email Lynn at Lbolduc@emhs.org.

Ask the Pharmacist

If you have questions for our pharmacist please send them to Lynn Bolduc and she will share them with Kimberly Dickson, RPh and Artem Dmitriyev, RPh. You may very likely see your question in one of our upcoming newsletters.
Winter Recipe

Trying to find new ways to use up leftover pumpkin from the Holidays? Have you heard over and over that breakfast is one of the most important meals of the day? Try these pumpkin protein pancakes for breakfast! Or if you can’t look at another pumpkin recipe you could always substitute 1 additional banana or 1 cup of leftover mashed sweet potato.

Oven Baked Pumpkin Protein Pancakes

Ingredients:

2 ripe bananas
1 cup pumpkin puree (not pumpkin pie filling)
1 Tbsp pumpkin pie spice
1 Tbsp vanilla extract
4 eggs
2 cups liquid egg whites

Directions:

1. Preheat oven to 375° F.

2. Mix together bananas, pumpkin, pumpkin pie spice, and vanilla extract well. (I use an electric hand mixer to get the job done.)

3. Whisk together with eggs and egg whites. (I mix mostly by hand then give it one final swirl with the electric mixer.)

4. Spray two 8 X 8-in pans (or one 9 X 13-in pan should suffice) with cooking oil.

5. Using a measuring cup or scoop of some sort, divide mixture evenly among pans. If you're using two pans, it's important to go back and forth between each one. (The pumpkin/banana may hang out at the bottom so you don't want all eggs in one pan and pumpkin in the other. To avoid dividing mixture, use one large pan.)

6. Bake at 375° F until pancakes are fully set, about 30 minutes.

7. To crisp up the top like a traditional pancake, broil on low for 4 to 6 minutes.

8. Let stand 10 minutes before serving.

Makes 4 servings.

*Recipe borrowed from Today’s Dietitian.

Nutrition Information Per Serving:
Calories-195; Protein-20g; Carbs-19g; Total Fat-5g; Sat. Fat-1.5g; Fiber- 4g; Sodium-269
Need another reason to blame weight gain on your marriage? When one spouse becomes obese, the other’s risk of obesity almost doubles, a U.S. study suggests

“Normal weight people whose spouses went from being normal weight to obese were more likely to become obese,” said Laura Cobb, who led the study as a researcher at Johns Hopkins University in Baltimore.

“This suggests that changes in one spouse are likely to also be reflected in the other spouse, likely because of similar changes in diet, physical activity or other behaviors that impact obesity,” Cobb said by email.

Plenty of research already links marriage and weight gain, and scientists have firmly established the connection between obesity and heart disease, diabetes, and certain cancers.

What the current study adds is a fresh take on how couples may gain weight in tandem, insight that might help shape more effective obesity prevention and treatment efforts targeting couples, Cobb and colleagues note in the American Journal of Epidemiology.

Researchers followed almost 4,000 couples for up to 25 years, starting between 1987 and 1989. After an initial exam, they had three follow-up visits roughly three years apart, followed by a fifth exam between 2011 and 2013.

At the start of the study, 23 percent of the men and 25 percent of the women were obese.

Non-obese men whose wives became obese between visits in the study were 78 percent more likely to become obese during that period than they would have been had their wives not gained so much weight, the study found.

Having a husband become obese was linked to an 89 percent increased risk of developing obesity for their wives.

Not many people who started out obese lost enough weight to be considered no longer obese, but when they did, their spouse was also more likely to become non-obese.

Shortcomings of the study include the long stretch of time that elapsed between the fourth and fifth exams and the large proportion of people who died or left the study before the final visit, the authors acknowledge.

It’s not unusual for married couples to forge common habits over time that influence their weight, said Ivanka Prichard, a weight loss researcher at Flinders University in Adelaide, Australia.

“Over time, similarities in diet, particularly any unhealthy aspects, may lead to weight changes,” Prichard, who wasn’t involved in the study, said by email. “There are also a range of pressures in life that could impact this such as having children, work, shared health knowledge, time or finances.”

Like unhealthy habits, though, positive lifestyle choices can also be contagious in a marriage, said Debra Umberson, director of the Population Research Center at the University of Texas at Austin.

“When married people get in shape or lose weight, it’s often because one spouse takes the lead and urges the other spouse along,” Umberson, who wasn’t involved in the study, said by email. “Even if the person not taking the lead is resistant, over time they will probably be influenced by the kinds of food and activities their spouse is involved with – especially if the person taking the lead is the one who purchases groceries or prepares meals.” (This is a summary of an article from Newsday.)