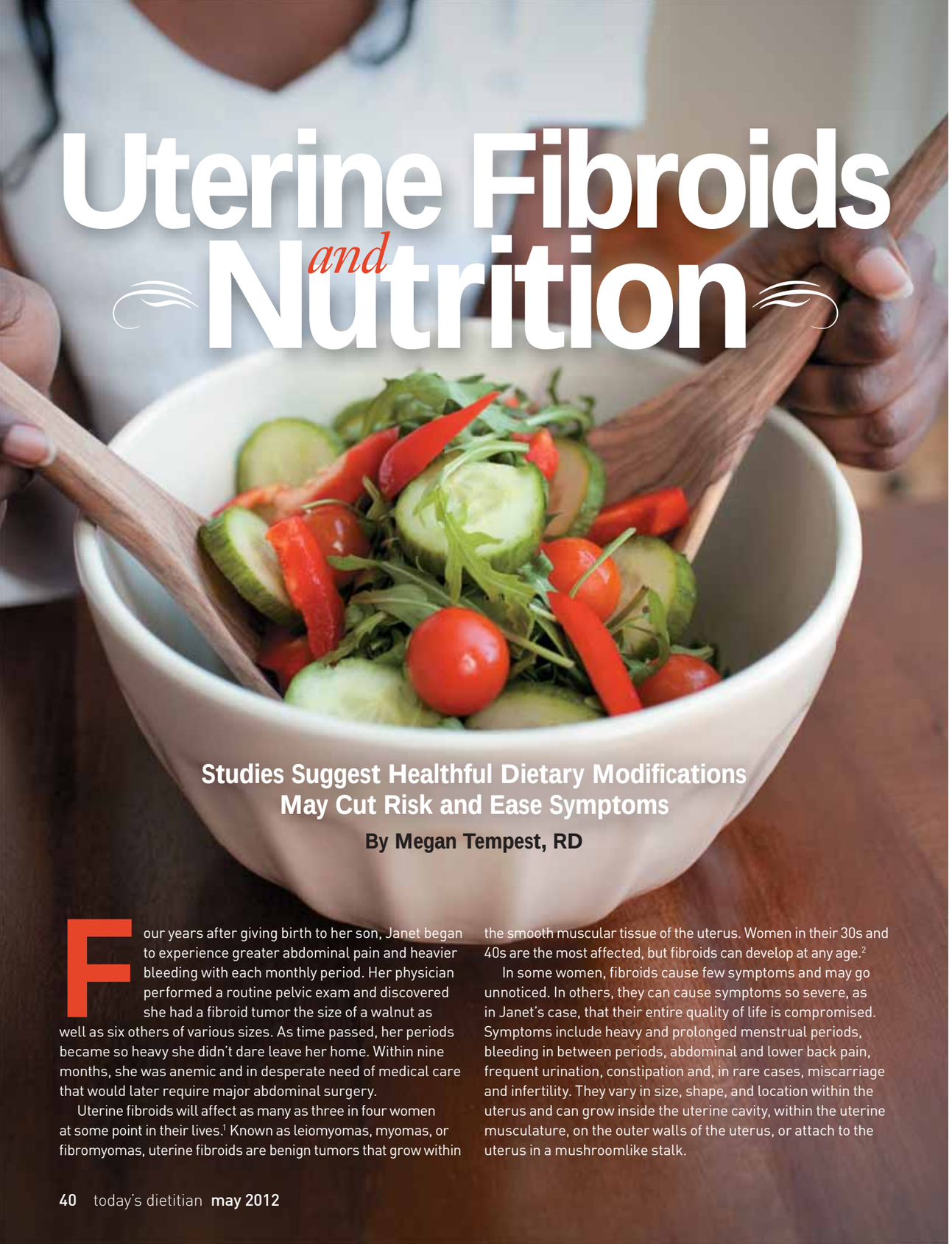

Uterine Fibroids *and* Nutrition

Studies Suggest Healthful Dietary Modifications May Cut Risk and Ease Symptoms

By Megan Tempest, RD

Four years after giving birth to her son, Janet began to experience greater abdominal pain and heavier bleeding with each monthly period. Her physician performed a routine pelvic exam and discovered she had a fibroid tumor the size of a walnut as well as six others of various sizes. As time passed, her periods became so heavy she didn't dare leave her home. Within nine months, she was anemic and in desperate need of medical care that would later require major abdominal surgery.

Uterine fibroids will affect as many as three in four women at some point in their lives.[1] Known as leiomyomas, myomas, or fibromyomas, uterine fibroids are benign tumors that grow within the smooth muscular tissue of the uterus. Women in their 30s and 40s are the most affected, but fibroids can develop at any age.[2]

In some women, fibroids cause few symptoms and may go unnoticed. In others, they can cause symptoms so severe, as in Janet's case, that their entire quality of life is compromised. Symptoms include heavy and prolonged menstrual periods, bleeding in between periods, abdominal and lower back pain, frequent urination, constipation and, in rare cases, miscarriage and infertility. They vary in size, shape, and location within the uterus and can grow inside the uterine cavity, within the uterine musculature, on the outer walls of the uterus, or attach to the uterus in a mushroomlike stalk.

Some fibroids are as small as a walnut and cause minimal to no symptoms. Others can grow large and multiply in number, causing a woman's abdomen to become enlarged or distorted. A particularly large fibroid can cause the uterus to expand to the size of a six- or seven-month pregnancy.[3]

A routine pelvic exam initially can detect the presence of fibroids, and they can be confirmed by diagnostic testing procedures such as ultrasonography or MRI.[3]

According to Krystene DiPaola, MD, a reproductive endocrinologist and infertility specialist at the University of Cincinnati Academic Health Center, "Fibroids are something OB/GYNs take very seriously, as does the American College of Obstetricians and Gynecologists. There's also a large push at the National Institutes of Health to do a lot of research on fibroids because they cause so much suffering in a multitude of ways across multiple ethnicities."

Common Treatments

For women with asymptomatic fibroids, the treatment approach may involve watchful waiting. During annual gynecological pelvic exams, physicians can determine if they're increasing in size. For women with small or asymptomatic tumors or who are approaching menopause (when fibroids tend to shrink), no treatment is necessary.[2] However, for women suffering from debilitating symptoms, more aggressive pharmaceutical and surgical treatment options may be considered.

Medications

Primary attempts to treat symptomatic fibroids may involve hormone-based treatments, such as hormonal contraceptives, gonadatropin-releasing hormone antagonists, and an intrauterine device. These drugs can slow fibroid growth and alleviate heavy bleeding and pelvic pain. The downside is that symptoms likely will return after these hormonal treatments end.[3]

Surgery

Hysterectomy is the surgical removal of the uterus and may or may not include removal of the ovaries. It's the only definitive cure for fibroids, but this procedure generally is considered when other less invasive treatment approaches haven't worked or if the woman's fibroids are very large and causing debilitating symptoms.[2]

Hysterectomy is considered the gold standard of treatment, according to DiPaola, but other surgical techniques such as a myomectomy are available to women who want to preserve their fertility.

Myomectomy involves the surgical removal of only the uterine fibroids. Unlike a hysterectomy, a myomectomy preserves the healthy surrounding uterine tissue and the uterus itself. "The goal of myomectomy is to remove as many identifiable fibroids as possible and preserve the ability to conceive," DiPaola explains.

A cutting-edge version of this surgery is the robotic myomectomy, which is performed laparoscopically (thereby avoiding an abdominal incision) and accomplishes better closure of the uterine musculature.

Nonsurgical Treatments

Hysteroscopy is a treatment option for women with fibroids that extend within the uterine cavity. During this procedure, a physician inserts an instrument called a hysteroscope through the vagina into the uterus. Another tool called a resectoscope is inserted through the hysteroscope to destroy the fibroids with electricity or a laser.

Endometrial ablation is a nonsurgical procedure that destroys the lining of the uterus. Typically, it's employed to treat small fibroids.[2]

Uterine artery embolization involves injecting small particles into the blood vessels leading to the uterus, with the goal of cutting off blood flow to the fibroids and causing them to shrink.[2]

MRI-guided ultrasound surgery is a relatively new treatment that uses ultrasound waves to destroy the fibroids. The ultrasound waves are directed at the fibroids through the skin with the assistance of MRI.[2]

What Causes Fibroids?

Despite years of research and the fact that uterine fibroids are among the most common gynecologic conditions in the United States, researchers don't know precisely what causes them.[4]

Studies have suggested that genetic alterations in the uterine muscle cells may cause fibroids to develop.[1] Fibroids have been shown to contain more receptors for estrogen and progesterone (the hormones involved in preparing the uterine lining for pregnancy at each menstrual cycle) than normal uterine muscle cells, making them more likely to grow.[5]

Another theory is that chemicals in the body, such as insulinlike growth factor, which help the body maintain normal tissues, may stimulate fibroid development.[1]

Risk Factors

Although the cause is unknown, research shows there are several key risk factors for developing uterine fibroids.

- **Age:** Because fibroids are estrogen-dependent tumors, they're most common in premenopausal women in their 30s and 40s. After menopause, when estrogen levels naturally decrease, fibroids generally shrink or disappear.[6]
- **Heredity:** If a woman's mother or sister has fibroids, she's at increased risk of developing them herself. In fact, a woman whose mother has fibroids has three times the risk of developing them.[6]
- **Race:** Black women are more likely to have fibroids than white women. In addition, black women tend to develop fibroids at a younger age, have more or larger tumors, and develop symptoms faster and with more severity than women in other ethnic groups. Studies have suggested that eight in 10 black women will develop fibroids at some point in their lives.[3]

• **Obesity:** Obese women are considered to have two to three times the risk of developing fibroids than women of average weight.[6]

Does Diet Affect Fibroid Development?

Research has suggested a relationship may exist between diet and the growth of uterine fibroids. More than a decade ago, a study by Chiaffarino and colleagues published in ***Obstetrics & Gynecology*** reported that uterine fibroids were associated with the consumption of ham and beef. The study indicated that a high intake of green vegetables has a protective effect against fibroids.[7]

"In the last 15 years, interest has grown concerning the possible influence of diet on the growth of these tumors," says Bala Bhagavath, MD, an endocrinologist at the Center for Reproduction & Infertility at Women & Infants Hospital in Rhode Island. "Italian women with fibroids have been observed to consume more red meat and ham, and alcohol consumption has been linked to increased likelihood of fibroids in Japanese women."

Bhagavath emphasizes, however, that all the studies published to date are observational and therefore inherently limited. "No interventional study using diet modification has been published to date. It's not known if modification of diet in women with established uterine fibroids will result in resolution of these tumors. Even if they do, the length of time this dietary modification has to be maintained has to be established. It's possible that dietary modification may decrease the incidence of fibroids in women at high risk for developing them. However, even this question of prevention remains unanswered at this time."

Several research studies published in recent years have shown additional evidence that dietary factors may indeed influence the growth of fibroids, providing further rationale for continued research in this compelling area.

Dairy

With the knowledge that fibroid rates are two to three times higher in black women than white women, coupled with evidence that blacks consume fewer servings of dairy foods (and thus have lower mean intakes of calcium, magnesium, and phosphorus) than whites,[8] Wise and colleagues investigated the disparity in dairy intake among these two populations as a potential factor in fibroid growth.[9]

In the study, published in the January 2010 issue of the ***American Journal of Epidemiology***, researchers followed more than 22,000 premenopausal black women from the US Black Women's Health Study over a 10-year period. Self-administered questionnaires on dietary intake were used to assess whether intake of dairy foods such as low-fat and whole milk, cheese, yogurt, and ice cream—and some dairy components such as calcium, vitamin D, and butyric acid—may reduce risk of uterine fibroids. The findings indicated a lower risk of uterine fibroids associated with higher dairy consumption. The perceived protective effect of dairy, according to the researchers, may lie in the ability of calcium to reduce fat-induced cell proliferation and in butyric acid (present in milk fat), which is considered a potent antitumorigenic agent that may inhibit cell proliferation and angiogenesis.[9]

Glycemic Index

Eating foods with a high dietary glycemic index (GI), a measurement of the effects of carbohydrates on blood glucose levels, or high glycemic load (GL), a ranking of carbohydrate content of various foods based on their GI, is thought to potentially promote tumor growth by increasing endogenous concentrations of insulinlike growth factor 1 (IGF-1). Examples of high GI and GL foods include instant white rice, white bread, rice cakes, French fries, donuts, and scones.

In vitro studies have shown that uterine fibroid cells proliferate in the presence of IGF-1. Other studies have found a positive association between high GL and other hormone-responsive tumors, such as ovarian and endometrial cancer.

From this standpoint, Radin and colleagues theorized in a study published in the May 2010 issue of the ***American Journal of Clinical Nutrition*** that a high GI and GL diet may encourage uterine fibroid growth. Based on a prospective analysis of diet questionnaires (collected from the same cohort in the aforementioned study on dairy intake and uterine fibroid risk), they concluded that high dietary GI (but not GL) may be associated with increased uterine fibroid risk overall, and high GL was associated with increased risk in women younger than 35.[10]

Soy

The scientific evidence behind soy's role in promoting or inhibiting the growth of estrogen-dependent tumors is scattered and conflicted. Soybeans are a rich source of phytoestrogens, specifically isoflavones, that may have an "antiestrogen" effect in the body by competing with estrogen for receptor binding, thereby possibly decreasing the availability of estrogen or altering estrogen biosynthesis.[11]

In the January issue of ***Experimental and Molecular Medicine***, Di and colleagues reported that high serum concentrations of genistein (an isoflavone abundant in soybeans) downregulate several signaling pathway genes involved in uterine fibroid growth, suggesting that high doses of this isoflavone have an inhibitory effect on uterine fibroids and therefore a potential to be used as a therapeutic agent in their treatment.[12]

Conversely, in the May 2009 issue of the ***British Journal of Nutrition***, Nagata and colleagues said they observed no statistically significant association between soy isoflavones and uterine fibroids in 285 premenopausal Japanese women.[13] Likewise, the aforementioned study on dairy intake and fibroid risk by Radin and colleagues found no relationship between soy intake and uterine fibroid risk among their cohort from the Black Women's Health Study.[10]

Additional Studies

In the January 2011 issue of ***Fertility and Sterility***, Sharan and colleagues reported that vitamin D inhibits the growth of cells involved in uterine fibroid growth, suggesting that low serum vitamin D levels may be a risk factor for their development.[14]

In the December 2011 issue of the ***American Journal of Clinical Nutrition***, Wise and colleagues investigated the relationship between dietary intake of fruits, vegetables, and carotenoids, and fibroid risk. Again, based on diet questionnaires collected from a cohort from the Black Women's Health Study, they observed a reduced risk of uterine fibroids among women with greater intake of fruit and retinol, preformed vitamin A from animal sources such as whole milk and eggs.[15]

The RD's Role in Fibroid Treatment

While dietary interventions aren't likely to cure uterine fibroids, it's reasonable to assume they may enhance traditional medical treatments. DiPaola says she considers the existing research promising that particular food groups, or a lack of certain food groups, may influence fibroid growth. "I think we're still at the beginning stages of learning whether or not diet strongly influences fibroid growth and development or if dietary changes could affect the presentation or sequela of fibroid growth," she says. "It will be some time before we can tell if certain food groups worsen or [inhibit] fibroid growth."

Margaret Wertheim, MS, RD, LDN, a dietitian at Pulling Down the Moon, an integrative care center for fertility in Chicago, believes good nutrition can only help women who suffer from this condition. Having witnessed the impact of fibroids on fertility in many of her patients, she often recommends diet modification aimed at reducing the intake of xenoestrogens, or environmental chemicals that possess estrogenic activity that may fuel fibroid growth, such as bisphenol A in water bottles and canned foods, as well as reducing the intake of growth hormones present in foods such as conventionally raised, nonorganic beef.

In addition, given the evidence that vitamin D may inhibit fibroid growth, Wertheim routinely recommends women get their serum vitamin D levels tested and supplement (with medical supervision) as needed to correct deficiency. Wertheim also recommends women with fibroids increase their intake of cruciferous vegetables such as cabbage, broccoli, and kale. "This group of vegetables, in particular, contains indole-3-carbinol, which research has suggested may prevent estrogen-driven tumors due to its effect on estrogen metabolism."

Wertheim advises women to avoid caffeine and alcohol because these chemicals put stress on the liver, making it work less effectively at metabolizing estrogen in the body. "With fibroids, you want to support the health of the liver by getting rid of alcohol and caffeine so it may optimally metabolize circulating estrogen."

Wertheim acknowledges the lack of strong evidence behind the relationship between diet and fibroids; however, she believes that the absence of research doesn't mean that diet modifications aren't worth adopting to help women manage this condition. "Most of the time, dietary recommendations will improve a woman's health overall, with the side benefit of possibly helping to better manage her fibroids," she says.

Specific food groups and nutrients aside, dietitians can help women manage fibroids by encouraging weight loss, DiPaola says. "We do know that fibroids respond to estrogen, and that estrogen isn't produced only in the ovaries but also in peripheral fat in the form of estrone," she explains. "The estrone can, in higher doses such as in overweight women, affect fibroid growth and cause them to be more symptomatic."

DiPaola believes any nutritional modification that may lower peripheral fat stores, and therefore reduce estrogen production from those fat stores, only helps women with symptomatic fibroids. "In terms of my personal opinion," DiPaola says, "the dietary component towards the treatment of fibroids can do nothing but help and may augment the traditional therapies to treat this condition."

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