

WHAT THIS NEWSLETTER IS ABOUT

Happy New Year to all. May it be a happy and healthy one for you and your loved ones. The Black Women's Health Study is about to enter its 22nd year and we have some interesting things to share with you.

There is increasing interest in the health effects of being sedentary (sitting many hours a day) on our health. On page 3, we describe findings from the BWHS that suggest that too much sitting may increase the risks of diabetes and breast cancer.

From time to time, BWHS participants share important events in their lives with us. We are thrilled that a BWHS participant visited the BWHS offices at Boston University when she came to Boston with her husband. He was being honored by Boston University for his lifetime of work to advance social justice and racial equality. He marched with Dr. Martin Luther King, Jr.! Read about this on pages 4 and 5.


On pages 6-7, we describe a new area of BWHS research involving microbes. Microbes are microscopic organisms (for example, bacteria) that live in our bodies as well as existing in many other places. Did you know that there are trillions of microbes in our bodies? Increasing evidence indicates that these microbes can have helpful and harmful effects on human health. The BWHS is at the forefront of microbe research with two new studies.

Index US Just Released by Black Women's Health Initiative

As we mentioned in last year's Winter newsletter, the BWHS has been working with the Black Women's Health Imperative, a national organization that advocates for policies to improve health in Black women and girls and trains leaders in this effort. Our goal was to identify factors related to self-reports of "excellent" health in the BWHS. The Imperative has published a report - *Index US: What Healthy Black Women Can Teach Us About Health* - which refers to findings from these BWHS analyses. Many BWHS participants reported excellent or very good overall, mental, and social health. Brisk walking was one of the actions that we identified as a predictor of excellent or very good health. The *Index US* report is free and available for download on the Imperative's website (www.bwhi.org).

Please note that we have a new address, listed below.

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SITTING FOR MANY HOURS...

...how does it affect your health?

Sedentary activities (which are inactive tasks, like sitting still, that require very little energy) account for much of our time every day. Being sedentary has many ill effects, such as increasing insulin resistance and inflammation as well as weight gain. The BWHS first assessed the health effects of sitting in a study of diabetes in 2008 (Krishnan et al. *Am J Epidemiol*, 2008). Drs. Supriya Krishnan and Julie Palmer found that the incidence of diabetes was about 50% greater among BWHS participants who reported sitting while watching TV or videos for at least 5 hours a day relative to women who spent very little time sitting. On the other hand, vigorous exercise and brisk walking were associated with reduced risk of diabetes. The association of sitting with increased diabetes risk was present both among women who exercised and women who did not exercise. The “take home” message was that exercise reduces risk of diabetes but that spending a lot of time sitting takes away some of that good effect.



Recently, Drs. Sarah Nomura and Lucile Adams-Campbell led a study of the health effects of sitting on breast cancer incidence in the BWHS (Nomura et al. *Int J Cancer* 2016). They found that longer sitting time (the sum of hours spent sitting at work and sitting watching TV and videos) was associated with higher breast cancer incidence—the incidence was about 40% greater in women who sat for 10 or more hours a day compared with women who sat for fewer than 5 hours. The adverse effect of sitting on breast cancer risk was present among women who exercised as well as among women who did not. In a previous BWHS study, vigorous exercise was associated with reduced incidence of breast cancer. Thus, as is the case for diabetes, it seems that exercise may reduce the risk of breast cancer but that a great deal of sitting takes away some of the good effect.

Many medical experts now suggest that we should try to sit for fewer hours per day. If that is not possible, or even if it is, there is something else we can do as well—STAND UP. The suggestion is that at work or watching TV or wherever we sit for long periods, we should stand up every hour or so, walk around a bit and move our arms, and perhaps touch our toes. Some activity trackers even have settings that can remind the wearer to get up and move a bit during the most sedentary part of the day. We need to remember to move—that small effort might have a large effect on our health.

HONORING A CIVIL RIGHTS FOOT SOLDIER

BWHS investigators and staff were delighted to receive a visit in September of 2016 from BWHS participant Grace Caldwell (who is happy for us to use her name). She has been and continues to be an active participant in the BWHS, and has completed every questionnaire ever sent to her by the study. Grace is retired now after many years as a school teacher at various grade levels. Grace urged BWHS investigators to direct some attention to studying memory loss. We discussed various possibilities with her and will explore them. If you are having problems with your memory or if you have ideas about other possible research directions, please let us know. And if you are in the Boston area and would like to visit us, feel free to contact us (email: bwhs@bu.edu; telephone: 1-800-786-0814).



Rev. Gilbert Caldwell (left) marches with Dr. Martin Luther King, Jr. in protest of segregation in Boston, April 23, 1965 (AP Photo)

Grace's reason for visiting Boston was that her husband, Reverend Gilbert Caldwell, came to receive Boston University's highest honor for an alumnus—the Distinguished Alumni Award—for his contributions to equal rights. Dr. Caldwell was a "foot soldier" in the civil rights movement. He walked from Selma to Montgomery and participated in many other demonstrations against segregation and for racial justice. He shared with us the photo included above. He is on the right side and in front of Dr. Martin Luther King, Jr.; Reverend Ralph Abernathy is on the left side of Dr. King. They were marching in Boston in April of 1965 to protest racial segregation in the Boston

school system. Just as it took courage to march in the South, it also took courage to march in Boston. There was a great deal of opposition to school integration and it was sometimes violent.

In later years Dr. Caldwell broadened his demand for equality to include gay rights. In support of that effort, he produced and stars in a documentary, *From Selma to Stonewall: Are We There Yet?* The film, shown during his visit to Boston University, explores similarities and differences between the civil rights and gay rights movements and what they can accomplish together. Some critics have said that Dr. Caldwell should concentrate on the unfinished struggle for racial justice. He disagrees. Having experienced a lifetime of striving against discrimination, Dr. Caldwell believes that no one deserves to be excluded in the drive for social justice. In his acceptance speech for the Distinguished Alumni Award, he spoke about equal rights activism and said "I want to be involved in the struggle until I die." He then led the audience in a rendition of a freedom song that was often sung during civil rights marches, "Woke Up This Morning (with My Mind Stayed on Freedom)."

It's a small world! It turns out that BWHS investigator Dr. Yvette Cozier attended the Union United Methodist Church in Boston in the 1960s when Dr. Caldwell was pastor there. He taught her well. In addition to being a BWHS investigator, Yvette is currently Assistant Dean for Diversity and Inclusion at Boston University's School of Public Health.



Left to right - Courtney Carrington (BWHS Interviewer), Rev. Gilbert Caldwell, Dr. Lynn Rosenberg (BWHS Principal Investigator), Dr. Yvette Cozier (BWHS Investigator), Delia Russell (BWHS Project Coordinator), Mrs. Grace Caldwell

MICROBES AND HEALTH

Our bodies contain trillions of microbes (one trillion = 1,000,000,000,000). Microbes are microscopic organisms such as bacteria and viruses. Research investigating how microbes may affect our health is increasing.

Early research on microbes and health: stomach ulcers

Until about 30 years ago, stomach ulcers were a common occurrence and it was widely believed that they were caused by stress and spicy foods. There was no effective cure and bleeding from the stomach ulcer sometimes resulted in death. An Australian doctor, Dr. Barry Marshall, tried to convince other doctors that the cause of stomach ulcers was a bacterium, *H. pylori*. He was mocked because it was thought that bacteria could not survive in the acid of the stomach. However, Dr. Marshall's colleague, Dr. Robin Warren, had discovered that the stomach could be overrun by *H. pylori*. With Dr. Warren's work in mind, Dr. Marshall did an amazing experiment on himself. In 1984, he mixed *H. pylori* into a broth and then drank the broth.



Within a few days, he became sick and nauseous and developed gastritis (irritation of the stomach, which is a sign that an ulcer is forming) as well as the bad breath typical of an ulcer patient. When he biopsied his own stomach, he found *H. pylori* growing there. This work convinced other scientists that *H. pylori* was indeed causing stomach ulcers. Since *H. pylori* can be successfully treated with antibiotics, stomach ulcers and stomach cancer (also related to *H. pylori*) have become rare in the Western world. For their work, Marshall and Warren were awarded the Nobel Prize in Medicine in 2005.

BWHS studies that involve microbes

In recent years, new methods have been developed to detect and identify not just one or two microbes, such as *H. pylori*, but the many thousands of organisms in our bodies. The genetic composition of these organisms, taken together, is called the microbiome.

Studies have linked aspects of the microbiome detected in stool samples to several diseases. However, stool samples are not easily obtained. Fortunately, microbial DNA from microbes that are part of the digestive system can be obtained from saliva samples. Many of you may remember providing a saliva/mouthwash sample to the BWHS about ten years ago: 26,800 participants swished with Scope®, spit into a small plastic container, and mailed it to the

Healthy gut microbes under a microscope

BWHS. These saliva samples have been used to identify *human* genetic variants related to breast cancer, sarcoidosis, diabetes, and other illnesses in the BWHS.

Now, *microbial* DNA from these samples is also being used in research. The BWHS, together with another study of African Americans, is directly studying whether the composition of the microbiome affects the risk of pancreatic cancer or lung cancer, because indirect evidence suggests that microbes may play a role in the occurrence of these cancers. In the study of pancreatic cancer, we will compare the microbiomes of participants who developed pancreatic cancer with those of participants who are cancer-free. Similarly, in the study of lung cancer, we will compare the microbiomes of participants with lung cancer

to those of women who are cancer-free.

Our aim is to identify specific microbes that are associated with higher or lower risk of pancreatic cancer or lung cancer. Their identification is an exciting prospect because it could open the way for cancer prevention. It may be possible to change the composition of the microbiome so as to lower the risk of these cancers. It will take several years to complete our studies because the identification of the many thousands of microbes that contribute to the microbiome takes time. Following that, the analyses of the relation of these many thousands of microbial species to the risks of pancreatic and lung cancer are complicated and time consuming. We have high hopes that valuable information will emerge from these studies.

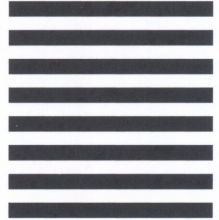


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