

THE POWER OF GENES

GENETIC TESTING CAN BE A POWERFUL TOOL FOR YOU AND YOUR HEALTH

BY DEEPTI BABU



Exercise? Check. Make sure I get eight hours of sleep every night? Check. Eat nutritious meals? Check (OK, mostly).

Maintaining our health and wellness is something many of us consider and prioritize every day by doing these very things. Generally speaking, that is sound advice for everyone. But is it enough? Have you ever wondered if there were anything else you could do to take charge of your health, something unique based on your natural makeup that would work for you specifically? For some of us, genetic testing is a powerful tool that can offer real opportunities to take advantage of personalized health benefits. In these situations, genetic testing can help us make more informed choices about our health and increase our overall wellbeing.

Hereditary cancer

Take Angelina Jolie, for example. She decided to have a double mastectomy after pursuing genetic testing and

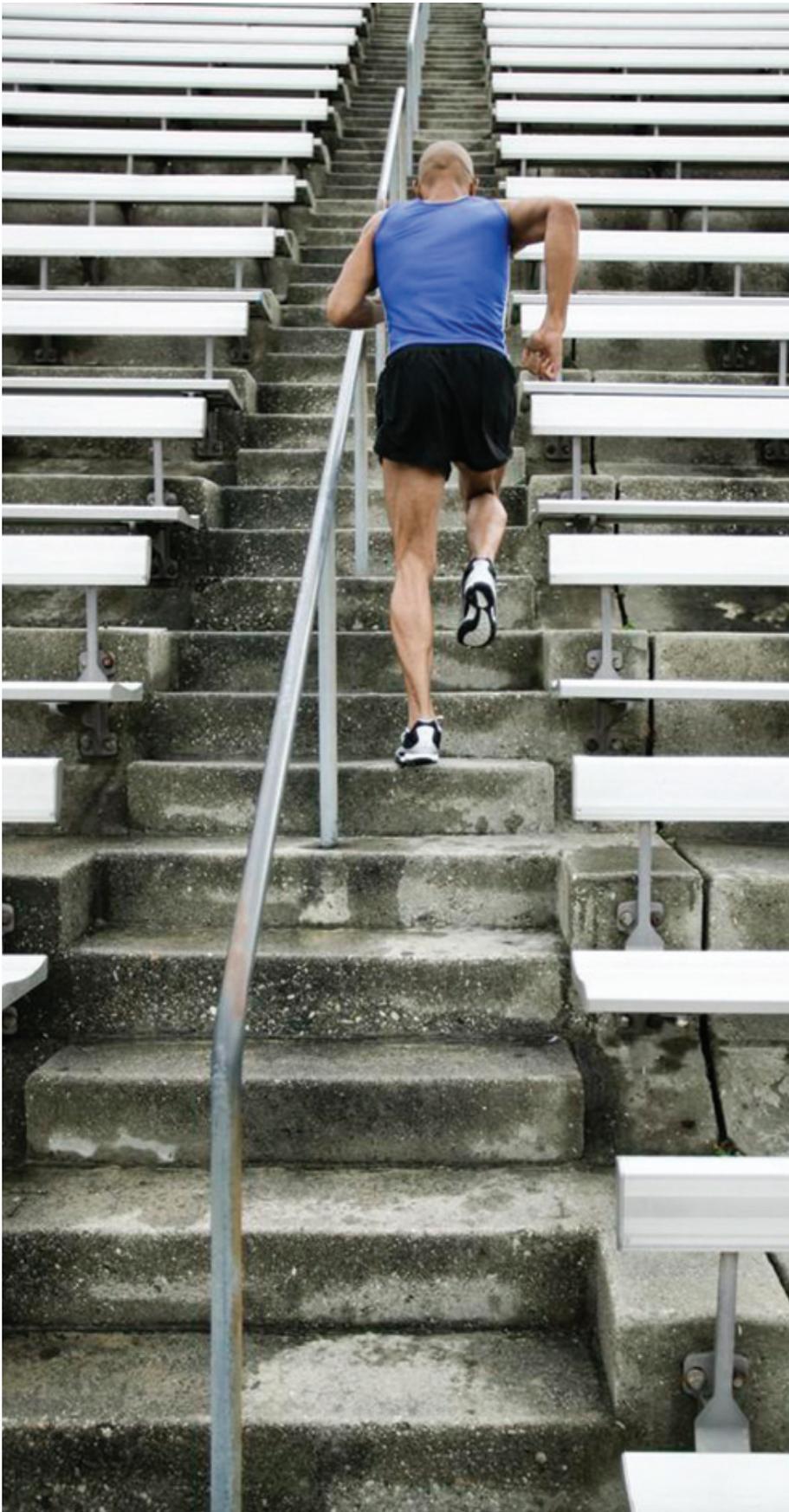
learning she carried a change (or mutation) in the BRCA1 gene, which made her more likely to develop breast and ovarian cancer. Following careful consideration and discussions with medical specialists, Jolie made the very personal choice to undergo breast surgery as a preventive measure. As to her rationale, Jolie said it best in her op-ed piece, published this past May in *The New York Times*, by stating, “I can tell my children that they don’t need to fear they will lose me to breast cancer.”

Jolie may also consider preventive ovarian surgery at a later date. The interesting fact is that she might not have been offered — or even needed to consider — such major surgeries without her genetic test result proving her to be at a higher risk of developing cancer. Genetic testing is not for everyone, but it can offer information that makes a major impact on our health — and it’s not just for celebrities that have access to the

world’s best surgical and reconstructive specialists. Some of us might choose other options (besides surgery) and rather opt to ramp up our cancer screening or seek other treatments after getting genetic test results like Jolie’s. But we might not be able to consider those decisions unless we had genetic testing beforehand.

Is it for you?

The key to all of this is knowing whether genetic testing is something relevant to consider, and that is best determined after a discussion with your doctor or specialists, like a medical geneticist or a genetic counsellor. These specialists might then be able to order the test for you, and support you through the decision-making process. Updated medical options to improve your health could become available after your genetic testing, which is currently available for many medical conditions (depending on the situation).



Genetic testing for a personal or family health concern

One common example is genetic testing for hereditary hemochromatosis (HH), a genetic condition that allows iron levels to build up in the body. This can cause dangerous symptoms over time. Timely treatment by regular blood removal (like a blood donation) can essentially prevent complications and symptoms of HH.

Genetic testing for HH is available, if it is suspected in someone, it can open the door to life-saving treatment. As well, those who find out they have HH through genetic testing might make lifestyle choices to improve their overall health — which might not make as much sense to do without genetic test results explaining their high iron levels.

Another relatively common scenario involves a mutation in the factor V Leiden gene, which causes a slightly higher chance of developing blood clots. Genetic testing could be an option if someone has a strong personal or family history of this. Those who have genetic testing and find out they carry the factor V Leiden gene mutation might consider making changes to their everyday lives — like quitting smoking, avoiding the birth control pill, or stretching regularly during long flights — since these measures could reduce their chances of a blood clot developing in the first place.

Genetic testing to help doctors direct medical treatment

While treating patients for blood clots, doctors might put them on blood thinners or medications like warfarin. Warfarin, like any other medicine, is broken down (or metabolized) in the body, and this process is partially controlled by our genes. People may be “slower” or “faster” warfarin metabolizers, and this is in part because of their genetics. Due to this, people might have a unique warfarin dose that is needed to safely thin their blood. As such, doctors may request genetic testing to look at their patient’s warfarin metabolizing genes in order to help find the ideal dose needed to safely thin their blood. Doing the genetic testing first can potentially avoid a long trial of different warfarin doses and increase effectiveness of the treatment. It could also prevent dangerous side effects from happening in the process.

Genetic testing can also help doctors direct other medical treatments. For example, genetic testing determines



whether someone with breast cancer is eligible for tamoxifen, a type of treatment. Tamoxifen is only effective on certain cell types in the body, which are found by a specific genetic marker. Not everyone has the right cell type for tamoxifen, but genetic testing is the only way to know if it should be an option. Genetic testing can help find those who are candidates for tamoxifen, and avoid negative side effects in those who aren't candidates.

Take charge of your health

Other genetic tests may be able to show whether someone has a slightly increased risk of developing very common medical conditions, like diabetes or macular degeneration. While it's always a good idea to maintain a healthy lifestyle, a genetic test result can sometimes be the push we need to make a real change because it provides a concrete need to do so.

Genetic testing is certainly becoming more commonplace, and an increased interest in genomics will only further this. In fact, if you want to learn more about

your genetics, you can order your own genetic testing online. However, doing this without the help of your doctor or other medical specialists can be risky, because results can be difficult to interpret and can potentially lead to incorrect actions.

Genetic testing has pros and cons, and doesn't always give you a clear answer — especially if you have no symptoms of what is being tested. Deciding to pursue genetic testing is incredibly personal and not always easy, and thoughts and opinions about it can vary widely.

While widely publicized examples of genetic testing may come from celebrities, it's important to keep in mind that genetic testing is not just for the rich and famous, and its power is something anyone can harness to his or her advantage. After consideration about whether it is right for you, genetic testing can be a very helpful — and real — tool for you to improve your health and wellbeing. 

Deepti Babu, M.S., is a certified genetic counsellor residing in Edmonton.

TIPS BEFORE YOU TEST

Although genetic testing is usually done by a simple blood test, prep beforehand can really help.

Things to remember are:

- 1) It's usually optional.
- 2) Discuss it with your doctor/genetics specialist.
- 3) Discuss it with your support system (family, friends, others).
- 4) Think it over.
- 5) If you decide to (and can), have the testing done.
- 6) Make a plan to review your results (consider bringing someone along).
- 7) Follow through on medical recommendations.
- 8) Share your results with those in your family who might be impacted.