Storing STEM CELLS to Reduce Cancer Treatment-Related Risks

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With modern advances in treatment, increased awareness, and developments in early detection, the survival rate for cancer patients is steadily rising.

But successful treatments like chemotherapy and radiation come with an increased risk of blood disorders like **leukemia**.

In other words, treatment for cancer can *cause* another kind of cancer.

Conventional treatments can also damage one's bone marrow, leading to immune system suppression.

But now there's a way for cancer patients to fight back against loss of **bone marrow** stem cells caused by treatment:

Collecting and **storing stem cells *before* receiving chemotherapy** and **radiation therapy**.

Those cells can later be used to boost immune function and fight treatment-induced cancer, if it occurs.

Healthy people can also store stem cells, which can be used to restore the strength of the immune system should illness strike, and to repair damaged tissues and organs.

The Robin Roberts Story

On June 11, 2012, *Good Morning America* co-host Robin Roberts announced that she was facing her second major health battle in five years.

Robin Roberts had been diagnosed with early-stage breast cancer in 2007 and received chemotherapy and radiation therapy to treat it. Then, at 51, she had been diagnosed with **myelodysplastic syndrome (MDS)**.[1]

MDS is a rare and often fatal blood disease in which the **bone marrow** loses its ability to produce mature blood cells, including white blood cells to fight infection and red blood cells to transport oxygen through the body.

MDS following chemotherapy or radiation often transforms into **acute myeloid leukemia (AML)**, a life-threatening blood cancer.

The two diseases are known together as **t-MDS/AML (treatment-related myelodysplastic syndrome** and **acute myeloid leukemia)**. They are significant and serious complications of cancer therapy.

But Roberts overcame MDS with help from a life-saving **bone marrow** and **stem cell transplant** from her older sister. In **2018**, she celebrated the sixth anniversary of the transplant, which she considered to be her sixth "birthday."

This shows the tremendous healing power of **stem cells**. Concentrated in the bone marrow, they can restore the immune system and repair damaged cells, tissues, and organs throughout the body.

The Threat of t-MDS/AML

Patients are often unaware that **t-MDS/AML** are side effects of chemotherapy and radiation treatment for cancer. But the risks are significant.

A study that reviewed 15 years of breast cancer medical records found that women under 65, previously treated with radiation and/or chemotherapy, have a rate of myelodysplastic syndrome that is nearly **11 times** *higher* than the general population and a greater than **five times** *higher* rate of acute myeloid leukemia.[2]

This increased risk of bone marrow disorders occurring after treatment has been found for nearly *all* types of cancer.[3]

A 2018 study of 700,612 adults in a U.S. cancer data registry showed that having chemotherapy increased the relative risk of developing tMDS/AML by as much as **10 times**.[4] This was true for 22 of 23 cancer types investigated (all except colon cancer).

The bad news gets worse. **Myelodysplastic syndrome** and **acute myeloid leukemia** that result from past chemotherapy and radiation can be *harder* to treat than other cases. The outcomes for patients with t-MDS/AML are poor, with shorter survival times than for patients with MDS/AML *unrelated* to chemotherapy and radiation.[5] As a result, there are very few treatment options for t-MDS/AML.

The treatment that Roberts received, a bone marrow/stem cell transplant from a donor, can succeed.

But it's a complicated procedure that carries an increased mortality risk ranging from **23%-61%**. The median overall survival rate from this transplant ranges only from **22%-38%**.[6]

The major complication is a disorder called "***graft versus host***" whereby the donated bone marrow (even from a close relative) begins to viciously attack the recipient's body.

Treatment for graft versus host involves years of immune suppressing therapies (often using high dose **corticosteroid** drugs) and sometimes apheresis UV light therapy to weaken the immune response. This buys a few agonizing years before most patients succumb to the chronic autoimmune attacks *or* the side effects of powerful steroid drugs like **prednisone** and **dexamethasone**.

Robin Roberts defied the odds. She was also incredibly lucky that her sister was a **compatible donor**, which occurs in only **25%-30%** of siblings.[7]

The Benefits of Storing Stem Cells

Many patients will *not* have an optimal donor.

The likelihood of finding an available, compatible donor from national marrow registries varies among different racial and ethnic groups. Whites of European descent have the highest odds (**75%**); black Americans of all ethnic backgrounds have the lowest (**16%-19%**); and Hispanics, Asians, Pacific Islanders, and Native Americans fall in the middle **(27%-52%)**.[8]

For most patients diagnosed with treatment-related MDS/AML, there are *no* suitable options. The best many can hope for is a mismatched donor transplant. But this comes with a high risk of mortality and complications such as **graft versus host** disease.

The statistics are depressing. But there's a *proactive* approach that patients can take so they won't have to rely on finding a donor and going through a risky transplant: **collecting and storing their *own* stem cells**.

This potentially lifesaving procedure is offered at the **Maharaj Institute of Immune Regenerative Medicine** in Boynton Beach, Florida. Cancer patients travel from all over the country and the world *prior* to receiving chemotherapy and radiation therapy, to take advantage of stem cell storage.

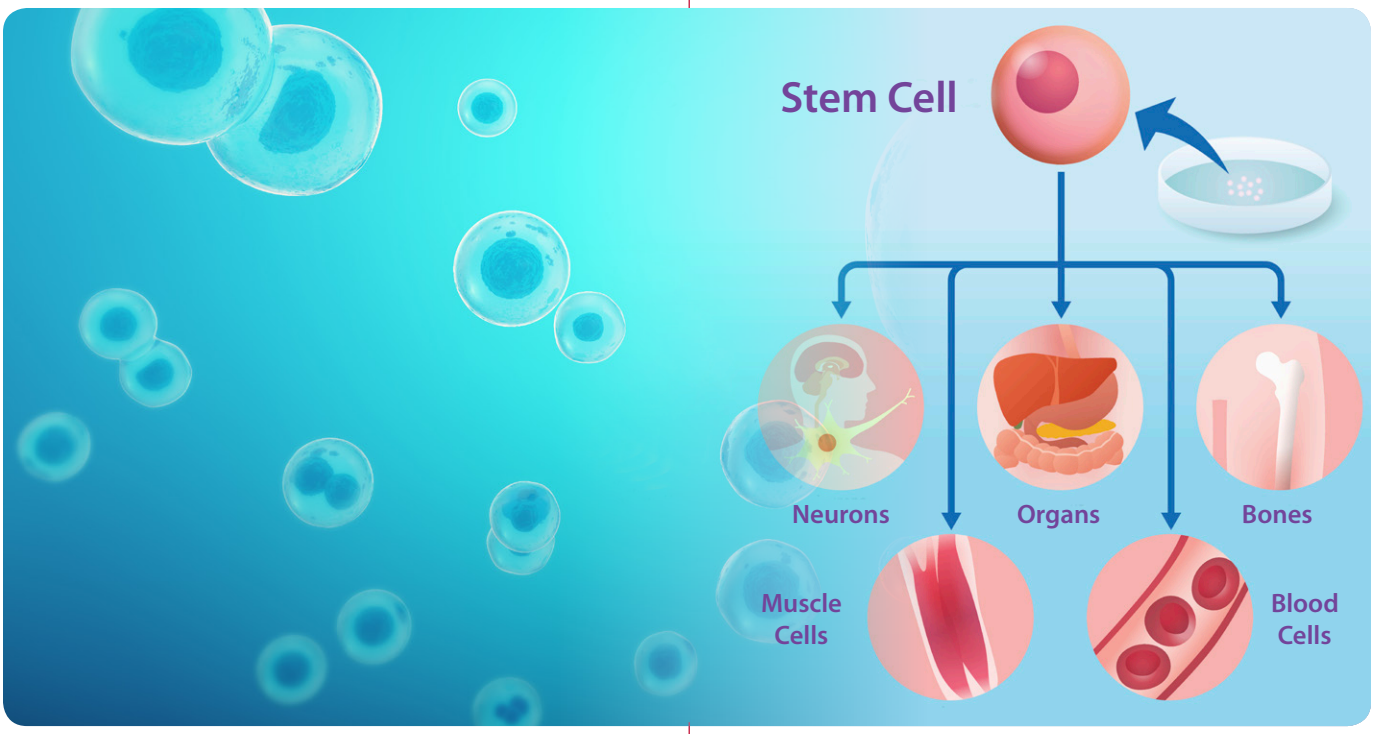
By freezing their bone marrow stem cells in the **Stem Cell Cryobank**, cancer patients can save their healthy, immune cell-producing stem cells before they are damaged by chemotherapy and radiation therapy.

Patients might think there is little value in storing their cells after a diagnosis of cancer, because their immune system is already compromised. But the process of moving stem cells from the bone marrow (called **stem cell mobilization**) before collecting them from the blood was shown to lead to a **7- to 14-fold increase** in **immune cells** and up to a **400-fold increase** in **stem cells**.[9]

These stem cells can be used for a transplant later. Since they're from a patient's *own* body, they're compatible, leading to the best possible survival outcomes.[10] And there's no risk of ***graft versus host*** disease like there is with a transplant from a donor.

In addition, scientists are constantly developing new and promising **immunotherapies**, such as **chimeric antigen receptor (CAR) T cell therapy**, in which a patient's *own* immune system cells are genetically modified in a lab so they will attack cancer cells.

One limitation of (CAR) T cell therapy is that the numbers of stem cells and immune cells are low when they are collected *after* a cancer patient has received chemotherapy or radiation. If a patient has collected and stored stem cells *before* chemotherapy/radiation, when they are high in number, they are more useful for (CAR) T cell therapy.



A Procedure for *Everyone*

Collecting and storing stem cells isn't just for cancer patients.

Our immune system fights cancer and other diseases. But as we age, our **immune system gradually weakens**. Unfortunately, regular blood tests offered by most physicians do not fully register abnormalities within the immune system.

However, health-conscious individuals can take advantage of advanced methods of measuring their immune systems, giving a better indication of the body's ability to fight disease.

Such testing is available through The Maharaj Institute, which uses a sophisticated **blood test** that examines an extensive array of cellular blood markers, then creates an **Immune Risk Profile** that ranges from no abnormalities to mild, moderate, and severe.

Those with a healthy immune system can collect and store their stem cells in case they are needed to restore their immune health in the future.

For those with an *abnormal* immune system, a **root cause analysis** can identify possible reasons for the weakened system. Once deficiencies are corrected, the procedure continues with the gathering and storage of adult stem cells from the bone marrow, along with a maintenance plan to keep the immune system on track.

Doing this can safeguard health and longevity by providing people with ***two* healthy immune systems**: one in the body and a backup in the **Stem Cell Cryobank**.

Hope for the Future

With an impaired immune system, cancer survivors *and* healthy adults are at an elevated risk for new cancers and other illnesses. They can benefit from measures to correct the deficiencies, have a maintenance plan, and bank and store their stem cells.

When reintroduced into a health-challenged body, adult stem cells taken from the bone marrow have the remarkable potential to **repair the immune system** and to develop and grow into many different, specialized cell types.[11]

As stem cell therapy evolves, so will the number of uses that are available for an individual's **banked stem cells**. With more than 3,000 U.S. clinical trials using adult stem cell therapies, there is growing evidence to show that an individual's own stem cells have the capability for **growth, repair, and regeneration** of damaged cells, tissues, and organs throughout the body.

Currently there are more than 80 medically accepted uses for adult stem cells mobilized from the **bone marrow**, including the treatment of many blood cancers, bone marrow failures, and immune disorders.

Ideally, everyone would have a healthy immune system stored for the future. ●

If you have any questions on the scientific content of this article, please call a Life Extension® Wellness Specialist at 1-866-864-3027.

For more information on measuring your immune system, as well as collecting and storing your stem cells, please contact the Maharaj Institute of Immune Regenerative Medicine at ***561-752-5522*** or ***info@miirm.org*.**

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