

Life After BMT

Updates from the Blood or Marrow Transplant Survivor Study

BMTSS Progress

We hope this Fall 2024 newsletter finds you well and that you and your families are staying safe and healthy. BMTSS is the Blood or Marrow Transplant Survivor Study. The BMTSS is currently ongoing at the University of Minnesota, the University of Alabama at Birmingham, and City of Hope. You are receiving this newsletter because you are a BMTSS participant. In this newsletter, we will provide information on the topic of frailty. As a reminder, all of our previous newsletters are available on our website: <https://www.uab.edu/medicine/icos/icos-research/bmt-study>.

This newsletter will give you an update on the study's progress and let you know how your information is helping us to make further progress in understanding life after BMT. We do not require any action in response to this newsletter unless you have moved or changed your phone number. **We encourage you to update your contact information by sending us an email at bmtstudy@uabmc.edu or calling us at 855-903-2136.** Thank you so much for participating in BMTSS and helping us with this important research!

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OUTCOMES & SURVIVORSHIP
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Recent BMTSS Publications

Blood or marrow transplantation (BMT) is used to treat blood cancers and other serious illnesses. As treatments improve, more people are surviving after BMT, but some may face health problems, including frailty or pre-frailty.

Frailty means having three or more of the following five symptoms: exhaustion, weakness, low physical activity, slow walking, or unintentional weight loss. If a person has two of these five symptoms, they are considered pre-frail. Research suggests that frailty may shorten the lifespan, but it is unclear if pre-frailty also affects the lifespan.

A recent study from the BMTSS evaluated 3,346 BMT survivors who were an average of 57 years old when they completed the survey and an average of about 9 years after their transplant. About half (51%) of the survivors received an autologous transplant and the other half (49%) received an allogeneic transplant. Most survivors had undergone transplant for non-Hodgkin lymphoma (25%), acute myeloid leukemia or myelodysplastic syndrome (24%), or multiple myeloma (17%). The researchers found that about one in five (20%) of the survivors were pre-frail and that BMT survivors were about three times more likely to be pre-frail than siblings of the survivors who hadn't had a transplant. Factors such as smoking, lack of exercise, having health conditions, being female, having BMT-related anxiety, and having received radiation treatment before transplant were associated with pre-frailty. While these factors have not been shown to directly cause pre-frailty, improving lifestyle habits – such as exercising more or quitting smoking – might help.

Studies in middle-aged and older adults show that pre-frail people are more likely to reverse their symptoms and return to a healthier state compared with those who are frail. This highlights the importance of addressing pre-frailty to improve health outcomes.

Balas, N., Richman, J.S., Landier, W. *et al.* Pre-frailty after blood or marrow transplantation and the risk of subsequent mortality. *Leukemia* **38**, 1592–1599 (2024). <https://doi.org/10.1038/s41375-024-02238-2>



Ask the Researchers

We received several great questions since our last newsletter. Here we share some answers with you. Please send your questions to the BMTSS Study Staff by emailing bmtstudy@uabmc.edu. Although the study is still collecting data, we will do a preliminary analysis regarding 1 to 2 topics or questions that we receive, and publish the results in the next newsletter.

Question: What is Frailty?

Frailty is a condition that makes a person more vulnerable to health problems. It is caused by a mix of physical, mental, social, and environmental factors. Older age, chronic illnesses, low muscle mass, and lack of social support can increase the risk of frailty. Frail adults are more likely to fall, become disabled, be hospitalized, and die earlier. Frailty is measured by looking at the following five factors:

Factor	Description/Example
Weight loss	Unintentional weight loss of 10 or more pounds in the last year
Muscle weakness	Loss of muscle strength, which can cause limitations in everyday tasks, such as lifting or carrying groceries, or gripping objects
Physical exhaustion	Feeling that everything a person does takes effort
Low physical activity	Decrease in day-to-day physical activity, such walking or climbing stairs
Slowness	Slowed walking speed

A person without any of these factors is not considered frail. A person with one or two of these factors is considered pre-frail, and a person with three or more of these factors is considered frail.



Healthy



Pre-Frail



Frail



Nursing Care Required



Preventive Health

Preventing Frailty

The recommendations below may be helpful for many BMT survivors; however, all survivors should check with their physicians before making any of these suggested changes.

Exercise. Adults should aim for 150–300 minutes of moderate physical activity each week, such as gardening, dancing, or biking. If a person does more vigorous activities, such as jogging or swimming, they should aim for 75–150 minutes weekly. Cardio exercises (such as jogging, biking, dancing and swimming) help with endurance and walking speed, while weight training and resistance exercises (such as push-ups, pull-ups, and stair climbing) help maintain muscle mass and bone strength. Balance exercises, such as heel-to-toe walking and Tai Chi, can reduce the risk of falls and help increase walking speed, muscle strength, and endurance.



Diet. Eating more protein helps build muscle, and getting enough Vitamin D strengthens bones and muscles. A balanced diet, such as the Mediterranean diet – which includes lots of plant-based foods (such as fruits, vegetables, whole grains, nuts, and seeds) – is also recommended.

Working with a Physical Therapist. A physical therapist can help with fall prevention, improve balance, and teach exercises to strengthen muscles and maintain mobility.

FOR MORE INFORMATION:

- <https://my.clevelandclinic.org/health/diseases/frailty>
- <https://www.ncoa.org/article/how-a-physical-therapist-can-help-you-reduce-your-risk-of-falling/>
- <https://health.gov/our-work/nutrition-physical-activity/physical-activity-guidelines/current-guidelines>
- <https://www.nccih.nih.gov/health/tai-chi-what-you-need-to-know>
- <https://www.hopkinsmedicine.org/health/wellness-and-prevention/stay-strong-four-ways-to-beat-the-frailty-risk>