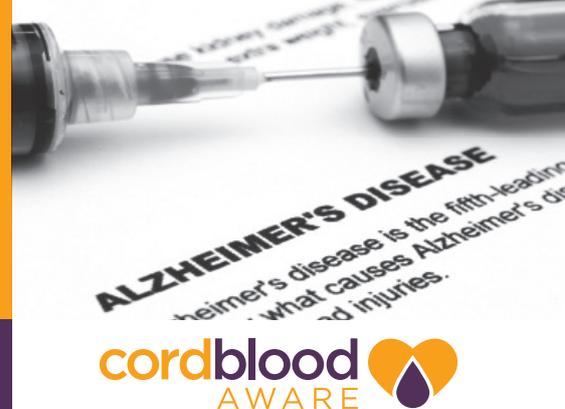


# Alzheimer's

Neurological | Bone Marrow



Thought to be caused by a combination of genetic predisposition and environmental factors, Alzheimer's disease results in the loss of brain cells and the development of plaques created by the protein beta amyloid. It also results in tangles caused by the protein tau within the brain tissue.

This disease is estimated to affect 820,000 people in the UK, costing £23 billion to the UK every year. 17,000 of those sufferers are younger people, and two-thirds are female. 670,000 people are carers for sufferers of dementia, and there are 60,000 deaths per annum attributable to it.

## Clinical Trials

There are two current clinical trials using stem cell treatments to either slow the progression of, or ameliorate Alzheimer's disease. Research at Kings College London is using stem cells to test new drugs, while research at Nottingham University seeks to understand the biology of transforming bone marrow-derived haematopoietic cells into nerve cells with a view to being able to transplant these.

## Cell Line

Work has been published showing the positive effect of mesenchymal stem cell (MSC) populations on the plaques produced by this disease.

## Animal Studies

In addition, the anti-inflammatory effect of cord blood MSCs in mouse models has been shown to be effective. Mice were shown to regain learning and memory functions when treated with cord blood.

## Patient Studies

One US company has worked on the use of adipose cells to provide a treatment, although no data has been published yet. It has been indicated in marketing material that this slows the progression of the disease.

## Future Research

Both of these avenues of investigation indicate cord blood as a possible therapeutic candidate in the near future. However, there are no plans to initiate trials of stem cell-based therapies in current published resources.

## Summary

Currently the use of stem cells to treat this disease is limited to understanding its pathology.

## References

[http://www.alzheimers.org.uk/site/scripts/documents\\_info.php?documentID=99](http://www.alzheimers.org.uk/site/scripts/documents_info.php?documentID=99)

<http://www.eurostemcell.org/story/stem-cells-therapy-alzheimers-disease-part-2-2>

<http://www.alzheimersresearchuk.org/research/>