



BodyScience

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# Breakthroughs in ALS

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## ALS - FRESH INSIGHTS

Welcome to the first edition of BodyScience's newsletter *Breakthroughs in ALS*. In this issue, we delve deep into the recent advancements in the world of amyotrophic lateral sclerosis (ALS) research. Join us as we explore promising treatments, breakthroughs, and our latest offerings that are paving the way for a brighter future for people living with ALS.

## THIS ISSUE:

### Infections

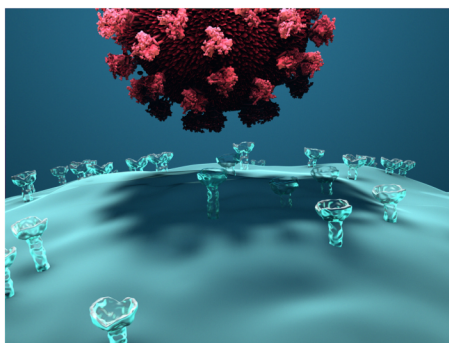
Ongoing research continues to highlight links between chronic infections and neurodegenerative diseases including ALS. These infections are thought to be a trigger for onset and accelerated progression. Research aimed at exploring this relationship helps pave the way for novel treatment strategies. Learn about PrimeC and other new developments. More details inside.

### Stem Cells

Stem cell research continues to be at the forefront of ALS advancements. While the FDA's decision not to approve NurOwn was a setback, it is not the end of the road. At BodyScience, we're proud to introduce post natal (umbilical cord and cord blood) derived stem cells which we believe hold potential for various applications.

### Extras

In this edition, you will find a wealth of information covering a wide range of topics, including nutrition, mental health, updates, and much more. Dive into our "Extras" to stay informed and discover valuable insights on these important subjects.



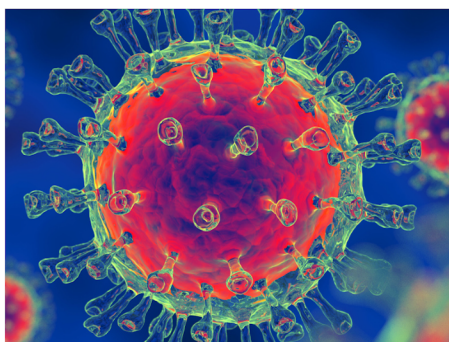
### Infections and ALS: A Deep Dive into Research and Clinical Trials.

The exact causes of ALS remain a topic of extensive research. Over the years, a significant body of evidence has emerged, supporting a link between various infections and ALS.

### Infections Mimicking or Causing ALS

Certain infections can damage neurons in ways that closely resemble the symptoms of ALS. For instance:

- **Lyme Disease:** This disease is caused by the bacterium *Borrelia burgdorferi*. Lyme disease can manifest neurological symptoms that are strikingly similar to ALS.
- **Herpes Viruses:** Some strains of herpes viruses have been associated with neuronal damage and neuroinflammation and degeneration that can cause muscle twitching and atrophy.
- **Mycoplasma:** This bacterial infection has been identified as a predisposing risk factor, increasing the risk and potentially the severity of ALS.
- **Parasites:** One example, *Toxoplasma Gondii*, commonly associated with cats, has been described in some studies as a potential causative agent for ALS.



### An antibiotic approach shows promise.

Treatments like PrimeC are emerging as beacons of hope. This oral, extended-release formulation of the anti-inflammatory celecoxib and antibiotic ciprofloxacin, has shown interesting and promising results.

The October 4th announcement from NeuroSense's PrimeC trial described a "significant increase in survival rate of induced motor neurons." What is particularly heartening about these findings is the simplicity of the approach: the combination of an antibiotic with an anti-inflammatory. Such a straightforward method leading to profound improvements in a disease as intricate as ALS is not just surprising but also incredibly encouraging. It shows that sometimes, simple solutions can make a big difference. To read more about the ongoing PrimeC trial: <https://clinicaltrials.gov/study/NCT05357950>. To learn more about our celecoxib and ciprofloxacin combination therapy contact the office.



### Infections: A Central Player

The success of antibiotic-based therapy indicates that infections might play a more central role in the disease than previously thought, emphasizing the significant role of infections in ALS. At BodyScience, we have always believed in the importance of measuring, targeting, and treating infections. The PrimeC study reinforces our belief and adds weight to our approach.

### A Comprehensive Strategy

While targeting infections is crucial, it is just one piece of the puzzle. Reducing inflammation and repairing infection-related damage are equally important. Inflammation, whether triggered by infections or other factors such as toxins and chemicals, can worsen symptoms and hasten the progression of ALS.

This is why the often-overlooked yet critically important concept of enhancing blood supply (perfusion) is essential to any MND strategy! Improving blood flow ensures that neurons receive essential nutrients and efficiently remove waste. This topic is commonly overlooked but of profound importance. Increasing perfusion is a primary focus of our office-based programs and home protocols. To learn more about neuron regeneration strategies read on for stem cell information.

## Mental Health Focus

The power of mindset in controlling disease: The human mind is a powerful tool, and its influence on our physical well-being is profound. Numerous studies, especially those centered on amyotrophic lateral sclerosis (ALS), have highlighted the protective role of serotonin, particularly in preserving speech. A positive mindset plays a pivotal role in maintaining optimal serotonin levels. Embracing a daily mantra, such as 'I see myself healing,' can serve as a beacon of hope and positivity. Setting aside specific times each day for meditation, gratitude exercises, laughter therapy, or simply finding your personal oasis of happiness can be transformative. These practices are essential to the interconnectedness of mind and health.



## Tip of the month

### Boosting Immune Health: Simple Steps, Big Impact!

Our immune system guards and defends us against harmful invaders. (Like the ones described in this newsletter). Studies have proven that easy yet effective ways to bolster immune health can make a big difference. By drinking two cups of organic green tea each day, getting plenty of sleep and adding practices like meditation and grounding, you can improve your body's natural defenses.



(infections continued)



## Three Part Strategy

There are three areas that should be measured and addressed, here is our approach:

1. **Targeting Infections:** Advanced testing is used to detect and treat underlying infections.
2. **Reducing Inflammation:** Measuring and controlling inflammation to safeguard neurons from further damage and oxidative stress.
3. **Increasing Blood Supply:** Enhancing perfusion to ensure neurons remain healthy and functional.

### Testing: a multi-faceted diagnostic approach:

- Antibody Measurements to more than 50 pathogens: This helps us gauge how your body is reacting to potential infections.
- Antigen Detection: By identifying the presence of infectious agents and assessing their disease-causing ability, we can tailor strategies more effectively.



- Immune Cells: Monitoring not just levels, but types of lymphocytes and natural killer cells provides insights into the overall health and direction of the immune system.
- Inflammatory Cytokines: By evaluating these proteins, we gain a clearer picture of immune system functionality.

### Gut Health Alert!

As a functional medicine institute specializing in neurodegenerative disease, we understand that gut health is directly linked to neuroinflammation. There may be significant gut-related implications associated with antibiotics and anti-inflammatory medications like the PrimeC protocol. Monitoring and replacing key vitamins including B's and D and probiotics are paramount for pALS undergoing therapy. Gut health is not a sideline consideration, it must be protected and adjusted which is why optimal gut health is a cornerstone of our holistic approach to patient care.

### Conclusion

The journey to decode ALS is ongoing, but with every study and every discovery, we move a step closer to understanding this disease. The PrimeC study results and our three-pronged approach represent significant strides in this journey. At BodyScience, our commitment remains unwavering to harness cutting-edge research and provide the best possible care to those battling ALS.

*"When I was first diagnosed with ALS, I was given two years to live." Stephen Hawking battled ALS for 55 years and passed at age 76.*

## Compelling Evidence for Use of Stem Cells in ALS

In the 2019 publication *Stem cells: past, present, and future* by Zakrzewski et al, they describe stem cells as a "therapy for incurable neurodegenerative diseases" stating "thanks to stem cell therapy, it is possible not only to delay the progression of incurable neurodegenerative diseases such as Parkinson's disease, Alzheimer's disease (AD), and Huntington disease, but also, most importantly, to remove the source of the problem." Stating that "currently, untreatable neurodegenerative diseases have the possibility of becoming treatable with stem cell therapy."

Earlier this year, and specific to ALS, the publication entitled *Mesenchymal Stem Cell Therapy in Amyotrophic Lateral Sclerosis (ALS) Patients: A comprehensive review of disease information and future perspectives* authored by Najafi, et al, (2023) explained the use and benefits of Mesenchymal Stem cells (MSCs):

"the golden role of mesenchymal stem cells in neurological diseases like ALS is due to their role of differentiating into neuronal cells and replacing dead and damaged cells with new functional cells. Also, they help to improve the surrounding environment of neurons by secreting trophic factors and removing toxic molecules, and play a protective role for neurons. Repairing damaged nerve sequences such as dendrites and axons and stimulating alternative brain pathways to improve movement and coordination are other effective mechanisms of these cells in the treatment of ALS patients." Their diagram (top of next page) illustrates the impact of mesenchymal stem cells in neuronal restoration of pALS.

The benefits of cell replacement strategies in ALS has led to an increase in the use of this technology as outcomes continue to show promise. Oh et al. published on slower declines in ALSFRS-R (the ALS functional rating score) with two stem cell injections in their publication 'Repeated Intrathecal Mesenchymal Stem Cells for Amyotrophic Lateral Sclerosis' (Ann Neurol, 2018) and the 2021 findings by Gugliandolo et al. in 'Mesenchymal Stem Cells: A Potential Therapeutic Approach for Amyotrophic Lateral Sclerosis?' (Stem Cells International), support similar findings showing that the loss of motor neurons in ALS may be reduced with the use of stem cells resulting in a delay in motor function loss.

### NurOwn's stem cell technology was not approved in September, where do we go from here?

At BodyScience, we are always seeking answers and solutions. We are now able to provide pluripotent Human Cellular Tissue allograft (HCT/P), a stem cell matrix derived from umbilical cord (UC-MSCs), placenta and cord blood source. This minimally invasive in-office procedure is performed by Abel Murillo, MD, board certified Anesthesiologist by intrathecal administration (a small injection at the base of the spinal cord).

We believe it is an important and previously overlooked step in the process to potentially regenerate damaged tissues and neurons as underlying causes are addressed.

*For more information on stem cells visit:*  
<https://www.bodyscience.life/stemcells>

## Announcements

We will be closed the week of Christmas from December 25-29th.

We use Power2Practice (P2P) electronic medical records. The P2P portal is your way to access records, test results and to contact the office. If you are not already set up and using P2P please email us at [info@bodyscience.life](mailto:info@bodyscience.life) so we can help you sign up.

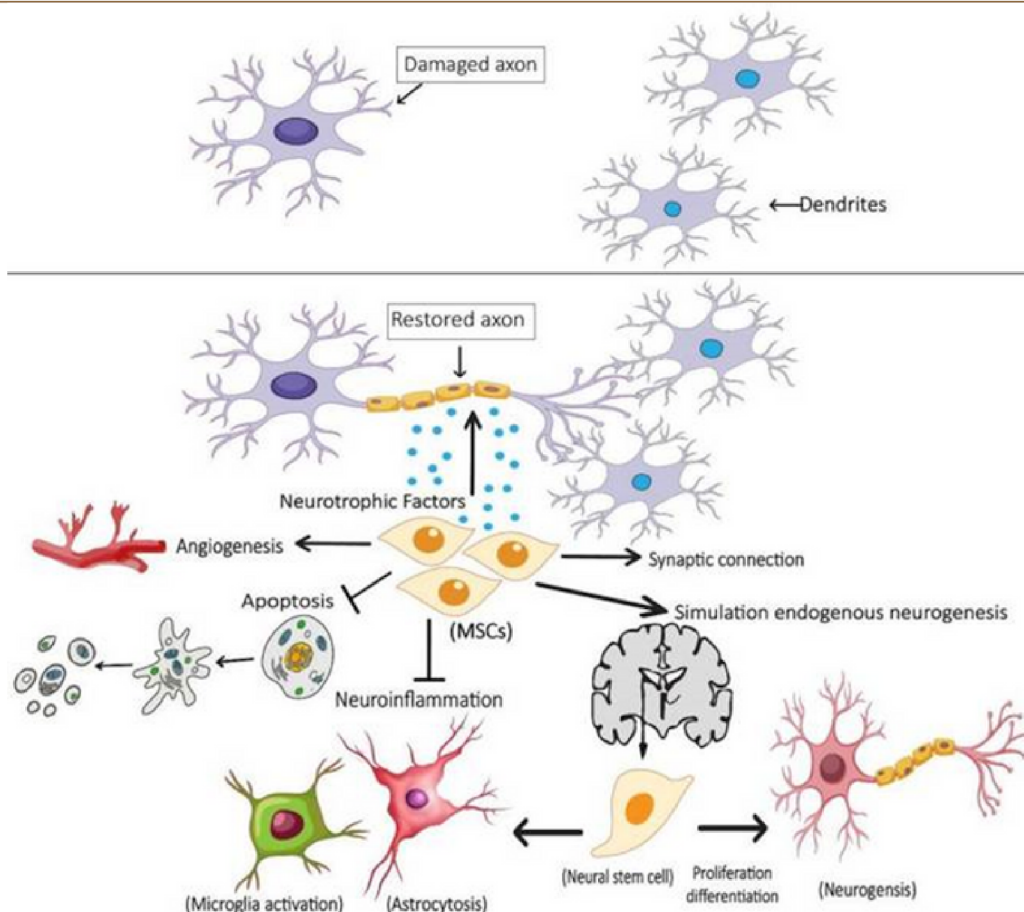


## Spotlight on V. Zoster

In our pursuit of understanding and treating infections in ALS, we have expanded our focus to include varicella zoster virus (V. Zoster). While we have long recognized the connections between herpes viruses like Epstein-Barr Virus, HSV1, HSV2, CMV, and HHV6, we have now identified a significant relationship between V. Zoster, the herpes virus responsible for chicken pox and shingles, and ALS. V. Zoster exhibits potent neuroinflammatory properties within the brain, and we're not only uncovering it's role in Alzheimer's disease but also its potential impact on motor neurons in ALS. We are in early stages but with notable changes. We will provide updates on our ongoing research and therapeutic approaches in this area.

## Technology Spotlight

We are currently evaluating the NLS Bio-Resonance platform. We routinely review new technologies and will share our findings and outcomes as they develop.



Proposed mechanisms of neurorestoration by mesenchymal stem cells as described earlier this year in the article *Mesenchymal stem cell therapy in amyotrophic lateral sclerosis (ALS) patients: A comprehensive review of disease information and future perspectives*, by Najafi, et al. (2023)

## Umbilical Cord Mesenchymal Stem Cells

Umbilical cord-derived mesenchymal stem cells (UC-MSCs) have a distinct capacity for self-renewal while maintaining their multipotency, i.e., the ability to differentiate into many different types of cells, such as adipocytes, osteocytes, chondrocytes, neurons, and hepatocytes (liver cells). UC-MSCs have attracted great interest due to their immunomodulatory properties and are proposed as a versatile tool for regenerative medicine and immunotherapy, as described by the team of Nagamura-Inoue et al. in the 2014 publication 'Umbilical cord-derived mesenchymal stem cells: Their Advantages and Potential Clinical Utility' in the World Journal of Stem Cells. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3097927/>

**UC-MSCs are available at BodyScience**  
Manufacturing is done through strict FDA minimally manipulated regulations. This product is FDA regulated but not FDA

approved. The tissue is FDA compliant and complies with the U.S. Food and Drug Administration's (FDA) regulations contained in Title 21 Part 1271 of the Code of Federal Regulations, Section 361 of the Public Health Service Act and Good Laboratory Practices (GLP). We do not claim that they cure, treat, or prevent any conditions or diseases.

## The BodyScience ALS Foundation - Support for pALS

The BodyScience ALS Foundation is committed to providing support for pALS including funding towards stem cell research. We can only do it with your help. Please Donate.

[www.bodyscienceALSfoundation.org](http://www.bodyscienceALSfoundation.org)