

**Abstract Title:** Low-Intensity Focused Ultrasound (LIFU) as a Novel Therapeutic Approach for Neurotransmitter Activated Systemic Hormonal Surge (NASHS): Redefining Anxiety Management

**ABSTRACT PREVIEW: LOW-INTENSITY FOCUSED ULTRASOUND (LIFU) AS A NOVEL THERAPEUTIC APPROACH FOR NEUROTRANSMITTER ACTIVATED SYSTEMIC HORMONAL SURGE (NASHS): REDEFINING ANXIETY MANAGEMENT**

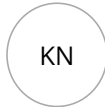
**Low-Intensity Focused Ultrasound (LIFU) as a Novel Therapeutic Approach for Neurotransmitter Activated Systemic Hormonal Surge (NASHS): Redefining Anxiety Management**

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**Position:**

Founder and CEO of ADOM

**Organization:**

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**Role:**

Presenter

**Are you a member of the AIUM?**

Yes

162853

**Disclosure Status:** Complete

**Disclosure:** Nothing to Disclose

**Signed:** Karen Nussbaumer (09/23/2024, 10:31 PM)

**Abstract Details**

**Topic**

1st choice: Therapeutic Ultrasound

2nd choice: Ultrasound in Medical Education

**Abstract Sub-Topic:**

Other - Therapeutic

**If Other was selected as a sub-topic, please select Other again below and enter alternate subtopic in the text field that displays.**

- other: Because it explores the use of Low-Intensity Focused Ultrasound (LIFU) as a non-invasive therapeutic intervention for managing Neurotransmitter Activated Systemic Hormonal Surge (NASHS), a redefined understanding of anxiety that emphasizes its physiological and systemic nature. Unlike traditional therapeutic ultrasound applications that focus on physical injuries or tissue healing, this abstract discusses a novel therapeutic use of ultrasound for neuromodulation and systemic hormonal regulation. The objective is to modulate neurotransmitter activity, balance hormonal responses, and reduce inflammation associated with NASHS, highlighting a unique application of therapeutic ultrasound beyond conventional clinical or ultrasound-guided interventions.

### Poster Alternative

- Yes

### ePoster Alternative

- Yes

### Objectives

To explore the potential of Low-Intensity Focused Ultrasound (LIFU) as a therapeutic modality for managing Neurotransmitter Activated Systemic Hormonal Surge (NASHS), a newly proposed term for anxiety that emphasizes its physiological and systemic nature. The study aims to investigate whether LIFU can modulate the underlying neurobiological processes associated with NASHS, such as neurotransmitter release, hormonal balance, and inflammation.

### Methods

The proposed study will utilize LIFU to target specific brain regions involved in the regulation of neurotransmitter activity and hormonal responses, thereby addressing the physiological mechanisms underlying NASHS:

**Redefining Anxiety as NASHS:** Anxiety is redefined as Neurotransmitter Activated Systemic Hormonal Surge (NASHS) to focus on its physiological aspects, including neurotransmitter imbalances, calcium ion flux, lipid accumulation, and systemic hormonal responses. This approach reframes anxiety as a condition with identifiable neurobiological markers that can be modulated using LIFU.

**LIFU Neuromodulation Protocol:** The study will apply LIFU to key brain regions associated with anxiety and stress responses, such as the prefrontal cortex, amygdala, and hippocampus. These regions are targeted to alter the activity of neurotransmitters like glutamate, GABA, serotonin, and dopamine, which are implicated in NASHS.

**Study Design:** Participants with NASHS (formerly diagnosed with anxiety) will undergo a series of LIFU sessions over a period of several weeks. Each session will involve focused ultrasound targeting of specific brain regions to modulate neural circuits and neurotransmitter activity. Outcomes will be measured using functional MRI (fMRI), electroencephalography (EEG), heart rate variability, cortisol levels, and self-reported NASHS severity scales.

### Results

It is hypothesized that LIFU therapy will lead to a significant reduction in NASHS symptoms by:

**Modulating Neurotransmitter Activity:** LIFU may decrease excitatory neurotransmitters (e.g., glutamate) and increase inhibitory neurotransmitters (e.g., GABA), thereby stabilizing neural activity and reducing systemic hormonal surges.

**Balancing Hormonal Responses:** By targeting brain regions that regulate the hypothalamic-pituitary-adrenal (HPA) axis, LIFU could help normalize cortisol and other stress-related hormone levels.

**Reducing Systemic Inflammation:** LIFU's potential anti-inflammatory effects may further help reduce the physiological burden of NASHS, contributing to overall symptom reduction.

### Conclusions

This study proposes that Low-Intensity Focused Ultrasound (LIFU) could be a groundbreaking non-invasive treatment for Neurotransmitter Activated Systemic Hormonal Surge (NASHS), redefined from traditional anxiety. By modulating neurotransmitter release and balancing hormonal responses, LIFU offers a novel approach to addressing the physiological components of NASHS. If proven effective, this technique

could lead to new therapeutic protocols that focus on physiological regulation rather than psychological interventions alone.

### Abstract Overview

This presentation introduces a novel approach to managing Neurotransmitter Activated Systemic Hormonal Surge (NASHS), a redefined understanding of anxiety, using Low-Intensity Focused Ultrasound (LIFU). Attendees will learn about LIFU's mechanisms in modulating neurotransmitter activity and hormonal responses, presenting a potential non-invasive alternative for anxiety management. This session is essential for healthcare professionals and researchers interested in innovative neuromodulation therapies for stress and anxiety-related conditions.

### Awards Submissions

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Should this abstract be considered for the New investigators Award?

Yes

Should this abstract be considered for the Great 8 Award?

Yes

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If your abstract is accepted for the Event, the presenting/ representing author is required to register and pay for the full meeting. Note: One attendee can only register on behalf to two abstracts.

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Presented abstracts and final ePosters from the event will appear as part of the Proceedings, a supplement of the Journal of Ultrasound in Medicine, following the meeting.

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