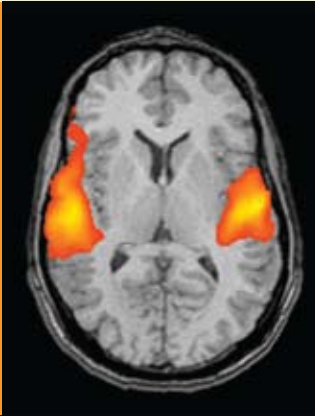


**Cleveland Clinic Arts & Medicine Institute**  
*in collaboration with* Lincoln Center Presents



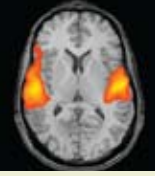
# *Music and the Brain:*<sup>TM</sup>

A symposium with  
integrated live performances

October 30, 2009  
Lincoln Center  
Stanley H. Kaplan Penthouse  
65th Street and Amsterdam Avenue  
New York, NY



Made possible through the generosity of the  
Springbank Foundation  
Jennifer and Robert McNeil



Dear Attendees:

We are delighted today to welcome you to *Music and the Brain: A symposium with live performances*. This unique program is designed to focus on the ways music affects and interacts with the nervous system. One of our goals for the day is to uncover ideas and perspectives about the novel field of “Neuromusic,” which studies the effect of music on the normal and abnormal physiology of the nervous system.

Our common passion for music gathers us here today. This Muse, Aganippe, daughter of Permessus, touches us, challenges us, and stirs us. Our brain responds to her and from their interaction comes a change. “I am Music, who in sweet accents can calm each troubled heart, and now with noble anger, now with love, can kindle the most frigid minds” (Monteverdi, L’Orfeo).

Today we will have the pleasure to listen to outstanding “performers”: whether physicians, neuroscientists, music therapists, or musicians, our “performers” are movers of souls. They will touch (“haptonomize”) us with their person, their science, and their art. We are grateful to our outstanding faculty who will undoubtedly provide great contributions to the discussions. They will educate us in this new approach and we are honored to host them.

We encourage you to take advantage of each and every session. Ask questions. Challenge the faculty. And please, join us tonight at 5:00 pm for the Final Performance: a romantic piano quartet performance by wonderful artists who went themselves through a life-transforming experience with this music, followed by a jazz program reflecting the soul of a composer-performer and a special tribute to the great Les Paul. We promise an evening you won’t forget.

Thank you so much for choosing to join us today. We hope this symposium will generate ideas and projects that will lead in the near future to other events that link music and medicine. Please don’t hesitate to ask us questions about Cleveland Clinic’s new Arts & Medicine Institute and our different activities.

We look forward to meeting and interacting with every one of you throughout this day. Enjoy!

**Kamal Chémali, MD**  
*Symposium Director*

**Neil Cherian, MD**  
*Symposium Director*



This symposium focuses on the relationship between music and the nervous system. It is aimed at educating physicians about this novel and unique field of “neuromusic” which studies the effect of music on the normal and abnormal physiology of the nervous system, treats certain neurological conditions using music as a therapeutic tool, and treats the neurological consequences of misuse of music. It also aims at educating physicians about the status of research in the field of music and the brain.

### Learning Objectives

Upon completion of this activity, the participant will be able to:

- Discuss the beneficial effects of music on human physiology and the neurological system in particular
- Review the potential medical problems that result from misuse of music
- Describe the state of research in the field of music and the brain and the need for collaboration between musicians and neuroscientists
- Demonstrate the parallel and common links between the doctor-patient relationship and the musician-audience relationship

### Target Audience

Neurologists, Physicians, Psychiatrists, Psychologists, Nurses, Music Therapists, Musicians and General Audience

### Course Directors

#### Kamal Chémali, MD

Director, Music & Medicine,  
Cleveland Clinic Arts & Medicine Institute

#### Neil Cherian, MD

Cleveland Clinic Arts & Medicine Institute

### Cleveland Clinic Faculty

#### Michael Benninger, MD

Chair, Head and Neck Institute

#### Iva Fattorini, MD

Executive Director, Cleveland Clinic Arts & Medicine Institute

#### Damir Janigro, PhD

Director, Cerebrovascular Research  
Cleveland Clinic Lerner Research Institute

#### Michael Roizen, MD

Chief Officer, Wellness Institute

### Guest Faculty

#### Barry Bittman, MD

CEO, Yamaha Music and Wellness  
Institute, Meadville, Pa.

#### Vera Brandes

Director, Research Program  
MusicMedicine, Paracelsus Medical  
University, Salzburg, Austria

#### Shannon de l'Etoile, PhD, MT-BC

Program Director and Associate Professor  
Music Therapy  
University of Miami Frost School of  
Music, Coral Gables, Fla.

#### Professor Hans Christian Jabusch, MD

Institute of Musicians' Medicine  
University of Music Carl Maria von  
Weber, Dresden, Germany

#### Mark Tramo, MD, PhD

Director, Institute for Music & Brain  
Science, Harvard Medical School  
Boston, Mass.

### Guest Panelists

#### Matthew Gurewitsch

Writer, lecturer, interviewer, frequent  
contributor to the *New York  
Times*, *Smithsonian*, and other  
international publications.  
Online: [beyondcriticism.com](http://beyondcriticism.com) and  
[twitter \(mg1228\)](https://twitter.com/mg1228).

#### Elizabeth Sobol-Gomez

Managing Director, North and South  
America, IMG Artists, LLC

#### Bob Woods

Producer, Co-Founder, Telarc Records,  
Cleveland, Ohio

### Guest Artists

#### Julie Albers

Cellist, New York City, N.Y.

#### Prisca Benoit

Concert Pianist, Associate Professor of  
Piano, Conservatoire National Supérieur  
de Musique de Paris, Paris, France

#### Diana Cohen

Violinist, Concertmaster, Kalamazoo  
Symphony Orchestra,  
Cleveland Heights, Ohio

#### Patti Cohenour

Vocalist, Gig Harbor, Wash.

#### Yura Lee

Violist, Boston, Mass.

#### Jarrod Radnick

Composer/Performer, Joshua Tree, Calif.

#### Michael Wolff

Pianist/Composer  
New York, N.Y.

### Planning Committee

#### Kamal Chémali, MD

Cleveland Clinic

#### Neil Cherian, MD

Cleveland Clinic

#### Iva Fattorini, MD

Cleveland Clinic

#### Kara Medoff Barnett

Lincoln Center

#### Shilla Kim-Parker

Lincoln Center

#### Martha Tobin

Cleveland Clinic

#### Melody Dian

Meeting Coordinator



In accordance with the Standards for Commercial Support issued by the Accreditation Council for Continuing Medical Education (ACCME), The Cleveland Clinic Foundation Center for Continuing Medical Education requires resolution of all faculty conflicts of interest to ensure CME activities are free of commercial bias.

The following faculty have indicated that they have a relationship which, in the context of their presentations, could be perceived as a potential conflict of interest:

Name	Role	Company
Vera Brandes	Ownership interest Intellectual Property Rights	SANOSON GMBH
Michael Roizen	Consulting Consulting Consulting Intellectual Property Rights (Royalty Payments)	Harpo Radio Humana Inc. Martek, RealAge Incorporated
	Ownership Interest	Harper Collins Progenics Pharmaceuticals Inc. Simon & Schuster Food for CTRAWFFYE RealAge Incorporated TrioHealth
	Board Membership	Cobalt RealAge Incorporated Sanofi-Aventis US Inc. TrioHealth

The following faculty have indicated that they have no relationship which, in the context of their presentations, could be perceived as a potential conflict of interest:

Julie Albers	Neil Cherian	Matthew Gurewitsch	Elizabeth Sobol-Gomez
Kara Medoff Barnett	Diana Cohen	Hans-Christian Jabusch	Martha Tobin
Michael Benninger	Patti Cohenour	Damir Janigro	Mark Tramo
Prisca Benoit	Shannon de l'Etoile	Shilla Kim-Parker	Michael Wolff
Barry Bittman	Melody Dian	Yura Lee	Bob Woods
Kamal Chémali	Iva Fattorini	Jarrold Radnick	

**DISCLAIMER**

The information in this educational activity is provided for general medical education purposes only and is not meant to substitute for the independent medical judgment of a physician relative to diagnostic treatment options of a specific patient's medical condition. The viewpoints expressed in this CME activity are those of the authors/faculty. They do not represent an endorsement by The Cleveland Clinic Foundation. In no event will The Cleveland Clinic Foundation be liable for any decision made or action taken in reliance upon the information through this CME activity.

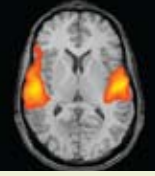
## Special Thanks

**Supporting Grantors**  
 The Cleveland Clinic Foundation Center for Continuing Education acknowledges educational grants for partial support of this activity from:  
 The Springbank Foundation  
 Jennifer and Robert McNeil

And an in-kind educational grant for support of this activity from:  
 Yamaha Music and Wellness Institute



8:00 am	<b>REGISTRATION   Continental Breakfast   Kaplan Penthouse Foyer</b>
8:30 am	<b>PRELUDE</b> Kamal Chémali, MD and Neil Cherian, MD
8:45 am	<b>KEYNOTE OVERTURE</b> <i>Creative Musical Expression and Stress Reduction: A Genomic Perspective</i>   Barry Bittman, MD
<b>ACT I: The Effects of Music on Health</b>	
<b>Moderators:</b> Iva Fattorini, MD, and Kamal Chémali, MD	
9:40 am	<b>Scene 1</b>   <i>Introduction to the Cleveland Clinic Arts &amp; Medicine Institute</i>   Iva Fattorini, MD
9:50 am	<b>Scene 2</b>   <i>Neurologic Music Therapy: Clinical Practice and Scientific Evidence</i>   Shannon de l'Etoile, PhD, MT-BC
10:25 am	<b>Scene 3</b>   <i>When Music Sings, the Brain Listens and the Heart Modulates: A Concert-Lecture</i>   Prisca Benoit, piano, and Kamal Chémali, MD
11:40 am	<b>Question &amp; Answer Session</b>
11:50 am	<b>Lunch Interlude</b> <i>Music Makes You and Your Brain 10 Years Younger</i>   Michael Roizen, MD
<b>ACT II: Clinical Aspects of the Performer</b>	
<b>Moderators:</b> Michael Roizen, MD, and Neil Cherian, MD	
12:30 pm	<b>Scene 1</b>   <i>The Voice in Music and Performance</i>   Michael Benninger, MD
1:00 pm	<b>Scene 2</b>   <i>Common Disorders of Musicians</i>   Hans Christian Jabusch, MD
1:30 pm	<b>Scene 3</b>   <i>Tinnitus: A Cacophony of the Brain and Introduction to the Cleveland Clinic Center for Performance Medicine</i>   Neil Cherian, MD
2:00 pm	<b>Question &amp; Answer Session</b>
<b>ACT III: Research Aspects of Neuromusic</b>	
<b>Moderators:</b> Damir Janigro, PhD, and Mark Tramo, MD, PhD	
2:10 pm	<b>Scene 1</b>   <i>The Influence of Music on Neuronal Firing in the Thalamus and Subthalamic Nucleus: Data from Intracerebral Recordings. The Cleveland Clinic Experience.</i>   Damir Janigro, PhD
2:40 pm	<b>Scene 2</b>   <i>Chronobiological Aspects of the Effects of Music: The Salzburg Experience</i>   Vera Brandes
3:10 pm	<b>CODA</b>   <i>Where Should We Go from Here? The Next Step</i>   Mark Jude Tramo, MD, PhD
3:40 pm	<b>Question &amp; Answer Session</b>
3:50 pm	<b>Coffee Intermission</b>
4:10 pm	<b>Roundtable Discussion:</b> <i>How does the growing interest and progress in the neuroscience of music influence the communities in which you work?</i> <b>Moderators:</b> Kamal Chémali, MD, and Neil Cherian, MD <b>Panelists:</b> Matthew Gurewitsch; Michael Roizen, MD; Elizabeth Sobol-Gomez; Michael Wolff; Bob Woods
<b>Act IV: The Performance</b>	
5:00 pm	<i>The Romantic Quartet Experience</i>   J. Brahms: Piano Quartet Op. 25 in G minor   Diana Cohen, violin; Yura Lee, viola; Julie Albers, cello; Prisca Benoit, piano <i>The Jazz Experience</i>   Michael Wolff   Reflections on the Music-Brain Relationship Introduction to the Movie <i>The Tic Code</i> (Video) and Reflections on Tourette Syndrome
6:00 pm	<b>Tribute to Les Paul</b>
6:25 pm	<b>RIDEAUX!</b>   Kamal Chémali, MD, and Neil Cherian, MD



### Barry Bittman, MD

*CEO, Yamaha Music and Wellness Institute*

#### **Creative Musical Expression and Stress Reduction: A Genomic Perspective**

In an era of unprecedented healthcare challenges, the prospect of optimizing whole person care remains enigmatic at best. Despite a myriad of technological and pharmacological advances, the need to encourage people to take an active and meaningful role in their own health and well-being cannot be underestimated. Beginning with a brief overview of scientific research on creative musical expression, Barry Bittman, MD, introduces the bio-psycho-social spectrum of stress in the context of his published studies documenting the impact of recreational music making on long-term care workers, first-year nursing students and at-risk youth. He proceeds to discuss his latest published and forthcoming molecular research focusing on creative musical expression and stress biology from a genomic perspective. Dr. Bittman introduces the concept of utilizing *genomic stress induction signatures* in the context of biological modulation within the realm of individualized medicine. Along with composer and performer Jarrod Radnich and world-renowned vocalist Patti Cohenour a live performance will illuminate the impact of creative musical expression and disclosure as an effective stress reduction strategy.

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### Iva Fattorini, MD

*Executive Director, Cleveland Clinic Arts & Medicine Institute*

#### **Introduction to the Cleveland Clinic Arts & Medicine Institute**

Cleveland Clinic Arts & Medicine Institute is a new initiative with a 90-year history. From its founding in 1921, Cleveland Clinic has honored and utilized the arts – music, song, visual arts, drama and comedy, literature, design, and architecture. The Arts & Medicine Institute was created in 2008 to formalize the role of the arts in medicine, to enhance the Cleveland Clinic experience through the arts, to practice and investigate the use of the arts in healing, and to build community around the arts, health, and medicine.

Dr. Fattorini will introduce Cleveland Clinic and the role of the Arts & Medicine Institute in this large, complex, and respected hospital.

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### Shannon de l'Etoile, PhD, MT-BC

*Professor of Music Therapy, University of Miami, Coral Gables, FL*

#### **Neurologic Music Therapy: Clinical Practice and Scientific Evidence**

Neurologic Music Therapy (NMT) is an approach to research and clinical practice that is based on neuroscience models of treatment and rehabilitation. Scientific data regarding music and brain function explain how music, as an aesthetic or sensory stimulus, can access brain processes related to control of movement, attention, and speech production. Thus, NMT techniques produce specific and functional outcomes for patients with disease or injury to the central nervous system. Standardized techniques include Rhythmic Auditory Stimulation in gait training, Vocal Intonation Therapy to facilitate speech production, and Musical Neglect Training for redirection of spatial awareness.

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## Kamal Chémali, MD

Director, Music & Medicine, Cleveland Clinic Arts & Medicine Institute

## Prisca Benoit

Concert-pianist, Conservatoire National Supérieur de Musique de Paris

### When Music Sings, the Brain Listens and the Heart Modulates: A Concert-Lecture

Therapeutic properties of music have been intuitively perceived since the dawn of humanity. Today's technological advancements allow scientists and researchers to qualify and quantify the physiological changes that music produces in different body organs. Music perception is a highly complex phenomenon starting with sound waves causing vibration of the tympanic membrane and ending with an elaborate decoding process at the auditory cortex. The brain integrates this input, and other associated inputs, in order to create a musical emotion, which, in turn, modulates basic bodily functions, including cardiovascular responses, breathing, cerebral blood flow and sweat output, to name a few. The series of physiological changes that music can produce in our organism feeds back into the musical emotion and becomes the basis of the therapeutic properties of this art. Touching and transforming ("haptonomizing", from the Greek haptain=touch and make contact) the listener during a live performance enables one to draw a parallel between the artist-audience relationship and the doctor-patient relationship. Through an interactive approach and alternation of scientific talk and live piano performance, Dr. Kamal Chémali and Ms. Prisca Benoit bring a lively demonstration of a collaboration between a physician-scientist and a professional musician aiming at creating awareness of the impact of music on human physiology and triggering new research ideas in the field of the neuroscience of music.

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## Michael Roizen, MD

Chief Officer, Cleveland Clinic Wellness Institute

### Music Makes You and Your Brain 10 Years Younger

Learner Objectives of the Lecture:

1. What is Sweet Sixteen: A Life Just Starting: Yours
  2. To Describe Why Music Has Made So Many Contributions, and Why it is virtually Essential to Improving Patient Well Being.
  3. To Discuss How You Get a Do-Over in Your Life, and Why a Second and a Third Music Career Should be in your Plans and Passions.
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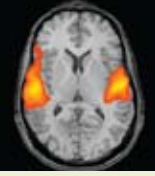
## Neil Cherian, MD

Cleveland Clinic Arts & Medicine Institute

### Tinnitus: A Cacophony of the Brain and Introduction to the Cleveland Clinic Center for Performance Medicine

Tinnitus is the perception of sound in the ears or the head when no external source is present. It is often referred to as ringing of the ears. It relates to the perception of an often monotonous, non-musical tone or sonic texture that is either constant or of variable temporal frequency and does not correlate to a physical sound that is being created. It is solely a perception. The sound can intrude on sleep, cognitive function and day-to-day activities and can induce or enhance depression and anxiety.

The basis and cure remains elusive, however, sound and noise exposure can be a risk factor for tinnitus. It is currently the number-one service-connected disability of veterans returning from Iraq and Afghanistan. Recent interest in this disorder has also sprouted up in relation to problems related to mp3-type players.



There are multiple causes of tinnitus including degenerative ears conditions such as Meniere's disease, certain drugs including aspirin, age-related hearing loss, tumors of the nerves to the inner ear (acoustic neuroma), viral infections of the inner ear and head trauma.

Various theories exist regarding tinnitus. It is conceptually similar to pain, particularly when discussing phantom limb syndrome – the perception of discomfort associated with a limb that has been surgically or traumatically removed. Some theories discuss an entrainment of the oscillatory firing of certain neurons in the thalamus and auditory cortex. Research in the treatment of Parkinson's disease using deep brain stimulation may provide further understanding of tinnitus.

Tinnitus may also impair an individual's ability to perceive quieter sounds or sounds similar in character to the tinnitus perception. Of course, this can be detrimental to those who rely on their sense of hearing particularly when it comes to performance (singing, instrumental performance, dance, public speaking ...).

At this time there is no cure for tinnitus. Sometimes it may spontaneously resolve. Other times treatment of the underlying disorder may help. There are a number of symptomatic treatments that may be beneficial including various sound therapies (noise generators, masking devices, hearing aides), biofeedback and various mediations. Because of this hearing protection is paramount.

The Cleveland Clinic Center for Performance is a multidisciplinary medical service designed for those in the performing arts, entertainment and creative communities. Its intent is to facilitate the medical care of various types of performers from the front of house, backstage and behind the scenes. The comprehensive program addresses from various perspectives though focusing on certain disorders (voice, neuromuscular and hearing), general health and wellness and optimization.

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### **Prof. Hans-Christian Jabusch**

*Institute of Musicians' Medicine, University of Music Carl Maria von Weber, Dresden, Germany*

#### **Common Disorders of Musicians**

Performing music at a professional level is arguably among the most complex of human accomplishments. Musicians' motor coordination is highly demanding and takes place at an extremely high level of spatiotemporal accuracy. Professional musicians, therefore, often operate close to their physiological limits. Exceeding these limits may result in playing-related health problems and impairment of music performance skills. Seventy-six percent of a large sample of orchestra musicians in the US reported medical problems that were severe in terms of their effects on performance. In a group of 2900 consecutive patients seen at a German outpatient clinic for musicians' disorders, acute and chronic musculoskeletal pain syndromes were the most common playing-related disorders, followed by musician's cramps (focal task-specific dystonia) and nerve entrapment syndromes. In the lecture, management of these disorders will be discussed with respect to medical and pedagogical options. Treatment of musicians with focal dystonia is still the biggest challenge in musicians' medicine. Many of the other medical problems in musicians have a good outcome and usually do not lead to long-term disability. Specific health promotion courses have been introduced in the curricula of music schools with the particular aim of early prevention.

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## Michael Benninger, MD

*Chairman, Head and Neck Institute, Cleveland Clinic*

### **The Voice in Music and Performance**

From the first sounds of an infant until the end of life, the human voice is the most important means of human communication. The development of voice and speech may be the most important evolutionary development in the separation of humans from other animals. The voice can project all of human emotions from our greatest joys to our deepest sorrows. The ability to sing was fundamental to the developments of music and culture. This presentation will describe the significant evolutionary adaptation of the larynx and pharynx that resulted in the development of the human voice. This unique ability to communicate led to the development of speech and song, which may well likely be the starting point to all music. How the voice works, the correlation of the voice to other musical instruments and the interaction of other neurological functions will be presented along with a short introduction of voice care and injury prevention.

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## Damir Janigro, PhD

*Director, Cerebrovascular Research, Cleveland Clinic Lerner Research Institute*

### **The Influence of Music on Neuronal Firing in the Thalamus and Subthalamic Nucleus: Data from Intracerebral Recordings, The Cleveland Clinic Experience**

The research we are performing at Cleveland Clinic focuses on the effects of music on brain structures which have been traditionally neglected because of their anatomical inaccessibility. We have recorded neuronal activity from awake patients undergoing complex deep-brain stimulation procedures to treat movement disorders. We have, for the first time, recorded the response of deep brain structures such as the thalamus and subthalamic nuclei, to music specifically chosen to mimic melodic or rhythmic pieces. To avoid the interference of musical memory and recollections, these pieces were specifically composed for this purpose. The study allows us to better understand how the brain responds to music and how it can be used as therapy to improve patients' wellness.

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## Vera Brandes

*Director, Research Program MusicMedicine, Paracelsus Medical University, Salzburg, Austria*

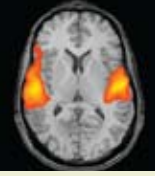
### **Chronobiological aspects of the effects of music – The Salzburg Experience**

Chronobiology is the science of rhythms in biological processes, the science of time and timing. Time related processes of both physiological and psychological functions are controlled by our internal clock, the suprachiasmatic nucleus (SCN) in the anterior part of the hypothalamus. Based on findings of the rhythmicity of the organism, modern chronopharmacology takes into account that medical interventions are more effective at specific times in the circadian rhythm.

Music is the art of time as it unfolds in the course of defined sequences structured by rhythms and tempi that trigger bodily and behavioral responses. Considering specific chronomedical aspects of various disorders, the benefits of music interventions are influenced by their timing. Based on the chronobiological research of the impact and the experience of music, specific music interventions were developed for the treatment of psychosomatic disorders such as essential hypertension, insomnia, and depression, and their efficacy was studied experimentally and in prospective controlled clinical trials. Overall, these studies suggest that chronobiological music treatments may represent novel and safe augmentation strategies that could contribute to the management of different disorders.

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**Mark Tramo, MD, PhD**

*Director, Institute for Music & Brain Science, Harvard Medical School, Boston, MA*

**Where Should We Go from Here? The Next Step**

In the past decade, interest in the medicine and science of music has reached new heights. Prospects for the future have never been brighter. As in any interdisciplinary endeavor that is fundamentally rooted in science and inherently interesting to journalists and the general public, quality control in the field, overinterpretation of results, and dissemination of misinformation will continue to present challenges.

Research on the therapeutic benefits of music is beginning to move away from anecdotal-rich, data-poor, therapist-dependent approaches in favor of randomized-controlled clinical trials that incorporate rigorous methods whose results confer potential for broad application in large populations. With the addition of the Arts & Medicine Institute at the Cleveland Clinic, one of the world's premier medical institutions, to the growing number of centers and specialized services provided by physicians and therapists of the Performing Arts Medicine Association and their colleagues in the Americas and Europe, Arts Medicine seems destined to achieve a position in specialized, urban health care and rehabilitation medicine similar to that of Sports Medicine. Neuroscience researchers who study where in the brain music is heard, felt, remembered, and produced in normal young subjects will continue to reap the rewards of technological advances made in other fields, but we would do well to keep in mind that working with patients with neurological and psychiatric disease is the only means of determining which brain structures are necessary for normal music perception, performance, and cognition. In turn, this reminds music elitists steeped in the rich European tradition of the 17th-19th centuries that the neurobiology of music is rooted in its universality and thus its aural tradition, not in literacy or genius, and that implicit learning of music's phonology, grammar, and semantics is achieved effortlessly and passively during the pre-school years by both our non-musician and musician patients. Still, the effects of music training on the brain and the existence of extraordinary musical talent provides neuroscientists opportunities to study brain mechanisms for learning, creativity, aesthetics, and auditory-motor integration afforded by few, if any, sub-disciplines of neuroscience. With the expected increase in the number of epilepsy centers that improve the diagnosis and treatment of severe epilepsy by recording the electrical activity of neurons in the cerebral hemispheres of awake patients, we may gain detailed knowledge about the cellular mechanisms underlying how we remember music, how music evokes emotions, and how music and emotions interact with the heart and autonomic nervous system.

Hopefully, musicians, clinicians, and scientists will do as well communicating with each other within our interdisciplinary field as we have done bringing together the arts, medicine, and sciences across the formidable conceptual and institutional boundaries that have separated them in modern times.

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### Arts & Medicine Institute

The new Cleveland Clinic Arts & Medicine Institute strives to integrate visual arts, music, performing arts, and research to transform the medical environment, promote healing, and enhance the lives of patients, visitors, families, and employees. The team's goal is to coordinate and organize existing cultural and art-related activities within Cleveland Clinic, create new high-impact programs, explore potential national and international collaboration and partnerships, and develop new evidence-based protocols to validate the benefits of arts in medicine.

Visit our website: [http://my.clevelandclinic.org/arts\\_medicine](http://my.clevelandclinic.org/arts_medicine). Follow us on Twitter at **#CCArtsMed**

### Accreditation

The Cleveland Clinic Foundation Center for Continuing Education is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

The Cleveland Clinic Foundation Center for Continuing Education designates this educational activity for a maximum of 8.5 *AMA PRA Category 1 Credits*™. Physicians should only claim credit commensurate with the extent of their participation in the activity.

Participants claiming CME credit from this activity may submit the credit hours to the American Osteopathic Association Council on Continuing Medical Education for Category 2 credit.

### CBMT Credits

"Music and the Brain™: A Symposium with Integrated Live Performances" is approved by the Certification Board for Music Therapists (CBMT) for 11 Continuing Music Therapy Education Credits. Credits awarded by CBMT are accepted by the National Board for Certified Counselors (NBCC). The Music Settlement, Provider # P-064, maintains responsibility for program quality and adherence to CBMT policies and criteria. Symposium Learning Objectives are related to CBMT Scope of Practice V. A.2.

### Neurological Institute

The Neurological Institute is one of 26 institutes at Cleveland Clinic that group multiple specialties together to provide collaborative patient care. The Institute is a leader in treating the most complex neurological disorders, advancing innovations such as deep brain stimulation, epilepsy surgery, stereotactic spine radiosurgery and blood-brain barrier disruption. Annually, our staff of more than 150 specialists serves 140,000 patients and performs 6,000 surgeries.

### Name Badges

Name badges are must be worn throughout the program.

### Lunch

A boxed lunch will be available in the foyer. Please take the lunch back to the meeting room for the lunch presentation.

### Evaluation Form

Please complete the Evaluation Form and return it to the registration desk at the conclusion of the program. Individuals interested in receiving a CME certificate must complete and submit an Evaluation in order to receive their certificate.

### Post Proceedings

We are pleased to inform you that the proceedings from Music and the Brain will be produced and available for distribution.

**For more information** regarding supporting the activities of the Arts & Medicine Institute please contact **Michael John Dagon**, Director of Development, at **(216) 445-8580**, or [dagonm@ccf.org](mailto:dagonm@ccf.org).

**The Cleveland Clinic Foundation**

9500 Euclid Avenue/JJ36  
Cleveland, OH 44195