



Società Medico-Chirurgica di Ferrara Dal 1846



BELLE ARTI



BELLE ARTI
DIPARTIMENTO DI SCIENZE BIOMEDICHE
MEDICO-CHIRURGICHE DI FERRARA

**MUSICA E
MUSICOTERAPIA
BASI SCIENTIFICHE E
APPLICAZIONI IN
CAMPO NEUROLOGICO**

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Aula Magna delle Nuove Cliniche
Arcispedale S. Anna, Ferrara




Musicoterapia: da una possibile
definizione alla ricerca

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Alcuni frammenti audio...

... FRAMMENTO 1: UN CASO DI AUTISMO



... FRAMMENTO 2: UN CASO DI DEPRESSIONE

... FRAMMENTO 3: UN CASO DI SCHIZOFRENIA

NECESSITA' DI DEFINIRE
LA MUSICOTERAPIA...

La matrice psicologica della
musicoterapia...

9th WORLD CONGRESS
OF MUSIC THERAPY:

Music Therapy:
a global mosaic
many voices, one song

WASHINGTON, D.C., 1999

“La Musicoterapia è ...l'uso della musica e/o dei suoi elementi (suono, ritmo, melodia e armonia) per opera di un musicoterapeuta qualificato, in un rapporto individuale o di gruppo, all'interno di un processo definito, per facilitare e promuovere la comunicazione, le relazioni, l'apprendimento, la mobilitazione, l'espressione l'organizzazione ed altri obiettivi terapeutici degni di rilievo, nella prospettiva di assolvere i bisogni fisici, emotivi, mentali, sociali e cognitivi.

La Musicoterapia si pone come scopi di sviluppare potenziali e/o riabilitare funzioni dell'individuo in modo che egli possa ottenere una migliore integrazione sul piano intrapersonale e/o interpersonale e, conseguentemente, una migliore qualità della vita attraverso la prevenzione, la riabilitazione o la terapia”.

(8 th WORLD CONGRESS OF MUSIC THERAPY, AMBURGO, 1996)



World Federation of Music Therapy
Federación Mundial de Musicoterapia

What is music therapy?

Music therapy is the professional use of music and its elements as an intervention in medical, educational, and everyday environments with individuals, groups, families, or communities who seek to optimize their quality of life and improve their physical, social, communicative, emotional, intellectual, and spiritual health and wellbeing. Research, practice, education, and clinical training in music therapy are based on professional standards according to cultural, social, and political contexts. WFMT, 2011

www.wfmt.info

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Contents lists available at ScienceDirect
Clinical Psychology Review

Dose–response relationship in music therapy for people with serious mental disorders: Systematic review and meta-analysis

Christian Gold ^{a,*}, Hans Petter Solli ^{b,c}, Viggo Krüger ^b, Stein Atle Lie ^c

...Music therapy is a special type of psychotherapy where forms of musical interaction and communication are used alongside verbal communication. It has been defined as “a systematic process of intervention wherein the therapist helps the client to promote health, using music experiences and the relationships developing through them as dynamic forces of change” (Bruscia, 1998). The types of “music experiences” used in music therapy can include free and structured improvisation, other types of active music-making by patients, and listening to music. Improvisation is perhaps the most prominent form of musical interaction in music therapy. It has been described as central in many music therapy models. Client(s) and therapist improvise on musical instruments they have chosen, playing together freely or with a given structure or a musical or non-musical theme. Music therapists are specifically trained to intervene therapeutically within the medium, for example to support by providing rhythmical or tonal grounding, to clarify, to confront or to challenge the client’s expression in the music (Bruscia, 1987; Wigram, 2004). Other modes of music experiences in music therapy include playing composed music on instruments, singing and writing or improvising songs (Baker & Wigram, 2005), and listening to music (Grocke & Wigram, 2006). Songs may be used by clients as a safe, structuring and socially acceptable form in which they can express feelings which otherwise might be too overwhelming to express. Music listening may be helpful to bring up and make available therapeutically relevant issues (emotions, associations, memories, identity issues). All these different modes of “music experiences” become therapeutic by being used in the context of a therapeutic relationship. Verbal discussions, reflections, or interpretations connected to the music are important to help clients explore the potential meaning of an experience, and to relate a new experience within therapy to situations in the client’s life. The degree to which the music experience itself, versus the verbal reflection connected to it, is seen as the active agent of change may vary between modes of music therapy (Garrel, 2004), as well as between clients. However, treatments that rely solely on the direct effects of music alone, which do not “involve or depend upon a process of intervention and change within a client-therapist relationship” (“auxiliary level”, Bruscia, 1998, p. 95), are not music therapy. The term ‘music medicine’ is sometimes used to distinguish such treatments from music therapy....

When music becomes music therapy

Psychiatry and Clinical Neuroscience 2011, 65: 679–683

SCIENTIFIC LITERATURE PROVIDES evidence of the dose-responsive effects of music both in pathological contexts and upon individuals generally speaking. Also on the physiological, neurophysiological, biological and neurochemical levels, confirmation of such effects has been forthcoming. Empirically, all individuals can experience well-being and positive emotions when listening to music that has some particular significance for them, or can derive pleasure from socializing a musical experience (making or listening to music together with others). But all the above, while emphasizing the potentialities of music, usually refers to incidental effects that elude therapeutic logic.

I personally see that music embodies therapeutic potentialities as suggestive – but not scientifically proven.

For example: “What’s the music” is an imprecise concept which Misozzi? The Requiem or an aria from Don Giovanni? Vivaldi’s *Four Seasons* or R. Schumann’s *Kinderszenen* addressing whom? Producing what? How?

With these queries in mind, the international music-therapeutic community has introduced – as an essential component of therapy by music – the concept of “relationality”.

The above thoughts can help re-model music-therapeutic practice by introducing the following aspects (Violence Based Music Therapy and Evidence Based Practice): musical and relational training of music therapists, presence of a therapeutic setting, a theoretical/psychological background, aims oriented to the achievement of stable and long-lasting improvements (according to type and gravity of pathologies considered), consent (active and/or receptive techniques) facilitating intra- and interpersonal relationships with the patient/client and rigorous assessment criteria.

I believe that neither music nor the successful musical element can fall to keep these concepts in due consideration if they are to assume a potential therapeutic value. In therapeutic applications it is of essential importance that the individual’s musicality and musical potential (social energy) can only happen through the relationship between the music therapist and the patient/client mediated by the power of music. This is what defines the therapeutic specificity of music and constitutes

all the various possible interventions through music. Music can be the source of deep pleasure, it can stimulate relationships and attention and cognitive functions, but it becomes therapeutic practice only in the presence of the essential components mentioned above.

REFERENCES

1. SACCHI: The power of music. *Brain* 2006, 129: 2526–2532.
2. KROEBER S, TOWERS A: Neural basis of music-evoked emotions. *Trends Cogn Sci* 2010, 14: 134–137.
3. GOLD C: All those things with music [Editorial]. *Novel J Music Ther* 2009, 18: 1–2.
4. GOLD C, SOLLI HP, KRUGER V et al: Dose response relationship in music therapy for people with serious mental illnesses: systematic review and meta-analysis. *Clin Psychol Rev* 2009, 23: 193–207.
5. VUK A, JUMANA M: Evidence based music therapy. *Music Ther Today* 2005, 8: 1–36. Available from: <http://www.musictherapyworld.de> (last accessed 4 July 2005).
6. EISENCH: Possibilities and problems for evidence-based practice in music therapy. *Acta Psychol* 2005, 32: 235–261.

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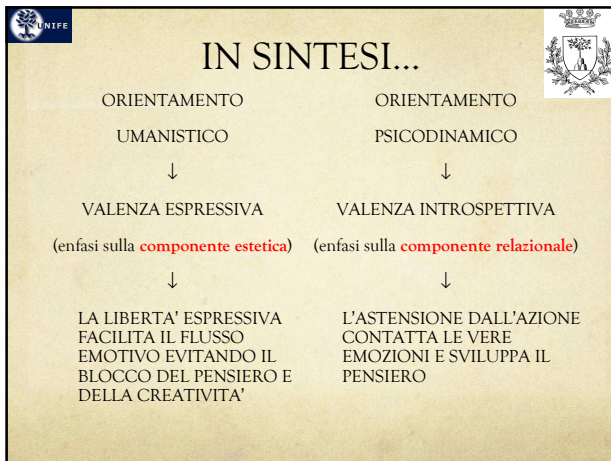
Differences between “music” and “music therapy” interventions in dementia. (Raglio & Gianelli, Current Alzheimer Research, 2009, 6, 293-301).

MUSIC	MUSIC THERAPY
Presence of a professional of the music area	Presence of a professional of the music-therapeutic area with specific relational and musical competences
Absence of a specific therapeutic setting	Presence of a structured therapeutic setting
Absence of a specific intervention model	Presence of a music-therapeutic referential model grounded on theoretical and methodological criteria
Aims: temporary well-being, improving mood, promoting socialization, memories and stimulation of frames of mind, relaxation, etc.	Aims (aspiring to become stable and long-lasting over time): attenuation of behavioral and psychiatric symptoms and prevention/stabilization of complications; increase in communication and relationship skills
Contents: structured musical initiatives (rhythmic use of instruments, singing, movement associated to music, etc.) and listening to music (classical music, favourite music, etc.)	Contents: sonorous-musical improvisation; listening activities that involve verbal and elaborative competences (preferably at initial stages of dementia)

MUSIC THERAPY MODELS

(WORLD FEDERATION OF MUSIC THERAPY, 1999)

- CREATIVE MUSIC THERAPY (NORDOFF-ROBBINS)
- ANALITICAL MUSIC THERAPY (PRIESTLEY)
- BEHAVIORAL APPROACH (MADSEN)
- GUIDED IMAGERY AND MUSIC (BONNY)
- BENENZON MUSIC THERAPY (BENZON)



Quale musicoterapia?

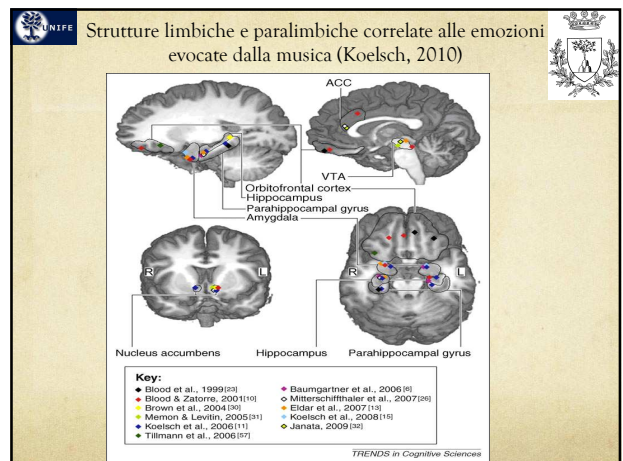
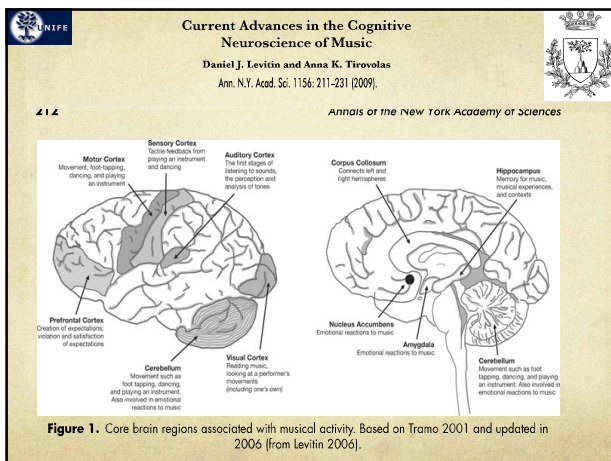
- Musicoterapia
- musicoterapia
- Musicoterapia

Le principali tecniche...

- **TECNICHE IMPROVVISATIVE**
- TECNICHE RECETTIVE

IL CONTRIBUTO DELLE NEUROSCIENZE...

- Quali gli effetti prodotti dal suono e dalla musica nel nostro cervello?
- Quali possono essere le potenzialità terapeutiche?
- Perché?
- Tematiche considerate: musica/emozioni, musica/apprendimento, localizzazione delle funzioni cerebrali rispetto alla percezione e produzione dell'elemento sonoro, musica/riabilitazione (neurocognitiva, neuromotoria, etc.)
- Tendenzialmente gli studi non si riferiscono a setting terapeutici



La musica è uno stimolo multimodale che attiva varie aree e funzioni facilitando le connessioni... provoca il movimento e stimola l'interazione...

L'ascoltare e il fare musica attivano anche le aree del sistema dei Mirror Neurons

(Kohler et al., 2002; Keysers et al., 2003; Lahav et al., 2007; Overy & Molnar-Szakacs, 2006; 2009; D'Ausilio, 2009; Koelsch, 2009; 2010; Wan et al., 2010)



The Shared Affective Motion Experience model (SAME)
(Overy & Molnar-Szakacs, 2006;2009)

Fig. 1 Model of the possible involvement of the human mirror neuron system in representing meaning and affective responses to music. One aspect of the experience of music involves the perception of intentional, hierarchically organized sequences of motor acts with temporally synchronous auditory information. Auditory features of the musical signal are processed primarily in the superior temporal gyrus (STG) and combined with synchronous structural features of the musical information conveyed by the musical signal in the posterior inferior frontal gyrus (IFG) and adjacent premotor cortex. The mirror model forms a neural bridge between the mirror neuron system and the limbic system. Alongside this information to be evaluated is related to one's own experience and emotional state contributing to a complex affective response mediated by the limbic system. Possible feedback mechanisms may influence the subsequent processing of the musical signal at the temporal and more long-term structures. The shared enactment of this neural mechanism in both the creator and the perceiver of the musical message allows for co-representation and sharing of the musical experience. Music notes from "The Lady Song" by Mike Holroyd and Neena Hickok.



... The **Shared Affective Motion Experience** model suggests that musical sound is perceived **not only in terms of the auditory signal, but also in terms of the intentional, organized sequences of expressive motor acts that are behind the signal**. So this model can suggest that properties of the human Mirror Neuron System allow us to consider social communication, and more specifically **musical communication, in a new light—less in terms of pitch/timbre/rhythmic patterns—and more in terms of action sequencing, goals/intentions, prediction, and shared representations**. In particular I think that this model can be connected to the active music therapy model in which the movements and the gestures behind the sound play an important role.

Tutte le funzioni del sistema dei Mirror Neurons sono collegate alla "social cognition" (interazione sociale, comunicazione, empatia,...)
(Overy & Molnar-Szakacs, 2009)

- Ascoltare e fare musica attiva funzioni sociali (Koelsch, 2010)
- Contact
 - Social cognition (Steinbeis & Koelsch, 2009; Koelsch, 2009)
 - Co-pathy
 - Communication (Trehub, 2003; Fitch, 2006)
 - Coordination (Overy & Molnar-Szakacs, 2009; Patel, 2009; Kirschner & Tomasello, 2009)
 - Cooperation (Rilling et al., 2002; Tomasello, 2005)
 - Social cohesion (Baumeister & Leary, 1995; Cross & Morley, 2008)



La musica attiva meccanismi gratificanti legati al piacere e alla gratificazione...
(Hillecke et al., 2005; Schlaug, 2009; Koelsch 2009; 2010)

Altri interventi con la musica in ambito clinico...

- ATTIVITA' DI PRODUZIONE MUSICALE
- ASCOLTO MUSICALE INDIVIDUALIZZATO
- BACKGROUND MUSIC
- MUSICA E MOVIMENTO
- ...

QUALI OBIETTIVI? IN QUALE AMBITO CLINICO? QUALI CONTENUTI? QUALI PROFESSIONISTI? QUALI MODALITA' DI






Gli ambiti applicativi...

- PSICHIATRICO
- NEUROPSICHIATRICO INFANTILE
- NEUROLOGICO
- GERIATRICO
- ONCOLOGICO/CURE PALLIATIVE
- ...

La musicoterapia in ambito neurologico:

- Demenze
- Stroke
- Malattia di Parkinson
- Danno cerebrale acquisito
- ...

Neurologic Music Therapy
A Research-Based System of Standardized Clinical Techniques

- Colorado State University
- Center for Biomedical Research in Music and Neurologic Rehabilitation
 - Michael Thaut, Ph.D. Neuroscience/Music Therapy
 - Gerald McIntosh, M.D. Neurologist
 - Ruth Rice, MS PT PT, Neurologic Rehabilitation
 - Gary Keryon, MS Biomechanics, Mathematics
 - Corene Thaut, MM MT, Neurologic Rehabilitation

Thaut, M.H. (1999). Training Manual for Neurologic Music Therapy




Neurologic Music Therapy
Basic Definitions


- NMT is defined as the therapeutic application of music to cognitive, sensory, and motor dysfunctions due to neurologic disease of the human nervous system.

Thaut, M.H. (1999). Training Manual for Neurologic Music Therapy

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**Neurologic Music Therapy
Rhythmic Auditory Stimulation**

- **RAS - (Rhythmic Auditory Stimulation)**
- **RAS** is a specific technique to facilitate rehabilitation of movements that intrinsically are biologically rhythmic. One of the most important of these rhythmic movements is gait. Therefore, the most prominent application of RAS is to gait disorders, e.g. in stroke patients, Parkinson's patients, and traumatically brain injured patients.



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Melodic Intonation Therapy

Definition

Melodic intonation therapy (MIT) uses melodic and rhythmic components to assist in speech recovery for patients with aphasia


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www.thelancet.com/neurology Vol 11 June 2012

In Context

Music therapy's breakthrough act

After decades in the wilderness, recent coverage of the rehabilitation of American Congresswoman Gabrielle Giffords might have given music therapy its breakthrough moment. David Holmes reports.



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**LA LETTERATURA
SCIENTIFICA...**



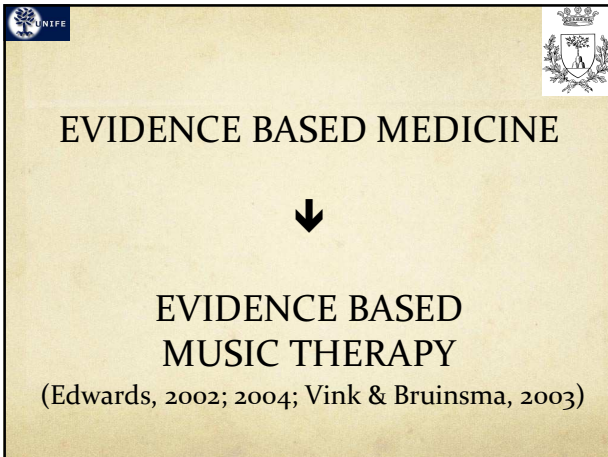
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**LA RICERCA PUO' ESSERE
INTESA COME
SISTEMATIZZAZIONE
E
VALUTAZIONE
DELL'INTERVENTO
TERAPEUTICO**

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Necessità di definire i **contenuti** degli interventi (M o MT) e di utilizzare **metodologie** di ricerca adeguate

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Music Therapy Studies

- Cochrane Database of Systematic Review (oltre 10 revisioni)
- Cochrane Central Register of Controlled Trials (oltre 664 records)




La musicoterapia presso la
Fondazione S. Maugeri
I.R.C.C.S.
(Pavia, Italy)



MUSICOTERAPIA E STROKE: UNO STUDIO RANDOMIZZATO CONTROLLATO.

Raglio A., Baiardi P., Bossi D., Bazzini G.,
Sguazzin C., Capodaglio E., Imbriani C.,
Rossomanno E., Zaliani A.


- Valutazione funzionale e motoria
- Valutazione cognitiva
- Parametri fisiologici
- Valutazione psicologica e della qualità di vita
- Valutazione musicoterapeutica



MUSICOTERAPIA E SLA: UNO STUDIO PILOTA.

Raglio A., Baiardi P., Imbriani C., De Pasquale D.,
Dell'Anna E., Sommaruga M., Pain D., Mora G.

- Valutazione funzionale
- Valutazione psicologica e della qualità di vita
- Valutazione musicoterapeutica



MUSICOTERAPIA E PARKINSON: UNO STUDIO RANDOMIZZATO CONTROLLATO.

- Valutazione funzionale e motoria
- Valutazione cognitiva
- Parametri fisiologici
- Valutazione psicologica e della qualità di vita
- Valutazione musicoterapeutica



MUSICA, MUSICOTERAPIA E fMRI



Grazie per l'attenzione!

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