RESEARCH WITH MUSICURE – AN OVERVIEW

Scientific studies using MusiCure – published in International medical journals

Since 2003 independent researchers and healthcare professionals from a number of countries has carried out a series of clinical research studies with MusiCure. The results of these studies and controlled trials are currently published in a number of international medical journals, such as: Heart & Lung – The journal of Acute and Critical Care, European Journal of Cardiovascular Nursing, Intensive and Critical Care Nursing, Pediatric Anesthesia, and others.

The published articles and research studies using MusiCure as ‘music medicine’ and MusiCure Nature Films shows:

- Significantly reduced feelings of stress, anxiety and pain
- A decrease in use of medication and drugs (tranquilizers, morphine, sleeping pills, etc.)
- Lowering of the body’s production of hormone cortisol (stress hormone) – including results from physiological measurements with blood samples
- Increase in production of hormone oxytocin ("peace/love hormone") – including results from physiological measurements with blood samples
- Generally – an increased sense of calmness, well-being, motivation and inspiration

Why MusiCure is unique:

- The original composed music, the film productions and the MusiCure pillow are all created specifically for healthcare by the composer Niels Eje and producer Inge Mulvad Eje.
- More than 20 years of creative development, on a foundation of clinical research, implemented and published in International Medical Journals by independent researchers.
- All references to music intervention studies in the listed research projects have been completed with MusiCure.
- ALL MusiCure products are unique original material on a worldwide scale, and no other music or films has previously been created on this evidence-based foundation.

Internationally published articles with research using MusiCure:

The following list of published scientific studies, research posters and review articles are all about using MusiCure.

1. Music interventions in patients during coronary angiographic procedures: A randomized controlled study of the effect on patients’ anxiety and well-being. by Birgit P. Weeks, Northwest Hospital & Medical Center, Seattle, Washington, USA, and Ulrica Nilsson, Department of Anaesthesia and Intensive Care and Centre for Health Care Sciences, Örebro University Hospital, Sweden. Published in European Journal of Cardiovascular Nursing (2010)

2. School-aged children’s experiences of postoperative music medicine on pain, distress, and anxiety. Authors: Stefan Nilsson RN, MSC Department of Paediatric Anaesthesia and Intensive Care Unit, The Queen Silvia Children’s Hospital, Sweden, co-authors: Eva Kokinsky MD, PhD, Ulrica Nilsson RNA, PhD and Karin Enskär RN, PhD. Published in Paediatric Anaesthesia (2010)

3. Soothing music can increase oxytocin levels during bed rest after open-heart surgery: a randomised control trial Author: Ulrica Nilsson Assisting Professor, RNA and PhD at the Centre for Health Care Sciences at Örebro University Sweden. Published in Journal of Clinical Nursing (2009)
4. Perioperative music may reduce pain and fatigue in patients undergoing laparoscopic cholecystectomy. Authors: M. Graversen and T. Sommer, Department of Surgery, Randers Region Hospital, Randers, Denmark. (music: MusiCure, administered through the pillow with built-in speakers). Published in *Acta Anaesthesiologica Scandinavica, 2013*

5. Patients’ perception of music versus ordinary sound in a post anaesthesia care unit: a randomised crossover trial. Malmö University Hospital, Sweden, Authors: Ann-Charlotte Fredriksson, Leif Hellström, Ulrica Nilsson. Published in *Intensive and Critical Care Nursing (2009)*

6. The effect of music intervention in stress response to cardiac surgery in - a randomized clinical trial. Author: Ulrica Nilsson Professor, RNA and PhD at the Centre for Health Care Sciences at Örebro University Sweden. Published in *Heart & Lung – The Journal of Acute and Critical Care (2008)*

7. Designed sound and music environment in post anaesthesia care units – a multicentre study of patients and staff. Authors: Thorgaard P, Ertmann E, Hansen V, Noerregaard A, Hansen V, Spanggaard L. Published in *Intensive and Critical Care Nursing 2004*

8. The effect of music on heart rate and motion artefacts during gamma camera acquisition for myocardial perfusion scintigraphy. (Internationally presented Poster from Herlev University Hospital) By: Pulawska T., Gerhardt M., Sondergaard, S. and Zerahn B.


10. Specially selected music in the cardiac laboratory—an important tool for improvement of the wellbeing of patients. Authors: Gøtzsche B, Henriksen BB, Pedersbaek G, Thomsen I. Published in *European Journal of Cardiovascular Nursing (2003)*


12. Effectiveness of music interventions for women with high anxiety during coronary angiographic procedures - a randomized controlled study. Author: Ulrica Nilsson, Professor, PhD & RNA, Örebro University, Sweden. Published in *European Journal of Cardiovascular Nursing 2012*

13. Randomized Controlled Trial on the Impact of Music Therapy During Cardiac Catheterization on Reactive Hyperemia Index and Patient Satisfaction: The Functional Change in Endothelium After Cardiac Catheterization, With and Without Music Therapy (FEAT) Study. Author(s): Lindsay Ripley, BS; Georgios Christopoulos, MD; Tesfaldet T. Michael, MD; Mohammed Alomar, MD; Banana V. Rangan, BDS, MPH; Michele Roesle, RN; Anna Kotsia, MD, PhD; Subhash Banerjee, MD; Emmanouil S. Brilakis, MD, PhD. Published in *Journal of Invasive Cardiology (2014)*

15. **Evaluating Pictures of Nature and Soft Music on Anxiety and Well-Being During Elective Surgery**  
Authors: Elinor Nielsen, Ingrid Wåhlin and Gunilla Hollman Frisman  
*Published in The Open Nursing Journal 2018*

16. **The effect of music on Blood Pressure and Heart Rate before PET-CT scanning** (poster). Authors: Gerhardt, M.; Skatt, C.W.; Holmboe, S.; Skads, L., Department of Clinical Physiology, Herlev Hospital, University of Copenhagen, Herlev, Denmark. *Presented at EANM congress, München 2008*


18. **Music Listening Among Postoperative Patients in the Intensive Care Unit: A Randomized Controlled Trial with Mixed-Methods Analysis**  
Authors: Nancy Ames, Rebecca Shuford, Li Yang, Brad Moriyama (Pharmacy Department), Meredith Frey, Florencia Wilson, Thiruppavai Sundaramurthi, Danelle Gori, Andrew Manne (Department of Preoperative Medicine), Alexandra Ranucci, Deloris Koziol (Biostatistics and Clinical Epidemiology Service) and Gwenth R Wallen.  
Nursing Department, Clinical Center, National Institutes of Health, Bethesda, MD, USA: *Published in ‘Integrative Medicine Insights’ Volume 12: 1–13, 2017*

19. **Can auditive and visual intervention reduce pain and distress among minor children in the postoperative care unit?**  
Authors: Susanne Winther Olsen, MPQM, RN; Pia Dybdal, MPO, RN, Head Nurse; Anita Bjerregaard Riis, RN. Department of Anaesthesia and Intensive Care, Odense University Hospital, Odense, Denmark Jørgen Lauridsen, Professor, Ph.d. University of Southern Denmark. *Poster by Dept. Anaesthesiology and Intensive Care 2015 - pub. Pending.*

 Internationally published review articles (with references to MusiCure):

*Published 2015 in The Lancet* (with reference to 5 studies using MusiCure by Niels Ejej).


22. **How Is Intraoperative Music Therapy Beneficial to Adult Patients Undergoing General Anesthesia?** A Systematic Review – by D. A. Flanagan, MSN, CRNA, DNpc (Columbia University, New York. Doctoral Candidate at Columbia University in New York, New York.) Athena Kerin, MS, CRNA (Graduate of Samford University Masters of Science in Nursing with an Anesthesia concentration).  
*Published in: AEJ - Anesthesia E-journal, Volume 5 - No. 2 2017*

23. **Music for insomnia in adults (Review)** - Authors: Jespersen KV, Koenig J, Jennum P, Vuust P.  
*Published in: Cochrane Database of Systematic Reviews, 2015, Issue 8.*

**Articles published in Nordic Journals and University/Bachelor projects (text in Danish or English):**

1. **Treatment with MusiCure of psychiatric patients suffering from anxiety** – a pilot study. Author and project coordinator: Torben Egelund Soerensen, Candidate in Music therapy, Psychiatric Department, Horsens Hospital, Denmark. Supervisor: Joergen Tybjerg, MD, Consultant Psychiatrist, Psychiatric Department, Horsens Hospital, Denmark. *Published in Psykiatrien – Årsskrift 4-2005*
2. **Designed sound environment for heart patients before and after invasive procedures** Author and study leader: Bitten Gøtzsche, Ward Nurse, Cardiac Laboratory, Department of Cardiology, Aalborg University Hospital, Denmark, 2010.

3. **Can music improve patients’ mental wellbeing perioperatively?** By Marianne Jungersen, Surgical Nurse, Day surgery Department R, Ullevaal University Hospital, Norway
Published in the Norwegian nurse sheet “Overview” 2006.


5. **Music reduces anxiety and discomfort during dialysis treatment.** By Hanne Agnholt, clinical nurse, and nurses Birthe Gross, Inger Bjerre Rosa, Fantahun Wassie Ketema, and Birgitte Schantz Laursen, senior researcher.
Published in journal ‘Dialäsen’ 2011

6. **Reduction of anxiety in heart patients using existential psychology & music medicine**
A Bachelor student project at the Danish Nursing school, by Morten Thomas Guldager. Published 2010

7. **Music Options** (Musikkens muligheder) – a bachelor project about the use of music for children with cancer, by Rose Marie Majlund Kent, Department of Arts and Cultural Studies at Copenhagen University. Published 2013

8. **The music pillow** (Musikpuden) – a bachelor project about treatment with MusiCure music and MusiCure Pillow to patients suffering from depression (en kvalitativ undersøgelse af depressive patienters oplevelse af velvære). by Paula M. Ihlen, Amalie Vincensen, Zenia Hansen og Camilla E. Hess – University College Sjælland – Campus Næstved 2016


14. **PIXI VTV - USER STUDY OF THE MUSICURE PILLOW.**
An extensive user survey of the MusiCure pillow and its effect on demented citizens was conducted in spring 2018 in Favrskov municipality, Region Midjylland Denmark – published 2018 at “Union of Municipalities” website, under ‘Local Government Denmark’

**Other articles related to MusiCure:**

**Our Musical Brain.** By Lars Heslet, Professor, Dr. Med. Head of Intensive Care Section 4131, Copenhagen University Hospital (Rigshospitalet), Summery article published in the MusiCure album booklets 2003-4

**Medicine and Music** - The use of specially designed music in Intensive Care Section 4131, Copenhagen University Hospital (Rigshospitalet), By Lars Heslet Professor, Dr. Med. Head of ICU 4131, Rigshospitalet, Copenhagen. Summery article published in the MusiCure album booklets 2003-4

For further access to abstracts or full text articles and posters about MusiCure listed above, go to: [www.musicure.com](http://www.musicure.com)
see menu: RESEARCH / published articles
Patient groups and study designs

All scientific studies are conducted by independent researchers on their own initiative and completely without binding or financial attachment to composers and producers behind MusiCure. The music and film programs for the individual projects are specially prepared according the research protocols or extracted from existing MusiCure releases in collaboration with the composer.

Publication of research results and scientific articles has always been done on the initiative of the researchers and hospital staff involved - and the participating patient groups in the studies include:

- ICU patients
- Recovery patients
- Outpatient surgery
- Cath Lab (coronary angiography)
- Cardiac patients (surgery)
- Perioperative procedures
- Children (after surgery)
- Children with autism (ASD)
- Scanning procedures (PET, CT, MEG)
- Geriatric patients
- Dementia and Alzheimer’s patients
- Dialysis patients
- Psychiatric patients
- Colonoscopy patients
Randomized clinical trial examining the effect of soothing music in response to relaxation during bed rest after open-heart surgery

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Örebro University Hospital and School of Health, Örebro University, Sweden

Background
Music interventions have been evaluated as an appropriate intervention to reduce pain, stress and anxiety in a number of clinical settings. A new challenge is to study if music can influence the relaxation system, which incorporates oxytocin which is a hormone synthesized in the hypothalamus.

Aim
To evaluate the effect of bed rest with music on relaxation for patients who had undergone heart surgery on postoperative day one.

Method
A randomized controlled trial with 40 patients undergoing open coronary artery bypass grafting and/or aortic valve replacement surgery randomly allocated to either music listening during bed rest or bed rest only. The music was distributed through a music pillow connected to an MP3 player (Wellness MusicPillow) and the music, MusicPillar (MusicCure) was soft, relaxing, and included different melodies of 60 to 10 beats per minute (bpm) and was played for 30 minutes with a volume of 50-60 dB. Relaxation was assessed during bed rest the day after surgery by determining serum oxytocin, heart rate, mean arterial blood pressure (MAP), arterial oxygen saturation (SpO2), arterial oxygen saturation (SaO2), and subjective relaxation levels.

Results
In the music group levels of oxytocin increased significantly in contrast to the control group for which the trend over time was negative i.e., decreasing values. Subjective relaxation levels increased significantly more and there were also a significant higher levels of PaO2 in the music group compared to the control group. There was no difference in MAP, heart rate and SpO2 between the groups.

Conclusion
Listening to music during bed rest after open-heart surgery has some on the relaxation system as regards oxytocin and subjective relaxation levels. This effect seems to have a causal relation from the psychological (music makes patients relaxed) to the physical (oxytocin release). Music intervention should be used as an integral part of the multimodal regime administered to the patients that have undergone cardiovascular surgery. It is a supportive source that increases relaxation.