

26ème congrès francophone  
ACTUALITÉS EN REAMINATION  
17-18 novembre 2022

Sédation :  
Approches non pharmacologiques

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Réanimation /acupuncture  
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- Absence de conflit d'intérêt

# Plan

- Introduction
- Acupuncture
- Hypnose
- Aromathérapie
- Musicothérapie
- Massage
- Réflexologie plantaire
- Relaxation
- Autres
- Conclusion
- Références

# Introduction

- Pourquoi ?
  - « Complementary, nonpharmacologic interventions for pain management, such as music therapy and relaxation techniques, may be opioid-sparing and analgesia-enhancing; they are low cost, easy to provide, and safe. Although a multimodal approach to pain management in ICU patients has been recommended, few studies have been published on the effectiveness of non pharmacologic interventions in these patients »
- 1-Clinical Practice Guidelines for the Management of Pain, Agitation, and Delirium in Adult Patients in the Intensive Care Unit  
Juliana Barr and Al Critical Care 2013

A	PAIN	AGITATION	DELIRIUM
	<p>Assess pain <math>\geq 4</math>x/shift &amp; prn Preferred pain assessment tools:</p> <ul style="list-style-type: none"> <li>• Patient able to self-report → NRS (0-10)</li> <li>• Unable to self-report → BPS (3-12) or CPOT (0-8)</li> </ul> <p>Patient is in significant pain if NRS <math>\geq 4</math>, BPS <math>&gt; 5</math>, or CPOT <math>\geq 3</math></p>	<p>Assess agitation, sedation <math>\geq 4</math>x/shift &amp; prn Preferred sedation assessment tools:</p> <ul style="list-style-type: none"> <li>• RASS (-5 to +4) or SAS (1 to 7)</li> <li>• NMB → suggest using brain function monitoring</li> </ul> <p>Depth of agitation, sedation defined as:</p> <ul style="list-style-type: none"> <li>• <i>agitated</i> if RASS = +1 to +4, or SAS = 5 to 7</li> <li>• <i>awake and calm</i> if RASS = 0, or SAS = 4</li> <li>• <i>lightly sedated</i> if RASS = -1 to -2, or SAS = 3</li> <li>• <i>deeply sedated</i> if RASS = -3 to -5, or SAS = 1 to 2</li> </ul>	<p>Assess delirium Q shift &amp; prn Preferred delirium assessment tools:</p> <ul style="list-style-type: none"> <li>• CAM-ICU (+ or -)</li> <li>• ICDSC (0 to 8)</li> </ul> <p>Delirium present if:</p> <ul style="list-style-type: none"> <li>• CAM-ICU is positive</li> <li>• ICDSC <math>\geq 4</math></li> </ul>
	<p>Treat pain within 30' then reassess:</p> <ul style="list-style-type: none"> <li>• Non-pharmacologic treatment—relaxation therapy</li> <li>• Pharmacologic treatment:             <ul style="list-style-type: none"> <li>– Non-neuropathic pain → IV opioids +/- non-opioid analgesics</li> <li>– Neuropathic pain → gabapentin or carbamazepine, + IV opioids</li> <li>– S/p AAA repair, rib fractures → thoracic epidural</li> </ul> </li> </ul>	<p>Targeted sedation or DSI (<i>Goal: patient purposely follows commands without agitation</i>): RASS = -2 – 0, SAS = 3 - 4</p> <ul style="list-style-type: none"> <li>• If <i>under sedated</i> (RASS <math>&gt; 0</math>, SAS <math>&gt; 4</math>) assess/treat pain → treat w/sedatives prn (non-benzodiazepines preferred, unless ETOH or benzodiazepine withdrawal is suspected)</li> <li>• If <i>over sedated</i> (RASS <math>&lt; -2</math>, SAS <math>&lt; 3</math>) hold sedatives until at target, then restart at 50% of previous dose</li> </ul>	<ul style="list-style-type: none"> <li>• Treat pain as needed</li> <li>• Reorient patients; familiarize surroundings; use patient's eyeglasses, hearing aids if needed</li> <li>• Pharmacologic treatment of delirium:             <ul style="list-style-type: none"> <li>– Avoid benzodiazepines unless ETOH or benzodiazepine withdrawal is suspected</li> <li>– Avoid rivastigmine</li> <li>– Avoid antipsychotics if ↑ risk of Torsades de pointes</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>• Administer pre-procedural analgesia and/or non-pharmacologic interventions (e.g., relaxation therapy)</li> <li>• Treat pain first, then sedate</li> </ul>	<ul style="list-style-type: none"> <li>• Consider daily SBT, early mobility and exercise when patients are at goal sedation level, unless contraindicated</li> <li>• EEG monitoring if:             <ul style="list-style-type: none"> <li>– at risk for seizures</li> <li>– burst suppression therapy is indicated for ↑ ICP</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Identify delirium risk factors: dementia, HTN, ETOH abuse, high severity of illness, coma, benzodiazepine administration</li> <li>• Avoid benzodiazepine use in those at ↑ risk for delirium</li> <li>• Mobilize and exercise patients early</li> <li>• Promote sleep (control light, noise; cluster patient care activities; decrease nocturnal stimuli)</li> <li>• Restart baseline psychiatric meds, if indicated</li> </ul>

# Introduction

- Pour qui ? TOUS ! adultes, enfants, neonats, patients brulés, médicaux chirurgicaux= tous les patients des soins intensifs.
- Par qui ?
- Multitudes de méthode, nombreuses méta-analyses
- Faible niveau de preuve

- 2-Pain relief from nonpharmacological interventions in the intensive care unit: A scoping review Reidun K. Sandvik and Al Journal of clinical nursing 2020
- 3-Could complementary health approaches improve the symptom experience and outcomes of critically ill adults? A systematic review of randomized controlled trials Susan E. Thrane and Al Complementary therapies in medicine 2019
- 4-Non-pharmacological interventions to reduce the incidence and duration of delirium in critically ill patients: A systematic review andnetwork meta-analysis Lu-Xi Deng and Al journal of critical care 2020

# Acupuncture, auriculothérapie

et Médecine traditionnelle chinoise (MTC)

- Médecine millénaire basée sur la ponction de points d'acupuncture
- MTC : **acupuncture(et auriculomedecine)** , diététique, massage tui na, pharmacopée, Qi Gong
- Déclenchement de cascade de neurotransmetteurs , sécrétion hormonale

5-The mechanism of acupuncture and clinical application Mehmet Tugrul Cabyoglu and al. Intern. J. Neuroscience, 2006

6-Synchrotron radiation phase-contrast X-ray CT imaging of acupuncture points. [Zhang D](#), and al. [P. Anal Bioanal Chem.](#) 2011

7- Neural Acupuncture unit:a new concept for interpreting effect and mechanisms of acupuncture, Zhang and Al., Evidence based complementary and alternative medicine, 2012

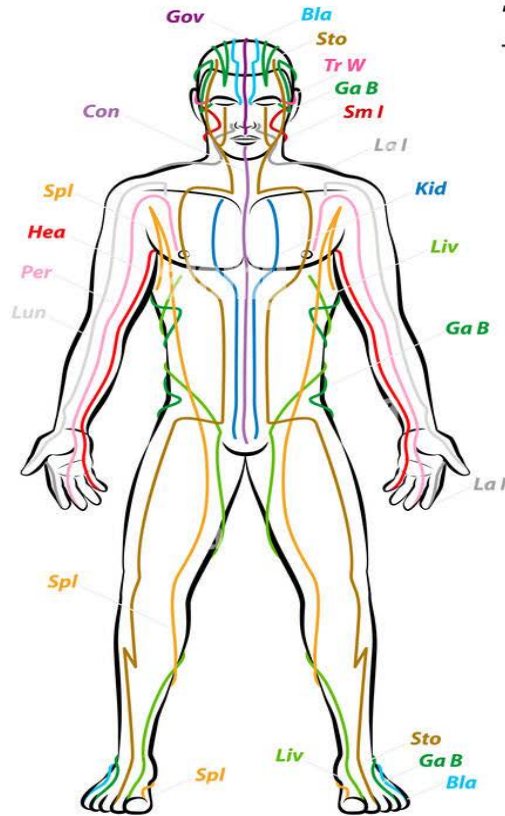
8-Adenosine A1 receptors mediate local anti-nociceptive effects of acupuncture. Goldman N and al. Nature Neuroscience.2010

9-Neural mechanism in acupuncture analgesia, Zhao and al., Progress in Neurobiology 2008

# Acupuncture, auriculothérapie

et Médecine traditionnelle chinoise (MTC)

## **The Body Meridians**



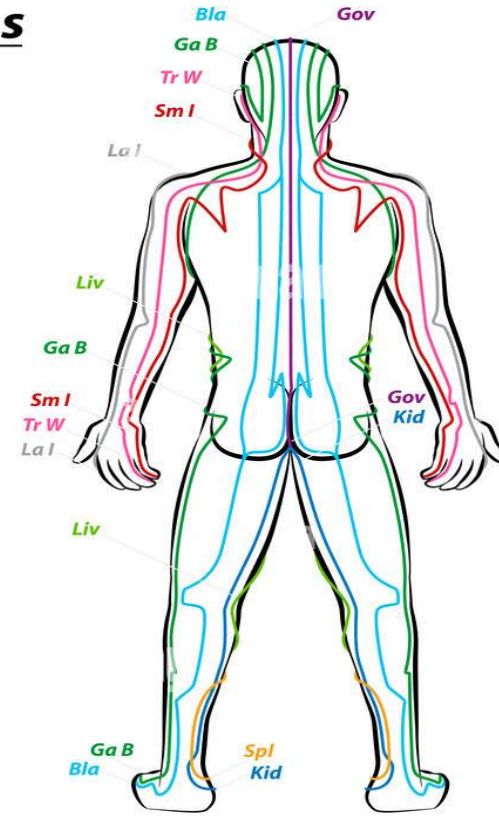
anterior view

### Two Centerline Meridians:

Conception Vessel  
Governing Vessel

### Twelve Principal Meridians:

Stomach Meridian  
Spleen Meridian  
Small Intestine Meridian  
Heart Meridian  
Bladder Meridian  
Kidney Meridian  
Pericardium Meridian  
Triple Warmer Meridian  
Gall Bladder Meridian  
Liver Meridian  
Lung Meridian  
Large Intestine Meridian

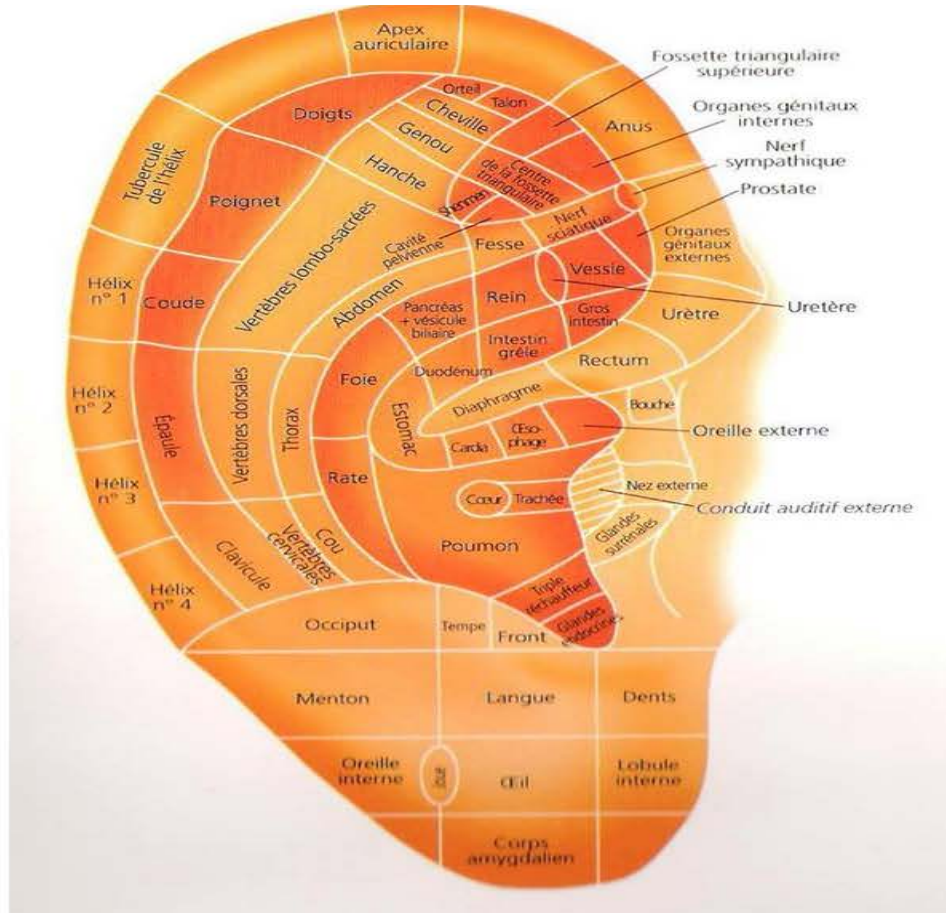


posterior view



# Acupuncture, auriculothérapie

et Médecine traditionnelle chinoise (MTC)



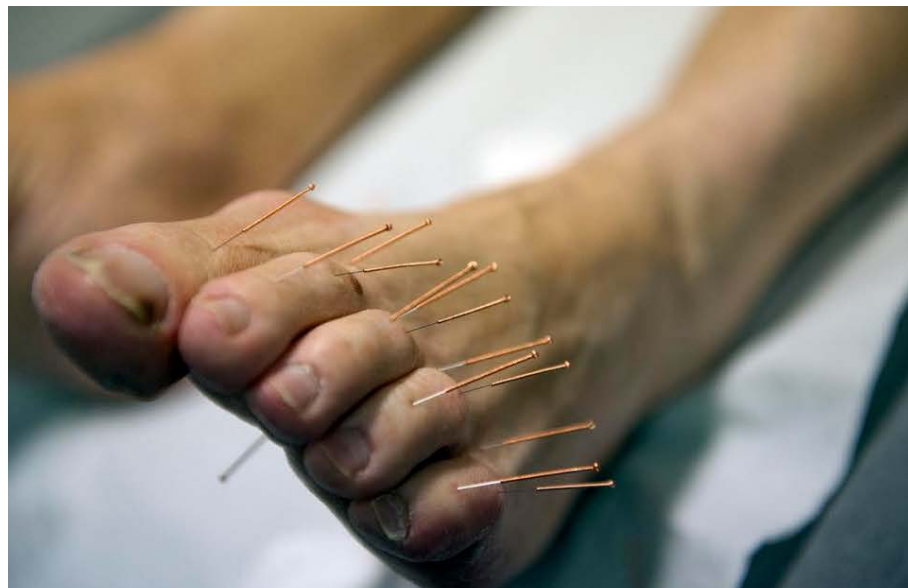
# Acupuncture, auriculothérapie

et Médecine traditionnelle chinoise (MTC)

- Réduction de 21 % à 8h de la consommation d'opioïdes et de 29 % à 72H
- Baisse des effets secondaires des opoïdes en lien avec la baisse des doses
- 10-Acupuncture Therapy as an Evidence-Based Nonpharmacologic Strategy for Comprehensive Acute Pain Care: The Academic Consortium Pain Task Force White Paper Update Arya Nielsen and Al. Pain Medicine, 2022

# Acupuncture

- Réduction de la dose de midazolam pour maintien de la sédation de patients intubés



- 11-Electroacupuncture reduces the dose of midazolam monitored by the bispectral index in critically ill patients with mechanical ventilation: an exploratory study Xia Zheng and Al Acupunct Med 2012

# Hypnose

- De Mesmer (1773) à Milton Erickson (XXeme)
- Action neurologique par réduction de la douleur et du mouvement visualisé par IRM fonctionnelle par réduction de l'activation fonctionnelle non seulement du cortex cingulaire antérieur, mais aussi des cortex insulaire, préfrontal, prémoteur, du tronc cérébral, du thalamus, du striatum et du cortex somatosensoriel primaire
- Médiation humorale : Diminution des médiateurs inflammatoires

# Hypnose

- Permet de réduire le niveau de stress et d'anxiété et l'usage de remifentanyl et de morphine en post opératoire de pontage.
- Réduction de la douleur aigu en soins critiques

- 13-The Beneficial Effect of Hypnosis in Elective Cardiac Surgery: A Preliminary Study Ahmet and Al, thoracic cardiac surgery 2016

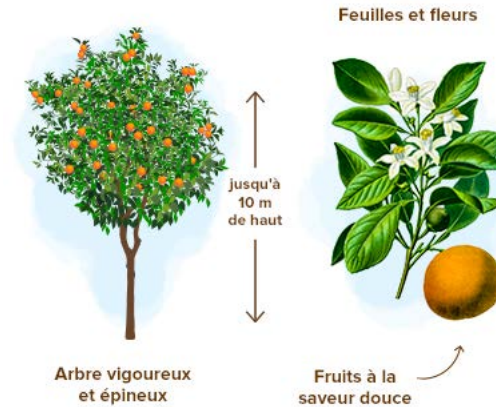
# Aromathérapie

- Utilisation des principes aromatiques des plantes extraites principalement sous forme d'huiles essentielles(HE).
- Utilisées en diffusion, transcutanée, prise per Os
- Apparenté à l'antiquité avec la phytothérapie, description par Dioscoride au 1er siècle dans De materia Medica découverte de l'alambic au Xeme siècle
- Traité de médecine moderne en 1910 par Mr Gattefossé qui crée le mot aromathérapie en 1928 , 1960 Dr Jean Valnet



# Aromathérapie

- Réduction de l'agitation et de l'anxiété par inhalation d'HE de bigaradier ou de lavande versus placebo



- 14-The Effects of Lavender and Citrus aurantium on Anxiety and Agitation of the Conscious Patients in Intensive Care Units: A Parallel Randomized Placebo-Controlled Trial Zahra Karimzadeh biomedical research international 2021

# Aromathérapie

- Inhalation d'HE de Mélisse diminue la TA, la FC et le niveau de stress chez les coronariens versus contrôle sur une durée courte ( 2 puis 5 min ) mais significative.



- 15-Effect of aromatherapy with Melissa essential oil on stress and hemodynamic parameters in acute coronary syndrome patients: A clinical trial in the emergency department Complementary Therapies in Clinical Practice August 2021 Atefeh Veiskaramian and Al.



# Musicothérapie

- Décrite dès l'antiquité comme pouvant influencer « "l'humeur et les humeurs en utilisant divers instruments, le rythme et les sons" »
- Décrite dans les années post guerre comme pouvant aider aux traumatismes
- Jacques Jost, un pionnier en France en 1954, Rolando Omar Benenzon, un pionnier mondial
- En 1974, Jacques JOST et le Dr. Benenzon co-organisent le premier congrès mondial de musicothérapie à l'Hôpital de la Salpêtrière.



- Société française de musicothérapie

# Musicothérapie

- Méta-analyse étudiant 11 études utilisant la musique en SC
- Divers types de musiques , différents protocoles
- 16-Music therapy reduces stress and anxiety in critically ill patients: a systematic review of randomized clinical trials Michele UMBRELLO ad Al. Minerva Anestesiologica 2019

TABLE III.—Comparison of interventions and outcomes and results.

Study	Intervention	Control
Chlan <i>et al.</i> (1998) <sup>20</sup>	30' music tape through headphones <i>via</i> portable cassette player Choice among 4 non-lyric playlist (60-80 bpm, New Age, country, religious, classical)	30' rest period (closing blinds, dimming lights, Do-Not-Disturb sign on the door)
Wong <i>et al.</i> (2001) <sup>21</sup>	30' music tape through headphones Choice among a collection of 7 cassettes of relaxing, Chinese or Western music (Chinese folk song, music played by Chinese instrument, Chinese music played by Western instrument, Buddhist music, Western classic, Western movie music, piano music)	30' rest period, at least 6-hours apart from music intervention drawing curtains, dimming lights)
Lee <i>et al.</i> (2005) <sup>22</sup>	30' music tape through CD-player and headphones Music selected by the patient from researcher collection (Chinese classical music, religious music, Western classical music, music of natural sounds).	30' placebo, through CD-player and headphones but without CD playing
Chan <i>et al.</i> (2008) <sup>19</sup>	30' of music through headphones and mp3 or CD player Music chosen based on previous studies: relaxing music defined primarily as being low-pitched, having a simple and direct musical rhythm and having a tempo of approximately 60-80 bpm. Music used: Chinese classical music, religious music and Western classical music and Jazz	No control group
Cooke <i>et al.</i> (2010) <sup>23</sup>	60' of music through CD player and headphones before and during the turning procedure Music chosen preoperatively from a selection of classical, jazz, country and western, new age, easy-listening or 'other' (mostly by contemporary artists) music provided by the researchers.	15' of headphones and CD player with no music playing
Dijkstra <i>et al.</i> (2010) <sup>24</sup>	3 sessions spread over 2 days, each lasting 30' of music through mp3 player and headphones. Between 10 am and noon and between 8 and 10 pm Classical and easy-listening music chosen by patient or caregiver.	Control: 3 sessions spread over 2 days, each lasting 30' of rest period
Han <i>et al.</i> (2010) <sup>25</sup>	30' of music through headphones/mp3 player and foam-lined headphones. Music chosen by patients from the investigator's collection. 4 categories of relaxing music, including Western classical music, Western light music, Chinese traditional music and Chinese folk.	Placebo: patients wearing foam-lined headphone and resting with their eyes closed for 30', no music playing. Control: patients resting with their eyes closed for 30', with neither headphone nor music.
Korhan <i>et al.</i> (2011) <sup>26</sup>	60' of music through mp3 player and disposable headphones Classic music (60-66 bpm), at least 30' after stopping of intravenous sedation.	60' of rest, standard care
Su <i>et al.</i> (2012) <sup>28</sup>	45' of music through CD player and headphones during nocturnal sleep time. Four pieces of sedating piano music composed by two of the authors; volume: 30-40 dB, 60-80 bpm).	Control: no music listening
Chlan <i>et al.</i> (2013) <sup>20</sup>	Standard CD/mp3 player with comfortable, noise-cancelling headphones with a starter set of 6 CDs (relaxing music played on piano, harp, guitar, and Native American flute) Within 24 h, the music therapist completed a music preference assessment on each patient using a specific tool Music offered at least twice per day (when feeling anxious and/or to provide relaxation), with self-initiation encouraged	Placebo: "self-initiated" use of noise-cancelling headphones whenever they wanted to block out ICU noise or have some quiet time. Control: normal care
Lee <i>et al.</i> (2017) <sup>31</sup>	30' music listening through mp3 player and headphones between 4-4.30 pm Music chosen by patients among researchers catalogue of slow-beat (60-80 bpm), relaxing music: Western classical music, Chinese classical music, music of natural sounds, or religious music	30' of rest between 4-4.30 pm; headphones with no music playing

Outcomes	Results
<u>State anxiety:</u> 6-item version of the Spielberger State-Trait Anxiety Inventory Scale (STAI-6), at baseline and after 30'	Statistically significant difference in post-test state anxiety between groups: mean value 10.16 (M) vs. 16.15 (C), P<0.001
<u>Stress and agitation:</u> heart rate and respiratory rate, at baseline, every 5' during assigned treatment and 5' after the end	Reduction of heart and respiratory rate over time in both groups, with greater reduction in Music group
<u>Anxiety:</u> 6-item version of the Spielberger State-Trait Anxiety Inventory Scale (STAI-6), at baseline and after 30'	Subjects in both conditions had reduced state anxiety scores over time; music therapy was more effective than a rest period in reducing state anxiety (C 49.67±4.82 vs. M 38.67±5.23, P=0.01)
<u>Stress and agitation:</u> mean blood pressure and respiratory rate, at baseline, every 5' during assigned treatment	Reduction of blood pressure and respiratory rate over time in both groups, with greater reduction in Music group
<u>Anxiety:</u> 6-item version of the Spielberger State-Trait Anxiety Inventory Scale (STAI-6), at baseline and after 30'	Subjects in the music group had reduced state anxiety scores over time: 15.4±4.6 vs. 13.8±2.8, P=0.048; state anxiety in the control group was similar to baseline value
<u>Behavioral checklist:</u> developed by the researcher recorded during intervention	Respiratory rate, heart rate, systolic and diastolic blood pressure were all significantly lower than baseline in the music group, while only diastolic blood pressure was reduced after the intervention in the control group.
<u>Stress and agitation:</u> heart rate, systolic and diastolic blood pressure and respiratory rate, at baseline, and after the intervention	
<u>Self-reported satisfaction:</u> after the intervention	
<u>Demographic variables:</u> age, gender, religion, education level, previous or current use of relaxation techniques	A higher therapeutic effect of music (significant reduction in heart and respiratory rate and blood pressure) was found in female patients, patients older than 65 years, and mechanically ventilated patients
<u>Physiological parameters:</u> Systolic and diastolic blood pressure, heart and respiratory rate	A lower effect was found in males and in those with higher levels of education.
<u>Data recorded:</u> at baseline, 15' and 30'	
<u>Discomfort:</u> measured by Numerical Rating Scale (NRS)	No significant reduction of discomfort (M: 2.7 (1.7; 3.7) vs. 3.6 (2.0; 5.2) and C: 3.4 (2.2; 4.6) vs. 2.8 (1.3; 4.2); both P>0.05) or anxiety in both groups
<u>Anxiety:</u> measured through Faces Anxiety Scale (FAS)	
<u>Both measured:</u> 15' before and 15' after intervention	
<u>Stress:</u> systolic, diastolic and mean blood pressure, heart and respiratory rate, assessed at baseline and 5', 10', 20', 30' and 60' from the beginning of the intervention.	No differences in blood pressure, heart or respiratory rate between groups. Significantly higher level of sedation in music group (Ramsay M 3.8±0.8 vs. 4.3±0.7, C 4.6±0.9 vs. 4.0±1.4, P=0.015)
<u>Sedation:</u> Ramsay Score, at baseline and at the end of the intervention.	
<u>Anxiety:</u> measured by the Chinese version of the Spielberger State-Trait Anxiety Inventory Scale (C-STAI), at baseline and at the end of intervention.	Significant differences in heart and respiratory rate, systolic and diastolic blood pressure, and C-STAI, but not in SaO <sub>2</sub> among the three groups
<u>Stress and relaxation:</u> heart and respiratory rate, blood pressure, arterial oxygen saturation, at baseline and at 5' intervals.	Greater mean differences in music group (Delta pre-post M 10.7±6.82 vs. P 3.34±5.37 vs. C 0.76±4.97; P=0.001).
<u>Anxiety:</u> physiological measurements as systolic and diastolic blood pressure, pulse rate, respiratory rate and oxygen saturation, at baseline, 30', 60' and 90'.	Significant reduction in stress response (heart respiratory rate) over time in music group while a significant increase in heart rate and respiratory rate over time in control, no significant change over time in headphone.
<u>Stress and relaxation:</u> heart and respiratory rate, mean arterial pressure at baseline and at 5' intervals	M: significantly lower respiratory rates, and systolic and diastolic blood pressure, than C
<u>Sleep quality:</u> polysomnography and validated questionnaires (Verran and Synder-Halpern Sleep Scale)	The decrease improved progressively at 30', 60' and 90', indicating a cumulative dose effect
<u>Anxiety:</u> 100-mm Visual Analogue Scale (VAS-A)	No differences in heart rate and oxygen saturation.
<u>Sedation:</u> Sedation intensity and sedation frequency scores	Improved polysomnography quality of sleep in music group (shorter N2 and longer N3 sleep), and improved self-reported sleep quality
	Musical group had significantly lower heart rates than control
	Patients in listened to music for a mean (SD) of 79.8 (126) minutes/day
	The intervention decreased anxiety and sedative exposure over time more effectively than usual care or placebo (noise-cancelling headphones).
	Patients in M group had 19.5 points lower VAS-A than usual care (P=0.003), as well as reduced sedation intensity by 0.18 points/day (P=0.05) and reduced frequency (0.21 points/day) vs. C and reduced sedation frequency (0.18 points/day) vs. P (P=0.04).
<u>Anxiety:</u> measured as serum cortisol levels (objective indicator) and as the Chinese version of the Spielberger State-Trait Anxiety Inventory Scale (C-STAI) and the Visual-Analogue Scale (VAS-A) scores (subjective indicators).	Significant better values for all post-test measures and for pre-post differences for music as compared to control (C-STAI M 57.2±7.64 vs. 51.5±5.1, C 57.2±5.8 vs. 56.2±5.6, p<0.001; VAS-A STAI M 57.2±9.2 vs. 49.6±8.1, C 58.0±8.2 vs. 56.1±9.2, P<0.001) except for diastolic blood pressure
<u>Stress:</u> heart rate and blood pressure.	

# Massage

- Comparaison de 12 études sur le massage sur la réduction de la douleur
- Réduction entre 0,7 et 0,85 points de l'Eva par rapport au traitement standard .



- 17-The Effect of Massage on Acute Postoperative Pain in Critically and Acutely Ill Adults Post-thoracic Surgery: Systematic Review and Meta-analysis of Randomized Controlled Trials Madalina Boitor and Al. Heart and lung 2017

**Table 1**  
Descriptive characteristics of the 12 eligible studies.

Study	Year	Country	Clinical setting	Population	Type of surgery	Nr days since surgery at 1st administration	Massage	Comparator	Pain assessment tool
Albert et al. <sup>28</sup>	2009	USA	Acute care	Age <sup>a</sup> : 65 (12) Male: 71% Sample size: 252	CABG, VR, CABG & VR	2 or 3	Duration: 30 min Frequency/day: 1 Sessions: 2 Protocol: specific (back, arms, legs) Duration: 20 min Frequency/day: 1 Sessions: 4 Protocol: specific (feet) Duration: 20 min Frequency/day: 1 Sessions: 2 Protocol: specific (hands, feet, back, arms, legs, neck, shoulders, head, pt preference) Duration: 15 min Frequency/day: 2–3 Sessions: 2–3 Protocol: specific (hands) Duration: 20 min Frequency/day: 1 Sessions: 2 Protocol: unclear (hands, feet, back, legs, neck, shoulders, head, pt preference) Duration: 20 min Frequency/day: 1 Sessions: 1 Protocol: unclear (back, arms, legs, neck, shoulders, head, pt preference) Duration: 20 min Frequency/day: 1 Sessions: 1 Protocol: unclear (feet)	Duration: – Frequency <sup>aa</sup> : – Sessions: – Type: standard care	VAS 0–10
Bagheri-Mesami et al. <sup>29</sup>	2012	Iran	Acute care	Age <sup>a</sup> : 59 (9) Male: 50% Sample size: 80	CABG	2	Duration: 20 min Frequency/day: 1 Sessions: 4 Protocol: specific (feet) Duration: 20 min Frequency/day: 1 Sessions: 2 Protocol: specific (hands, feet, back, arms, legs, neck, shoulders, head, pt preference) Duration: 15 min Frequency/day: 2–3 Sessions: 2–3 Protocol: specific (hands) Duration: 20 min Frequency/day: 1 Sessions: 2 Protocol: unclear (hands, feet, back, legs, neck, shoulders, head, pt preference) Duration: 20 min Frequency/day: 1 Sessions: 1 Protocol: unclear (back, arms, legs, neck, shoulders, head, pt preference) Duration: 20 min Frequency/day: 1 Sessions: 1 Protocol: unclear (feet)	Duration: 20 min Frequency <sup>aa</sup> : 1 Sessions: 4 Type: attention control Duration: 20 min Frequency <sup>aa</sup> : 1 Sessions: 2 Type: standard care with quiet relaxation	VAS 0–10
Bauer et al. <sup>28</sup>	2010	USA	NR	Age <sup>a</sup> : 66 (13) Male: 69% Sample size: 113	CABG, VR, CABG & VR	2	Duration: 20 min Frequency/day: 1 Sessions: 2 Protocol: specific (hands, feet, back, arms, legs, neck, shoulders, head, pt preference) Duration: 15 min Frequency/day: 2–3 Sessions: 2–3 Protocol: specific (hands) Duration: 20 min Frequency/day: 1 Sessions: 2 Protocol: unclear (hands, feet, back, legs, neck, shoulders, head, pt preference) Duration: 20 min Frequency/day: 1 Sessions: 1 Protocol: unclear (back, arms, legs, neck, shoulders, head, pt preference) Duration: 20 min Frequency/day: 1 Sessions: 1 Protocol: unclear (feet)	Duration: 20 min Frequency <sup>aa</sup> : 1 Sessions: 2 Type: standard care with quiet relaxation	VAS 0–10
Boitor et al. <sup>28</sup>	2015	Canada	ICU	Age <sup>a</sup> : 67 (11) Male: 78% Sample size: 40	CABG, VR, CABG & VR	The day of surgery (POD 0)	Duration: 15 min Frequency/day: 2–3 Sessions: 2–3 Protocol: specific (hands) Duration: 20 min Frequency/day: 1 Sessions: 2 Protocol: unclear (hands, feet, back, legs, neck, shoulders, head, pt preference) Duration: 20 min Frequency/day: 1 Sessions: 1 Protocol: unclear (back, arms, legs, neck, shoulders, head, pt preference) Duration: 20 min Frequency/day: 1 Sessions: 1 Protocol: unclear (feet)	Duration: 15 min Frequency <sup>aa</sup> : 2–3 Sessions: 2–3 Type: sham massage	FPT 0–10
Braun et al. <sup>30</sup>	2012	Australia	Acute care ward	Age <sup>a</sup> : 67 (12) Male: 75% Sample size: 146	CABG, VR or both	3–4	Duration: 20 min Frequency/day: 1 Sessions: 2 Protocol: unclear (hands, feet, back, legs, neck, shoulders, head, pt preference) Duration: 20 min Frequency/day: 1 Sessions: 1 Protocol: unclear (back, arms, legs, neck, shoulders, head, pt preference) Duration: 20 min Frequency/day: 1 Sessions: 1 Protocol: unclear (feet)	Duration: 20 min Frequency <sup>aa</sup> : 1 Sessions: 1 Type: standard care (relaxing quietly in a chair/bed – rest time)	VAS 0–10
Cutshall et al. <sup>41</sup>	2010	USA	NR	Age <sup>a</sup> : 66 (16) Male: 75% Sample size: 58	CABG, VR, CABG & VR	Between POD2–5	Duration: 20 min Frequency/day: 1 Sessions: 1 Protocol: unclear (back, arms, legs, neck, shoulders, head, pt preference) Duration: 20 min Frequency/day: 1 Sessions: 1 Protocol: unclear (feet)	Duration: 20 min Frequency <sup>aa</sup> : 1 Sessions: 1 Type: standard care with quiet time	VAS 0–10
Hattan et al. <sup>30</sup>	2002	UK	NR	Age <sup>a</sup> : 63 (9) Male: 80% Sample size: 25	CABG	2	Duration: 20 min Frequency/day: 1 Sessions: 1 Protocol: unclear (feet)	Duration: – Frequency <sup>aa</sup> : – Sessions: – Type: standard care (reading or resting while in bed)	VAS 0–100
Ksheretty et al. <sup>30</sup>	2006	USA	Acute care	Age <sup>a</sup> : 63 (14) Male: 72% Sample size: 115	CABG, VR, CABG & VR	Day 2 or 3	Duration: 30 min Frequency/day: 1 Sessions: 1 Protocol: unclear	Duration: 20 min Frequency <sup>aa</sup> : 1 Sessions: 1 Type: standard care with rest period	NRS 0–10
Minchinson et al. <sup>42</sup>	2007	USA	ICU and surgical ward	Age <sup>a</sup> : 64 (10) Male: 99% Sample size: 605	64% cardiac surgery requiring sternal incision & 36% abdominal surgery CABG	1	Duration: 20 min Frequency/day: 1 Sessions: up to 5 Protocol: specific (back)	Duration: 20 min Frequency <sup>aa</sup> : 1 Sessions: up to 5 Type: attention control Comparator 2: standard care	VAS 0–10
Najafi et al. <sup>28</sup>	2014	Iran	Acute care	Age <sup>a</sup> : 60 (7) Male: 54% Sample size: 70	CABG	3	Duration: 30 min Frequency/day: 1 Sessions: 1 Protocol: unclear (hands, feet, back, arms, legs, neck, shoulders, pt preference) Duration: 30 min Frequency/day: 1 Sessions: 1 Protocol: specific (feet) Duration: 10 min Frequency/day: 1 Sessions: 1 Protocol: specific (back)	Duration: 30 min Frequency <sup>aa</sup> : 1 Sessions: 1 Type: attention control	VAS 0–10
Rigi et al. <sup>43</sup>	2015	Iran	ICU	Age <sup>a</sup> : 56 (8) Male: 86% Sample size: 52	CABG	2	Duration: 30 min Frequency/day: 1 Sessions: 1 Protocol: specific (feet) Duration: 10 min Frequency/day: 1 Sessions: 1 Protocol: specific (back)	Duration: – Frequency <sup>aa</sup> : – Sessions: – Type: standard care Duration: 10 min Frequency <sup>aa</sup> : 1 Sessions: 1 Type: attention control	NRS 0–10
Smith et al. <sup>44</sup>	2004	USA	ICU & cardiac observation unit	Age <sup>a</sup> : 62 (10) Male: 75% Sample size: 20	CABG	Between 30 and 45 h postop	Duration: 30 min Frequency/day: 1 Sessions: 1 Protocol: specific (feet) Duration: 10 min Frequency/day: 1 Sessions: 1 Protocol: specific (back)	Duration: 10 min Frequency <sup>aa</sup> : 1 Sessions: 1 Type: attention control	VAS 0–100

CABG = Coronary Artery Bypass Graft, FPT = Faces Pain Thermometer, NR = Not Reported, NRS = Numeric Rating Scale, POD = postoperative day, VAS = Visual Analog Scale, VR = valve replacement.

<sup>a</sup> Mean (SD).

# Massage

- « Patients treated with massage experienced significantly lower levels of anxiety, higher requirements for noradrenalin, more insulin, and higher blood glucose levels compared to the control group. No significant difference in sedative medication administration was noted. »
- « 60-minute effleurage massage delivered by a family member to routine care :Patients treated with massage experienced significantly greater increases in level of consciousness compared to patients receiving standard care »
- 18-Could complementary health approaches improve the symptom experience and outcomes of critically ill adults? A systematic review of randomized controlled trials Susan E. Thrane  
Complementary Therapies in Medicine 2019



# Réflexologie plantaire

- Massage de zones réflexes du pied associées à des organes
- 1917 : Dr William Fitzgerald publie Zone therapy



# Réflexologie

- Réduction significative des douleurs et de l'anxiété après massage réflexologique chez les patients brûlés

**Table 2 – Comparison of mean  $\pm$  SD of pain anxiety scores in two groups during 3 days of intervention.**

Pain anxiety		Intervention	Control	p-Value
		mean $\pm$ SD	mean $\pm$ SD	
3rd day	Before dressing	85.23 $\pm$ 4.5	85.46 $\pm$ 4.7	0.978 <sup>b</sup>
	After dressing	76.69 $\pm$ 3.9	85.27 $\pm$ 4.49	<0.001 <sup>b</sup>
	p-Value	<0.001 <sup>a</sup>	0.427 <sup>a</sup>	
4th day	Before dressing	78.77 $\pm$ 3.94	85.77 $\pm$ 2.5	<0.001 <sup>b</sup>
	After dressing	69 $\pm$ 3.94	86.35 $\pm$ 2.5	<0.001 <sup>b</sup>
	p-Value	<0.001 <sup>a</sup>	0.028 <sup>a</sup>	
5th day	Before dressing	71.65 $\pm$ 5.4	85.42 $\pm$ 3.32	<0.001 <sup>b</sup>
	After dressing	51.62 $\pm$ 8.86	86.81 $\pm$ 2.6	<0.001 <sup>b</sup>
	p-Value	<0.001 <sup>a</sup>	0.007 <sup>a</sup>	
During days	Before dressing in 3 days	<0.001 <sup>c</sup>	0.411 <sup>c</sup>	
	After dressing in 3 days	<0.001 <sup>c</sup>	<0.001 <sup>c</sup>	

<sup>a</sup> Wilcoxon sign ranks test.

<sup>b</sup> Mann Whitney U test.

<sup>c</sup> Friedman test.

- 19-The effect of foot reflexology massage on burn-specific pain anxiety and sleep quality and quantity of patients hospitalized in the burn intensive care unit (ICU) Reza Alinia-najjar and Al. Burns 2020



# Relaxation

- « Relaxation techniques are practices to help bring about the body's "relaxation response," which is characterized by slower breathing, lower blood pressure, and a reduced heart rate. The relaxation response is the opposite of the stress response. »
- Cela peut être : « Progressive Relaxation, Autogenic Training Guided Imagery or "Visualization" Biofeedback-Assisted Relaxation Self-Hypnosis Breathing Exercises ... »
- 20-National centre of complementary and integrative health-US department of health and human service- National Institute of Health

# Relaxation

- « Three trials used relaxation techniques: Richardson 2003 used a combination of relaxation and imagery (13 to 18 minutes in length); Ruan 2006 used a combination of relaxation, imagery, and relaxing music; Richards 1998 used a combination of muscle relaxation, mental imagery, and music (a 7.5-minute relaxation audiotape consisting of music; guided imagery; and muscle relaxation. We also included this trial under 'back massage' intervention below).
- « We rated the quality of the evidence as very low for the effect of relaxation techniques on objective sleep variables, having downgraded once for risk of selection bias, once for indirectness (only one study population), and once for imprecision (large standard deviations) »
- 21-Non-pharmacological interventions for sleep promotion in the intensive care unit. Cochrane Database of Systematic Reviews Hu RF and Al., 2015,

# Autres (2)

TABLE 2 Overview of the included studies by country of origin, aim, study population and design

Author and year	Country	Aim	Study population	Design
Amidei and Sole (2013)	USA	To identify physiological pain and inflammatory responses to a standardised passive exercise protocol.	30 MV ICU patients. Mean age 56.6 (SD = 16.9) 60% males	Quasi-experimental within-subjects repeated measures design
Berger et al. (2010)	Switzerland	To measure the influence of hypnosis on pain intensity, patients' anticipation of pain before treatment and analgesic use.	23 ICU patients with burn injury (compared to 23 from the medical records) Mean age 36 (SD = 13) 61% males	Case-control experimental design
Berning et al. (2016)	USA	To determine the feasibility and measure the effects of chaplain-led picture-guided spiritual care for mechanically ventilated adults in the ICU.	50 ICU MV patients. Mean age 59 (SD = 16) 56% male Mean 19.5 MV days (range 7–29)	Quasi-experimental design
Chlissan et al. (2013)	USA	To investigate the effect of live spontaneous harp music on self-reported pain.	100 ICU patients (50 intervention and 50 in control)	Case-control study with pre- and postassessment
Feeney et al. (2017)	USA	To explore the feasibility and acceptability of acupuncture to relieve pain and nausea	46 ICU patients (76% males, mean age 47.4 SD = 16.7) compared to 530 non-ICU patients	Prospective feasibility study Cohort study
Gelinas et al. (2013)	Canada	To describe family/patients and nurses perspectives on the usefulness, relevance and feasibility of nonpharmacological interventions for pain management in the ICU	33 nonpharmacological interventions were discussed during 8 focus groups	A qualitative descriptive design
Golino et al. (2019)	USA	To examine active music therapy intervention on self-reported pain	52 patients with median age 62 (range 20–89), 37% males	Pretest/post-test, within-subject, single-group design
Jacq et al. (2018)	France	To investigate the effect of music on pain in MV ICU patients during morning bed bath	60 MV ICU patients. Intervention n = 30, 37% males median age 78. Control n = 30, 67% males, median age 65.	Not randomised controlled study
Khalil (2017)	Egypt	To assess the effect of ice pack application on pain level during radial artery puncturing	50 ICU intervention (age 56, SD = 2.1, 62% males and 50 ICU controls (age 54, SD = 2.1, 54% males)	Case-control experimental design
Khalil (2018)	Egypt	To study Critical Care Nurses' Practices of Nonpharmacological Pain Management Interventions	60 ICU nurses	Descriptive exploratory study
Patterson et al. (1992)	USA	To assess the efficacy of hypnosis in reducing burn pain	30 burn ICU pain ≥ 5 (age 34.1, SD = 9.1) 10 hypnosis, 10 attention/information, 10 controls	Cohort study with pre- and post-treatment
Saadatmand et al. (2015)	Iran	To investigate the effect of listening to natural sounds on pain	30 MV ICU intervention (age 41.23, SD = 15.31, males 47%), and 30 controls MV ICU (age 46.60, SD = 16.76, 67% males)	Pragmatic parallel-arm, randomised placebo-controlled trial

Abbreviations: MV, mechanically ventilated; ICU, intensive care unit.

# Conclusion

- Méthodes multiples efficaces
  - Réalisables par les IDE les ADS ou les médecins selon la méthode
  - Nécessite de formations spécifiques
  - Nécessité d'une volonté institutionnelle pour temps dédié car...
- 
- Méthodes chronophages
  - Nécessité d'investissement majeur du soignant
  - Retour du sens du soin

Merci de votre attention

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