Consumer summary:
Music during caesarean section

A review of the effect of music during caesarean section was conducted by researchers in the Cochrane Collaboration. After searching for all relevant studies, they found one study. Their findings are summarised below.

What is planned caesarean section and why listen to music?

Caesarean section is a surgical procedure for delivering a baby. It involves making surgical incisions into the mother's abdominal wall and uterus. These operations are often performed if there is a serious medical concern for the mother or baby. Some pregnant women plan to deliver their babies by caesarean section, as when they have delivered by caesarean section previously or because of breech presentation (when the baby's buttocks and/or feet will be in place to be delivered first). Caesarean sections are generally done with regional anaesthesia, either a spinal or epidural block with anaesthetic injected into the area around the spine in the lower back, which makes the mother feel numb from the waist down. Women have increased risks associated with anaesthesia and surgery.

Suggested risks for babies delivered by caesarean section include increased rates of admission to neonatal units and separation from the mother, prematurity, increased neonatal respiratory problems and stillbirth if the mother has previously had a caesarean section.

Pregnant mothers undergoing caesarean section often experience anxiety in anticipation of the event that may be unfamiliar, uncomfortable or have undesirable results. This anxiety can increase the risk of psychological and physiological complications and delays in postoperative recovery. Negative physiological manifestations are such as increased blood pressure and heart rate, leading to slower wound healing, diminished immune response, and increased risk of infection.

To reduce patient anxiety, sedatives are regularly administered before surgery. However, sedatives often have negative side effects, such as drowsiness and respiratory depression, and may interact with anaesthetic agents, prolonging patient recovery and discharge. Therefore, increasing attention is being paid to a variety of non-pharmacological interventions for reduction of preoperative anxiety.

Music is found to enhance well being and reduce stress. Although there are wide variations in individual preferences, music appears to exert direct physiologic effects through the autonomic nervous system.

When examining the efficacy of music interventions, there is a distinction between music interventions administered by medical or health care professionals (music medicine) and those implemented by trained music therapists (music therapy).

Interventions are categorised as music medicine when passive listening to pre-recorded music is offered by medical personnel. For example, a CD may be offered to a patient for relaxation or distraction; however, no systematic therapeutic process is present. In contrast, music therapy requires the implementation of a music intervention by a trained music therapist, the presence of a therapeutic process, and the use of personally tailored music experiences.
These music experiences include for example listening to music, performing music on an instrument or composing music.

The women participating in the study which is summarised below, were offered music medicine. They listened to music through earphones using a compact disc player, and could choose between Western classical, new age and Chinese religious music.

What does the research say?

Not all research provides the same quality of evidence. The higher the quality, the more certain we are about what the research says about an effect. The words *will* (high quality evidence), *probably* (moderate quality evidence) or *may* (low quality evidence) describe how certain we are about the effect.

For women undergoing planned caesarean section the study showed that listening to music

- May slightly lower mean pulse rate after surgery
- Makes little or no difference in mean respiration rate after surgery
- Makes little or no difference in mean systolic blood pressure after surgery
- Makes little or no difference in mean birth satisfaction after surgery
- Makes little or no difference in mean anxiety score after surgery

Table of results

What was measured	Routine care	Music and routine care	Quality of evidence
Mean respiration rate after surgery (scale 10 to 25 per minutes/lower is better)	**Mean respiration rate per minutes was 20.4**	**Mean respiration rate was 19.90** (19.15 to 20.60)[1]	⊕⊕◯◯ **Low**
Mean pulse rate after surgery (scale from 60 to 100 per minutes/ lower is better)	**Mean pulse rate per minutes was 82**	**Mean pulse rate per minutes was 74.65** (68.63 to 80.63)[1]	⊕⊕◯◯ **Low**
Mean systolic blood pressure after surgery (optimal pressure 120 mmHg)	**Mean systolic blood pressure was 121.40 mmHg**	**Mean systolic blood pressure was 122.30** (115.65 to 129.05)[1]	⊕⊕◯◯ **Low**
Mean birth satisfaction after surgery (higher is better)	**Birth satisfaction was 27.10**	**Birth satisfaction was 30.47** (28.70 to 32.25)[1]	⊕⊕◯◯ **Low**
Mean anxiety score after surgery (scale 0 to 10/lower is better)	**Mean anxiety score was 1.75**	**Mean anxiety score was 1.00** (o to 2.10)[1]	⊕⊕◯◯ **Low**
Child related outcomes	**Not measured in this study**		

[1]The numbers in the brackets show the range in which the actual effect could be.

Where does this information come from?

The Cochrane Collaboration is an independent global network of volunteers, dedicated to summarizing research about health care.

This information is taken from this Cochrane Review: Laopaiboon M, Lumbiganon P, Martis R, Vatanasapt P, Somjaivong B. Music during caesarean section under regional anaesthesia for improving maternal and infant outcomes. Cochrane Database of Systematic Reviews 2009, Issue 2. Art. No.: CD006914. DOI: 10.1002/14651858.CD006914.pub2.

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music added to routine care compared to routine care alone for women undergoing caesarean section

Patient or population: women undergoing caesarean section
Settings: A medical centre in Taiwan
Intervention: music added to routine care
Comparison: routine care alone

Outcomes	Illustrative comparative risks* (95% CI) Assumed risk routine care alone	Corresponding risk music added to routine care	Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
Mean respiration rate after completion of surgery respiration rate per minutes. Scale from: 10 to 25. Follow-up: 30-90 minutes	The mean mean respiration rate after completion of surgery in the control groups was **20.41 respiration rate per minutes**	The mean Mean respiration rate after completion of surgery in the intervention groups was **0.53 lower** (1.27 lower to 0.21 higher)		64 (1 study[4])	⊕⊕⊖⊖ **low**[1,2,3]	
Mean pulse rate after completion of surgery pulsrate per minutes. Scale from: 60 to 100. Follow-up: 30-90 minutes	The mean mean pulse rate after completion of surgery in the control groups was **82 pulsrate per minutes**	The mean Mean pulse rate after completion of surgery in the intervention groups was **7.37 lower** (13.37 to 1.37 lower)		64 (1 study)	⊕⊕⊖⊖ **low**[1,3,5]	
Mean systolic blood pressure after completion of surgery Follow-up: mean 30-90 minutes	The mean mean systolic blood pressure after completion of surgery in the control groups was **121.41 mm/hg**	The mean Mean systolic blood pressure after completion of surgery in the intervention groups was **0.90 higher** (5.76 lower to 7.65 higher)		64 (1 study)	⊕⊕⊖⊖ **low**[1,2,3]	
Mean birth satisfaction after completion of surgery Follow-up: mean 30-90 minutes	The mean mean birth satisfaction after completion of surgery in the control groups was **27.09 points**	The mean Mean birth satisfaction after completion of surgery in the intervention groups was **3.38 higher** (1.59 to 5.17 higher)		64 (1 study)	⊕⊕⊖⊖ **low**[2,3,6]	
Mean anxiety (VASA) score after completion of surgery VASA scale 10 cm (0 cm=no anxiety, 10 cm=worst possible anxiety). Scale from: 0 cm to 10 cm. Follow-up: mean 30-90 minutes	The mean mean anxiety (vasa) score after completion of surgery in the control groups was **1.76 cm**	The mean Mean anxiety (VASA) score after completion of surgery in the intervention groups was **0.78 lower** (1.9 lower to 0.34 higher)		64 (1 study)	⊕⊕⊖⊖ **low**[1,2,3]	

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

[1] Unclear sequence generation, allocation concealment, blinding and other biases. Selective outcome reporting cannot be ruled out.
[2] Imprecision. Only one small trial with a total of 64 participants.

[3] Publication bias unclear.
[4] Chang 2005
[5] Imprecision. Only one small trial with a total of 64 participants. Wide CI.
[6] Uncertainty about the validity of the measurement tool. It was designed for the study. No information whather it was tested for validity. There also seems to be a descrepancy between the range of the scale presented in table of included studies, and the numbers presented in the analysis 1.11.