

Contrasting two types of music on the naptime resting behavior of sleeping childcare children

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Abstract

Music is both an essential and omnipresent piece of the human experience. It is a basic piece of human life. It is helpful to live with joy and wellbeing. It is extremely fascinating to dissect different examination studies identified with music and Human Body. On the basis of this research Comparing Two Types of Music on the Naptime Resting Behavior of Sleeping Childcare Children can be established. The purpose of this experiment was to determine which type of music decreases the restless naptime behavior of childcare children more, classical music or soft rock.

Keywords: Classical Music, Soft Rock Music, Sleep, Childcare Children, Naptime.

1. Introduction

All people need sleep. Children need more sleep than adults do and that is why they take a rest. This usually takes place in the afternoon. This experiment is to decide which type of music childcare children will have a more restful sleep with, classical or soft rock. The results of this experiment will help parents and childcare centers help their children have a more restful sleep. According to the Oxford American Dictionary, sleep is

- 1 The natural recurring condition of rest in animals, in which there is unconsciousness with the nervous system inactive and muscles relaxed.
- 2 A spell of this a long sleep.
- 3 The inert condition of hibernating animals."

People need sleep so they can function properly. Sleep helps restore energy to the hard working parts of your body, such as the brain, and the nervous system. Both slow wave sleep and dreaming sleep are required to maintain the right amount of energy. The slow wave type of sleep helps build protein and restores energy to the brain and the nervous system, which in return affects the muscles, glands and other parts of the body. The dreaming part of sleep is important to the mental activities such as learning and reasoning. An illness may cause a person to weaken and sleep more than normal. The reason for the extra sleep is to conserve more energy and resources. Some scientists believe very strongly that sleep helps the body recover from an illness in a quicker time period. A survey on sleep and health has been taken by the American Cancer Society. The results from this survey was that people who acquired seven to eight hours of sleep were healthier than those who obtained less or more sleep than that amount. Some neurons inside the brain stem and midbrain are active only during REM sleep and some are not. The combined effects of the "sleep-active and sleep inactive" neurons is why people only twitch and make small movements instead of acting out their dreams. People that do move about and act out their dreams, often hurting themselves, have out of order inactive and active REM systems. Humans are known to sleep mostly at night, although it depends on your age. For example newborns can sleep up to 16 hours a day, but never for very long periods of time. A two-year-old usually

sleeps from 9 to 12 hours with the periods of sleep becoming longer. As an adult, 6 to 7 hours of sleep are needed to revitalize your body. As you grow older and mature, your sleeping periods form into one long time frame instead of short frequent periods. When you get to the elderly stage, you return to the pattern of early childhood sleep consisting of a couple of naps and little sleep at night. The two types of sleep are REM and NREM. REM stands for rapid eye movement and NREM stands for non-rapid eye movement. REM sleep is measured by the body movement and twitching. NREM sleep has four stages, which are measured with an EEG. The first stage of NREM is the lightest and the fourth stage is the heaviest. As you're sleeping you progress slowly from stage zero to four and then back down to stage zero. After stage zero you go to REM sleep. This cycle is repeated throughout the night. The amount of time spent in REM sleep gets longer throughout the night, averaging from about 20-22 percent of the night. Sleep is what you are doing when you are not awake. It is an "event" that repeats itself throughout your life. Sleep is necessary so your body can properly function. When people are deprived of sleep, they usually become quick tempered and lose energy; it usually means they are deprived of sleep. After just two days without sleep, long periods of concentration can be difficult. If greatly desired, a person can perform well for short periods of time but they are easily distracted. The person "deprived of sleep" doses off at times and may completely fall asleep unless kept constantly active. Thinking, seeing, and hearing clearly become troublesome if you go without sleep for three days. Sometimes people get to the point where they hallucinate and confuse their dreams with reality. They also may lose concentration in the middle of a sentence. Going without sleep for 11 days has been the record, but aside from what has been already mentioned, they also become fearful and suspicious. For example, "they might think that a doctor is an undertaker who has come to bury them or that their food has been poisoned." The effect of sleep deprivation for any amount of time does not have any long-term damage. Sleep recovery following sleep deprivation shows an increase of both REM and stage four NREM sleep. According to the American Dictionary, music is--

- 1 The art of arranging sounds of voice(s) or instrument(s) or both in a pleasing sequence or combination.
- 2 The sound(s) or combination(s) produced a written or printed score for this.
- 3 Any pleasant sound or series of sounds, such as bird song".

Hypothesis

Our hypothesis is that the children will have a more restful nap with classical music rather than soft rock. We base our hypothesis on our own experiences. When we rest we have music playing and we have found that we rest better when we have classical music playing than anything else.

Related Work

Laszlo Harmat, Johanna Takacs and Robert Bodizs research the effects of music on rest quality in energetic individuals with poor rest. Sarah Grace M. Gonzales proposed the effect of music in inducing think about the rest onset idleness of the adolescents requiring remarkable thought in a child minding foundation. Purposive investigating was used as a piece of this study to watch the rest onset inertia of kid's ages 1 – 6 years old, with no listening to prevention, can comprehend verbal rules, arranged to time, spot, and individual and has no genuine physiological or mental issue

Experiment design

The constants in this study were that we recorded the same children every time we used the videotape. The children were in the same location in the classroom at each taping. When we played the music it was the same Mozart music or the same Beatles music.

The manipulated variable was playing the Beatles vs. Mozart during the naptime of childcare children.

The responding variable was the children's restful behavior. Restful behavior takes place when the child makes no large body movements; non-restful behavior takes place when the child does make large noticeable body movements.

To measure the responding variable 10 minutes of video footage was reviewed. A tally mark on a data sheet was made for each large body movement. This was done for each subject.

2. Materials

For our experiment design we used 1 no of video tape, Tripod- 1 no, battery charger- 1 no, television- 1 no, The Beatles /1962-1966 compact disc- 1 no, Mozart Piano Concertos Nos. 20 & 21 compact disc- 1 no, compact disc player-1 no, cots- 8 nos, childcare center- 1 no, video camera- 1 no. Recording Tape- 1 no, children- 8 nos.

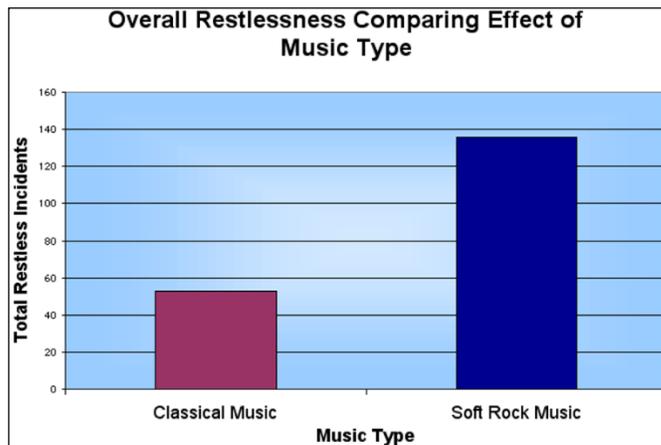
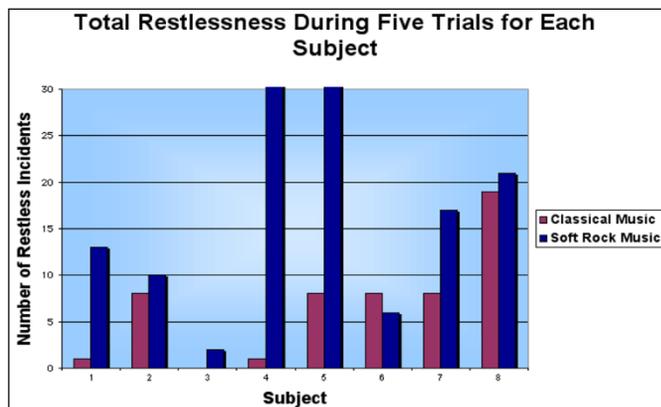
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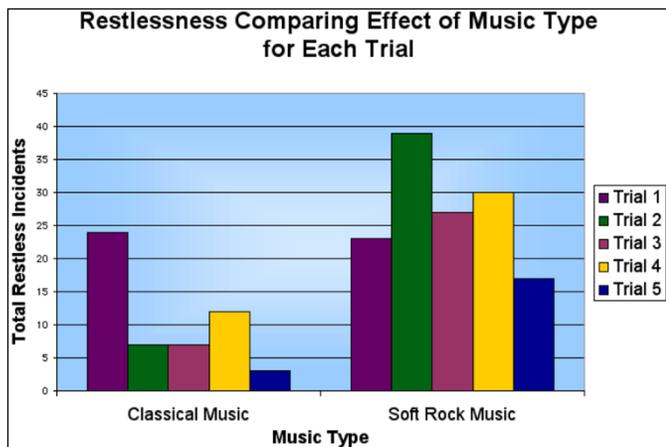
1. The night before the first taping set up the tripod in the classroom and leave it there until naptime. Leave the camera off.
2. Pick 8 children that come regularly to the childcare.
3. Get parent permission slips signed.
4. Label each child 1, 2, 3, 4, 5, 6, 7 and 8.
5. Use those children as your "subjects" for taping.
6. Layout the cots in the room.

7. Have the children take their shoes off.
8. Give each child their necessities to go to sleep.
9. Instruct them to lie down on their cot.
10. Dim the lights.
11. Turn on the music. (Alternating every other day with each type of music.)
12. Pat or rub each child's back to help them relax and rest.
13. Wait 30 minutes into naptime to turn the camera on.
14. Slowly turn on the camera.
15. Set the timer for 10 minutes.
16. Slowly turn off the camera after the 10 minutes.
17. Slowly move the camera to the next child and repeat steps 13 through 16. Do this for each of the eight children.
18. Carefully remove the camera and store.
19. Review the footage to be sure the image is clear.
20. View the video and record the data by recording a tally mark if a large noticeable body movement occurs.
21. Repeat steps 5-19 until ten days have been completed.

3. Results

The original purpose of this experiment was to determine which type of music decreases the restless naptime behavior of childcare children more, classical music or soft rock. The result of the experiment was, the trials using classical music had approximately half the restless movements of the soft rock music trials.





4. Conclusion

Our speculation was that the kids would have a more restful nap with classical music as opposed to delicate rock. The results indicate that this hypothesis should be accepted. The reason for this is, the amount of movements during the classical music was about half the amount of movements occurring during soft rock. Because of the results of this experiment, we wonder if there would be a different set of results if we were to test adults or teenagers. If we were to conduct this project again we would record the amount of time that it takes for a child to rest, instead of the amount of movements a child has.

5. References

1. Tore A. Nielsen, A review of mentation in Rem and Nrem sleep: "Covert" REM sleep as a possible reconciliation of two opposing models, Behavioral and Brain Sciences, Printed in the United States of America. 2000; 23:793–1121.
2. Laszlo Harmat, Johanna Takacs, Robert Bodizs. Music improves sleep quality in students Journal of Advanced Nursing. 62(3), 327–335. doi: 10.1111/j.1365-2648.2008.04602.x
3. Sarah Grace M. Gonzales, Effect of Music in Inducing Sleep among Children in Need of Special Care in a Child Shelter Institution: Basis for Independent Nursing Intervention, Journal of Biology, Agriculture and Healthcare, ISSN 2224-3208 (Paper) ISSN 2225-093X (Online) 2013; 3(7)
4. Sahler OJZ, Hunter BC, Liesveld JL. The effect of using music therapy with relaxation imagery in the management of patients undergoing bone marrow transplantation: A pilot feasibility study. Alternative Therapies in Health and Medicine. 2003; 9(6):70-4.
5. Sarkamo T, Tervaniemi M, Laitinen S, Forsblom A, Soinila S, Mikkonen M, et al. Music listening enhances cognitive recovery and mood after middle cerebral artery stroke. *Brain*, 2008; 131(3):866-76.
6. Sarnthein J, VonStein A, Rappelsberger P, Petsche H, Rauscher FH, Shaw GL. Persistent patterns of brain activity: an EEG coherence study of the positive effect of music on spatial-temporal reasoning. *Neurol Res*. 1997; 19(2):107-16.
7. Schellenberg EG, Hallam S. Music listening and cognitive abilities in 10- and 11-year-olds: The blur effect. *Ann N Y Acad Sci.*, 2005; 1060:202-9.

8. Schmithorst VJ, Holland SK. The effect of musical training on the neural correlates of math processing: A functional magnetic resonance imaging study in humans. *Neurosci Lett*. 2004; 16:354(3):193-6.
9. Shui-Tao Hu, Fang-Kuei Hsien. Effectiveness of Application Music Therapy in Cardiovascular Patients. This paper presentation is part of Evidence -Based Strategies in Acute Care.
10. Simpson SD, Karageorghis CI. The effects of synchronous music on 400-m sprint performance. *J Sports Sci*. 2006; 24(10):1095-102.
11. Teng XF, Wong MY, Zhang YT. The effect of music on hypertensive patients. *Eng Med Biol Soc*. 2007; 4649-51.
12. Overy K. Dyslexia and music- From timing deficits to musical intervention. *Ann N Y Acad Sci*. 2003; 999:497-505.
13. Patston LL, Hogg SL, Tippett LJ. Attention in musicians is more bilateral than in non-musicians. *Laterality*, 2007; 12(3):262-72.
14. Pavlygina RA, Frolov MV, Davydov VI, Milovanova GB, Sulimov AV. Recognition of visual images in a rich sensory environment: musical accompaniment. *Neurosci Behav Physiol*. 1999; 29(2):197-204.
15. Rauscher FH, Shaw GL, Levine LJ, Wright EL, Dennis WR, Newcomb RL. Music training causes long-term enhancement of preschool children's spatial-temporal reasoning. *Neurol Res*. 1997; 19(1):2-8.
16. Register D. The effects of an early intervention music curriculum on pre-reading/writing. *J Music Ther*. 2001; 38(3):239-48.
17. Risch M, Scherg H, Verres R. Music therapy for chronic headaches. Evaluation of music therapeutic groups for patients suffering from chronic headaches. *Schmerz.*, 2001; 15(2):116-25.
18. Rosenkranz K, Williamon A, Rothwell JC. Motorcortical excitability and synaptic plasticity is enhanced in professional musicians. *J Neurosci*. 2007; 9; 27(19):5200-6.
19. Rykov M, Salmon D. Music therapy in palliative care [Thematic issue and companion CD-ROM]. *Journal of Palliative Care*. 2001; 13(3):41-60.

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