

# Science Leads

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**PHEOCS** Investigation

There is an old saying “Music soothes the savage beast”. Does it also affect the heart rate of a person? Will the heart rate of a person change as the decibel level changes? Will the heart rate of a person change as the decibel level changes? Will the heart rate change when different types of music are heard? A heart rate baseline will need to be established

What types of music might lower a person's heart rate? Slower music could cause a slower heart beat because your heart beat tries to match the beat. What are several benefits of listening to music to affect your heart rate? People who listen to 20-30 minute of music each day have a lower blood pressure and a slowed heart rate. Sometimes when the music is slow listening to it can reduce the perception of pain for some people. How long have studies been conducted relating to heart rate and music? They opened a database for studies on how music affects health in 1986. What is the size of your heart? A healthy human heart is about the size of your fist. What is holistic medicine? Holistic medicine is a system of health care that takes the cooperation of all people and relationships involved. It works on the physical, mental, social, spiritual, and emotional aspects of health.

# PHEOCS

Background Information- Contacting live

What is the definition of heart rate? The definition of heart rate is the pulsation of the heart. What have studies found about musicians vs. nonmusicians that the effects of music on heart rate? Music has a larger effect on musicians because musicians have more history and emotion of the music. They have to feel the emotion and beat. This affects their heart rate more than nonmusicians. Does the type of music or the tempo of music cause a greater change in heart rate? Yes, it does. The music sparks something in your brain that reacts with your heart. Your heart attempts to match the tempo of the music. Fast music, metal, and hard rock increases your heart rate. Slow music and classical slow the heart rate. There are many other styles of music that effect your heart rate.

# PHEOCS

Background Information- Contacting live

We predict that fast tempo and loud music will increase your heart rate, and slow tempo and quiet music will decrease your heart rate. We also believe that while listening to music you don't like you will become stressed and your blood pressure will increase, and while listening to music you like you will become relaxed and your blood pressure will decrease.

**PHEOCS** Hypothesis

# Materials

- Blood Pressure Cuff
- Hand Held Heart Rate Monitor
- iPod
- Headphones

1. Get a portable lab quest and handheld heart rate monitor.
2. Turn on the lab quest and plug the heart rate monitor into it.
3. Change the duration of the test to 200 seconds.
4. Go onto graphing
5. make sure that the cord arrow is facing up.
6. Hold the heart rate monitor the way the imprints show.  
Stay within a 3 foot radius of the cord and labquest.
7. Press play, it will take about 20 seconds for your heart rate to show up.
8. Leave the tester to rest for 60 seconds.
9. Start to play the music.

# PHEOCS

Designing experiment

10. Let the music play for 50 seconds.

11. Record the high and low of the heart beat while they were resting and the high and low of the heart beat while listening to music.





# Blank Graph

People	Rachel	Brooke	Rachel	Brooke	Rachel	Brooke	Rachel	Brooke	Rachel	Brooke	Rachel	Brooke	Rachel	Brooke	Rachel	Brooke	Rachel	Brooke	Rachel	Brooke
Song	Wanted		B Team		Animal		Baby		Make a Move		Raised by Wolves		Feel Good Inc.		Nothing to lose		Kangaroos		Breakfast at Tiffany's	
Style	Pop Country		Pop		Alternative Rock & Roll		Pop		Rock		Alternative Rock		Alternative Hip Hop		Country		Parody		Oldies	
Feelings																				
Speed	Slow		medium		fast		medium		fast		fast		Medium/fast		medium		slow		medium	
Blood Pressure																				
Heart rate																				

Heart rate bpm	Blood Pressure	Speed	Feelings	Style	Song	People
Rest: L: 92 H:96 Listen: L:93 H:100	279.72	Slow	Love	Pop Country	Wanted	Rachel
Rest: L:75 H:84	279.72		good			Brooke
Rest: L:92 H:96 Listen:L:92 H:100	279.72	medium	pumped	Pop	B Team	Rachel
Rest: L:82 H:97 Listen: L:86 H:93	279.72		love			Brooke
Rest: L:92 H:96 Listen: L:92 H:100	279.72	fast	Cool/love	Alternative Rock & Roll	Animal	Rachel
Rest: L:80 H:86 Listen: L:79 H:89	279.72		LOVE!			Brooke
Rest: L:90 H:98 Listen: L:93 H:98	279.72	medium	annoying	Pop	Baby	Rachel
Rest: L:86 H:96 Listen: L:84 H:93	279.72		hate			Brooke
Rest: L:95 H:104 Listen: L:95 H:100	279.72	fast	pumped	Rock	Make a Move	Rachel
Rest: L:82 H:98 Listen: L:86 H:95	279.72		good			Brooke
Rest: L:94 H:105 Listen: L:91 H:97	279.72	fast	love	Alternative Rock	Raised by Wolves	Rachel
Rest: L:59 H:105 Listen: L:84 H:98	279.72		good			Brooke
Rest: L:94 H:105 Listen: L:90 H:96	279.72	Medium/ fast	funny	Alternative Hip Hop	Feel Good Inc.	Rachel
Rest: L:83 H:98 Listen: L:8 H:91	279.72		great			Brooke
Rest: L:91 H:107 Listen: L:81 H:94	279.72	medium	happy	Country	Nothing to lose	Rachel
Rest: L:87 H:95 Listen: L:85 H:101	279.72		Not a country fan			Brooke
Rest: L:90 H:96 Listen: L:96 H:100	279.72	slow	hate	Parody	Kangaroos	Rachel
Rest: L:92 H:104 Listen: L:87 H:98	279.72		funny			Brooke
Rest: L:89 H:98 Listen: L:92 H:99	279.72	medium	awesome	Oldies	Breakfast at Tiffany's	Rachel
Rest: L:83 H:97 Listen: L:84 H:96	279.72		amazing			Brooke

There were a couple of things that could have spiked our heart rate while resting. Resting is when we find what your regular heart beat is.

There were other people in the room at times and when they talked it could've changed the outcome a little.

Music doesn't affect your blood pressure at all. We learned that in the first couple of tests. whenever we got really pumped with a song or listened to a song we didn't like our heart rate shows it. Slower songs steadied our heart beat. Half of our hypothesis was proven correct through inductive and deductive reasoning.

Brooke: I thought the project was fun, especially the testing. Except I think we were given too long to research. But I liked how we got to learn more science stuff.

Rachel: I don't really like to research, but researching with this project has been fun. I like working with friends. We had fun and also did work. Testing was also fun. It was the best of both worlds.