

# The Effect of Auditory Distraction on the Stress-Evoked Galvanic Skin Response

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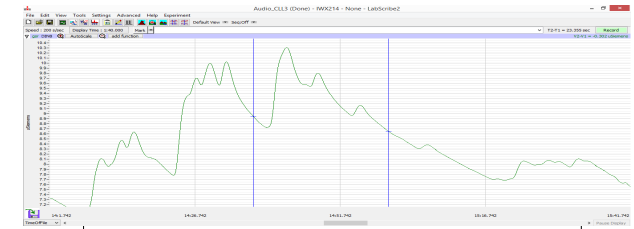
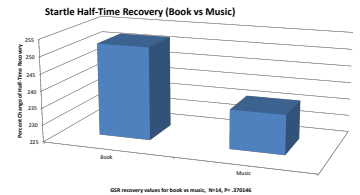
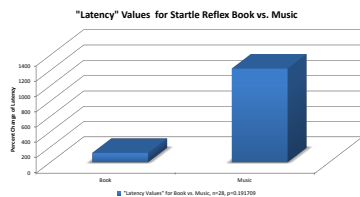
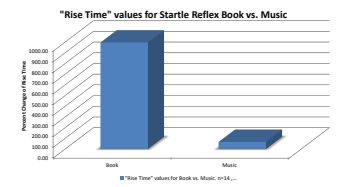
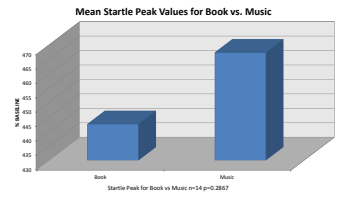
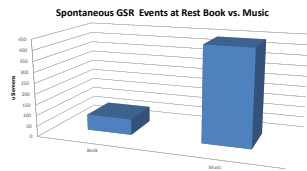
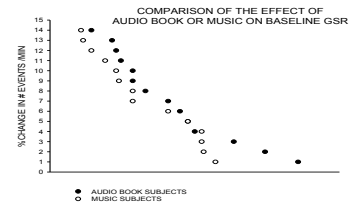
## RESULTS

### SPONTANEOUS GSR EVENTS

### BUZZER-EVOKED STARTLE RESPONSE

**INTRODUCTION**  
Environmental stimuli such as images and music can have a profound influence on an individual's response to stress. Some studies suggest that certain environmental stimuli can serve as distractors and may reduce the physiological responses to stress. In this study we examine how an auditory distraction can influence a subject's response to stress as measured by the Galvanic Skin Response (GSR).

**MATERIALS AND METHODS**  
In this project the role of auditory distraction on the galvanic skin response was tested on 28 male and female subjects that were 18-30 years of age. Two auditory distractors were tested in this protocol, 1) an 8 min segment of a boring audio book, representing a minimal auditory distraction and 2) an 8 min segment of popular music, representing a moderate distraction. Twenty minutes of baseline GSR data was collected from all subjects. At the end of this period the subjects listened to one of the auditory distractors and were then presented with 2 stressors, an alarm sound and a series of sensitive personal questions. Galvanic Skin Response data was collected using a GSR80 data acquisition system (IWORX), and analyzed using LabScribe software (Figure 1). GSR80 electrodes were attached to the middle and index finger of the subject's weak hand. Galvanic skin response results were analyzed for latency, peak response, and recovery time.



### PROTOCOL TIMELINE

Experimental	Baseline 5 min	Equilibrium 1 min	Pre-Startle/ Equilibrium 3 min	Audio Book 4 min	Startle/ Recovery 7 min	Problem Question Recovery 8 min
Control	Baseline 5 min	Equilibrium 1 min	Pre-Startle/ Equilibrium 3 min	Listening to Music 4 min	Startle/ Recovery 7 min	Problem Questions/ Neutralize 8 min

GSR RECORDING OF A STARTLE RESPONSE

GSR RECORDING OF A STARTLE RESPONSE

GSR responses during question period. Responses reported as % baseline values. \* = p < .05

Stress Questions	Peak (%)		Slope (%)		Latency (%)		Recovery (%)	
	MUSIC *	BOOK	MUSIC *	BOOK	MUSIC *	BOOK	MUSIC *	BOOK
MEAN	398.03	126.48	146.78	86.54	372.15	1742.64	191.94	84.13
STD DEV	1088.28	80.17	280.00	76.44	1059.76	6104.99	410.86	71.31
Neutral Questions	Peak (%)		Slope (%)		Latency (%)		Recovery (%)	
	MUSIC *	BOOK	MUSIC *	BOOK	MUSIC *	BOOK	MUSIC *	BOOK
MEAN	293.32	172.11	120.36	85.42	297.28	629.78	146.61	93.81
STD DEV	711.59	463.88	204.55	69.83	931.53	2929.92	194.24	138.91
N	56	55	56	55	56	55	56	55

- QUESTION LIST**
- Neutral questions
1. Is your name \_\_\_\_\_?
  2. Are you a student at YSU?
  3. Do you drive a car?
  4. Do you live on campus?
- Stress Questions
1. Have you ever cheated on a test or paper?
  2. Have you ever stolen something?
  3. Have you ever done drugs?
  4. Have you ever told a lie to keep yourself out of trouble?



**Summary**  
The results of this study show that auditory stimuli can influence the Galvanic Skin Response. This data suggests that the auditory environment can impact autonomic nervous system function and potentially influence the stress state of an individual.  
  
Further, this data suggests that it is possible to use auditory stimuli to influence the outcome of the Galvanic Skin Response component of a polygraph.