

Introduction

I have chosen to investigate about human senses and the affects if one of your senses is taken away. I am aiming to see which senses affect you more in my chosen activity, your proprioception or visual sense. In my first activity I will be testing the affects of losing the visual sense; in the second activity I will be testing the affects of losing your proprioception. I will then try each performer with both their visual and proprioception senses taken away.

What are our senses?

There are five common senses that are discussed and learned from an early age: sight, hearing, taste, touch, and smell. The I-function, the conscious part of the brain, is very aware of these senses. It voluntarily checks information obtained by these senses in order to experience the environment, and also when a strong enough stimuli has signaled attention to these specific receptors. There are other equally important sensory systems set up that are essential for normal body functioning. One overlooked sense, known as proprioception, is as important, if not more important as the other senses, for normal functioning.

Proprioception is "the means by which we know how our body is located in space, the extent to which our muscles are contracted or joint extended and allows us

to feel the object”.

Proprioception and kinesthesia, the sensation of joint motion and acceleration, are the sensory feedback mechanisms for motor control and posture. These mechanisms along with the vestibular system, a fluid filled network within the inner ear that can feel the pull of gravity and helps the body keep oriented and balanced, are unconsciously utilized by the brain to provide a constant influx of sensory information.

Activities

Visual Sense:

This activity is where you have 5 tin cans about 10 cm spaced apart and you have 5 tennis balls. You have to throw the tennis balls from 5 yards away and knock down the tins cans, 1 ball per tin can.

Each performer will get two goes without a blindfold on, and the third go everyone will try the activity with the blindfold on.

Proprioception Sense:

This will be the same activity as before. Each performer will have two goes before their Proprioception senses are taken away and then a final go with boxing gloves on so they have no Proprioception sense with the ball.

For the final task, the performers will have both senses taken away from them.

Hypotheses

First Hypothesis: I believe that the score of the performers will decrease dramatically when their visual sense is taken away from them.

Second Hypothesis: I also believe that when I take their proprioception (touch) sense away their score in the 3rd attempt will not be as good. However, I predict that the score in the activity will be better than the score when the performer had their visual sense taken away.

PREDICTIONS

&BACKGROUND

For each activity the performer will have two goes with no restrictions to their specific senses. In these goes, I will expect the performer to use their perception and decision making to interpret the information needed to knock down all 5 tin cans with the tennis balls, for example how hard to throw the tennis ball, at what direction and angle and how far to move your arm across for the next tin can. Therefore, I will be expecting the performers to be knocking down 3 tin cans minimum on the second attempt. Memory will play an important role in both perceptual and decision-making processes.

Memory can be split into three components: short term sensory stores, short term and long term memory. Each performer's long term memory will have motor programmes stored, in this case how to throw a ball at a short object as a result of us practising it many times. For that reason the performer will already know how to throw the ball, and will just need to use their short term

memory to compare the information previously learned when throwing a ball to the information being received when doing the activity.

However, the short term memory has limited capacity, both in terms of the quantity of information it can store and the length it can be stored for. Therefore, when the performer attempts the activity with the blindfold on, the first throw will be as accurate as before because the short term memory will still remember the muscle movement in the arm for a positive tin can hit, but after another shot the performer will forget about the right muscle movements and will not do as well as before. The performer also won't be able to see where he is throwing the ball so he will have to judge the distance before and once again if he moves his arm an inch incorrectly he will not hit a tin can, so visual sense is very important.

The main reason why I think that the score will be higher when the proprioception senses are taken away because the performer will still have their vision to see whether they need to throw the ball harder, more to the right/left etc. they are unable to do this if their visual sense is taken away.

VISUAL RESULTS

Performer	Number of tin cans knocked over		
	1 ST Attempt without blindfold	2 nd attempt without blindfold	3 rd attempt with blindfold
Sean	2	4	1
Paul	3	3	0

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Joseph	3	4	1
Timmy	4	3	0
Sam	2	3	0

Proprioception

Results

Performer	Number of tin cans knocked over		
	1 ST Attempt without Gloves	2 nd attempt without Gloves	3 rd attempt with Gloves
Sean	3	4	2
Paul	2	4	0
Joseph	4	4	2
Timmy	3	5	1
Sam	4	5	2

Both senses taken away

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Performer	Number of tin cans knocked over		
	1 st Attempt without blindfold/gloves	2 nd attempt without blindfold/gloves	3 rd attempt with blindfold/glove
Sean	3	4	0
Paul	2	3	0
Joseph	3	4	0
Timmy	3	2	0
Sam	4	5	0

Conclusion

As you can see from my results that once I eliminated the chosen senses from my performers their score dropped dramatically. You can see that their score had got better from their first attempt to their second attempt. This is because the information they were receiving from their 1st attempt such as how hard to throw the ball etc was being stored in the short term memory and by the 2nd attempt they were able to remember the exact muscle movements for the ball to hit the can. Both my hypotheses were correct, the first test with visual sense eliminated showed that on the third attempt with the performers with the blindfold on only 2 tins cans knock over out of a possible 25, whereas on the third attempt with the proprioception senses taken away 7 tin cans were knocked over out of a possible 25. In my third 3rd test where the performer had both there visual and proprioception senses taken

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away no one managed to knock over a tin can. This is no surprise as they were unable to know if they were throwing accurately and unable to correct the throw. I can see from my results that your visual sense has a more substantial effect on your performance.

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