

Investigation of Electromagnetic Radiation (EMR) Before and After Super Brain Yoga Exercise Comparing with Short-Term Memory

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Abstract

This research is concerned with the investigation of the Electromagnetic Radiation (EMR) on a human body before and after performing Super Brain Yoga (SBY) exercise compared with short-term memory. SBY is one of the earliest yogic practices that is designed to strengthen, energize, and activate the brain cells and their wave. 20 participants were involved in this research and asked to perform SBY exercise for about two weeks, 20 times in the morning and 20 in the evening at their own comfortable place. The frequency detector will be used to obtain frequency measurements before SBY and after two weeks of the workout being practiced. Initially, a digit span test will also be tested to obtain their short-term memory condition before and after SBY is performed. After all of the data had been collected, statistical analysis was used to analyze the result of this experimental work. From the analysis, it shows that the right side improved by 76% and the left side by 62%. Also, there are increments of 80% of the Digit Span test by the participant after performing SBY. Other than that, 3% of the participants decreased while 17% of them remained the same. In conclusion, this research finding shows that performing SBY exercise gives some benefits to an individual; the EMR of the human body is improving significantly with a better short-term memory of a participant.

Keywords: Electromagnetic Radiation (EMR), Super Brain Yoga (SBY), Short-term memory, Frequency Detector, Digit Span Test.

1. Introduction

Super Brain Yoga is often considered “the newest form of yoga” that stimulates the brain” and yet, while it appears to be a modern style of yoga, it is, in reality, a contemporary term for an old technique [1]. This form, which is based on ancient Indian practices, is traditionally known as Thoppukaranam. SBY focuses on the ancient philosophies of yoga and acupuncture and facilitates the release of energy from the brain, across the spine, and across the entire peripheral nervous system [1]. This allows direct flow of energy into energy centers, better known as chakras [1]. This ancient method has, however, continued in a curious way [1].

SBY is a simple and effective brain recharging and energizing procedure. The concepts of subtle energy and ear acupuncture are based on [2]. This is a scientifically validated technique to help super-energize the brain and increase its sharpness and comprehension, a fast, simple, drug-free way to boost mental capacity and promote brain activity [2]. In addition, place pressure on each earlobe with your thumb and finger while bending the knee and breathing.

Pilot research on the impact of SBY on impaired schoolgirls, such as Attention Deficit Hyperactivity Disorder (ADHD)/Attention Deficit Disorder (ADD), behavioral and emotional disorders, down syndrome, and unique intellectual difficulties. Children also recorded major gains in academic and behavioral performance, increased interest in the classroom, and improved social skills, based on prior studies [3]. The result of an electroencephalograph indicated reduced activation in the parieto-occipital area of the brain with one test after SBY [3]. This indicates diminished brain neural activation during exercise [3]. Further tests on the effect of SBY are underway. Evidence has found that these activities intensify the attention of youngsters. Further studies on the influence of SBY are ongoing. Information has found that these exercises are intensifying the concentration of kids.

SBY is one of a kind of exercise. Exercise is important for overall physical and mental health [4]. Research has established that it’s beneficial for the brain and may help improve memory in people of all ages, from children to older adults [4]. 15 minutes of moderate exercise on a stationary bike led to improved cognitive performance, including memory, across all ages [4]. In Malaysia, this SBY exercise is also known as Ketuk Ketampi. It is a type

of physical punishment at school done from the 80s to the year 2000.

The digit span test includes both forward and backward digit conditions. The test requires a participant to read a series of digit strings, then they must repeat them in the same or reverse sequence of presentation. The digit span test involves both aural attention and short-term verbal memory [5].

2. Literature Review

2.1. Human Body EMR

Human Body Electromagnetic radiation (EMR) is often referred to as auras and bio-energies in the human body [7]. Such energy propagates electromagnetic waves in and out of free space [6]. A previous study suggests that SBY transfers energy trapped through the main centers in the simple and sex chakra and eventually into the crown chakra that regulates the pineal gland and general brain health [3]. For the human body, there are 16 points of frequency measurement around the human body, there are eight points on the right and eight points on the left which were regarded as R1-R8 and L1-L8, as shown in Fig. 1. Based on previous research, EMR systems have been used to manage doctrines, improve patient care more easily, and enhance the quality of healthcare delivery. However, it has not been frequently utilized in medical studies for therapeutic purposes [8]. The next research states that a magnetic field is created in the surrounding space by the flow of electrical current. As a result, the electrical current within the human body creates an electromagnetic field around the human body [9].

Past research states that these EMRs encircle the human in an oval shape, emitting signals outside of the physical body at a distance of 2-3 feet [10]. Based on other research, the EMR of the human body after exercise has different types of patterns. From the analysis, after intense exercise higher frequency of EMR is detected [6]. Besides, earlier research found that a non-smoker has better EMR compared to a smoker. Therefore, generally, non-smokers are healthier and fall in the excellent category [11].

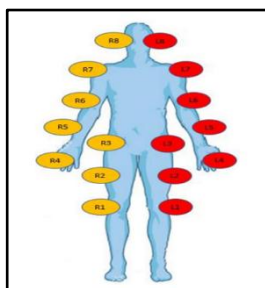


Fig. 1. 16 points of human body [5].

2.2. Super Brain Yoga (SBY)

SBY is a simple, balanced exercise that doesn't involve complicated body twists or turns [12]. It is a basic

exercise involving the touching and squatting of the ears. As Master Chao Kok Shui suggested, the right earlobe is softly squeezed with the left thumb and the left pointer finger while the left earlobe is squeezed with the right thumb and right pointer finger while performing SBY. The ear creates the requisite relation to each side of the brain for electricity. The left cerebrum and pituitary organ are invigorated and initiated by this interaction [3]. The workout and exercise technique of SBY is very important for the development of direct flow energy called chakras in the human body SBY is often referred to in some parallels as squat. The exercise in squats allows individuals to keep their arms forward. It focuses mostly on the thigh, where there are hamstrings, quadriceps, and glutes [13]. While these two exercises can look the same, the key emphasis and benefits vary. The research shows that SBY has a major influence on both concentration control and working memory, as opposed to simple squat [14]. Fig. 2 illustrates the technique and the need to travel and execute the SBY workout. One of the most common punishments for Malaysians during childhood is SBY.

Previous research aims to evaluate the effect of SBY on the short-term memory and concentration of the students, for which they need to respond to a survey and the findings have been reported, statistically evaluated, and interpreted on the basis of the research [15]. The result suggests a major improvement in short-term memory and concentration before and after the completion of the SBY study [15]. There are Alpha, Beta, Theta, and Delta waves in our human brain. SBY is primarily based on the Alpha waves in Fig. 3 that make the brain operation process calmer. This calm, meditative mindset is related to motivation, increased focus, increased performance, and inner harmony. Mental awareness, alertness, calmness, body/mind alignment, and learning in general are supported by alpha wave support [16].

Another research found that the activity of the alpha wave in the brain increased rapidly after conducting SBY for one minute [16]. This proves it supports kids who are challenged by attention deficit hyperactive disorder (ADHD), speech delay, and autism [16].

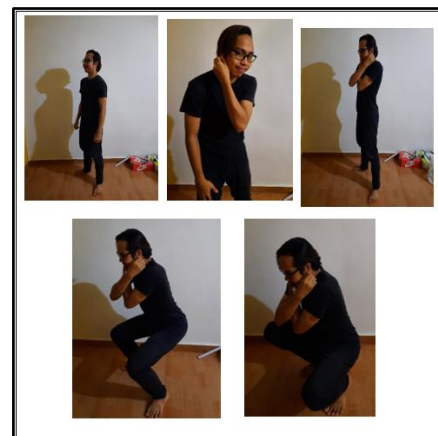


Fig. 2. Super Brain Yoga position and steps.

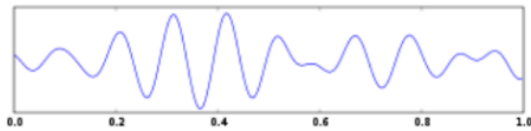


Fig. 3. Alpha Wave [16].

2.3. Frequency Detector

As in Fig. 4, human EMR can be measured over a large spectrum using a portable frequency meter and is known as a frequency detector. The dipole antenna is fitted in this frequency detector [17]. The frequency detector has a channel unit used to avoid the existence of abnormal commotion within it [17]. A broad spectrum of human electromagnetic radiation frequencies in the Mega Hertz (MHz) range can be measured by the detector. It is often used as one of the important tools for the identification and measurement of electromagnetic frequency or radiation.

Based on previous research, it proved that the frequency detector does provide complete information on patients' health problems, as well as technical and specific information [6]. In another research, the researcher used a frequency detector to measure human psychological stress [18].



Fig. 4. Frequency detector [6].

2.4. Short-term memory (STM)

In Fig. 5, STM refers to information retrieval over a very brief amount of time. Via identification by sensory organs, information reaches the STM inventory. Restricted capacity, limited duration, and encoding are important areas of STM. Small capability refers to the preservation of about seven facts at a time and evidence is quickly lost due to time or distraction. STM and Long-term memory function as two independent stores of memory. Rehearsal of the data is required for the conversion from STM to LTM. The lost information is referred to as decay and the transition of the recalled information to LTM [19]. Previous research found that in India, people with low education levels have a bad short-term memory [5].

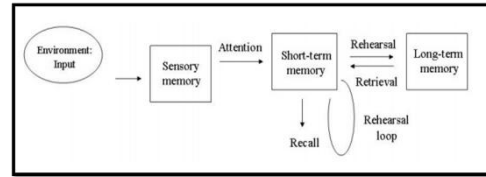


Fig. 5. Short-term memory model [19].

2.5. Short-term memory loss

Short-term memory loss is when you forget things you heard, saw, or did recently. It's a normal part of getting older for many people. But it can also be a sign of a deeper problem such as dementia, a brain injury, or a mental health issue. Short-term memory can lead to asking the same question repeatedly, forgetting recent events, forgetting something you saw or read recently, and forgetting where you just put something. One of the home remedies for short-term memory is exercising regularly [20]. Based on a previous study, the peak level of memory performance was found to be 24 and kept decreasing by age [21].

2.6. Digit span test

The Digit span test comprises both digit forward and digit backward conditions. The test involves reading out a series of strings of digits to the participants who are required to repeat them in the same or reverse order of presentation. Span is sometimes proverbial to be the number of sequences properly remembered [22]. Performance on the Digit span test requires auditory attention as well as short-term verbal memory [5]. In the previous research, researchers used the Digit span test in Indian contexts to measure attention and working memory [5].

3. Methodology

Fig. 6 shows the flows for this research. Firstly, we have to find a group of volunteers in order to complete this research. The demographic data of participants such as name, age, and information about the participant's health will be recorded. After that, the EMR of participants will be collected using a frequency detector and a digit span test will be done before performing the SBY exercise. After the data had been collected, the participant will repeat SBY 20 times in the morning and 20 times in the evening for about 2 weeks. After completing the exercise for 2 weeks, the duration of 2 weeks has ended, the participant will once again carry out the EMR measurement to check the radiation of the body and the digit span test to check the participant's short-term memory condition. The result will be recorded and will be analyzed. Lastly, the final result will be concluded.

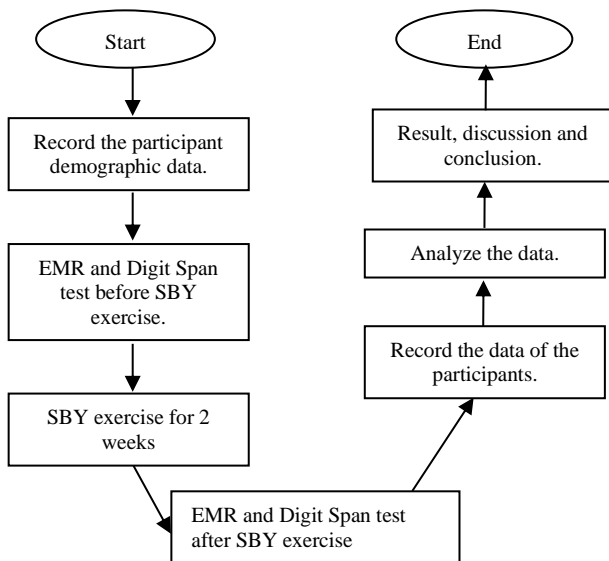


Fig. 6. Flowchart of the research experiment

3.1. Step of SBY Exercise

Here are the steps that are involved in SBY [23].

1. Firstly, we have to stand up and make sure that our body is straight.
2. Shift your upper body around with your left hand. Leave the palm in place by using the thumb and forefinger to reach for the right earlobe.
3. In your right hand, cross your upper body and aim for your left earlobe. Once again, put your thumb above your forefinger.
4. Next up, all earlobes should be pressed softly. At this point, do not turn your body position. Make sure your left arm is tucked within your right arm, close to your shoulder.
5. Inhale slowly when moving into the squat position toward the ground.
6. Stay at this position for 1 or 2 seconds if we can. Go up back to a standing place, then we exhale.
7. Repeat all the steps twenty times twice a day this cycle during the morning and evening.

3.2. Data Collection

The data were collected involving 30 participants which consist of all genders. Data acquisition is taken before participants begin and after 2 weeks of performing SBY has been completed. This method has been conducted at participant place as shown in Fig. 7 due to pandemic.



Fig. 7. Data collection at participant house.

3.3. Data Analysis

There are 15 of color variation of bioenergy. Fig. 8 shows the frequencies and properties of color that identified by the frequency detector [24]. The data was analyzed at 16 points of human body measuring from both side [6]. In order to analyze the data, the Microsoft Excel was used. Table 1 shows all of the total score range which will decide the category of a participant, whereas in Table 2 shows the health score for the participant physical. Based on the two of table above, this illustrates that various type of categories exist. For the satisfactory group, there are two categories which are good and excellent while for the inadequate group, there are moderate and poor [6].

Colour	MHz	Colour	MHz	Colour	MHz	Colour	MHz
Gold	4.0-4.1	Gold	15.7-16.5	Gold	62.5-66.0	Gold	249.8-264.2
Yellow	4.2-4.3	Yellow	16.6-17.4	Yellow	66.1-69.9	Yellow	264.3-279.7
Green	4.4-4.6	Green	17.5-18.5	Green	70.0-74.1	Green	279.8-299.7
Cyan	4.7	Cyan	18.6-18.7	Cyan	74.2-74.9	Cyan	296.8-299.7
Gray/Black	4.8	Gray/Black	18.8-19.3	Gray/Black	75.0-77.5	Gray/Black	299.8-310.2
Cyan	4.9	Cyan	19.4-19.6	Cyan	77.6-78.5	Cyan	310.3-314.2
Blue	5.0-5.1	Blue	19.7-20.7	Blue	78.6-83.1	Blue	314.3-332.7
Navy	5.2-5.5	Navy	20.8-22.0	Navy	83.2-88.1	Navy	332.8-352.7
Purple	5.6-5.8	Purple	22.1-23.3	Purple	88.2-93.4	Purple	352.8-373.7
Orchid	5.9-6.1	Orchid	23.4-24.6	Orchid	93.5-98.6	Orchid	373.8-394.7
Silver	6.2	Silver	24.7-25.0	Silver	98.7-100.0	Silver	394.8-400.2
White	6.3	White	25.1-25.3	White	100.1-101.1	White	400.3-404.9
Burgundy	6.4-6.5	Burgundy	25.4-26.2	Burgundy	101.2-104.8	Burgundy	405.0-419.4
Red	6.6-6.9	Red	26.3-27.7	Red	104.9-111.1	Red	419.5-444.5
Rose	7.0-7.3	Rose	27.8-29.4	Rose	111.2-117.8	Rose	444.6-471.4
Orange	7.4-7.8	Orange	29.5-31.2	Orange	117.9-124.8	Orange	471.5-499.4
Gold	7.9-8.2	Gold	31.3-33.0	Gold	124.9-132.1	Gold	499.5-528.5
Yellow	8.3-8.7	Yellow	33.1-34.9	Yellow	132.2-139.8	Yellow	528.6-559.4
Green	8.8-9.2	Green	35.0-37.0	Green	139.9-148.3	Green	559.5-593.4
Cyan	9.3	Cyan	37.1-37.4	Cyan	148.4-149.8	Cyan	593.5-599.4
Gray/black	9.4-9.6	Gray/black	37.5-38.7	Gray/black	149.9-155.1	Gray/black	599.5-620.5
Cyan	9.7-9.8	Cyan	38.8-39.2	Cyan	155.2-157.1	Cyan	620.6-628.5
Blue	9.9-10.3	Blue	39.3-41.5	Blue	157.2-166.3	Blue	628.6-665.4
Navy	10.4-11.0	Navy	41.6-44.0	Navy	166.4-176.3	Navy	665.5-705.4
Purple	11.1-11.6	Purple	44.1-46.7	Purple	176.4-186.8	Purple	705.5-747.4
Orchid	11.7-12.3	Orchid	46.8-49.3	Orchid	186.9-197.3	Orchid	747.5-789.4
Silver	12.4-12.5	Silver	49.4-50.0	Silver	197.4-200.1	Silver	789.5-800.5
White	12.6	White	50.1-50.6	White	200.2-202.4	White	800.6-809.9
Burgundy	12.7-13.1	Burgundy	50.7-52.4	Burgundy	202.5-209.7	Burgundy	810.0-838.3
Red	13.2-13.8	Red	52.5-55.5	Red	209.8-222.2	Red	839.0-889.1
Rose	13.9-14.7	Rose	55.6-58.9	Rose	222.3-235.7	Rose	889.1-942.0
Orange	14.8-15.6	Orange	59.0-62.4	Orange	235.8-249.7	Orange	942.0-1000

Fig. 8. The colors and frequencies identified by EMR [24].

Table 1. Total score range which decides the categories of a participant.

Category	Color	Score
Excellent	Gold, Silver	5
Good	White, Orchid, Cyan	4
Moderate	Rose, Purple, Blue	3
	Navy, Green, Yellow, Orange, Black	2
Poor	Burgundy	1
	Red	0

Table 2. The physical health score of a participant [6].

Range of total score	Category
>75	Excellent
56-75	Good
31-55	Moderate
15-30	Poor

4. Results and Discussions

4.1. Color and Score Analysis

Table 3 shows the analysis table for the average on the right and left sides of the human body using Microsoft Excel software. Based on Table 4 the percentage for before performing SBY is 82%. The physical health score for this percent falls into the 'Excellent' category. The percentage after performing the SBY exercise is 89%. Although the category is still the same category, there is an increase of percentage of 7%. This shows that after performing SBY has an improvement in the health score of participants.

Table 4 shows the results of the analysis table for 16 point frequencies for the right and left side of one participant with increasing results. Based on Table 4, the percentage before performing SBY is 6% which falls into the 'Poor' category, whereas the percentage after performing SBY exercise is 47% and falls into the 'Moderate' category. This shows an increment of 41%. This show that after performing SBY, there is an improvement in term of the health score of the participant.

Table 3. Average Score, percentage, and category before and after performing SBY.

	Score	Percentage(%)	Category
Total Average Before SBY	65	82	Excellent
Total Average After SBY	72	89	Excellent

Table 4. Score, percentage, and category of one of the increasing participants before and after performing SBY.

	Score	Percentage(%)	Category
Increasing Participants Before SBY	2	6	Poor
Increasing Participants After SBY	37	47	Moderate

Table 5 shows the analysis table for 16 point frequencies for the right and left side of one participant with the decreasing result. The analysis shows that the percentage before performing SBY is 59% which falls into the 'Good' category, whereas the percentage after performing SBY exercise is 40% and falls into the 'Moderate' category. This shows a decrement of 19%. It proves that not all participants give positive results after doing the SBY exercise. This may be due to the participant's emotional or body condition. The participant might be tired or unhappy doing exercise. Some

participant that overweight may have muscles torn at their thigh due to sudden exercise if they are not exercising for a long time.

Table 5. Score, percentage, and category of one of the decreasing participants before and after performing SBY.

	Score	Percentage(%)	Category
Decreasing Participants Before SBY	47	59	Good
Decreasing Participants After SBY	32	40	Moderate

Table 6 shows the analysis table for 16-point frequencies for the right and left side of one participant with the unchanged category. Based on Table 4.4, the percentage before performing SBY is 48% which falls into the 'Moderate' category, whereas the percentage after performing SBY exercise is 54% and still falls into the 'Moderate' category. This shows an increment of 6% in term of percentage but still remain the same in term of category. Based on the table, it shows that performing SBY exercise can give a positive result.

Table 6. Score, percentage, and category of one of the participants that have no changes in result before and after performing SBY.

	Score	Percentage(%)	Category
Maintain Participants Before SBY	38	48	Moderate
Maintain Participants After SBY	43	54	Moderate

Table 7 shows the analysis table for 16 point frequencies for the right and left side of another participant with the highly increasing result. Based on Table 7, the percentage before performing SBY is 8% which falls into the 'Poor' category, whereas the percentage after performing SBY exercise is 75% and falls into the 'Excellent' category. This shows an increment of 67%. Based on the table, it shows that performing SBY exercise can improve the overall mental and physical well-being of a person.

Table 7. Score, percentage, and category of one of the highly increasing participants before and after performing SBY.

	Score	Percentage(%)	Category
Increasing Participants Before SBY	6	8	Poor
Increasing Participants After SBY	60	75	Excellent

4.2. Result of Human Body Electromagnetic Radiation (EMR)

Fig. 9 and Fig. 10 shows the output results before and after the SBY exercise for the right and left side. Each of the points represents their average frequency. Based on the graph, it shows that the majority after SBY on the right side was in the Excellent category. For R6, R7, and R8, although the frequency decreases, it still falls into the Excellent category. While on the left side has an unusual pattern but still, the frequency is in the Excellent category. The results might be influenced by the surrounding environment as not all participants have the same location during data collection. Further analysis was done in the next part to examine these differences.

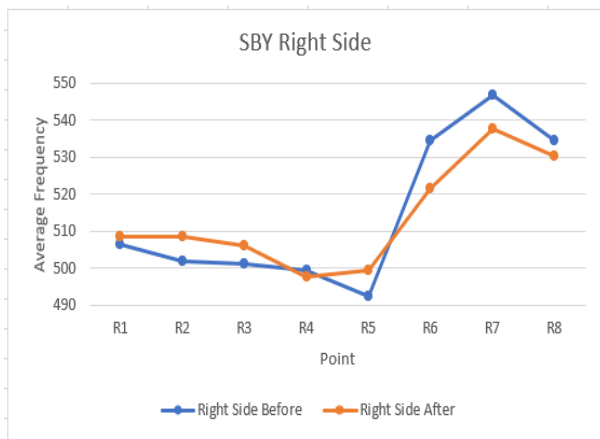


Fig. 9. Comparison of average frequency before and after SBY at the right side point.

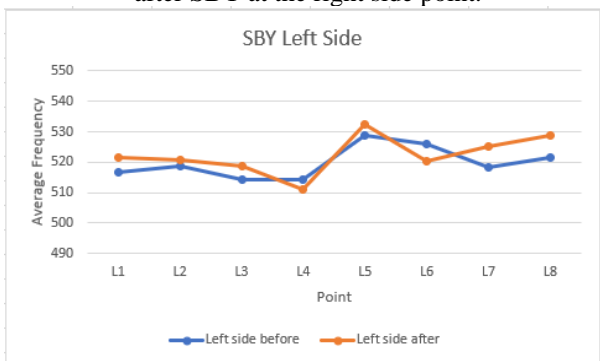


Fig. 10. Comparison of average frequency before and after SBY at the right side point.

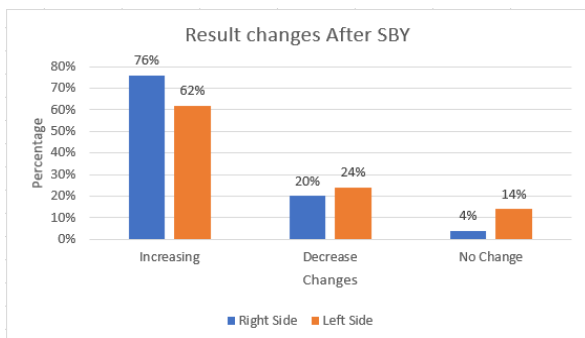


Fig. 11. Right side point percentage after performing SBY for 30 participants.

Fig. 11 shows the right and left side results after performing SBY. The percentage represents the number of participants. Based on the bar graph, the increasing result had the highest percentage for both sides 76% and 62%. The decreasing result had 20% for the right side and 24% for the left side while the no change result had 4% for the right side and 14% for the left side. It shows that SBY can boost the overall physical and mental well-being of a person [25]. SBY also synchronizes the left and right sides of the brain, contributing to an increase in overall brain activity [25] [26].

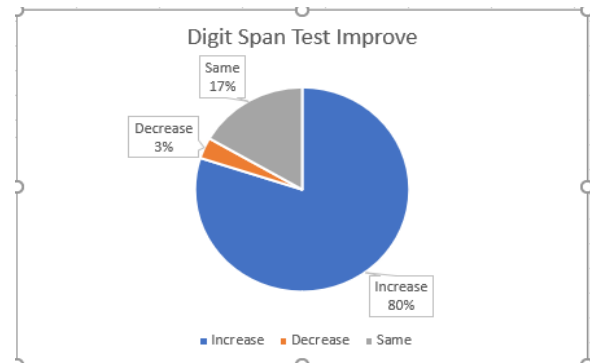


Fig. 12. Number of participants that improved on digit span test.

Fig. 12 shows the percentage of Digit Span test improved for all 30 participants which increased by 80%. Other than that, 3% of the participants are decreasing while 17% remain unchanged. This also proved that SBY appears to be energizing and can help facilitate the overall functioning of brain power [27].

5. Conclusion

In conclusion, this research finding shows that performing SBY exercise has some benefits to an individual and the EMR of the human body is improving significantly. For left and right sides, it has a certain pattern and behavior whereby the frequencies vary between variables. Meanwhile, the percentage of participant that improved their EMR for the right side is 76% while 62% on the left side. This proves that SBY gives positive results and has the potential to significantly improve group dynamics [28]. Other than that, the percentage of short-term memory from the digit span test also increased by 80%. This also proves that SBY can improve short-term memory.

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