INTRODUCTION

Changes in the brain that make it easier to acquire new athletic skills. These findings can be applied toward inclination is a prime factor, indicating that subjects who already play sports have the ability to rapidly adapt to the trials at Trial 9, athletic non-dominant reaches the same value as non-athletic dominant, about 1.2. This implies that the effect of athletic inclination is a contributing factor for the gap between the dominant and the non-dominant averages.

METHODOLOGY, ANALYSIS AND DISCUSSION

METHODOLOGY:

Materials:

Rectangular strike zone (18” x 24”), Racquet balls, Measuring Data recording notebook

Methodology:

10 students (5 Male, 5 Female), average age 16.2, participated in 9 Trials using both dominant and non-dominant hands. 5 athletically inclined (3 Male, 2 Female) and 5 non-athletically inclined students (2 Male, 3 Female) from Gunn High School were recruited. Each subject threw a ball from 9 meters to a target three times with both the dominant and non-dominant hands. Results were recorded. There were 9 trials for each subject, 2-3 times per week for four weeks. The scores of the subjects were averaged and compared between gender and athletic ability.

Analysis:

1) Entire Sample (Figure 1): Starting with Trial 1, the average number of times the target was hit with the dominant hand (1.1) was greater than that of the non dominant hand (0.3). Results with the dominant hand consistently improved from Trial 2 to Trial 5, peaking at Trial 5 with an average hit rate of 1.6. Results with the non-dominant hand spiked from Trial 4 to Trial 6 averaging 1.1 at its peak. Subsequently, averages for both hands stabilized from Trial 6 until completion at Trial 9 with a steady difference of 0.2 between the two hands. This indicates that amongst the sample, performance of the dominant hand did not change, while that of the non-dominant hand improved, indicating that new neural pathways were formed, a process seen in Figure 4 (not experimental data).

2) Gender (Figure 2): With respect to gender, it appears that the male subjects exhibited similar behavior to that of the entire sample, with a Trial 1 difference between dominant (1.2) and non-dominant (0.6), with the difference tapering off after Trial 5. This indicates that in these male subjects, neural pathways were formed. Although males demonstrated the fact that the non-dominant hand caught up to the dominant, that wasn’t the case for the females. However, different tasks may elicit different patterns of improvement between males and females. Further research is needed.

3) Athletic Inclination (Figure 3): While it appears that the dominant averages for athletic subjects is greater than that of non-athletic subjects, both of the non-dominant parameters increase at the same rate consistently and almost reach the same average hit rate (~1.1) by Trial 9. Also, it can be observed that at conclusion of the trials at Trial 9, athletic non-dominant reaches the same value as non-athletic dominant, about 1.2. This implies that the effect of athletic inclination is a contributing factor for the gap between the dominant and the non-dominant averages.

Future Work: To obtain a definitive conclusion of neural pathway formation, a brain imaging study is required on these subjects. However it is outside the scope of this study due to unavailability of an MRI. Another key finding that interests me is that cancer cells develop a lot slower in patients who have neurodegenerative diseases such as Alzheimer’s. In these patients, the assumption is that neurons are less fluid, causing slower development of neural pathways, thereby slowing growth in cancer cells.

ACKNOWLEDGEMENTS / REFERENCES

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