



# Effects of Gender and Training Type Anticipation in Children

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## INTRODUCTION

- For the successful development of movement skills, a child needs to acquire the ability to perform effectively in the performance environment. This ability becomes even more critical when the environment is dynamic and constantly changing (e.g., competing in 'open' environment sports such as soccer, hockey, and tennis).
- The individual, or athlete, must then be able to perform a movement in the right place at the right time. In order to do so, one must be able to pull information from past events and apply it to the present situation. In other words, he or she must be able to anticipate the changes and movements within the environment and adapt appropriately.
- If a child improves his/her ability to predict future events, performance in the open sporting environment should be enhanced. Unfortunately, how to best improve children's anticipatory abilities and processes remains unclear.

## PURPOSE

- The purpose of this study was to determine if a blocked or random training method is more effective for teaching a timing task to young children. The influence of gender in this learning process was also examined.

## SAMPLE

Participants for this study were 40 children (20 males and 20 females) who were between 6 and 7 years of age.

## METHOD

- The task the children completed was to watch a series of flashing lights and to push a button at the same time as the illumination of the last light. Children were trained one day on either blocked speeds (e.g., 2mph, 2mph, 2mph, 2mph, 3mph, 3mph, 3mph, 3mph, etc.) or randomly occurring speeds (e.g., 2mph, 4mph, 3mph, 2mph, 6mph, 4mph, 2mph, 6mph, etc.) of the flashing lights.
- The trial speeds used during the training sessions were 2 mph, 3 mph, 4mph, and 6 mph with 4 trials occurring at each speed. After 24 to 48 hours, the children were tested on a similar task at speeds of 6mph, 8mph, 9mph, and 10mph.
- The speeds during this testing period were presented in a random fashion to all participants. The results of the tests were measured in the number of errors the children made in the task (e.g., pushing the button too early or too late).

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## RESULTS

- During the testing trials, completing the task at 6mph was the least difficult for both males and females.
- However, while females made more errors as the speed of light presentation increased, males did not.
- Females made the most errors at 10mph in the blocking trials, whereas males did the most poorly at 10mph in the randomly occurring speed trials.
- Overall, males performed better on the timing task than the females at 8, 9, and 10mph.
- Also, males made significantly less errors than the female participants in both the random and blocked trials.



## COACHING IMPLICATIONS

- Unfortunately, the results of this study do not support a statement of the superiority of one training mode for the learning of a timing task in young children.
- Therefore, when teaching skills to be used in a dynamic environment, such as the tennis court, it would be most useful to determine and use the training mode that works best for the individual athlete. Some athletes may perform and learn best when first taught skills in slow motion then sequentially increasing the speed at which the skill is performed.
- On the other hand, some athletes may learn best in a style that changes speed of skill practice in a random fashion (which may more closely mimic the actual speed changes in a competition).
- The results do suggest there is a difference in training effects for males and females.
- During the training phase, females made more errors and typically reacted more slowly than the males.
- The girls also tended to make more errors in the testing phase as well.
- The greatest amount of errors for these girls were made at the fastest speed at which they were trained (10mph) and when the speeds of light presentation were done so in a blocked fashion.
  - This finding suggests that training at random speeds when learning a fast-paced skill may be best for young girls.
- Another interesting finding was that boys and girls had similar performances for the tasks at 6mph in the testing phase unlike the other trials in which boys consistently outperformed the girls.
- It may be true that the similar performances occurred because the participants completed the task at this speed for both the training and testing phases. This extra practice may have not made a difference in the boys' performance that may have already reached its peak, but gave the girls the practice needed to approach the same level of performance as the boys.
- Generally, girls do not appear to be getting sufficient experience and exposure to tasks demanding the anticipation and timing skills that were tested in this study. Until this deficit is corrected, their performance of skills in a dynamic environment will lag behind boys.

## REFERENCES / RESOURCES

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