Effects of Eyerobics Training on the Batting Accuracy in University Female Softball Players

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Introduction

Eyerobics is a visual skills training program for athletes. The function of this training is to develop rapid responses to visual stimuli and concentration. Concentration, interchangeably used with attention, is usually required in any task performed. It is a skill that can be learnt and developed [3, 9].

Batting is an action that needs a combination of physical fitness, biomechanical and psychological skills. Ability to pay attention, concentrate and observe the fast movement of the ball plays an important role in batting.

The eyes send information to the brain to process and then send it to the body to respond to the situation. Without starting with full attention on the pitcher and ball, the batter might not estimate correctly and respond to hit the ball inaccurately although they are very good in physical and batting techniques [2].

Attention, concentration and focusing are very important in most sports. The higher the probability of a specific event, the greater is the attention paid to it [7]. Expert athletes are more efficient than non experts or regular people to modulate their allocation of attention resources in order to better accomplish a task-specific information processing. For those sports that need more attention like skiing, skiers were more rapid in focusing on the cue and maintained focused attention for a longer time [10].

The most imposing restriction on vision is the very short duration of many sporting actions or events. Visual function can be improved by visual training and lead to improvement in batting performance [1]. It is supported by the study of Kohmura & Yoshigi [4] on college male baseball players, with one of the experimental groups using the Speesion (a computer software program for improving and measuring visual function), while the other experimental group practiced watching high speed pitched baseballs and identifying the color of stickers on a ball. As a result, both experimental groups had significant improvements in some visual functions. Therefore, the training methods utilized here improve visual functions.

The effects of the Eyerobics training have been tested on different areas. McLeod & Hansen [6] examined the effects of the Eyerobics training on static balance. After 4 weeks of the Eyerobics training for the experimental group, the performance by the trained group improved significantly. McLeod [5] continued examining the effects of the Eyerobics training on motor behavior, specifically balance, hand-eye coordination and foot-eye coordination of female varsity soccer players. The findings showed that Eyerobics training improved balance and hand-eye
coordination, but not foot-eye coordination, and that continued examination is needed to further identify the effects of the Eyerobics training.

Previous studies have mostly used the Eyerobics training and measured the effectiveness through vision and motor behavior. However, this study looks at Eyerobics as a form of concentration training rather than visual training. It helps to focus the attention on something, as how a batter should when the person is batting.

Objectives of this study

- To determine whether Eyerobics training help in the softball batting performance.
- To compare the significance difference of softball batting score between the experimental group and the control group

Method

Participants

30 female softball players, age (21 ± 1.41) participated in the softball competition in Sukan Mahasiswa Universiti Malaya (SUkmum) were recruited for the current study. The players were randomly divided into a control group (n=15) and an experimental group (n=15).

Method and Materials

Softball batting was used for the pre-test and post-test as well as training. During pre-test and post-test, the type of bat used was the Louisville Slugger (Model FP404) bat, 86.36cm (34in) in length and 660g (22oz) in weight, and 10 yellow pitching machine’s training balls (dimpled) were used. Testing involved each player hitting 20 balls that were tossed up by researcher and every accurate hit was marked. The hit was counted as accurate if the ball comes to contact at the center of the bat’s head.

The Revien’s [8] Eyerobics training (CD) was applied to the experimental group. The Eyerobics consists of the following six training exercises: rotating spiral exercise, rotating target exercise, grid tracing exercise, speed and span of recognition exercise, barber pole exercise, and rotation 3D exercise. The players watched the CD individually for 15 minutes per session before their batting session.

Procedure

The players were individually approached for explanation of research and permission to carry out the research on them. Players were given the opportunity to ask questions related to the study and were thanked for their cooperation. Both pre-test and post-test were carried out in the field.

During the pre-test, each player conducted 20 hits. The player stands in batting position by pointing her shoulder towards the fence. A base was given to the player for them to adjust their
standing position. The ball was tossed up by the researcher and the player hit the ball towards
the fence. The players must do a full swing for each hit. For each ball tossed, they can choose
to swing or not, depending on their view of the ball. The moment the player swings the bat it is
considered a hit. If the player hits the centre of the ball with the bat’s head (approximately
±20cm from the head), it is counted as an accurate hit.

After the pre-test, the experimental group watched 2 chapters per session of Eyerobics, twice a
week. After the Eyerobics training sessions, the experimental group practice hitting 20 balls.
Meanwhile, the control group went on batting training without Eyerobics training.

After four weeks of the Eyerobics training, both the experimental group and control group
completed the post-test by hitting 20 balls. The post-test result was compared with the pre-test
to find out whether the Eyerobics training help in the softball batting performance.

Results

Results of this study revealed that the mean batting score during post-test for the control group
(13.73 ± 2.34) and the experimental group (15.47 ± 2.20). There were significant differences of
the batting scores between the control group and experimental group ($t = -2.09$, $df = 28$, $p < 0.05$). It showed that the Eyerobics training is effective to improve the accuracy in softball
batting.

Discussion & Practical Application for Coaches

The purpose of the present study was to measure the effects of Eyerobics training on the
accuracy in softball batting for SUKMUM female softball players. Significant difference were
found between the control group and experimental group ($t = -2.09$, $df = 28$, $p < 0.05$). The results of this study supported the notion that Eyerobics training is able to increase the accuracy
of batting for SUKMUM female softball players and it is consistent with McLeod [5] that
Eyerobics training improves hand-eye coordination. The result of this study also supported
study done by Balasaheb et al. [1] that visual function can be improved by visual training and
lead to improvement in batting performance.

Some limitations were present in this study. The sample was limited to SUKMUM female softball
players. No visual test was conducted to measure the visual functions due to the complex
nature of visual testing. Therefore, the increase in accuracy of batting is assumed to be due to
the Eyerobics training. We did not consider the player’s physical fitness, biomechanics of batting
and psychological skills; factors that might also affect the batting performance. All players have
their own batting styles and techniques. Therefore, we were unable to standardize the batting
technique used.

Future studies should look into other variables that are involved in batting performance. Physical
strength should also be considered for batting accuracy. If possible, using a pitching machine
would probably be better method as the speed and direction of the ball can be controlled and
more consistent. Besides that, having a sensor placed in the bat is a more systematic way to determine how accurate the hit was, and having glasses that follows the eye movement can give a more scientific approach to studying the visual function.

Although the interventions in this study were only carried out for four weeks, from the results of this study, it showed that four weeks of Eyerobics training able to improve accuracy in softball batting performance. From a practical standpoint of the Eyerobics training, coaches should consider including the Eyerobics training in their training program enable their players to improve the batting performance.

References


