THE IMPACT OF SLEEP DEPRIVATION ON THE PERFORMANCE OF SERVICES AND PASSES TO VOLLEYBALL PLAYERS

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Abstract

"Why do we need to sleep?" From a study of Webb, 1975, related with sleep deprivation, it was concluded that people that were underwent experiment had difficulty in showing attention to the required tasks. The main purpose of the athletes and coaches is to achieve optimal performance during sporting events, so knowing the relation of important factors that have the effects of sleep deprivation on sports performances, it is necessary to recognise them. Loss of sleep can have profound effects on human performance. Volleyball players and coaches believe that adequate sleep is essential for peak performance. Total sleep deprivation has been shown to adversely affect many aspects of behavior, and psychological knowledge. Meeting the needs for sleep facilitates a person's ability to perform a variety of psychomotor work. Studies have shown that sleep deprivation ranging from 30 to 64 hours, significantly affects reaction time. Similar results were found for works that include higher levels of cognitive function. Some studies suggest that sleep deprivation up to 24 hours, there is no evidence that influences the performance of physical exercise, such as muscular, cardiovascular and respiratory power, which must answer the exercises, while some other studies suggested some temporary changes of these skills. Reaction time and anaerobic power are two important factors affecting the performance of many sports.

Keywords: Sleep, performance of services, the performance of the relay, physical activity, lack of sleep

Purpose

The purpose of this study is to determine the effect of lack of sleep per night on service performance and efficiency of services in volleyball, in the following morning.

Methodology

Fifteen volleyball men have been twice in balanced and random designs. Subjects were measured for maximum power, which means service performance and efficiency regarding passes. Participants in this study were healthy, well relaxed volleyball players of the"Vllaznia"adult team before they uunderwent sleep deprivation. All participants were non-smokers and not taking medications. Participants were also excluded if one of the family had a history of sleep disorders or severe psychological illness. They were also required to fill in a sleep diary during the experimentation. During the period of sleep deprivation, participants spend time playing table games, reading books or watching television. They were restricted from taking caffeine, tea or other stimulants. For the service element, volleyball players are located in the shooting service and will perform 6 consecutive services in a period of 30 seconds each time, and we will examine the number of services and their accuracy within this time in a first predetermined area (distance 18 meters, in a quad 3.5mx 3.5m, in the end zone 5). For the passing element, volleyball players are located in the area of succession and will perform 6 consecutive passes in a period of 20 seconds each time, and then we will examine the number of passes and their accuracy within this time in a first predetermined area (distance 4.5 meter, in a quad 80 cm x 80 cm, height 3 meter). Then the next day (with total deprivation of sleep) all this will be repeated for the service element and for the passing one.

Hypothesis

The hypothesis of this experiment is to verify the impact of sleep deprivation for one night on the decline of service performance and efficiency of the succession of volleyball players in the following morning.

Equipment

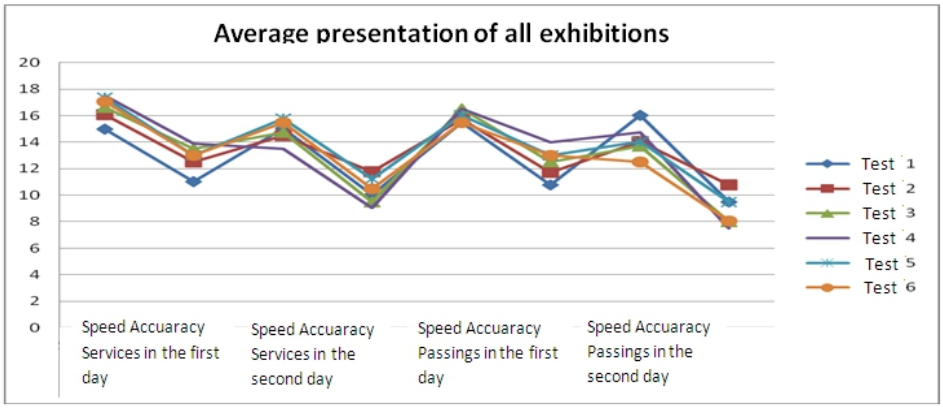
For the experiment we need a stopwatch to record the time, a volleyball court, a basket of balls, a basket to send the pass, a pen, paper.

Results

Table no.1

..	Services in the first day	Passings in the first day	Services in the second day	Passings in the second day
Tests	Speed | Accuracy	Speed | Accuracy	Speed | Accuracy	Speed | Accuracy
Exhibit 1	15/11	15.5/10.75	17.75/11	18/12.5
Exhibit 2	16.05/12.5	15.70/11.70	18/13.75	18/13.5
Exhibit 3	16.62/13.5	16.5/12.5	18.25/13.75	18.5/14.5
Exhibit 4	17.5/13.9	16.5/14	18/13	18.5/11.25
Exhibit 5	17.37/13	16/13	19/12.5	18.5/13.25
Exhibit 6	17.05/13	15.5/13	19.05/13	18/13.05

Chart no.1

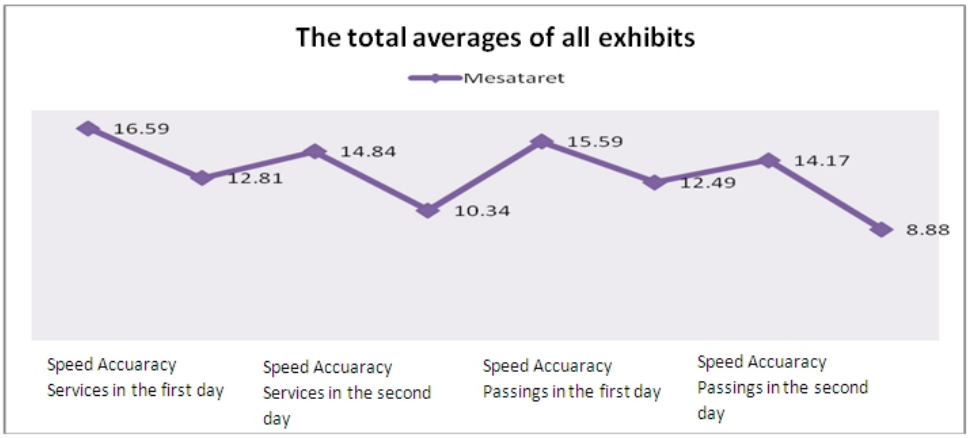


From the chart no. 1, we may see that the speed and accuracy of service and passes, has decreased the following day when we have a night of sleep deprivation. In general, the maximum speed is in the second, third and fourth exhibits.

Table no. 2

..	Services on the first day		Services on the second day		Passing on the first day		Passing on the second day	
Exhibits	Speed	Accuracy	Speed	Accuracy	Speed	Accuracy	Speed	Accuracy
Averages	16.59	12.81	14.84	10.34	15.59	12.49	14.17	8.88

Chart no.2

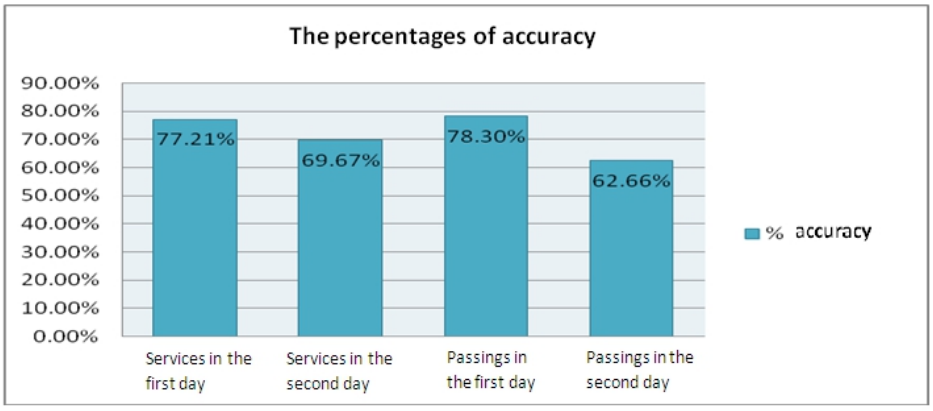


In the chart no. 2, we have presented the total averages of all exhibits. As it can be seen from the graphic, the declines are evident. The the speed of the services has dropped two points and the accuracy is almost in the same situation. As for passes, decrease speed is not too large, while accuracy has declined sharply by about 5.5 points.

Table no. 3

..	Services on the first day	Services on the second day	Passing on the first day	Passing on the second day
The percentages of accuracy	77.21%	69.67%	78.30%	62.66%

Chart no.3



In the chart no. 3, we can find the percentage of accuracy for services and passes on both days, with and without sleep deprivation. For services, the accuracy from the first day to the second day of sleep deprivation, drops by nearly 7.5%. While for the pass element, the accuracy drops very significantly by approximately 16%.

Conclusion

- It is concluded that short-term sleep deprivation is not effective in the performance of services and passes, in speed and accuracy as well.
- From the chart No. 1, it is seen that the speed and accuracy of service and passes has decreased on the second day after a night of sleep deprivation. In general, the maximum speed on the first day can be found in the second, third and forth exhibits, thus there is a regularity in the determination of level of services and passes (the highest or the lowest), both in speed and in accuracy. While on the second day we can not describe such a thing, because we have an oscilation in the graphic presentation.
- In the graphic no. 2, we have presented the total averages of all exhibits. As it can be seen from the chart, the second day of sleep deprivation, the declines are evident. Furthermore, the speed of the services has a decreased two points and the accuracy has almost the same situation. As for passes, the decrease speed is not too large, while the accuracy has declined sharply by about 5.5 points.
- In the graphic no. 3, we can see the percentage of accuracy, for services and passes on both days, with and without sleep deprivation. For services, the accuracy from the first day to the second day of sleep deprivation has dropped by approximately 7.5%. While for the passing element, the accuracy drops significantly by approximately 16%.
- Finally, the experiment on sleep deprivation for a night on the service element and passing to volleyball players, fully corresponds to h the hypothesis. Indeed deprivation of sleep for one night provides a significant decrease of the speed and accuracy of service and passing elements to volleyball players.
- To achieve the goal of the athletes and coaches met to achieve optimal performance during sporting events, it is important to meet the needs for sleep. Adequate sleep is essential to the performance level.

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