The effect of a training session on urinary protein and creatinine level of elite basketball players

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ABSTRACT: the purpose of this research study was to review the impact of a practice session on the amount of urinary excretion of urinary protein levels and creatinine elite basketball players. 20 of the top League players with a body mass index (23.97 ± 1.22) for voluntary and purposeful as the statistical sample. urinary sample players in two steps: firstly, the sample was collected Players on the day of rest of the urinary tract, 24 hours (24-hour urine sample) and the second stage, immediately after the training session, and was transferred to the laboratory. To test the hypothesis, in particular, comparison of the changes of urinary creatinine, protein levels before and after practice and also, compared to the amount of protein excreted creatinine test between the posts, a one-way analysis of variance with repeated measures was used. Protein and creatinine levels between before and after practice, there is a significant difference (P ≤ 0.001), between the results of the rate of excretion of creatinine, proteins in the various posts was a significant difference (P ≤ 0.001). Generally the results of multiple investigations suggests that the full intensity of exercises and increase the amount of long-term urinary creatinine and protein than normal would be that if this situation continues long-term compensation injuries will notice all tissue.

Key Words: proteins, creatinine, elite, players, basketball.

INTRODUCTION

Exercise and sports activities dramatic changes in renal hemodynamics and electrolytes causes. with reduced renal blood flow and decreased glomerular filtration rate below normal, causing acute tubular necrosis is (Harman & et al, 2003).

Kidneys are vital organs that control the volume, osmotic pressure, electrolyte content and stability of the body's internal environment is very important. So it is not surprising that impaired kidney function, almost the function of other organ systems affected. So understanding the interaction between exercise and kidneys on a thorough understanding of how physical activity is very important. Understanding these effects as well as its control mechanisms to design and set up training programs and types of physical activity is important. Study levels and urinary protein play an important role in the prognosis of kidney tissue damage.

Ayca & et al (2006) in a study of men and women volleyball players showed that male players creatinine and urine protein increased. This is despite the fact that only urine protein was significantly increased in female players.

In 2003, a researcher named Turgut & etal effects of exercise on the protein, insulin-like growth factor IGF1 and insulin-like growth factor-related protein 3 (IGFB-3) in the urine volleyball players checked a significant increase in protein and urine creatinine results and urinary IGF showed that while there was no significant increase in IGFB-3.

One of the most important concerns professional athletes who engage in various sporting activities, the risk of failure of various disorders in the body, including the immune system, lung and kidney are. There are numerous uncertainties in the field of renal function during sports activities require essential Further research in this regard and to present questions to be answered.

Basketball is a team sport in which two groups in a rectangular hall to play them. The aim of the game Throw the ball into the baskets with a diameter of 46 cm and a height of 3.048 meters on both sides of
the floor and beds called attached. Each team must throw the ball into the basket facing the team. While during the game rule of laws and regulations must be observed. individual skills such as teamwork, as well as attack and defense and rebounds the ball, is a necessary condition for the success of participants in the sport. The first exercise in the fall of 1891 by doctor James Naismith invented basketball. The first official collection of laws enacted by him.

Basketball is widely considered one of the most popular and most sports world. 90 percent of the energy through aerobic metabolism to be basketball players. The basketball Unlike most sports, players often 1 or even 2 times a week to participate in national competitions club or endless games, repeated training sessions and lack of adequate recycling, Athletes at risk of reduced performance and possible damage kidney tissue as well. Although it has been suggested that sport and physical exercise favorable effects on human health, but Research has shown results in recent years as a result of heavy training and continuous professional sports and professional athletes are causing problems.

The sessions were repeated pressure, decreased renal blood flow, improper recycling, dehydration, blows to athletes, including Factors that may cause kidney damage in professional athletes. All tissue damage associated with physiological symptoms. These physiological changes are to exercise pressure. The task of cleansing the kidneys and toxic waste some of their metabolism are responsible. Renal function tests, the power of disposal of these substances evaluated by the kidneys that is often used to measure power utilization of the kidneys, blood and urine levels of some substances to be measured. As the concentration of urinary protein creatinine changed in the meantime and will play an important role in the prognosis of kidney tissue damage.

If the amount of urine after exercise three indicators (the race) have whipped up, we can say that all athletes vulnerable tissue. One of the most important signs that indicate damage or kidney disease. Increased excretion of protein in the urine after exercise or proteinuria. The amount of protein excreted in the urine that has been clinically important (Dilena & et al, 1983).

Proteinurial is an indicator that reflects the words of urinary protein excretion is higher than normal. The normal proteinuria in healthy subjects, 150 mg daily or 10 mg per liter. Two major mechanisms can be created Proteinurial is one of increased secretion with no change in tubular reabsorption and other defects in tubular reabsorption of filtered protein. So excretion of excessive protein in the urine after severe and prolonged activity is a sign of impaired kidney tissues.

Phosphocreatine breakdown product of urine creatinine and creatine is found in muscles. With the loss of water into creatinine and blood to be released. Also, the kidneys excrete it via urine excretion in normal conditions it is relatively stable. The amount of creatinine production is proportional to muscle mass. The creatinin in urine for adults is 15 to 25 mg of body weight per day to determine the level of urinary creatinin used to diagnose kidney disease and muscular and Estimates it can determine the amount and extent of kidney damage (Alissio & et al, 1985).

Much research has been conducted on kidney failure in sports. Obviously, using the results of such research can be useful to managers for planning guidelines and the type of exercise, intensity and duration of exercise, nutrition and dietary supplements, intake of antioxidants, consumption of fluids and electrolytes during exercise and before and after the race. In this study, the researchers plan to compare the protein concentration and urinary creatinine as an indicator of prognosis for some Kidney damage on players in the Premier League basketball games and training were under pressure and typically at least two heavy pressure during the week were doing it.

METHOD

In this study, the researcher believes that the comparison of urinary protein excretion and creatinine, 24 hours before and immediately after an acute exercise session to examine. Therefore, the method used in this clinical trial is applied. The study population included all basketball players in the Premier League Iran. According to the objectives pursued by the researchers in the study, 20 of the players involved in the Iran Pro League Purposively selected to play in different positions and available to be chosen as samples. The independent variable, intense workouts and sports teams, aerobic exercise for 30 minutes with an intensity of 75-85% of maximum oxygen consumption and lactic anaerobic exercises include exercises like running 30-45, 100 and explosive exercises is that at this stage heart rate is higher than 170 beats per minute for 30 minutes. Finally, 35 minutes will be forced to exercise feature in the part related to the exercise protocol. The dependent variables in this study include changes in protein levels and creatinine is and height were measured and female players, followed by body mass index (BMI) was calculated.
\[ BMI = \frac{\text{weight (kg)}}{\text{Squared height (m)}} \]

Height and weight measurements were performed to ensure the players were measured three times during the day and the average of these measurements was recorded.

SEGA height gauge to measure the height of the subjects used half a centimeter precision. SEGA analog scale to measure the weight of the subjects used about half a kilogram accurately. They also measured the subjects' body mass index and recorded. The maximum aerobic power test using the Bruce protocol on treadmill manufacturing company was Italy.

The exercise protocol included 7 to 10 minutes of public programs, warm-up and stretching exercises and 30 minutes of aerobic running (on the track) at 75 to 85 percent of maximum oxygen uptake, followed by 30 minutes of intense anaerobic training, including exercises lactic like running 30 to 45, 100, 200 meters of explosive exercises is that at this stage heart rate higher than 170 beats per minute. It should be noted to determine exercise intensity heart rate, number 22 of the players were measured by pulse number laica. The 35-minute high-pressure game a draw will be conducted in standard pitch dimensions.

Players urine samples will be collected in two stages. The first phase urine samples daily players break 24 hours without practice. The second step will be taken immediately after exercise. Intense exercise causes changes in renal hemodynamics and increased excretion of protein, this protein increase 24 to 48 hours after exercise returned to normal levels. In each of these stages, players were asked to dispose of some of your urine and then collect your urine into a tube for sampling.

The impact test groups in urinary creatinine before and after acute exercise using a standard variable shows \( P > 0.05 \), the actual effect of acute exercise on urinary creatinine in this variable is equal to 0.876. This means that 0.80 of the variance in the amount of urine creatinine test is due to the impact of acute exercise. Statistical power to test this hypothesis is equal to 1.00 and the ability to recognize significant differences in this analysis is %100.

**RESULTS**

In Table 1, the mean and standard deviation for age, height, weight, body mass index and maximal aerobic power player is offered. The subjects in this study are 20 basketball players who participated in this study voluntarily and available. Members of the sample group in this study had an average age of 27.2 ± 4.70 years, height 1.37 ± 5.11cm, weight 80.2 ± 7.08 kg, body mass index 21.08 ± 1.67 and maximal aerobic power 60.22 ± 3.07 were.

<table>
<thead>
<tr>
<th>No</th>
<th>Age (years)</th>
<th>Height (cm)</th>
<th>Weight (kg)</th>
<th>BMI (kg/m)</th>
<th>aerobic capacity (mm per kilogram per minute)</th>
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<tbody>
<tr>
<td>20</td>
<td>27.2 ± 4.70</td>
<td>1.37 ± 5.11</td>
<td>80.2 ± 7.08</td>
<td>21.08 ± 1.67</td>
<td>60.22 ± 3.07</td>
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Table 2, concentrations of urinary protein before and after acute exercise using one-way analysis of variance with repeated measures was used for the comparison.

**CONCLUSION**

Research in recent years has shown, professional sports and, as a result of heavy training and continuous professional athletes, is causing problems. Repeated training sessions pressure, decreased renal blood flow, poor recovery, dehydration, blows to athletes, including factors that may cause damage to kidneys professional athletes. Kidney damage associated with physiological symptoms.
These physiological parameters are changed to exercise pressure. All the task of clearing some of the waste products of metabolism are toxic and that are responsible. Renal function tests, the power of disposal of these materials is evaluated by all. Often to measure the strength renal excretion, measured concentrations of substances in blood and urine. Consistent comparison of findings in this study, the researchers plan to investigate the effects of acute exercise on the levels of creatinine concentration and urine protein. As of early warning indicators of renal damage Basketball Association Under the pressure on Premier League players training and Competitions were heavy and usually two games during the week they pay.

In this study, certain factors as an indicator of kidney function was used during physical activity, these factors include Proteinurial, urinary creatinine. Research in recent years has shown that professional sport and as a result, high-repetition exercise sessions may cause damage and dysfunction of the kidneys professional athletes. In this case Proteinurial and urinary including non-invasive tests available for assessing the kidney damage (Portman, 1985, Ayca, 2006). In connection with the discussion and research hypotheses, results of this study showed that the protein after exercise compared with before exercise, there is a significant difference. 70 to 80 percent of athletes after exercise is complicated by Proteinurial.

After the collision protein activity, not only in sports such as basketball, boxing but also in non-contact sports like running, swimming and rowing, respectively. Ayca and colleagues (2006) there is an element of their research to examine the effects of exercise on protein excretion and evaluate the effects of exercise on renal function in the club's male and female volleyball players.

The results showed a significant difference between levels before and after exercise, there Proteinurial for men. Portman (1988) research report, total protein andalbumin excretion rate and its relationship with the two distances examined in the current study, 15 male runner running at a maximum speed of 100 m and 400 m and 3000 m was carried out. The results showed that the total disposal Proteinurial 330, 1640, 565 micrograms per minute, respectively, after running 100 meters, 400 meters, 300 meters to the normal amount (70 micrograms per minute) increased significantly.

Portman (1978), there is an element of their research total protein, B2 microalbumin in the urine of 15 healthy women before and after intense exercise short term measured. A significant increase in urinary excretion of total protein, albumin B2 microalbumin were observed. Regarding the frequent examples of urine after exercise has been shown that 45 minutes after a variety of proteins after exercise returned to its pristine state. While the B2 albumin and microalbumin are still high.

Urine samples were collected before and 2 hours after exercise. The results showed a significant increase in urinary concentration of protein after exercise was observed in boys and girls and the increase in permeability increasing protein excretion and glomerular and tubular single plasma proteins are absorbed violation. This phenomenon is also functional disorders Network immediate and transient portions of the nephron glomerular children occur after exercise.

Portman et al (1989) 13 men placed under grueling workout cycling to determine the Proteinurial the recovery period. Total protein and albumin excretion rate were 581 and 315 micrograms per minute compared to the rest of the amount was increased 42 and 15 grams per minute. However, the albumin and urine protein 2 hours after exercise is high. Before taking antioxidant protein levels in athletes and non-athletes, 30 minutes and 24 hours after the training has been a significant increase compared to the steady state. Even with the use of antioxidants significantly increased total protein was observed 30 minutes after exercise.

REFERENCES


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