



The summary abstract

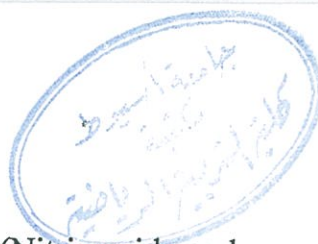
Introduction and the research problem:

The practice of sport is considered the field in which a variety of sciences are gathered in one thing that is the player. Competition to day is not limited to athletes only but it goes for to scientists and researchers all over the world. There are technical differences among different track competitions such as running, middle distances and long distances races, these differences are related to the way of performance. As a result of these differences, there is a difference in the systems of energy production. During medium physical effort, necessary energy is provided by Aerobic Metabolism which takes place in the mitochondria through the oxidation of the fatty acids and carbohydrates in a less degree the protein. This energy is used in remaking Adenosine triphosphate (ATP) out of Adenosine diphosphate (ADP) and phosphate (P). Whereas during high physical effort, necessary energy is provided by both Aerobic and non-aerobic Metabolism mainly depending on the tensity of effort.

Despite of the importance of oxygen in energy production and its numerous benefits for the body, still it has some destructive side effects that result from free oxygen

radicals which is considered one of the most important free radicals which result during Metabolism in side cells.

Free oxygen radicals are so important man's life but they must not be less or more than a certain average because the increase of free radicals affects negatively on the level of performance of the body vital organs especially muscles. Many researches were carried out aiming to the study of the anti-agents of the existence of free radicals. Their methods was taking antioxidants which are considered the first defence line of the body against the harmful effects of free oxygen radicals in order to protect the body cells. Antioxidants consist of some enzymes made by human body and some nutrition elements that man can have through daily food like vitamins which increase body adequacy and fighting moreover vitamins play a very important role in metabolism and they lead to the quick recovery of oxidation process and lessening muscle pains such as vitamin C. some researchers pointed out the importance of Allopurinol as a chemical component that acts an antioxidant which helps in reducing oxidation pressures and muscular destruction caused by exhausting practice. There fore, the researcher was interested in using some of the antioxidants (Vitamin C and Allopurinol) to see their effect on the composition of free radicals and the improvement of recovery of 100m & 800 runners through measuring some blood variables. The measurements included muscles exhausting indicators like (Lactic Acid and xanthine



oxidase), Oxidation pressures indicators like (Nitric oxide and thiobarbituric acid reactive substances) and antioxidant indicators like (total antioxidants). Glucose, creatine phosphokinase and uric acid were also measured in order to relate oxidation indicators to exhausting and recovery.

The importance of the research

1-The identification of the effect of administration antioxidants before physical performance in reducing formation Free Radicals

2-The identification of the Continuous effect for administration antioxidants before physical performance in reducing soreness muscular which following high intensity physical effort through recovery period and after 48 hours from finishing physical effort

The aims of the research

The research aims to the identification of:

1-The change of free radicals and recovery before running, (directly after running, during recovery and after 48 hours) without taking any antioxidants at competitors of 100 m and 800m.

2-The change of free radicals and recovery before running, (directly after running, during recovery and after 48 hours) after taking a dose of 1000 mg of vitamin C at competitors of 100m and 800m.

3-The change of free radicals and recovery before running, (directly after running, during recovery and after 48 hours) after taking a dose of 300mg of Allopurinol at competitors of 100m and 800m.

4-The change of free radicals and recovery (directly after running, during recovery, and after 48 hours) without taking antioxidants, after taking a dose of 1000mg of vitamin C, after taking a dose of 300mg of Allopurinol at competitors of 100 and 800m.

Hypotheses of the research

1-There are statistical indicative differences in the free radicals and recovery during the different phases of before running, (directly after running, during recovery and after 48 hours) without taking antioxidant at 100m and 800m racers.

2-There are statistical indicative differences in the free radicals and recovery during the different phases of: before running, (directly after running, during recovery and after 48 hours) after taking a dose of 1000mg of vitamin C at 100m and 800m competitor.

3-There are statistical indicative differences in the free radicals and recovery during the different phases of: before running, (directly after running, during recovery and after 48 hours) after taking a dose of 300mg of Allopurinol at 100m and 800m competitor.

4-There are statistical indicative differences in the free radicals and recovery (directly of after running, during recovery and after 48 hours) without taking any antioxidants, after taking a dose of 1000mg of vitamin C, after taking a dose of 300mg of Allopurinol at competitors of 100m and 800m.

Research Procedures:

Research Method:

The researcher used the experimental method form because of its suitability for the nature of the study.

Research sample:

The research sample has been chosen on purpose from running competitors who are registered in Assiut region of athletics. The sample consisted of ten competitors divided as follows:

Five competitors of 100m race.

Five competitors of 800m race.

Experiment Execution:

- 1- Pre-measuring during rest of both pulse and pressures.
- 2- Taking blood sample of players before any effort and emptying it in special test tubes.
- 3- Running for 100, 800m races.

4- Taking blood sample of the players directly after running, during recovery and after 48 hours to identify the changes that occur in the free radicals and recovery through measuring some blood variables.

5- Pre-measuring during rest of both pulse and pressure.

6- Taking blood sample of players before any effort and emptying it in special test tubes.

7- Giving 1000mg of vitamin C two hours before running.

8- Running 100, 800m races.

9- Taking blood sample of the players directly after running, during recovery and after 48 hours to identify the changes that occur in the free radicals and recovery through measuring some blood variables.

10- Pre-measuring during rest of both pulse and pressure.

11- Taking blood sample of players before any effort and emptying it in special test tubes.

12- Giving 300 mg Allopurinol two hours before running.

13- Running 100, 800m races.

14- Taking blood sample of the players directly after running, during recovery and after 48 hours to identify the changes that occur in the free radicals and recovery through measuring some blood variables.

Statistical Analysis:

The following statistical methods were used to analyze results:

- The arithmetic mean.
- The standard deviation.
- The coefficient of skewness
- The analysis of variance.
- Scheff test.

Conclusions:

1- Running of the race 100 m and 800 m without a dminstration antioxidant leads to the increase of * uric acid * thiobarbituric acid reactive substances * total nitric oxide * glucose * lactic acid

Addition to increasing creatine phosphokinase for 800 m competitors.

- Running of the race 100 m and 800 m without administration antioxidant leads to the reduce of total antioxidant

2- Taking vitamin c before the 100 m race leads to the increase of:

- * total antioxidant (in recovery).
- * total nitric oxide (directly after running).
- * Creatine phosphokinase (directly after running).

3- Taking vitamin c before the 100 m race leads to the reduce of:

* Xanthine oxidase (in recovery).

4- Taking vitamin c before the 800 m race leads to increase of :

* total nitric oxide (directly after running)

5- Taking vitamin c before the 800 m race leads to reduce of :

* xanthine oxidase (directly after running , in recovery , after 48 hours)

* Thiobarbituric acid reactive substances (in recovery).

* glucose (directly after running)

7- Taking allopurinol before the 100 m race leads to reduce of :

* thiobarbituric acid reactive substances (in recovery)

*xanthine oxidase (in recovery).

* total antioxidant (in recovery).

* lactic acid (in recovery , after 48 hours)

* uric acid (in recovery).

8- Taking allopurinol before the 800 m race leads to the increase of :

* total antioxidants (directly after running , in recovery)

* total nitric oxide (directly after running)

9- Taking allopurinol before the 800 m race leads to the reduce of :

- * thiobarbituric acid reactive substances (in recovery)
- * xanthine oxidase (directly after running , in recovery , after 48 hours)
- * creatine phosphokinase (directly after running)
- * glucose (directly after running , in recovery)
- * lactic acid (after 48 hours)

Recommendations:

The researcher recommends with:

1-Taking care of organizing sports practice so that a player would not reach the overload phase which causes free radicals with its destructive effect on body.

2-Taking care of having vitamin C as one of the antioxidants as it is a good fighter of free radicals and oxidation besides, it plays an important role in quick recovery about 100 m & 800 m competitors.

3- Taking care of having allopurinol as one of the Antioxidants which reduce oxidative stress evidences and sorness muscular about 100 m and 800 m competitors.

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طوبى لمن جاهد نفسه في الله عز وجل

المادة ٥٠: لا يجوز أن يكون العضو في الجمعية من جنس أو من فئة أو من جماعة واحدة.

٣- بسم الله الرحمن الرحيم الحمد لله رب العالمين والصلاة والسلام على سيدنا محمد وعلى آله وصحبه أجمعين

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بسم الله الرحمن الرحيم

א- הנהגת המוסדות הממשלתיים והמחוקקת 2. הנהגת המוסדות הממשלתיים והמחוקקת

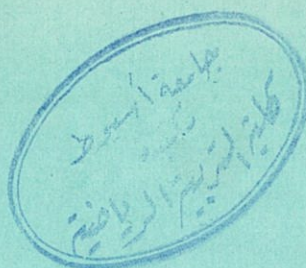
॥ अथ श्रीगणेशाय नमः ॥

سأفعل ما أريد وأنت تعلم ما كنت تفعل

١- اذكر اسم الرجل الذي كان ينادي بالحرية في مصر في سنة ١٩١٩م



Faculty of Physical Education
Track and Field Department



**Effect of the Administration of Antioxidant on the formation of
free Radicals and recovery at some of the middle and short
distance running competitors**

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