CREATINE MONOHYDRATE INTERVENTION ON THE CARDIOVASCULAR FITNESS, BODY COMPOSITION, AEROBIC AND ANAEROBIC PERFORMANCE AND TOTAL ENERGY EXPENDITURE AMONG ADULTS

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FPP 2012 48
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Thesis Submitted to School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Doctor of Philosophy

September 2012
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Chairman:  Professor Muhammad Nazrul Hakim Bin Abdullah, PhD

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While safety and health concerns have been raised by various professional groups regarding creatine supplementation, no study has reported any effect from creatine supplementation on the cardiovascular fitness and adults population. The aim of this study was to assess the effect of creatine monohydrate on the aerobic and anaerobic performance, cardiovascular function during high intensity aerobic exercise, total energy expenditure and cardiovascular risk factors. Creatine monohydrate has been known as a popular supplement among athletes. The effect of the creatine monohydrate on the anaerobic performance has been studied, although, its effects on the cardiovascular fitness aspect need to be investigated deeply. The present study was conducted to carry out four steps on the postgraduate students in UPM. A total
number of 354 male and female UPM students were participated in this research. At the first step, using an online survey, the consumption of creatine monohydrate and other supplements was studied.

According to the survey, creatine was not a popular supplement among the students. At the second phase, the effect of creatine monohydrate on the cardiovascular fitness was examined. For this purpose, the effect of creatine monohydrate on the cardiovascular risk factors including lipoproteins profile and homocysteine concentration was investigated. An increase in HDL concentration was shown in the result of creatine consumption, although, this effect was not statistically significant. The data also showed no significant change in the blood level of LDL and homocysteine in the creatine-treated group compared to the controls. It was also shown that stroke volume during the high intensity aerobic exercise can be increased with creatine supplementation, while at the placebo group showed a decrease in the same condition. However, this difference was not statistically significant. Increasing in the body mass index and body fat percent was observed in the creatine-treated group. Significant effect of creatine supplement on the total energy expenditure during high intensity aerobic exercise was also revealed. Analysing data by manova also has shown that there was not positive effect by creatine supplement on group of DV (Fat free mass, Body mass index, Body fat percent, Stroke Volume, Homocysteine, Low density lipoprotein and High density lipoprotein) as the cardiovascular fitness parameters.

At the next section of the research, the effect of creatine monohydrate in combined with resistance exercises on anaerobic and aerobic performance was investigated.
Data analysis showed no significant effect of creatine consumption on the anaerobic and aerobic performance of the participants.

The most obvious finding of the present study was demonstrating some other aspect of creatine monohydrate in effecting on the human body, specifically for inactive adults. However, to make better the other aspects of creatine monohydrate in the human body, more experimental researches are recommended.
CREATINE MONOHYDRATE INTERVENTION ON THE CARDIOVASCULAR FITNESS, BODY COMPOSITION, AEROBIC AND ANAEROBIC PERFORMANCE AND TOTAL ENERGY EXPENDITURE AMONG ADULTS

Oleh

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Pengerusi: Professor Muhammad Nazrul Hakim Bin Abdullah, PhD

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Tujuan projek ini dijalankan adalah untuk menilai kesan kreatin monohidrat terhadap prestasi aerobik dan anaerobik, fungsi kardiovaskular semasa senaman aerobik berketahanan tinggi, jumlah penggunaan tenaga dan faktor risiko kardiovaskular. Kreatin monohidrat dikenali sebagai makanan tambahan yang popular dalam kalangan atlit. Walaupun kajian ke atas kesan kreatin monohidrat terhadap prestasi anaerobik telah dijalankan, namun, kesannya kepada aspek kecergasan perlu dikaji dengan lebih mendalam. Kajian ini telah dijalankan kepada 354 pelajar pascasiswazah UPM, lelaki dan perempuan melalui empat fasa. Fasa pertama ialah melalui kaji selidik dalam talian di mana penggunaan kreatin monohidrat dan makanan tambahan lain telah dikenalpasti.

Pada fasa kajian yang seterusnya, kesan gabungan kreatin monohidrat dengan senaman ketahanan terhadap prestasi anaerobik dan aerobik telah dikaji. Analisis data menunjukkan tiada kesan signifikan penggunaan kreatin terhadap prestasi anaerobik dan aerobik para peserta.
Penemuan yang paling jelas dalam kajian ini menunjukkan aspek lain kreatin monohidrat dalam memberi kesan terhadap badan manusia khususnya kepada orang dewasa yang tidak aktif. Oleh itu, demi penambah baikan aspek lain kreatin monohidrat, dicadangakan agar lebih banyak kajian eksperimen dilaksanakan.
ACKNOWLEDGEMENTS

First and foremost I would like to express my especial appreciation to my supervisor, Professor Dr. Muhammad Nazrul Hakim Bin Abdullah for his help, guidance’s, suggestions and encouragements in my research. Also, I would like to thank Associated Professor Dr Mohd Majid B Konting, Dr Mohamad Taufik Hidayat Bin Baharuldin and Professor Madya. Dr. Mohd Sofian Omar Fauzee for their supports, guidance’s and suggestions.

I would like to extent my gratitude to the staff of the laboratory of Sport Academi for their moral support, advice and contributions in one way or another to this thesis, and not forgetting to thank Mr. Azhar Yaacob and Nor Hisham Shaari for their help and supports.

I would like to thank all staff at the department of sport science, Faculty of educational studies for their numerous help and support during my study.

I want to thank my wife, Maryam, my father, my mother and my wife’s family for their patience, encouragement, and love and support unconditional sacrifices and love.
I wish to thank all the people, although not individually named here, who have contributed significantly throughout the run of my project and completion of my thesis.
APPROVAL

I certify that a thesis Examination Committee has met on 19 September 2012 to conduct the final examination of Alireza Amani’s on his thesis entitled “Creatine Monohydrate Intervention on the Cardiovascular Fitness, Aerobic and Anaerobic Performance and Total Energy Expenditure among Adults” in accordance with the Universities and University Colleges Act 1971 and constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The committee recommends that student be awarded the Doctor of Philosophy.

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DECLARATION

I declare that the thesis is my original work except for quotation and citation which have been duly acknowledged I also declare that it has not been previously, and is not concurrently, submitted for any other degree at Universiti Putra Malaysia or at any other institution.

ALIREZA AMANI
Date: 19 September 2012
TABLE OF CONTENTS

ABSTRACT ................................................................. ii
ABSTRAK ........................................................................ v
ACKNOWLEDGEMENTS .................................................. viii
APPROVAL ........................................................................ x
DECLARATION ............................................................. xii
LIST OF TABLES .......................................................... xvii
LIST OF FIGURES ........................................................ xx

CHAPTER

1 INTRODUCTION ........................................................ 1
  1.1 Overview .................................................................... 1
  1.2 Creatine Monohydrate ............................................. 3
  1.3 Cardiovascular Fitness ............................................. 8
  1.4 Creatine Monohydrate and Aerobic and Anaerobic Performance ........... 12
  1.5 Statement of the Problem ........................................ 13
  1.6 Objectives of the Study .......................................... 19
    1.6.1 Specific Objectives ........................................... 19
    1.6.2 The Research Questions ..................................... 20
    1.6.3 Hypotheses ..................................................... 20
      1.6.3.1 The First Part of the Hypotheses .................. 21
      1.6.3.2 the Second part of the Hypotheses ................ 22
      1.6.3.3 The Third part of the Hypotheses ................. 22
  1.7 Significance of the Study ......................................... 23
  1.8 Assumptions ......................................................... 24
  1.9 Limitations of the study .......................................... 24
  1.10 Delimitations ....................................................... 25
  1.11 Definition and Abbreviation of the Terms .................. 25

2 LITERATURE REVIEW ............................................... 31
  2.1 Overview ............................................................ 31
  2.2 Creatine Supplement ............................................. 31
  2.3 Creatine Supplement in Malaysia and Southeast Asia .................. 36
  2.4 Function of Creatine and Phosphocreatine .................. 38
    2.4.1 Creatine Supplementation and Metabolism Adaptation .... 40
    2.4.2 Creatine Supplementation and Protein Turnover ........ 42
    2.4.3 Creatine Supplementation and Stability of Lipid Membranes 42
    2.4.4 Creatine Supplementation and Hormonal Alteration .... 43
    2.4.5 Creatine Supplementation and Cardiovascular Fitness .... 43
    2.4.6 Creatine Supplementation and Cardiovascular Function .... 44
    2.4.7 Stroke Volume and Creatine Supplement ................ 47
    2.4.8 Creatine Supplementation and Cardiovascular Risk Factors 48
3 METHODOLOGY

3.1 Overview 69
3.2 The Participants 69
  3.2.1 Participants in the Online Survey 70
  3.2.2 Participants in the experiment 70
  3.2.3 Exclusion and Inclusion 70
3.3 location of the study 71
3.4 sampling and experimental design 71
3.5 Procedure of research 75
  3.5.1 Procedure in online survey 75
  3.5.2 Procedure in experimental 76
    3.5.2.1 Procedure in the first experimental 78
    3.5.2.2 Procedure in the second experimental 79
    3.5.2.3 Procedure for the third experimental 80
3.6 Protocols and Instruments 81
  3.6.1 Protocol and instruments for body composition 81
  3.6.2 Estimating the Stroke Volume by Hemoglobin Concentration 82
  3.6.3 Total Energy Expenditure and RER 83
  3.6.4 Maximum Oxygen Uptake 85
  3.6.5 Anaerobic Performance and Test Protocol 85
  3.6.6 Low Intensity Resistance Exercise 86
  3.6.7 Creatine Supplementation 87
  3.6.8 Blood Collection, lipoprotein profiles and homocycteine 88
3.7 Experimental Conditions 90
3.8 Medical Screening 90
3.9 Diet Controlling 91
3.10 Familiarization Session 91
3.11 Control of the Extraneous Variables and Internal Validity 91
3.12 Validity and reliability 92
3.13 Statistics Methods 94
### 5. THE EFFECTS OF CREATINE SUPPLEMENT ON CARDIOVASCULAR FITNESS

5.1 Overview
5.2 Descriptive Data
5.3 Diet and Age Controlling
5.4 HO₁: There is no significant difference in high density lipoprotein profile (HDL) between the treatment and the controls.
5.5 HO₂: There is no significant difference in low density lipoprotein profile (LDL) between the treatments and the controls.
5.6 HO₃: There is no significant difference in Homocysteine concentration between the treatments and the controls.
5.7 HO₄: There is no significant difference in maximum stroke volume between the treatments and the control group.
5.8 HO₅: There is no significant difference in Fat Free Mass between the treatments and the controls.
5.9 HO₆: There is no significant difference in Body Fat Percent between the treatment and the controls.
5.10 HO₇: There is no significant difference in Body Mass Index between the treatment and the controls.
5.11 Conclusion

### 6. EFFECT OF CREATINE SUPPLEMENT ON ENERGY PENDITURE AND RESPIRATORY EXCHANGE RATION

6.1 Overview
6.2 Descriptive Data
6.3 Diet and Age Controlling
6.4 HO₁: There is no significant difference in total energy expenditure during the high intensity of aerobic exercise between the treatments and the controls.
6.5 HO₂: There was no significant difference in Respiratory Exchange Ratio (RER) during high intensity aerobic exercise between the treatments and the controls.
6.6 Conclusion

### 7. THE EFFECT OF CREATINE SUPPLEMENT ON AEROBIC AND ANAEROBIC FITNESS

7.1 Overview
7.2 Descriptive Data
7.3 Diet and Age Controlling
7.4 HO₁: There is no significant difference in the peak anaerobic power between the treatments and the controls.
7.5 HO₁: There is no significant difference in maximum oxygen uptake between the treatments and the controls
7.6 Discussion and conclusion
8 SUMMARY, CONCLUSION AND RECOMMENDATIONS FOR FUTURE RESEARCH

8.1 Overview 141
8.2 Conclusion 147
8.3 Suggestion and Recommendation 148

REFERENCES 149
APPENDIX 160
BIODATA OF STUDENT 185
LIST OF PUBLICATIONS 186