## LIST OF CONTENT

			PAGE
ACKNOWLEDGEMENT			iii
ABSTRACT			iv
LIST OF TABLES.	<u></u>	<u>, ()</u>	xi
LIST OF ILLUSTRATIONS	- - 	ه کیا	.xiv
INTRODUCTION	) ······		1
LITERATURE REVIEW		<u></u>	4
MATERIALS AND METHODS			17
RESULTS			27
DISCUSSION			64
REFERENCES	. <u></u>		76
VITA.	<u> </u>		89

## LIST OF TABLES

**TABLE PAGE** 1 Composition of experimental diets..... 2 Effects of high carbohydrate (HC) and high 3 fat (HF) diets in association with exercise on resting systolic blood pressure and heart rate......30 Effects of high carbohydrate (HC) and high fat (HF) diets in association with exercise on resting concentrations of plasma glucose, serum triglyceride and serum cholesterol before and after 8 weeks of exercise.....32 5 Effects of different proportion of fat to carbohydrate contents on endurance time in exercise rats pre-fed with high 6 Effects of different proportion of fat to carbohydrate contents on endurance time in exercise rats pre-fed with high fat diet.....40

7	Comparison of endurance time after switching
	to diets with different proportion of fat to
	carbohydrate contents among rats pre-fed with
	high carbohydrate (HC pre-fed) and high fat
	(HF pre-fed) diets43
8	Effects of different proportion of fat
	to carbohydrate contents on maximal
	oxygen consumption (Vo <sub>2max</sub> ) in exercise rats
	pre-fed with high carbohydrate diet45
9	Effects of different proportion of fat to
	carbohydrate contents on maximal oxygen
	consumption (Vo <sub>2max</sub> ) in exercise rats
	pre-fed with high fat diet48
10	Effects of different proportion of fat to
	carbohydrate contents on the concentrations
	of plasma glucose, plasma lactate and serum
	triglyceride in exercise rats pre-fed with high
	carbohydrate diet52
11	Effects of different proportion of fat to
	carbohydrate contents on the concentrations
	of plasma glucose, plasma lactate and serum
	triglyceride in exercise rats pre-fed with high
	fat diet57

12	Comparison of blood glucose utilization rate	
	after switching to diets with different proportion	
	of fat to carbohydrate contents among rats pre-	
	fed with high carbohydrate (HC pre-fed) and high	
	fat (HF pre-fed) diets	) . 6:
13	Comparison of blood triglyceride utilization rate	
	After switching to diets with different proportion	
	of fat to carbohydrate contents among rats pre-fed	
	with high carbohydrate (HC pre-fed) and high fat	
	(HF pre-fed) diets.	.63

## LIST OF ILLUSTRATIONS

## FIGURE

PAGE

1	Effects of high carbohydrate (HC) and high fat
	(HF) diets on body weight changes during 8
	weeks of exercise
2	Effects of high carbohydrate (HC) and high fat
	(HF) diets on changes in the maximal oxygen
	consumption ( $Vo_{2max}$ ) during 8 weeks of exercise34
3	Effects of high carbohydrate (HC) and high fat
	(HF) diets on endurance time during 8 weeks
	of exercise35
4	Effects of different proportion of fat to
	carbohydrate contents on magnitudes of
	increased endurance time in exercise rats
	pre-fed with high carbohydrate diet
5	Effects of different proportion of fat to
	carbohydrate contents on magnitudes of
	increased endurance time in exercise rats
	pre-fed with high fat diet42*

6	Comparison of endurance time before and after
	switching to diets with different proportion of fat
	to carbohydrate contents among rats pre-fed with
	high carbohydrate (HC pre-fed) and high fat
	(HF pre-fed) diets44
7	Effects of different proportion of fat to
	carbohydrate contents on magnitudes of
	increased maximal oxygen consumption
	(Vo <sub>2max</sub> ) in exercise rats pre-fed with high
	carbohydrate diet47
8	Effects of different proportion of fat to
	carbohydrate contents on magnitudes of
	increased maximal oxygen consumption
	(Vo <sub>2max</sub> ) in exercise rats pre-fed with high
	fat diet50
9	Comparison of maximal oxygen consumption
<b>*</b> .	(Vo <sub>2max</sub> ) before and after switching to diets with
	different proportion of fat to carbohydrate
	contents among rats pre-fed with high
	carbohydrate (HC pre-fed) and high fat
	(HF pre-fed) diets51
10	Effects of different proportion of fat to
	carbohydrate contents on blood glucose and
	triglyceride utilization rates and blood lactate
	production rate in exercise rats pre-fed with

	high carbohydrate diet	.56
11	Effects of different proportion of fat to	
	carbohydrate contents on blood glucose and	
	triglyceride utilization rates and blood lactate	
	production rate in exercise rats pre-fed with	
	high fat diet	60
12	Relationship of carbohydrate and fat utilizations	
	for energy during exercise.	72