

TABLE OF CONTENTS

	PAGE
ACKNOWLEDGEMENTS	iii
ENGLISH ABSTRACT	iv
THAI ABSTRACT	vi
TABLE OF CONTENTS	viii
LIST OF TABLES	x
ABBREVIATION AND SYMBOLS	xi
CHAPTER I: INTRODUCTION	1
Research question	2
Research hypothesis	2
Purpose of the study	3
Application	3
CHAPTER II: LITERATURE REVIEW	4
Chronic obstructive pulmonary disease	4
Systemic effects in COPD	6
Nutritional abnormalities and weight loss	6
Skeletal muscle dysfunction	7

Cardiovascular effects	7
Nervous system effects	8
Osteoskeletal effects	8
Anemia	8
The effects of anemia in COPD	10
Six minute walk test	12
CHAPTER III: METHODS	16
Subjects	16
Procedures	17
Statistical analysis	19
CHAPTER IV: RESULTS	20
CHAPTER V: DISCUSSION	25
REFERENCES	30
APPENDIX	37
APPENDIX A Consent form	38
CURRICULUM VITAE	43

LIST OF TABLE

TABLE		PAGE
1. The subject's demographic data		22
2. Distance and physiological responses during 6MWT		23
3. The leg fatigue and dyspnea sensation before and after 6MWT		24

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright © by Chiang Mai University
All rights reserved

ABBREVIATIONS AND SYMBOLS

COPD	Chronic obstructive pulmonary disease
QOL	Quality of life
CHF	Chronic heart failure
CKD	Chronic kidney disease
RA	Rheumatoid arthritis
TNF- α	Tumor necrosis factor-alpha
IL-6	Interleukin-6
IL-8	Interleukin-8
CRP	C-reactive protein
6MWT	Six minute walk test
VO ₂	Oxygen consumption
6MWD	Six minute walk distance
HR _{im}	Heart rate immediately after 6MWT
SpO _{2im}	Oxygen saturation immediately after 6MWT
WHO	World Health Organization
FEV ₁	Force expiratory volume in one second
FVC	Forced vital capacity
WOB	Work of breathing

ABBREVIATIONS AND SYMBOLS (Cont.)

V_E	Minute ventilation
HRV	heart rate variability
g/dL	Grams per deciliter
RBC	Red blood cell
CBC	Complete blood count
ACD	Anemia of chronic diseases
IL-1	Interleukin-1
EPO	Erythropoietin
TGF- β	Transforming growth factor- β
BMI	Body mass index
DBP	Diastolic blood pressure
DBPim	Diastolic blood pressure immediately after 6MWT
SBP	Systolic blood pressure
SBPim	Systolic blood pressure immediately after 6MWT