TABLE OF CONTENTS

	PAGE
ACKNOWLEDGEMENT	iii
ABSTRACT (in English)	iv
ABSTRACT (in Thai)	vi
TABLE OF CONTENTS	viii
LIST OF TABLES	x
LIST OF FIGURES	xi
LIST OF ABBREVITIONS	xii
CHAPTER I INTRODUCTION	
Rationale	1
Purpose of the study and hypothesis	2
Advantage of the study	3
Operation definitions	4
CHAPTER II LITERATURE REVIEW	
Adolescent idiopathic scoliosis	sit ₃
Structural deformity and mechanical change	e 7
Pulmonary measurements	8
Functional capacity and the six-minute walk test	10
Adolescent idiopathic scoliosis and ventilatory pump impairmer	nt 15

viii

Adolescent idiopathic scoliosis and cardiovascular impairment	17				
Adolescent idiopathic scoliosis and functional limitation	18				
CHAPTER III MATERIAL AND METHODS					
Participants Participants	20				
Variables	21				
Equipments	21				
Experimental setup	22				
Experimental protocols	23				
Statistical analysis	27				
CHAPTER IV RESULTS					
CHAPTER V DISCUSSIONS	35				
LIMITATIONS					
CONCLUSIONS					
FUTURE STUDY					
REFERENCES					
APPENDICES					
Appendix A Information for participants	53				
Appendix B Consent form	58				
Appendix C Data collection form	60				
Appendix D Borg scale	63				
Appendix E Raw data	64				
Appendix F Ethical approval	65				
CURRICULUM VITAE	71				

LIST OF TABLES

PAGE

TABL	E NHEIHA	PAGH
1	Demographic data	29
2	Pulmonary variables in adolescent females with AIS	30
3	Cardiovascular responses during 6 MWT	31
4 - 5	The correlation between the Cobb angle, the cardiopulmonary	33
	variables and the 6 MWD	

LIST OF FIGURES

PAGE

FIGU	RE NAIELAA	PAGE
1	The Cobb method of measuring curvature	6
2	Experimental protocols	26
3	Relationship between 6-minute walk distance and maximum voluntary ventilation in scoliosis subject	34
4	Relationship between 6-minute walk distance and pre-test diastolic blood pressure	34

xi

LIST OF ABBREVIATIONS

AIS	Adolescent Idiopathic Scoliosis
0	Degree
Yrs	Years
m	Meters
kg	Kilogram
bpm	beats/min
6 MWT	Six-minute walk test
6 MWD	Six-minute walk distance
FVC	Forced vital capacity
FEV ₁	Forced expiratory volume in one second
FEV ₁ /FVC	The ratio of forced expiratory volume in
	one second and forced vital capacity
MVV	Maximal voluntary ventilation
MIP	Maximal inspiratory pressure
MEP	Maximal expiratory pressure
HROY Chia	Heart rate al University
BP	Blood pressure erve o
SBP	Systolic blood pressure
DBP	Diastolic blood pressure

xii