

Contents

PREFACE	3
SUMMARY	4
DANSK SAMMENDRAG (DANISH SUMMARY).....	6
ABBREVIATIONS AND ACRONYMS	8
SCIENTIFIC WORK DURING THE PHD-PROGRAMME.....	9
LIST OF PAPERS IN THE THESIS.....	10
CONTENTS	11
1. INTRODUCTION	15
1.1. Objectives of the PhD.....	16
2. BACKGROUND.....	19
2.1. PHYSICAL ACTIVITY – DEFINITIONS AND DIMENSIONS.....	19
2.2. TODDLERS AND PRESCHOOLERS – DEFINITION OF AGE GROUPS	20
2.3. CHILDHOOD HEALTH AND HEALTH BEHAVIOURS – SETTING THE SCENE FOR LIFE	20
2.4. PHYSICAL ACTIVITY IN EARLY CHILDHOOD	22
2.4.1. Early physical activity – fundamental building blocks	22
2.4.2. What is physical activity in early childhood?.....	23
2.4.3. Which factors are associated with physical activity	24
2.5. MEASUREMENT OF PHYSICAL ACTIVITY IN PRESCHOOL CHILDREN	25
2.5.1. Methods – an overview.....	25
2.5.2. Direct observation.....	26
2.5.3. Accelerometry.....	26
2.5.4. Summary	32
2.6. HOW ACTIVE ARE PRESCHOOL CHILDREN?.....	32
2.6.1. Physical activity.....	32
2.6.2. Sedentary behaviour and use of screen devices	35
2.7. RECOMMENDATIONS	36
2.8. HOW IS PHYSICAL ACTIVITY AND HEALTH RELATED IN CHILDHOOD	38
2.8.1. Body composition	39
2.8.2. Indicators of cardio vascular disease	39
2.8.3. Bone development	40
2.8.4. Sedentary behaviour and health.....	40
2.8.5. Summary	41

3. MATERIALS AND METHODS	45
3.1. THE SKOT-COHORT.....	45
3.2. STUDY DESIGN AND RECRUITMENT	45
3.3. THE EXAMINATIONS	46
3.4. BACKGROUND INFORMATION.....	46
3.5. ANTHROPOOMETRY	47
3.6. BIOELECTRICAL IMPEDANCE ANALYSIS	47
3.7. BLOOD PRESSURE AND HEART RATE	47
3.8. BLOOD SAMPLES.....	48
3.9. DUAL-ENERGY X-RAY ABSORPTIOMETRY	48
3.10. ACCELEROMETRY	48
3.10.1. Data collection	48
3.10.2. Data processing.....	49
3.11. RETENTION OF STUDY PARTICIPANTS AND FAMILIES	53
3.12. STATISTICAL ANALYSES	53
4. RESULTS	57
4.1. STUDY FLOW.....	57
4.2. POPULATION CHARACTERISTICS	58
4.3. SLEEP AND DAYCARE	59
4.4. PAPER 1: PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOR.....	61
4.5. PAPER 2: PHYSICAL ACTIVITY AND HEALTH.....	103
5. DISCUSSION.....	131
5.1. HIGH OR LOW CUTOFFS?	131
5.2. HIGHLY SEDENTARY OR ACTIVE BY NATURE - HOW ACTIVE ARE PRESCHOOLERS?....	132
5.3. DEFINITION OF LOW INTENSITY PLAY AND EFFECTS OF BREAKS IN SEDENTARY TIME	136
5.4. THE 3-H RECOMMENDATION	137
5.5. NEED FOR PHYSICAL ACTIVITY RECOMMENDATIONS FOR PRESCHOOLERS?.....	138
5.6. NEED FOR SEDENTARY RECOMMENDATIONS FOR PRESCHOOLERS?.....	140
5.7. NEED FOR RECOMMENDATIONS REGARDING SCREEN-TIME?	140
5.8. DIFFERENCES IN PHYSICAL ACTIVITY ACROSS SETTINGS AND BETWEEN CHILDREN ...	141
5.9. INTERVENTIONS TO PROMOTE PHYSICAL ACTIVITY	143
5.10. STRENGTHS AND WEAKNESSES	144
6. OVERALL CONCLUSIONS	147
7. FUTURE PERSPECTIVES	151
7.1. SURVEILLANCE	151
7.2. METHODOLOGICAL CONSENSUS.....	151
7.3. INTERVENTION AND IMPLEMENTATION RESEARCH.....	151
CO-AUTHORSHIPS	152
APPENDIX 1: CORRELATES OF PHYSICAL ACTIVITY	153
REFERENCES	157
ACKNOWLEDGEMENTS	157