

List of content

1	Motivation.....	1
1.1	Proteins in milk	2
1.2	Metabolic syndrome in adolescents	4
1.2.1	Definition of pediatric met-s.....	5
1.2.2	Prevalence of met-s in children.....	5
1.2.3	Limitations using pediatric met-s.....	6
1.2.4	Tracking of met-s risk factors	6
1.3	Overweight in adolescents.....	7
1.3.1	Milk and weight development.....	9
1.3.2	Milk proteins and weight development.....	10
1.3.3	Potential mechanisms - satiety.....	11
1.3.4	Potential mechanisms - thermogenesis	12
1.4	Insulin resistance in overweight adolescents.....	13
1.4.1	Milk and insulin	13
1.4.2	Potential mechanisms - milk & insulin	15
1.5	Lipoproteins in overweight adolescents	16
1.5.1	Milk proteins and blood lipids	16
1.5.2	Potential mechanisms – milk & blood lipids	17
1.6	Blood pressure in overweight adolescents	18
1.6.1	Milk, milk proteins and blood pressure	19
1.6.2	Potential mechanisms – milk & blood pressure.....	20
1.7	Function of the vessel wall.....	22
1.7.1	Measurements of vascular function	22
1.7.2	PWV, Aix and atherosclerosis	24
1.7.3	Arterial stiffness in overweight adolescents	25
1.7.4	Milk proteins and arterial stiffness.....	26
1.8	Inflammation in overweight adolescents.....	27
1.8.1	Milk proteins and inflammation.....	27
2	Research questions and objectives.....	28
3	Study considerations	29
3.1	Time schedule.....	29
3.2	Design.....	29
3.3	Recruitment	31
3.4	Inclusion and exclusion criteria.....	33
3.5	Puberty.....	33
3.6	The test drinks	33
3.7	Measurements of arterial stiffness.....	35
3.7.1	Pulse wave analysis.....	36
3.7.2	Pulse wave velocity.....	37
3.8	Statistics.....	39
3.8.1	Multivariate analysis paper I.....	39
3.8.2	Group comparisons paper II+III	40
3.9	Power.....	41

4	Results.....	42
	Paper I.....	43
	Paper II.....	53
	Paper III.....	65
5	Discussion of results	77
5.1	The study population.....	77
5.2	Determinants of arterial stiffness	78
5.3	Milk proteins, body weight and insulin secretion	79
5.4	Milk proteins, blood pressure and arterial stiffness	81
5.5	Compliance with test drinks.....	82
5.6	Limitations of the MOMS study	83
6	Conclusions.....	85
7	Perspectives.....	86
8	Acknowledgements.....	87
9	References.....	88