

**Supplemental table 3.** Results from multivariable linear regression analyses of male serum reproductive hormones, SHBG and DHEAS among Danish men according to self-reported hours of sleep per day.

		Sleep in hours (continuous- and categorized variable) / $\beta$ (95% CI), p-value					
		Model 3* (n=2095)			Model4** (n=1962)***		
Free testosterone (pmol/L)	Sleep in hours (continuous)	-6.4	(-11.4; -1.4)	p=0.012	-6.6	(-11.8; -1.4)	p=0.013
	< 7 hours of sleep	2.1	(-8.2; 12.3)	p=0.692	3.0	(-7.5; 13.5)	p=0.571
	7-9 hours of sleep	0 (reference)			0 (reference)		
	> 9 hours of sleep	-35.5	(-57.4; -13.6)	p=0.001	-33.2	(-56.5; 9.9)	p=0.005
Bioavailable testosterone (nmol/L)	Sleep in hours (continuous)	-0.2	(-0.3; -0.0)	p=0.014	-0.2	(-0.3; -0.0)	p=0.017
	< 7 hours	0.0	(-0.2; 0.3)	p=0.803	0.0	(-0.2; 0.3)	p=0.647
	7-9 hours	0 (reference)			0 (reference)		
	> 9 hours	-0.8	(-1.4; -0.3)	p=0.003	-0.8	(-1.3; 0.2)	p=0.009
Total testosterone (nmol/L)	Sleep in hours (continuous)	-0.31	(-0.6; -0.1)	p=0.020	-0.3	(-0.6; -0.1)	p=0.019
	< 7 hours	0.29	(-0.3; 0.8)	p=0.310	0.3	(-0.5; 0.9)	p=0.284
	7-9 hours	0 (reference)			0 (reference)		
	> 9 hours	-1.43	(-2.6; -0.3)	p=0.018	-1.4	(-2.6; -0.1)	p=0.034
SHBG (nmol/L)	Sleep in hours (continuous)	-0.3	(-0.92; 0.30)	p=0.318	-0.33	(-0.97; 0.31)	p=0.313
	< 7 hours	1.1	(-0.15; 2.34)	p=0.085	0.99	(-0.29; 2.28)	p=0.129
	7-9 hours	0 (reference)			0 (reference)		
	> 9 hours	0.4	(-2.28; 3.05)	p=0.776	0.38	(-2.47; 3.24)	p=0.792
DHEAS (nmol/L)	Sleep in hours (continuous)	-0.1	(-0.0; 0.0)	p=0.657	-0.0	(-0.0; 0.0)	p=0.903
	< 7 hours	-0.0	(-0.1; 0.0)	p=0.360	-0.0	(-0.1; 0.0)	p=0.435
	7-9 hours	0 (reference)			0 (reference)		
	> 9 hours	-0.1	(-0.3; 0.0)	p=0.146	-0.1	(-0.3; 0.1)	p=0.368

\* adjusted for age, smoking, BMI, alcohol intake and physical activity, \*\* further adjusted for asthma, myocardial infarction,

diabetes, heart medication, and cholesterol-lowering medication.

\*\*\* 133 participants were excluded in the present analyses, due to incomplete information on co-morbidities.

SHBG, sex-hormone binding globulin; DHEAS, dehydroepiandrosterone-sulphate.