

# A longitudinal observational study of back pain incidence, risk factors, and occupational physical activity in Swedish marine trainees

## Supplementary Files

**Supplementary Table 1.** Incidence rate (IR) based on time to first LBP, and LBP limiting work-ability, episode during the marine training course.

	LBP			LBP limiting work ability		
	Time at risk	IR	95%CI	Time at risk	IR	95%CI
Per 100 person-weeks	398 person weeks	9.0	6.5-12.5	539 person weeks	3.9	2.5-6.0
Per 1000 person-days	2786 person days	12.9	9.3-17.9	3773 person days	5.6	3.6-8.5

**Supplementary Table 2.** Regression analyses of individual physical characteristics, work- and health-related risk variables: initial multiple hazard ratio (HR) for low back pain (LBP) and LBP limiting work ability during the marine training course.

Variable	LBP			LBP limiting work ability				
	Initial Multivariable			Initial Multivariable				
	HR	95% CI	P value	HR	95% CI	P value		
<b>Physical characteristics</b>								
Body Height $\leq 1.80$ (m)	1.69	1.02	2.79	0.040	2.90	1.31	6.43	0.009
<b>Rated health/health history</b>								
Back Pain; within 6 mo. prior to course start	1.61	0.85	3.05	0.145	2.42	0.89	6.55	0.082
Hip/Knee Pain; within 6 mo. prior to course start	1.30	0.75	2.27	0.350				
Neck/Shoulder Pain; within 6 mo. prior to course start	1.25	0.68	2.35	0.483	2.35	0.76	7.21	0.136
<b>Work-related</b>								
Current Work ability with regard to best ever	1.48	0.86	2.54	0.152				
<b>Physical training habits past 6months</b>								
Physical training; $\leq 2$ sessions/week					3.16	1.23	8.13	0.017
Muscular strength training; $\leq 1$ sessions/week					0.44	0.12	1.61	0.215
2-4 sessions/week								
$\geq 5$ sessions/week					1.27	0.45	3.54	0.649

**Supplementary Table 3.** Regression analyses of clinical tests: univariate and multiple final adjusted<sup>†</sup> hazard ratio (HR) for low back pain during the marine training course.

	Univariate			Final Adjusted Model <sup>a</sup>				
	HR	95% CI	P value	HR	95% CI	P value		
<b>Physical/clinical tests</b>								
Kettlebell lifts; kg*rep ≤760 (lowest tertile)	1.48	0.82	2.67	0.198				
<b>Sensitivity analysis</b>								
CC ( <i>i.e.</i> only male)	1.44	0.76	2.7	0.261				
Imputed ( <i>only male</i> )	1.48	0.75	2.91	0.256				
Pull-ups ≤ 3	1.99	1.11	3.56	0.020	1.87	1.17	3.01	0.009
<b>Sensitivity analysis</b>								
CC ( <i>i.e.</i> only male)	2.00	1.10	3.66	0.025	1.82	1.16	2.88	0.009
Imputed ( <i>only male</i> )	1.94	1.06	3.54	0.032	1.81	1.13	2.91	0.014
<b>MCM-Tests, direction specific;</b>								
DLL-L Flex; <i>Fail</i>	0.82	0.39	1.75	0.613				
DLL-L Ext; <i>Fail</i>	0.82	0.47	1.46	0.508				
DLL-ALE Flex; <i>Fail</i>	0.71	0.32	1.56	0.388				
DLL-ALE Ext; <i>Fail</i>	1.35	0.76	2.40	0.310				

<sup>a</sup>Adjusted for prior back pain and body height

Abbreviations; CC; complete cases, DLL-L Flex; Double leg lift-lower lumbar flexion-control, DLL-L Ext; Double leg lift-lower lumbar extension-control, DLL-ALE Flex; Double leg lift-alternate leg extension lumbar flexion-control, DLL-L Ext; Double leg lift-alternate leg extension lumbar extension-control.

**Supplementary Table 4.** Regression analyses of clinical tests: univariate hazard ratio (HR) for low back pain limiting work ability during the marine training course.

	<b>HR</b>	<b>95% CI</b>	<b>P value</b>
<b>Physical/clinical tests</b>			
Kettlebell lifts; kg*rep ≤760 (lowest tertile)	1.02	0.67 1.54	0.923
<b>Sensitivity analysis</b>			
Complete cases (i.e. only male)	1.10	0.31 3.92	0.884
Imputed (only male)	1.12	0.37 3.39	0.834
Pull-ups ≤ 3	1.02	0.75 1.38	0.912
<b>Sensitivity analysis</b>			
Complete cases (i.e. only male)	1.23	0.42 3.64	0.709
Imputed (only male)	1.29	0.46 3.60	0.631
<b>MCM-Tests, direction specific;</b>			
DLL-L Flex; <i>Fail</i>	0.71	0.21 2.43	0.587
DLL-L Ext; <i>Fail</i>	0.85	0.35 2.06	0.715
DLL-ALE Flex; <i>Fail</i>	0.76	0.23 2.54	0.650
DLL-ALE Ext; <i>Fail</i>	0.71	0.29 1.73	0.452

Abbreviations; DLL-L Flex; Double leg lift-lower lumbar flexion-control, DLL-L Ext; Double leg lift-lower lumbar extension-control, DLL-ALE Flex; Double leg lift-alternate leg extension lumbar flexion-control, DLL-L Ext; Double leg lift-alternate leg extension lumbar extension-control.