

**Supplementary tables for “Low fitness, low body mass and prior injury predict injury risk during military recruit training: a prospective cohort study in the British Army” (Robinson *et al*)**

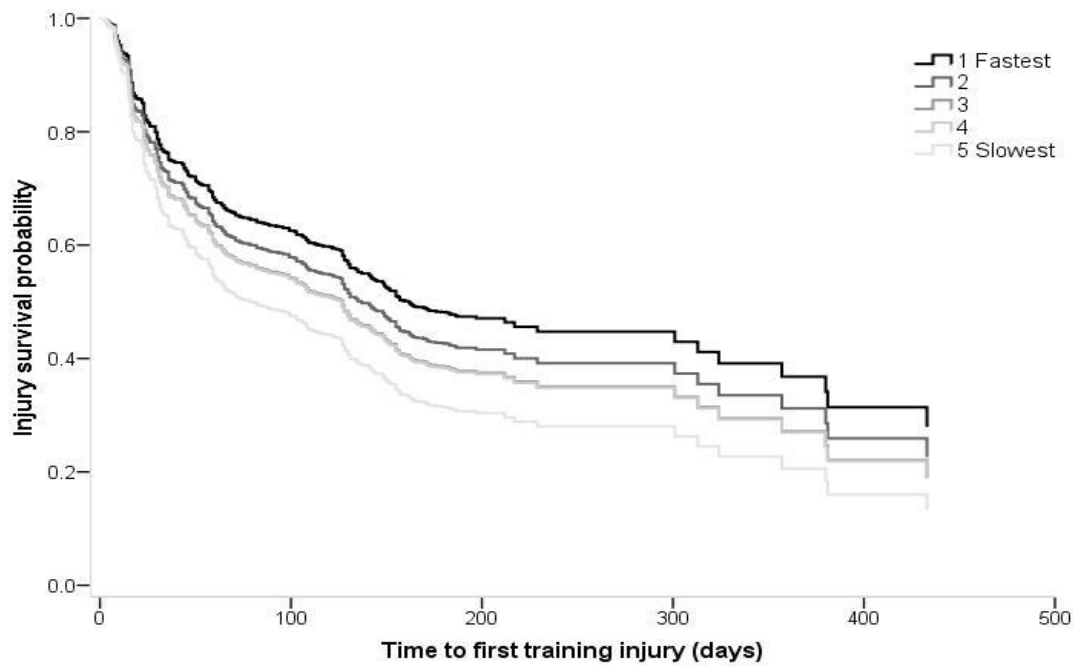
**Table S1** Univariable Cox regression results for any injury and any time-loss injury

Variable	Level of variable	Any injury				Time Loss injury			
		n	HR	95% CI	p value	n	HR	95% CI	p value
<b>Age (years)</b>					0.61				0.17
	17	310	1		Referent	310	1		Referent
	18-19	531	0.91	0.75 to 1.09	0.30	529	0.97	0.75 1.26	0.83
	20-21	390	0.99	0.82 to 1.21	0.95	390	1.21	0.93 1.58	0.16
	≥22	451	1.00	0.82 to 1.20	0.96	450	1.17	0.90 1.52	0.23
<b>Ethnicity</b>	White	1568	1		Referent	1565	1		Referent
	Other	114	0.82	0.64 to 1.07	0.14	114	1.05	0.76 1.45	0.78
<b>Income deprivation</b>					0.83				0.55
	1 Most deprived	481	1		Referent	480	1		Referent
	2	376	1.01	0.85 to 1.21	0.89	376	0.91	0.72 1.16	0.46
	3	301	0.91	0.75 to 1.10	0.33	298	0.98	0.76 1.26	0.88
	4	237	0.94	0.76 to 1.15	0.55	238	0.79	0.59 1.05	0.10
	5 Least deprived	222	0.97	0.79 to 1.20	0.78	221	0.98	0.74 1.29	0.88
<b>Height (cm)</b>					0.13				0.34
	158 - 172	313	1		Referent	313	1		Referent
	172 - 175	357	1.15	0.95 to 1.40	0.15	354	1.09	0.83 1.42	0.55
	175 - 179	321	1.02	0.83 to 1.26	0.83	319	0.98	0.74 1.31	0.92
	179 - 182	358	1.01	0.82 to 1.23	0.96	359	1.16	0.89 1.52	0.26
	182 - 200	314	0.88	0.71 to 1.08	0.23	314	0.89	0.67 1.18	0.42
<b>Body mass (kg)</b>					0.02				0.04
	47 - 62	331	1		Referent		1		Referent
	62 - 68	334	0.74	0.61 to 0.91	0.004	330	0.71	0.54 0.95	0.02
	68 - 72	336	0.76	0.62 to 0.93	0.007	333	0.92	0.70 1.19	0.51
	72 - 79	325	0.88	0.73 to 1.07	0.20	334	1.07	0.83 1.39	0.60
	79 - 103	337	0.80	0.66 to 0.97	0.02	326	0.84	0.64 1.10	0.19
<b>Body mass index (kg/m<sup>2</sup>)</b>					0.34				0.96
	14.5 - 20.2	330	1		Referent	329	1		Referent
	20.2 - 21.6	330	1.07	0.87 to 1.30	0.53	330	1.06	0.81 1.40	0.66
	21.6 - 23.1	341	0.89	0.72 to 1.09	0.24	337	0.99	0.75 1.31	0.96
	23.1 - 25.0	329	0.94	0.77 to 1.15	0.55	330	1.06	0.80 1.39	0.69
	25.0 - 30.8	332	1.05	0.86 to 1.28	0.64	332	1.08	0.82 1.42	0.59
<b>2.4 km run-time (s)</b>					0.001				0.001
	456 - 575	328	1		Referent	325	1		Referent
	575 - 604	331	1.19	0.96 to 1.46	0.11	330	1.27	0.95 1.70	0.10
	604 - 629	341	1.28	1.05 to 1.57	0.02	339	1.27	0.96 1.69	0.10
	629 - 662	337	1.30	1.06 to 1.60	0.01	336	1.38	1.04 1.84	0.03
	662 - 762	322	1.55	1.27 to 1.91	0.00	324	1.82	1.38 2.39	0.00
<b>Back extension strength (kg)</b>					0.15				0.25
	54 - 84	328	1		Referent	324	1		Referent
	84 - 93	331	0.83	0.68 to 1.02	0.08	338	0.83	0.62 1.09	0.18
	93 - 101	341	0.90	0.74 to 1.10	0.31	333	1.06	0.81 1.39	0.65
	101 - 111	337	0.82	0.67 to 1.01	0.06	325	0.91	0.69 1.20	0.52
	111 - 160	322	1.00	0.82 to 1.22	1.00	333	1.09	0.84 1.42	0.53
<b>Static lift strength (kg)</b>					0.58				0.82
	46 - 97	332	1		Referent	332	1		Referent
	97 - 107	333	0.88	0.72 to 1.08	0.22	332	0.92	0.70 1.21	0.55
	107 - 118	329	0.93	0.76 to 1.13	0.45	327	0.94	0.71 1.23	0.64
	118 - 131	339	0.87	0.71 to 1.06	0.17	339	1.06	0.81 1.38	0.66
	131 - 197	326	0.87	0.71 to 1.06	0.16	324	0.93	0.71 1.23	0.63
<b>Maximum number of pull ups (n)</b>					0.45				0.38
	1 - 5	308	1		Referent	308	1		Referent
	5 - 7	301	0.91	0.74 to 1.12	0.39	299	1.08	0.81 1.43	0.59
	7 - 9	324	0.95	0.78 to 1.16	0.62	324	1.16	0.88 1.53	0.28
	9 - 11	426	0.84	0.69 to 1.02	0.08	426	0.91	0.69 1.19	0.48
	11 - 26	264	0.97	0.79 to 1.20	0.79	260	1.10	0.82 1.47	0.52

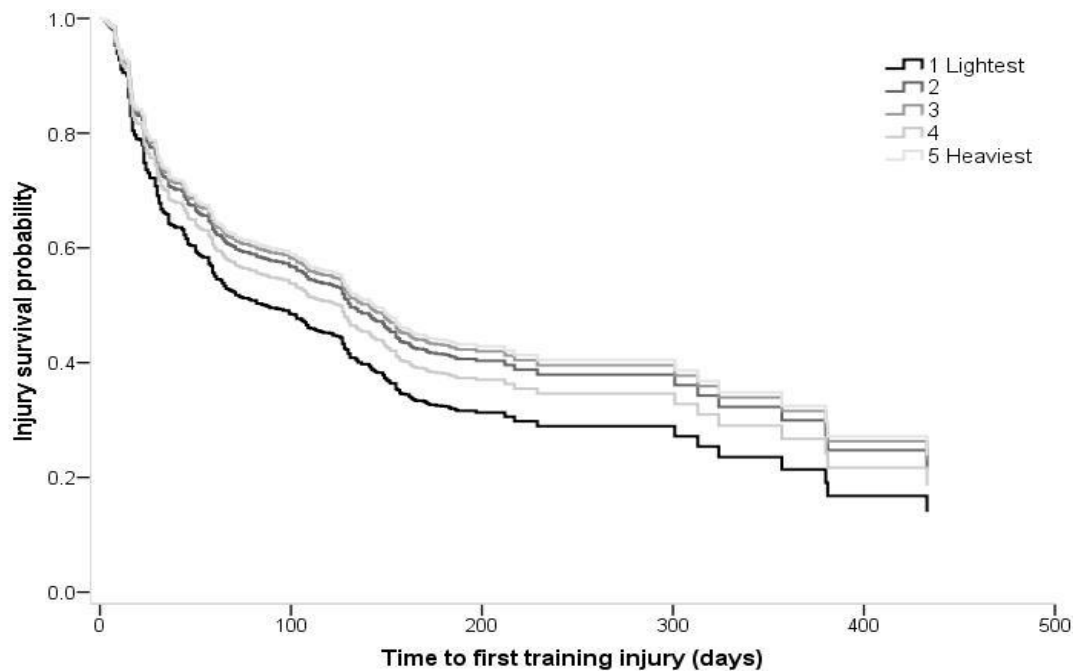
**Table S1** Continued

Variable	Level of variable	Any injury				Time Loss injury			
		n	HR	95% CI	p value	n	HR	95% CI	p value
<b>Smoking status</b>					0.11				0.08
	Never smoker	443	1		Referent	440	1		Referent
	Ex smoker	310	1.02	0.84 to 1.23	0.88	308	1.18	0.91 1.54	0.22
	1-10 cigs/day	507	1.13	0.96 to 1.34	0.15	508	1.35	1.07 1.69	0.01
	>10 cigs/day	317	1.23	1.02 to 1.49	0.03	316	1.26	0.97 1.63	0.09
<b>Cigarette pack years<sup>a</sup></b>					0.06				0.13
	Non-smoker	753	1		Referent	748	1		Referent
	0.1 - 2.6	270	1.11	0.93 to 1.34	0.25	270	1.23	0.97 1.57	0.09
	2.6-5.0	271	1.27	1.06 to 1.52	0.01	272	1.24	0.97 1.57	0.08
	5.0+	268	1.14	0.95 to 1.38	0.15	267	1.24	0.98 1.58	0.08
<b>Alcohol consumption<sup>b</sup></b>					0.61				0.74
	0 - 4 (lowest)	325	1		Referent	338	1		Referent
	4 - 6	339	0.97	0.80 to 1.18	0.76	341	1.00	0.77 1.30	1.00
	6 - 8	334	0.89	0.74 to 1.08	0.23	399	0.86	0.66 1.12	0.26
	8 - 9	325	1.01	0.81 to 1.25	0.95	229	0.93	0.69 1.25	0.61
	9 - 12 (highest)	335	0.89	0.73 to 1.09	0.27	330	0.99	0.76 1.29	0.93
<b>Healthy diet<sup>c</sup></b>					0.87				0.22
	1.1 - 1.7 (most)	312	1		Referent	311	1		Referent
	1.7 - 1.9	338	0.92	0.75 to 1.12	0.41	337	1.00	0.77 1.31	0.99
	1.9 - 2.0	390	0.90	0.74 to 1.09	0.29	384	0.99	0.76 1.28	0.92
	2.0 - 2.2	266	0.94	0.76 to 1.16	0.58	264	1.03	0.78 1.36	0.84
	2.2 - 3.0 (least)	355	0.94	0.77 to 1.14	0.53	355	0.76	0.58 1.01	0.06
<b>Self rating of physical activity compared with others</b>					0.52				0.57
	More active	743	1		Referent	742	1		Referent
	About the same	531	1.03	0.89 to 1.20	0.65	532	1.05	0.86 1.28	0.66
	Less active	377	1.10	0.93 to 1.30	0.25	374	1.13	0.90 1.40	0.29
<b>Prior fracture</b>	No	904	1		Referent	900	1		Referent
	Yes	754	1.15	1.02 to 1.31	0.03	755	1.17	0.99 1.39	0.07
<b>Prior stress fracture</b>	No	1479	1		Referent	1474	1		Referent
	Yes	28	1.13	0.68 to 1.88	0.64	28	1.39	0.75 2.61	0.30
<b>Prior shin pain</b>	No	1410	1		Referent	1407	1		Referent
	Yes	243	1.26	1.06 to 1.50	0.009	243	1.61	1.30 2.00	<0.001
<b>Injury in past 12 months</b>	No	1284	1		Referent	1281	1		Referent
	Yes	368	1.20	1.03 to 1.39	0.02	368	1.17	0.96 1.44	0.12

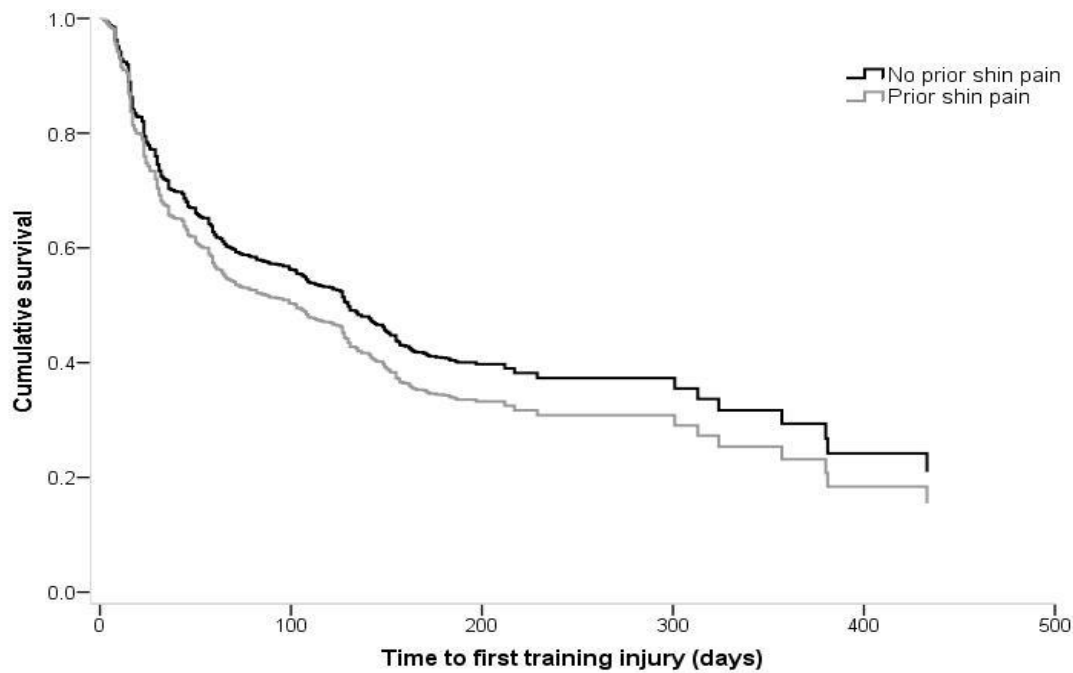
- One pack-year of smoking would mean that someone had smoked, on average, one pack of cigarettes (20 cigarettes) daily for one year.
- Alcohol consumption based on Alcohol Use Disorders Identification Test (Consumption) score
- Diet based on Rapid Eating Assessment for Patients
- Response categories of physical activity were collapsed ('less active' includes 'much less active'; 'more active' includes 'much more active').



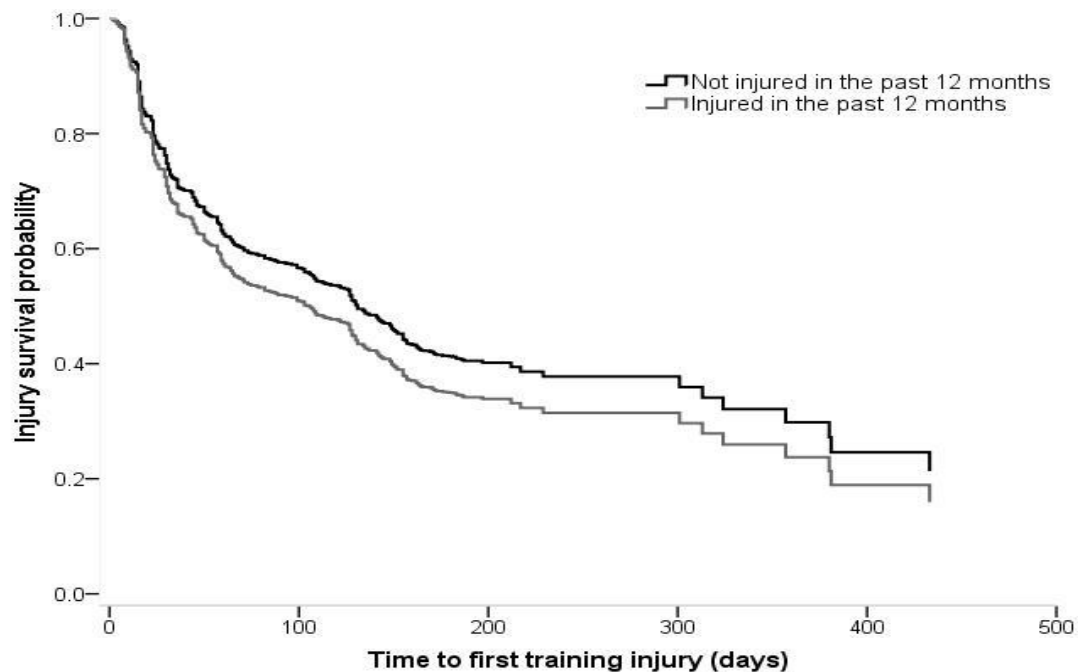
**Figure S1:** Army infantry training, stratified by 2.4 km run time quintile. Notes: Results from Cox regression analysis with adjustment for body mass, injury in the past 12 months and prior shin pain. The median survival time (days) of the different quintiles (from unadjusted Kaplan-Meier survival analysis) was: Fastest = 155; Q2 = 135; Q3 = 128; Q4 = 108; Q5 = 68).



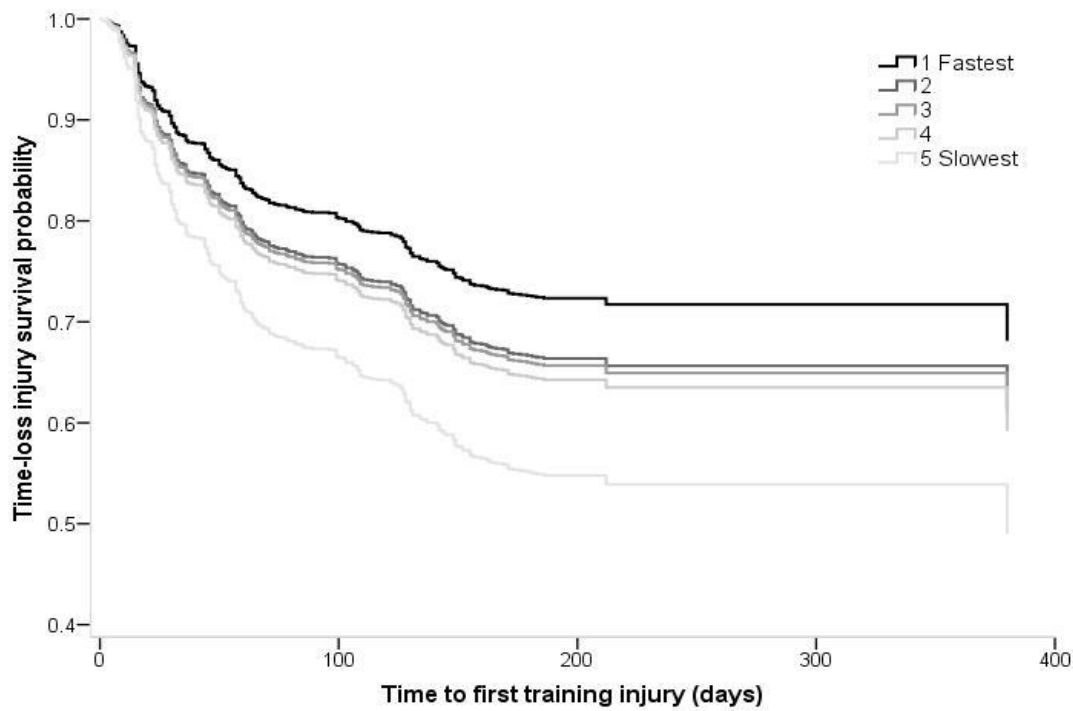
**Figure S2** Adjusted survival probability of not sustaining any injury during British Army infantry training, stratified by body mass quintile. Note: Results from Cox regression analysis with adjustment for 2.4 km run time, injury in the past 12 months and prior shin pain. The median survival time (days) of the different quintiles (from unadjusted Kaplan-Meier survival analysis) was: Lightest = 82; Q2 = 148; Q3 = 141; Q4 = 127; Q5 = 142).



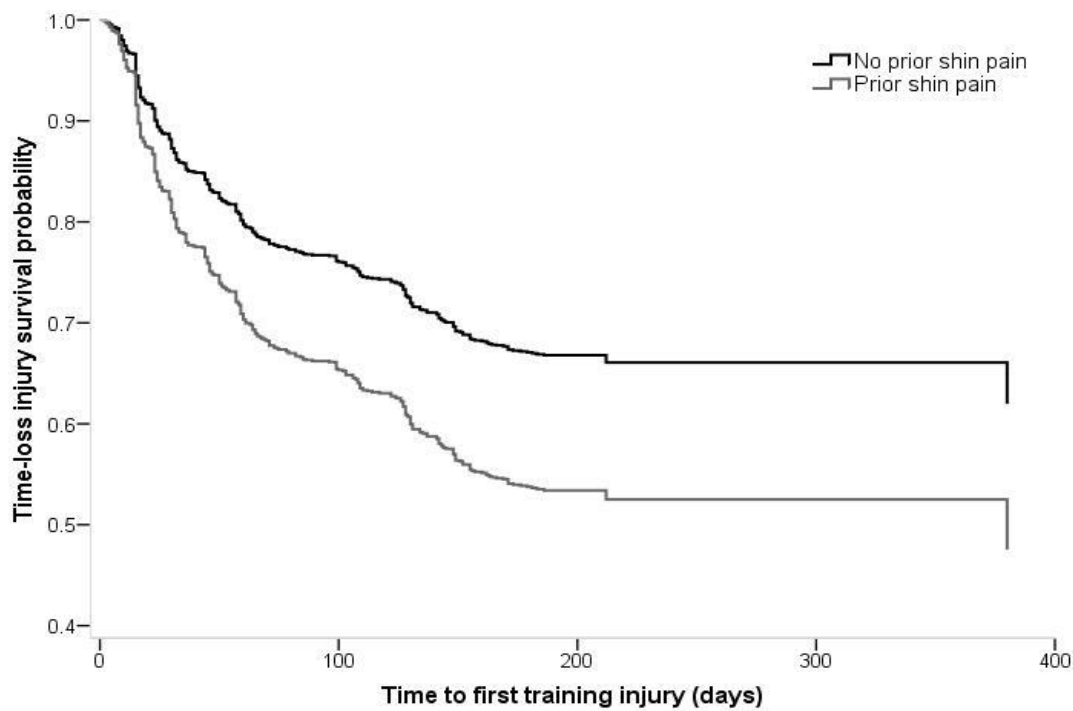
**Figure S3** Adjusted survival probability of not sustaining any injury during British Army infantry training, stratified by whether recruit had previously experienced shin pain. Notes: Results from Cox regression analysis with adjustment for 2.4 km run time, body mass and injury in the past 12 months. The median survival time (days) of the different groups (from unadjusted Kaplan-Meier survival analysis) was: Prior shin pain = 75; No prior shin pain = 130.



**Figure S4** Adjusted survival probability of not sustaining any injury during British Army infantry training, stratified by whether recruit had suffered an injury in the past 12 months. Notes: Results from Cox regression analysis with adjustment for 2.4 km run time, body mass and prior shin pain. The median survival time (days) of the different groups (from unadjusted Kaplan-Meier survival analysis) was: Past injury = 107; No past injury = 131.



**Figure S5** Adjusted survival probability of not sustaining any time-loss injury during British Army infantry training, stratified by 2.4 km run time quintile. Note: Results from Cox regression analysis with adjustment for body mass, prior shin pain and prior fracture.



**Figure S6** Adjusted survival probability of not sustaining any time-loss injury during British Army infantry training, stratified by whether recruit had previously experienced shin pain. Note: Results from Cox regression analysis with adjustment for 2.4 km run time, body mass and injury in the past 12 months.

**Table S2: Multivariate Cox regression results for any injury and any time-loss injury among British Army infantry recruits when entering risk factors simultaneously into the model.**

Variable	Level of variable	Any injury				Time Loss injury			
		n	HR	95% CI	p	n	HR	95% CI	p
<b>Body mass (kg)</b>					0.02				0.06
	47 - 62	301	1		Referent	302	1		Referent
	62 - 68	296	0.79	0.64 to 0.98	0.03	300	0.79	0.59 to 1.05	0.11
	68 - 72	315	0.74	0.60 to 0.91	0.005	313	0.91	0.69 to 1.20	0.50
	72 - 79	291	0.82	0.67 to 1.01	0.06	295	1.03	0.78 to 1.35	0.85
	79 - 103	312	0.72	0.58 to 0.89	0.002	311	0.72	0.54 to 0.97	0.03
<b>2.4 km run-time (s)</b>					0.001				0.001
	456 - 575	306	1		Referent	305	1		Referent
	575 - 604	297	1.14	0.92 to 1.42	0.24	300	1.22	0.91 to 1.65	0.18
	604 - 629	310	1.32	1.06 to 1.63	0.01	311	1.29	0.96 to 1.74	0.09
	629 - 662	308	1.32	1.06 to 1.63	0.01	308	1.37	1.02 to 1.84	0.04
	662 - 762	294	1.58	1.27 to 1.96	<0.001	297	1.86	1.39 to 2.48	<0.001
<b>Prior fracture</b>	No					835	1		Referent
	Yes					686	1.14	0.96 to 1.36	0.15
<b>Prior shin pain</b>	No	1295	1		Referent	1302	1		Referent
	Yes	220	1.22	1.01 to 1.46	0.04	219	1.63	1.30 to 2.05	<0.001
<b>Injury in past 12 months</b>	No	1181	1		Referent				
	Yes	334	1.17	1.00 to 1.37	0.05				0.29
<b>Smoking status</b>							1		Referent
	Never smoker					429	1.15	0.88 to 1.50	0.32
	Ex smoker					300	1.26	1.00 to 1.59	0.05
	1-10 cigs/day					487	1.17	0.90 to 1.52	0.25
	>10 cigs/day					305	1.14	0.96 to 1.36	0.15
<b>Cigarette pack years<sup>a</sup></b>					0.21				
	Non-smoker	734	1		Referent				
	0.1 - 2.6	259	1.06	0.88 to 1.28	0.55				
	2.6-5.0	264	1.21	1.01 to 1.45	0.04				
	5.0+	258	1.09	0.90 to 1.31	0.40				

Note: <sup>a</sup> One pack-year of smoking would mean that someone had smoked, on average, one pack of cigarettes (20 cigarettes) daily for one year. Only risk factors that were significant at the  $p < 0.10$  level in univariate analyses were entered into the model.

**Table S3: Multivariate Cox regression results for any injury and any time-loss injury among British Army infantry recruits with 2.4-km run time during week 1 entered instead of run time at selection.**

Variable	Level of variable	Any injury				Time Loss injury			
		n	HR	95% CI	p	n	HR	95% CI	p
<b>Body mass (kg)</b>					0.01				0.05
	47 - 62	233	1		Referent	240	1		Referent
	62 - 68	240	0.82	0.65 to 1.03	0.09	252	0.80	0.59 to 1.10	0.17
	68 - 72	246	0.74	0.59 to 0.93	0.01	253	0.82	0.60 to 1.11	0.19
	72 - 79	235	0.82	0.65 to 1.03	0.09	249	0.99	0.74 to 1.33	0.96
	79 - 103	252	0.66	0.52 to 0.83	<0.001	264	0.67	0.49 to 0.92	0.01
<b>2.4 km run-time at week 1 (s)</b>					<0.001				<0.001
	480 - 578	226	1		Referent	230	1		Referent
	578 - 603	241	1.15	0.89 to 1.47	0.28	250	1.21	0.85 to 1.72	0.29
	603 - 627	240	1.49	1.17 to 1.89	<0.001	255	1.54	1.10 to 2.16	0.01
	627 - 659	246	1.48	1.16 to 1.89	<0.001	258	1.89	1.35 to 2.63	<0.001
	659 - 930	253	1.86	1.47 to 2.37	<0.001	265	2.14	1.54 to 2.98	<0.001
<b>Prior shin pain</b>	No					1074	1		Referent
	Yes					184	1.61	1.26 to 2.06	<0.001
<b>Injury in past 12 months</b>	No	959	1		Referent				
	Yes	247	1.25	1.05 to 1.49	0.01				