1 **Predictors of multiple injuries in individual distance runners: A retrospective study of**

2 **75,401 entrants in 4 annual races – SAFER XX**

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14 **Running title: Predictors of multiple injuries in runners**

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Supplementary Tables

Supplementary Table 1. Example of how the Cumulative number of injuries & Number of races/years ran were used to calculate the average number of injuries per year for an individual runner (only for 0.5, 1, 1.5, 2, 2.5, and 3).

Average number of injuries per year	Cumulative number of injuries	Number of years entered	Number of study entrants
0.25	1	4	449
0.33	1	3	1372
0.5	1	2	2692
	2	4	179
0.67	2	3	464
0.75	3	4	84
1	1	1	4257
	2	2	600
	3	3	142
	4	4	36
1.25	5	4	9
1.33	4	3	25
1.5	3	2	85
	6	4	2
1.67	5	3	6
1.75	7	4	1
2	2	1	153
	4	2	10
	6	3	1
2.5	5	2	1
3	3	1	8

22 **Supplementary Table 2.** Frequency distribution of the average number of injuries per year for an

23 individual runner and MIR categories.

Average number of injuries per year (n)		MIR (n)		
0	64,825	0	Very low	64,825
0.25	449			
0.33	1,372			
0.5	2,871	<1	Low	5240
0.67	464			
0.75	84			
1	5,035	1	Intermediate	5,035
1.25	9			
1.33	25			
1.5	87			
1.67	6	>1	High	301
1.75	1			
2	164			
2.5	1			
3	8			

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25 Abbreviation: MIR = multiple injury risk.

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27 **Supplementary Table 3.** The profile by age groups, sex, and race distance of all race entrants and

28 entrants who gave consent to participate in this study.

		All Race Entrants (n = 106,743)		Consenting Entrants for this study (n = 75,401)		p value
		n	%	n	%	
Age groups (year)	≤30	27,710	26.0	19,808	26.2	0.4338
	31–40	35,049	32.8	24,636	32.7	
	41–50	26,964	25.3	19,058	25.3	
	> 50	17,020	15.9	11,899	15.8	
Sex	Males	61,815	57.9	43,318	57.5	0.0503
	Females	44,928	42.1	32,083	42.5	
Race distance	21.1 km	64,740	60.7	46,310	61.4	0.0009[a]
	56.0 km	42,003	39.3	29,091	38.6	

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30 [a] Study participants significantly different from all race entrants ($p < 0.05$)

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32   **Supplementary Table 4.** The frequencies (% and 95%CI) of race entrants for each multiple injury
33   risk category ($n = 75,401$).

MIR category	n	%[b]	95%CI
High (avg > 1)	301	0.4	0.4–0.5
Intermediate (avg = 1)	5,035	7.2	7.0–7.4
Low (avg < 1)	5,240	8.7	8.5–8.9
Very low (avg = 0)[a]	64,825	83.7	83.2–84.2

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35   [a] baseline/reference category

36   [b] modelling accounting for correlated data (entrants)

37   Abbreviation: 95%CI = 95% confidence interval.

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39 **Supplementary Table 5.** The frequency (%), OR, and 95%CI for each multiple injury risk category

40 in race entrants by sex (unadjusted).

MIR category	Male (n = 43,318)				Female (n = 32,083)	
	n	% (95%CI)	OR (95%CI)	p value	n	% (95%CI)
High	173	0.4 (0.3–0.5)	1.0 (0.8–1.3)	0.9280	128	0.4 (0.3–0.5)
Intermediate	2918	6.7 (6.5–7.0)	1.0 (1.0–1.1)	0.3430	2117	6.6 (6.3–6.9)
Low	3,177	7.3 (7.0–7.7)	1.2 (1.1–1.2)	<0.0001	2063	6.4 (6.1–6.8)
Very low[a]	37,050	85.5 (85.0–86.0)	1.0		27,775	86.6 (86.0–87.1)

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42 [a] baseline/reference category

43 Abbreviations: 95%CI = 95% confidence interval; MIR = multiple injury risk; OR = odds ratio.

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46   **Supplementary Table 6.** The frequency (%), OR, and 95%CI for each multiple injury risk category in race entrants by age groups (unadjusted).

MIR category	>40 years[b] (n = 30,957)				31–40 years (n = 24,636)				≤30 years (n = 19,808)	
	n	% (95%CI)	OR (95%CI)	p value	n	% (95% CI)	OR (95%CI)	p value	n	% (95%CI)
High	169	0.6 (0.4–0.7)	2.4 (1.7–3.5)	<0.0001	84	0.3 (0.3–0.4)	1.5 (1.0–2.2)	0.0780	48	0.2 (0.2–0.3)
Intermediate	2164	7.0 (6.7–7.3)	1.3 (1.2–1.4)	<0.0001	1696	6.9 (6.5–7.2)	1.2 (1.1–1.3)	<0.0001	1175	5.9 (5.6–6.3)
Low	2802	9.1 (8.6–9.5)	2.3 (2.1–2.6)	<0.0001	1612	6.5 (6.2–6.9)	1.6 (1.5–1.8)	<0.0001	826	4.2 (3.8–4.5)
Very low[a]	25,822	83.4 (82.8–84.0)	1.0		21,244	86.2 (85.6–86.8)	1.0		17,759	89.7 (89.1–90.2)

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48   [a] baseline/reference category

49   [b] the 2 older age groups (41–50 and >50) were combined as their results were similar (Supplementary Table 6 reports all 4 age groups)

50   Abbreviations: 95%CI = 95% confidence interval; MIR = multiple injury risk; OR = odds ratio.

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54 **Supplementary Table 7. T**he frequency (%),OR, and 95%CI of multiple injury risk in race entrants by age group, unadjusted.

MIR category	>50 years			41–50 years			31–40 years			<30 years	
	n	% (95% CI)	OR (95%CI) *p* value	*n*	% (95%CI)	OR (95%CI) *p* value	*n*	% (95%CI)	OR (95%CI) *p* value	*n*	% (95%CI)
High	67	0.6 (0.4–0.7)	2.5 (1.6–4.0) <0.0001	102	0.5 (0.4–0.7)	2.4 (1.6–3.5) <0.0001	84	0.3 (0.3–0.4)	1.5 (1.0–2.2) 0.0780	48	0.2 (0.2–0.3)
Intermediate	810	6.8 (6.3–7.3)	1.2 (1.1–1.4) <0.0001	1354	7.1 (6.7–7.5)	1.3 (1.2–1.4) <0.0001	1696	6.9 (6.5–7.2)	1.2 (1.1–1.3) <0.0001	1175	5.9 (5.6–6.3)
Low	1223	10.3 (9.6–11.0)	2.7 (2.4–3.0) <0.0001	1579	8.3 (7. –8.8)	2.1 (1.9–2.4) <0.0001	1612	6.5 (6.2–6.9)	1.6 (1.5–1.8) <0.0001	826	4.2 (3.8–4.5)
Very low[a]	9799	82.4 (81.3–83.4)	1.0	16,023	84.1 (83.3–84.4)	1.0	21,244	86.2 (85.6–86.8)	1.0	17,759	89.7 (89.1–90.2)

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56 [a] baseline/reference category

57 Abbreviations: 95%CI = 95% confidence interval; MIR = multiple injury risk; OR = odds ratio.

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61   **Supplementary Table 8.** The frequency (%),OR, and 95%CI for each multiple injury risk category in race entrants by race distance (56.0 km *vs.* 21.1 km)

62   (adjusted for sex and age group).

MIR category	56 km (n = 29,091)				21.1 km (n = 46,310)	
	n	% (95%CI)	OR (95%CI)	*p* value	*n*	% (95%CI)
High	170	0.6 (0.5–0.7)	2.1 (1.5–2.9)	<0.0001	131	0.3 (0.2–0.4)
Intermediate	2363	8.1 (7.8–8.5)	1.5 (1.4–1.6)	<0.0001	672	5.8 (5.5–6.0)
Low	2621	8.5 (8.1–8.9)	1.5 (1.4–1.7)	<0.0001	2619	5.9 (5.6–6.2)
Very low[a]	23,937	82.8 (82.2–83.5)	1.0		40,888	88.0 (87.6–88.5)

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64   [a] baseline/reference category

65   Abbreviations: 95%CI = 95% confidence interval; MIR = multiple injury risk; OR = odds ratio.

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68   **Supplementary Table 9.** Frequency distribution of the composite chronic disease score (CCDS)

69   among the race entrants and among runners with a RRI (MIR > 0).

CCDS	Race entrants (n = 75,401)		Runners with a RRI (MIR > 0) (n = 10,576)	
	n	%	n	%
0	55,942	74.2	6336	59.9
1	13,950	18.5	2749	26.0
2	4109	5.5	1029	9.7
3	1052	1.4	341	3.2
4	249	0.3	87	0.8
5	76	0.1	22	0.2
6 (6–10)	16 (23)	0.0 (0.03)	7 (12)	0.1 (0.1)
7 (7–10)	4 (7)	0.0 (0.01)	4 (5)	0.0 (0.05)
8	2	0.0	0	0.0
9	0	0.0	0	0.0
10	1	0.0	1	0.0

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71   Abbreviations: CCDS = composite chronic disease score; MIR = multiple injury risk; RRI =

72   running-related injuries.

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75 **Supplementary Table 10.** The specific chronic diseases contributing to the composite chronic disease

76 score among the race entrants and among runners with a RRI (MIR > 0).

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CCDS	Race entrants (*n* = 75,401)		Runners with a RRI (MIR > 0) (*n* = 10,576)	
	n	%	*n*	%
Any CVD risk factors	9128	12.1	2052	19.4
Respiratory disease	6861	9.1	1573	14.9
GIT disease	1977	2.6	602	5.7
Nervous system/Psychiatric disease	1791	2.4	458	4.3
Metabolic/Endocrine disease	2069	2.7	447	4.2
History of CVD	1382	1.8	371	3.5
Kidney/Bladder disease	1079	1.4	276	2.6
Symptoms of CVD	815	1.1	236	2.2
Cancer	1176	1.6	216	2.0
Haematological/Immune disease	572	0.8	137	1.3

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79 Abbreviations: CCDS = composite chronic disease score; CVD = cardiovascular disease; MIR =

80 multiple injury risk; RRI = running-related injuries.

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