Acute Pre-Race Illness Reduces the Ability to Finish a Race: A Study in 7035 Runners

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PURPOSE:

Distance runners are more prone to acute illness during periods of intense and prolonged training. There are little data on how many runners have symptoms of acute pre-race illness (APRI) and how many runners with APRI, who choose to start the race, do not finish the race. The purpose of this study was to determine the period prevalence of runners with APRI, the incidence of runners with APRI who received educational information and then did not start the race, and the incidence of runners with APRI who chose to start the race, but do not finish the race.

BACKGROUND:

1338 of 7031 21km or 56km runners (19%) reported one or more symptoms of APRI in the 8-12 day period before the race via an online questionnaire, and 5693 were asymptomatic controls. Runners with ARPI received educational information about APRI, risks when exercising with APRI, and guidelines when not to participate. Runners with APRI were further divided into sub-groups as follows: systemic symptoms group (n=530), respiratory symptoms group (n=896), gastrointestinal symptoms group (n=249) and runners who failed the "neck check" (n=878). All runners (N=7031) were then followed prospectively on race day, documenting the did-not-start (DNS) frequency (%) and the did-not-finish (DNF) frequency (%).

RESULTS:

The % symptomatic runners are depicted in Table 1. The DNS and DNF frequency (% runners) and Relative Risk (RR) ratio in the control and symptomatic group by localisation of symptoms are depicted in Table 2. 7.5% runners experienced systemic APRI, and 12.5% failed the "neck check". The DNS % for the APRI group (11.0%), was higher (p=0.0002) than the control group (6.6%). Runners with systemic APRI also had the highest (15.1%) DNS % (p=0.0288 vs. control). The DNF % was also higher in the systemic APRI group (2.4%) vs. the control group (1.3%) (p=0.0469).

Table1: The % of 1338 runners with specific symptoms experienced 8-12 days before the endurance race

Symptom Experienced	Number of runners	% runners with the symptom (n=1338)
Sore throat	452	33.8
Runny nose	392	29.3
General tiredness	365	27.3
Blocked nose	305	22.8
Headache *	296	22.1
General muscle pains *	282	21.1
Cough *	243	18.2
Diarrhoea	154	11.5
General joint pains *	149	11.1
Fever *	105	7.9
Sore ears	98	7.3
Abdominal pain	98	7.3
Nausea	65	4.9
Wheezing	48	3.6
Bladder infection	40	3.0
Skin rash	16	1.2
Vomiting	15	1.1
Other symptoms	26	1.9

* Classified as acute systemic symptoms

Table2: The did-not-start (DNS) and did-not-finish (DNF) frequency (% runners) and Relative Risk (RR) Ratio in the control and symptomatic group by localisation of symptoms (adjusted for race type and gender)

Group	Types of symptoms	Cohort (n=7031)	%	Runners who started	DNS	% DNS	RR **	95% CI	P *
Control		5693	81	5316	377	6.6	-	-	-
Sympto-matic	All	1338	19	1191	147	11	1.06	1.03-1.10	0.0002 *
	Localised	808	11.5	741	67	8.3	1.02	1.00-1.04	0.0571
	Systemic	530	7.5	450	80	15.1	1.16	1.02-1.33	0.0288 *
Group	**Types of symptoms**	**All starters (n=6507)**	**%**	**Runners who finished**	**DNF**	**% DNF**	**RR ****	**95% CI**	**P ***
Control		5316	81.7	5248	68	1.3	-	-	-
Sympto-matic	All	1191	18.3	1166	25	2.1	1.55	0.99-2.44	0.0346 *
	Localised	741	11.4	727	14	1.9	1.47	0.83-2.61	0.1828
	Systemic	450	6.9	439	11	2.4	1.9	1.01-3.59	0.0469 *

* Significantly different (pair-wise vs. Control group)

** Relative Risk (RR) Ratio - reference group is Control group

CONCLUSION:

APRI is common in runners and a pre-race screening process can identify runners with APRI. An educational intervention can be applied that increases the rate of not starting a race. However, runners with APRI who decided to start the race, despite educational information had a significantly higher did-not-finish (DNF) rate compared to control runners.