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Letter to editor

Self-Medication Practice among Amateur Runners: Prevalence and Associated Factors

Dear Editor-in-chief

The term "self-medication" involves consumption, without any physician's advice, of over-the-counter drugs but also of formerly prescribed drugs. Amateur athletes could resort frequently to self-medication for different reasons. Indeed, they may use self-medication products because they are regularly exposed to pain, tiredness, injuries and difficulties with recovery. Sometimes, they can also deliberately use medications in order to enhance their physical performance (Conrad et al., 2004). In 2015, we wanted to identify and better understand self-medication practices in an amateur sports population in the Province of Liège, Belgium. We focused especially on amateur runners because of the growing interest in this population. We went to 8 running events in order to interview amateur runners about their self-medication behaviors exclusively aiming at being better prepared for this specific race. Approval was granted by the Ethics Committee of the University Teaching Hospital of Liège. Data regarding consumption of self-medication drugs just before the running event (i.e. intake maximum last 24 hours before the race) was collected through an anonymous self-administrated questionnaire. The level and intensity of usual sports practice, the membership to a sports club and the length of the race on that specific day (10 or 21km) were also recorded. A total of 358 amateur runners, mainly composed of men (62.0%) with a median age of 39 years (IQR: 29-49) have volunteered. Among the 358 respondents, 112 runners (31.3%) had taken self-medication drugs during the period immediately preceding the running event (i.e. maximum last 24 hours), with the aim of being better prepared for this specific race. Athletes declared consuming self-medication drugs before the race mainly to reduce pain (36.1%) and headaches (16.6%) but also in order to improve their physical performance (9.9%) (Table 1). The two therapeutic classes most often reported were analgesics and nonsteroidal anti-inflammatory drugs. Out of the 112 runners who consumed self-medication drugs, 67.0% attested having consumed only one drug before running and 32.1% consumed 2 or more drugs. When we compared characteristics of runners who used self-medication drugs with those who did not, no differences were found regarding gender, age, body mass index and level of education (Table 2). Neither did we noticed significant differences relative to the number of health ailments and the number of sports activities. However, the median time of sports practiced weekly was significantly superior in the group who used self-medication drugs compared to the one who did not (p-value < 0.001). Runners are more likely to use self-medication drugs if they are member of a sports club (p-value = 0.001) and if they run longer distances (p-value = 0.017). A logistic regression confirmed these observations: the probability of using self-medication drugs was 1.17-fold increased (95% CI: 1.10-1.24, p-value < 0.001) depending on the number of hours of weekly sports activity, 2.04-fold (95% CI: 1.22-3.41, p-value = 0.006) depending on the membership to a sports club and 1.09-fold (95%CI: 1.03-1.14, p-value=0.002) depending on the length of the race.

Table 1. Self-reported indications for self-medication practice.

Indications	%	Mainly consumed substances
Pains	36.1	Ibuprofen
Headache	16.6	Paracetamol
Others	12.3	Benzoxonium
Improving performance	9.9	Vitamin D
Blocked nose	6.4	Pseudoephedrine
Stress	6.4	Trazodone
Asthma	5.8	Formoterol and salbutamol

Table 2. Characteristics comparison between subjects who used self-medication drugs and subjects who did not.

		Use of self-medication (N=112)			Not use of self-medication (N= 246)			P-value
		n	%	Median (P25-P75)	n	%	Median (P25-P75)	
Gender	**Men**	65	58.0		157	63.8		0.30
	Women	47	42.0		89	36.2		
Age		112		41 (30-50)	246		39 (28-48)	0.37
Body Mass Index		112		22.9 (21.1-24.3)	246		22.7 (21.2-24.4)	0.56
Level of education	**Primary school**	1	0.90		4	1.60		
	Secondary school	41	36.7		98	39.8		0.64
	Post-secondary	68	60.7		133	54.1		
	Doctorate	2	1.70		11	4.50		
Number of health ailments		112		0 (0-0)	246		0 (0-0)	0.64
Number of sports activities		112		2 (1-3)	246		1 (1-2)	0.17
Number of hours of weekly sports activity		112		7 (4-12)	246		5 (3-7)	<0.001
Membership to a club	**Yes**	77	68.7		124	49.5		0.01
	No	35	31.3		122	50.5		
Length of the race	**10 km**	70	62.5		184	74.8		0.02
	21 km	42	37.5		62	25.2		

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In other studies on self-medication in amateur athletes (Chester et al., 2003; Fraisse et al., 2005), a slightly higher prevalence is observed than in our survey (more than 60% of self-medication practice compared to around 30% in our survey). Such discrepancies can easily be explained by the fact that these studies only focused on self-medication behaviors in usual lifestyle, practiced of course by most individuals of the overall population. In our case, we were interested in athletes' self-medication behaviors for a specific sports event, which allowed us to highlight short-term risk of this kind of behaviors. Our survey also showed a significant increase of the probability of using self-medication products with the number of hours of sports practice, with the membership to a sports club and with the length of the race. It is not unexpected to observe a relationship with the intensity of physical activity but the membership to a sports club seems more surprising. Some studies on self-medication (Badiger et al., 2012; Sarahroodi et al., 2012) suggested that social environment (e.g. family members, friends and peers) prompted subjects to self-medicate. A recent meta-analysis (Ntoumanis et al., 2014) also highlighted the importance of social influence in the use of products to improve sports performance. Through our survey, we also demonstrated that the two therapeutic agents most consumed were non-opioid analgesics and non-steroidal anti-inflammatory drugs. Nevertheless, using these drugs could lead to an acute risk of worsening traumatic injuries (Ziltener et al., 2010) by masking symptoms of pain. It can also lead to unexpected side effects for those who take these drugs through self-medication practices. Numerous runners also asserted using several active substances in a combined way: the risks of drug interactions were multiplied. Then, we noticed that self-medication practices among our sample could lead to harmful consequences for amateur athletes' health. However, even if several statically significant relations were established through our investigation, it is essential to interpret these with caution by considering them in the strict frame of our survey. Indeed, an information bias is present: all the data were self-reported and could have been relayed, voluntarily or not, in an inaccurate or erroneous way. Moreover, despite a guarantee of anonymity, some runners could have deliberately hidden relevant data (e.g. consumption of illicit products). Therefore, we can certainly suppose that prevalence of self-medication behaviors has been underestimated.

In conclusion, our survey showed that self-medication among amateur athletes is an attested and widespread behavior influenced by the intensity of physical activity and by peers. To protect athletes' health and prevent drug misadventures, it is necessary to promote a responsible self-medication in this population.

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