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EXERCISE-RELATED INJURIES IN PORTUGAL: A NATIONAL POSTAL SURVEY

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SEPARATA

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EXERCISE-RELATED INJURIES IN PORTUGAL. A NATIONAL POSTAL SURVEY (1)

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RESUMO

O presente estudo tem por objectivo contribuir para a caracterização epidemiológica da população portuguesa no que se refere a lesões relacionadas com a prática de exercício físico. Trata-se de um estudo observacional, transversal e descritivo. Os dados foram recolhidos através de inquérito por questionário estruturado e auto-administrado. 81,5% seguiram, nos doze meses que precederam o estudo, um estilo de vida predominantemente sedentário. 25.5% dos que praticaram, nesse período, exercício físico regular sofreram lesões associadas a essa prática. Os tipos de lesão mais frequentes foram entorses e distensões. Os desportos de contacto (especialmente os jogos com bola) mostram-se associados a prevalências de lesões mais elevadas do que no caso de desportos sem contacto. Braços e pernas foram as zonas corporais mais afectadas. Um terço dos inquiridos que sofreram lesões alegam a inevitabilidade das mesmas ("ossos do ofício"). Os dados sustentam a necessidade de desenvolver programas de prevenção de lesões relacionadas com a prática de exercício físico. Para o efeito, é fundamental a criação de sistemas de vigilância e monitorização deste tipo de lesões.

PALAVRAS CHAVE: exercício físico, desporto, lesões, prevenção.

INTRODUCTION

Much has been said regarding the benefits of practicing physical activities in regular and moderate terms. As stressed by De Gioanni et al. (2000), the constant improvement in the quality of life, together with a growing interest in amateur, leisure and recreational sport participation, resulted in an increased use of sport. In fact, more people than ever are taking part in sports activities, with an increased and rising risk of injury (Finch et al., 2003). As a result, sports injuries have steadily increased since the late 1980s (De Gioanni et al., 2000).

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Population-based surveys in the field of physical activity and related injuries remain rare. The first main research effort regarding this matter dates from the 80s, when Kraus and Conroy (1984) alerted to an estimated three to five million sports-related injuries per year in the USA. Hardy e Crace (1990) reported that every year around 50% of amateur sports practitioners in the USA suffer an injury, inhibiting them from practising or competing in the sport activity (in 25% of cases, for at least one week of total inactivity). More recently, Conn et al. (2003) reported that an estimated seven million Americans received attention for sports and recreation injuries annually (25.9 injury episodes per 1000 people). The authors point out that this figure rises to 59.3 per 1000 persons when taking children into consideration

For the amateur, injuries can result in significant time off work. And, for both amateurs and professionals, long-term health problems may occur (Dekker, Groothoff et al., 2003; McGregor, 1995). Moreover, injury associated with sport and physical exercise can lead to significant health care costs as well as to reduced mobility and can even result in subsequent disabilities; all of these may result in inactivity – i.e., sedentary lifestyle (Dekker, van der Sluis et al. 2003; Finch & Owen, 2001).

Consideration of injury prevention principles when promoting physical exercise is therefore crucial.

However, injury surveillance systems (targeting an ongoing collection of data describing the occurrence of, and factors associated with, injury) are paramount for any injury prevention program to be efficacious (Finch, 1997; Van Mechelen, 1997). In fact, as mentioned by Finch (1997), sports injury data are needed to define injury prevention programs and to settle and monitor physical activity safety policies. This data is, then, the basis of sports injury prevention.

What kind of injuries?

An annual incidence of sport or recreational injuries of 11% is estimated for Alberta, Canada (Mummery et al., 1998). The most common types of injuries are sprained/torn ligaments (31%), strained/pulled muscles (19%) and fractures (13%).

Mummery et al. (1998) reported that the most common bodily locations of injuries in Canada were the knee (21%) and the ankle (14%). MacAuley (1999) reported that ankle injuries make up about 10-15% of sports-related injuries in the United Kingdom.

In a recent study, Barr et al. (2000) tried to identify the incidence of eye injury due to sport practice in Scotland. They found that 12,5% of patients admitted to hospital emergencies due to ocular injury, resulted from doing sport. Racquet sports and football had the most frequent occurrences. In Portugal, Filipe et al. (1997), found that soccer was responsible for 72,6% of all eye injuries caused by sport exercise. The ball was the cause in 64,3% of all cases. More recently, another study from Capão Filipe et al. (2003) showed that ocular injuries resulting from modern sports are often severe, indicating the need for the proper use of eye protectors.

Another study estimated that 75% of injuries occurred during team and contact sports (de Loes & Jansson, 2001). Soccer and rugby were found to be responsible for most sports-related inju-

ries in the United Kingdom (MacAuley, 1999).

Summing up, despite all the technological advances in terms of safety of equipment and of training methods, sport-related injury occurrence continues to increase (Cruz and Dias, 1996).

In spite of all this cumulative evidence, few countries have a surveillance system for tracking sport-related and/or leisure-related injuries. In Portugal, not even basic cross-sectional and national-based data regarding this issue are available. The present publication is an attempt to spread knowledge of what is happening amongst Portuguese who follow the difficult path of non-sedentary life.

METHODS

This study has been conducted for Portugal. It is an observational, descriptive and analytic randomized cross-sectional survey. Data have been collected through a postal mailing (self-administered questionnaires). General goals were: (1) to study physical exercise habits, (2) to collect data on perception, satisfaction and evaluation regarding available sport and leisure facilities, (3) to obtain prevalence and self-perceived causes or explanations of injuries linked to physical exercise, and (4) to outline sport-related expenses. This article reports only data regarding the first and third goals.

Potential respondents were quoted from a nation-wide database of the non-institutional resident Portuguese population aged 15 years old and above, and subscribing to a fixed telephone connection line. The original database was created, developed and systematically updated (every six months) by the only Portuguese fixed telephone company. In total, 25.000 households were addressed by questionnaire. The sample has been stratified in line with the official national distribution for gender, age and living area (based on the Portuguese National Statistics Board estimates for the year 2000).

For minimizing seasonal effects, data was collected at two different times of the year. Firstly, 10.000 pairs of questionnaires (each household received two questionnaires) were sent out in April 2000. In mid October, another 10.000 households received two questionnaires each. Additional to this second wave, an additional 5.000 households received a single questionnaire to ensure a sufficient sample size. A cover letter explaining the survey and the questionnaire and a pre-paid return addressed envelope were mailed to each of the potential respondents. The questionnaire was anonymous and therefore no reminder has been sent to non-repliers.

Deviations between the collected sample and the general population (in terms of gender, age and living area) have been taken into account. For this purpose, *a posteriori* control was done through direct weighting standardization. In this way, it has been possible to derive representative estimates of the general population (Breslow & Day, 1980).

GENERAL RESULTS

The total answer rate is 4,45% (n = 1113). Quality of the response in terms of gender is fairly good (female 48,9%; male 51,1%). Individuals aged 20 to 59 years represent 84,0% of the sample. 69,4% of all respondents indicate having at least high school qualification level; 68,4% work full time and on a regular schedule.

For the main age interval (i.e., persons between 20 to 39 years old), a geographical distribution of respondents follows the Census. Main urban areas and men are over-represented. This also explains why 74,1% of all respondents locate their home habitat as within an urban area.

Respondents were asked to indicate two main reasons for practicing each of the sport/physical activities they said they exercised. The main reasons for doing physical exercise are: "I just like it" (28,6%), "due to health problems" (18,1%), "for diminishing stress (to relax)" (12,0%), "for keeping fit/increasing my fitness or for losing weight" (11,6%), and "for social reasons (meeting/knowing people, etc.)" (10,7%). When asked for their willingness to increase physical exercise practice, 9,8% of respondents indicated "Nothing would change my habits", 33,6% said they would do it more often "If I had more (leisure) time", 9% "If I had fewer family restrictions, duties", 8,1% "If I had better facilities", and 7,6% "If there was more supply (services, better/flexible time-tables)".

Respondents were asked about their physical exercise practice during the 12 months preceding the survey. They were invited to answer by selecting a maximum of three types of activities from a list of 119 items (as being the three most practiced ones during that period). 22,1% of the respondents who practice any kind of physical activities do so less than once a week.

The incidence of people who did not practice any sporting activity in the 12 months preceding the survey is 21,8% (women 24,8%; men 19,2%). Summing-up this sedentary overall population prevalence with the percentage of people who report to practicing physical activities less than twice a week, the index of sedentary Portuguese rises to 68,9%. Finally, excluding all items that do not imply much physical exercise - falling into the category of more sedentary-leisure sporting activities [1[1]] - a global estimate of 81,5% of sedentary people may be assumed. Therefore, using a conservative notion of what a sedentary person is (not practicing any physical exercise/sport more than once a week), only 18,5% Portuguese may be considered as physically active. Within this definition, the most practiced physical activities for the complete sample are: swimming (7,6% of the sample), walking (6,9%), and aerobics (5,9%).

SPORT ACTIVITY RELATED INJURIES

A total of 208 respondents – 25,5% of people who report having been involved in physical activity in the twelve months preceding the survey – state they suffered injuries due to that practice (Table I). Women report around half (16,3%) of men's prevalence of injuries (35,4%). A total of 1010 injuries were reported (some respondents suffered more than one injury).

TABLE I

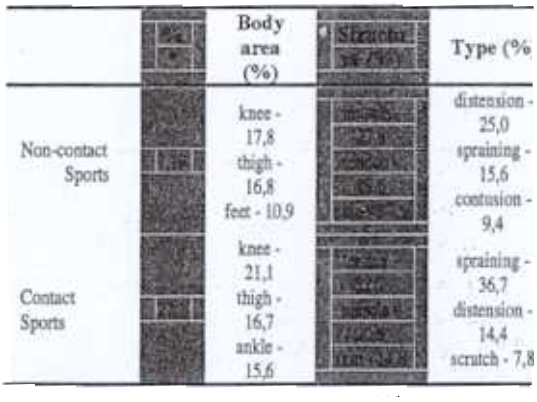
Number of injuries for non-sedentary people (in last 12 months)

	Women (%)	Men (%)	Total (%)
0 injuries	83,7	64,6	74,5
1 injury	6,3	9,8	8,1
2 injuries	3,6	7,1	5,3
3 or more injuries	6.4	18,5	12,1

There is a (moderate) significant correlation between age and number of reported injuries (r=0,20; p<0,0001). People less than 25 years old report a significantly higher number of injuries (Mean=3,68; n=274)) than the 25 to 29 year old age group (Mean=1,16; n=109). Finally, respondents of 30 years old and above differ significantly from the other age categories (Mean=0,46; n=499).

Respondents who report having suffered at least one injury in the last 12 months were requested to describe that injury. If they suffered more than one injury, they were asked to describe the most serious one during that period [2[2]]. As shown in Table II, injuries related to contact sports are reported almost four times as much as those related to non-contact sports [3[3]]. However, no significant differences are found between contact and non-contact sports regarding the perceived severity of the most serious injury in the last twelve months.

TABLE II
Prevalence of most serious injuries for contact and non-contact sports



* Ratio: number of respondents who report to have suffered injuries per sport / number of respondents who report to practice the sport * 100

Table III shows the distribution of self-perceived most serious injuries by type of sport/physical activity.

TABLE III
Most serious injury prevalence (last 12 months) per most frequent referred sports

	(%) *
Soccer 11	
Soccer 5, hall soccer	
Athletics (100m, obstacles, launching, ...)	
Basketball	
Cross biking	
Physical education (lesson)	
Volleyball	
Tennis	
Strength training	
Jogging	
Aerobics/fitness/step/jazz/cardio fitness	
Tourist cycling (take a bike ride, ...)	4,17
Walking	3,93
Swimming	3,32

* Ratio: number of respondents who reported having suffered injuries per sport / number of respondents who reported practicing the sport * 100

The prevalence of injuries (within the last 12 months) has been studied for some categories of sports – the ones with enough data for analysis: ball games, motor and bike sports, and athletics [44[4]]

Ball games:
handball, badminton, baseball, softball, basketball, cricket, crocket, American football, soccer 5, soccer 11, hall soccer, goal ball, golf, minigolf, field hockey, hall hockey, roller hockey, aqua polo, rugby, squash, tennis, table tennis/ping-pong, volleyball.

Combat sports:
aikido, boxing, capoeira, fencing, full contact, kickboxing, thaiboxing, jujitsu, judo, karate, kungfu, greco-roman lute, taekwondo, wrestling.

Bodybuilding/strength sports:
bodybuilding, weight lifting, strength training.

Motor and bike sports:
aeronautics (aerobatics, modeling, ...), motoring (rally, F1, truck, ...), karting, kartcross, motorcycling, motocross, moto4, races, motonautics (hovercraft, jet ski, speed, ...), touristic all wheels, cross biking, cycling (road, slot, hall, ...), touristic cycling.

Gun shooting sports:
hunting, shooting (fire gun, pressurized gun, archery, ...).

Athletic sports:
aerobics, fitness, step, jazz, cardiofitness, athletics (100m, obstacles, launching, ...), walking, jogging, orienteering, pedestrianism, modern pentathlon, triathlon, iron man.

Gymnastics:
health gymnastics, sport gymnastics (rings, ...), rhythmic sport gymnastics.

[4]). Ball games were found to be the leading group of sports in terms of injuries (29,0% of practitioners reported having suffered injuries within the twelve months preceding the survey), followed by combat sports (13,7%), bodybuilding/strength sports (11,0%), motor and bike sports (10,2%), gun shooting sports (9,2%), athletic sports (8,8%), gymnastics (3,75%), swimming (2,74%) and nautical sports (2,45).

Table IV refers again to the self-perceived most serious injury. Spraining and distensions represent almost half of these most serious injuries. Muscles, tendons and skin were the most affected structures. Knees, thighs and feet are the most affected body zones.

TABLE IV
Most serious injury (last twelve months): type of injury, affected structure/tissue and affected body zone prevalences

Types of injuries	%	Affected structure/tissue	%	Affected body zone	%
Spraining	25,3	Muscle	23,2	Knee	19,2
Distension	20,0	Tendon	21,3	Thigh	16,2
Scratch	7,9	Skin	17,4	Feet	12,2
Contusion	6,7	Articulation	10,6	Ankle	9,0
Rupture	6,3	Bone	9,9	Arms	6,1
Dislocation	4,7	Ligament	9,6	Shoulder	4,9
Traumatism	4,3	Cartilage	2,8	Thigh	4,4
Wound	2,8	Nerve	1,2	Elbow	4,0
Fracture, closed	2,5	Fat tissue	0,7	Lower back	3,5
Cut	2,2	Other structure	0,9	Wrist	3,4
Deformation	1,4	not known	2,3	Hands	3,0
Contfracture	1,2			Fingers	2,8
Crush	1,0			Head	2,1
Other kind of injury	6,6			Nose	1,9
not known	7,2			Toes	1,2
				Forearm	0,8
				Breast	0,7
				Upper back	0,7
				Neck	0,4
				Pelvis	0,4
				Buttock	0,4
				Ears	0,3

The lower extremities (hip to foot), by sports category, continue to be the most affected body areas regarding the most serious reported injuries (Table V). The exception is for motor & bike sports, where the nose is the most prevalent body area involved in injury. Tendons, muscles and skin are the most prevalent

affected tissues. What seems to differ more between these sports categories is the type of injury.

TABLE V
Characterization of most serious injury per sport category

	Body area (%)	Structure (%)	Type (%)
ball games	knee (21,8) shank (15,5) ankle (15,4)	tendon (26,9) muscle (20,1) skin (14,4)	spraining (34,3) distension (15,2) scratch (7,6)
motor + bike sports	Shank (36,1) knee (23,2) nose (7,2)	skin (29,9) muscle (25,4) tendon (14,0)	contusion (22,2) wound (14,3) distension (14,1)
Athletics	feet (25,6) knee (25,0) shank (18,8)	muscle (22,7) tendon (19,1) skin (17,9)	spraining (29,8) distension (24,3) dislocation (9,6)

Table VI illustrates the perceived causes and explanations for injury. It is important to notice that 5% of people (higher figures for women) do not know why the injury occurred. Causes related to behavior appear to be the most frequently reported self-explanation ("too much effort", "insufficient warm-up", "lack of attention").

TABLE VI
Most serious injuries (last twelve months): reported self-perceived reasons for suffering the injuries

	Female (%)	Male (%)	Total (%)
It "makes up part" (typical) of the sport/ exercise	27,0	38,0	34,2
Too much effort	35,1	31,3	32,7
No/insufficient warm-up	17,7	25,0	23,9
Lack of attention	24,1	19,9	20,8
Caused by other participant	11,4	18,4	16,6
Climate	9,3	7,1	7,9
Wrong/inadequate place/facility for the practice	8,1	6,2	7,0
Fear/hesitation	7,2	3,9	4,8
Wrong/inadequate equipment/clothes/ shoes	2,4	4,6	4,2
Due to a previously known health problem	7,9	1,9	3,6
Lack of skill	8,3	1,6	3,5
Wrong/inadequate practice of the exercise	7,4	1,7	3,3
Due to a previously unknown health problem	4,5	0,7	1,8
Wrong/inadequate advising/managing		0,0	0,8
I still do not know exactly why it happened	9,6	3,3	5,0
Other reason	0,0	4,3	1,9

Injuries related costs

When considering the expenses for treating exercise-related injuries (injured and non-injured people), respondents report having spent an average of 29,33 Euro over the last twelve months (*Std. Deviation* = 123,40 Euro). When reporting on total family expenses regarding the treatment of injuries (i.e., considering expenses with sport-related injuries affecting the whole household), this average value increases to 41,00 Euro (*Std. Deviation* = 141,76 Euro) [5].

When only considering those involved in injury, these figures increase substantially: injured respondents spent, 45,19 Euro (*Std. Deviation* = 249,45 Euro) themselves; and 59,81 Euro (*Std. Deviation* = 258,18 Euro) for their total household.

Respondents who report having practiced sports/physical exercise activities during the last twelve months (n = 818) were asked for the number of working days they took off due to any kind of injury related to sports/physical exercising activities. 27 respondents (3,3% of this sub-sample; 2,4% of the

total collected sample) said they missed working days due to such injuries. On average, there were ten days absenteeism from work during the last 12 months (Median = 7, Mode = 2, Std. Deviation = 1,2), among injured people. No significant differences are found between injured women and men.

Respondents who report having practiced sports/physical exercise activities during the last twelve months were asked if they had been hospitalized due to any injury related to sports/ physical exercising activities. If "yes", they were also asked to say how many nights they stayed in the hospital. Twelve respondents (1,5% of injured people) said they were hospitalized due to these sort of injuries. On average, these persons spent three nights in hospital in the last twelve months (Median=3, Mode=1, Std. Deviation=2, n=12). No significant differences are found between injured women and men.

DISCUSSION

There is strong evidence that the promotion of physical activity has become a strategic public health priority in developed countries. However, injuries associated with sport and physical activity can lead to significant health care costs and even result in higher long-term prevalence of a sedentary lifestyle. Prevention based on knowledge about prevalent types of injuries and about the most frequent risk factors is therefore of crucial importance. However, data on the incidence of injuries resulting from non-competitive physical activities are still scarce - most particularly for Portugal.

Moreover, as stated by Chalmers (2002, p. 22), "Most is known about more serious injuries and about injuries in elite and professional sport. Least is known about less serious injuries, injury in community level and amateur sport, and injury occurring in recreational activities".

In Portugal, there is an enormous lack of knowledge about this issue and there are no data regarding morbidity and mortality of Portuguese sporting and recreational practices (Nunes, 1998).

In this scenario, the present study is heuristic (for the uniqueness of the data) and, at the same time, unfortunately, too isolated (to allow a better and more in-depth interpretation of the results).

This study represents a feasible way (in financial, time-consuming, and human resources terms) of obtaining a first national portrait of the phenomenon under evaluation. By randomizing the sample, standardizing the survey instrument, and getting a good answer rate, results may be considered as a good starting basis for a better understanding of the different aspects involved.

Positive aspects of the survey are (a) the wide range of possibilities of cross variable analyses at demographic and socio-economic level and (b) the sample source, avoiding common difficulties when using deficient existing individual data sources (namely, from national health system, insurance companies, medical emergency and hospital data).

There is however a specific disadvantage in this study: a recall-related error when asking people about their activities and injuries during a twelve months preceding period. This recall bias is aggravated with possibly inaccurate reporting on specific clinical

classification. However, it may be argued that this bias more often occurs in the description of less serious injuries than in more serious injuries. In fact, if someone suffers a serious injury, he or she will not only remember it, but most probably also know the clinical term for it. Other data, coming from a recent study (Gabbe et al., 2003), revealed that in around 80% of cases, people are able to recall accurately the number of injuries and body regions injured in a twelve months period.

A conservative notion of what is a sedentary person has been used: not practicing any physical exercise/sport at least twice a week. According to this definition, only 18,5% of people who participated in the survey may be considered as having a physically active lifestyle.

Most practiced physical activities are (for the complete country): health swimming (7,6% of the sample), walking (6,9%), and aerobics (5,9%). However, the type of physical activities/sports practiced differs between gender and across different regions of Portugal.

The most prevalent factors for increasing physical activity are: "having more time", "fewer daily duties (namely, with family)", and "having better facilities and bigger opportunities (services, time-tables, etc.)". It seems that the Portuguese perceive their inertia for living a more active life as due to external factors rather than to their own (motivational) reasons - suggesting an external *attributional style*. Most sceptics may doubt of the veracity of these reasons. The fact is that since public health indicators signal the urgency of getting people to take more exercise, the promotion of physical exercise must start by identifying what really exists in terms of sports facilities. This "test of reality" must precede the (much more difficult) task of changing individual (psychological – i.e., cognitive, behavioral and motivational) variables. Dishman (1994) already showed that easier access to sports facilities is usually considered as an important adherence factor in regular physical exercise participation, particularly among the elderly. This author also found that the perceived lack of time is the main and most prevalent reason for dropping out of supervised clinical and community exercise programs and for inactive lifestyles (Dishman, 1982; Dishman, 1994).

Three quarters of respondents who practiced physical activity/sports within the twelve months preceding the completion of the questionnaire did not suffer any sport-related injury.

The most "high risk" activities are soccer, athletics, basketball, cross biking and volleyball. Ball games account for the highest number of severe injuries. This same conclusion came from Maffulli et al. (1996) study, conducted in Hong Kong. Also Kelly et al. (2001) pointed out cycling as responsible for 13% of sport and recreational-related head injuries in a Canadian sample of emergency departments (during a 1-year data collection).

Physical education (from schools), which aggregates several of such sport activities, was also found as linked with high rates of injuries. These data are not so new when looking at studies from other countries (Abenethy et al., 2003; Abernethy & MacAuley, 2003; Boyce & Quigley, 2003; Nordstrom et al., 2003; Adirim & Cheng, 2003). Physical educa-

tion is an educational practice targeted for enhancing long-term active lifestyles. It assumes, therefore, a paramount role and responsibility in society. As such, the first point coming from this study may be to draw special attention to the quality and conditions of school education regarding physical exercise, in order to prevent exercise-related injuries among youngsters.

Data suggest a higher probability of injury while practicing contact sports than while practicing non-contact sports (4:1 risk proportion). These results follow data coming from other studies showing that contact sports (especially boxing, but also soccer, football and martial arts) do expose a large number of participants to both acute and chronic traumatic brain injury (Rabadi & Jordan, 2001).

Spraining and distensions are the most frequent type of serious injuries. Knees, thighs and feet are the most affected body zones.

As mentioned by Kibler & Safran (2000), most sports produce similar injury patterns, with a predominance of the lower extremities. Nevertheless, when reviewing the literature, it becomes clear that some differences are found between sports. Data coming from this survey also suggest different injury profiles by type of sports. When grouping sports according to some common aspects of their practice (ball sports, combat sports, bodybuilding/strength sports, motor and bike sports, gun shooting sports, athletics, gymnastics, swimming, and nautical sports), it was found that the lower extremities continue to be the most affected body areas regarding the most serious injury reported by respondents.

The tissues most affected across the different categories of sports are muscles, tendons and skin. What seems to differ more between sports categories with enough data for analysis (ball games, motor and bike sports, and athletics) is the type of injury. While distension appears as one of the three most reported serious injuries for every type of sport, contusions and wounds are much more prevalent in motor and bike sports (as a self perceived serious injury). Dislocations are more prevalent in athletics than in other sports. Unfortunately, there were not sufficient data to investigate the different athletics modalities in order to estimate which ones are more injury-related.

Especially important is the perceived cause (or self-explanation) of the injury. Since most of sport-related injuries are obviously behavior related, it is quite important to assess what people believe to be the causes for their injury. Most frequent reported reasons are: "it 'is part' of the sport" (34,2% of the cases), "too much effort" (32,7%), "insufficient warm-up" (23,9%) and "lack of attention" (20,8%). The fact that more than one third of Portuguese respondents who suffered from an injury indicate an external reason for the injury ("is part of the sport") is quite worrying. It is difficult to promote prevention when the injury is considered to be unavoidable and not preventable [6[6]].

An exercise-related injury prevention program should take this finding into consideration, in order to increase an internalization of the *locus of control* (in fact, prevention starts by promoting the sense of control of each person).

Data coming from this study supports the need to promote higher levels of regu-

lar physical activity in order to increase fitness and well-being. However, such an endeavor should be closely followed by prevention of sports and exercise injuries. As recently stated by Finch (2003, p.151), "a range of factors needs to be implemented to improve safety for sporting and recreational participants [...] These include improved monitoring of injury occurrence, stronger promotion of safety initiatives and wider implementations of education strategies". All these measures, together with regular sport practice (three times a week), are of paramount importance when seriously considering the possible consequences of injuries: pain, adverse emotional reactions, (boredom, irritability, depression, etc.), perception of lack of control (both regarding the injury, the causes of it and the process of recovering from it – cure or alleviation of symptoms), demand for adherence to the treatment (sometimes slow and painful), hospitalizations and/or surgical interventions, interruption of habitual physical exercise and lifestyle changes, affecting relatives, friends and colleagues, chronic deterioration or permanent physical incapacitation.

As already stated, isolated data are not sufficient for supporting any public health actions. It is crucial to define and carry on longitudinal research, allowing the study of causal relationships and epidemiological evolution of exercise-related injuries. Therefore, it is extremely important to create a national-based data on-going collecting system (in a surveillance paradigm) involving, among others, clubs, federations, schools, hospitals, family doctors and health centers. Injury surveillance programs (like the ones already ongoing in some countries) are crucial for setting and monitoring sports safety policies and interventions. These programs are also efficacious ways of comparing the injury risk among different sports (when collecting data on the nature, severity, mechanism and circumstances of injuries). When designing such a system, it is important to include the possibility of studying prevalence per gender and age categories, as well as the type of sport or physical exercise, level of practice (amateur, professional) and setting/infrastructures. No less important – as recently advocated elsewhere (Ong et al., 2003) – is the need to establish a national childhood sports-related injury surveillance database. Finally, future prospective studies are needed to identify risk, protective and preventive factors for exercise-related injuries.

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SUMMARY

This epidemiological survey concerns injuries suffered by the Portuguese population whilst doing physical exercise in Portugal. Data were collected through a national representative standardized mailing survey. The main findings are related to sport habits, crossed with the characterization of the self-perceived most serious injury suffered within the last twelve months preceding the survey. Types of injury, of affected biological structure and of affected body zone were also self-reported. 81,5% of respondents reported a sedentary lifestyle. 25.5% of respondents, who reported having practiced physical exercise/sports regularly in the twelve months preceding the survey, did suffer from sport-related injuries. The most common self-reported injuries were spraining and distensions. Contact sports (especially ball games) showed higher injury prevalence than non-contact sports. Lower and upper extremities were the most affected body zones. One third of respondents who suffered injuries referred to their inevitability ("occupational hazards"). Data demonstrates the need to develop a prevention program on sport and exercise-related injuries, based on a well-defined and up-dated injury surveillance system.

Key words: physical exercise, sports practice, injury, prevention.

RÉSUMÉ

Cette étude vise contribuer à la caractérisation épidémiologique de la population portugaise en ce qui concerne les lésions liées à la pratique d'exercice physique. Il s'agit d'une étude observationnelle, transversale et descriptive. Les données sont basées sur un questionnaire structuré et auto-administré. 81,5% des enquêtés menaient une vie sédentaire dans les 12 mois qui ont précédé l'étude. 25,5% de ceux qui pratiquaient, dans cette période, une activité sportive régulièrement ont souffert de lésions associées à celle-ci. Les entorses et claquages constituent les lésions les plus fréquentes. Les sports de contact (surtout les jeux de ballon) sont associés à plus de lésions que les sports sans contact. Les bras et les jambes sont les parties du corps les plus affectées. Un tiers des enquêtés ayant souffert de lésions affirment qu'elles furent inévitables (la lésion est donc perçue comme étant normale dans le contexte de l'activité pratiquée). Ces résultats incitent à développer des programmes de prévention de lésions dans le cadre des activités sportives. La création de systèmes de vigilance et monitoring de ce type de lésions s'avère, ainsi, nécessaire.

Mots-clés : exercice physique, sport, lésions, prévention.

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