

The prevention of doping and the improper use of drugs and food supplements in sports and physical activities: a survey on the activity of the prevention departments of Italian local health authorities

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Key words: Prevention departments, doping, food supplements, drugs, prevention, health promotion

Parole chiave: Dipartimenti di prevenzione, doping, integratori alimentari, farmaci, prevenzione, promozione della salute

Abstract

Introduction. Doping is an important public health problem widespread not only among elite athletes, but also among amateur and recreational athletes and the general population. In Italy the introduction of doping prevention within the Essential Levels of Care (LEA) with the DPCM 12/1/2017 represents a crucial step towards the implementation of education and health promotion interventions. In this context, the Departments of Prevention (DP) of the Local Health Authorities (LHA) have to play a fundamental role, becoming the cultural and operational reference on this issue. As part of the “Doping prevention: development of a permanent educational tool coordinated by the National Health Service Prevention Departments” project,

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funded by the Italian Ministry of Health, a survey was conducted on the activities carried out by the DP regarding doping prevention and improper use and abuse of drugs and food supplements in sports and physical activities, as a basis for the harmonization of organizational structures and prevention programs and the creation of a collaboration network at a regional and national level.

Methods. *A semi-structured questionnaire consisting of 11 questions, prepared on an electronic platform, was sent to the DP of all the Italian LHA.*

Results. *A total of 38 DP out of 131 (29%) completed the questionnaire, with representation from all regions. 42.1% of DP carried out or are still running programs for the prevention of doping, a percentage that decreases to 27% considering the programs for the prevention of misuse and abuse of drugs and food supplements in sports and in physical activities; in less than half of the DP, 37.5% and 41.7%, respectively, dedicated funds have been allocated. The professionals most involved in prevention of doping are the Specialists in Sport Medicine (81.3%) followed by Specialists in Hygiene (43.8%) and Psychologists (37.5%), while Health Care Assistants (50%) are the professionals most involved in the prevention of the improper use of drugs and food supplements, followed by Specialists in Hygiene and Specialists in Sport Medicine (40%). Most of the DP (71.9%) believe that the introduction of programs to prevent and counteract doping in the LEA will have repercussions on their approach against doping.*

Conclusions. *The survey, although conducted on a limited sample, has provided an important framework relating to programs for the prevention of doping and the misuse and abuse of drugs and food supplements in sports and in the physical activities carried out by DP. A remarkable heterogeneity has been highlighted, both at national and regional level. It is urgent to provide DP with homogeneous and effective organizational models and adequate operational tools, paying particular attention to the training of all the professionals involved. It is also essential to implement permanent monitoring tools.*

Introduction

Doping is an important public health problem, which has reached worrying proportions, becoming a widespread phenomenon worldwide not only among elite athletes, but also among amateur and recreational athletes (athletes) and among the general population (1, 2). The urgent need for a greater cooperation between public and sports authorities at an international level led in 1999 to the establishment of the World Anti-Doping Agency (WADA), whose functional derivation at national level is the NADO (National Anti-Doping Organization) Italia, which has sole responsibility for the adoption and application of the rules in compliance with the WADA Code. The NADO provides for the preparation of the Test Distribution Plan (TDP), establishing the execution of doping controls in and out of competition for elite athletes included in the national Registered Testing Pool (RTP). In order to carry out the Doping Controls, NADO Italia relies on the Doping Control

Officer (DCO)/Blood Control Officer (BCO) of the Italian Federation of Sports Medicine (Federazione Medico Sportiva Italiana, FMSI) and, for the analysis of the samples, on the Anti-Doping Laboratory of Rome, the only WADA accredited laboratory in the national territory, or on other laboratories accredited by WADA (3). In 2018, 8,319 controls were carried out, with 91 adverse analytical findings (1.1%) (4). A fundamental step in our country in the fight against doping was the enactment of Law 376, December 14, 2000 on the “Discipline of the health protection of sports activities and the fight against doping” (5). This established, at the Ministry of Health, the “Commission for the vigilance and control of doping and the protection of health in sports activities”, currently “Section for the vigilance and control of doping and for the protection of health in sports activities (SVD)”. This Section, in addition to updating the list of drugs containing doping substances and practices whose use is considered doping, also adapting it to the international reference

list of WADA (6), promotes scientific research and information/training campaigns for the protection of health in the sports activities and doping prevention, and carries out control activities in the categories of amateur and recreational athletes. Following the changes made by the Health Ministry in February 14, 2012, the NAS (Nucleo Anti-Sophistication) of the Carabinieri now participates in these control activities, with the preliminary identification of competitions and athletes “with high risk profiles”, proposed to the SVD for the inclusion in the anti-doping control calendar (7). From 2003 to 2018, 20,294 athletes from different sport specialties were controlled and 610 (3%) were positive, with a positivity percentage of 3.8% in males and 1.4% in females (8). The highest value (4.8%) was recorded in 2010, with a percentage of 6.3% in males and 1.5% in females. Over the years, the highest percentage of positives was observed among the more mature athletes, while the lower one in the younger range (<19 years); in 2018, when 594 athletes were controlled, the highest value, 8.8%, was found in those aged ≥ 44 years, compared with a general value of 2.2%, and in the age group 39-43 the highest value (11.6%) was recorded during the 16 years of SVD anti-doping activity. The number of athletes subjected to doping control over the years is higher in some disciplines (such as cycling, soccer, athletics and swimming) than in others; within the Federations with more than 500 controlled athletes, the highest percentage of positivity, from 2003 to 2018, was observed in cycling (6.1%), rugby (5.6%) and handball (3.3%). On the occasion of the doping control activity, the SVD also annually monitors the consumption of non-prohibited drugs for doping and “health” products. Among the 594 athletes undergoing this control in 2018, 417 (70.2%) declared to have taken pharmaceutical products and health products in general (vitamins, mineral salts, amino acids, supplements); the

use of these substances, among which the highest percentage is represented by non-steroidal anti-inflammatory drugs, was more widespread in women, with a percentage of 76.7% compared to 66.8% of males (8). Unlike competitive athletes who are periodically subjected to doping controls, among the general population it is very difficult to estimate the prevalence of doping. According to a recent review that analyzed 28 studies carried out in the 17 EU/EEA countries (European Union/European Economic Area) from 1999 (the year in which WADA was established) to October 2018, for a total of 176,339 subjects, the prevalence of doping in the general population is of 4%, with a range from 0 to 21% (2). The use of food supplements and health products is also very widespread even in the absence of any need dictated by specific nutritional deficiencies. Therefore, it appears essential to implement education and health promotion interventions aimed at both athletes and the general population. The introduction of doping prevention and counteraction programs within the Essential Levels of Care (Livelli Essenziali di Assistenza, LEA) with the DPCM 12/1/2017 represents a crucial step towards this goal (9). Such programs must inevitably become the task of the Local Health Authorities (LHA) through the Departments of Prevention (DP) which represent the operational structure of the LHA which guarantees the protection of collective health, pursuing objectives of health promotion, disease prevention and disability, improvement of the quality of life (10, 11). To this end it becomes essential to define common effective intervention models, to be adapted to the specific needs of the territory, addressed to all age groups, and to train the National Health Service (NHS) operators, promoting interactions between the different professionals in a multidisciplinary and multisectoral approach, in line with the Ottawa Charter of Health Promotion (12). A first essential step is the knowledge of what

has already been going on at a national level; in fact, although the prevention of doping did not fall within the objectives of the National Prevention Plans, several LHA have implemented specific prevention programs in the context of the DP activities. Within the project “Doping prevention: development of a permanent educational tool coordinated by the NHS prevention departments” whose main objective is to create a model based on the DP network and a permanent operational tool, to be updated over time, a survey was performed in order to know the activities carried out by the DP in the field of doping prevention and improper use and abuse of drug and food supplements in sports and physical activities, as a base of knowledge towards the harmonization of organizational structures and prevention programs and the creation of a network of collaboration at a regional and national level.

Methods

A semi-structured questionnaire consisting of 11 questions was used for the survey. The main areas of investigation were the following: education and health promotion; doping

prevention programs; programs on improper use and abuse of drugs and food supplements in sports and physical activities; possible repercussions of the introduction of doping prevention in the LEA; collaboration with other Services and Departments; information relating to the Sports Medicine Service. A pilot study was carried out between November 2017 and January 2018, sending the questionnaire via e-mail to the Directors of the DP of 16 LHA. The analysis of the results of the pilot study led to some changes in the preparation of the definitive questionnaire, realized subsequently on the electronic platform Google. The link for accessing the questionnaire was sent via e-mail, in February 2018, to the Directors of the 131 DP (No. of DP at 31 December 2016). Regional referents, identified within a national network established within the project, solicited the non-responsive DP. A final reminder was sent in April 2019. The results were expressed as frequencies and percentages.

Results

The DP of 35 LHA completed the questionnaire by May 2018, to which other 3 were added after the final reminder of April

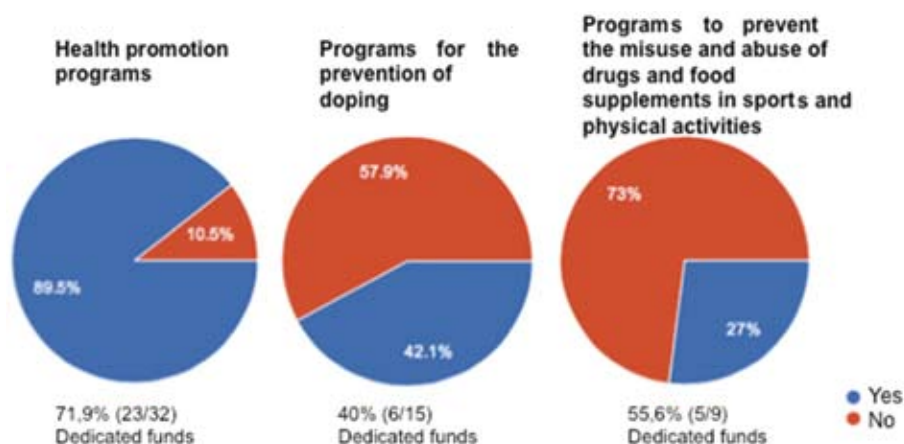


Figure 1 - Prevention Departments where health promotion programs in line with the “Gaining health” plan, programmes for the doping prevention and programs to prevent the misuse and abuse of drugs and food supplements in sports and physical activities were carried out or are still active.

Table 1 - The 38 Local Health Authorities participating in the survey

2	Abruzzo	ASL 1 Abruzzo ASL Teramo
1	Basilicata	ASM Basilicata
1	Calabria	ASP Cosenza
1	Campania	ASL Napoli 2 Nord
3	Emilia-Romagna	Azienda USL Modena Azienda USL Parma Azienda USL Piacenza
4	Friuli Venezia Giulia	AAS3 Alto Friuli-Collinare - Medio Friuli Azienda Sanitaria Universitaria Integrata di Udine Azienda Sanitaria Universitaria Integrata di Trieste AAS5 Pordenone
1	Lazio	ASL Roma 4
2	Liguria	ASL 1 Imperiese ASL 5 Spezzino
6	Lombardy	ATS della Montagna ATS Bergamo ATS Val Padana ATS Brianza ATS Insubria ATS Brescia
2	Marche	ASUR – Area Vasta 1 ASUR - Area Vasta 5
1	Molise	ASReM
1	Piedmont	ASL TO 1
2	Puglia	ASL Brindisi ASL Taranto
4	Sardinia	ASSL Olbia ASSL Lanusei ASSL Oristano ASSL Sassari
1	Sicily	ASP Catania
1	Tuscany	ASL Lucca
1	Trentino Alto Adige	SABES Bolzano
1	Umbria	Azienda USL Umbria 2
1	Valle d'Aosta	Azienda USL Val d' Aosta
2	Veneto	Azienda ULSS 6 Padova Azienda ULSS2 Marca Trevigiana

2019, for a total of 38 DP (Table 1). The response rate was 29%, with representation from all regions. The education and health promotion activities in 95.5% (21/22) of the LHA are included in the DP; in 89.5%

(34/38) of these, health promotion programs in line with the “Gaining health” plan were carried out or are still in progress, with specific funds allocated in 71.9% (23/32) of DP (Figure 1). A total of 42.1% of DP

(16/38) carried out or still have programs for the prevention of doping, which are reported in Table 2; 40% (6/15) of the DP have dedicated funds allocated (Figure 1). With regard to the prevention of the improper use and abuse of drugs and food supplements in sports and physical activities, specific programs were carried out or are still running in 27% (10/37) of DP, with dedicated funds in 55.6% of cases (5/9)

(Figure 1). Among the activities carried out in this area are projects and training programs, including “Gyms that promote health”, “Seniors and drugs: useful tips”, outpatient counselling, guidelines. Only 9 DP have programs dealing with all three areas under investigation (health promotion, doping prevention and misuse and abuse of drugs and food supplements). In 36.7% of the cases (11/30) assessment tools for the

Table 2 - Doping prevention programs carried out in the Prevention Departments of the various Local Health Authorities

Region	Local Health Authority	Doping prevention programs
Abruzzo	ASL Teramo	Project “COACH of health” in collaboration with the ASL Modena.
Emilia-Romagna	AUSL Modena	“COACH of health”, “Achille’s heel” and “Positive for health” projects. Seminars, conferences and training activities.
	AUSL Piacenza	“Gyms promoting health”. Introduction of the doping theme envisaged in the regional program “Between risk and pleasure”.
Friuli Venezia Giulia	AAS5 Pordenone	Not specified.
Lombardy	ATS della Montagna	“Clean game ... I am worth it”: an experimental project funded by the Ministry of Health to counteract doping, addressed to students of the 1 st and 2 nd year of 2 nd grade secondary schools.
	ATS Bergamo	Interventions in schools, drafting guidelines.
	ATS Val Padana	Training project aimed at sports coaches and teachers of physical activity, with resulting effects on children.
	ATS Insubria	Projects carried out in the school setting - “For a clean sport” and “No Doping No Crying”.
	ATS Brianza	Year 2002: Survey questionnaire at 1 st grade secondary schools of the former ASL Monza and Brianza area.
	ATS Brescia	Years 2008 and 2009: In collaboration with the Brescia Cycling Federation (amateurs), research on stimulants in urine samples.
Marche	Area Vasta 1	Project in partnership with provincial UISP (Italian Sport Union for All) in secondary schools on communication/information on doping risk and on motivation for clean sport, entertainment and aggregative purpose of sport.
Piedmont	ASL TO 1	From 2006 to 2012.
Puglia	ASL Taranto	They are still active.
Trentino Alto Adige	SABES Bolzano	Lectures on doping in schools.
Umbria	AUSL Umbria 2	Specific project for the creation of a mathematical model for doping cessation.
Veneto	AULSS2	Informative interventions in schools/societies, even if not structured in systematic programs.
	Marca Trevigiana	

effectiveness of the projects were adopted, among which the most common was the administration of pre and post intervention questionnaires, but also the “calculation of indicators”, “evaluations of developing transversal competences in the school environment”, “quantitative and qualitative project cycle management assessment”. With regard to the professionals involved (Table 3), the Specialists in Hygiene and the Health Assistants are the most frequently represented in health promotion programs, with the same percentage (76.5%), followed by Dieticians/Nutritionists (70.6%), General Practitioners and Specialists in Sport Medicine (50%), Psychologists (41.2%), Graduates in Sport Sciences (35.3%) and Sociologists (8.8%). As for the programs for the prevention of doping, in the first place appears the Specialists in Sport Medicine (81.3%), followed by the Specialists in Hygiene (43.8%), Psychologists (37.5%), Health Assistants and Dieticians/Nutritionists (31.3%), Graduates in Sports Science (18.8%), General Practitioners and Sociologists (6.3%). Healthcare Assistants are the figures most involved (50%) in programs for the prevention of misuse or abuse of drugs and food supplements, followed by Specialists in Hygiene and Specialists in Sports Medicine (40%), General Practitioners and Dieticians/Nutritionists (30%), Graduates in Sport Sciences and Psychologists (20%) and Sociologists (10%). Many other professionals are involved (Table 3); in particular the programs for the prevention of doping and for the prevention of misuse or abuse of drugs and food supplements see the participation of Professional educators, Nurses, Pharmacists, not hygienist Epidemiologists, Geriatricians. With regard to which professionals it is believed should be involved in doping prevention programs (Table 3), in the first place are the Specialists in Sport Medicine (93.9%), followed by the Specialists in Hygiene (75.8%), and then

the Graduates in Sport Sciences (66.7%), Psychologists (60.6%), Health Assistants (48.5%), Dieticians/Nutritionists (42.4%), General Practitioners (36.4%), Sociologists (24.2%). 37% (12/33) of DP adds other professional figures, including the Operators of the Drug Addiction Service (Servizio Tossicodipendenze, SERT), Nurses, Prevention and Workplace Technicians, Professional Educators, Physical Education Teachers, Pharmacologists, Psychiatrists, Communication Experts; the involvement of gyms, sports associations, mental health departments and schools, it is also hoped. Four DP believe it is necessary to involve all the professional figures explicitly indicated in the questionnaire (General Practitioners, Hygiene Specialists, Specialists in Sports Medicine, Dieticians/Nutritionists, Health Assistants, Graduates in Sport Sciences, Psychologists, Sociologists), while the minimum number of professionals indicated - 2 - is reported by five DP, with the Specialists in Hygiene and the Specialists in Sport Medicine the most represented. 54.1% (20/37) of the DPs have collaborations with other Services and/or Departments regarding the issues of health protection in physical activities and doping prevention; in particular, collaboration with the Italian Olympic Committee (CONI), with University, Municipality, Schools, Gyms, Italian Sport Union for All-UISP, Local Authorities and territorial associations, Territorial Districts, Dependencies Department, SERT, Sports Medicine Service, or even collaborations with other LHA, in particular with the Anti-Doping Center of the LHA of Modena, being mentioned. A DP reports collaboration with the World Health Organization. The types of collaboration concern training, consultancy and scientific research activities.

The health protection of sport activities and the promotion of physical activity is included within the DP in 86.8% (33/38) of the LHA; of the 5 LHA in which these activities do not appear in the DP, only 2

Table 3 - Professional figures involved in health promotion programs (P), in doping prevention (D) and in the misuse of drugs and food supplements (S) programmes and figures who it is believed should be involved in doping prevention programs (@^D)

Region	Local Health Authority	General Practitioners	Specialists in Hygiene	Specialists in Sport Medicine	Dieticians/Nutritionists	Health Care Assistants	Graduates in Sport Sciences	Psychologists	Sociologists	Other
Abruzzo	ASL 1 Abruzzo	P	P @ ^D	@ ^D		P				Physical Education Teachers, Gym instructors (@ ^b)
	ASL Teramo		P D @ ^D		P @ ^D	@ ^D		@ ^D		
	ASM Matera	P	P @ ^D		P	P @ ^D				
Calabria	ASP Cosenza	P @ ^D	P @ ^D	P @ ^D	P	P	P @ ^D	P @ ^D	@ ^D	Communication Experts (@ ^b)
	ASL Napoli 2 Nord	@ ^D	P @ ^D	@ ^D	P @ ^D	P @ ^D	@ ^D	P @ ^D	P @ ^D	Professional Educators (P)
Emilia-Romagna	AUSL Modena		@ ^D	P D S @ ^D	P D S @ ^D		P D S @ ^D	P D S @ ^D		
	AUSL Piacenza	P	P	P D S @ ^D	@ ^D	P D S	@ ^D	P		Educators (P,D,S,@ ^b), Graduated in Philosophy (P), Sports association technicians, Pharmacologists (@ ^b)
Friuli Venezia Giulia	AUSL Parma	P	P	P @ ^D	P @ ^D	P	@ ^D	@ ^D		
	AAS3 Alto Friuli Collinare - Medio Friuli		P			P		P		Professional Educators (P)
	ASUI Trieste		@ ^D	@ ^D	@ ^D		@ ^D	@ ^D		
	ASUI Udine	P S	P	@ ^D	P	P @ ^D			S	Drug Addiction Service Operators (@ ^b)
	AAS5 Pordenone	@ ^D		P D S @ ^D				@ ^D		
Lazio	ASL Roma 4		P @ ^D	P @ ^D		P	@ ^D	@ ^D		Prevention and Workplace Technicians (P,@ ^b), Psychiatrists (@ ^b)
	ASL 5 Spezzino		@ ^D	@ ^D	@ ^D	@ ^D	@ ^D	@ ^D		
Lombardy	ATS della Montagna		P D S @ ^D	P D @ ^D	P D S @ ^D	P D S @ ^D	@ ^D	@ ^D		Geriatricians (S), Pharmacists (S)
	ATS Bergamo	S @ ^D	P D S @ ^D	D @ ^D	P	P	@ ^D	P @ ^D		
	ATS Val Padana	D @ ^D	D @ ^D	D @ ^D	P D @ ^D	P D	@ ^D	P D		Professional Educators (P,D,@ ^b), Social assistants (P),
	ATS Brianza	P @ ^D	P @ ^D	P D @ ^D	P @ ^D	P @ ^D	@ ^D	@ ^D	@ ^D	
	ATS Insubria		P @ ^D	P D @ ^D	P @ ^D	P @ ^D	@ ^D	D @ ^D		
ATS Brescia	P	@ ^D	D @ ^D	P	P	P	P @ ^D	P		Social assistants Nurses, Midwives, Pharmacists, Hospital Doctors, Territorial associations (P)

Marche	ASUR Area Vasta 1	P S @ ^D	P D S @ ^D	P D @ ^D	P	P S	P D @ ^D	P D @ ^D	P D @ ^D	Communication Experts (P)
	ASUR Area vasta 5		P @ ^D	P @ ^D	P	P	@ ^D	P		
Molise	ASReM	@ ^D	P @ ^D	@ ^D	P @ ^D	P @ ^D	P @ ^D	P @ ^D	P @ ^D	Nurses, Prevention and Workplace Technicians (P, @ ^b)
	ASL TO 1	P @ ^D	P @ ^D	P D @ ^D	P	P @ ^D	P	P D @ ^D	P D @ ^D	
Puglia	ASL Brindisi	P	P @ ^D	P @ ^D	P	@ ^D	P @ ^D	P @ ^D	P @ ^D	Nurses (P, @ ^b)
	ASL Taranto		P D S @ ^D	@ ^D	P D @ ^D	P D S @ ^D	@ ^D	@ ^D	@ ^D	
Sardinia	ASSL Olbia		@ ^D	@ ^D						Teachers and students upper secondary schools (P), Drug Addiction Service, Mental Health Department (@ ^b)
	ASSL Lanusei	@ ^D	P @ ^D	P @ ^D	@ ^D	P @ ^D	P @ ^D	P @ ^D	P @ ^D	
	ASSL Sassari	@ ^D	P @ ^D	P @ ^D	@ ^D	P	P @ ^D	P @ ^D	@ ^D	
	ASP Catania		P @ ^D	@ ^D	P @ ^D	@ ^D				Pediatricians, Consultants, Schools, Catering companies, Sports associations, Third sector associations (P); Sports Associations, Gyms, Schools (@ ^b)
Tuscany	AUSL Toscana nord ovest	P	P @ ^D	@ ^D	P		@ ^D			Teachers, School managers (P)
	ASDAA-SABES Bolzano	P	@ ^D	P D @ ^D		@ ^D	P			Physiotherapists (P), Physical Education Teachers (@ ^b)
Umbria	AUSL Umbria 2	P @ ^D	P D @ ^D	@ ^D	P @ ^D	P D S @ ^D	P D S @ ^D	P D S @ ^D	P D S @ ^D	Not hygienist epidemiologists (P,D,S), Pharmacists (D,S), All possible useful professional figures (@ ^b)
	ASL VDA Aosta	P	P			P				Nurses (P)
Veneto	AULSS 6 Euganea	P	P	@ ^D	P	P	@ ^D			Educators (P)
	AULSS 2 Marca Trevigiana	P	P D	P D S	P D S	P				

specify that they are included in the territorial district activities. In 11.1% (4/36) of the cases, in the field of health protection in sport activities, there is also a consultancy activity by the DP for exemption for therapeutic purposes and anti-doping legislation. This activity is mostly carried out by the Sports Medicine Service or, in the LHA of Modena, also by the Regional Anti-Doping Center, and deals with consulting during competitive fitness visits (in the context of competitive sports certification) or with therapeutic use of drugs. The Sports Medicine Service is included within the DP in 90% (18/20) of the LHA, with a variability of this organizational structure even within the same region; of the two LHA in which this Service is not included in the Department of Prevention, only one specifies that it is included in the territorial District, Operative Unit Specialized Rehabilitation and Residential Medicine. The Sports Medicine Service mainly deals with the issuing of sports fitness certifications, medical activities for professionals and non-professionals, supervision of authorized sports medicine centers and the promotion of physical activity and the fight against doping. When asked if the recent introduction of anti-doping in the LEA will have repercussions on the approach that their own Department will take in the fight against doping, 71.9% (23/32) of DP answered "yes". Going to analyze this response separately between the departments in which prevention programs are already active (Table 4) and those in which they are not active yet (Table 5), the former foresee the raising of awareness of the problem, an implementation of the activities already underway and an activation of new programs, a wider involvement of local stakeholders and an extension of collaboration, in particular with CONI and General Practitioners; moreover, they foresee a greater awareness of the problem also in amateur sport from the educators and parents, a greater demand for interventions/

consultations and an increase of resources, especially human resources. The DP in which prevention programs are not active believe that following the inclusion of the fight against doping in the LEA, the DP cannot refrain from carrying out programs in this sense, so the fight against doping will have to be included in the duties of the DP, in parallel with the promotion of physical activity, providing for the reorganization of activities, with the development of specific interventions of an informative and training nature and preparation of control methods; the programs must be structured in an organic manner, involving more professionals within the LHA, with the collaboration of all stakeholders. An LHA provides for the passage of the Sports Medicine Service within the DP. 28.1% (9/32) of DP responded that the introduction of the fight against doping in the LEA will have no repercussions on the activity of their DP because such activities already fall within the activities of their DP, or because at the moment no action has been planned, or the subject has not been considered yet.

Discussion and conclusion

Doping is a serious and ever-growing public health problem spreading among athletes, but also among the general population who practice physical activity exclusively for recreational purposes or to improve their health condition; also alarming is the use of drugs and food supplements in an improper manner in sports and physical activities with the sole hope of obtaining an easy and rapid improvement of one's psycho-physical condition, but which may represent a first dangerous step towards doping. These are two issues that must be addressed together, in fact, as some authors affirm "a complete discussion on doping has to consider not only the philosophy of performance-enhancing drug abuse, but also

Table 4 - Introduction of prevention and anti-doping programs in the Essential Levels of Care (LEA): repercussions on Prevention Departments where doping prevention programs are active

Repercussions on Prevention Departments
Implementation of activities and projects already in progress; activation of new programmes.
We believe that the approach currently adopted is responding to the needs according to a correct methodology, as they are oriented to the empowerment of practicing sports activities and to the development of contexts less favorable to the spread of the phenomenon. The introduction of the doping theme in the LEA could determine a regional mandate to work more widely on this topic.
Implementation of activities with the involvement of local stakeholders.
Collaboration is expected with the CONI (Italian Olympic Committee) and General Practitioners.
A greater awareness of the problem by educators and parents also in the amateur sport field.
Greater demand for interventions/consultations.
The available resources will change, especially human resources.
It will depend on how it is translated operationally, and in any case not without planning in terms of activities/ services and dedicated resources.

Table 5 - Introduction of prevention and anti-doping programs in the Essential Levels of Care (LEA): repercussions on Prevention Departments where doping prevention programs are not currently active

Repercussions on Prevention Departments
Since the fight against doping is included in the LEA, it will not be possible to exempt it from carrying out programmes in this sense.
Will be activated what is required to comply with the LEA obligations regarding the fight against doping, also in collaboration with the competent offices of the Region. In addition, the Local Health Authority is a partner in the "Doping prevention: development of a permanent educational tool coordinated by the Departments of Prevention" project and will actively participate in all the planned initiatives.
Under evaluation.
Collaboration with the Drug Addiction Service.
Through staff training.
Activation of health education interventions in schools, as part of the promotion of healthy lifestyles.
The planned health promotion facilities will take care of this thematic area.
Reorganization of activities.
It will have to become part of the functions to be carried out in parallel with the promotion of physical activity.
There is a need to develop specific interventions, both of an educational/informative nature and of control.
Since this is an LEA, prevention and anti-doping programs must be structured in an organic way, involving more professional figures within the Local Health Authority, and open to collaboration with all stakeholders. The projects will have to be planned taking into account the rules adopted for the projects included in the Regional Prevention Plan (based on evidence data, monitored, evaluated for their effectiveness).
With the next administrative act in force in 2018, the Sports Medicine service will pass to the Department of Prevention, which will also have to assess these issues.
The problem has not yet been addressed.
In relation to the activities promoted at regional level.

the widespread practice of an inappropriate and excessive intake of certain dietary supplements with the unique and obsessive purpose (similar to doping) of increasing physical or mental performance” (1). Food supplements are intended to correct nutritional deficiencies, maintain an adequate intake of certain nutrients, or to support specific physiological functions (13), but can never be a substitute for a balanced healthy diet. It should be also considered that it has been highlighted that food supplements, in particular the ones intended for people who exercise and engage in sports, may illegally contain substances prohibited by the WADA Code, with a risk of inadvertent doping and adverse health effects (14-17).

In 2017, the Italian Ministry of Health included the prevention and fight against doping among the Essential Levels of Care, therefore it becomes urgent to implement well-structured prevention programs throughout the national territory, starting from the knowledge of what is already present. Our survey, although carried out on a limited sample, sees the representation of all Italian regions, and made it possible to provide an important framework relating to prevention activities on this issue. In the vast majority of the Departments there are active health promotion programs in line with the “Gaining health” plan, but there is a wide variability, both nationally and regionally, with regard to prevention programs on doping and improper use and abuse of drugs and food supplements. Less than half of the Departments carried out or still have active programs on the prevention of doping, a percentage that is lowered even more if the programs on improper use and abuse of drugs and food supplements are considered. Both of these programs are mostly carried out in DP in Northern and Central regions, having only one Southern DP active in such programs. The percentage of DP that has activated programs related to all three areas under investigation is very low; all DP, except one,

being in Northern and Central of Italy. For all these areas there is a wide variability also in relation to the professionals involved, from one to all those that were explicitly indicated in the questionnaire (General Practitioners, Specialists in Hygiene, Specialists in Sports Medicine, Dieticians/Nutritionists, Health Assistants, Graduates in Sport Science, Psychologists, Sociologists). The General Practitioners’ presence in doping prevention programs is very low, and the percentage of Departments that would like the General Practitioners to be involved is also very low, whereas the General Practitioner, due to the specific characteristics of his/her profession, is in a privileged position in managing the health of the population, with a crucial role in health promotion. Professional figures considered essential in the fight against doping by at least half of the responding Departments are considered: Specialists in Sports Medicine, Specialists in Hygiene, Graduates in Sport Sciences, Psychologists. In particular the involvement of the Graduates in Sport Sciences is widely hoped, in comparison with their presence in the current programs. It is fundamental that the theme of doping and the irrational use of food supplements and drugs in sports activities, in the broader context of the promotion of physical activity and correct lifestyles, becomes part of the curricula of the different Degree Courses in order to prepare professionals who have an adequate cultural background and are trained to address these issues in a multidisciplinary context.

Although the fight against doping has never been included among the objectives of the National Prevention Plan, some Departments have paid much attention to this serious problem. There are important projects that can serve as a model for other Departments as well aiming to establish a collaboration network at national level. Collaboration among LHA has already been reported, in particular with the LHA of Modena, where, in 2005, the first regional

anti-doping Center in Emilia-Romagna, within the complex structure of Sports Medicine, was established in recognition of the activities carried out in the context of the “Achille’s heel” project, born in 2001.

A very critical point is certainly the availability of dedicated funds; a low percentage of Departments has allocated specific economic resources for these programs, with differences also within the same region, which represents a strong obstacle to their implementation. It is widely believed that among the repercussions of the introduction of anti-doping programs in the LEA there will be a greater availability of resources, even if in one case the negative response to possible repercussions has been justified by the lack of resources.

A heterogeneity is observed in the placement of the health protection of sports activities and promotion of physical activity and of the Sports Medicine Service, which in some cases are not envisaged within the Prevention Department. The placement of the Sports Medicine Service outside the DP, which is institutionally responsible for the health promotion in its globality, certainly makes the management of programs on these issues more fragmented and the collaboration of the various professionals involved even more difficult. Very interesting is, as a repercussion of the introduction of the doping prevention in the LEA, the transference of the Sports Medicine Service to the DP, and this will surely have a positive impact on the development of such programs.

Considering that the prevalence of sedentary people has reached high levels (18), with a consequent increase in the associated diseases, the commitment at individual and collective level towards the enhancement and development of sports and physical activity is essential (19-21), but it should be alongside empowerment processes raising awareness on the risks associated so that the activity itself from a health determinant does not become a cause

of harm (20). There is now recognition that the prevention of doping should be mainly based on educational interventions addressed to the whole population at different levels, in a wider objective of health promotion, taking into consideration the risk factors that may influence incorrect and harmful behaviours. In this context, the DP has an institutional role and should coordinate the actions, planning objectives and strategies, identifying resources, training the operators, and carrying out programs, in a multi-professionals and multidisciplinary approach with the involvement of all stakeholders. These programs should then be evaluated in their effectiveness, and this is a critical point, being this important part of the educational process often neglected as it is also highlighted in our survey showing that in less than half of DP assessment tools were adopted.

This survey represents an important base to work on in order to harmonize organizational structures and prevention programs, also to move towards a fruitful network of collaboration at regional and national level. In the light of the introduction in the LEA of the prevention and the fight against doping, it is urgent to provide DP with homogeneous and effective organizational models, and adequate operational tools, paying attention to the training of all the professional figures involved. Furthermore, it is fundamental to implement permanent monitoring tools.

Acknowledgements

The present work was supported by the Ministry of Health (Programma di ricerca e di formazione/informazione 2016 sui farmaci, sulle sostanze e pratiche mediche utilizzabili a fini di doping nelle attività sportive. Progetto 2016-3 CUP H82F16000170001 – “Prevenzione del doping elaborazione di uno strumento permanente di educazione coordinato dai dipartimenti di prevenzione del SSN”).

Additional documents and the Italian version is available at: www.sitinaZIONALE.it/BDS/muoversi and/or at link www.progettodoping.it

The authors wish to thank all Prevention Departments for participating in the survey.

The Authors have no conflicts of interest to declare.

Funding source: This study was funded by the Italian Ministry of Health, Section for the vigilance and control of doping and for the protection of health in sports activities: CUP H82F16000170001.

Riassunto

La prevenzione del doping e dell'uso improprio e dell'abuso di integratori negli sport e nelle attività fisiche: un'indagine sull'attività dei dipartimenti di prevenzione delle aziende sanitarie italiane

Introduzione. Il doping è un importante problema di salute pubblica diffuso non solo tra gli atleti d'élite, ma anche tra gli atleti dilettanti e amatoriali e la popolazione generale. L'introduzione dei "Programmi di prevenzione e contrasto al doping" nell'ambito dei Livelli essenziali di Assistenza (LEA) con il DPCM 12/1/2017 rappresenta un passo cruciale verso l'attuazione di interventi di educazione e promozione della salute. In questo contesto, i Dipartimenti di Prevenzione (DP) dovranno svolgere un ruolo fondamentale, diventando il riferimento culturale e operativo in questo tema. Nell'ambito del progetto "Prevenzione del doping: elaborazione di uno strumento permanente di educazione coordinato dai Dipartimenti di prevenzione del SSN", è stata condotta un'indagine sulle attività svolte dai DP in merito alla prevenzione del doping e dell'uso improprio e dell'abuso di farmaci e integratori alimentari nello sport e nelle attività fisiche, come base per l'armonizzazione di assetti organizzativi e programmi di prevenzione e la creazione di una rete di collaborazione a livello regionale e nazionale.

Metodi. Un questionario semi-strutturato composto da 11 domande, preparato su una piattaforma elettronica, è stato inviato ai DP di tutte le ASL italiane.

Risultati. Hanno compilato il questionario 38 DP su 131 (29%), con la rappresentanza di tutte le regioni. Il 42,1% dei DP ha svolto o ha tuttora in corso programmi per la prevenzione del doping, percentuale che scende al 27% considerando i programmi per la prevenzione dell'uso improprio e dell'abuso di farmaci e integratori alimentari; in meno della metà dei DP, rispettivamente 37,5% e 41,7%, sono stati stanziati fondi dedicati. Le figure professionali maggiormente coinvolte nella prevenzione del doping sono gli Specialisti in Medicina dello Sport (81,3%) seguiti dagli Specialisti in Igiene (43,8%) e dagli Psicologi (37,5%), mentre gli Assistenti Sanitari (50%) sono i più coinvolti nella prevenzione dell'uso improprio di farmaci e integratori alimentari, seguiti dagli Specialisti in Igiene e Specialisti in Medicina dello

Sport (40%). La maggior parte dei DP (71,9%) ritiene che l'introduzione nei LEA dei programmi di prevenzione e contrasto al doping avrà ripercussioni sull'approccio che il proprio DP terrà nella lotta contro il doping.

Conclusioni. L'indagine, sebbene condotta su un campione limitato, ha fornito un importante quadro relativo ai programmi per la prevenzione del doping e dell'uso improprio e abuso di farmaci e integratori alimentari nello sport e nelle attività fisiche, evidenziando una notevole eterogeneità, a livello nazionale e regionale. È urgente fornire ai DP omogenei ed efficaci modelli organizzativi e adeguati strumenti operativi, con particolare attenzione alla formazione di tutte le figure professionali coinvolte. Inoltre, è essenziale implementare strumenti permanenti di monitoraggio.

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