

Statistical analysis about diffusion of exercise addiction in Sicily

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Abstract

Exercise Addiction (EA) is a behavioural dysfunction marked by uncontrolled compulsion towards all kinds of physical activity. With the purpose of understanding the epidemiology of this steadily increasing phenomenon, we have done a statistical analysis about some data obtained through the administration of an online-questionnaire (Google forms): the same one was also converted into paper-questionnaire and then it has been administered in many gyms in Palermo and Trapani (Sicily-Italy). The sample examined consists of 976 people aged between 14 and 65 (47.3% of them are women and 52.7% are men). For 53.8% of analysed people, physical activity is one of the most important things of their life. In fact, 18% of them declared to have conflicts with family or friends, because of the excessive hours dedicated to sport. Moreover, 86.2% of them pointed out that physical activity is a mood-booster. Probably for this reason, 49.6% of them claimed that they have drastically increased the number of hours devoted to physical activities in last years. Now, the most impressive statistic is the following one: 23.5% of surveyed declared that they get restless and nervous if they are unable to perform the training. Thanks to the last data, a clear symptom of craving emerged. It is

very complicated to make a diagnosis of EA: however, through these questionnaires, the data indicate the presence of behaviours related to the Exercise Addiction. For this reason, it is necessary to act with preventive and information works in order to stem this not fully known phenomenon as much as possible.

Introduction

Recent studies have allowed us to identify the main psychological characteristics that connote dependence on sport, thanks to the analysis of narratives of athletes with this problem.¹ These results complement and confirm the traditional diagnostic criteria valid for addictions according to the Diagnostic and Statistical Manual of Mental Disorders. More precisely, four general dimensions that represent an indicator of dependence on physical exercise can be isolated: altered functions; withdrawal symptoms; psychological characteristics and behavioural characteristics typical of dependent subjects (tolerance, excess of physical activity, solitary training); presence of eating disorders. To be able to claim that this syndrome is present, it is not necessary that the symptoms are all present; some associated features, in fact, represent indicative traits not always active in all sports employees.

The frequent presence of anorexia and bulimia nervosa associated with the “dependent physical practice” and fuelled by the same reasons of weight control and physical appearance that are at the basis of exercise addiction, especially in women, should be emphasized.

The New Addictions include all those forms of dependency in which the intervention of any chemical is not involved. With addiction, we mean a general condition in which psychological dependence leads to the research of the object or of a behaviour without which existence becomes meaningless. The object of addiction is not in this case a chemical substance but socially accepted behaviours or activities or even promoted by modern society (defined “addictive society”).² Among the New Addictions we include dependence on Gambling, Internet, Shopping, Work, Sex, Food, Affective Relationships, Physical Exercise that for some individuals can assume pathological characteristics, up to provoke very serious consequences. These are dysfunctional behaviours characterized by the loss of control over the behaviour despite the negative consequences it creates, the impossibility of crast satisfying the need, from a state of euphoria following the mass in the act of behaviour, in a similar way to what happens in the subjects affected by slope from substances.³ The benefits of exercise practice have been widely documented. Animal studies show that exercise can improve survival neuronal and resistance to insults in the brain, promotes nerve vascularization, stimulates

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neurogenesis,⁴ improves learning and contributes to maintenance of cognitive functions during aging.⁵

For habitual and moderate-intensity physical activity, various beneficial effects can be found, such as: Reduction of heart rate to a given consumption of oxygen, Reduction of blood pressure, high ability to use fatty acids as an energy substrate during exercise, contrasted obesity, increased HDL / LDL ratio, improved structure and function of ligaments, tendons and joints. Finally, the positive effects on the psyche and mood are not to be underestimated: in fact, physical exercise stimulates production of endorphins and other similar substances that help to keep stress at bay, to calm anxiety and to reduce tension.² However, if it is established that a sedentary life has negative effects on our health, it is equally true that physical exercise can involve risks, especially when we overdo it and want to overdo it.

There are acute traumas such as fractures, tears and strains, sprains, dislocations, etc. But there is no shortage of long-term damage due to degeneration and excessive wear of tendons and ligaments. On women, the amenorrhea: is due to the reduction of body weight and to the almost total absence of fat mass; these conditions are further aggravated by the reduction in caloric revenue by the subjects themselves.

The mechanism responsible for the “athlete’s amenorrhea” is that of neuro-endocrine stress, with consequent increase of the inhibitory tone on the hypothalamus by oxytocin, serotonin and melatonin, therefore with reduced secretion of GnRH: excessive physical exercise, in fact, is understood by the body as a condition of stress, which influences the secretion of these neuro-endocrine modulators. The persistence of the stress condition, finally, involves also the activation of the hypothalamic-pituitary-adrenal axis and consequent high levels of cortisol.

The English term addiction derives from the Latin *addictus* and refers to the one who became a slave not because of his starting condition but due to insolvency of debts.⁵ With addiction we mean, in fact, the lack of ability to control an impulse towards an object or behaviour; the ever increasing diffusion of the so-called “New addictions” suggests the expansion of a new phenomenon:⁶ that of “sine substance” dependence, of forms of dependence that do not derive from the assumption of a substance from the outside, the excessive recourse to physical activity can lead to the implementation of compulsive training patterns, in which the person feels compelled to practice physical exercise despite possible injuries, or due to responsibilities related to the role and / or attempts to change their behaviour.⁷ Those who practice exercise in a healthy way, integrate the physical activity in their life. Who is “sick” plans its existence as a function of sport; everything revolves around an obsessive and inordinate physical activity, which is carried out obsessively even in the face of physical harm to the person. In EA, we witness the transformation of an activity of leisure and creativity into slavery.⁸

EA is often characterized by comorbidity: indeed, many studies show that approximately 39-48% of people suffering from eating disorders also suffer from EA.⁹ The correlation between the two addictions is very strong, especially when their purpose is the same: yearning for a perfect physical form to feel socially accepted, at the risk of health.¹⁰⁻¹¹

Several studies have been conducted on EA over the years and in various research centers: for example, a study on exercise addiction and related factors in amateur runners has been published this year.¹²

Another very important study in the literature concerns the overactivation of reward system and deficient inhibition in EA.¹³

A study, similar to the present research work, was carried out

by the same department in 2014, with a statistical survey on the spread of doping substances, supplements and EA.¹⁴

Materials and Methods

We conducted this research in order to evaluate, in a representative sample of the population, how widespread some erroneous behaviours related to physical exercise are in the future can lead to a diagnosis of EA.

With the purpose of understanding the epidemiology of this steadily increasing phenomenon, we have done a statistical analysis about some data obtained through the administration of an online-questionnaire (Google forms), composed by 6 items, during the period from January to September 2018. We also proposed the same questionnaire on paper which was administered in many gyms in Palermo and Trapani (Sicily-Italy). This survey is in fact included in the project “Prevention and Information about New and Rape Drugs, Addiction e Amateur Doping” sponsored by the University of Palermo and the Health department of the Sicilian Region. In total, we evaluated 976 people, aged 14 to 65, and 462 of them are women and 514 are men. They have filled out the questionnaire anonymously and in compliance with the current privacy legislation.

The sample is representative as it involves 976 people from the Palermo and Trapani area. The sample was chosen by examining subjects from 14 to 65 years old. It was decided to submit the subjects to the questionnaires at the gyms and online together with the questionnaire carried out for our investigation into doping. It was possible to differentiate the sample from a professional point of view: 35.7% are workers, 55.2% are students and 7.9% are unemployed or retired.

We extrapolated data by using a worksheet on Microsoft Excel and then we created the graphs based on the results obtained (Microsoft Excel).

Being a single questionnaire divided into two sections: the first section entirely dedicated to Doping with multiple choice and open questions, and a second part dedicated to EA. It consists of a question with the possibility of a “yes” or “no” answer.

Therefore, the quantity of respondents was equal to the total amount with a percentage of white or null answers equal to less than 5%.

Results

As shown in Figure 1, 53.8% of the analysed people find physical exercise one of the most important activities in their lives; moreover, 18% even declared that they had regular conflicts, with family or friends, due to the excessive hours dedicated to sport.

Subsequently, 86.2% underlined how physical activity exponentially improves one’s mood (Figure 2): this is probably because 49.6% said they have increased the number of hours in the last few years dedicated to physical exercise.

Finally, 23 % of those affected said that they were nervous about taking obstacles in carrying out their usual training (Figure 3). Although this is a small percentage of affirmative answers, compared to 77% of negative responses, the data emerged is alarming. Therefore, it is evident that there is a strong tendency to exercise addiction, since the nervousness for the loss of a workout is a clear symptom.

The correlation between exercise addiction and substance intake

EXERCISE IS ONE OF THE MOST IMPORTANT THINGS IN MY LIFE

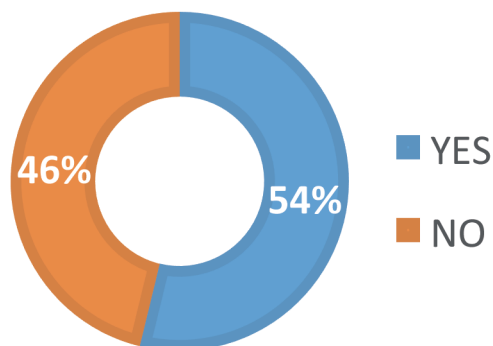


Figure 1. 53.8% of the analysed people find physical exercise one of the most important activities in their lives.

EXERCISE HAS THE ABILITY TO IMPROVE MY MOOD

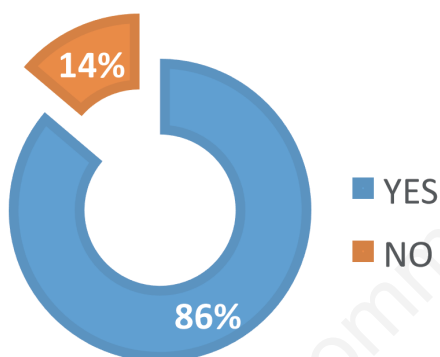


Figure 2. 86.2% of the analysed people underlined how physical activity exponentially improves one's mood.

IF I'M CONSIDERED TO LOSE AN EXERCISE I FEEL NERVOUSLY ALL DAY

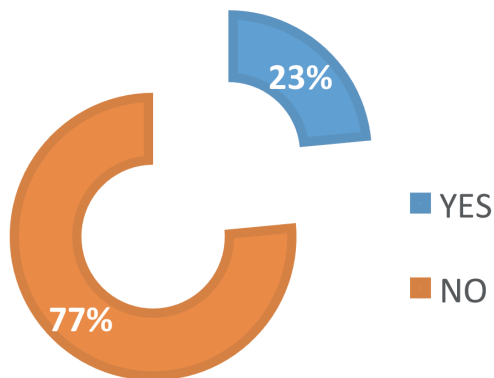


Figure 3. 23 % of the analysed people said that they were nervous about taking obstacles in carrying out their usual training.

was evaluated, thanks to the use of the Italian version of the Exercise Addiction Inventory (EAI).

In fact, based on the answers provided, we can distinguish between three types of subjects: i) subject to EA risk; ii) symptomatic subjects; iii) non-symptomatic subjects.

People who answered 50% of the questions in the affirmative were found to be subjects at EA risk; symptomatic subjects were who answered less than 50% of positive responses; finally, the subjects who answered more than 50% of the questions in the affirmative are defined as highly dependent subjects.

Conclusions

It is very complicated to make a diagnosis of EA: however, through these questionnaires, the data indicate the presence of behaviours related to the Exercise Addiction. These behaviours are found statistically in an equal way in men and women: therefore, according to our data, there is no prevalence of the phenomenon according to sex.

Many people consider physical exercise as one of the most important things in their lives. So, they create conflicts with loved ones; moreover, they believe that physical exercise has an unquestionable action on the mood and they feel the need to increase more and more the hours dedicated to sport in order to feel good.

In order to contain as much as possible, the dizzying and dangerous growth of EA, it is fundamental both to adequately quantify the phenomenon and to make aware the affected subjects. It is therefore necessary i) to advance researches that can provide a more complete picture of the phenomenon; ii) to conduct appropriate information campaigns with the aim of enhancing healthy physical activity; iii) to develop initiatives that help everyone to recover a positive image of their body, far from the false schemes proposed by society.

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