

Physical exercise and Alexithymia: risk or benefit?

Esercizio fisico e Alessitimia: rischio o beneficio?

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Abstract

Physical activity is involved in increasing health potential. However, in sports practice a state of well-being may depend on the management of emotions. The purpose of the present study was to analyse the relationship between the type of exercise and alexithymia. Three groups of people were analyzed for the study: triathlon practitioners, people practicing Tai Chi, and sedentary people. All participants were assessed for both physical activity level and alexithymia. The results show that more athletes with alexithymia practice high-intensity exercise. Thus, there seems to be an association between alexithymia and exercise addiction. Through competitive exercise, athletes can overcome difficult challenges by employing cognitive resources on external factors, without focusing attention inward. A question emerges from this study: is alexithymia a determining factor in choosing a specific type of physical activity, or could alexithymia be triggered by overtraining? This aspect could be investigated in future studies, which could further investigate the relationship between the choice orientation of a specific sport and alexithymia.

Keywords: exercise addiction; emotion regulation; tai chi; triathlon.

Sintesi

L'attività fisica è coinvolta nell'aumento del potenziale di salute. Tuttavia, nella pratica sportiva uno stato di benessere può dipendere dalla gestione delle emozioni. Lo scopo del presente studio è stato quello di analizzare la relazione tra il tipo di esercizio fisico e l'alessitimia. Per lo studio sono stati analizzati tre gruppi di persone: praticanti di triathlon, persone che praticano il Tai Chi e persone sedentarie. Tutti i partecipanti sono stati sottoposti a una valutazione sia del livello di attività fisica che dell'alessitimia. I risultati mostrano che un maggior numero di atleti con alessitimia pratica esercizi ad alta intensità. Sembra quindi esistere un'associazione tra alessitimia e dipendenza da esercizio fisico. Attraverso l'esercizio agonistico, gli atleti possono superare sfide difficili impiegando le risorse cognitive su fattori esterni, senza focalizzare l'attenzione verso l'interno. Da questo studio emerge una domanda: l'alessitimia è un fattore determinante nella scelta di uno specifico tipo di attività fisica, oppure l'alessitimia potrebbe essere innescata dal sovrallenamento? Questo aspetto potrebbe essere indagato in studi futuri, che potrebbero approfondire la relazione tra l'orientamento alla scelta di uno sport specifico e l'alessitimia.

Parole chiave: dipendenza da esercizio; regolazione delle emozioni; tai chi; triathlon.

1. Introduction

Several scientific evidences have shown that physical exercise, especially when practised regularly, has positive effects on people's physical and mental health (Liparoti, 2021; Mandolesi et al., 2018). The World Health Organisation (WHO) has issued guidelines on the minimum level of physical activity required to achieve health benefits, taking into account age and different physical conditions (World Health Organization, 2019). Specifically, at least 150-200 minutes of moderate-intensity aerobic exercise, or at least 75-150 minutes of vigorous-intensity aerobic exercise, or a combination of these activities, per week, is recommended for persons aged 18-64, in absence of specific pathological conditions. However, it should be pointed out that, when physical exercise becomes excessive, it can lead to a pathological condition known as *exercise addiction* (Weinstein & Weinstein, 2014), which is responsible for the implementation of compulsive exercise patterns that may evolve with harmful consequences for physical and mental health (Lichtenstein, Melin, Szabo, & Holm, 2021). Here, it is explored the interplay between risk and protective factors induced by exercise, with a particular focus on the role of emotions.

Managing one's emotions during a sports performance is a very important skill for athletes. An athlete who is able to manage his/her emotions, adapts to the surrounding environment and respond promptly to constant challenges, expresses a great capacity for resilience and mental resistance (Liparoti, 2021). One of the most studied emotions in sport is anxiety, which can be described as an unpleasant psychological condition induced by the perception of a stressful condition when performing a task (Ford, Ildefonso, Jones, & Arvinen-Barrow, 2017). Commonly, two main components of anxiety are recognised: cognitive (characterised by worrisome thoughts) and somatic (characterised by physical and physiological involvement). Anxiety may be a stable part of the personality or be linked to a temporary condition, and it is often characterised by a series of physiological, behavioural and cognitive signs and symptoms. Although the concept of anxiety is often used with a negative exception, in the sport contexts this emotion can influence sports performance in a negative or positive way. Indeed, the stressful condition of the competitive environment may be beneficial effects for alexithymic people.

Alexithymia (Hogeveen & Grafman, 2021) represents the inability to describe and recognise one's emotions and this inability is cognitively susceptible to a condition of passivity and poor imagination. Indeed, according to the Toronto theoretical model (Bagby, Taylor, & Ryan, 1986), alexithymia represents reduced emotional awareness, reduced expression of emotions and a tendency to avoid internal affect-related thinking and an outwardly oriented thinking. In the absence of a declared neurological or psychiatric conditions, alexithymia does not change over the course of a lifetime, therefore it has been recognised as a personality trait. Several studies have found that alexithymia has a negative impact on treatment outcomes for anxiety and mood disorders (Hogeveen & Grafman, 2021). Furthermore, alexithymia appears to be associated with addictive behaviour. Although alexithymia is described as a negative state, unexpectedly this condition may be an advantage for alexithymic athletes, who may feel attracted to a competitive condition and may be able to manage anxiety. The idea that the performance of alexithymic athletes may be less affected by high levels of anxiety is interesting, which is why the relationship between alexithymia and physical activity is a topic of great scientific relevance.

The aim of this work was to assess the relationship between alexithymia and type of physical activity. For this purpose, two groups of people who practise sport (a group of tai chi practitioners and a group of people who practise triathlon) were recruited and compared

to a control group of people who do not practise physical activity. Physical activity levels were assessed in the three groups and an alexithymia assessment was carried out.

2. Methods

2.1. Population

11 Triathlon athletes, 11 TC practitioners and 11 age-matched naïve control groups were recruited. All participants were aged >18 years and participated voluntarily in this study. For the study the following inclusion criteria were considered: participants with normal cognitive condition as indicated by the Mini-Mental State Examination score of ≥ 26 (Folstein, Folstein, & McHugh, 1975); any neurological and psychiatric diseases; any anxiety symptoms as indicated by Hamilton Anxiety Scale scores (Hamilton, 1959) and any history of drug or alcohol abuse. Written informed consent was obtained from all participants. The study was approved by the local Ethic Committee. Written informed consent was obtained from all subjects prior to participation.

2.2. Examination

The International Physical Activity Questionnaire (IPAQ) (Lee, Macfarlane, Lam, & Stewart, 2011) was used to assess the level of physical activity. In particular the 31-item long form (IPAQ-LF) was used to record information on levels of intensity of physical activity practised.

The cognitive assessments were carried out through the Twenty-Item Toronto Alexithymia Scale (TAS-20) (Bagby et al., 1986). TAS-20 is a self-report questionnaire that assesses Alexithymia, which is composed by 20-item scored on a five-point Likert scale from one (strongly disagree) to five (strongly agree). This examination provides a measure of the difficulty identifying feelings, difficulty describing feelings, and externally oriented thinking. The total alexithymia score is the sum of the responses to all 20-items. The TAS-20 uses a cut-off score: equal to or below 51=non-alexithymia, equal to or above 61=alexithymia. Scores 52 to 60=possible alexithymia.

2.3. Statistical analysis

Statistical analysis was performed using MATLAB (Mathworks®, version R2013a). The normal distribution of variables was checked with the Shapiro-Wilk test. In order to compare the psychological scores of three groups, the analysis of variance (Anova) was performed, followed by post-hoc analysis between groups using a paired sample t test. All the p values were corrected for multiple comparisons using the false discovery rate (FDR) (Benjamini & Hochberg, 1995). The statistical significance was defined as $p < 0.05$.

3. Results

The Anova analysis showed a significant difference of the TAS-20 score ($F=2,30=6.333$, $p=0.005$, $pFDR=0.030$) among groups. In detail, the post hoc analysis showed significantly higher scores of TAS-20 score triathlon athletes with respect to Tai Chi practitioners' groups ($p=0.022$) the control naïve ($p=0.007$).

4. Discussion

The aim of the present study was to investigate the relationship between alexithymia and physical exercise. From the numerous studies in the literature, it is known that regular exercise is a determining factor for a state of physical and mental well-being, in fact the cognitive, affective, relational and social benefits are well documented (Liparoti, 2021; Liparoti & Minino, 2021; Lista & Sorrentino, 2010; Mandolesi et al., 2018). However, it is known that excessive physical exercise is linked to addictive behaviour that is characterised by the presence of numerous psychophysical problems such as overtraining, sleep disorders, and irritability (Weinstein & Weinstein, 2014). Nevertheless, in such sports contexts, certain stress conditions can also influence sports performance in a positive way. In particular, the stressful condition of the competitive environment may have positive effects on the performance of alexithymic persons. Considering that the personality of the individual plays a key role in successful sports performance, it is necessary to clarify the relationship between alexithymia and exercise.

Our study showed a higher number of alexithymic athletes in high-intensity physical exercise compared to moderate physical exercise and non-exercisers. The relationship between alexithymia and exercise has been the subject of several scientific studies (Barlow et al., 2015), which have shown that alexithymia can be detrimental to sports performance. However, it would be reductive to think that people who manifest an inability to manage their emotions, and alexithymic people in particular, may be less resilient and capable of handling a stressful situation such as a sports context. Paradoxically, the stressful nature of the competitive environment could become an advantage for people with alexithymia, allowing them to be attracted to competitions. This supports the idea that alexithymia can be observed in contexts of high-level sports competition (Manfredi & Gambarini, 2015; Woodman, Cazenave, & Le Scanff, 2008). People with alexithymia may have a particular propensity for specific physical activities in order to find a way to express their need. Through competitive competition, athletes can overcome difficult challenges by harnessing their energy and physical abilities, while at the same time employing cognitive resources to constantly adapt to new environmental demands, trying to be cognitively creative and flexible. Competitive environments in which the athlete experiences a high-risk condition would offer advantages in emotion regulation (Barlow et al., 2015). Thus, Intensive training would enable alexithymic practitioners to regulate their emotions. In fact, competitive sports practice has a very important impact on daily lifestyle. Competitive sports require an intended workout every day and, above all, it requires the ability to challenge oneself and exceed one's limits. Through the experience of sports, alexithymic athletes tend to avoid unwanted thoughts and feelings, and as an emotion regulation strategy they manifest a greater propensity for the expression of risky behaviours. It is interesting to note that two very different groups of sports were considered in this study, both in terms of the intensity of physical activity and the aspects that characterise them, i.e. Triathlon and Tai Chi. Triathlon is a high-intensity activity and involves the performance of different activities (running, swimming and cycling). In contrast, Tai Chi is a multimodal activity that involves not only physical training but also cognitive involvement (Liparoti, 2021). Tai chi is known to be a meditation in motion (Robins, Elswick, & McCain, 2012). Several studies show that practicing meditation results in an improvement in people's mental and physical well-being and induces an increase in interceptive and body awareness (Wang et al., 2014). So, the practice of Tai Chi, including characteristic components of meditation could act positively on emotion management.

The present study shows a higher score of alexithymia in people who practise Triathlon than in those who practise Tai Chi and in controls who do not practise any physical activity. As in our case, other studies have found a prevalence of alexithymia in people who participate in sport at a competitive level (Proença Lopes et al., 2022; Top & Akil, 2021). These evidences, in addition to emphasising the fact that alexithymia is not only linked to extreme sports, highlighted a very important aspect, that is, sports practiced at a certain level can be a strategy to satisfy or express through the body their needs. In this point of view, the body assumes a fundamental role in the alexithymia. The body becomes the tool for working on emotions and self-awareness, moving from abstract and introspective thinking to concrete and embodied thinking. Furthermore, it has been hypothesised that people who practise amateur activities have a greater propensity for avoidance, understood as the inability to concentrate on themselves and their emotions by displaying a low profile of self-awareness. Consequently, the choice to engage in extreme or competitive sport can be interpreted in a constructive manner.

A reflection and question shared by many studies is: is alexithymia a determinate factor in the choice of a specific type of physical activity? or could the condition of alexithymia be triggered by overtraining? These questions are also shared by other authors. The relationship between alexithymia, sport and emotion management could be explained through a theory in which the role of the family in the choice of sport to play as a child is contemplated (Top & Akil, 2021). In particular, a study conducted by Top and Akil (ibidem) observed that the level of alexithymia and the family environment can influence children's orientation towards sport. Parents with alexithymia have difficulty recognising their own and others' emotions, and consequently tend to have difficulty providing adequate support for their children. Consequently, children are often guided towards choosing a sport as a useful strategy for feeling and experiencing their emotions in a conscious manner. Usually, the recommended sports are competitive and competitive sports, this would justify the high number of alexithymic persons who engage in competitive physical activity.

Is this strategy really effective? Certainly, there is still much to be discovered and investigated about the relationship between alexithymia and sport, and we do not know whether the parental influence theory is really behind the choice of a sport. However, it must also be considered that although parental influence carries more weight, the school environment can also influence the ability to recognise one's own and others' emotions (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). The school environment in fact represents a space dedicated to the education of emotions and feelings. From this point of view, the teacher plays a fundamental role in preventing avoidance or antisocial behaviour. The teacher, by means of pedagogical proposals concerning the sphere of the self, could positively influence the ability to recognise one's own emotions, which could lead children to choose the sporting activity to play regardless of their ability to manage their emotions.

In summary, although there is a great deal of evidence investigating the relationship between alexithymia and sport, the relationship between competitive or risk sports and alexithymia is still unclear, and how possible educational strategies could influence both the management of emotions and the choice of sport to play. This topic could be focused on by future studies that could investigate in depth the orientation to the choice of a specific sport.

6. Conclusion

In summary, this study aimed to investigate the relationship between alexithymia and physical exercise. The study found a higher prevalence of alexithymia in the group of people who exercise at high intensity than in those who exercise moderately or are sedentary. Possibly, high-intensity physical activity can be interpreted as an advantage for people with alexithymia, as the competitive context favours better management of their needs. Future studies could investigate the relationship between orientation towards the choice of a specific sport and alexithymia.

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