

# PLAYwithHEART: Study protocol to test the efficacy of a mindfulness, acceptance and compassion-based programme for adolescent athletes

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## Abstract

Some studies have documented that athletes experience mental health challenges associated with the practice of sports. There is evidence of the benefits of mindfulness, acceptance, and compassion skills in athletes. The contribution of these processes has never been tested in an integrated and structured way. In this protocol, we aim to describe a controlled non-randomized trial to test a new integrative intervention based on contextual-behavioral therapies for adolescent athletes: the PLAYwithHEART programme. This trial is registered at ClinicalTrials.gov (Identifier: NCT04850872). The PLAYwithHEART programme will comprise eight weekly sessions (of about 45 minutes each) directed towards adolescent athletes. The PLAYwithHEART programme's structure and contents are presented in this protocol. Athletes will be recruited through contact with sport clubs in Portugal. A total of 189 participants will be selected and assigned to one of two conditions: experimental group (who will participate in the programme) or control group (in the waitlist control condition). Outcome measure-

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ment will be conducted at baseline, post-intervention, and at six-month follow-up. This programme aims to decrease the levels of anxiety in sport and increase the quality of life of athletes, by promoting skills such as mindfulness, acceptance, and self-compassion, and decreasing levels of shame and self-criticism, to deal with the challenges and demands of sport contexts. Results will contribute to reaching an optimized intervention for athletes.

**Keywords:** PLAYwithHEART; adolescent athletes; acceptance, mindfulness and compassion-based group intervention; sports anxiety; quality of life.

**PLAYwithHEART: Estudo de protocolo para testar a eficácia de um programa baseado no mindfulness, aceitação e compaixão para atletas adolescentes**

### Resumo

Estudos recentes documentaram um aumento em diferentes indicadores de psicopatologia associado à prática desportiva. A literatura tem mostrado os benefícios das competências de mindfulness, aceitação e compaixão na prática desportiva. No entanto, o contributo destes processos nunca foi testado de forma integradora e estruturada. Neste protocolo, pretende-se descrever um estudo quase-experimental que tem como objetivo o desenvolvimento e teste de eficácia do programa PLAYwithHEART, baseado nas terapias contextuais em atletas adolescentes. Este programa é constituído por oito sessões semanais de 45 minutos cada. De forma a analisar a eficácia do programa de intervenção, será conduzido um estudo não randomizado controlado com lista de espera (grupo controlo vs. grupo experimental). Um total de 189 participantes serão recrutados através do contacto com clubes desportivos portugueses e responderão a três momentos de avaliação. O presente estudo está registado na plataforma Clinical-Trials.gov (NCT04850872). O programa PLAYwithHEART visa diminuir os níveis de ansiedade desportiva e aumentar a qualidade de vida dos atletas, através da promoção de competências como o mindfulness, a aceitação e a auto-compaixão, e da diminuição dos níveis de vergonha e autocriticismo, para lidar com os desafios do contexto desportivo. Este estudo poderá ter implicações práticas que poderão contribuir para o reconhecimento do desporto como contexto de oportunidade para a promoção da saúde e bem-estar.

**Palavras-chave:** PLAYwithHEART; atletas adolescentes; programa baseado no mindfulness, aceitação e compaixão; ansiedade desportiva; qualidade de vida.

## INTRODUCTION

From the perspective of public health and preventive medicine, the regular practice of physical exercise during childhood and adolescence is considered essential for the promotion of health throughout life (Biddle, 2016; Pate et al., 2000; Snyder et al., 2010; Tammelin et al., 2003; Valois et al., 2004). The World Health Organization (WHO, 2003) and the European Union (European Commission, 2007) have emphasized the need for greater investment in strategies to encourage the practice of physical exercise at an early age. Taking into account that physical exercise is increasingly conducted in an organized manner, the role of sport in society has become increasingly relevant over the years, not only for individual but also for public health (e.g., Malm et al., 2019). However, some studies have documented an increase in different indicators of psychopathology (e.g., depressive and/or anxiety symptoms, feelings of inferiority/shame) associated with the practice of sports (Cruz, 1996; Fontana, 2015; Patel & Luckstead, 2000; Teques et al., 2019), regardless of gender, age, type of sport, or competitive level (Cruz, 1986).

The pressure exerted to obtain high performances may explain an increase in stress and anxiety in sports performance (e.g., Correia & Rosado, 2018), an experience that may contribute to the abandonment of sports (Scanlan et al., 2005). Indeed, sports can be experienced as a pleasant and challenging activity or as a threatening and even aversive situation (Araújo & Gomes, 2005).

Concerns about failure in sports (e.g., making mistakes, losing, being criticized) are considered the most prevalent sources of worry for athletes, since success in sports is perceived as central to their recognition (Martens et al., 1990; Smith, 1989). The search for social approval/recognition and the need to achieve certain performances/goals can trigger behaviours of social comparison, and self-criticism in athletes, associated with the experience of shame and inferiority and, consequently, the impoverishment of well-being (Walton et al., 2020). Although many athletes believe that self-criticism is essential to their sporting success (Sutherland et al., 2014), empirical evidence has shown that self-criticism is associated with negative outcomes. Recent studies have demonstrated significant associations between higher levels of shame and self-criticism with lower levels of psychological quality of life (Oliveira et al., 2021a, 2021c) and with higher levels of anxiety and depression in athletes (Oliveira et al., 2021b). Given that sport is essentially an arena for competition, it is likely that conditions relating to social rank (how one sees themselves in comparison to others) may assume a key role in contributing to mental health and well-being (Walton et al., 2020).

Certain competitive contexts, guided by the requirement of high performances, seem to promote the development of a social ranking mentality (Gilbert, 2000).

From this perspective, self-criticism (attitude of self-condemnation or negative judgment activated in situations of failure/mistakes), and shame (feelings of devaluation/inferiority) may be triggered by the perceived failures of athletes who may assume that failures/errors reveal lack of aptitude/capacity and/or personal value to others (e.g., parents, peers, and coaches; Brown et al., 2017; Gilbert, 2000; Vilela & Gomes, 2015). These environments may lead to increased levels of stress and anxiety in sport, associated with emotional/physical exhaustion, devaluation of the practice of sports, and decreased quality of life (Correia & Rosado, 2018; Vilela & Gomes, 2015).

Most of the psychological interventions designed for athletes have been based on traditional psychological skills training (PST), which has been applied to develop increased self-control over internal processes aimed at performance enhancement (Gustafsson et al. 2017). However, literature has indicated that these traditional PST interventions have not received sufficient efficacy standing despite 30 years of research. Also, studies evaluating the mechanisms by which optimal performance actually occurs suggest a very different finding than would be predicted by the theoretical model from which PST interventions have been devised (Gardner & Moore, 2004, 2006). Therefore, several researchers have discussed the effectiveness of these control strategies by pointing out that athletes still seem to experience difficulties in employing traditional psychological skills training-related techniques (Birrer et al. 2012; Gardner & Moore, 2007; Moore, 2009). In order to answer these issues, during the last decade, different programmes based on contextual-behavioral therapies have been developed. Programmes such as Mindfulness-Acceptance-Commitment (MAC); Mindfulness Sport Performance Enhancement (MSPE); Mindfulness Meditation Training for Sport (MMTS) have been developed for application in the sports context to promote attention to the present moment, and the acceptance of internal states in a non-judgmental way (Baltzell & Akhtar, 2014; Josefsson et al., 2019; Kaufman et al., 2009). These interventions have a different perspective to PST, since they propose that optimal performance does not require the reduction or control of internal states but, rather, requires a nonjudging moment-to-moment awareness and acceptance of one's internal state, whatever that may be, and an attentional focus on task-relevant external stimuli and behavioral choices that support one's athletic endeavor (Moore, 2009). These interventions are conceptually based on the definition of mindfulness, which refers to a quality of awareness that objectifies the contents of internal and external experiences, promoting greater interest, clarity, and tolerance towards that content (Baltzell & Summers, 2016; Kabat-Zinn, 1994). In parallel, there is empirical support for mindful-acceptance approaches as well as for those based on Acceptance and Commitment Therapy (Noetel et al., 2019). These programmes based on Mindfulness and Acceptance and Commitment

Therapy (ACT) have shown promising results, essentially in increasing the pleasure of the sporting experience, in the improvement of the practice/training, in the optimization of performance, as well as in the improvement of the well-being of the athletes (Baltzell & Akhtar, 2014; Josefsson et al., 2019; Kaufman et al., 2009; Moore, 2009; Scott-Hamilton et al., 2016; Vilela & Gomes, 2015).

Furthermore, there has been a growing interest in the study of compassion in the sport context. Compassion can be understood as the capacity to be attuned and emotionally moved by one's own or someone else's suffering, as well as the capacity of taking actions which give support. Compassion refers to a complex process that is innate, determined in part by individual traits, and moderated by different unconscious and conscious factors, context, social structures and expectations, and culture (Lown, 2015). Therefore, despite the fact that human beings are born with the capacity for compassion, this capacity may be suppressed depending on these factors (Lown, 2015). However, compassion can be learned. In fact, everyone can learn to deepen this capacity and train to regulate negative affect (Gilbert, 2015). Therefore, these capacities could be beneficial in the context of sport. A number of studies have explored the role of self-compassion within recreational and elite athletes. Self-compassion has been linked with different beneficial factors in sport, including increased well-being and reduced body image concerns, fear of failure, and fear of negative evaluation (Eke et al., 2019; Ferguson et al., 2014, 2015; Mosewich et al., 2011; Reis et al., 2019). Also, athletes who revealed higher levels of self-compassion have presented more positive and facilitative responses, and less negative responses to hypothetical, imagined or real negative sporting scenarios (Barczak & Eklund, 2018; Ferguson et al., 2015; Reis et al., 2015, 2019). Ceccarelli et al. (2019) demonstrated that athletes with lower self-compassion revealed a high heart rate variability reactivity when recalling a stressful sporting situation, in comparison to athletes with greater self-compassion who showed a more regulated autonomic profile (greater parasympathetic nervous system activity). Mosewich et al. (2013) developed an intervention focused on promoting self-compassion as an adaptive emotional regulation strategy in the face of negative events in the context of sport. Preliminary data suggest that the promotion of compassion contributed to an increase in performance, as well as to a well-being in sports (Carraça et al., 2019; Killham et al., 2018; Mosewich et al., 2013).

In summary, literature has suggested that several skills (eg., acceptance, mindfulness, and self-compassion) associated with contextual-behavioral therapies can play a relevant role in the quality of life and well-being of athletes, who can experience sport as a threatening and stressful activity. The integration of self-compassion components in ACT and mindfulness-based interventions has been an emerging research topic during the past decade, since these approaches are considered to be

compatible and complementary (Neff & Dahm, 2015; Neff & Tirch, 2013; Yadavaia et al., 2014). In fact, ACT, mindfulness, and compassion-based interventions, despite different approaches, share common components, all ultimately aiming to promote a more conscious, clear, kind, non-evaluative relationship with our own experience and that of others (Neff & Dahm, 2015).

Therefore, previous studies have shown the benefits of mindfulness, acceptance, and compassion skills in sports. However, the contribution of these processes has never been tested in an integrated and structured way, and research in adolescents is still scarce. The relevance of these interventions for the valorization of sports practice and the well-being of athletes is recognized, however, there is a lack of such programmes in Portugal, especially in adolescents (Carraça et al., 2018).

### *Aims*

The purpose of this study is to describe a two-arm controlled non-randomized trial to test the efficacy of a new integrative intervention based on contextual-behavioural therapies (Mindfulness, Acceptance and Compassion-based therapy): the PLAYwithHEART (PLAY with Happiness, Engagement, Acceptance, and Respect with your Team) Programme.

PLAYwithHEART is an innovative manualized programme for the promotion of acceptance, cooperation, and pro-social skills for adolescent athletes. PLAYwithHEART aims to decrease the levels of sports anxiety and increase athletes' quality of life, by promoting skills inherent to an affiliative mentality (social safeness, mindfulness, acceptance, and compassion), as an alternative to a ranking social mentality (based on maladaptive processes, such as shame, and self-criticism), to deal with the challenges and demands of the sports context. The contents of the PLAYwithHEART and the design of the trial are presented in this study.

## **METHOD**

This study is funded by the Portuguese Foundation for Science and Technology and is registered at ClinicalTrials.gov (Identifier: NCT04850872). The planning and implementation were carried out per ethical recommendations outlined by the American Psychological Association (2010) and the World Medical Association's Declaration of Helsinki (WMA, 2013). Ethical approval has been obtained from the Ethics Committee of the Faculty of Psychology and Education Sciences of the University of Coimbra.

### *Participants' recruitment and selection*

Participants will be recruited between July 2021 and September 2022. The participants will be recruited from contacts that will be made through different sports clubs in Portugal. If sport managers of the clubs are interested in this study, the research/psychologist will provide detailed information about the aims, procedures, and voluntary and confidential nature of the study to athletes and their parents/legal tutors. Subsequently, all the parents/legal tutors and young athletes who agree to participate in this study will give written informed consent.

Participants will be screened by a psychologist/researcher through a brief interview, that ensures they meet the inclusion criteria in the programme. Participants are eligible to integrate this study if they meet the following inclusion criteria: a) are aged between 12 and 18; b) practice a competitive sport; c) give their informed consent and have the consent of their legal tutors; d) can read and write Portuguese; e) are available to participate in the eight sessions of the PLAYwithHEART Programme. Also, participants are not eligible to integrate this study if they have the following exclusion criteria: a) existence of cognitive difficulties that interfere in completing the self-answer measures; and b) being under psychological/psychiatric accompaniment.

### *Sample Size*

Results from G\*Power calculations for repeated measures analysis, assuming a  $p$ -value = .05, an effect size of  $f = .25$ , with a statistical power of .85, two groups, and three measurements, recommend a sample size of 178. Giving the 20% drop-out rate, the total sample size to be collected will be 189 (each group will be composed of 95 participants).

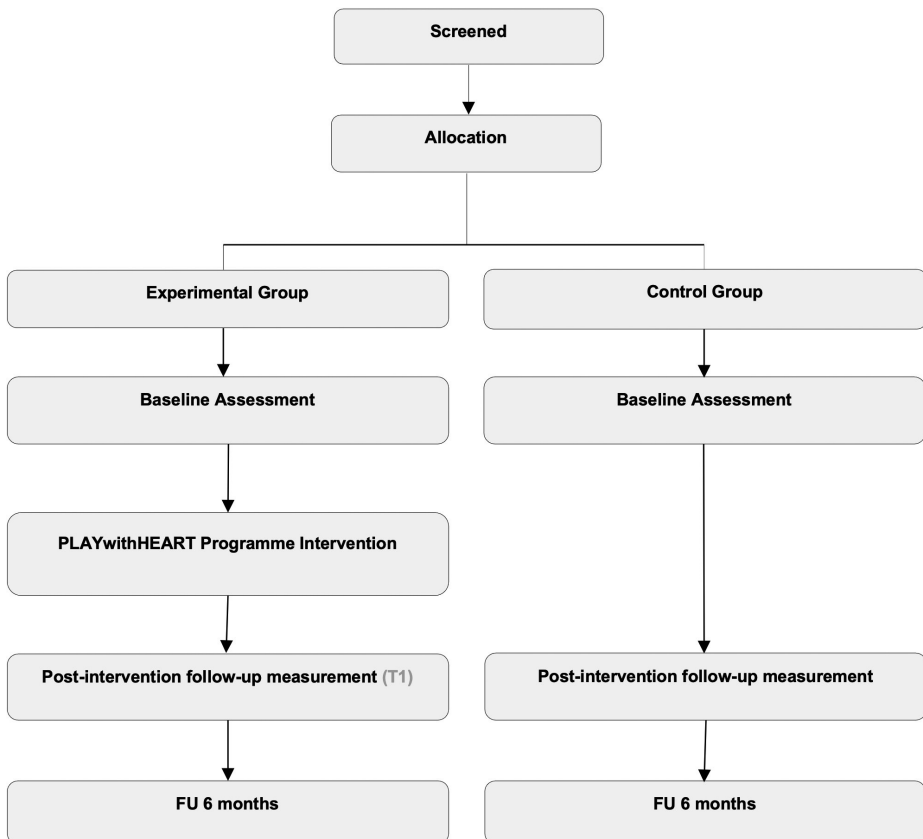
### *Allocation of participants*

Participants will be allocated to one of two conditions: experimental condition (participants will receive the PLAYwithHEART intervention programme), and control condition (participants will not receive other intervention and will be on the waiting list to receive the PLAYwithHEART Programme). Groups will be composed, on average, by ten participants. As a result of restrictions due to training schedules and sports venues, participants cannot be randomly assigned to the groups. Instead, athletes will be distributed among groups according to the

sport practiced and the respective training schedules. Regarding the allocation of the participants, athletes interested in the PLAYwithHEART Programme will be allocated to the experimental vs. control group depending on the availability of the program facilitators and the availability of athletes' schedules to participate in the programme. Participants in the experimental condition will then receive the PLAYwithHEART intervention programme, and they will be asked to complete pre-intervention questionnaires (M0). The control group will only fill in the questionnaires and will receive the intervention after the experimental group. Figure 1 shows the expected flow of participants through the study.

**Figure 1.**

Flow diagram of the study designed to assess the efficacy of the PLAYwithHEART.





## *Intervention Development*

### *The PLAYwithHEART Programme*

The PLAYwithHEART intervention programme will be developed by the psychologist members of the current research team, taking into consideration the literature related to mindfulness-based interventions, ACT, and self-compassion interventions directed to athletes.

The PLAYwithHEART is a manualized, group-based intervention comprising eight weekly sessions, of about 45 minutes each, to be delivered to adolescent competitive athletes by certified psychologists with clinical experience in contextual-behavioral therapies. The duration of the sessions was stipulated by taking into account the relevant recommendations in literature (Visek et al., 2013) and evidence-based interventions previously conducted with athletes (Baltzell & Akhtar, 2014; Bernier et al., 2014; Lundgren et al., 2021; Terzioğlu et al., 2020). In this intervention programme, participants will be invited to perform tasks between sessions (usually, these tasks involve meditative practices with audio guides specifically recorded for this intervention). These tasks should be individually performed by participants ideally daily.

Overall, the PLAYwithHEART Programme focuses on ACT topics such as acceptance of internal experiences, values, and committed action (Hayes et al., 2012); on mindfulness practices (e.g., Kabat-Zinn, 1994), as well as on compassion-based approaches (Gilbert, 2009; Neff & Germer, 2013). In each session, participants are invited to engage in experiential exercises, mindfulness, and compassion meditation practices, and discuss their experiences and difficulties in the group. The first session aims to present the intervention's objectives and structure, allow participants to introduce themselves, have a sense of common difficulties (promoting group cohesion). In this session, the programme facilitators discuss the preconceived idea of the meaning of a mentally strong athlete with the participants (an athlete who does not feel anxiety, fear of failure, or who does not feel insecure before competitions vs. an athlete who feels these unpleasant emotions and thoughts but faces them instead of trying to control or avoid them), foster creative hopelessness, and offer mindfulness as a different way of facing difficulties. Furthermore, in this session, each participant is given the Participants' Manual encompassing information to complement the sessions and exercises. The following sessions present a similar structure: each session begins with a guided meditation, a review of participants' between-session assignments (whether they encountered obstacles with the practices/exercises, what was their experience), an introduction to the session's topics, and

in-session experiential exercises (real-life examples and metaphors are designed to facilitate the participants' practice and reinforcement of engaging in the skill addressed in the session), and ends with a meditation practice. The tasks between sessions are in line with the topics explored in each session and include informal practices aiming to integrate mindful awareness into everyday activities. Each session has a tittle that corresponds to a sports slogan so participants can quickly identify the theme addressed in the session. An overview of the intervention is presented in Table 1.

**Table 1.**  
*Overview of the PLAYwithHEART intervention.*

Session	Topics/Aims	In-session exercises/metaphors	Between-session assignments
<b>1. Yesterday you said tomorrow</b>	<ul style="list-style-type: none"> <li>- Introduction of the participants to the PLAYwithHEART Programme;</li> <li>- Identification of common difficulties and promotion of creative hopelessness;</li> <li>- Mindfulness as an alternative strategy to deal with difficulties.</li> </ul>	<ul style="list-style-type: none"> <li>The skittles game</li> <li>Redirecting the focus of attention</li> <li>Mindful eating (gums)</li> </ul>	Informal mindfulness
<b>2. If you have a body, you are an athlete</b>	<ul style="list-style-type: none"> <li>- Promote awareness about autopilot and recognize an alternative: Mindfulness;</li> <li>- Recognize that there are common patterns of expression of emotions;</li> <li>- Promote attention to body cues in order to recognize emotions;</li> <li>- Understand the bidirectional mind-body relationship.</li> </ul>	<ul style="list-style-type: none"> <li>Diaphragmatic breathing</li> <li>Exercise "Keeping the body in the mind"</li> <li>Body scan practice</li> </ul>	Diaphragmatic breathing and/or Body scan practice Liberator of habits
<b>3. Life is a sport make it count</b>	<ul style="list-style-type: none"> <li>- Understand the evolutionary perspective of the functioning of the mind;</li> <li>- Understand the protective function of emotions;</li> <li>- Understand the functioning of affect regulation systems and the importance of their balance.</li> </ul>	<ul style="list-style-type: none"> <li>Mindfulness of music</li> <li>Exercise "Activate the System"</li> <li>Diaphragmatic breathing</li> </ul>	Mindfulness of sounds Exercise "Pay attention to emotions"

**Table 1. (continued)***Overview of the PLAYwithHEART intervention.*

<b>4. Just do it!</b>	<ul style="list-style-type: none"> <li>- Understand and identify life values;</li> <li>- Identify actions committed to life values and barriers towards them;</li> <li>- Understand that although living a valued life is not easy, obstacles do not have to prevent living our values.</li> </ul>	<p>Meditation: Here and now ball</p> <p>The party exercise</p> <p>The Bull's Eye exercise</p> <p>Metaphor "Wade Through the Swamp"</p> <p>Diaphragmatic breathing</p>	<p>Diaphragmatic breathing</p>
<b>5. Run the day - Don't let it run you</b>	<ul style="list-style-type: none"> <li>- Explore and understand key concepts of cognitive fusion and defusion;</li> <li>- Recognize that although the thought has enormous power in our behaviour, it does not control it.</li> </ul>	<p>Meditation observation of thoughts</p> <p>"I can't walk across the room" exercise</p> <p>Exercise "Our chatty mind"</p> <p>Three-minute breathing space</p>	<p>Three-minute breathing space</p> <p>Exercise "Stay with your emotions"</p>
<b>6. Rewrite history. Redefine the position</b>	<ul style="list-style-type: none"> <li>- Understand the paradoxical effect of experiential avoidance;</li> <li>- Promote acceptance rather than control.</li> </ul>	<p>Meditation: The Sky and the Weather</p> <p>Armed man metaphor</p> <p>Chinese finger traps</p> <p>Mindfulness of acceptance</p>	<p>Meditation: The Sky and the Weather</p> <p>Reflection of the Harry Potter metaphor</p>
<b>7. Failure's not an option, it's a step</b>	<ul style="list-style-type: none"> <li>- Understand the concept of compassion and its importance in life in general and in the sport context;</li> <li>- Recognize self-critical discourse and rephrase for a more compassionate discourse.</li> </ul>	<p>Mindfulness practice</p> <p>"Everything we share" exercise</p> <p>Exercise "Paddles"</p> <p>Loving-Kindness practice</p>	<p>Loving-Kindness Practice</p> <p>Reflection on the phrase and video by Mickael Jordan</p>
<b>8. PLAYwith-HEART</b>	<ul style="list-style-type: none"> <li>- Promote self-compassion;</li> <li>- Promote compassion for others and understand its importance;</li> <li>- Summary of the intervention.</li> </ul>	<p>Meditation "A compassionate friend"</p> <p>Exercise of dyads</p> <p>Exercise "Let's go"</p>	

*Note.* Task meditations for the week should be performed at least once a day.

## *The PLAYwithHEART implementation*

### *Primary and secondary outcomes*

Before (T0) and after (T1) the intervention, and in the six-month (T2) follow-up, participants in the experimental condition and in the waiting-list control condition will be evaluated through self-report questionnaires. Only the research team will have access to the collected data. Each participant will have a code, in order to match the results in the various evaluation moments. Participants will provide sociodemographic and sport information and complete self-report measures to assess different outcomes (see Table 2).

### *Primary Outcomes*

#### *Sports Anxiety*

The multidimensional assessment of the competitive anxiety trait will be assessed through the Sport Anxiety Scale (SAS-2; Cruz & Gomes, 2007; Smith et al., 2006), consisting of 15 items that are divided into three subscales: somatic anxiety, worry, and concentration disturbance. Items are assessed using a scale of Likert ranging from 1 (*Never*) to 4 (*Almost always*). Lower scores in this scale mean a better outcome. The Cronbach's alpha values were satisfactory across all dimensions in the original and Portuguese versions (alpha values above .70).

#### *Quality of Life*

The quality of life will be assessed by the KIDSCREEN-10 (The KIDSCREEN Group Europe, 2006; Matos et al., 2012). KIDSCREEN-10 is a self-reported instrument that evaluates the quality of life-related to health in children and adolescents. This scale comprises ten items and higher scores indicate better quality of life. Participants are asked to answer all items on a 5-point scale (1 = *Never/not at all* to 5 = *Always*), with respect to the last week. The Cronbach's alpha value was satisfactory ( $\alpha = .78$ ).

## *Key mediators*

### *Mindfulness*

Mindfulness skills will be assessed by the Child and Adolescent Mindfulness Measure (CAMM; Cunha et al., 2013; Greco et al., 2011). CAMM comprises ten items that allow the assessment of mindfulness skills in children and adolescents. The items are answered according to a 5-point scale (0 = *Never* to 4 = *Always*). After the items are inverted, the higher the score, the more mindfulness skills the adolescents present. In the original and Portuguese versions, the total scores demonstrated a good internal consistency ( $\alpha = .80$ , in both versions).

### *Psychological Flexibility*

This outcome will be measured by the Avoidance and Fusion Questionnaire for Youth (AFQ-Y8; Cunha et al., 2021; Greco et al., 2008). AFQ-Y is a self-response instrument consisting of 8 items that assess psychological inflexibility engendered by cognitive fusion and experiential avoidance. According to the conceptual model that underlies it, psychological inflexibility results from the overlapping of cognitive fusion and experiential avoidance processes. Participants are asked to evaluate the veracity of each statement, on a 5-point scale (0 = *Not at all True* to 4 = *Very True*). Lower scores reveal greater psychological flexibility. This scale demonstrated good psychometric properties in the original version ( $\alpha = .83$ ) and in the Portuguese version ( $\alpha = .70$ ).

### *Self-compassion*

Self-compassion skills will be assessed by the Self-Compassion Scale (SCS; Cunha et al., 2016; Neff, 2003). SCS comprises 26 items and six subscales: Self-Kindness; Self-Judgement; Common Humanity; Isolation; Mindfulness; Over-Identification. Participants are instructed with the sentence “how I typically act towards myself in difficult times” and are asked to answer each item according to a 5-point scale (1 = *Almost Never* to 5 = *Almost Always*). Higher scores indicate greater self-compassion skills. This measure presented good psychometric properties in the original version ( $\alpha = .92$ ) and in the Portuguese version ( $\alpha = .80$ ).

### *Social Safeness*

This outcome will be assessed by the Social Safeness and Pleasure Scale-Athletes Version (SSPS; Gilbert et al., 2009; Pinto-Gouveia et al., 2008). An adapted athlete version of the Social Safeness and Pleasure Scale (SSPS-AV) will be used to measure participants' social safeness in the context of sport - athlete-related social safeness (sense of belonging, acceptance, and connectedness in their teammates' relationships). Regarding this version, only the instructions of the original scale will be changed. The SSPS is a self-report measure composed of 11 items designed to measure social safeness, i.e., the extent to which individuals feel a sense of acceptance and connectedness in their relationships. The response options are rated on a 5-point scale (1 = *Almost never* to 5 = *Almost all the time*). SSPS has shown good internal consistency in the original and Portuguese versions ( $\alpha = .92$ ,  $\alpha = .91$ , respectively).

### *Shame*

This outcome will be measured by the External and Internal Shame Scale for Adolescents (EISS-A; Cunha et al., 2020). This measure consists of eight items that assess external and internal shame, as well as a global sense of shame. The items are answered according to a 5-point scale (0 = *Never* to 4 = *Always*). The higher the score, the greater the global sense of shame. This measure revealed a good internal consistency, with a Cronbach alpha of .85 for the total scale, of .75 for the external shame subscale, and .79 for the internal shame subscale.

### *Self-criticism*

This outcome will be assessed by the Forms of Self-Criticizing & Self-Reassuring Scale-Athletes version (FSCRS; Gilbert et al., 2004; Silva & Salvador, 2010). An adapted version of the FSCRS will be used to assess participants' critical and self-reassuring responses when confronted with failures or setbacks in the context of sport. Regarding the original version, only initial instructions will be changed. FSCRS is a 22-item scale that comprises three subscales which measure: (1) inadequate-self; (2) hated-self; and (3) self-reassurance. Participants will be asked to answer all items following the statement "When things go wrong for me..." on a 5-point scale (0 = *Not at all like me* to 4 = *Extremely like me*). All subscales presented good psychometric properties in the original version (Cronbach's alphas ranged between .86 and .90) and in the Portuguese version (Cronbach's alphas ranged between .75 and .90). For the purpose of this study, only the self-criticism dimension (calculated from the sum of inadequate-self and hated-self subscales) will be used.

**Table 2.**  
*Schedule of Enrollment, Intervention, and Assessments.*

Timepoint	StudyPeriod				
	Enrollment	Allocation	Post-allocation		
	-t2	-t1	t0	t1	t2
Enrollment					
Informed consent of the athlete	x				
Informed consent of the legal guardian	x				
Eligibility screen	x				
Allocation		x			
Intervention					
PLAYwithHEART			x	x	x
Waiting list			x	x	x
Primary outcomes					
Quality of Life			x	x	x
Sports anxiety			x	x	x
Secondary outcomes					
Shame			x	x	x
Self-criticism			x	x	x
Mindfulness			x	x	x
Acceptance			x	x	x
Self-compassion			x	x	x
Social Safeness			x	x	x

## *Treatment*

### *Integrity*

Several aspects of treatment integrity guidelines will be followed during the development of the PLAYwithHEART intervention: (a) integrity was thought as an important part of the study, in which facilitators' competence was ensured by previous training in ACT and compassion-based approaches, as well as supervision throughout the intervention; (b) the intervention was developed having in mind issues of integrity, by including exercises and consistent informative texts, and facilitators' lines and tips in texts; and (c) at the end of the sessions, facilitators should complete a self-assessment table related to their performance in sessions.

### *Acceptability assessment*

Athletes in the experimental group will answer a questionnaire regarding the quality of the PLAYwithHEART intervention, the provided resources (audio files, participants manual), and participants' perceived change (e.g., sports anxiety, quality of life, ability to self-regulate emotions). The intervention's attrition will also be considered a measure of acceptability.

### *Feasibility assessment*

Feasibility of this study will be assessed by collecting data on the following: rate of completion of the intervention; carrying out the proposed activities for home; adherence rates; feasibility of testing procedures and data collection methods, including completion rates.

### *Statistical Analysis*

Data will be analyzed with the IBM SPSS Statistics v22.0 and the AMOS v22.0 softwares. The IBM SPSS will be used for preliminary analyses that compares groups on demographic and sports data, using independent samples t-tests or chi-square tests depending on the nature of the data. Groups will also be compared on the dependent variables at baseline using independent samples t-tests. In order to assess the association between the outcome measures, SPSS will also be used to perform Pearson correlations. AMOS will be used to assess individual variation in the growth of the dependent variables and examine if the intervention condition might predict changes in social safeness, mindfulness, psychological flexibility, and self-compassion over time, through Latent Variable Growth Curve Modeling.

## **DISCUSSION**

While there is growing interest in integrating different components of ACT and approaches based on mindfulness and compassion (Neff & Dahm, 2015; Neff & Tirch, 2013), even more research is needed on how these different, but related approaches can be integrated into comprehensive interventions.



The PLAYwithHEART Programme will be the first intervention for adolescent athletes, to our current knowledge, that incorporates mindfulness, acceptance, and compassion approaches in an integrated and structured way. The controlled non-randomized trial presented in this study protocol will provide data on the efficacy of this program. It is expected that the Experimental Group will present: lower levels of sports anxiety, and an improvement of quality of life; higher levels of mindfulness, acceptance, self-compassion, and social safeness; and lower levels of shame, self-criticism, compared to the Control Group. These results are expected to remain stable six months after the implementation of the programme.

The study's main strength is the feasibility and effectiveness analyses of an integrative and innovative programme for adolescent athletes. Also, the results of this study could allow to explore if PLAYwithHEART predicts changes in social safeness, mindfulness, psychological flexibility, and self-compassion over time. These processes could be crucial in decreasing sport anxiety and increasing quality of life in young athletes. However, one of the most significant challenges of this study will be the prevention of drop-outs. A strategic way of decreasing this risk will be to email participants with sticky notes between sessions. Also, due to the inactive nature of the control group, future studies should compare the intervention's efficacy to other psychological interventions tested in athletes, such as Cognitive and Behavioral Therapy and Model of Psychological Skills Training. Nevertheless, taking into account that this is the first time the PLAYwithHEART intervention will be tested, this programme may provide useful preliminary results on the effects of the intervention.

In conclusion, this programme meets the needs pointed out by WHO (2003), by contributing to the promotion of health and well-being in adolescence, a stage of development marked by multiple changes/challenges. Also, by focusing on the context of sport, it represents a contribution to the advancement of science, clarifying the role of emotional processes in the context of sport. The relevance of the PlaywithHEART is the valorization of sports practice and well-being of athletes. Also, although not a direct target of this project, it is expected that the promotion of skills of mindfulness, acceptance, and compassion and the reduction of anxiety is associated with better results in motivation, training practice, and performance of athletes. If effective, these results may contribute in reaching an optimized intervention for athletes, especially for adolescents.

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