Reintegration through sport

01

Empowering people in SUD recovery

Design and implement a Sport-based behavior change protocol for people under SUD recovery

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The role of sport in SUD recovery

Play, feel, meet, live

INTRODUCTION

The use of psychoactive substances has a significant negative influence on public health, with major consequences for the morbidity and death of individuals who are actively involved. The World Report on Drugs (2022) estimates that more than 5% of individuals worldwide have used psychoactive drugs at least once in their lifetimes, a 20% increase over the prior 10 years.

Opioids, particularly heroin, are the substances that have the greatest negative impact on the health of users. In 2021, 28 million years of "healthy life" are estimated to have been lost due to early mortality and disability as a result of drug use globally. Substance abuse and dependence have recently been included under the more general term "Substance Use Disorders". Each of the various theories that exist to explain drug use disorders—psychological, biological, sociological, economic, and sociocultural—offers crucial insights for the study of the problem.

Individuals living with SUD, frequently have one or more medical disorders, which greatly increases their death rates compared to the general population. According to the World Drug Report, drug use is considered to be the main means of spreading infectious illnesses, including AIDS and HIV, TB, and hepatitis B and C. Drug users, especially those who inject drugs, are at risk of contracting infectious infections since they share synergists or don't use condoms.

Addiction is the most serious SUD because it is characterized by uncontrolled and repeated use, which leads to a poor physical and emotional state. Addiction is a chronic, relapsing brain disorder that may be treated and recovered, according to medical standards. Addiction involves a combination of mechanisms in which environmental factors, situations, and personal characteristics interact to create conscious or unconscious motivations based on the pursuit of pleasure and satisfaction or the avoidance of intense discomfort.

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MODELING THE ADDICTION

The reward, motivation, memory, and associated circuitry of the brain are fundamentally and permanently altered by addiction. Failure of these circuits has observable bodily, psychological, social, and spiritual consequences. This is demonstrated by the person's usage of drugs and other behaviours for relief and/or enjoyment. As a result, a dysfunctional emotional reaction, impaired awareness of serious issues with one's conduct and interpersonal connections, and impairment in behavioural control are all signs of addiction.

The formation of addiction results from either a person's pre-existing traits or the acquisition of traits that, when combined with a particular set of environmental conditions, give rise to intense urges to engage in dangerous behavioral patterns. Addiction is the need for a person to continuously experience the high that the substance creates, which eventually leads to dependency. The various consequences that addiction has on a person's life are what define how severe the addiction is; substances alter a person's structure and function, resulting in long-term change that may result in harmful behaviours.

As a consequence, addiction shapes cognitive and behavioural dysfunctions, undermining thinking so that it is unrealistic or disorganized while gradually deconstructing individual values so that they are confused, nonexistent, or antisocial. A deeper investigation leads to the conclusion that addiction is an adapted behaviour of habit, motivation, and reward, both to avoid withdrawal symptoms and to enhance pleasure.

Exploring this two-way hedonic hypothesis is crucial to understanding how addiction develops because addictive substances are used to produce a highly pleasurable state that serves as both the initial and main motivation for use and to prevent unpleasant withdrawal symptoms or manage unpleasant emotions. Addiction, in general, entails learning associations between cues, responses, and powerful positive or negative reinforces.

Addiction is caused by the satisfaction and pleasure that the behavior (such as drug use) produces. Addiction includes a variety of mechanisms whereby external circumstances, psychological states, and personality traits combine in order to develop conscious and unconscious drives focused on seeking pleasure or satisfaction or avoiding discomfort. Higher levels of pleasure and satisfaction are linked to a higher likelihood of addiction. Physical or psychological needs arise as a result of engaging in addictive behavior, and the addictive behavior then satisfies these needs

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The DSM IV recognises poor decision-making as a major contributing factor and includes continued drug use despite knowledge of harmful consequences and lack of control over intake as diagnostic criteria for drug dependence. Decision-making skills are essential for the development and maintenance of addictive behaviours. Addiction involves rational decision-making that prioritises the advantages of the addicted behaviour over the disadvantages, often affected by emotional states. Individual drug use decisions and attitudes may explain a significant portion of the variability in potential addiction. In actuality, addicts decide to engage in addictive behaviour, and recovery involves choosing not to engage in it. The decision-making process always entails evaluating the benefits and costs, regardless of whether it is biased or rational.

Furthermore, the compromises in addiction might be due to an underlying lack of insight and self-awareness, which could be caused by abnormalities in specific brain areas. Addicts acquire addictive behaviours through mechanisms that shape human behaviours without conscious decisions or intentions which are influencing their capacity for self-regulation. As a result, addiction prevention and treatment may benefit by teaching practical decision-making approaches and adverse attitudes toward substances.

"Problem-solving ability" refers to the ability to address oneself to the successful resolution of real-life problem circumstances. An individual may either address an issue and make active attempts to fix it or avoid it and concentrate only on managing the emotions associated with it. Individuals can use drugs or alcohol as an avoidance strategy to solve common real-life problems, particularly those related to substance abuse. Lack of self-efficacy is one of the most powerful determinants of relapse in substance misuse.

Active engagement in problem-solving strategies enhances abstinence. Extending the behavioural repertoire and increasing the variety of problem-solving skills that may be applied in daily life should be among the treatment's primary goals. To assist the addict, develop habitual thinking about options, outcomes, resources, alternative perspectives, as well as the social influences on the addict's own choices, cognitive problem-solving skills are recommended.

Setting long-term goals may be compromised because drug use disorders are characterised by an inability to trade long-term pleasure for short-term satisfaction. Deficits in goal-setting may be the treatment's primary goal. Setting therapeutic goals with patients might be the initial practice in this skill-building process.

Social skills may be severely impaired in those with SUD. This is due to drug abuse producing long-term neurotoxic effects on the brain, mainly the prefrontal cortex . Depression, anxiety, and stress symptoms can make it difficult for individuals to express socially skilled repertoires, which has a negative effect on their quality of life. The culture of illegal drug use differs significantly from a more mainstream society in terms of illegitimate behaviours (such as prostitution, theft, and drug distribution) and the emphasis put on particular abilities (e.g., the necessary skills to conduct a drug trade).

Additionally, long-term drug users frequently have serious life consequences like unemployment, family problems, and a loss of social networks. Individuals with SUD have difficulties comprehending both interpersonal and intrapersonal emotions, which makes it harder for them to act correctly in social environments. More frequent and/or intense unpleasant emotions aren't always a bad thing; people who can control their emotions are less likely to incur negative consequences. In the field of substance abuse, emotional regulation disorders have been linked to both substances abuse and coping mechanisms.

It's likely that people who have more frequent and severe negative emotions abuse drugs as a coping mechanism since they can't regulate their feelings any other way. Studies have shown that emotional regulation deficits are both a cause of and a result of drug use, with emotional and interpersonal problems being a major factor in more than half of relapses during SUD treatment. The capacity to refuse and express negative feelings can significantly increase as a result of social skills training.

The shift in social and environmental settings associated with drug use vs. non-use presents a particular problem as a result. In this context and due to the fact that individuals with SUD have social skill impairments, social skills training has been recognized as an essential aspect of the recovery process.

High impulsivity appears to be linked to addiction. Impulsivity is a frequent phenomenon among addicts, both in substance-related and behavioural addictions, as they frequently act in ways that provide immediate rewards but in a harmful way. In this context, drug abusers have been found to have lower levels of conscientiousness. These findings support the idea that poor emotional management is linked to poor self - control and a higher likelihood of addiction.

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Addicts usually experience unpleasant withdrawal symptoms and overwhelming cravings that make it difficult for them to quit abstinence. Immediate impulses and cravings that underlie addictive behaviour, lead to the failure of an individual's strategies, skills, and capacity for self-control; this failure can be partially attributed to "ego depletion." Many addicts express all the characteristics necessary to control in or stop their addictive behaviour, yet they still feel overwhelmed.

Addiction involves, or at least begins with, imitation of behaviour patterns and assimilation of ideas and identities. An approach that interprets addiction is the investigation of the vulnerability that can arise from a lack of identity, that is, the image that the person has created for himself. In this regard, it should be emphasized that the individual's personality plays a decisive role in the development of addictive behaviors, as individual characteristics such as stimulation seeking, combined with insufficient impulse control, low self-esteem, and inability to cope of stress and anxiety, may contribute negatively in this direction .

It is particularly important to mention that, in many cases, addiction and substance use satisfy important pre-existing psychological needs (e.g. depression, anxiety, etc.), which are covered by addictive behaviors, in turn affecting both engagement as well as potential retention in treatment.

Finally, it would be remiss not to emphasize that, in the search for causes, research has also focused on investigating the genetic characteristics that may lead to addiction and dependence. Evidence suggests that people may inherit an increased likelihood (vulnerability) of developing addictive behaviors, with a family history of SUD being one of the strongest predictors of risk.

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MOTIVATION

It is widely accepted that SUD treatment is a behavioural change process in which individuals are assisted in coping with addiction, restoring their physical and psychological health and well-being, and attempting to reclaim their social functioning. As already mentioned, SUD has been characterized as a chronic condition that often includes occasional relapses. Consequently, treatment should be an ongoing process involving a variety of complementary behavior change interventions. An important factor that is a prerequisite for the successful change of addictive behavior, which acts as a "mediator" of therapeutic results, is the formation and strengthening of the motivation that will lead the addicted person to change.

Motivation leads individuals to resolve their ambivalence about making lifestyle changes, increasing the likelihood that they will commit to implementing a specific behavior change plan. Motivation is the key to changing substance use behavior and in SUD treatment is the focus of clinical interest. Motivation and readiness to change are consistently associated with increased help-seeking, adherence, and completion of SUD treatment. However, not all individuals enter treatment with the same level of motivation or problem severity. Consequently, understanding the role of motivation in SUD treatment is very important to better understand the risks of relapse and treatment retention. It is easy to conclude that motivation is a strong predictor of treatment outcomes as its lack is linked to the failure of addicted individuals to join and continue their therapeutic course.

However, for many years, motivation was approached as a static rather than a dynamic characteristic, that was exclusively associated with the individual and its own responsibility. This trend has tended to change in recent years, as SUD treatment counselors, utilizing motivational techniques and strategies, can lead individuals to positive change. Mobilization strategies are associated with greater treatment engagement as well as positive outcomes in health-related behavior change. Today, SUD therapy focuses on strengthening individuals' skills and abilities and supporting the enhancement of their motivation, to increase the likelihood that they will commit to a specific behavior change plan.

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SUD Recovery Capital

Components of recovery capital:

Social capital is defined as the sum of resources that each person has because of their relationships and includes both support from and obligations to groups to which they belong; thus, family membership provides support but will also entail commitments and obligations to the other family members.

Physical capital is defined in terms of tangible assets such as property and money that may increase recovery options (e.g., being able to move away from existing friends/networks or to afford an expensive detox service).

Human capital includes skills, positive health, aspirations and hopes, and personal resources that will enable the individual to prosper. Traditionally, high educational attainment and high intelligence have been regarded as key aspects of human capital and will help with some of the problem-solving that is required on a recovery journey.

Cultural capital includes the values, beliefs, and attitudes that link to social conformity and the ability to fit into dominant social behaviour

What does this mean for professionals and SUD recovery agencies?

With respect to the predictors of long-term desistance from crime, it is not direct treatment that will trigger the growth of recovery capital; rather, it is likely to be a range of life events and personal and interpersonal transitions:

- attachment to a conventional person
- stable employment
- transformation of personal identity
- ageing
- interpersonal skills
- and — life and coping skills

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What kinds of experiences do individuals living with SUD need?

Recovery does not happen in isolation – it is generally learned from other people who have gone down the same road and who 'mentor' or model the methods and principles of recovery.

Recovery happens in the community, not in the clinic. While formal treatments help many people, the recovery journey will continue long after the completion of specialist interventions. This does not mean that there is no role for specialist treatment, but treatment is only the start of the recovery journey, and it will not be needed by everyone who seeks recovery.

Recovery takes a long time – for most people the journey to stable recovery will take around five to seven years after the last use of the substance, long after the physical part of the process has been managed.

Recovery is better predicted on someone's strengths, rather than their weaknesses, and so much of the focus of interventions is on helping individuals to build recovery strengths, more often referred to as 'recovery capital'.

For others, **recovery** will result in leaving behind their 'addict identity' as they move away from addict groups and communities into 'mainstream' roles in society and they protect their identity by breaking the links with their addicted past."

Behavioral therapies—including individual, family, or group counseling— are the most commonly used forms of drug abuse treatment. Behavioral therapies vary in their focus and may involve addressing a patient's motivation to change, providing incentives for abstinence, building skills to resist drug use, replacing drug-using activities with constructive and rewarding activities, improving problem-solving skills, and facilitating better interpersonal relationships. Also, participation in group therapy and other peer support programs during and following treatment can help maintain abstinence.

Psychosocial interventions are structured psychological or social interventions used to address substance-related problems. They can be used at different stages of drug treatment to identify the problem, treat it, and assist with social reintegration. Psychosocial interventions are used to treat many different types of drug problems and behavioral addictions. Clients are helped to recognize the triggers for substance use and learn strategies to handle those triggers. Treatment providers work to help patients to identify alternative thoughts to those that lead to their drug use, and thus facilitate their recovery. Psychosocial interventions can help drug users identify their drug-related problems and make a commitment to change, help clients follow the course of treatment, and reinforce their achievements.

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Desired new behavior

Exercise and sport programmes are promising, accessible, and straightforward strategies for individuals living with SUD to build their human capital.

A set of cognitive, socio-psychological, interpersonal, and behavioural abilities together referred to as "life skills" support an individual's choice of an active, healthy lifestyle as well as its ability to make informed decisions and communicate successfully. Life skills, which include self-awareness, empathy, assertiveness, equanimity, resilience, and general coping skills, are abilities that help individuals living with SUD adopt a positive attitude and successfully deal with the demands and problems of daily life.

Life skills can organize personal, interpersonal, and environmental actions in a way that leads to better health, which in turn leads to more physical, psychological, and social comfort. These skills allow individuals living with SUD to accept the responsibilities of social roles and effectively address one's own demands and expectations. Life skills training is a holistic approach to developing values, skills, and knowledge in individuals living with SUD, helping them to protect themselves and others in a number of risky situations.

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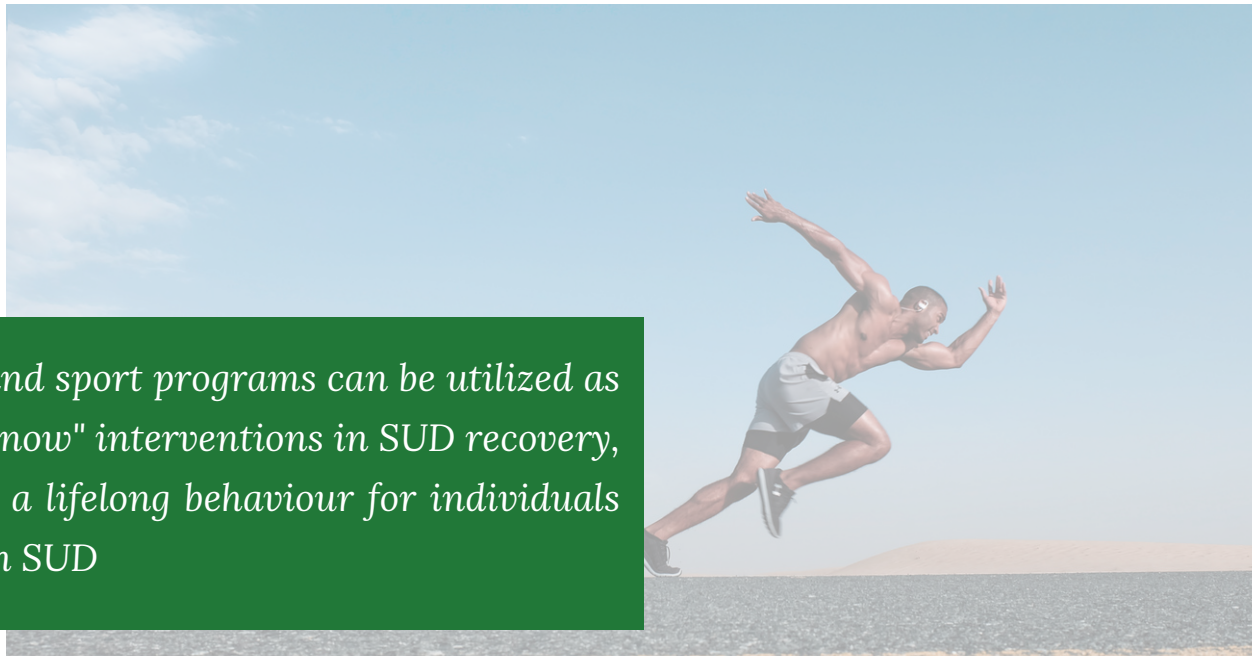
The role of sport

Regular physical exercise has been linked to multiple benefits for SUD recovery in recent years, with a number of studies demonstrating its multifaceted role. Indeed, there is evidence to suggest that exercise, via psychological, behavioural, and physiological mechanisms, improves many different aspects of the physical and mental health of people living with SUD, resulting in improved well-being and quality of life. In this regard, the United Nations Office on Drugs and Crime (2017) recommends its use as an important and integral part of prevention and treatment, citing it as a very promising, affordable, and easily accessible complementary treatment option.

Exercise works perfectly in supporting individuals undergoing SUD recovery, offering significant physical, psychological, and social benefits. Exercise can cause pleasurable states, with changes in neurotransmission, while contributing to the normalization of changes in glutamic and dopaminergic signaling observed in mono paths from prolonged abstinence from substance use, thus reducing relapse vulnerability. Furthermore, exercise can assist individuals living with SUD in "feeling" their bodies differently and intending to regain their body image before substance abuse. Concurrently, through exercise, they can manage their weight, improve their fitness, and regain their vitality, likely resulting in an improved quality of life and more optimistic prospects for the future.

At the same time, as substance abuse can be interpreted as a non-adaptive coping strategy for stressful, unpleasant, and difficult situations, exercise has been proposed to provide alternative coping strategies for these unpleasant emotions.

As the craving for substance use is a key factor in relapse and discontinuation of recovery, the search for strategies and tools to address it is a major concern, especially during early-stage recovery. Studies in this area suggest that exercise can effectively alleviate levels of craving for substance use by enhancing abstinence.



Exercise and sport programs can be utilized as "here and now" interventions in SUD recovery, as well as a lifelong behaviour for individuals living with SUD

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When it comes to mental health, negative mood, anxiety, stress, and depression are all negative prognostic factors for recovery outcomes because they are linked to a high risk of relapse. According to current research, the beneficial effects of exercise appear to contribute to the effective management and reduction of anxiety and depression symptoms in individuals living with SUD. Research has shown that individuals living with SUD with high baseline cognition and low baseline depression are less likely to benefit from exercise.

A non-drug-related social network is frequently important in preventing relapse. Individuals living with SUD are socially isolated during recovery because they coexist with a small number of people in their daily lives. Participating in group exercise programs can assist them in improving their communication skills, developing positive interpersonal relationships, managing conflict, and tolerating frustration, resulting in a significant improvement in the social domain of their quality of life.

Another way that exercise appears to benefit individuals living with SUD is that it improves their self-concept. Individuals living with SUD have low self-efficacy and self-esteem. Exercise may improve an individual's ability to maintain abstinence by increasing their effectiveness through a sense of accomplishment.

Finally, exercise and sport can provide a safe learning environment in which targeted interventions can be implemented to train individuals living with SUD in behavioral change and skill development strategies that they can apply to other aspects of their lives, such as work and education (formal and non-formal). Additionally, it seems that exercise improves working memory.

A sport environment can be beneficial to individuals with SUD in terms of their social and emotional well-being.

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Behavior change interventions

Long-term habit and behavior change is the goal of behavioral change with most of the studies on health-related behaviors showing that even minor changes may have a big impact on people's health and life expectancy. Behavior change interventions are effective in supporting individuals in achieving temporary behavior change. Behavior change maintenance, however, is rarely attained. Findings showed that intentions have less impact on behavior when participants lack control over the behavior. To maintain behavior, individuals require at least one consistent motivator. These might include the enjoyment of the behavior, satisfaction with the results of the behavior, self-determination, or a sense of the behavior being consistent with one's values and beliefs.

It is likely that individuals start behavior change attempts at times when their motivation is at the highest and opportunity costs are low, thus the need for self-regulatory effort is increased in order to ensure that the new behavior continues despite less-than-optimal conditions. On the other hand, people change attitudes and behavior only if the alternatives offered are sufficiently convincing or beneficial. The reason for a behavior change should be for positive gain rather than the loss of a negative.

Whether automatic and habitual or under conscious control, behavior always takes place in the context of the social and environmental factors that either help or impede the maintenance of behavioral change. Stable contexts make behavior and habits easier to maintain, much like when behavior is first changed. Therefore, ecological conditions are crucial for both the initiation and maintenance of behavior.

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Design exercise intervention programs for substance use disorders

Sports and exercise activities play a vital role in the recovery of individuals suffering from substance use disorder (SUD). The primary aim of sports and physical activity professionals is to provide sports/exercise activities as an intervention program that supports SUD recovery. The goal is not to train high-performance athletes or to provide leisure activities to keep patients busy and happy. Rather, the focus is on the therapeutic benefits of sports and exercise in the context of SUD recovery.

The purpose of sports and exercise activities in SUD recovery is to promote physical health and well-being, improve mental health and emotional stability, and aid in the recovery and rehabilitation process. SUD affects individuals physically, emotionally, and psychologically. Sport and exercise can help to address each of these components, providing a comprehensive approach to treatment.

Sport and exercise can help to promote physical health and reduce the negative physical effects of addiction. Exercise can improve cardiovascular health, strengthen muscles and bones, and reduce the risk of chronic disease. For individuals in recovery, physical activity can also help to reduce cravings and withdrawal symptoms, as well as improve sleep quality.

In addition to physical benefits, sports, and physical activity can also have a positive impact on mental health and emotional stability. Exercise has been shown to improve mood, reduce stress and anxiety, and increase self-esteem and confidence. These benefits are particularly important for individuals in SUD recovery, as they may be struggling with depression, anxiety, or other mental health issues that contribute to their addiction.

Sports and physical activity can also aid in the recovery and rehabilitation process by providing structure and routine. Many individuals in recovery struggle with boredom and lack of direction, which can lead to relapse. Engaging in physical activity and sports provides a healthy and productive way to fill their time and develop new skills and interests.

While sports and physical activities are valuable tools in SUD recovery, it is essential that professionals providing these interventions are properly trained. Physical activity and sports professionals should thoroughly understand addiction and the unique needs of individuals in recovery. They should also have the skills and knowledge necessary to provide safe and effective interventions that support the goals of addiction recovery.

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From delivery of sport activities to intervention programs

In general, the term “intervention” is a treatment, procedure, or other action taken to prevent or treat disease, or improve health in other ways. Behavioral interventions are interventions designed to affect the actions that individuals take regarding their health (physical and mental). Behavioral interventions to increase physical activity and avoid relapses can be implemented at different levels, depending on the target audience and the nature of the problem being addressed.

For example, for people under SUD recovery:

Individual-level interventions: These interventions target individual behavior and can be applied to specific individuals under SUD treatment, who are experiencing a particular problem or condition, to promote physical activity behavior as an adjunct to their recovery individually. Examples of individual-level interventions include counseling on how to gradually increase their everyday physical activity until they reach a satisfactory health level to participate in group exercises.

Group-level interventions: These interventions target a group of individuals who are under SUD recovery and who share an interest in physical activity behaviors. Examples of group-level interventions include support groups to facilitate sports participation (provided by sports experts), linking physical activity goals with therapeutic goals groups (provided by therapists), and community-based sports programs to facilitate social reintegration.

Organizational-level interventions: These interventions target organizational policies, practices, and procedures to promote physical activity behaviors within SUD recovery organizations. Examples of organizational-level interventions include employee training programs (therapists and sports professionals), organizing a variety of sports programs, and possibly environment modifications to facilitate sports engagement

Community-level interventions: These interventions target communities or populations as a whole and aim to promote healthy behaviors and prevent SUD. Examples of community-level interventions for SUD prevention through sports include public health campaigns, community outreach programs, and school-based prevention intervention programs.

Policy-level interventions: These interventions target public policies and regulations that can influence behavior and promote positive health outcomes. An example of policy-level interventions includes policies, regulations, and laws that promote physical activities for SUD recovery programs.

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Each of these levels of intervention can be effective in promoting positive behavior changes, both for physical activity and SUD, and the appropriate level of intervention will depend on the specific problem being addressed and the target audience.

Intervention Design Methods

Designing Behavioral Interventions Science is a field that aims to create effective interventions to change people's behavior in a positive way. This interdisciplinary field combines insights from psychology, sociology, economics, and other disciplines to develop evidence-based strategies for behavior change. The goal of designing behavioral interventions is to identify the key factors that influence people's behavior and then develop intervention programs that can effectively change those factors.

The process of designing a behavioral intervention program for physical activity typically involves several key steps:

Explore Needs: In tailoring the intervention, the first step is to identify the target population and the specific physical activity behavior that needs to be changed. This might involve conducting research to identify barriers to physical activity and facilitators of change in the target population, such as time, motivation, or access to resources

Design: The next step is to design the intervention program based on the needs assessment. This involves developing structured activities based on specific strategies and applying behavior change techniques that serve the specific purposes of the program to help participants increase their physical activity levels.

Apply and Monitor Procedures and Progress: Once the intervention program has been designed, it is important to implement it in a way that you can monitor how the program is implemented as well as participants' progress. This might involve recruiting participants, training staff to deliver the intervention, and tracking participants' physical activity levels over time.

Evaluate Final Outcomes: At the end of the intervention program, it is important to evaluate the final outcomes to determine whether the intervention was effective. This might involve collecting data on physical activity levels, measuring changes in behavior, and assessing participants' satisfaction with the program.

Revise: Based on the evaluation results, the intervention program may need to be revised or adapted to better meet the needs of the target population. This might involve modifying the program content, delivery methods, or incentives.

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Re-Design: After revising the program, it may be necessary to re-design and re-implement the intervention program to test its effectiveness. This process may need to be repeated several times to fine-tune the intervention program and optimize its effectiveness.

Overall, designing a successful behavioral intervention program for physical activity requires careful planning, implementation, and evaluation. Researchers and practitioners can develop evidence-based strategies to promote physical activity and improve health by following these steps. Some example intervention programs using physical activity as a supportive behavior for patients of SUD recovery are Panagiotounis et al., (2022) and Panagiotounis et al., (2021).

The Behaviour Change Wheel

The Behaviour Change Wheel (Michie, Atkins, and West, 2014) is a comprehensive guide to understanding and implementing behavior change strategies. It is a framework aiming to help identify the key factors that influence behavior and to provide a systematic approach to designing interventions that can bring about sustained behavior change (Fig. 1).

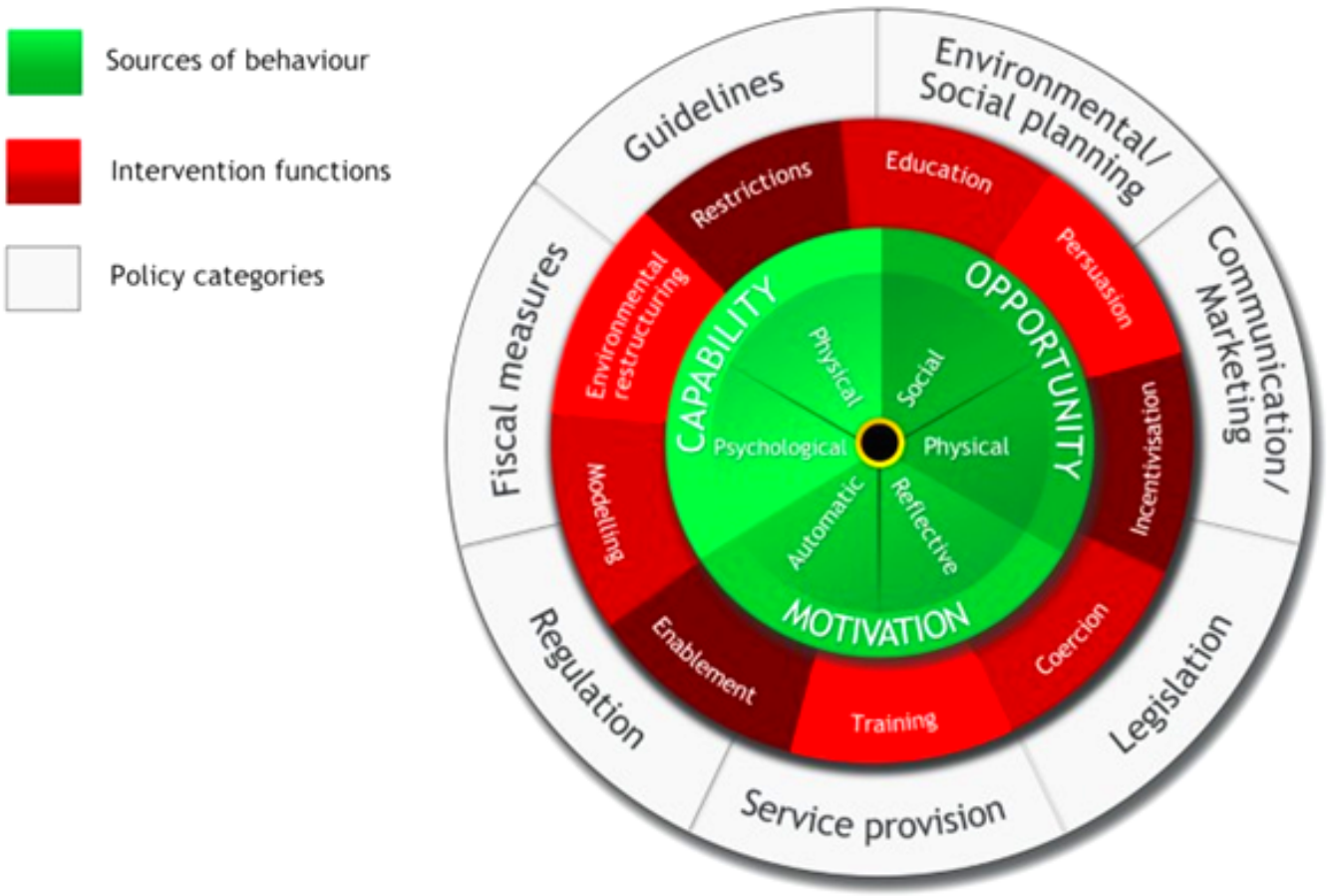

Figure 1. The Behaviour Change Wheel (Michie, Atkins, and West, 2014).

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The Behaviour Change Wheel (BCW) consists of three main tools for behavior change:

The COM-B Model: The COM-B model illustrates the fact that a certain behavior will only take place at any one time if the individual involved has the capacity and opportunity to do so and is more motivated to do so than to engage in any other behaviors. **So, t**his tool helps in understanding the behavior that needs to be changed. COM-B stands for Capability, Opportunity, and Motivation - three key factors that influence behavior. By analyzing these factors, we can identify the underlying causes of the behavior and design effective interventions to change it.

Intervention Functions and Policy Categories: Once the behavior is understood, appropriate intervention functions and policy categories can be selected to bring about change. Intervention functions are the ways in which behavior can be changed, such as education or incentivization. Policy categories refer to the types of policies that can be used to support behavior change, such as communication or regulation.

Behavior Change Techniques (BCT) Taxonomy: This tool helps in specifying the active ingredients in the intervention. BCTs are specific techniques that can be used to change behavior, such as goal-setting or self-monitoring. By selecting and incorporating the appropriate BCTs into the intervention, the likelihood of successful behavior change can be increased. A behavior change technique (BCT) is defined as an "observable, replicable, and irreducible component of an intervention designed to alter or redirect the causal processes that regulate behaviour" (Michie et al., 2013)

The three stages of Intervention design

Figure 2 illustrates the 3 stages of intervention design and the respective steps that need to be taken per stage.

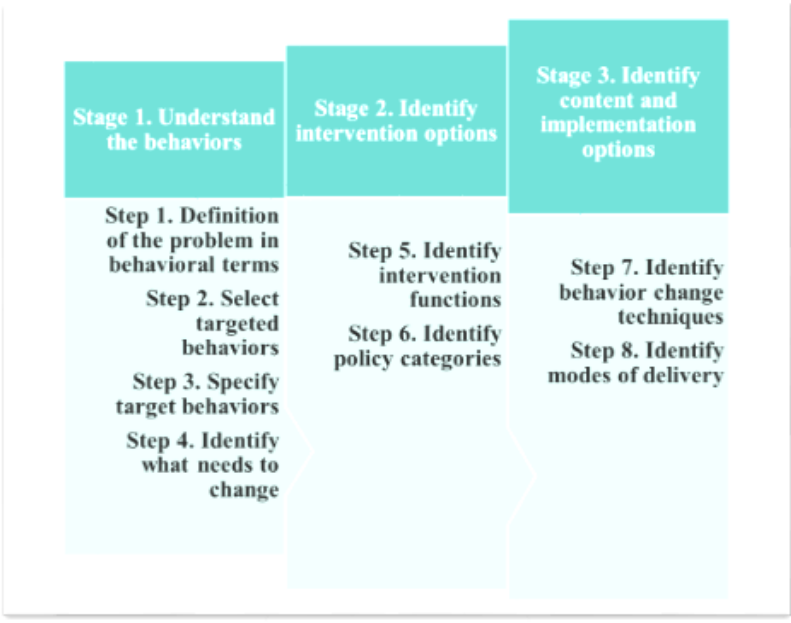

Figure 2. Intervention design in 3 stages

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Stage 1. Understand the behavior: Behavioural analysis and diagnosis using COM-B

The Behavioral Analysis and Diagnosis Tool (BADT) is a tool used to identify the factors that are driving a particular behavior using the COM-B model. The COM-B model (Fig. 3, 4) suggests that behavior is influenced by three key components: Capability, Opportunity, and Motivation. The COM-B model suggests that behavior change interventions should target one or more of these three components in order to be effective. By identifying the specific factors that are driving a particular behavior, interventions can be designed to address those factors and promote sustained behavior change.

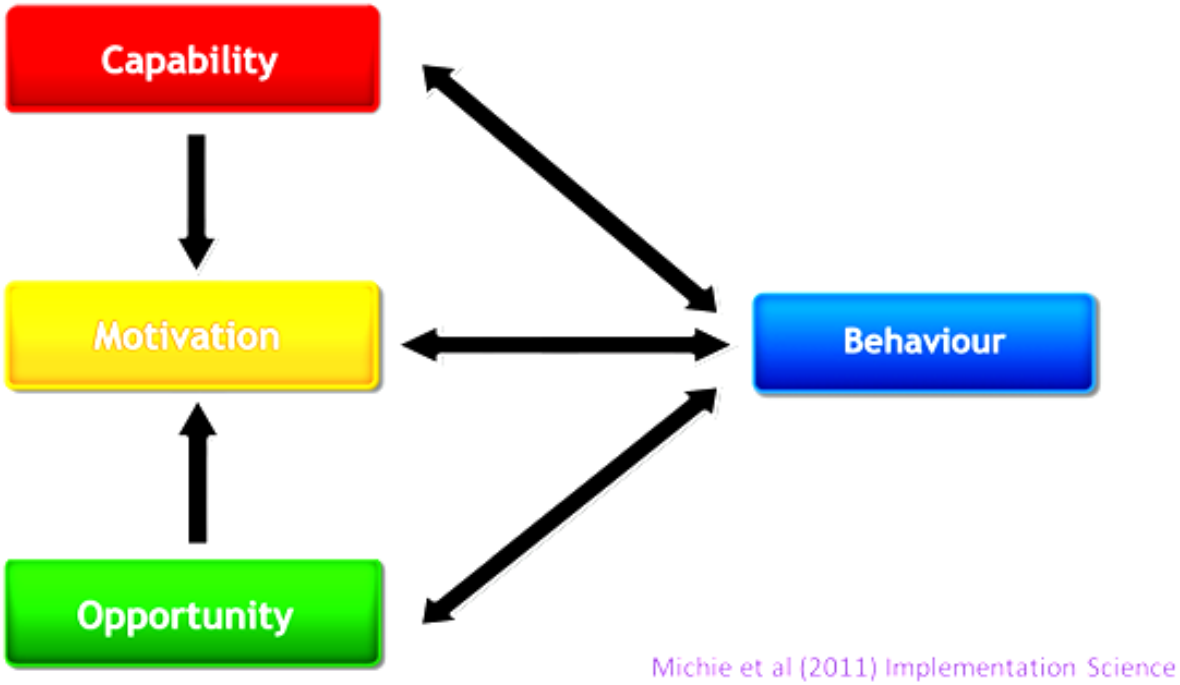

Figure 3. The COM-B model

Capability refers to an individual's physical and psychological ability to perform a particular behavior. For example, an individual may lack the knowledge or skills required to perform a particular task, which may hinder their ability to perform the behavior.

Physical Capability refers to any set of physical actions that requires an ability or proficiency learned through practice, e.g., sports skills, fitness ability, sequence of movements, etc.

Psychological Capability refers to any mental process or skill that is required for the person to perform the behavior. e.g. memory, attention & and decision-making abilities, knowledge, etc.

Questions to assess the Capability in relation to the target behavior may include:

- *What knowledge, skills, and understanding are required to perform the behavior?*
- *Are there any physical or cognitive limitations that may make it difficult to perform the behavior?*
- *Are there any cultural or social factors that may affect the ability to perform the behavior?*

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Opportunity refers to the external social & physical factors that make wanted behaviours more likely to happen & unwanted behaviours less likely to happen.

Physical Opportunity includes anything in the physical environment that discourages or encourages the performance of the behaviour, e.g., prompts, availability of sport services, and the facilities and equipment in which the behaviour is to be performed.

Social Opportunity includes influences that come from friends, family, colleagues & and other influential people that support the doing or not doing of a behaviour either by the provision of direct support or by influencing the way people think or feel about a behaviour. For example, an individual may have the knowledge and skills required to perform a particular task, but if they lack access to the necessary resources or if social norms discourage the behavior, they may be less likely to perform it.

Questions to assess the Opportunity in relation to the target behavior may include:
- *What environmental factors enable or hinder the behavior?*
- *Are there any policies or regulations that affect the behavior?*
- *Are there any social or cultural norms that affect the behavior?*

Motivation refers to everything that makes a person do what they do; anything that energizes and directs behaviour. Motivation is commonly thought of as the 'reasons' for doing something.

Reflective motivation includes beliefs about what is good and bad, conscious intentions, decisions, and plans.

Automatic motivation includes emotional responses, desires, and habits resulting from associative learning and physiological states. For example, an individual may have the knowledge, skills, and resources required to perform a particular task, but if they lack the motivation to perform it, they may be less likely to do so.

Questions to assess the Motivation in relation to the target behaviour may include:
- *What psychological factors influence the behaviour?*
- *Are there any emotional or affective factors that affect the behaviour?*
- *Are there any social or cultural factors that influence the motivation to perform the behavior?*

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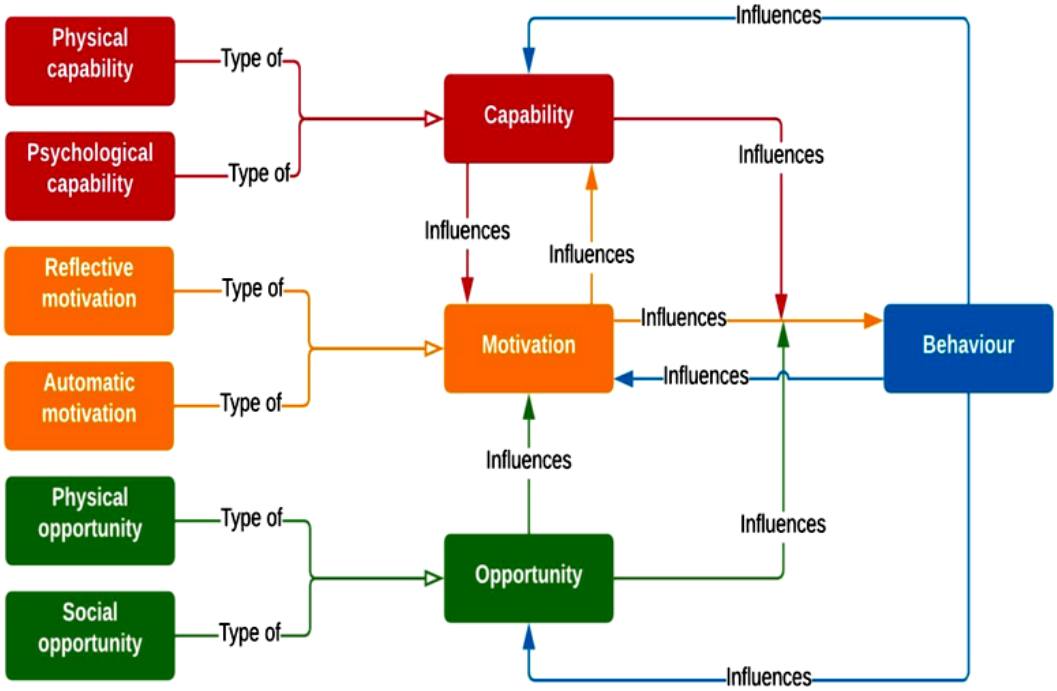

Figure 4. The COM-B model

The COM-B begins by identifying the target behavior that is to be analyzed. This could be any physical activity behavior, from walking to playing sports. Once the COM-B has identified the key factors influencing the desired target behavior, it can be used to diagnose the specific factors that need to be addressed to change the behavior. This can inform the development of interventions that target the identified factors, using Behavioural Change Techniques (BCTs) and Intervention Functions that are tailored to the specific needs of the individual or organization. By using the COM-B model to systematically analyze and diagnose behavior, the COM-B model can help to ensure that behavior change interventions are targeted, effective, and sustainable. The COM-B model can be used in a wide range of settings, including healthcare, education, and public policy, and has been shown to be a useful tool for designing and evaluating behavior change interventions.

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Needs assessment of exercise in SUD recovery

Needs assessment of exercise in the population under SUD recovery (clients) refers to the process of systematically evaluating and identifying the specific exercise-related needs and requirements of individuals who are receiving therapy for substance use disorders. The exercise needs of clients may vary based on several factors, such as the type and severity of their substance use disorder, overall health status, and individual preferences.

Barriers to Exercise for Drug Addicts Under Treatment Patients

Identifying potential barriers and challenges that may hinder exercise participation in this population is important. Most reported barriers in research includes:

Physical Health Issues: Drug addiction can cause various physical health problems, such as muscle weakness, chronic pain, or respiratory problems, which can limit the ability to exercise. These physical health issues can be a significant barrier to regular exercise, as they can make it difficult for patients to engage in physical activities that require endurance or stamina.

Mental Health Issues: Drug addicts under treatment patients are also at high risk of experiencing mental health problems, such as depression, anxiety, or post-traumatic stress disorder. These mental health issues can interfere with the motivation and energy required to engage in regular exercise. Moreover, individuals with drug addiction may experience stigma and shame related to their addiction, which can further contribute to the development of mental health issues and decrease their willingness to exercise.

Social Isolation: Social isolation is a common problem among drug addicts under treatment patients, as they may feel disconnected from their social network or alienated from the community. Social isolation can hinder the development of social support systems and decrease patients' motivation to engage in regular exercise.

Lack of Resources: Drug addicts under treatment patients may face significant financial barriers to exercise, such as lack of access to fitness facilities or the inability to afford appropriate exercise equipment. Furthermore, they may lack transportation or face geographical barriers that limit their access to exercise resources.

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Facilitators to Exercise for individuals under SUD recovery

Previous literature has identified the following facilitators to exercise for individuals under SUD recovery :

Peer Support: Peer support has been shown to be a powerful facilitator of exercise among drug addicts under treatment patients. Participating in group exercise programs can provide patients with social support, encouragement, and a sense of belongingness. Moreover, peer support can help to decrease stigma related to addiction and increase patients' self-efficacy for exercise.

Personalized Exercise Programs: Tailoring exercise programs to the individual needs and preferences of drug addicts under treatment patients can be a crucial facilitator of regular exercise. Personalized exercise programs can be designed to address patients' physical and mental health issues and provide them with enjoyable and engaging exercise options.

Motivational Interviewing: Motivational interviewing is a counseling technique that can be used to increase patients' motivation and willingness to engage in regular exercise. This approach involves empathetic listening, collaborative goal setting, and building patients' self-efficacy for exercise.

Incentives: Providing incentives, such as rewards or prizes, can be an effective strategy for promoting regular exercise among drug addicts under treatment patients. These incentives can be linked to patients' treatment goals or exercise-related outcomes, such as improved physical health or increased social engagement.

In conclusion, regular exercise can be a valuable complement to traditional drug addiction treatment approaches. However, engaging in regular exercise can be challenging for drug addicts under treatment patients, given the physical and mental health barriers they may face. Addressing these barriers and leveraging facilitators, such as peer support, personalized exercise programs, motivational interviewing, and incentives, can help to promote exercise as a viable treatment option for drug addicts under treatment patients

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Tailor physical exercise (PE) intervention to the identified needs.

According to cross-sectional studies' results, tailoring physical exercise interventions to the unique needs and preferences of the clients is a crucial element. Tailoring interventions to the needs of the target group is a key strategy for successful PE intervention. Exploration of the client's preferences and attitudes regarding exercise may lead to more efficacious exercise interventions with improved adherence and attrition rates and therefore lead to improved recovery outcomes. Moreover, the identification of barriers and facilitators of the specific group helps exercise program designers to better tailor physical exercise programs and enhance motivation and adherence. The provision of PE opportunities needs to be flexible and regular enough to allow the continued engagement of participants. There is also some evidence that the client-centered approach might be effective, because of participants' varying fitness levels and underlying medical conditions. Finally, the type of drug, as well as the type of recovery (e.g., with or without replacement) may play a significant role in the physical exercise program design.

Physical exercise characteristics

To date, research has suggested that aerobic exercise, strength training, and mind-body exercises are all acceptable options for SUD recovery. Furthermore, simple walking was one of the most popular activities among clients recovering from SUD. Also, an important form of exercise used in SUD recovery is outdoor sports adventure activities, with significant therapeutic outcomes. Regarding team sports, the sense of play was mentioned as an important aspect of satisfaction, however, there is a lack of data to support it further. It should also be noted that it is important to identify the activities they experienced in the past that led to feelings of enjoyment so that they can gradually integrate into their lifestyle in ways compatible with individual recovery planning. However, these activities should be carefully evaluated by sport professionals and SUD recovery counselors, as they may be strongly associated with a drug abuse lifestyle.

Most of the studies considered used group-based delivery of exercise sessions. It seems that addicts under recovery prefer to engage in physical activities in small groups or a "buddy" system suggesting that they need social interaction and support when they exercise. Nevertheless, individual preferences should be taken into account, because exercising alone might also be a preference or a necessity for some.

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As a result of their poor quality of life related to drug abuse, individuals undergoing SUD recovery face considerable physical and psychological challenges, especially in the early recovery stages. Also, these individuals follow a predominantly sedentary lifestyle, as they may not perform any PE. According to some researchers, vigorous exercise is not recommended for substance use populations, therefore, moderate-intensity exercise is preferred for reasons such as the risk of injury or other adverse effects. Research to date has shown that high-intensity programs have low compliance rates compared to low-and moderate-intensity programs, which are preferred by this population. It should also be noted that moderate-intensity physical activity appears to have a positive effect on craving and improving abstinence from substances.

It's important to note that the majority of exercise interventions during SUD recovery were carried out under the supervision of certified sports trainers. This is probably due to the fact that people recovering from SUD may be novice exercisers who fail to apply the exercise protocols appropriately. In light of this, supervised exercise may be beneficial in ensuring that regular and safe exercise is adopted. Continuing, we must emphasize that including supervised exercise in outpatient therapeutic programs enables its implementation in a controlled environment, enhancing researchers' capacity to assess its effectiveness.

Individuals undergoing SUD recovery, especially during the early-stage treatment, have poor health and low fitness as a result of chronic use of both legal and illegal substances. Consulting a physician is essential to ensure safety and to ensure monitoring for any current or past health problems. It is easy to conclude that these individuals, due to their poor physical condition, are often excluded from studies related to exercise implementation or easily drop out.

Despite the well-known benefits of exercise on the brain's reward circuits, engaging individuals with SUD in exercise programs is a difficult and challenging procedure, with dropout rates exceeding 50%. Poor social support for exercise, low self-efficacy, lack of time, low motivation to exercise, and intensive exercise, which, when combined with poor initial physical condition, act as barriers to retention in exercise programs. In addition, some exercise programs do not provide sufficient time to engage in exercise so that the individual can benefit from its benefits. Furthermore, individuals with SUD frequently report financial difficulties that prevent them from purchasing exercise equipment or participating in exercise programs.

On the contrary, there are several factors involved in successfully starting and maintaining an exercise program. Social support, increased self-efficacy, appropriate physical activity choices, goal setting, behavioral contracts, positive reinforcement, and feedback are all important factors in enhancing adherence to an exercise program. As stated previously, moderate-intensity exercise has a higher rate of adherence than intense exercise.

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Long-term substance abuse may have disrupted reward circuits, making pleasure and good feelings harder to experience in the early stages of abstinence. Furthermore, poor health or physical disabilities are often mentioned as barriers to exercise, which should be taken into account when exercising or increasing physical activity is recommended in this population. In addition, the high rates of coexisting mental disorders, which characterize this population, negatively affect the motivation to drop out of exercise. Thus, the lack of motivation and encouragement was identified as one of the most significant perceived barriers to exercise for individuals with SUD. However, there is a lack of exercise interventions that include behavior change strategies and motivation enhancement. Techniques such as self-monitoring, goal setting, and the provision of choice are some of the teachings that have been used. Also, pedometers and other portable devices that monitor physical activity, as well as financial incentives, have been tested in exercise interventions in populations with SUD.

Utilizing goal setting to enhance self-confidence, autonomy, and relationships with others is a key strategy that can enhance the motivation of individuals with SUD to change behavior. The provision of choice of sports and exercise activities; the setting of new challenging goals, based on the successful completion of previous goals; continuous feedback; and the self-monitoring of performance are structural elements that can lead to the enhancement of positive behavior change. In addition, the use of support from both peers (at a team level) and the trainers creates favorable conditions that enhance the effectiveness of promoting the desired behaviors.

Individuals living with SUD can be trained in strategies to enhance behavioral change and then transfer them to SUD recovery and other aspects of their lives by participating in exercise and sports programs

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Stage 2. Identify intervention options

In stage 2, we systematically select appropriate intervention functions and policy categories to bring about change, which is part of the design an intervention ('prescribed treatment') using BCW based on the behavioural diagnosis.

The intervention functions (Fig. 5) are nine broad categories of strategies or techniques that can be used to bring about behavior change. Here is a description of each intervention function:

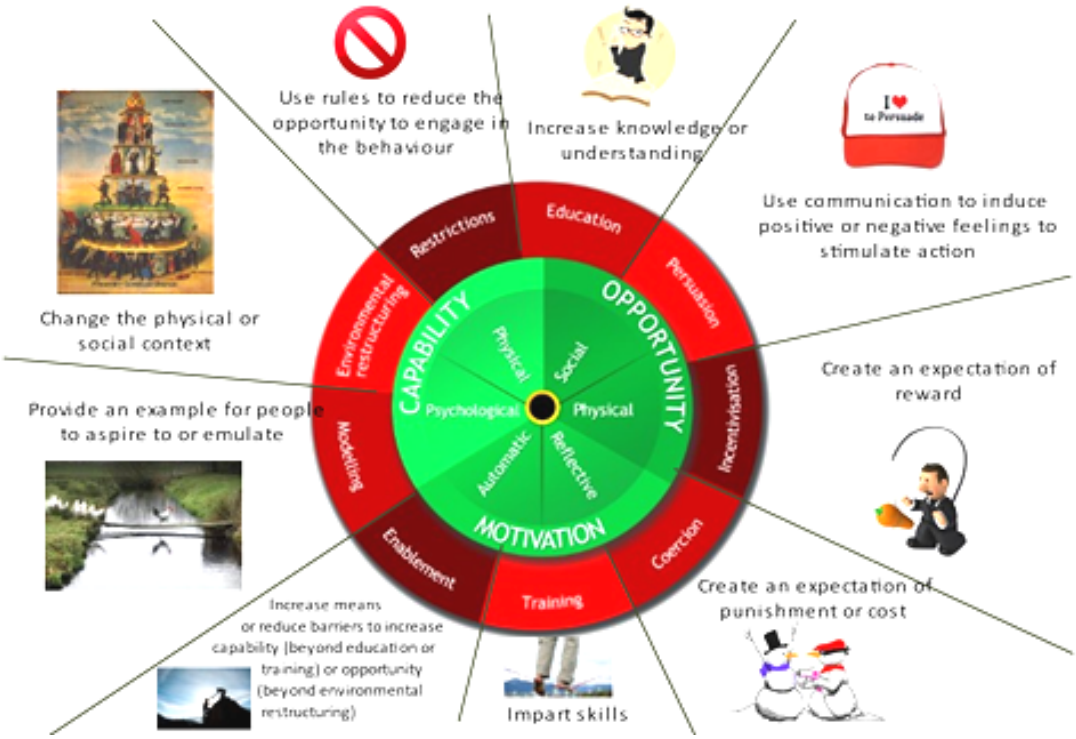

Figure 5. Intervention functions

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Education: Providing information and knowledge to individuals to increase their understanding of the behavior and its consequences. This can involve delivering facts, explaining risks and benefits, or raising awareness about the behavior.

Persuasion: Using communication and persuasive techniques to motivate and encourage individuals to change their behavior. This may involve using persuasive messages, testimonials, or social influence to influence attitudes and beliefs.

Incentivization: Providing rewards or incentives to individuals to reinforce desired behaviors or discourage undesired behaviors. This can include financial incentives, material rewards, or social recognition to motivate behavior change.

Coercion: Applying external pressures or sanctions to discourage or prevent certain behaviors. This can involve imposing fines, legal consequences, or social sanctions to discourage behaviors that are considered undesirable or harmful.

Training: Providing individuals with the necessary skills and techniques to perform the desired behavior. This can include teaching practical skills, providing guidance, or offering training programs to enhance capabilities and confidence.

Enablement: Removing barriers and providing resources to facilitate behavior change. This may involve making environmental modifications, improving accessibility, or providing tools and resources to make the behavior easier to adopt.

Modeling: Demonstrating the desired behavior through social modeling or providing role models for individuals to imitate. This can involve showcasing positive examples, using testimonials, or highlighting successful behavior change stories.

Environmental restructuring: Changing the physical or social environment to make the desired behavior more likely or easier to adopt. This can include altering the physical layout, introducing prompts or cues, or creating supportive social norms.

Restriction: Implementing rules, regulations, or policies that restrict or control the behavior. This can involve setting limits, enforcing regulations, or implementing policies that restrict access or availability of certain substances or activities.

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These nine intervention functions can be combined and tailored to create comprehensive behavior change interventions based on the specific SUD recovery context and its clients. By understanding and utilizing these intervention functions, researchers and practitioners can design more effective strategies to promote exercise behavior change and improve outcomes in various domains, such as health, SUD recovery results, and social behaviors.

Policy categories

Policy categories (Fig. 6) provide a comprehensive framework for considering the different approaches and levers that can be utilized to create effective interventions and influence exercise behavior change at a broader societal level, within the SUD therapeutic organization and society. By combining the intervention functions and policy categories, researchers, policymakers, and practitioners can design multifaceted interventions that address exercise behavior change from both individual and environmental perspectives.

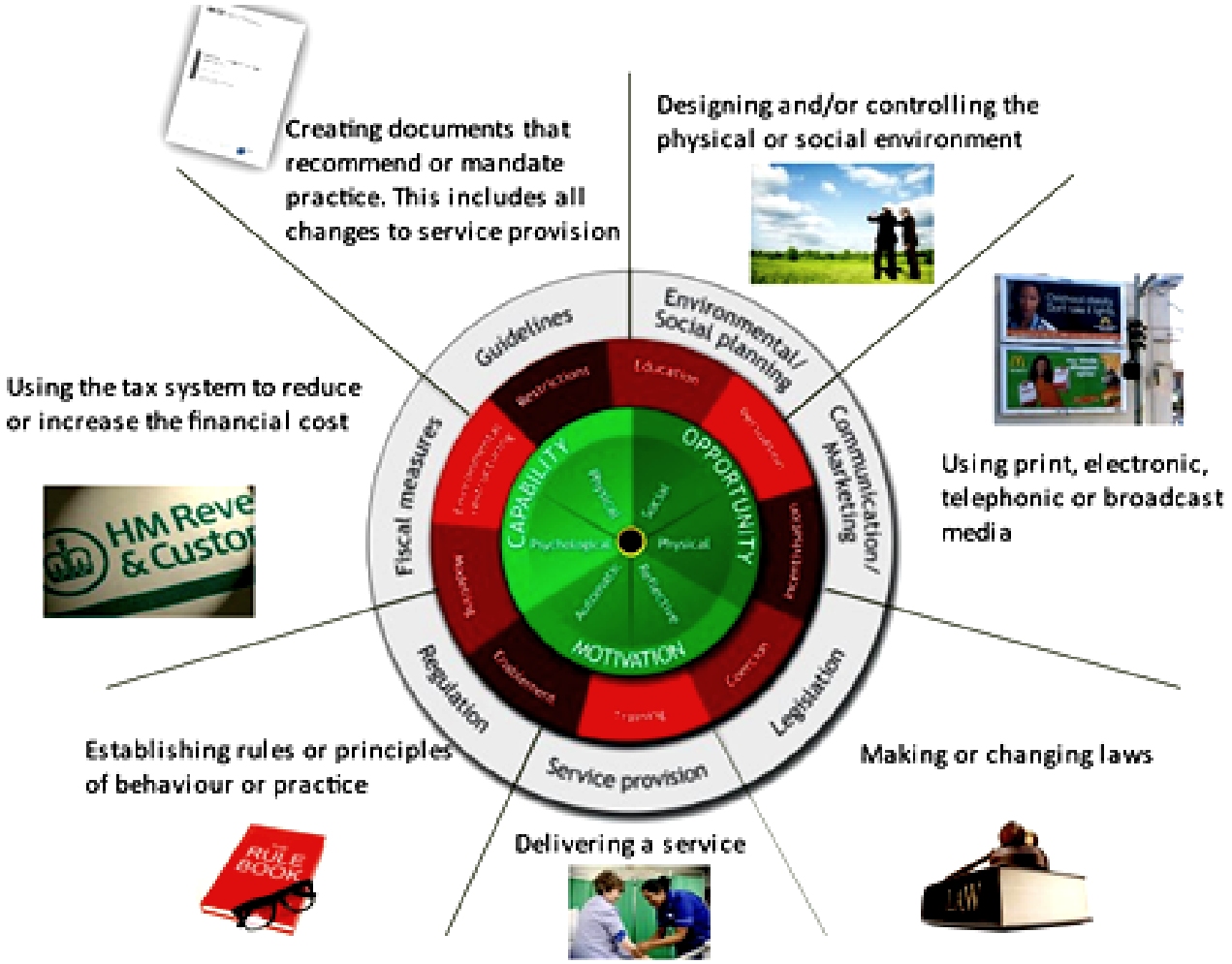

Figure 6. Policy categories

Communication and marketing: Using communication strategies to raise awareness, promote exercise behavior change, and disseminate information effectively. This category involves activities such as public campaigns, advertising, and social marketing to influence exercise behavior.

Fiscal measures: Implementing economic policies and incentives to encourage behavior change. This can include, for example, financial incentives to promote physical activity behavior.

Regulation: Establishing rules or regulations that govern exercise behavior and provide guidelines for individuals (e.g., sport professionals and therapists) or SUD recovery organizations. Regulations can set standards or enforce compliance with desired behaviors.

Legislation: Creating new or amending existing laws to influence behavior change. Legislation can be used to enforce specific behaviors or protect individuals from potential risks.

Guidelines: Developing guidelines, protocols, or best practice recommendations to provide guidance for individuals under SUD recovery or SUD organizations. Guidelines can support decision-making, set standards, and promote evidence-based practices.

Environmental/social planning: Modifying the physical or social environment to make the exercise behavior more accessible or easier to adopt. This category involves urban planning, environmental modifications, or changes in social norms to facilitate exercise behavior change.

Service provision: Delivering or improving services that directly influence exercise behavior change. This includes enhancing access, quality, and availability of services that support exercise behavior change, such as counselling from therapists and sport profssionals.

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Stage 3. Identify content and implementation options.

Behaviour change techniques

In stage 3 we develop the content of the intervention program by selecting the behaviour change techniques and the modes of delivering them. The Behavior Change Techniques (BCT) Taxonomy, developed by Susan Michie and her colleagues, is a comprehensive system for classifying the techniques used in behavior change interventions. It provides a standardized and organized framework to identify, describe, and compare the specific strategies or techniques employed to bring about behavior change. The taxonomy consists of 93 behavior change techniques, each with a unique code and a concise description. According to Michie et al. 2015, there are potential benefits of developing a taxonomy for specifying intervention content:

1. To promote the accurate replication of interventions
2. To specify intervention content to facilitate faithful implementation of intervention protocols.
4. To draw on a comprehensive list in developing interventions (rather than relying on the limited set that can be brought to mind).
5. To investigate possible mechanisms of action by linking BCTs with theories of behaviour change and component theoretical constructs.

Here is a brief overview of the BCT Taxonomy:

Goal setting: Techniques that involve setting specific, measurable, achievable, relevant, and time-bound goals to guide behavior change.
Feedback and monitoring: Techniques that provide individuals with feedback on their behavior, progress, or performance, and involve self-monitoring or tracking.
Social support: Techniques that involve providing social support, encouragement, or assistance from others to facilitate behavior change.
Rewards and incentives: Techniques that use rewards, incentives, or positive reinforcements to motivate individuals to adopt or maintain the desired behavior.
Self-belief: Techniques that aim to strengthen individuals' self-efficacy, self-confidence, or belief in their ability to perform the desired behavior.
Natural consequences: Techniques that focus on highlighting the natural or logical consequences of the behavior to promote behavior change.
Comparison of behavior: Techniques that involve comparing an individual's behavior with that of others or with a standard to create awareness and encourage change.
Regulation and planning: Techniques that help individuals establish routines, make action plans, or manage their time, resources, or contingencies to support behavior change.

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These are just a few examples of the 93 behavior change techniques included in the BCT Taxonomy (see the full Version of BCTs Taxonomy file). Each technique is further described and defined in detail within the taxonomy, allowing researchers, practitioners, and policymakers to accurately identify and select the appropriate techniques for their behavior change interventions. The taxonomy provides a common language and a systematic approach to understanding and analyzing the specific components that contribute to successful behavior change. However, tailoring BCTs and intervention content to different populations is necessary.

Research until today has identified several behavior change techniques that have been used successfully to promote exercise to clients. According to relevant review, the most frequent behavior change techniques used in previously published intervention studies were the “graded tasks» and “self-monitoring” regarding physical exercise behavior. This indicates that for drug addicts to progress slowly with exercise duration and intensity is a very important technique. In so doing, they are bound to build their confidence up step-by-step, especially if they are inexperienced, and express concerns regarding their ability to exercise. Similarly, by “self-monitoring their physical exercise behavior”, they may actually become conscious of their progress, which in turn boosts their self-esteem towards continuing the effort. The BCTs of “credible source” and “instruction on how to perform the exercise behavior” heralds the need to have as an instructor a specialist who is not only knowledgeable of the specific physical exercise or sport but also a person they value and trust. Finally, “providing choices» and “social support” to participants implies that they need to feel autonomous and supported by their group members while participating in physical activities. Access to physical exercise programs and affordability may also play an important role in clients, especially when they face stigma or poverty. For that reason, using techniques such as “material rewards” and “incentives” may also help them to be able to attend physical exercise programs.

Delivery Channels

For any behaviour change technique that requires communication, we must also choose how to deliver it, whether it is intervention content or policy implementation. We can choose combinations of application methods, e.g. Group, face-to-face to start the programme and then by phone per week or month, and use mobile applications for monitoring or reminders.

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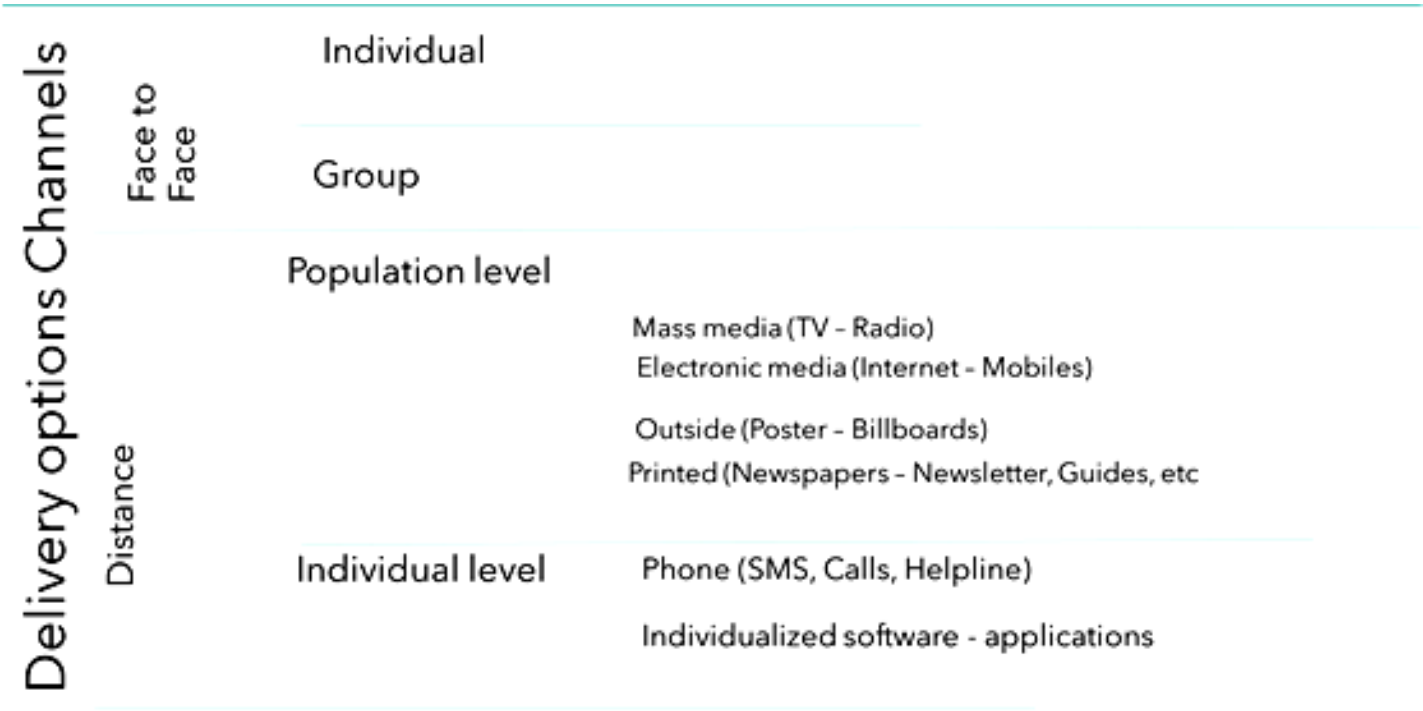

Figure 7. Delivery options channels

To choose the most suitable way or ways, we follow one or more of the three options below:

1. We simply ask the person(s) who will implement the programme.

2. We search in the literature which methods are most effective in a similar profile of people (in terms of health condition, access, age, gender, etc. characteristics).

3. We consult other experts from our field with extensive experience in which delivery options work better.

If, nevertheless, we find that our choice with one of the above methods does not work, we might need to change the delivery option/method. Nevertheless, according to existing research, most studies were based on delivery through the physical presence of an exercise trainer or counselor. The importance and need for the presence of a trained physical exercise instructor is crucial because a trained exercise specialist is in a position to make decisions regarding how much supervision the participants need and based on that to provide feedback and encouragement in order to support retention and adherence to physical exercise programs.

Moreover, a trained exercise specialist can better link the skills learned and acquired during sports and exercise training to addiction recovery. The support, encouragement, and guidance provided by staff are generally highly valued. In general, for SUD populations to face-to-face option is mostly recommended by literature. Nevertheless, if the treatment approach is open (e.g., day clinics or replacement recovery) using digital technology as an additional delivery option to the face-to-face sessions.

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Theories of behaviour change

As the mechanisms of development of addiction or substance dependence involve cognitive, emotional, and physiological processes, the expressions of addiction are essentially behavioral. This fact, has led current SUD recovery to emphasize identifying, enhancing, and leveraging the strengths and capabilities of clients, enhancing motivation, self-efficacy, and autonomy, and promoting behavior change. Therefore, behavior change theories can identify how individuals can enhance motivation for change, but also how to formulate and connect the components to develop effective interventions for sustaining. In this context, a number of behavior change and motivational enhancement theories have been applied to the SUD recovery, where each has individually contributed significantly to the development of effective interventions associated with positive treatment outcomes. The implementation and use of behavior change and motivational strategies can work positively to enhance motivation to change, leading to engagement and retention in treatment, and encouraging return to treatment in the event of relapse.

Important behaviour change strategies, which are interrelated and can have an important role to play in the SUD recovery, are theories of self-efficacy, goal-setting and self-determination, as they can support people with SUDs to develop skills to promote change in addictive behaviours, while enhancing their sense of autonomy and competence, leading to both short-term and long-term therapeutic benefits.

As the therapeutic interventions in which individuals with SUDs engage to change their addictive behavior are poorly described, if at all, in treatment planning, a reliable method for identifying, interpreting, implementing, and replicating these interventions is Behaviour Change Techniques (BCTs).

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Social Cognitive Theory

Social Cognitive Theory, developed by Albert Bandura, is a psychological framework that focuses on how individuals acquire, process, and apply knowledge and behavior through social interaction, observation, and cognitive processes. This theory is also known as Social Learning Theory or Social Cognitive Learning Theory.

Social Cognitive Theory has been widely applied in various fields, including education, psychology, and health promotion. It helps explain how individuals learn and adapt to their environments, how they develop new skills, and how they may change their behaviors based on observations and cognitive processes.

Key components of Social Cognitive Theory include:

Observational Learning: This is a fundamental concept in the theory. It suggests that individuals can learn by observing the behaviors, attitudes, and outcomes of others. Observational learning involves attention, retention, reproduction, and motivation. People pay attention to models they perceive as credible or attractive, retain what they observe, reproduce the observed behavior, and are motivated to do so based on the perceived rewards or punishments associated with the behavior.

Self-efficacy: Bandura introduced the concept of self-efficacy, which is an individual's belief in their own capability to perform a specific task or achieve a particular goal. High self-efficacy can lead to increased motivation and persistence in the face of challenges, while low self-efficacy may result in avoidance or reduced effort.

Reciprocal Determinism: This concept highlights the dynamic interaction between a person's cognitive processes, behavior, and the environment. It suggests that individuals are not passive recipients of their surroundings but actively shape their environments through their thoughts and actions.

Cognitive Factors: Social Cognitive Theory places a strong emphasis on cognitive processes such as attention, memory, and thinking. These cognitive processes influence how individuals acquire and process information from their social environment.

Modeling: Modeling involves using role models or examples to guide one's behavior. Bandura argued that individuals can model themselves after others, learning new behaviors and strategies through this process.

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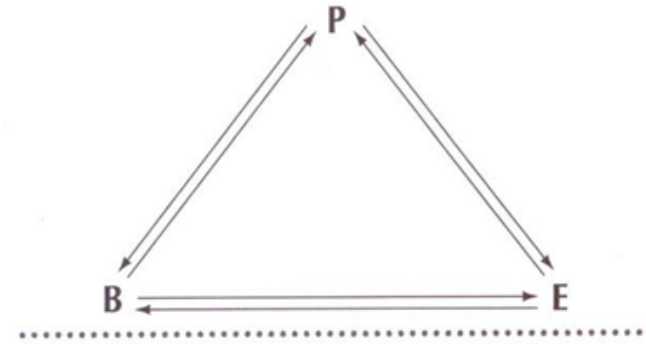
Reciprocal determinism

Reciprocal determinism emphasizes that individuals are not passive recipients of their environments, nor are they entirely driven by their internal thoughts and characteristics. Instead, they actively influence and are influenced by their surroundings. This concept is central to understanding how people learn, adapt, and change their behaviors in response to various situations and contexts

Self-regulation: Social Cognitive Theory also discusses the importance of self-regulation, where individuals monitor and control their own behavior, emotions, and thoughts. This self-regulation is influenced by self-efficacy beliefs and can lead to adaptive or maladaptive behaviors.

Outcome Expectations: People are motivated to engage in behaviors based on their expectations of the outcomes or consequences. Positive outcomes are likely to reinforce behavior, while negative outcomes can deter it.

Environmental Factors: The theory acknowledges that the social and physical environment can shape behavior and influence the learning process. Social norms, support systems, and environmental cues play a role in how individuals acquire and express behavior.



The relationship between the three major classes of determinants in triadic reciprocal causation. B represents behaviour; P the internal personal factors in the form of cognitive, affective, and biological events; and E the external environment.

The relative influence of these components will vary for different activities and under different circumstances

Dynamic and complex social cognitive process in which the individual becomes motivated, or demotivated, through assessments of his/her competencies within the achievement context and of the meaning of the context to the person.

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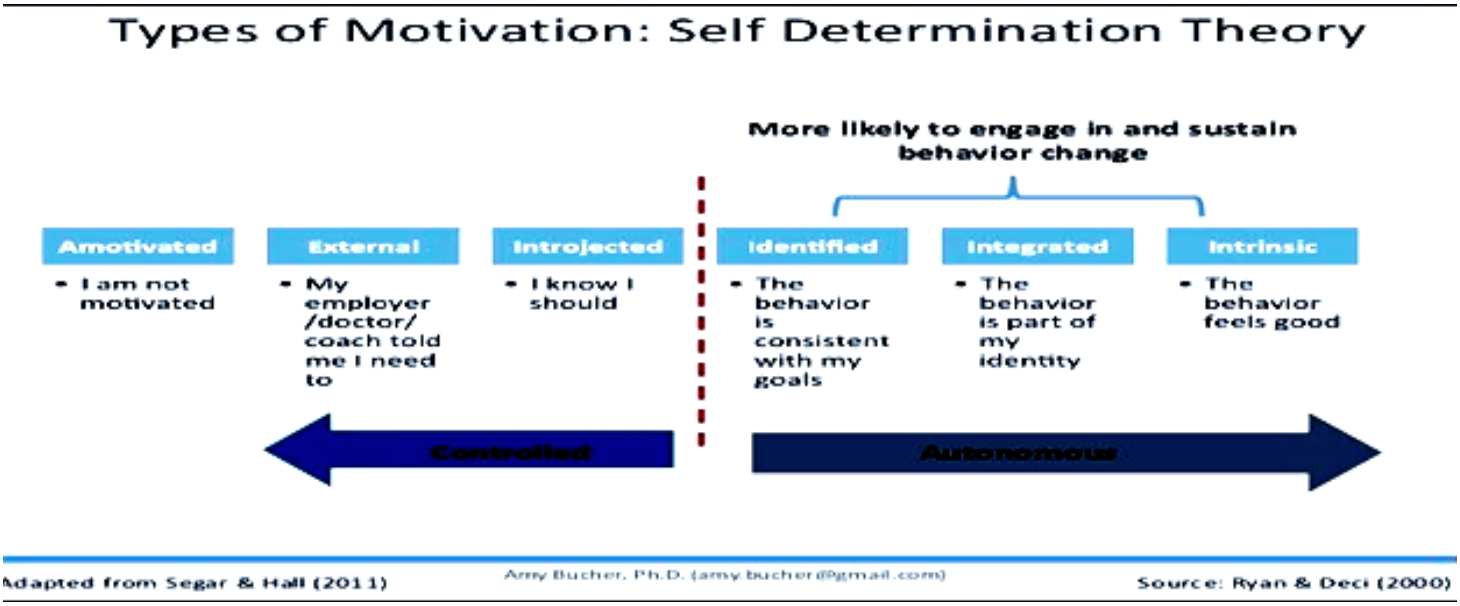
Self-Determination Theory

Self Determination Theory is uniquely placed among the theories that examine the effects of different types of motivation. According to Self Determination Theory, people have an innate tendency towards growth, fulfillment, and health. A key component of self-determination theory is the concept of intrinsic psychological needs, which are utilized to shape the content of goals as well as the regulatory processes that will support their achievement.

According to the theory, sustaining behaviors over time requires individuals to internalize values and skills for change and experience self-determination. Specifically, the theory argues that, for behaviors to become more internalized and sustained, behavior change is influenced by the extent to which individuals satisfy the basic psychological needs of autonomy, the need to feel capable, and the need to develop meaningful relationships with others. When the social environment facilitates these three basic needs, individuals are more likely to engage in intrinsically motivated behaviors.



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Autonomy refers to the extent to which individuals feel autonomous and responsible for their own behavior. Autonomy contrasts with control, as strategies that support autonomy include providing choices, acknowledging emotions, and allowing individuals to self-determine their desired behavior, whereas control strategies include setting goals by others and directing others to change. Indeed, many individuals, in the process of behavior change, are driven either by a controlled motivation or external regulation, in which the individual acts only to obtain an external reward, or by an internal regulation in which the individual acts to avoid negative emotions, with both of these forms of controlled regulation not leading to long-term adherence to the behaviour.

Need forAutonomy

- **choice**
- **decision-making**
- **feel important**

Strategies to satisfy Autonomy

- **encourage initiative**
- **provide choices**
- **participation in decision-making**
- **develop responsibility**

Along with a sense of autonomy, internalization requires an individual to experience self-confidence that it has the capacity to change. The need for competence refers to the extent to which an individual feels effective in their interactions with the social environment and experiences opportunities to demonstrate their capabilities. As competence includes information and skills required to change behavior, it should be supported and combined with autonomy so that intrinsic motivation is enhanced. Support for competence should be provided through feedback on effectiveness.

Need for Competence

- **learn**
- **achieve**
- **self-regulate**

Strategies to satisfy Competence

- **emphasis on learning**
- **emphasis on personal development**
- **goal achievement**
- **positive feedback**

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The third key need for intrinsic motivation is the need for meaningful relationships, which is defined as the degree to which individuals feel safe belonging and connected to others in their social environment. One of the meaningful relationships that develop when changing health behaviors is the therapeutic relationship with health professionals. As people in a healthcare setting often lack technical knowledge and expertise, they seek information and guidance from professionals in the field. In this process, a sense of respect, understanding, and caring is essential to form the experiences of connection and trust that promote change.

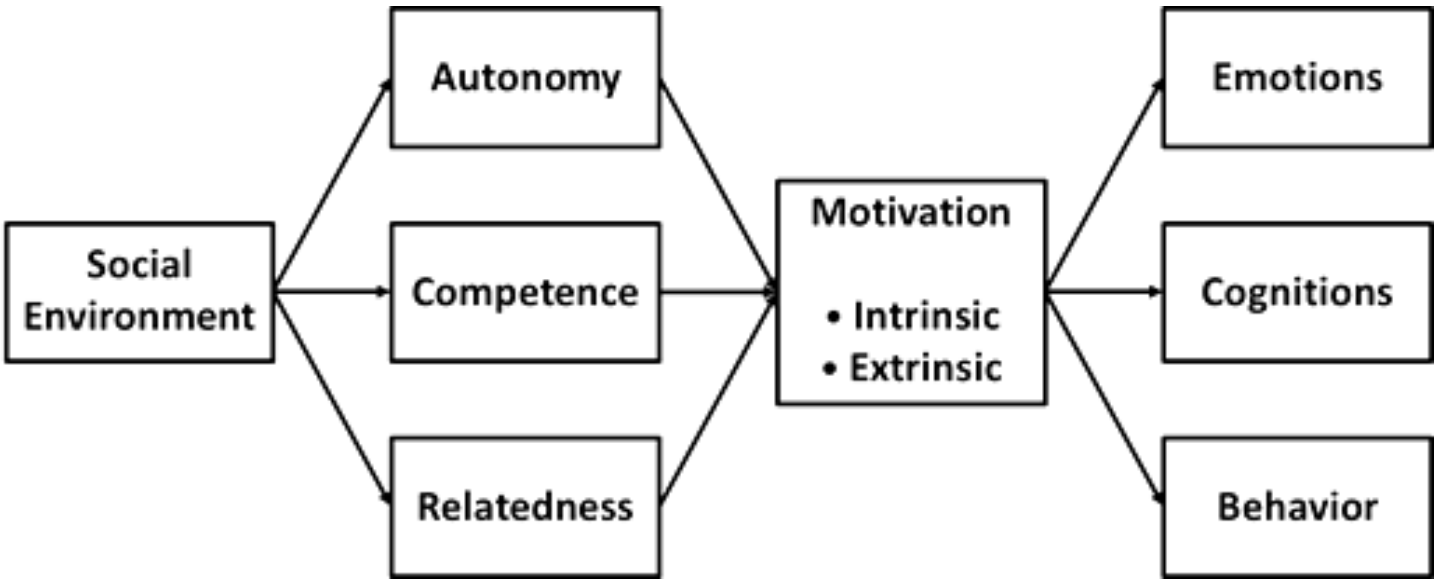
Need for Relatedness

- **social relationships and interaction**
- **social support**
- **feel of belonging**

Strategies to satisfy Relatedness

- **interest in personal life**
- **social interaction**
- **social support**
- **group unity**
- **group identity**

Developing an environment of autonomy and capacity building is crucial to the processes of goal internalization and integration, through which the individual can self-regulate and maintain behaviors that enhance their health and well-being. Self-determination theory is directly linked to goal theory, as goal pursuit and achievement based on autonomous motivation are more successful. Autonomous motivation is a form of motivation that reflects the reasons for choosing action, such that behaviors are experienced as self-derived. Individuals with autonomous motivation engage in activities out of personal interest, choice, and volition. Importantly, autonomous motivation is associated with the persistence of behavior in populations, behaviors, and environments, regardless of external reinforcements.



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Theory of achievement motivation

Achievement motivation refers to the drive to achieve well and accomplish through overcoming barriers and successfully completing challenging tasks. Higher standards and more determination are likely to be established by high achievers than by poor achievers who are equally gifted. High achievers are more likely to succeed in their ambitions in later life. In this context, the term is frequently used similarly with a need for achievement. A strong drive to achieve goals, reach a high level of performance, and find one's own fulfillment is known as a need for achievement. People who have a strong need for achievement frequently take on tasks with a high chance of success and shy away from tasks that are either not too challenging or too difficult because they fear failure. The aims of success and avoiding failure are two unrelated goals that exist in achievement settings, according to the theory of achievement motivation. The first goal is connected with the need for achievement, whilst the second connected with the need for failure-avoidance.

Achievement Goal Theory

Achievement Goal Theory (AGT) is a psychological framework that seeks to explain and understand the reasons behind people's achievement-related behaviors, particularly in educational and performance settings. It was initially developed by researchers John Nicholls and Elliot Dweck in the 1980s and has since been refined and expanded upon by various scholars. AGT posits that individuals are motivated to achieve success in various domains, such as academics, sports, or work, and that their motivation is influenced by the goals they set for themselves.

An individual's onceptions of their own ability to succeed may be defined as high or low, compared to others or depending on how they have performed in the past. These conceptions of ability affect how people strive demonstrate competence (achieve success) and avoid incompetence (avoid failure). They represent how people perceive success and failure. The idea that task mastery may be increased by effort or learning and that mastery is often not lost is recognized by both conceptions of ability.

There are typically two main types of achievement goals described within AGT:

Mastery Goals (also known as Learning Goals): Individuals with mastery goals are primarily focused on developing their competence and mastery of a task. They seek to acquire new skills, improve their understanding, and gain knowledge. These individuals are often driven by the intrinsic satisfaction of learning and growing, rather than external rewards or comparisons with others.

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Performance Goals: Performance goals are further divided into two subtypes:

Performance-Approach Goals: People with performance-approach goals aim to demonstrate their competence and outperform others. They are motivated by the desire to attain favorable judgments, recognition, or rewards for their accomplishments.

Performance-Avoidance Goals: Individuals with performance-avoidance goals are motivated to avoid negative judgments or failure. They may fear the consequences of not performing well and are more concerned about avoiding mistakes than striving for success.

Conceptions of competence / ability

Levels of skill and task complexity are assessed in reference to one's own perceived level of mastery, understanding, or knowledge of the undifferentiated concept. People feel more competent the more they believe they have learned. Evaluations of difficulty and competence are self-referential. Tasks are considered challenging if we anticipate failing at them, and the more challenging they seem to be, the more success indicates exceptional ability. Higher competence is shown by higher gains in mastery or by mastering a task that one was unsure they could accomplish.

Achievement Goal Theory suggests that these different goal orientations can significantly impact an individual's behavior, effort, and persistence in achieving their objectives. It also emphasizes that an individual's goal orientation can change over time and in different contexts

Learning does not provide a sufficient foundation for a perception of competence in differentiated conception. Instead, task difficulty and ability are rated high or low in relation to the competence of group members who represent the norm. High ability denotes excellence, whereas low ability denotes mediocrity. Additionally, it is assumed that sufficient evidence of optimal effort across individuals is needed for reliable inferences of ability. According to the differentiated conception of ability as capacity, task difficulty (or normative difficulty) is assessed based on how well individuals do on similar tasks, and proving one's superior ability requires success on tasks where others fall short. Interpersonal comparisons of effort and performance can be used to estimate capacity.

Undifferentiated conception of ability
- **ability not differentiated from effort, difficulty, luck**
- **competence as learning through effort**

Differentiated conception of ability
- **ability as capacity – differentiated from effort, difficulty, luck**
- **competence as being better than others**

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The two incompatible achievement goal states that determine how people define success in achievement settings are supported by the aforementioned concepts of ability. People who experience more capable as a result of increasing their own level of mastery are considered to be task-involved, whereas people who feel more capable as a result of outperforming others are thought to be ego-oriented. Being task-oriented entails having an innate drive to comprehend, complete, and absorb novel knowledge as well as to acquire skills and capabilities. When people adopt this viewpoint, activities are seen as appealing challenges, and mistakes may occur, but they are not seen as possibilities for failure but rather as ways to grow and learn. Task-oriented learners don't mind putting in a lot of effort since they don't see it as a way to make up for their lack of skill. When individuals are ego-oriented, they are not concerned with learning or mastering the task but rather with how well or poorly they do in comparison to others. In that case, some individuals adopt a task-avoidance attitude to avoid appearing incapable in comparison to others. These individuals avoid challenging tasks because they perceive errors as failures resulting from a lack of skill, which affects their self-esteem.

Goal approaches

Undifferentiated conception of ability - task approach/orientation

- **demonstration of ability through self-referenced criteria**
- **mastery, improvement, learning**

Differentiated conception of ability - ego approach / orientation

- **demonstration of ability through other-referenced criteria**
- **better compared to others**

The complex interaction between one's behavioural goal orientations and the overall motivational climate created by significant social actors determines one's ability to achieve goals within a specific setting.

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Self-efficacy

According to Bandura (1994), self-efficacy is defined as an individual's perception of their ability to control their functioning and the events that affect their life. Self-efficacy refers to individuals' beliefs about their abilities to perform the actions necessary to satisfy the demands of a particular problem or task and to their perceptions of their abilities to organize and perform the actions required to achieve specific accomplishments. In light of this self-efficacy influences the type of activities individuals choose to approach, the effort they expend on such activities, and the degree of persistence they demonstrate in the face of failure or aversive stimuli. Personal expectations are a fundamental factor in effectiveness, as they determine how much effort the individuals will put in and how long they will persevere in the face of obstacles and discouraging experiences.

Success enhances self-efficacy, while a sense of failure affects it negatively, causing individuals to tend to avoid situations in which they believe they may not be successful. With high self-efficacy people will view a difficult task as a challenge rather than a danger. The capacity to think strategically to deal with failure will be present as will a strong degree of commitment to achieving one's goals. Individuals with reduced self-efficacy face doubts about their ability to complete a task and thus give up easily when obstacles arise. Self-efficacy is not concerned with the number of skills one has, but rather with what one believes can do with these skills under certain circumstances. Different people with similar skills or the same people in different circumstances may perform poorly, adequately, or extraordinarily, depending on fluctuations in their beliefs of personal efficacy. Efficacy beliefs can predict/contribute to performance regardless of the skills one has. Self-efficacy, however, is not the same as unrealistic optimism, since it is based on experience and does not lead to irrational risk-taking.

Self-efficacy is related to three dimensions: level, strength, and generality. Level refers to individuals' beliefs in their capability to perform a specific task (e.g. I can walk 3/5/7 km.). Strength reflects individuals' degree of certainty that they are able to complete the task (e.g. I'm 100/70/50% confident that I can walk 3/5/7 km.). Generality refers to individuals' expectations regarding the accomplishment of similar or related domains (e.g. I can jog/climb stairs for / dance ...).

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According to Bandura, there are four main sources of self-efficacy beliefs:

Enactive mastery experiences.
Mastery experiences refer to learning through personal experience where one achieves mastery over a difficult or previously feared task and thereby enjoys an increase in self-efficacy. The mastery of one's own experiences is the most significant way to foster a strong sense of effectiveness. Successive mastery over tasks required to engage in behavior helps the person to develop and refine skills. In addition, it fosters the development of a repertoire of coping mechanisms to deal with problems encountered. The most influential source of self-efficacy. The sense of self-efficacy grows the more tasks are accomplished successfully.(I've done it before). Performance accomplishments attained through personal experience are the most potent source of efficacy expectations.'

Successes build robust efficacy beliefs. Failure undermines it, particularly if it occurs before a sense of efficacy is built; repeated failure occurs early in the course of action and does not reflect a lack of effort or averse external circumstances (Strecher, V. J., McEvoy DeVellis, B., Becker, M. H., & Rosenstock, I. M. (1986).

Vicarious experiences
Improving a sense of self-efficacy can be fostered through social modeling or by observing others perform a task effectively. We get a greater sense of self-confidence when we see individuals like ourselves succeed in our endeavors. These events/people are referred to as models when they display a set of behaviors or stimulus array that illustrates a certain principle, rule or response. On the other hand, observing a model master situation that has been feared or seen as difficult can enhance one's own expectations of mastery

We are likely to internalize some of those positive feelings about the self when we have positive role models who demonstrate an appropriate level of self-efficacy. (Others can do it, so why can't I).

In order for modeling to affect an observer's self-efficacy positively, however, it is important that the model can be viewed as overcoming difficulties through determined effort rather than with ease, and that the model be similar to the observer with regard to other characteristics (e.g., age, sex). Additionally, modeled behaviors presented with clear rewarding outcomes are more effective than modeling with unclear or unrewarded outcomes.

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Verbal persuasion; To give a task the best effort because someone acknowledges you or says something encouraging. The verbal persuasion element explains how words might increase someone's sense of self-efficacy. (You can do it)

This method is quite familiar to all health educators who have exhorted patients to persevere in their efforts to change behavior.

Given the potential importance of human contact, it would be useful to examine how the style of delivery may affect intervention outcomes, such as the communication style, communication technique, visual style, and complexit

Emotional and physiological states. Our perception of our capacity for success can be influenced by our mood, emotions (anxiety, stress, etc.), and physical reactions (arousal, fatigue, pain, etc.). This implies that both emotional and physiological states point to the significance of general health and well-being in the development and sustenance of self-efficacy. (It feels good).

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The Goal Setting Theory

It is generally accepted that an important strategy for regulating behavior and enhancing motivation, used in various contexts, is the goal-setting theory. Goals, being what the individual strives to achieve, are a specific expression of the purpose of life and have both internal and external validity, as goals are effective even when assigned by others, either jointly determined or self-determined.

According to Locke the basic principle of goal-setting theory is that individuals need specific and challenging goals to drive them to high performance, not just to be motivated to do the best they can. The process of goal selection is influenced by two key factors: a) how important the goal is to the individual and b) how confident the individual is that he or she can achieve that goal. Important variables that are also intertwined and mediate between goals and performance are goal selection and acceptance, effort, persistence, and strategy for achieving them.

Goal setting is a complex cognitive mechanism that is shaped and influenced by many parameters. Thus, in order for the goal setting process to be most effective, key design parameters are that goals should be realistic yet challenging, enhancing motivation and commitment to them, thus leading the individual to a sense of achievement while encouraging them to set new future goals. Additionally, other important parameters for successful goal setting that will lead to more effective performance are that they should be specific.

Goals affect performance through four mechanisms: a) goals direct attention and effort toward actions that are related to and support the ultimate goal, protecting the individual from being consumed by unrelated actions b) high goals lead to greater effort than low goals, as there is a positive, linear relationship between goal difficulty and performance c) goals are linked and reinforce the individual's persistence and finally d) goals indirectly influence action by prompting the individual to discover and use knowledge and strategies, motivating them to use their existing skills or retrieve stored knowledge or seek new knowledge.

Clearly, goals refer to future estimated outcomes, as setting them is primarily a process of creating deviance. Consequently, individuals who set long-term goals rarely succeed in achieving them, unlike individuals who set short-term goals. Short-term goals are important because they help individuals focus on small improvements as they provide ongoing feedback on progress toward the long-term goal.

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Long-term goals are too distant in time to have much impact on action, yet they are very important for success as they can act as a final ultimate goal for individuals, keeping the focus where they ultimately want to be. In this light, a good way to visualize the interaction of short-term and long-term goals is to think of a ladder with the long-term goal at the top, the current level of performance at the bottom, and a series of incrementally linked short-term goals connecting the top and bottom of the ladder.

In line with the above, feedback is a key element and is essential for monitoring progress and evaluating performance against the target, providing information to the individual about progress or not, and whether they need to redefine goals or a strategy to achieve them. The element of feedback, particularly when reinforced by self-monitoring, is very important as it makes the goal-setting process more effective, thus enhancing the individual's commitment leading to better performance.

Satisfaction and performance are closely linked to the point where the individual exceeds his or her goal, as the most direct, determinant of performance is the goal, and that satisfaction with an individual's performance is a function of the difference between actual performance and target performance. An individual's satisfaction depends on achieving a difficult goal as more energy is expended than an easy one. The amount of effort devoted to achieving a goal depends on the level at which it is set, with difficult goals requiring a higher effort and leading to higher performance than easier goals (Locke & Latham, 2006). Therefore, high and difficult goals are motivating because they require the individual to achieve more in order to be satisfied.

More effective performance occurs when goals are specific and challenging, realistic and measurable so that the individual is aware of the progress they have made towards achieving them, with the setting of deadlines to improve this process. However, setting difficult and challenging goals may not always be effective if the individual perceives these goals as threatening, with this assessment between challenge and threat affecting performance. However, it is important to emphasize that, goals that are very easy and not challenging for the individual will not lead him/her to exert maximum effort.

It would be an omission if it were not mentioned that goal-setting theory can also be useful and effective for understanding and managing the psychology of a group. A team is formed to the extent that it agrees on the goals to be achieved and the ways and timing to achieve them. However, the team adds a level of complexity because goal conflicts may arise between team members and also between the team's goal and the individual goals of its members, affecting processes of cooperation and cohesion, thereby limiting team performance.

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Goal setting is a strategy that can support individuals to identify specific dysfunctional behaviours and then change them. However, behaviour change is not an easy process and goal setting for change needs to be accompanied by specific action plans to be sufficient and lead to the expected behaviour change.

Sport is a setting where the individual can be trained in the process of goal setting. The enhancement of self-image and self-efficacy gained from goal setting in sport can be transferred to other aspects of an individual's life, giving them a sense of control and positive directionality. Goal-setting is also an effective behavioural change strategy that significantly increases physical activity.

The SMART acronym (e.g., Specific, Measurable, Achievable, Realistic, Timebound) is a highly prominent strategy for setting physical activity goals.

Specific – target a specific area for improvement. ·Specific goals are easily identifiable and clear

- What do I want to achieve?
- Will accomplishing this goal have a significant effect?
- What steps do I have to take?

Measurable – quantify or at least suggest an indicator of progress. It facilitates monitoring and assessing our progress towards our goals.
Consider
How much
How many
How long
How far

Achievable - know it is possible

Realistic – state which results can realistically be achieved, given available resources.
Consider
Do I really believe I can do that?
Have I done something comparable before?
What are the conditions to make it?
Do I have the resources?

Timeframed– specify when the result(s) can be achieved. Consider
Specific dates
Milestones

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+ ER
...Evaluation
evaluate your progress all the way along the process
...Review/Readjust
readjust if needed to keep it within reach or enhance it if progress allows

+EST
Educational
What will you learn working toward this goal?
Significant
Why do you care about this goal?
Toward
Does the goal describe something you want?

However, a growing body of evidence suggests that non-specific and open-ended goals (e.g. "see how fast I can run 5 km" or "see how far I can walk in 3 hours") may be more effective to increase physical activity.

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Goal-setting theory provides clear guidelines for promoting change in addictive behaviours by encouraging individuals to set specific and appropriately challenging goals. The key goal of SUD recovery treatment is to stop substance use and control it, as it can lead to beneficial future outcomes. In this context, goal-setting theory plays a crucial role, as the necessary components for behaviour change are gradually built upon.

Therefore, the therapeutic goals should be clear, achievable, and carried out in small successive steps, so that both the client and the therapist can know in time whether the goals have been achieved or not. The establishment of goals in the recovery process should be supported by the following key elements:
α) The setting of goals should be based on the client's behaviour, so that he/she is responsible for achieving them, giving him/her a sense of achievement;
b) goals should be measurable, so that their achievement, or part of the achievement, can be recognized by the client and other important third parties,
c) goals should be challenging and risky so that they offer a sense of success and achievement, but should not be disproportionately difficult, as they may undermine the therapeutic process; and finally
d) specific time limits should be established for the completion of goals, as this puts pressure on the therapists to work towards their fulfillment.
That, provides a framework for projecting the achievement of long-term goals, based on a series of short-term successes, designed to build on each other in a staggered process.

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Motivational Interviewing

Motivational Interviewing (MI) is a client-centered, evidence-based counseling approach that aims to help individuals identify and resolve ambivalence about behavior change. MI was developed by clinical psychologists William R. Miller and Stephen Rollnick in the early 1990s and has been widely used in various healthcare and counseling settings, including addiction treatment, mental health, healthcare, and wellness coaching. The core principles of Motivational Interviewing include:

Express Empathy: MI practitioners strive to create a nonjudgmental and empathetic environment, where clients feel heard and understood. This empathy helps build trust and rapport, which are essential for successful counseling.

Develop Discrepancy: MI encourages clients to explore the discrepancy between their current behavior and their desired goals or values. By highlighting this incongruity, clients are motivated to change.

Support Self-Efficacy: MI aims to enhance the client's belief in their ability to change. Practitioners help clients recognize their strengths and past successes, boosting their confidence in their capacity for change.

Avoid Arguing and Directing: Unlike more confrontational approaches, MI avoids arguing with clients or giving direct advice. The goal is to guide clients in exploring their thoughts, feelings, and motivations related to change, rather than imposing solutions.

Elicit Change Talk: MI encourages clients to express their reasons for wanting to change (change talk) and their reasons for staying the same (sustain talk). By eliciting and amplifying change talk, practitioners can help clients clarify their motivations and intentions.

Rolling with Resistance: When clients express resistance or reluctance to change, MI practitioners avoid directly challenging them. Instead, they acknowledge and explore the resistance, seeking to understand the underlying concerns and ambivalence.

Motivational Interviewing is often used in situations where behavior change is essential but challenging, such as overcoming addiction, improving adherence to medical treatment, or making lifestyle changes for better health. It's a collaborative and client-centered approach that respects an individual's autonomy and promotes intrinsic motivation, ultimately leading to more sustainable and successful behavior change. MI techniques can be applied in various professional settings, including therapy, counseling, coaching, and healthcare.

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The MI is based on gradually building trust and rapport between the client and the advisor and focuses on behaviours that need to be changed or maintained. The counsellor's interpersonal skills are associated with better therapeutic outcomes. MI is based on the use of non-oriented counselling skills, such as reflective listening, as the counsellor focuses the discussion primarily on the client's review of ambivalence, aiming to mitigate it. The application of MI involves three main aspects by the counsellor: (1) client-centred counselling skills, (2) the continued use of the reflective listening technique to explore the client's internal motivation and finally (3) strategies to minimise client resistance. In this light, MI consultants limit the provision of information or advice until clients first present their own version and understanding of the situation, formulating their own suggestions for addressing the barriers to change.

The area in which MI has been widely applied is in treatment settings for substance use disorders, where it has been shown to be an effective approach to enhance motivation to engage and stay in treatment. When considering the factors of SUD recovery, an important factor that is a prerequisite for addictive behaviour change is the formation and reinforcement of motivation that will lead the addicted person to change. Motivation is considered a strong predictor of treatment outcome, and its lack is often associated with the failure of individuals with SUD to integrate and continue on their recovery pathway.

Interventions based on the motivational interviewing technique to enhance motivation to participate in physical activity programmes can be proposed as an alternative to a variety of health-related behaviours. Motivational interviewing, in recent years, has been utilized as a motivational strategy for exercise participation, finding application in a wide range of exercise and physical activity interventions in clinical populations

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Experiential learning

What is experiential learning

We want to start this chapter with a question: *What is Experiential Learning (EL) for you? What comes to your mind when you hear or read this expression?* Take a moment to brainstorm and think of words, ideas, memories, actions associated with Experiential Learning.

What has come to you? Learning while doing? Trials and Mistakes? Learning from a past experience? Or maybe Reflection on some Actions, Active learning vs Passive acquisition of knowledge, An internship, Team Buildings, Outdoor Education? Have you thought about non-formal education, outdoor learning, experiential training?

These are terms related with Experiential Learning; in fact, EL exists when an activity involves participants cognitively, affectively, and behaviorally in order to process knowledge, skills, and/or attitudes in a learning situation characterized by a high level of active involvement. In other words, the learner is actively engaged in posing questions, investigating, experimenting, being curious, solving problems, assuming responsibility, being creative, and constructing meaning.

Think about a hypothetical football match where, before starting to play, the teams define their own rules and principles, and after the match they reflect upon how they have been, how/what they have felt, the roles they played, the strategy they used and the communication dynamics, and how the insights enlightened during the reflection can be applied to their daily life.

This is Experiential Learning: *there are the learners, the environment where the experience takes place, and the process of developing personal understanding, knowledge, skills and attitudes through the active involvement, the analysis of, and the reflection on, an activity.*

Without any experience (sensation and perception), there is no learning contact with the environment. And the environmental contact involves the person on different levels: the affective one, with the emotional reaction, the behavioral one, with a degree of awareness of action/reaction; the socio-relational one; the cognitive one, with the reception and processing of information and, why not, the spiritual one. In order to be educational, the experience is designed considering some learning goals, in our case we talk about Life Skills, and it is interesting to keep in mind that while we do this "*the goal is not only to learn the specifics of a particular subject and its application to daily life, but also to learn about one's own learning process*" (Kolb, 1984)

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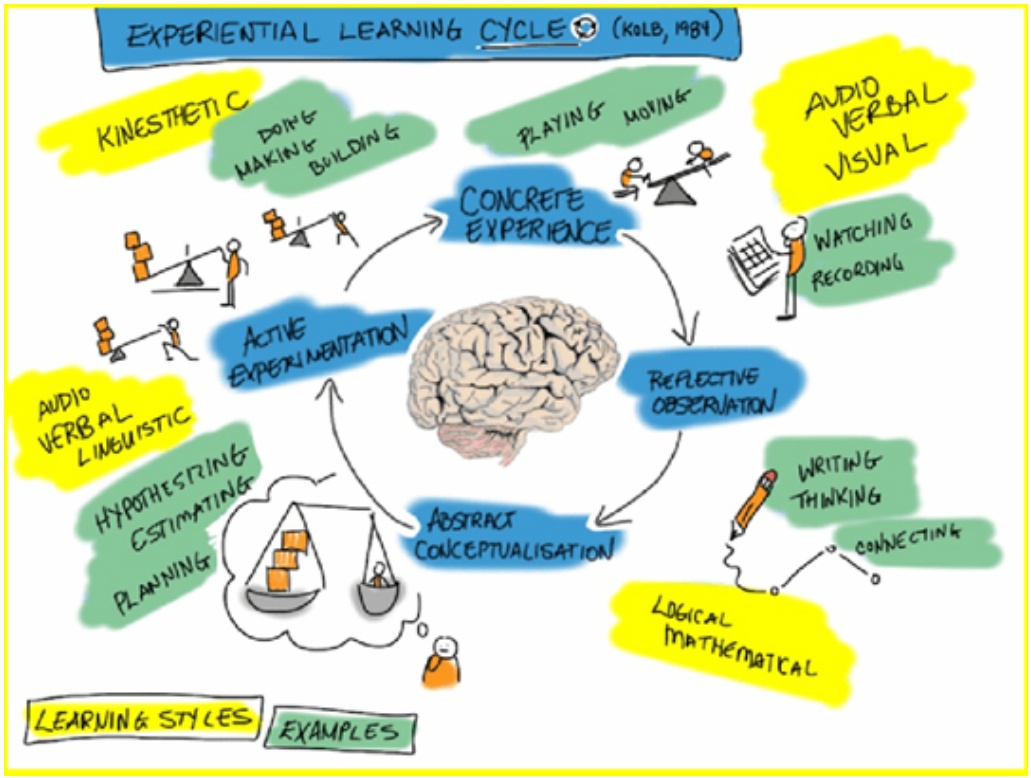
To conclude this introduction it is important to underline that Experiential Learning is not only an active way of learning -increasingly used in educational programs for youngsters and adults- but also refers to a set of philosophical, theoretical and practical models, and may be viewed as a methodology of intervention whereby settings and individual or group experiences are contrived to expand learning and perceptual capacities, to develop and reinforce cognitions, to impact on emotions and attitudes, and, importantly, to facilitate thriving capacities to behave consistently with the insights of these processes and experiences. We are going to refer to this theoretical frame in order to support the delivery of sport activities as means to "train" Life Skills, opening the way for "experience" to enter into the therapeutic process.

The theory of Learning by doing: Kolb's Learning Cycle

David Kolb's four-stage Cycle of Experiential Learning is a fundamental presentation of the approach, this cycle is often used in adult education and will be the frame within whom we would like to implement sport activities into the therapeutic process.

Diverse are the sources of inspiration of this model: from philosophical pragmatism, to cognitive development theories, from the T-group movement, to humanistic psychology and critical social theory. Among others, authors like the philosopher John Dewin, the social psychologist Kurt Lewin and the developmental psychologist Jean Piaget strongly influenced the definition of the Experiential Learning Cycle.



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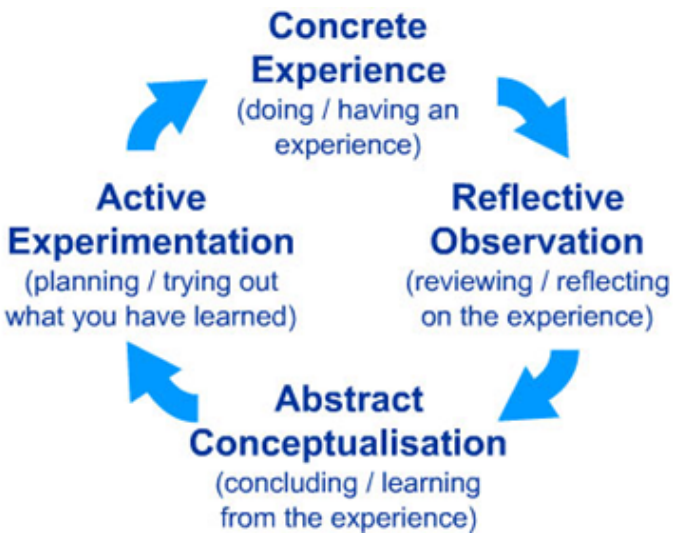
The Learning Cycle and the Learning Spiral

Starting from these, and other, theoretical contributions, Kolb formulated a learning development model portraying a 4-stage learning cycle: Concrete Experience, ReflectiveObservation, Abstract Conceptualization, and Active Experimentation



The Learning Theory defines experiential learning as "the process whereby knowledge is created through the transformation of experience" and it is continuous. It requires the learner to experience, reflect, think, and act in a cyclic process: Concrete experience (CE) is gained when the learner actively experiences and performs. Through the process of reflective observation (RO), learners consciously reflect and draw conclusions from their experiences. Based on these implications, in the third stage of abstract conceptualization (AC), learners can conceptualize a theory or model and utilize these generalizations as guides to engage in further action and experiment with different scenarios in the final cycle of active experimentation (AE).

The vertical dimension refers to two dialectically related modes of grasping experience, and the horizontal one to two dialectically related modes of transforming experience; Learning arises from the resolution of creative tension among these four learning modes. According to the personal combination of these modes there can be different “learning styles” - but the main concept of this process, portrayed as an idealized learning cycle, is that the learner “touches all the bases”—experiencing (CE), reflecting (RO), thinking (AC), and acting (AE)—in a recursive process: the cycle goes spiral and learning can start at any stage.

The focus on the here-and-now perceiving, feeling, thinking, behaving makes Experiential Education a teaching philosophy that can be used in different disciplines and settings: this happens when professionals purposefully engage with learners in direct experience and facilitate focused reflection in order to increase knowledge, develop skills, clarify values, and develop people's potential and their capacities.

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What are the main elements? And how is EL in action?

When professionals design an EL session, what should they keep in mind to refer to this model? Considering that the activities can be various, going from ice-breakers, to real out-of-the-comfort-zone challenges, from trainings to therapeutic journeys, it is important to clarify that there is not a fixed structure in EL, but there are some elements to keep in mind, and we will see them unrolling the cycle.

THE EXPERIENCE

Experiences happen continuously in life, and they can be designed specifically in a program. Imagine that a group of learners meet for a daily training: there is the first phase, let's call it a check-in: everybody introduces him/herself, share a brief personal story (Why my name is my name, what I like, what I ate for breakfast, how I feel, what I expect from today...;) then there is a game to break the ice, to warm up and to energize, and then there is the Experience, which usually involves three phases:

- The ***Frontloading,*** is the introduction: here rules, goals, and structure is presented, and people are invited to participate and get involved.

- The ***Experience*** itself. It can include anything: from an individual or little group activity to completing a simple task to highly complex group interactions involving a wide range of mental attributes and behaviours. In our case, the "Activity" will be sport/exercise related. It activates kinaesthetic participation and learners are engaged intellectually, emotionally, socially, soulfully and physically; they move, act, work in groups, take initiative, make decisions and are responsible for results. This involvement produces a perception that the learning task is authentic, and connections with "how we are in daily life" can be found.
- the ***Debriefing***: participants and facilitators meet in a circle and its time to reflect

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Emotionally and Physically Safe

In order to make learning possible, this "space" has to be perceived as safe, both physically and emotionally. It is important that the transitional space where learning takes life is "holding", "good enough", a Safe Space which consists of appropriate physical aspects, trust, respect, suspension of judgment, a willingness to share, and high-quality listening. We further propose that a safe space can be developed and maintained by creating a strong container early on, establishing ground rules, promoting active listening and respectful witnessing, teaching by example, and developing a reflexive attitude.

Growth happens out of the comfort zone, where a certain grade of uncertainty and challenge is intrinsic and required.

Comfort-stretch-panic model

The comfort zone is where individuals feel "at home", it is comfortable, safe, and familiar. It's where we recognize patterns and feel confident in our performance. It's where we rest, recharges, and reflect and there is balance, there are no challenges and little learning happens here.

The panic zone is where we are scared, distressed, and overwhelmed. We are on alert, and we activate automatic reactions, such as fight-or-flight or freezing. All the energy is used to face fear and panic, it's an emergency and there is no learning in the here-and-now.

The learning zone is the intermediate zone between comfort and panic. It's where we learn, discovers, grows, and develop. In this zone, situations and activities feel "strange" and unknown, they are new or almost new. There is a challenge. This generates in us a certain level of discomfort, activation, and even physiological (eustress), which is needed to experience the excitement, energy, and motivation necessary for learning. Operating in and learning in this zone can expand our comfort zone, supporting us in becoming familiar with new situations, settings, and activities. In our work the goal is to work in this area, and we think it is interesting to find the connection with the Zone of Personal Development, as described by Vygotsky: the distance between the actual developmental level as determined by the individual and the level of potential development as determined through experience, under professional guidance or in collaboration with more capable peers.

See more in Appendix A you can find activities to introduce the model, and useful questions to reflect on the comfort-learning-panic.

Setting goals and EL

Setting goals is a fundamental process in order to give meaning to experience and orient the focus during reflection. The goals can be various: building trust, sensory and bodily perception, time setting, leadership, and communication...; and the same activity can be oriented to work on different aspects. While setting goals, factors like the target group, their needs, the aim of the project, the timing, and the length, have to be considered.

For example, in the daily training before, we would like to work on "trusting and leading". The activity is a sensorial experience where couples (one blind-one seeing) are exploring the space. This goal will influence the reflection, but not the activity. In fact, the same activity can be delivered in different situations, for different purposes, so setting the goals is what orients the focus for the reflection. Another fundamental point is considering the life moment of the group and the life moments of every single participant.

Question for the practice:
Which goals do we want to set?
Which activity are we going to plan? What are the needs of the group?
Which factors to consider?
How do we set up the reflection?

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Reflection (in action)

Experiential learning is about stretching our experiences forward, driven intrinsically by hope as an aspect of our encounter with the world.

Facilitating a reflection is facilitating a learning dialogue between our implicit embodied experience and conceptual aspects of our consciousness, so reflection is more than a purely cognitive exercise.

Processing is defined as the techniques used to increase the healing properties of the active experience based on an accurate assessment of the client's needs.
Reflection can be done before, to explore expectations for example; it can be raised during the experience (REFLECTION IN ACTION), when something intense happens, to fix the moment, the emotion in the "here and now", recognizing the experience a certain degree of intensity, and/or it can happen afterward, as a way to process what happened and integrate new insights to the daily life.
The processing activities can be used to:

- help individuals concentrate or raise awareness prior to experience
- to facilitate awareness or to promote change while the experience is occurring
- to describe the experience after the completion
- enhance change and incorporate it into the life of the participants after the end of the experience

A study on this process proposes nine elements of human experiential learning that contribute to developing a framework for conceptualizing reflection, let's see some of these:
The embodied experience seeks integration:

- Human beings are forever reconstructing themselves through their experiences and the movement of their consciousness. Within this process, we naturally seek to make meaning.
- Human consciousness is intentional, "on the threshold of responding or reacting to what is unfolding around you".
- This forward movement is creative: it draws not so much on our analytical mode of thinking and planning, as it does on our capacity for imagination.
- Learning from experience needs to be responsive to the specific internal rhythms of each individual or collective—it is "learner-centered"—rather than being reliant on any external teaching or development agenda.
- Making meaning from our experience is a relational process—internally between different elements of our consciousness and between our personal and social aspects, externally between ourselves and individual others and within a shared collective. (Kemmis, 1985).
- The relational aspect of experiential learning includes our co-emergence with the situations and environments in which our experience is embodied.

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How to facilitate reflection?

The process of facilitating the integration of an experience throughout the rest of the cycle can be unfolded around Three Simple questions:

WHAT (HAPPENED)?
From Concrete Experience (CE) to Reflective Observation (RO)
This is a prototypical question to stimulate Reflective Observation.
Here is where, the more objectively possible, people describe the experience, how it was, what happened, and how they felt, they focus on internal/external states, and they observe some dynamics.

SO WHAT (DID I LEARN?)
From Reflective Observation to Abstract Conceptualisation
Did I notice something about me, about the group? So what does this fact say about me? Are there other moments in life when this happens? Can I learn something from it?
Here is where people begin to form abstract ideas and theories based on their hands-on experiences.

NOW WHAT (CAN I DO)?
From Abstract Conceptualisation to Active Implementation
Can I use this new information in my daily life/workplace? How, where, and When could I try to implement it?
And as the group circle closes, the EL Cycle opens a new wheel.

Reflecting after an experience can be incredibly valuable for personal growth and learning. If you are a facilitator, leaving time in your sequence for proper reflection is essential.
Here are five reasons why reflecting is important:

Gain insights: Reflection allows your participants to uncover valuable insights and lessons from their experiences. By taking the time to analyze what happened, they can identify patterns, understand their emotions, and gain a deeper understanding of themselves and their current situation.

Make better decisions: Reflection gives people the opportunity to review their actions and decisions, allowing them to identify what worked well and what didn't. This self-awareness can help teams make better choices in the future and avoid repeating the same mistakes.

Increase self-awareness: Reflecting on experiences allows people to develop a greater sense of self-awareness. They can become more in tune with their values, strengths, weaknesses, and beliefs. This self-awareness is key to personal and professional development.

Enhance problem-solving skills: When people reflect on an experience, they can analyze the challenges they faced and how they approached them. This analysis enables them to develop better problem-solving skills by identifying alternative approaches or strategies that could have been more effective.

Foster personal growth: Reflection creates space for personal growth. By examining their experiences, they can set goals for themselves, clarify their values, and make adjustments to align their actions with their desired outcomes. It can be a transformative process that helps people become a better version of themselves.

Remember, reflection is not about dwelling on the past but rather using it as a tool for learning and growth. Building in time in every program for reflection allows teams to process through their experiences, and they will reap the benefits in the long run.

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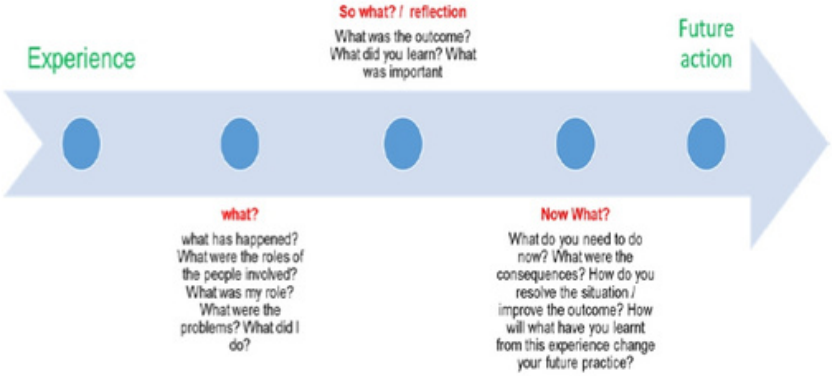
Debriefing Strategies

The Debriefing Process: What?, So What?, Now What?

The overall aim of debriefing is to give clients the opportunity to understand what happened to them and to connect and transfer these experiences to their daily lives.



What?

Is the activity itself, a summary of what happened. The debrief focuses on the most recent activity. Ideally, more emotional or confrontational issues should be addressed in the later stages of the program, and so activities need to be sequenced to the physical and emotional needs and abilities of group members. Debriefing typically commences with questions concerning the "What?" as in "What happened in that activity?". In this part of the debriefing, the facilitator encourages as many group members to provide their perception of the activity. This focuses on content about the experience rather than participants' emotional responses (Reupert & Maybery, 2002; Lubans, 2009).

So what?

Is what you learned about yourself and others from the activity. Is focuses on the emotional meaning held by individuals as a result of what had previously taken place. The role of the facilitators is to encourage group members to describe the emotions that were generated as a result of what happened. This phase of the debrief attempts to link the emotional experience of group members to the content (the "What?") and the subsequent roles played by individuals within the activity. Insights into group processes are heightened, and self-discovery maximized (Reupert & Maybery, 2002; Lubans, 2009).

Now What?

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The third phase of the debrief, builds naturally from the "So What?". Is what you derive—the takeaways—from the group activity to apply to your life and at work. Questions in this phase center on, "Now what will you do differently in the future?". This becomes a goal setting exercise for both individuals and the group where intentions for behavior change are defined. Participants are encouraged to apply what has been learned to their relationships and lives outside of the program. This phase can also establish new ground rules (for the contract and the classroom) and initiate future activities that practice newly acquired group behavior (Reupert & Maybery, 2002; Lubans, 2009).

Examples of Debriefing Questions

What?	What happened just now? What did you see happening? If a stranger walked into the room and you had to tell them exactly what happened what would you say? If you had to explain how to do this activity to someone that was not here, how would you explain it? Can anyone give an example of what was good communication /problem solving / working together (whatever the objective was) today? What went wrong with the communication / problem solving / working together attempt? What nonverbal communication did you see? How did you decide what to do during the activity? Was everyone heard? If not, why not? Were people listening to each other? Did they communicate to each other? What feelings did the different people express today?
So What?	How do you feel about what happened? What is one feeling word that describes how you feel right now? What was your body feeling during the activity? Where in your body were you feeling this? What did you do with that feeling? Would you like to feel differently in a similar situation? If so, how would you like to feel?
Now What?	So what happens now? What did you learn from that? About yourself? About others? What would you do differently next time? How does that apply to your life? What is the best way for this group to make decisions / solve problems / work together?

Funnel Model of Debriefing (Priest & Gass, 2018).

Replay

The replay question focuses the group on the topic or issue of interest-based on client needs, your program objectives, and any incidents that took place in the activity.

Remember

The remember question gets clients to identify an incident relating to the topic that took place during the experience. If you bring up the incident, the group may deny it or perhaps feel confronted. Therefore, you should ask a question that gets the group to bring up the issue, giving it ownership and control over the situation.

Affect and Effect

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The affect/effect question addresses emotions and causes. Once clients bring up a specific incident related to an issue, you can ask other questions to ascertain the impact of that occurrence. These questions examine how each individual felt and how the group was influenced by the event

Summation

The summation question highlights new learning. Once you have ascertained the impact of the event, you ask clients to summarize what they have learned about the issue. So far, they have identified an occurrence and discussed its influence on their task performance and group dynamics.

Application

The application question helps establish linkages between the learning experience and real-life situations, thereby reinforcing learning and helping solidify its transference. Ask clients to make connections in the form of metaphors, or analogies, between the adventure and daily life.

Commitment

The commitment question looks toward change. Once clients have noted the usefulness of the new learning and how they might apply it in their daily lives, ask them to make a pledge and plan for action. You should press for answers in the form of an 'I' statement and get the group to support members who commit to doing things differently because of their guided reflection on the experience.

Filter	Guide questions for each filter in the funnel
Replay	Can you replay or review the last activity for me? What are some_____ [topics] that you needed in that activity? On a five- point scale, hold up the number of fingers that indicates your level of performance_____ [topic], with five being exceptionally great.
Remember	Do you remember an example of excellent (or poor) _____ [topic]? Can you recall a particular time when_____ [topic] was good (or bad)?
Affect/effect	What emotional did you experience? How did this affect your feelings? How did this emotion impact the group? What influence did this have on the task?
Summation	How does the moral of this story go? What did you learn from all of this? Can you sum up what you have gained from our discussions (or reflections)?
Application	Do you see a connection between this learning and your life back at school? Can you apply this on the job? Do you see any parallels to your family?

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Commitment	What will you do differently next time? Begin with the words, "I will". How can you commit to change? Who will help support you in upholding this pledge?

Body Part Debrief

The Body Part Debrief activity is simple enough in nature that groups of any age will use it with ease. The body parts have a „coolness" factor to them that fosters a safe environment for people to talk. If you are having a hard time getting your participants to share or reflect, this activity will help solve that problem (Cummings, 2018).

Eye	Could represent something new that you saw in yourself or someone else? What vision do you have for yourself/the group? What qualities do you see in yourself? How did you see yourself perform within the group?
Stomach	Could represent something that took guts for you to do. What pushed you outside your comfort zone? What sick feelings have you felt before? Was something hard to stomach for you?
Brain	Could represent something new that you learned about yourself, a teammate, or the group. What thoughts do you have? What did you learn through your experience?
Heart	Could represent a feeling that you experienced. What things come from the heart? What means a lot to you?
Hand	In what way did the group support you? Could represent someone you would like to give a hand to for a job well done. How did you lend a hand during the activity?
Ear	Could represent something you listened to. What was a good idea you heard? Could represent something that was hard to hear—did you receive constructive feedback or not-so-constructive feedback.

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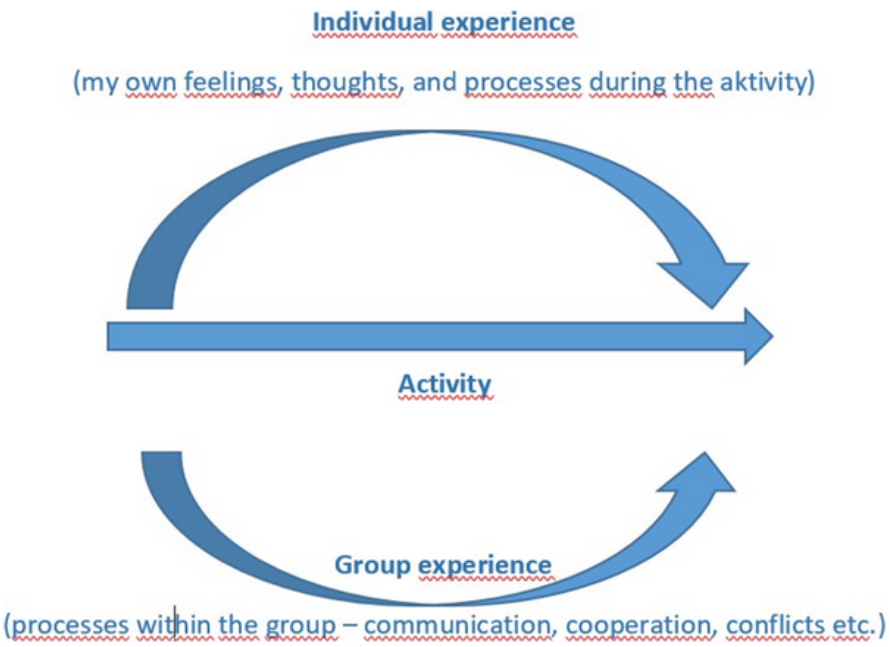
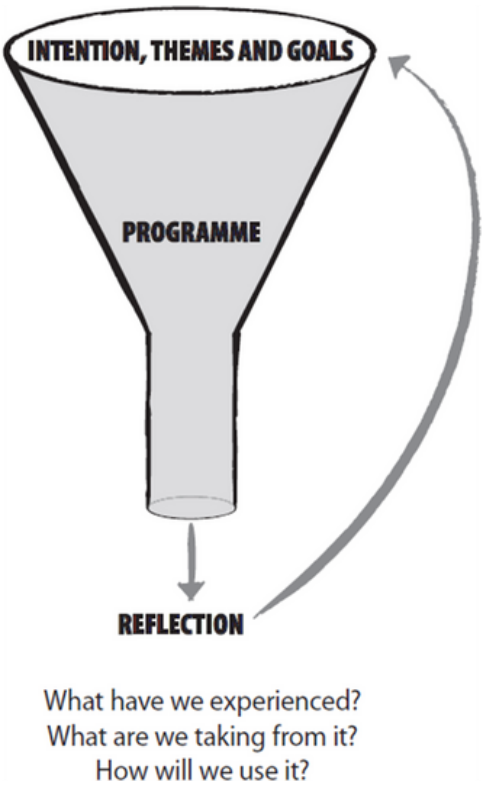
Even though the activity is in a sense artificial, or a model situation, the processes and experience happening during the activity are real. We can divide them into two areas:



Those real processes, both individual and group, create the matter for the reflection. There are usually much more of them happening than we planned when we created the activity. However, we usually cannot, or don't want to reflect on them all. We need to pick the most important ones connected with our goals.



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***Pecommendations for planning and leading the reflections*:**

- Do a detailed preparation. Create the scenario of the topics you want to discuss, write down specific questions, and plan the specific techniques you want to use.
- Follow the structure of the Kolb learning cycle. If the group is full of strong emotions at the beginning, let them talk about them at first (using simple questions like “How are you now?”, or “What’s in your mind at this moment?”.
- Consider the length of the reflection. For longer reflections, plan a pause in the middle, or use various techniques to change the context, and energy in the group (e.g. art or body techniques, discussions in pairs, or small groups, etc.)
- Don’t forget about the people who don’t talk. Support them talking as well (f.ex.:”What about those who haven’t talked yet? We are interested in your experience, even though it might be different from the stories of others”)

***Tips for reflection techniques*:**

When we are done - The reflection

Kolb’s Learning Cycle works not only for participants’ learning but also for the organising team. We recommend you finish your learning from the activity by doing your own reflection and evaluation. It is a very effective way to develop your leadership competencies in the Experiential Education field.

- Evaluate the activity in all the stages (preparation, frontloading, activity itself, reflection), and name the strong/working sides, and the weak points/challenges.
- Offer each other feedback concerning your cooperation, your approach towards participants, and your leadership skills.
- Name the steps and principles for your future cooperation, and for organising the next activity.

And one last recommendation:

Any sport activity can be just a sport activity, but also a space to develop life skills via connecting the activity with experiential learning principles. Hiking, running, rock climbing, rafting, football, golf, walking, anything. Just map the needs, set the goals, prepare and run the activity, and finish the Kolb’s learning cycle by facilitating a proper reflection. Nothing more is needed.

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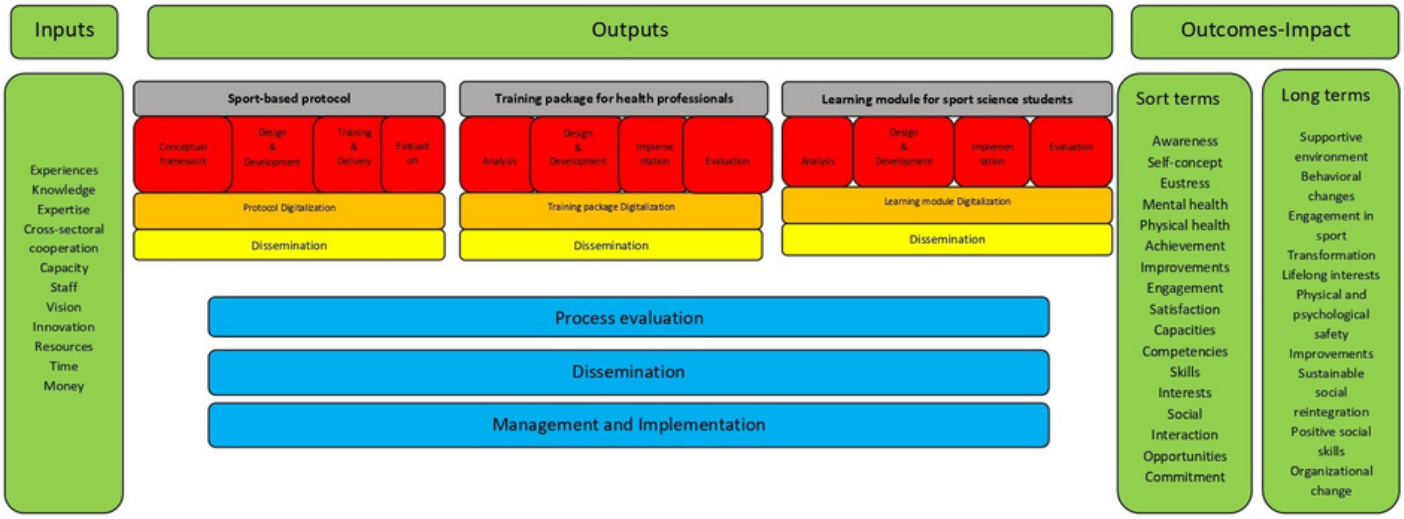
In practice

The aim of the present protocol is to bridge this gap and contribute to the implementation of tailored exercise delivery in people attending treatment by providing evidence that will hopefully be useful to both exercise and mental health professionals. Exercise professionals can meet the challenges posed by working with this vulnerable population of individuals with SUDs. However, we realize that just ensuring that exercise professionals have the confidence and skills to properly deliver exercise to the target population is only half the picture. Ongoing support should also target mental health professionals who, until recent years, may not have had significant collaboration with exercise and nutrition professionals who are part of the multidisciplinary mental health team. Such a cultural change in the fundamental makeup of a mental health service undoubtedly takes time to achieve, and just as exercise professionals need training in mental health, for a truly interdisciplinary approach, mental health professionals need training and exposure to the fundamentals of physical activity. , ideally as early as possible in their clinical training.

In the above context the design and creation of the protocol aims to change professional behavior based on theoretical models, empirical data and evidence-based behavior change techniques.

Integrating theory enables the selection of appropriate behavior change techniques to support the initial uptake, adoption, retention and relapse management of exercise interventions. These individuals establish routines so that exercise becomes a part of their daily life, and allow for negotiation so that the exercise prescription does not severely burden patients' lives. the ultimate message is to aim for adherence sufficient to achieve therapeutic benefit. crucially, this requires patients and practitioners to be clear about the benefits they expect

RACE4LIFE Logic Model



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RACE4LIFE strategic objectives

The strategic objectives seeking to achieve as a result of the protocol implementation and expected to lead to a behavior change in the target groups are:

Determinants of behavior change

- To ensure/create positive sport experiences for individuals under SUDs recovery
- To enhance motivation for behavioral change in SUD recovery through sport
- To educate individuals under SUD recovery on behavior change skills based on sport experiences
- To facilitate the transfer of these skills to SUD recovery
- To strengthen individuals under SUD recovery competencies to make healthy choices
- To promote health professional behavior change in healthcare

Instructional Objectives

- Create tailor-made sport-based protocols unitizing the experience, research, and theory
- Evaluation of the usefulness of sports in SUD recovery process

Performance Objectives

- To contribute to the development of a common understanding of what sports participation for individuals in SUD recovery can mean.
- To enhance the capacity-building of health professionals working in the SUD recovery
- To train health professionals working in the field to apply behavioral change strategies through sport.
- To offer a combination of theoretical and practical knowledge to prepare new professionals

Organization-level outcome objectives

- Contribute to organizational growth
- To create a supportive and enabling SUD recovery environment
- To drive up demand for sport-based interventions in SUD recovery
- To improve access to quality SUD recovery
- To support the implementation of sport-based interventions in the SUD recovery process.
- To highlight the therapeutic value of sport and PE in SUD recovery
- To improve the SUD recovery organization's capacity to deliver friendly services

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Targets populations

The target populations who will benefit from the RACE4LIFE protocol are divided into two types of beneficiaries:

Targets of change

Individuals under SUD recovery.
The overall protocol objective is to improve the physical and mental health of Individuals under SUD recovery through PE and grassroots sports participation.

SUD recovery organizations
Expected to adopt the protocol and implement it in the recovery process

Sports science university faculties
Bespoke coaching skills development modules, will allow the new professionals to specialize in delivering and applying tailor-made coaching techniques to vulnerable populations. The sports science faculties will allow their students to expand their skills and understanding of behavior change strategies through an applied theory-based intervention program.

Targets of learning

Health Professionals
SUD recovery experts, health professionals, sport trainers, etc. who will be trained or receive some other direct benefit from the protocol as their actions will contribute to the problem.

Sport Science Students.
The protocol aims to be the base of the development of a novel training module, which can be delivered through a Sport Science department, to enhance the sport science students' knowledge, confidence, and skills in behavior change strategies applied in SUD recovery through sport

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RACE4LIFE protocol circle

It is generally accepted that SUD recovery is a process of behavioral change, through which individuals are supported to cope with their addiction and restore their physical and psychological health and well-being, aiming to regain their social functioning. As already mentioned, SUDs are classified as chronic conditions that often involve occasional relapses. Consequently, treatment should be an ongoing process, involving a variety of complementary behavior change interventions. An important factor that is a prerequisite for successful addictive behavior change, acting as a 'mediator' of treatment outcomes, is the formation and reinforcement of the motivation that will drive the addicted person to change. Motivation leads individuals to resolve their ambivalence about making lifestyle changes, increasing the likelihood that they will commit to implementing a specific behavior change plan

Therefore, SUD recovery and changing addictive behavior should be a long-term process involving multiple interventions as well as regular monitoring.

The scientific literature and the outcomes of our studies lead us to the general conclusion that targeted change interventions, implemented in an exercise and sport environment, can be applied in the SUD recovery with positive results.

Specifically, it is concluded that exercise can be a favorable environment in which targeted interventions can be implemented to train people under treatment in the development of life skills and behavior change strategies, aiming at changes in other areas of their lives. Thus, exercise programs should create the conditions and provide opportunities for participation while enhancing the competencies of individuals living with SUD. In this context, the RACE4LIFE protocol can be a suggested framework for implementing exercise interventions aimed at changing behavior by enhancing the motivation of people in SUD recovery.

The RACE4LIFE protocol focuses on improving the quality of exercise and sport programmes in SUD recovery by continuously improving the existing framework. The goal of the protocol is to promote both sports engagement in SUD treatment and lifelong engagement in exercise that enhances mental and physical health, as well as training in behavior change strategies and motivational enhancement.

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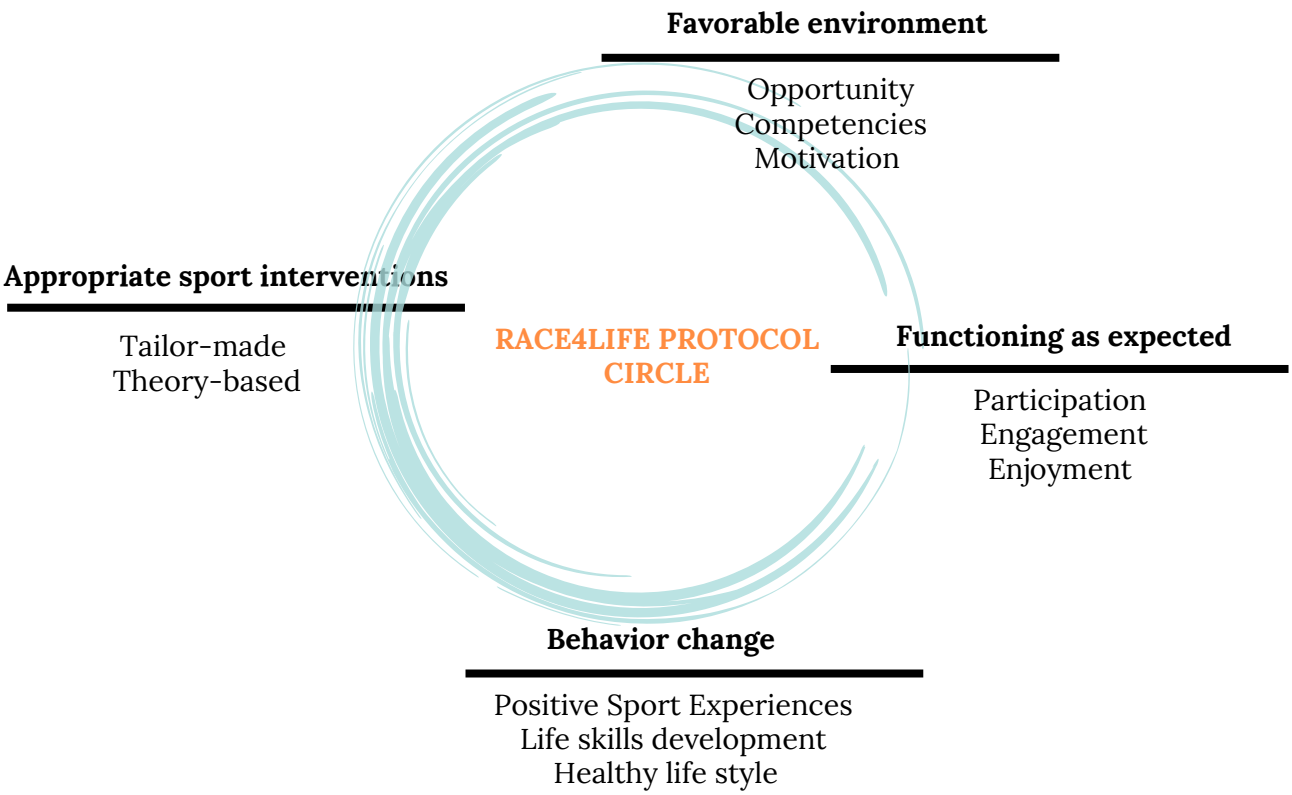
Thus, the protocol aims to support sport coaches in improving the quality of the delivery of exercise and sport interventions in SUD recovery. Well-designed and tailor-made sports interventions should be appropriate, taking into account the physical, cognitive, emotional, and moral aspects of the participants. As a result of implementing appropriate sport interventions in the SUD treatment process, it is anticipated that they will enhance the role of exercise and sport as complementary therapeutic tools for behavioral change for individuals living with SUD.

However, when seeking to change behaviours, it is important to use theories or a model as a guide. The reason for this is that theories are based, on evidence and data. This reflects and enhances the ability to develop interventions properly in a way that gives greater confidence in the chances of having a successful impact.



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Design and development

A conceptual framework was conducted to achieve a comprehensive understanding of the behavioral change key concepts and the relationships between them that need to be studied. In this context, a multifaceted conceptualization of behavior change was described at this stage based on the resources of the experiences, literature, and basic theory

Identification of the target group's behavior and characteristics

Identifying the behavioral change models for the targeted groups was a crucial first step. The expected effects of protocol on the target group were considered in the design. In light of this, the design of the protocol was based on the relevant target group's behavior and characteristics. In this context, the analysis was focused on:

- The identification of the characteristics and behaviors of people under SUD recovery.
- Conceptualization of the behaviors we are trying to change
- Health-related problems

Identification of relevant behavioral change models and theories (Theoretical foundation)

The aim was the identification and collection of models behavioral change strategies and theories. This framework was focused on:

Theory cluster

- Identification of the psychosocial interventions and behavior change models applied

Theories relevant to the cluster

- Identification of models, strategies, and behavioral change techniques and how they have been applied in a sport and PE context

Theories selected for the protocol

- Identification of methods for synthesizing evidence of behavior change intervention effectiveness
- The selection and application of theories to designing behavior change interventions in a sport context

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Identification of key drivers, facilitators and barriers

Key drivers, facilitators and barriers to the behavior change were extracted through qualitative research. See the research reports here:

1. What about sport and physical exercise in substance use disorder recovery? Health professionals' perceptions
2. Perceptions of individuals undergoing SUD recovery. Life Skills Development
3. Perceptions of individuals undergoing SUD recovery. Barriers & Benefits
4. Organizational Capacity of Sport
5. RECOMMENDATIONS FOR PRACTICAL IMPLEMENTATION The Role of Sport in Substance Use Disorders Recovery
6. Empowering substance use disorders treatment through physical exercise. An overview of studies

Identification of effective intervention which have worked in the past

Panagiotounis, F., Hassandra, M., Goudas, M., & Theodorakis, Y. (2021). Application of a theory-based exercise promotion program (RACE) for adults in therapy for substance use disorders: a longitudinal interventional study. *Exartiseis*, 36.

Abstract
One of the main goals of substance use disorder (SUDs) treatment is the attainment and maintenance of abstinence, by promoting the adoption of new healthy behaviors, utilizing a wide variety of interventions and strategies. sport is an example of a health-related behavior that is applied in suds treatment, with varied effects. the present study describes the implementation and influence of a 5-week endurance training program (rAcE), and prepares participants to take part in a non-professional 10K race, based on self-determination and goal-setting theories. the objectives of the intervention were: (a) to train individuals in treatment for suds, to set goals and work to attain such goals within a sport context (b) to enhance the participants to transfer such skills into suds treatment, using the same techniques and processes and (c) boost participants' self-confidence so that they may indeed attain their goals. the participant of the RACE program was 14, with an average previous substance use of 15 years, following 3.5 months of treatment of suds. the results revealed a significant positive relationship between goal achievement and self-confidence improvement (d=3.33) and treatment attendance. the follow-up assessment also revealed that the RACE program worked positively not only to strengthen the participants to develop goal-setting skills (M=8.55, SD=.69) but also to transfer the goal-setting strategies in their therapeutic process (M=8.69, SD=.85). results further supported the idea that sport can be a safe environment for the training of behavioral change and motivational strategies in the treatment of SUD.

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Panagiotounis, F., Hassandra, M., Krommidas, C. & Theodorakis, Y., (2022). Effects of an exercise theory-based intervention program on craving during the early stage of adults' SUD treatment. *Mental Health and Physical Activity*, Volume 23, https://doi.org/10.1016/j.mhpa.2022.100463

Abstract

In recent years, exercise has become increasingly popular in the treatment of substance use disorders (SUD). The present study examined the short-term effects of an exercise intervention on drug craving, mood states, self-esteem, quality of life, and treatment engagement at the early stages of SUD treatment. Fifty-four adults, using multiple substances, newly entries into an inpatient treatment setting, were non-randomly assigned to a structured 4-week exercise intervention group (Ex + TaUG) and treatment as usual group (TaUG). Self-reported assessments were used before and after the intervention. Repeated-measures analyses of variance (ANOVA) were applied to assess possible differences between time, group, and interaction between time and group. Results showed that the Ex + TaUG demonstrated higher scores on self-esteem, quality of life, and treatment engagement, and lower scores on craving and mood state (anxiety, depression, and stress) compared to TaUG after the implementation of the physical exercise intervention protocol ($p < .05$). The outcomes of the present study provide initial evidence that a targeted and properly designed exercise delivery, which is adapted to the needs of the various and decisive treatment stages, may offer specific benefits to individuals living with SUD.

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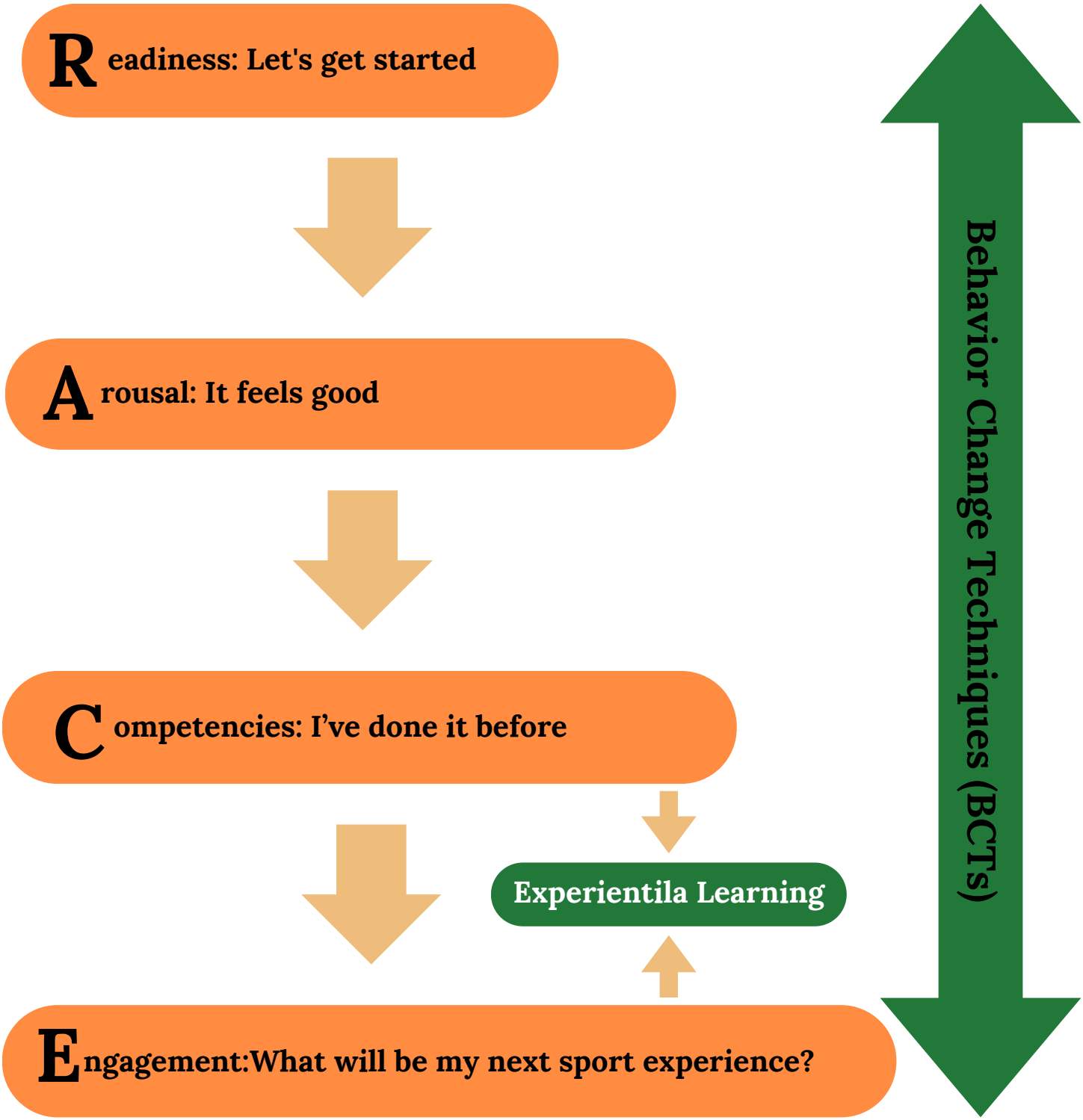
RACE4LIFE Protocol framework



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Readiness: Let's get started

Behavioral change techniques (BCTs) can be used to initiate and promote engagement in sports and physical activities. These techniques are often employed in sports psychology and coaching to help individuals adopt and maintain a more active lifestyle.

These behavioral change techniques can be customized to an individual's preferences and needs, making them more likely to adopt and maintain a sports-oriented lifestyle. Combining several of these techniques may be particularly effective in promoting lasting behavior change in sports initiation. BCTs are important for physical exercise initiation because they play a crucial role in helping individuals overcome barriers and adopt healthier lifestyles.

In this framework, BCTs help individuals identify their motivations for exercising, whether it's to improve their health, lose weight, enhance their appearance, or reduce stress. By understanding their underlying motivations, people can set more meaningful exercise goals and stay committed. In addition, BCTs involve setting specific, achievable, and time-bound goals. These goals provide individuals with a clear roadmap for their exercise journey, making it easier to measure progress and stay motivated. Furthermore, BCTs teach problem-solving skills to address common barriers to exercise, such as time constraints, lack of equipment, or low energy levels. Learning how to overcome these challenges increases the likelihood of exercise initiation and adherence. BCTs often involve strategies for seeking social support from friends, family, or exercise partners. Social support can provide encouragement, motivation, and accountability, making it easier for individuals to start and stick with an exercise routine. Finally, BCTs take into account the stages of the change model, recognizing that individuals may be at different stages in their readiness to start exercising. These techniques tailor interventions to meet people where they are on their journey to exercise initiation.

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EXERCISE PREPARTICIPATION HEALTH SCREENING

BCT	Definition	Implementation examples
Information about health consequences	Provide information (e.g. written, verbal, visual) about health consequences of performing the behavior	The goals of the ACSM exercise preparticipation health screening process are to identify individuals 1) who should receive medical clearance before initiating an exercise program or increasing the frequency, intensity, and/or volume of their current program, 2) with clinically significant disease(s) who may benefit from participating in a medically supervised exercise program, and 3) with medical conditions that may require exclusion from exercise programs until those conditions are abated or better controlled Conduct thorough assessments of each client's fitness level, health history, and personal goals (HEALTH SCREENING RECOMMENDATIONS)

Motivational interviewing

Engaging stage		
BCT	Definition	Implementation examples
Social support (unspecified)	Advise on, arrange or provide social support (e.g. from friends, relatives, colleagues,' buddies' or staff) or non contingent praise or reward for performance of the behavior. It includes encouragement and counselling, but only when it is directed at the behavior	

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Engaging stage		
BCT	Definition	Implementation examples
Social support (emotional)	Advise on, arrange, or provide emotional social support (e.g. from friends, relatives, colleagues, 'buddies' or staff) for performance of the behavior	A group format could facilitate exchanges between participants and allows for peer experience account to reinforce self-efficacy
Information about health consequences	Provide information (e.g. written, verbal, visual) about health consequences of performing the behavior	Provide general information about exercise interventions and possible negative (e.g., muscle soreness) or positive (e.g., well-being) outcomes Educate individuals about the health benefits of regular exercise, including reduced risk of chronic diseases and improved overall well-being. Provide specific information related to PA and its possible benefits for physical health. Offering guidance on proper technique and safety measures.
Information about emotional consequences	Provide information (e.g. written, verbal, visual) about emotional consequences of performing the behavior	Provide specific information related to PE and its possible benefits for mental health. Identifying and challenging negative thoughts and beliefs that may hinder sports participation.
Information about social and environmental consequences	Provide information (e.g. written, verbal, visual) about social and environmental consequences of performing the behavior	Provide specific information that sports often bring people together, fostering a sense of belonging and community Provide specific information that sports teach valuable life skills such as teamwork, leadership, communication, and discipline. These skills can be applied in various aspects of life, including work and relationships. Provide specific information that sports can provide opportunities for people of diverse backgrounds, abilities, and ages to come together and participate in a shared activity, promoting social inclusion and diversity.
Credible source	Present verbal or visual communication from a credible source in favour of or against the behavior	Share success stories or provide role models who have successfully initiated and maintained an exercise routine. Seeing others' success can inspire and motivate individuals.

Focusing stage		
BCT	Definition	Implementation examples
Focus on past success	Advise to think about or list previous successes in performing the behavior (or parts of it)	Provide constructive feedback on their past sport successes. Highlight the positive aspects of their behavior and the outcomes they achieved. Reinforce the idea that their past efforts were successful and can be repeated

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Evoking stage		
BCT	Definition	Implementation examples
Pros and cons	Advise the person to identify and compare reasons for wanting (pros) and not wanting to (cons) change the behavior	• Aimed at resolving ambivalence by eliciting and reinforcing the client's own motivation to engage in a behavior • Help individuals weigh the pros and cons of exercise to strengthen their motivation for change • Help clients identify and overcome barriers to exercise, such as lack of time or motivation
Problem solving	Analyse, or prompt the person to analyse, factors influencing the behavior and generate or select strategies that include overcoming barriers and/or increasing	• Developing strategies to overcome barriers and temptations that may deter sports participation.
Valued self-identity	Advise the person to write or complete rating scales about a cherished value or personal strength as a means of affirmingthe person's identity as part of a behavior change strategy	Encouraging individuals to reflect on and affirm their core values and beliefs can help strengthen their self-identity. For example, asking someone to write down their most important values or positive qualities can promote behavior change that aligns with those values.
Identity associated with changed behavior	Advise the person to construct a new self-identity as someone who 'used to engage with the unwanted behavior'	Show individuals that their current behavior doesn't align with the identity they desire
Discrepancy between current behavior and goal	Draw attention to discrepancies between a person's current behavior (in terms of the form, frequency, duration, or intensity of that behavior) and the person's previously set outcome goals, behavioral goals or action plans	
Comparative imagining of future outcomes	Prompt or advise the imagining and comparing of future outcomes of changed versus unchanged behaviour	Visualizing successful sports performance to enhance motivation and confidence

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Planning stage		
BCT	Definition	Implementation examples
Goal setting (behaviour)	Set or agree on a goal defined in terms of the behavior to be achieved	• Set or agree on a goal defined in terms of a positive outcome of wanted behavior
Goal setting (outcome) (see Apendix...)	Set or agree on a goal defined in terms of a positive outcome of wanted behavior	• Setting specific, measurable, achievable, relevant, and time-bound (SMART) goals related to sports participation. • Breaking down long-term goals into smaller, manageable steps. • Regularly reviewing and adjusting goals as needed.
Action planning	Prompt detailed planning of performance of the behavior (must include at least one of context, frequency, duration and intensity).	Consists of developing a change plan and strengthening the client's commitment to it Scheduling regular sports sessions into one's daily or weekly routine. Prioritizing sports activities by allocating dedicated time for them Avoiding over commitment to other activities that may interfere with sports participation. Design customized exercise programs that align with the client's goals, preferences, and physical condition Consider factors such as age, fitness level, medical conditions, and time availability when creating exercise plans.
Verbal persuasion about capability	Tell the person that they can successfully perform the wanted behavior, arguing against self-doubts and asserting that they can and will succeed	Providing verbal praise and positive feedback boosts someone's confidence and self-efficacy. Offering constructive criticism along with encouragement to help individuals understand their strengths and areas for improvement.
Behavioral contract	Create a written specification of the behavior to be performed, agreed on by the person, and witnessed by another	

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Arousal: It feels good

Arousal can positively affect your mood and reduce feelings of stress and anxiety. Engaging in exercise with an elevated level of arousal can help release endorphins, which are natural mood lifters, and promote a sense of well-being. Increasing positive effects (emotional states like happiness and enjoyment) during the initial exercise period is crucial for short and medium-term adherence and overall well-being. Exercise professionals can play a significant role in helping individuals with SUD to achieve this by implementing strategies and exercise interventions that promote positive affect

o enhance physical exercise arousal, individuals can use various strategies, such as proper warm-ups, mental preparation techniques, setting clear goals and ensuring they get enough rest and proper nutrition. Finding the right balance of arousal for your specific activity and goals is key to reaping the benefits of exercise while minimizing the risks of overexertion or injury.

Behavior Change Techniques (BCTs) are strategies or interventions designed to promote positive behavior change. When it comes to enhancing physical exercise arousal, there are several BCTs that can be effective. Arousal in this context refers to a heightened state of readiness and enthusiasm for exercise. These techniques aim to motivate individuals to engage in physical exercise by increasing their excitement, interest, and willingness to participate.

BCTs can help individuals find their intrinsic motivation to exercise. Techniques like setting goals, providing feedback, and emphasizing the benefits of exercise can boost a person's desire to engage in physical activity. As many individuals with SUD face barriers to exercising regularly, such as lack of time, self-doubt, or fear of injury. BCTs can help individuals identify and address these barriers. For example, problem-solving techniques can help someone find ways to fit exercise into their schedule. Social support can significantly impact exercise behavior. BCTs like social modeling, social comparison, and peer support can encourage individuals to exercise by creating a supportive environment and fostering a sense of belonging. Finally, BCTs allow for personalized interventions. Not every motivational strategy works for every person, so BCTs can be adapted to an individual's specific needs and preferences.

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Arousal		
BCT	Definition	Implementation examples
Providing choices		• Provided with free choice in terms of a) the total exercise time per week, b) the number of training sessions per week, and c) the type of exercise. • Exercise professionals should help them to self-assess their perceived effort (e.g., Borg rating scale). • Allow athletes to have a say in their training routines and sport-related decisions, giving them a sense of control and ownership.
Graded Tasks	Set easy-to-perform tasks, making them increasingly difficult, but achievable, until behavior is performed	• Break down exercise routines into smaller, manageable steps, especially for beginners. Gradually increasing the intensity or duration of workouts can make exercise more approachable and less intimidating. • Implement progressive overload principles by gradually increasing the intensity, duration, or complexity of workouts as clients improve. • If someone is starting from a sedentary lifestyle, advise them to gradually increase the intensity and duration of their workouts to avoid burnout or injury.
Feedback on behavior	Monitor and provide informative or evaluative feedback on performance of the behavior (e.g. form, frequency, duration, intensity)	• Provide regular feedback on progress to individuals, either through a coach, app, or self-assessment. Positive feedback can reinforce exercise behaviors. • Providing regular feedback on exercise performance and progress can increase arousal. This can be done through wearable fitness trackers, exercise apps, or fitness assessments. • Positive feedback can help individuals feel a sense of accomplishment, increasing their excitement about exercise • Provide constructive feedback and adjust exercise plans as needed.
Self-Monitoring	Establish a method for the person to monitor and record their behavior(s) as part of a behavior change strategy	• Encourage individuals to track their exercise behavior, either through journaling, mobile apps, or fitness trackers. Self-monitoring helps increase awareness of progress and adherence to the exercise routine • Encouraging individuals to keep a diary or log of their exercise routines and progress can help increase arousal. It allows them to see their achievements and improvements over time.

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Arousal		
BCT	Definition	Implementation examples
Demonstration of the behavior	Provide an observable sample of the performance of the behaviour, directly in person or indirectly e.g. via film, pictures, for the person to aspire to or imitate	• Demonstration of physical exercise by professional or peer • Provide instruction on how to perform PA: • Prioritize safety by teaching proper exercise techniques and ensuring clients use appropriate equipment.
Instruction on how to perform a behavior	Advise or agree on how to perform the behavior	• Constant support by the trainers and instructions regarding the proper execution • It is important to familiarize participants with different exercises or techniques • Offer basic nutrition advice to support clients' exercise goals, emphasizing the importance of a balanced diet. • Encourage clients to maintain a calorie balance that aligns with their fitness objectives. • Address any potential injury risk factors and educate clients on injury prevention strategies.
Social support (unspecified)	Advise on, arrange or provide social support (e.g. from friends, relatives, colleagues,' buddies' or staff) or noncontingent praise or reward for performance of the behavior. It includes encouragement and counselling, but only when it is directed at the behavior	• Collaboratively developing a collective behavior goal achievable in a timely fashion • Encourage individuals to exercise with a partner or join a group or class. Social support can provide motivation, accountability, and a sense of community. • Engaging in exercise with friends or joining a fitness group can boost arousal through social interaction and motivation from others. Social support can also come from online communities or exercise buddies. • Utilizing the power of group dynamics in exercise classes or team sports can enhance arousal through competition, camaraderie, and a sense of belonging. • Foster a supportive social environment by encouraging individuals to exercise with friends, join group classes, or participate in team sports. Social interaction can make exercise more enjoyable. • Foster a supportive and encouraging environment during training sessions. • Maintain open and regular communication with clients to address their concerns, answer questions, and provide ongoing support.
Social support (emotional)		• Mutual emotional support among the participants (peers) during and after each training session. • Emotional support before and after the completion of the training session between the participants, and the trainers. • Creating a supportive sport environment with coaches, teammates, and peers who offer encouragement and positive reinforcement. • Organizing group training sessions or team-building activities to foster a sense of community.

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Arousal		
BCT	Definition	Implementation examples
Social support (emotional)	Provide an observable sample of the performance of the behaviour, directly in person or indirectly e.g. via film, pictures, for the person to aspire to or imitate	• Mutual emotional support among the participants (peers) during and after each training session. • Emotional support before and after the completion of the training session between the participants, and the trainers. • Creating a supportive sport environment with coaches, teammates, and peers who offer encouragement and positive reinforcement. • Organizing group training sessions or team-building activities to foster a sense of community. •
Credible source	Present verbal or visual communication from a credible source in favour of or against the behavior	• The active participation of the trainers in each training session acted as a model for the participants. • Share success stories or profiles of individuals who have achieved their fitness goals. Role models can inspire and motivate others to exercise
Graded tasks	Set easy-to-perform tasks, making themincreasingly difficult, but achievable, until behavior is performed	• patient could choose the increment of task difficulty at each session beginning. • Gradual increase of the total exercise time per week. • Breaking down the behaviour into smaller, more achievable tasks, and is thought to enable the individual to build on small successes
Self-talk	Prompt positive self-talk (aloud or silently) before and during the behavior	• Encouraging positive self-talk during exercise can enhance arousal. Practicing phrases like "I can do this" or "I am getting stronger every day" can boost motivation.
Non-specific reward	Arrange delivery of a reward if and only if there has been effort and/or progress in performing the behavior (includes Positive reinforcement')	• inform that valued objects (e.g., vouchers, coffee, cap) will be delivered if the first three sessions are completed. • Identify something (e.g. an activity such as a visit to the cinema) that the person values and arrange for this to be delivered if and only if they attend for health screening • Offering rewards or incentives for reaching exercise milestones can increase arousal. Rewards can be intrinsic (e.g., the satisfaction of completing a workout) or extrinsic (e.g., a treat or a small gift). • Create a sense of competition by participating in challenges or races. Competing against oneself or others can increase arousal and motivation. • Reward and acknowledge achievements, both big and small, to boost motivation. This can include verbal praise, certificates, or small incentives.

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Arousal		
BCT	Definition	Implementation examples
Social reward	Arrange verbal or non-verbal reward if and only if there has been effort and/or progress in performing the behavior (includes 'Positive reinforcement')	• Highlighting the social norms or expectations surrounding a behavior can encourage individuals to conform to those norms. • Offering social incentives such as badges, trophies, or recognition in online communities for achieving specific goals can motivate individuals to engage in desired behaviors
Reduce negative emotions	Advise on ways of reducing negative emotions to facilitate performance of the behavior	• Address any negative or limiting beliefs that may be hindering your competency development. Replace negative thoughts with positive and constructive ones
Restructuring the physical environment	Change, or advise to change the physical environment in order to facilitate performance of the wanted behavior or create barriers to the unwanted behavior (other than prompts/cues, rewards and punishments)	• Choosing sports activities that are easily accessible and enjoyable • Incorporate a variety of exercises and activities to prevent boredom and plateaus. Switching up routines keeps things interesting and increases the likelihood of staying engaged
Behavior substitution	Prompt substitution of the unwanted behavior with a wanted or neutral behavior	• Help individuals plan for situations where they might be tempted to skip exercise. Having a plan for dealing with obstacles can maintain arousal during challenging times.
Imaginary reward	Advise to imagine performing the wanted behavior in a real-life situation followed by imagining a pleasant consequence	• Guiding individuals to visualize their desired outcomes and the positive effects of exercise can increase arousal. Visualization can create a mental image of success.
Behavioral contract	Create a written specification of the behavior to be performed, agreed on by the person, and witnessed by another	• Encourage individuals to establish written agreements or contracts with themselves or a trusted friend, specifying their exercise commitments and rewards for meeting them

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Competencies: I've done it before

Mastery experiences refer to learning through personal experience where one achieves mastery over a difficult or previously feared task and thereby enjoys an increase in self-efficacy. The mastery of one's own experiences is the most significant way to foster a strong sense of effectiveness. Successive mastery over tasks required to engage in behavior helps the person to develop and refine skills. In addition, it fosters development of a repertoire of coping mechanisms to deal with problems encountered. The most influential source of self-efficacy. The sense of self-efficacy grows the more tasks accomplish successfully. Performance accomplishments attained through personal experience are the most potent source of efficacy expectations.'

Improving competencies in sport often requires a combination of physical training and psychological strategies. Behavioral Change Techniques (BCTs) can play a significant role in enhancing an athlete's performance by targeting their mindset, motivation, and behavior. Here are some BCTs that can be employed to improve competencies in sport:

Compentencies		
BCT	Definition	Implementation examples
Goal setting (behavior)	Set or agree on a goal defined in terms of the behavior to be achieved	• This requires a careful examination of the target behavior and identification of specific aspects of the behavior which call for skills development • Specific behaviors must then be arranged in a series so that they may be consecutively mastered, with initial tasks being easier than subsequent tasks • Set specific, measurable, achievable, relevant, and time-bound (SMART) goals related to the competency you want to improve. Clear goals provide direction and motivation. • Involves planning where and when to act and in which situation and it seems likely that greater goal specification, i.e. knowing what to do where and when, may encourage the belief that engaging in physical activity is feasible • This engagement strategy could be supported by significant others and the therapists
Goal setting (outcome)		• Coaches and athletes can work together to establish both short-term and long-term goals.

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Compentencies		
BCT	Definition	Implementation examples
Review behavior goal(s)	Review behavior goal(s) jointly with the person and consider modifying goal(s) or behavior change strategy in light of achievement. This may lead to re-setting the same goal, a small change in that goal or setting a new goal instead of (or in addition to) the first, or no change	• Periodically review and adjust goals based on an athlete's progress and changing circumstances. This helps maintain motivation and adapt to evolving needs.
Graded tasks	Set easy-to-perform tasks, making them increasingly difficult, but achievable, until behavior is performed	
Review outcome goal(s)	Review outcome goal(s) jointly with the person and consider modifying goal(s) in light of achievement. This may lead to resetting the same goal, a small change in that goal or setting a new goal instead of, or in addition to the first	• Demonstrate the person's relative progress toward the target behavior. Relative progress may be demonstrated by charting progress over the course of the change process.
Feedback on behavior	Monitor and provide informative or evaluative feedback on performance of the behavior (e.g. form, frequency, duration, intensity)	• Seek feedback from peers, mentors, or experts in the field. Constructive feedback can help you identify areas for improvement and guide your efforts. • Provide constructive feedback to athletes regularly. This can include video analysis, coach feedback, and data-driven performance metrics. Positive reinforcement and praise are also essential for motivation. • Take time to reflect on your performance and identify strengths and weaknesses. Regularly review your experiences and consider how you can improve.
Self-monitoring of behavior	Establish a method for the person to monitor and record their behavior(s) as part of a behavior change strategy	• Keep a record of your behavior and progress related to the competency. This can be done through journals, apps, or other tracking methods to assess how you're doing and where you need improvement • Athletes can track their performance, training sessions, and progress. Keeping a training diary or using sports technology (e.g., fitness trackers) can help in self-monitoring. •

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Compentencies		
BCT	Definition	Implementation examples
problem-solving	Analyse , or prompt the person to analyse, factors influencing the behavior and generate or select strategies that include overcoming barriers and/or increasing	Teach problem-solving skills to overcome barriers and setbacks that may hinder engagement.
Focus on past success	Advise to think about or list previous successes in performing the behavior (or parts of it)	
Biofeedback	Provide feedback about the body (e.g. physiological or biochemical state) using an external monitoring device as part of a behavior change strategy	
Generalisation of a target behavior	Advise to perform the wanted behaviour, which is already performed in a particularsituation, in another situation	• Engage in simulated or real-life situations that require the use of the competency. Practice is essential for skill development. • Experiment learning techinics • Offering skill-building sessions and training to enhance athletes' confidence in their abilities.
Social support (practical)	Advise on, arrange, or provide practical help (e.g. from friends, relatives, colleagues, 'buddies' or staff) for performance of the behavior	• Surround yourself with a supportive network of individuals who can encourage and assist you in your competency development journey. Supportive relationships can provide motivation and guidance. • Collaborate with peers who are also working on similar competencies. Group learning and discussions can provide new perspectives and insights
Social support (emotional)	Advise on, arrange, or provide emotional social support (e.g. from friends, relatives, colleagues, 'buddies' or staff) for performance of the behavior	• Foster a supportive team environment where athletes can seek emotional and informational support from coaches, teammates, and sports psychologists.
Behavioral Contract		• Create formal agreements or contracts with yourself or others that outline the specific behaviors and actions you will take to improve your competency. This can add accountability to your efforts. • Specifying the consequences for both adhering to and deviating from the contract. • Regularly reviewing and revising the contract as needed.

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Engagement:What will be my next sport experience?

This stage is the most important and maybe the most challenging to achieve. Indeed, the exercise professional should progressively target behavioral change and prepare clients to adopt a more active lifestyle. Consequently, exercise professionals may help clients identify and explore different PA opportunities. Based on evidence, many strategies should be considered. It is important to note that a local network between the different mental health services is necessary to limit barriers and reduce stigma associated with SUD

Enhancing engagement in sport often requires the use of various Behavioral Change Techniques (BCTs) to motivate clients to participate consistently and enjoy their sporting activities.

These BCTs can be used individually or in combination to enhance engagement in sport and promote long-term adherence to physical activity goals. The choice of techniques should consider the client's preferences, needs, and the specific context of the sport or activity.

Engangement		
BCT	Definition	Implementation examples
Action planning		• Encourage them to set specific exercise times and create an exercise-friendly environment. • Assist individuals in scheduling exercise sessions into their daily routines. • Help them prioritize exercise as they would any other important appointment. • Support them to efficiently manage their time to balance their sports activities with other life responsibilities. Effective time management can prevent burnout and support long-term maintenance.
Information about health consequences		• Provide continuous information about the benefits of regular exercise, the importance of different exercise types (cardio, strength, flexibility), and how exercise impacts overall health. • Provide athletes with knowledge about the benefits of regular physical activity, skill development, and the long-term advantages of staying engaged in the sport. • Provide information about the benefits of exercise, both short-term (improved mood, energy) and long-term (weight loss, reduced risk of chronic diseases).

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Engangement		
BCT	Definition	Implementation examples
Self-Monitoring		• Promote self-regulation by helping individuals identify triggers for exercise and develop routines. • A repeated use of PA self monitoring strategies (pedometer, applications, and notebook) is very helpful to identify current habits and progress.
Problem solving	Analyse, or prompt the person to analyse, factors influencing the behavior and generate or select strategies that include overcoming barriers and/or increasing facilitators	• help patients to analyze, identify potential barriers or triggers that could lead to disengagement from sport. • Teach problem-solving skills to overcome barriers and setbacks that may hinder engagement. • Discuss strategies to overcome common obstacles, such as lack of time, fatigue, or injury. • Help individuals identify potential triggers for exercise relapse and develop strategies to overcome them. This could include creating alternative plans for bad weather or busy schedules.
Social Support		• Foster a sense of belonging and camaraderie by promoting team cohesion, peer support, and mentorship within the sports community. • Encourage individuals to join group fitness classes, exercise with a friend, or find a workout buddy. Social support can provide motivation and accountability. • Encouraging athletes to share their experiences and challenges with others • Creating a supportive sport environment with coaches, teammates, and peers who offer encouragement and positive reinforcement. • Organizing group training sessions or team-building activities to foster a sense of community. • Encouraging athletes to seek support or professional guidance when needed. • Highlight the positive social norms associated with sports engagement and encourage athletes to engage with like-minded individuals.
Self-Talk		• Teach athletes to manage negative self-talk and replace it with positive, constructive thoughts. This can enhance confidence and reduce anxiety. • Encourage individuals to use positive self-talk to motivate themselves when faced with exercise barriers. For example, saying, "I can do this; I've overcome challenges before," can boost self-efficacy.
Focus on past success		Encouraging athletes to reflect on past successes and overcome self-doubt.

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Engangement		
BCT	Definition	Implementation examples
Restructuring the physical environment	Change, or advise to change the physical environment in order to facilitate performance of the wanted behavior or create barriers to the unwanted behavior	• Remind individuals to create an exercise-conducive environment. This might involve laying out workout clothes the night before, having exercise equipment readily available, or setting reminders to exercise. • Introduce variety into your sports routine to keep things fresh and prevent boredom. Trying new exercises, drills, or challenges can make maintenance more interesting
Habit Formation		• Encourage individuals to establish a routine by consistently scheduling exercise at the same time each day or on specific days of the week. • Emphasize the importance of long-term commitment to exercise for continued benefits.
Cognitive Restructuring		• Help individuals identify and challenge negative thoughts or barriers related to exercise. For example, if someone says, "I'm too tired to work out today," encourage them to reframe it as, "Exercise will give me more energy." • Help individuals anticipate potential relapse scenarios and develop strategies to avoid or overcome them. Emphasize the importance of getting back on track after a slip-up. • Develop strategies for transitioning clients from structured programs to self-sustained fitness routines • Encourage athletes to develop positive training habits and routines that become automatic over time, ensuring consistent practice and skill improvement • Teaching effective time management skills to help athletes balance sport, work, and other responsibilities. • Creating structured training schedules and routines. • Helping athletes prioritize their sport commitment within their daily lives.
Visualization and Imagery		• Encourage athletes to mentally rehearse their performances, visualize success, and build mental resilience. • Encourage individuals to visualize themselves successfully completing their exercise routines, which can enhance motivation and self-confidence. • Encouraging them to vividly imagine themselves enjoying and excelling in their sport. • Using guided imagery sessions as part of training
Comparative imagining of future outcomes	Prompt or advise the imagining and comparing of future outcomes of changed versus unchanged behaviour	• Foster a sense of enjoyment and passion for the sport by emphasizing the personal satisfaction and intrinsic rewards of participation

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Evaluation Plan

An evaluation plan is used as a roadmap, to facilitate the evaluation progress and clarify what direction evaluation should take based on priorities, resources, time, and skills needed to accomplish it. The objectives of the evaluation plan are:

- To create a shared understanding of the purpose(s), use, and users of the evaluation results
- To foster RACE4LIFE project transparency to stakeholders and decision-makers, increase buy-in and acceptance of the role of sport in SUD recovery.
- To connect multiple evaluation activities in different working packages.
- To facilitate evaluation capacity building among partners and stakeholders

Evaluation strategy

Evaluation of the process is going to take place throughout the lifetime. Data will be collected for monitoring:

- Technical aspects of the project deliverables (functionality, usability, design, support, quality)
- Training and humanitarian aspects of the project (strategies used, kinds of activities it can support, the added value of the project, etc.)
- Achievement of the expected outcomes at a desirable level and acceptable quality.
- Deadlines are met by all partners and all have completed their assigned tasks.

The objectives of the RACE4LIFE protocol evaluation strategy are:

- To determine if the project actions are working as intended and meeting goals and objectives. □ To monitor progress in project implementation and make improvements where needed.

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Procedure

Participant consent form (appendix 1)
All the clients must state their voluntary participation in the sport-based intervention and sign a written consent.

Demographics (appendix 2)

Motivation interviewing (Appendix 3)
Interventions based on the motivational interviewing technique to enhance motivation to participate in physical activity and sport programmes can be proposed as an alternative to a variety of health-related behaviours. Motivational interviewing, in recent years, has been utilized as a motivational strategy for sport participation, finding application in a wide range of exercise and physical activity interventions in clinical populations. In this framework, you can apply the MI protocol in order to enhance the participants' motivation for participation in your sport intervention. Following the rule that more sessions tend to produce better long-term outcomes, the MI can be completed in three group sessions, of 90-120 minutes, the week before starting the sport intervention.
Clients will have the choice of deciding if they would like to take part in the sport-based intervention after finishing the MI.

	1 st Session	2nd Session	3rd Session
Engaging	Greeting and Overview		
	Review of a Typical Day		
	Why PE is important		
	Up-to-date recommended physical activity guidelines		
Focusing		Greeting and Overview	
		Additional reasons why PE is important for SUD recovery	
Evoking		Importance of PE participation scale	
		Confidence of PE participation scale	
		Explore the Pros & Cons of PE	
			Greeting and Overview
			Values or Characteristics Exploration
			Looking forward and backward
Planning			Goals and plan
			Implementation intentions
			Wrap-up

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Participants screening

Medical history such as hypertension, obesity, diabetes, metabolic syndrome and cardiovascular diseases put the person at risk for cardiac arrest during exercise

Tracking current symptoms, recent illnesses or surgeries can help exercise professionals identify pre-existing musculoskeletal, cardiac, etc. symptoms that predispose a person to an injury or more serious condition.

Other habits, such as tobacco, alcohol, caffeine or recreational drug use, can alter the body's response to exercise

Exercise and work histories provide an overview of the quality, intensity and duration of the activity the person is used to performing and their tolerance to exercise

HEALTH SCREENING RECOMMENDATIONS

Risk classification is the best practice for pre-exercise screening and has been widely used to determine who is safe to start exercising and who needs to seek medical clearance.

To determine whether or not a medical referral is recommended, pre-symptomatic screening is based on the following:

- current participation in exercise
- history and symptoms of cardiovascular, metabolic or renal disease
- the desired exercise intensity for the person wishing to start an exercise programme

The self-administered Physical Activity Readiness Questionnaire - PAR-Q can be used to assess the participant's ability to participate in the sport-based intervention. PAR-Q is a self-administered tool assessing the safety or the potential risk of exercise for an individual, based on his medical history over the past 12 months, recording current medical symptoms such as cardiovascular disorders, balance, the medication used, and disorders of the joints and muscles.

Appendix 4

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AMERICAN COLLEGE of SPORTS MEDICINE
LEADING THE WAY

EXERCISE PREPARTICIPATION HEALTH SCREENING RECOMMENDATIONS

And have made starting less intimidating—based on our research into outcomes.

THE BIG CHANGE:

Most people can exercise without visiting a doctor first.

Points to consider before starting to exercise or increasing exercise intensity:

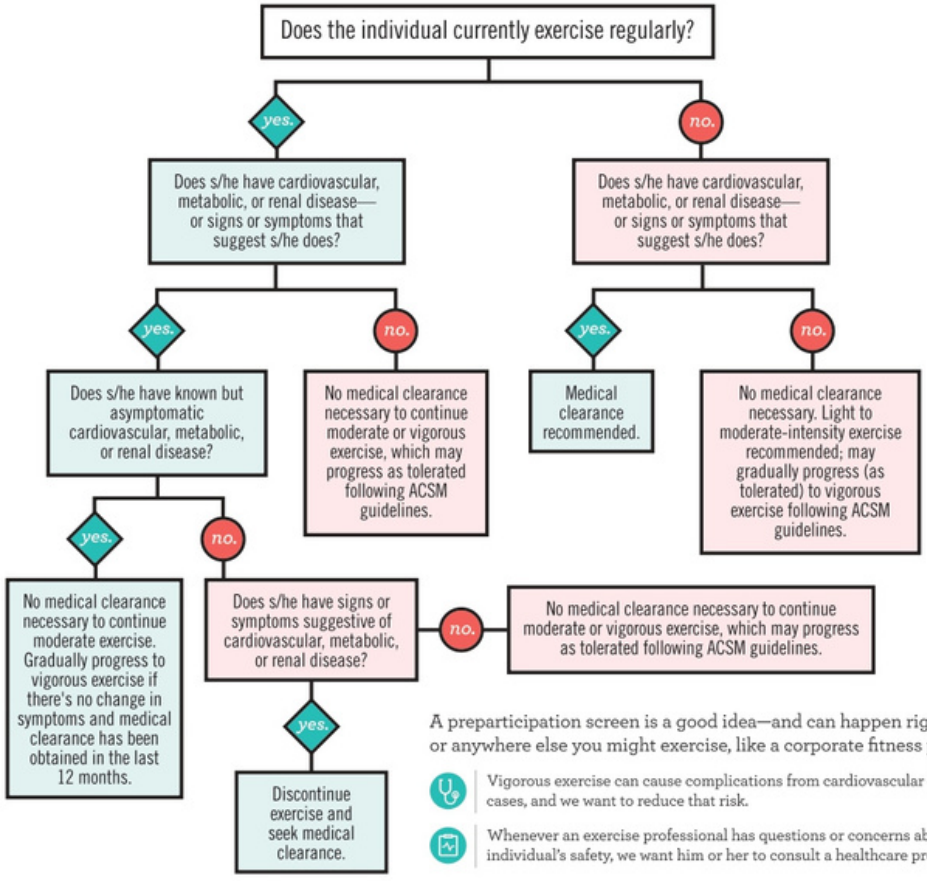
1. Current activity level
2. Signs/symptoms of certain diseases
3. Planned exercise intensity

MEDICAL CLEARANCE — A doctor advises a patient that he or she may exercise based on medical history and current health.

MEDICAL EXAM/TEST — A doctor examines a patient for particular issues that may interfere with exercise.

PREPARTICIPATION HEALTH SCREENING

Updated for 2015 and beyond



A preparticipation screen is a good idea—and can happen right in the gym or anywhere else you might exercise, like a corporate fitness program.

Vigorous exercise can cause complications from cardiovascular disease in rare cases, and we want to reduce that risk.

Whenever an exercise professional has questions or concerns about an individual's safety, we want him or her to consult a healthcare provider.

The Liability Issue: HAS THAT CHANGED,TOO?

In short, no.

If you're a fitness professional:

- ☑ Use reasonable care when training a client.
- ☑ As always, any individual assumes some risk with regard to fitness training under the guidance of a fitness professional, and waivers and releases can limit future liability.
- ☑ The new exercise preparticipation health screening recommendations are not a replacement for sound clinical judgment. Refer clients to a healthcare provider for medical clearance before they start an exercise program on a case-by-case basis.

Clients Evaluation

The evaluation is based on quantitative and qualitative data. Participants must complete pre- and post-intervention assessments and complete the Weekly Monitoring Goal-Setting Form throughout the sports interventions (process assessment) and the follow-up form.

Pre-evaluation (before the first week of the sport intervention)
Appendix 5

Post-evaluation (at the end of the final week of the sport intervention)
Appendix 7

Weekly Monitoring Goal-Setting Form (at the beginning of each week of the sport intervention)
Appendix 7

Debriefing assessment
Appendix 8

Follow-up assessment (after one month of the finish of the sport intervention)
Appendix 9

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Sport professionals Evaluation

To assure the quality of the training course and to get completely critical feedback on this initiative, an adapted version of the questionnaire based on Kirkpatrick's model of evaluation will be provided. One of the most well-known approaches for examining and assessing of training and educational activities is the Kirkpatrick model. It assesses aptitude utilizing four levels of criteria, taking into account any style of training, whether informal or formal. Level 1 – Reaction: assess how participants react to the training; Level 2 – Learning: assess whether they fully comprehended the training; Level 3 – Behavior: assess whether they are applying what they learned into practice; and Level 4 – Results: assess whether the knowledge gained had a positive organizational impact.

Training course evaluation in practice

Level 1: Reaction - An immediate assessment of trainee reactions to trainers, training delivery, and training environment will be made available when the training course is completed. The purpose of this assessment is to determine whether or not the participants have positive experiences from the course and whether or not they found the content relevant in their work.

Level 2: Learning - Following the completion of the training course, an immediate assessment of trainee learning will be used. The objective for this level is to provide direct measures of learning outcomes achieved by trainees (knowledge, skills, and attitudes).

Level 3: Behavior – The trainees will complete a questionnaire one month after the training course is completed. The purpose is to analyze how the participant's behavior at work changed after completing the course. Assessing the change makes it possible to figure out if the knowledge, mindset, or skills the course taught are being used in the workplace.

Level 4: Results - Since there is inadequate time to assess organizational change within the time frame, a questionnaire will not be distributed (after 3 months).

Appendix 10

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Indicators

Indivituals under SUD recovery			
Indicators	Unit	Method	Outcome
Clients attend the protocol	Number	Quantitative	Opportunities Commitment
Clients complete protocol	Number	Quantitative	Engagement Commitment
Attitude change	% of participants report develop new, or improve existing, skills	Post >20% improvement	Awareness
Clients experience improved Physical health	% of participants report physical health improvements	Post >20% improvement	Physical health
Clients experience improved mental health	% of participants report mental health improvements	Post >20% improvement	Mental health
Quality of life & well-being	% of participants report healthier, happier or more comfortable	Post >20% improvement	Quality of life
Clients behavioural changes	% of participants report behavioural changes that can improve life chances	Post >20% improvement	Behavioral changes Transformation
Clients knowledge about how to use behavioural change strategies	% of participants transfer their experience to their life	Post >20% improvement	Awareness Competencies Capacities knowledge Skills
Clients perceptions of value of sport and physical activity	% of participants report positive impact on themselves	Post >20% improvement	Awareness Interests
Sport for Addiction treatment	% of participants report better understanding of the role of sport in addiction treatment	Post >20% improvement	Awareness Competencies Capacities Skills

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Health professionals			
Indicators	Unit	Method	Outcome
Numbers of Training programs	Number	Quantitative	Opportunities
Professionals attend the Training	Number	Quantitative	Opportunities Commitment
Professionals complete the Training	Number	Quantitative	Opportunities Commitment
Trainees reaction	% of the trainees report positive reaction about the training experience	Quantitative	Satisfaction
Trainees skills	% of trainees increase in knowledge from the training experience	Quantitative	Improvements Capacities Skills Transformation
Trainees behavioral change	% of the trainees report increase on performance has on service provided	Quantitative	Improvements Transformation
Trainees performance	% of participants report behavioural changes that can improve life chances	Quantitative	Behavioral changes Transformation
Trainees productivity	% of the trainees report Increase sport engagement in SUD treatment	Quantitative	Awareness Competencies Capacities knowledge Skills
Trainees perceptions of value of sport and physical activity	% target population aware of the role of sport in addiction treatment	Quantitative	Awareness Interests
Trainees knowledge	% of Trainees report increased knowledge about how to use behavioral change strategies through sport	Quantitative	Awareness Capacities Skills

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Sport science students			
Indicators	Unit	Method	Outcome
Numbers of Training programs	Number	Quantitative	Opportunities
Students attend the Training	Number	Quantitative	Opportunities Commitment
Students complete the Training	Number	Quantitative	Opportunities Commitment
Trainees reaction	% of the trainees report positive reaction about the training experience	Quantitative	Satisfaction
Trainees skills	% of trainees increase in knowledge from the training experience	Quantitative	Improvements Capacities Skills Transformation
Trainees behavioral change	% of the trainees report increase on performance has on service provided	Quantitative	Improvements Transformation
Trainees performance	% of participants report behavioural changes that can improve life chances	Quantitative	Behavioral changes Transformation
Trainees productivity	% of the trainees report Increase sport engagement in SUD treatment	Quantitative	Awareness Competencies Capacities knowledge Skills
Trainees perceptions of value of sport and physical activity	% target population aware of the role of sport in addiction treatment	Quantitative	Awareness Interests
Trainees knowledge	% of Trainees report increased knowledge about how to use behavioral change strategies through sport	Quantitative	Awareness Capacities Skills

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Dissemination Plan

The RACE4LIFE dissemination plan will be based on the following elements:

Goals

- To describe and promote alternative approaches for improved services of prevention, care, treatment, and support for individuals with SUD at the national and European level.
- To raise public awareness about the complementary role of sport in SUD recovery.
- To illustrate novel approaches to increase the operational capacity of the relevant stakeholders to implement sports intervention in SUD recovery.
- To Identify linkage to care and improve the quality of clients' lives through sport participation.
- To differentiate and tackle the stigma and discrimination of SUD at the local, national and European levels.
- To explain the vital role of sport in the social inclusion of vulnerable social groups to strengthen social cohesion.
- To promote alternative approaches to reducing public health service costs.
- To point out the contribution of sport to improve the quality of life.
- To enhance efforts to improve communication, coordination, and collaboration between different sectors to support social inclusion through sport.

Objectives

- To illustrate the benefits coming from sport activities.
- To highlight the educational dimensions of sports and identify the ways sport can reinforce personal development and behavioral change of people under SUD recovery.
- To outline behavioral change strategies through sport, matching them with SUD recovery approaches.
- To emphasize the importance of sports interventions in a treatment facility as a means of dealing with the social exclusion of individuals with SUD.
- To recognize the importance of sport as a prevention tool against SUD.

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Media & Indicators

Website and Social media actions (www.rtsport.eu; ketheasport)
The primary goal of the website is to provide the end-users with access to immediate, up-to-date information on project activities conveniently and cost-effectively. Through social media actions, short messages will be used to convey results dissemination.
Purpose

- To provide up-to-date and accurate information
- To ensure a variety of useful/relevant information from across the project is provided to the end-users
- To make it easier and quicker for the end-user to access the project information
- To reduce the risks created by misinformation from other sources of information provided.
- To make the project more visually appealing
- To provide more options for the end-user to the information usage

Target audiences
The website and social media are intended to reach the largest and most diverse range of audiences. Anyone with access to the internet can access the project website and social media, and so are expected to cater to the general audience.
Indicators: number of visitors, number of followers

Press releases
Press releases are going to provide information about achieved results, deliverables, and relevant events for RACE4LIFE project.
Purpose
To widely reported to the community
Target audiences
Project press releases will generally be targeted to the widest possible audience because they will contain newsworthy information that is likely to affect, or be of interest to, a large number of people
Indicators: number of Press releases

Academic/Scientific articles
The purpose of the project academic/scientific articles is to bring to the public, valuable, valid information related to the project outcomes. During and after the project, partners will be supported to publish articles in selected relevant scientific journals, as well as international and national events.
Target audiences
The academic community, researchers, students, etc
Universities and research institutions conducting research
Indicators: number of items

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Webinars

The purpose of the project webinars is to raise awareness about the project in an easy and efficient way

Target audiences

The project target groups

Indicators: number of webinars

Protocol presentations

Protocol presentations are foreseen in various types of events – from scientific conferences to forums, and exhibitions.

Target audiences

The general and specific public interested

Indicators: number of presentations

Newsletter

A 3-month newsletter will be used as another dissemination channel for the spread-out of the protocol. The newsletter will be perceived as a means to come back to the interested groups, which are not necessarily frequently coming back to the website, where all the information is publicly available.

Purpose

To provide specific information to the project network

To ensure information is getting to all the project stakeholders

The target audience

Project network stakeholders, general public

Indicators: number of Newsletters

Flyers and leaflets

Purpose

The purpose of leaflets and brochures is to provide useful and updated information about the project-related activities

The target audience

The target audiences for the leaflets and brochures depend on the project activity to which they relate and what their main purpose is (events, webinars, etc). They will be mostly electronic and made available on the project website and social media.

Indicators: number of products

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Appendixes

Appendix 1: Participant consent form

This Informed Consent Form is for men and women invited to participate in a pilot sport-based intervention as part of SUD recovery. The pilot sport-based intervention is implemented in the framework of the protocol: RACE4LIFE

In this framework, we are implementing pilot sport-based interventions for individuals under SUD recovery. During the interventions, you will be asked to fill out evaluation forms. Before you decide, whether you will participate in the sport-based interventions, you can ask me if is something that you do not understand.

There are no known risks if you decide to participate in this research study. The evaluation forms are anonymous. Do not write your name anywhere on the forms. The information that we collect from the evaluation forms will be kept confidential. Information about you that will be collected during the sport-based interventions will be put away and, other than the researchers, no one will be able to see it. Instead of your name, any information about you will have a number designated to it. Only the researchers will know what your number is whereas we will lock that information up with a lock and key. If the data is published, no individual information will be disclosed.

Statement of Consent

I have read the foregoing information, or it has been read to me.

I have had the opportunity to ask questions about it and any questions that I have asked, have been answered to my satisfaction.

I understand I can withdraw my comments at any time and do not have to give any reason for withdrawing.

I understand that my personal information will remain confidential.

Date:

Name:

Signature:

Appendix 2: Demographics

Age:

Gender at birth: Male Female

Years in drug abuse:

Days in SUD recovery:

Service Settings:

- Outpatient treatment
- Residential treatment
- Other

Therapy Approach

- Not Substitution
- Substitution
- 12-Step Therapy
- Other

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Appendix 3. Motivational interviewing (Panagiotounis et al., 2022)

Description
1st Meeting (1.30')
Welcome and briefing
Thank you for joining us today and for deciding to participate in today's meeting.
I make a short report on the scope of the meeting.
One of the main aims of the intervention is to help you improve your overall physical and mental health and also to encourage you to incorporate more physical activity into your life. Our discussion will be collaborative and will focus on your personal needs and challenges. Is it right for you?

Description of a typical day
If you don't have a question, you would like to write down on a piece of paper a typical day for you - e.g. yesterday - from start to finish (5 minutes)

Would you like to describe it for me? Let's start at the beginning...
✓ *When did he get up?*
✓ *What happened?*
✓ *How did you feel?*
(We comment by reflecting on the statements e.g. It seems you had a very long (intense ....) day ... From what you say you felt bad/well...)

Do you think that some kind of physical activity would fit or would not fit into your daily schedule?
If so how?
If not why?
(I'm making notes on obstacles and participation)
If it is okay with you, I would like to know if you know about the importance of physical activity for the overall physical and mental health of a person trying to get sober. Tell me if you know anything about the minimum recommended weekly amount of physical activity.
(I am giving information about the recommended weekly amount of physical activity)
I would also like to mention some (additional) reasons why physical activity is important for drug addiction treatment.
▯ Would you like to share with us your thoughts on this information? What are your thoughts on all of this?

Close Meeting
Thank you all very much for all your time and effort today. Our next meeting will be on ...., here at the... This next meeting will be 1 hour and 30 minutes long. I would like you all to participate in this meeting. Thank you again for your time today and I look forward to seeing you soon!

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2nd Meeting (1.30')

Last time we met we had a discussion about why it is important for people in rehabilitation treatment to engage in physical activity. At our last meeting, we discussed what your typical day looks like as well as the importance of physical activity for a person's overall physical and mental health.

If it's okay with you, I'd like to talk about how important it is for you, in particular, to engage in exercise.

▯ On a scale of 0 to 10, where 0 is not at all important and 10 is extremely important, where would you place yourself on how important it is for you to exercise?

not at all important									extremely important
1	2	3	4	5	6	7	8	9	10

▯ You say you feel (at least a little important (1-3) / more important (4-7) / very important (8-10). Why are you at (number stated) and not (one number) below?

▯ What would it take to reach the next level of importance to you?
(add points to what he has stated to get to the next level)

▯ Many people feel that regular physical activity is at least somewhat important to them, yet they are unsure of their readiness and ability to participate in it. If so, I'd like to hear about how ready or confident you are in your ability to exercise.

▯ On a scale of 0 to 10, where 0 is not at all confidence and 10 is very confident, how sure would you say you are if you decided to engage in regular physical activity? (give the scale)

not at all confidence									very confidence
1	2	3	4	5	6	7	8	9	10

▯ You say you feel....at least a little confident (1-3) / more confident (4-7) / very confident (8-10). Why are you at (number he/she has stated) and not (one number) below?

▯ What would it take to reach the next level of importance for you?
(add points to what he has stated to get to the next level)

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Let's talk a little about the good and bad of exercise. First, I'd like to hear about the not-so-good side of exercise.
What are the disadvantages?
What don't you like?

Now, what are the good (benefits) of physical exercise?
When you exercised regularly in the past, what did you like?
(If you hadn't exercised in the past, what do you think you would have liked?)

Close Meeting
Thank you all very much for all your time and effort today. Our next meeting will be on ..., here in the.... This next meeting will be 1 hour and 30 minutes long. I would like you all to participate in this meeting. Thank you again for your time today and I look forward to seeing you soon!

3rd Meeting

Thank you for coming today. It's good to have you with us again. If it's okay with you, I'd like to start our meeting today by recalling what we discussed last time we met. What do you say, is it ok?

At our last meeting, we discussed how important it is for you to exercise as well as how ready you are for it. We also discussed the pros and cons of exercise in your daily life.

Would you like to talk a little about the things that are important to you in life? I'd like you to look at this Values Card, which is yours and I'd like you to keep it. I'd like you to take some time to think about the things in your life that are most important to you.

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Honesty	Security	Productive
Equality	Comfort (without pain)	Useful
Security	Financial Independence	Knowledge
Self-discipline	Good mother/father	Attractive
Material goods	Good husband/partner	Good member of the community
Independence	Responsible	Power
Trust	Powerful	Prestige
Free time	Athletic	Dignity
Honesty	Active	Altruism
Friendship	Popular	Travel
Education	Fair	Self-confidence
Other:		

- The list in front of you shows some characteristics/values that are important to some people. Please add to this list if there are others that are important to you. Choose 2 or 3 of those that are most important to you.
- Tell me, why are these characteristics/values you have chosen important to you
- Does the regular exercise relate to these values? If so, how?
- Think about the things in your life that are important to you. Would the exercise, if it did not exist at all, affect the things that are important to you?
- I would like to know if there is a link between exercise and the specific values?
- Now, suppose you continue as you are now, without changing anything, without doing any exercise. What do you imagine will happen in your life?

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- If you had accomplished things through exercise, would things be different for you? What do you think the impact on your life would be?
- On the one hand, you listed several reasons (list the reasons I have listed) why engaging in regular physical exercise would be a difficult challenge that might not be the best option now.
- But on the other hand, you mentioned several reasons (I'm listing the reasons I've listed) why it would be important to try.
- What do you think your next step should be? Would you be interested in working together on an exercise program or perhaps setting some goals related to increasing your exercise level? It's entirely up to you.

Remember that you are the best judge of what will be best for you. If it's okay, I'd like you to write down a goal you could set for next week about the level of exercise you'd like them to achieve? Remember that the goal should be clear, realistic, not too big or too small. Think of something that best suits your lifestyle. Do you want to set a goal?

(I give the Weekly Monitoring Goal-Setting Form)

Appendix 4. Physical Activity Readiness

1	Has your doctor ever said that you have a heart condition and that you should only do physical activity recommended by a doctor?	YES	NO
2	Do you feel pain in your chest when you do physical activity?	YES	NO
3	In the past month, have you had chest pain when you were not doing physical activity?	YES	NO
4	Do you lose your balance because of dizziness or do you ever lose consciousness?	YES	NO
5	Do you have a bone or joint problem that could be made worse by a change in your physical activity?	YES	NO
6	Is your doctor currently prescribing drugs for your blood pressure or heart condition	YES	NO
7	Do you know of any other reason why you should not do physical activity	YES	NO

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If you answered
YES to one or more questions

- Talk to your doctor by phone or in person BEFORE you start becoming much more physically active or BEFORE you have a fitness appraisal.
- Tell your doctor about the PAR-Q and which questions you answered YES.
- You may be able to do any activity you want – as long as you start slowly and build up gradually. Or, you may need to restrict your activities to those which are safe for you. Talk with your doctor about the kinds of activities you wish to participate in and follow his/her advice.
- Find out which community programs are safe and helpful for you

NO to all questions

If you answered NO honestly to all PAR-Q questions, you can be reasonably sure that you can:

- Start becoming much more physically active – begin slowly and build up gradually. This is the safest and easiest way to go.
- Take part in a fitness appraisal – this is an excellent way to determine your basic fitness so that you can plan the best way for you to live actively.

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Appendix 5. Pre-evaluation

Cycle the answer that better corresponds to your opinion

I have the physical skills needed to be physically active	1	2	3	4	5
I have the mental skills needed to be physically active	1	2	3	4	5
I have the physical strength I need to be physically active	1	2	3	4	5
I have the mental strength I need to be physically active	1	2	3	4	5
I can overcome my physical limitations to be physically active	1	2	3	4	5
I can overcome my mental obstacles to be physically active	1	2	3	4	5
I have the physical stamina I need to be physically active	1	2	3	4	5
I have the mental stamina I need to be physically active	1	2	3	4	5
Opportunity					
I have time to do physical activity	1	2	3	4	5
I have resources to do physical activity	1	2	3	4	5
I have the necessary materials to do physical activity	1	2	3	4	5
I have access to places to do physical activity	1	2	3	4	5
I have people around me to do physical activity with	1	2	3	4	5
I have triggers to remind me to do physical activity	1	2	3	4	5
I have support from others to do physical activity	1	2	3	4	5
Motivation					
I feel that I want to do physical activity regularly	1	2	3	4	5
I feel that I need to do physical activity regularly	1	2	3	4	5
I believe that it would be a good thing to do physical activity regularly	1	2	3	4	5
I develop better plans for doing physical activity regularly	1	2	3	4	5
I develop a habit of doing physical activity regularly	1	2	3	4	5
Effort/Importance.					
I will put a lot of effort into (here you must put the sport activity you have planned e.g. running)	1	2	3	4	5
I will try very hard to do well at this sport activity.	1	2	3	4	5
It will be important to me to do well at this sport activity.	1	2	3	4	5
I will put much energy into sport activity.	1	2	3	4	5
Value/Usefulness					
I believe this sport activity will have some value for me	1	2	3	4	5
I will be willing to do this sport activity again because it will have some value for me	1	2	3	4	5
I believe doing this sport activity will be beneficial to me	1	2	3	4	5
I think this will be an important sport activity.	1	2	3	4	5

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Appendix 6. Post-evaluation

Cycle the answer that better corresponds to your opinion

	Strongly Disagree	Disagree	Nor Disagree-Nor Agree	Agree	Strongly agree
Capability					
I know why it is important to me to be physically active	1	2	3	4	5
I know how to do physical activity	1	2	3	4	5
I have the physical skills I need to be physically active	1	2	3	4	5
I have the mental skills I need to be physically active	1	2	3	4	5
I have the physical strength I need to be physically active	1	2	3	4	5
I have the mental strength I need to be physically active	1	2	3	4	5
I can overcome my physical limitations to be physically active	1	2	3	4	5
I can overcome my mental obstacles to be physically active	1	2	3	4	5
I have the physical stamina I need to be physically active	1	2	3	4	5
I have the mental stamina I need to be physically active	1	2	3	4	5
Opportunity					
I have time to do physical activity	1	2	3	4	5
I have resources to do physical activity	1	2	3	4	5
I have the necessary materials to do physical activity	1	2	3	4	5
I have access to places to do physical activity	1	2	3	4	5
I have people around me to do physical activity with	1	2	3	4	5
I have triggers to remind me to do physical activity	1	2	3	4	5
I have support from others to do physical activity	1	2	3	4	5
Motivation					
I feel that I want to do physical activity regularly	1	2	3	4	5
I feel that I need to do physical activity regularly	1	2	3	4	5
I believe that it would be a good thing to do physical activity regularly	1	2	3	4	5
I develop better plans for doing physical activity regularly	1	2	3	4	5
I develop a habit of doing physical activity regularly	1	2	3	4	5
Effort/Importance.					
I put a lot of effort into (sport activity)	1	2	3	4	5
I tried very hard on this (sport activity)	1	2	3	4	5
It was important to me to do well at this (sport activity)	1	2	3	4	5
I didn't put much energy into (sport activity)	1	2	3	4	5
Value/Usefulness					
I believe this (sport activity) had some value to me	1	2	3	4	5
I would be willing to do (sport activity) again because it had some value for me	1	2	3	4	5
I believe doing (sport activity)was beneficial to me	1	2	3	4	5
I think this was an important sport activity	1	2	3	4	5
Perceived Choice	1	2	3	4	5
I believe I had some choice about doing this (sport activity)	1	2	3	4	5
I felt like it was not my own choice to do this (sport activity)	1	2	3	4	5
I didn't really have a choice about doing this (sport activity)	1	2	3	4	5
I felt like I had to do this (sport activity)	1	2	3	4	5
I did this (sport activity) because I had no choice.	1	2	3	4	5
I did this (sport activity) because I wanted to	1	2	3	4	5
I did this(sport activity)because I had to.	1	2	3	4	5

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Appendix 7. Weekly Monitoring Goal-Setting Form

Training Goal. Participants will define the overall goal they will set to attain by the end of each week (Goal), choosing one out of the predefined options, ranging from .... to... per week (you must modify it according to your sport activity). Examples: Km/week, min/week of exercise, session/week

Self-confidence in achieving training goals. Participants will evaluate to what extent they are confident they will achieve their training goal. Answers will be given on a Likert scale from 1 (for not at all sure) to 10 (totally sure).

Motivational strategies for achieving the goal. Using free text, participants will answer an open-ended question asking them what strategies they will follow to achieve their previously stated training goal. They will be instructed to list up to 3 strategies.

Self-confidence in the implementation of strategies. The participants will report on how confident they will actually apply the strategies. Answers will be given on a Likert scale from 1 (for not at all sure) to 10 (totally sure).

Weekly SUDs treatment Goals. Participants will use free text to answer an open-ended question asking them what their treatment goals are for the week ahead.

Linked to treatment: Participants will be asked to provide comments as an answer to the question: "how the procedure of the sport training help you to achieve your SUDs therapy goals?".

Procedure
At the beginning of each week of the sport intervention, all the participants must fill out the Weekly Monitoring Goal-Setting Form and submit it to the trainer (the trainer must return a copy of the form to the participants). Then they must continue and fill it in at the beginning of each week.

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My goal for this week is to try to run (or exercise):
7 km, 8 km, 9 km, 10 km, 11 km, 12 km, 13 km, 14 km, 15 km, 16 km.

How sure are you of that?
Not at all sure 1 2 3 4 5 6 7 8 9 10 Absolutely sure

The steps to achieve my goal are:
1.
2.
3

How sure are you of that?
Not at all sure 1 2 3 4 5 6 7 8 9 10 Absolutely sure

A. What are the therapeutic goals this week:

B. Describe how you believe that trying to prepare to run the 10K race helps you achieve your therapeutic goals:

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Appendix 8. Debriefing assesment

		Strongly disagree	Disagree	Neither agree nor disagree	Agree	strongly agree
1	Debriefing helped me to analyze my thoughts.	1	2	3	4	5
2	The facilitator reinforced aspects of the team's sport behavior	1	2	3	4	5
3	Debriefing helped me to make connections between life skills and sport experience.	1	2	3	4	5
4	Debriefing was helpful in processing my sport experience.	1	2	3	4	5
5	Debriefing provided me with a learning opportunity.	1	2	3	4	5
6	Debriefing helped me to find meaning in my sports experience.	1	2	3	4	5
7	I became more aware of myself during the debriefing session.	1	2	3	4	5
8	Debriefing helped me to make connections between sport and real-life situations.	1	2	3	4	5
9	The facilitator allowed me enough time to verbalize my feelings before commenting.	1	2	3	4	5
10	The debriefing session facilitator talked the right amount during debriefing.	1	2	3	4	5
11	Debriefing provided a means for me to reflect on my actions during the sport experience.	1	2	3	4	5
12	I had enough time to debrief thoroughly.	1	2	3	4	5
13	The debriefing session facilitator was an expert in the content area.	1	2	3	4	5
14	The facilitator provided adequate guidance during the debriefing	1	2	3	4	5

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Appendix 9. One-month Follow-up Assessment

A self-reporting tool is developed, to assess the way the goal-setting process was being linked to therapy after completion of the sport-based intervention.

a. Four items assessing the factor: Frequency of goal setting use during and after the end of the participation of the sport-based intervention. More specifically, participants were asked: (i) how often they used goal setting during the sport-based intervention for their training goals, (ii) how often they made the connection between training goals and SUDs treatment goals, during the sport-based intervention, (iii) how often they have set goals for self-improvement in general (e.g. improve their dietary habits, or decrease the number of cigarette smoking) during the sport based intervention, and (iv) how often they had used goal setting to help them to do their best they can. Answers must give on a Likert scale from 1: Never to 10: Always.

b. Four items assessing the factor: Perceived Helpfulness of (i) how much the sport-based intervention helped them to achieve their training goals, (ii) how much the sport-based intervention helped to set their SUDs treatment goals, (iii) how much the sport based intervention helped to connect the training related setting goals to the SUDs treatment goals, (iv) how much the sport based intervention helped to set goals to achieve personally meaningful goals (after the sport based intervention) (v) how much the sport based intervention helped to train their self's for the completion of the SUDs treatment. Answers must be given on a Likert scale from 1: Not at all to 10: Very much.

c. One open-ended question to answer by free text, asking them to give examples and describe in what ways their participation in the goal-setting process was useful to their SUDs treatment until now

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How often during the sport intervention you set goals for the training?

Never									Always
1	2	3	4	5	6	7	8	9	10

To what extent did the sport intervention help you set goals for the training?

Not at all									Very much
1	2	3	4	5	6	7	8	9	10

To what extent did the sport intervention help you set goals for your treatment?

Never									Always
1	2	3	4	5	6	7	8	9	10

How often during the sport intervention you connected the training goals with your therapeutic goals?

Never									Always
1	2	3	4	5	6	7	8	9	10

To what extent did the sport intervention help you connect the training goals with your therapeutic goals?

Not at all									Very much
1	2	3	4	5	6	7	8	9	10

How often during the sport intervention you set goals to improve yourself?

Never									Always
1	2	3	4	5	6	7	8	9	10

To what extent has the sport intervention helped you to set goals to achieve something you think is important?

Not at all									Very much
1	2	3	4	5	6	7	8	9	10

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How often during the sport intervention did you set goals to achieve the best possible results?

Never									Always
1	2	3	4	5	6	7	8	9	10

To what extent did the sport intervention help you to support yourself on how to work to complete your treatment?

Not at all									Very much
1	2	3	4	5	6	7	8	9	10

Do you believe that your participation in the sport intervention has helped you in your recovery process?
If yes, how?

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Appendix 10. professionals Evaluation

Reaction					
The reactions of the trainees to the traine	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The trainers applied effective teaching approaches that fit with the training goals.	1	2	3	4	5
The trainers delivered the scientific content in an appropriate manner and in accordance with the training course's objectives.	1	2	3	4	5
The trainers delivered the skills to be taught in a simple and concise manner.	1	2	3	4	5
The trainers planned training activities in a way that was acceptable and in line with the training course's objectives.	1	2	3	4	5
The trainers were able to effectively communicate with the trainees.	1	2	3	4	5
Trainees were given the time to discuss with the trainers and ask questions.	1	2	3	4	5
In general, how effective were the trainers in establishing a learning-friendly environment?	Not at all	Only a little	To some extent	Rather much	Very much
Trainees' reactions to training delivery	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The RTS+ course's topics was relevant to my work.	1	2	3	4	5
The RTS+ training course provided both theoretical and practical knowledge that was up-to-date.	1	2	3	4	5
The information was delivered in a way that was tailored to the trainees' learning needs.	1	2	3	4	5
The length of the RTS+ training course was appropriate and sufficient.	1	2	3	4	5
Based on the materials presented, my training needs were met.	1	2	3	4	5
The RTS+ training course was designed to meet both my skill development demands and my current work requirements.	1	2	3	4	5
The training techniques were appropriate for the training demands.	1	2	3	4	5
I believe that the RTS+ training course will help me to act more efficiently in my everyday practice.	1	2	3	4	5
The reactions of the trainees to the training environment	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The location was set up in a way that was appropriate for the RTS+ training course	1	2	3	4	5
The facilities were appropriate.	1	2	3	4	5
The RTS+ training course was, on the whole, well-organized.	1	2	3	4	5

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Learning

Trainees' perceptions of the impact on their learning and knowledge	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
As a result of the RTS+ training course, my knowledge and skills improved.	1	2	3	4	5
I learned about various theories and practices, as well as knowledge I didn't know previously, as a result of the training course	1	2	3	4	5
The RTS+ training course provided me with new practical skills in my profession.	1	2	3	4	5
The training course provided an opportunity for the participants to share new knowledge, expertise, and experiences.	1	2	3	4	5
I will be able to improve my work in ways that I would not have been able to previously.	1	2	3	4	5
The training course aroused my attention and stimulated my curiosity about the learning topics presented.	1	2	3	4	5
My attitude toward the training topics has changed as a result of the RTS+ training course.	1	2	3	4	5
Please specify what you perceive the training course's strengths were.	open-ended				
Please identify any areas of the training course that you believe may be improved.	open-ended				

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Behavior (3 months later)

Trainees' perceptions of behavior	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The training course motivated me to improve my work.	1	2	3	4	5
My ability to perform effectively in my working area improved as a result of the training course.	1	2	3	4	5
After completing the training, my work behaviour changed.	1	2	3	4	5
Some aspects of my work behaviour were developed as a result of the training course.	1	2	3	4	5
Which were the most significant changes in the way you perform your work as a result of attending the training course?	open-ended				
How did the RTS+ training course contribute to these changes?	open-ended				
Which other factors contributed to the development of your knowledge/skills in the training area? (if any)	open-ended				
What helped you to apply what you have learned? (Choose as many answers as apply; tick and/ or comment)					
Nothing					
Opportunities to apply					
Relevance of the training topics to my role					
Support from colleagues and supervisors					
Had the time					
Encouraged by previous accomplishment					
Others (please specify)					
What has prevented you from using the knowledge and skills you acquired in your job?					
Nothing					
Opportunities to apply					
Relevance of the training topics to my role					
Support from colleagues and supervisors					
Had the time					
Encouraged by previous accomplishment					
Others (please specify)					
Final comments (any other comments that you might have about the impact of the training on your job performance?	open-ended				
To what extent your services' therapeutic processes changed as a result of your participation in the RTS+ training and its products?	Not at all	Only a little	To some extent	Rather much	Very much
Do you believe sport can be a powerful tool in SUD recovery?	Not at all	Only a little	To some extent	Rather much	Very much

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