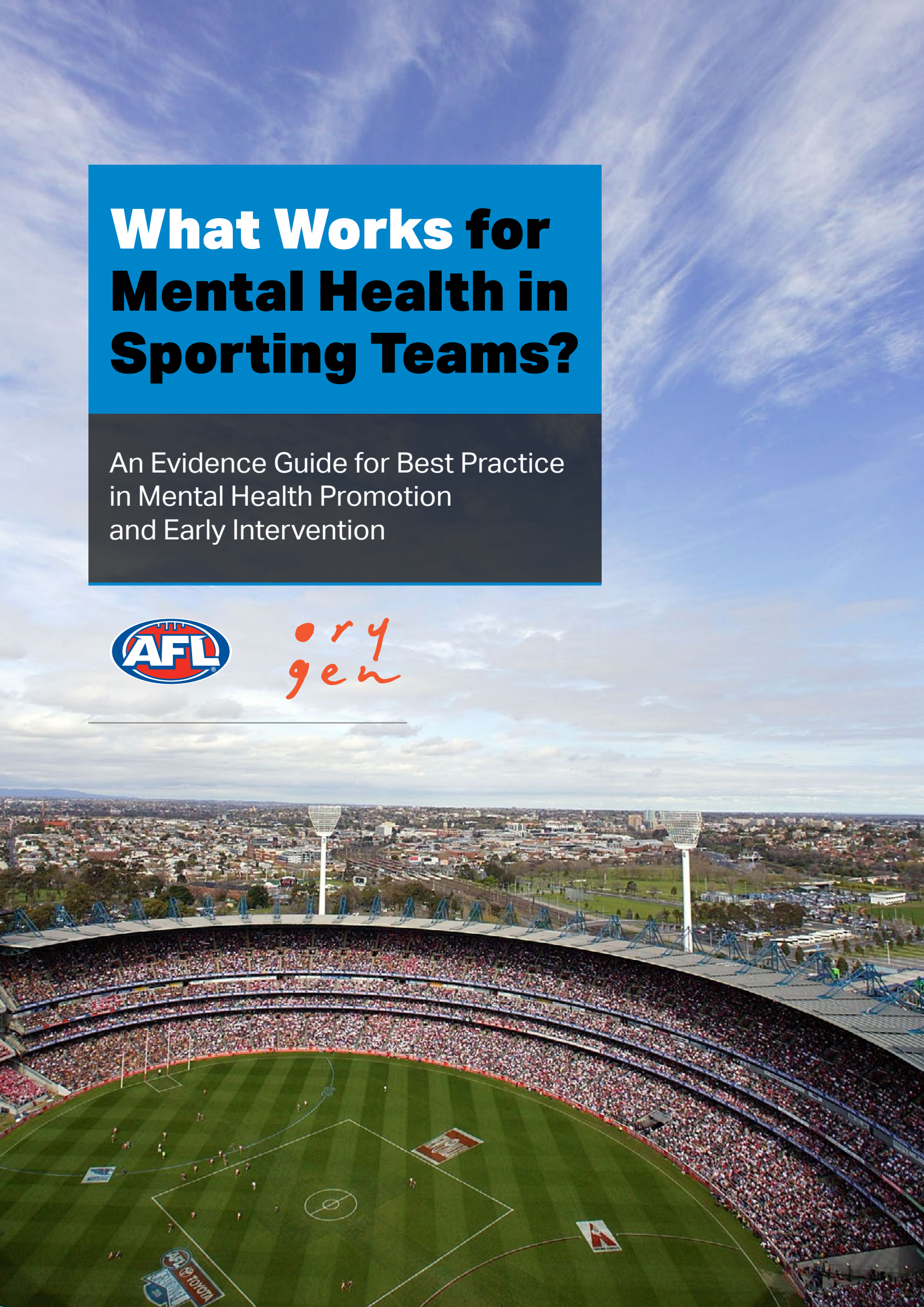
What Works for Mental Health in Sporting Teams?

An Evidence Guide for Best Practice in Mental Health Promotion and Early Intervention



Suggested citation:
Purcell R, Chevroulet C, Pilkington V, Rice S. What Works for Mental Health in Sporting Teams? An Evidence Guide for Best Practice in Mental Health Promotion and Early Intervention. Orygen, Melbourne, 2020.

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Acknowledgements

We wish to thank Alan Bailey for his assistance with the search strategy for the literature review, and Dr Kate Hall, Head of Mental Health and Wellbeing at the Australian Football League (AFL) for her insights and guidance in the resource development, along with Dr Ranjit Menon, Chief Psychiatrist, AFL.

Photography throughout provided by AFL Photos.

Funding statement

This evidence guide was funded by the AFL's Mental Health and Wellbeing program.

Disclosure and disclaimer

Table of contents

About this guide ____ 3

What is 'mental health'? ____ 4

Mental health continuum ... 5

How common is mental illness? ... 5

What are the rates of mental ill-health in elite athletes? ... 6

What are common mental health symptoms or 'signs'? ... 6

Mental health in sport ... 8

Mental health, sport and performance ... 8

A stepped care approach to mental health interventions ... 9

Who is best equipped to deliver mental health prevention or early intervention in sport? ... 11

Mental health prevention programs ... 11

Early detection and intervention programs ... 12

Specialist mental health care ... 12

A note on "neuroscience" ... 13

How to use this guide? ____ 14

How was this evidence guide developed? ... 16

Systematically searching the literature ... 16

What type of programs and studies were included? ... 16

Reviews focus on 'high-quality' studies first; then the rest ... 16

Writing the reviews ... 17

A summary of what works for responding to mental health in team-based sports ____ 18

Programs to promote mental health and/or prevent mental health problems ____ 20

Australian mental health awareness programs ... 20

Ahead of the Game ... 21

Mental Health in Sport ... 22

Alive and Kicking Goals ... 23

Growing with Gratitude ... 24

Love Me Love You ... 25

Outside the Locker Room ... 26

Read the Play ... 27

The Resilience Project ... 28

Sport and Life Training ... 29

Tackle Your Feelings ... 30

Psychoeducation ... 31

Programs to prevent specific mental health problems ____ **32**

Reducing problematic alcohol consumption in sporting clubs ... **33**

The Good Sports program ... 34

Other *club-level* alcohol reduction programs ... 35

Individual-level alcohol reduction programs ... 35

Programs for preventing problematic eating habits or body image disturbance ... **36**

Structured Peer-led psychoeducation programs ... 36

Professionally-led psychoeducation programs ... 37

Programs for preventing or reducing problematic gambling, including sports betting ... **38**

Programs for preventing posttraumatic stress in athletes exposed to a traumatic event ... **39**

Early interventions for mental health symptoms ____ **40**

Cognitive-behaviour therapy ... 41

Mindfulness-based interventions ... 42

Psychological (or Mental) Skills Training ... 44

Recovery Garments ... 45

Acupuncture ... 46

Audio-visual stimulation training ... 47

Autogenic Training ... 48

Positive psychology interventions ... 49

Reflective Diaries ... 50

Sleep interventions ... 51

Yoga ... 52

Person-centred psychotherapy ... 53

Programs for coaches who work with junior athletes ... **54**

Communication-based interventions ... 54

Self-Determination Theory-based interventions ... 55

Stress-inoculation training ... 56

Programs to increase 'mental toughness' ____ **58**

What is mental toughness and what is its role in sport? ... **59**

Mental toughness training in non-pressurised environments ... 60

Mental toughness training in pressurised conditions ... 61

Programs for retiring athletes to manage the mental health impacts of transition out of sport ... **61**

References ____ **62**

About this guide

The importance of mental health in sport is increasingly recognised and understood. This rapid evidence guide has been designed to help sporting teams and bodies make **informed choices about the scientific evidence** for programs that are designed to promote mental health or to respond to mental health symptoms. The purpose of the guide is to highlight programs that can be used at the 'whole of club/team' or sport levels (rather than the individual athlete level) to lead to mental health benefits.

Responding to mental health in sport - like other areas of health – should be based on the **best-available evidence**, to maximise the efficient use of limited resources. This guide systematically searched all the available literature to provide the most comprehensive review of programs that (i) promote mental health, (ii) prevent mental ill-health or (iii) provide early intervention for mental health symptoms in groups of athletes (and in some cases, coaches), from the community through to elite and professional sports levels. While each program or intervention may have advocates or supporters, the amount of evidence supporting the effectiveness of the program or intervention can vary greatly. The lead authors (A/Professors Rosemary Purcell & Simon Rice), who are experts in mental health in elite sports, systematically **rated the level and quality of the evidence** for each program or intervention and provided an overall recommendation, in a rapid-review format.

This evidence guide should assist sporting teams to adopt best-practices in mental health and ultimately lead to better mental health outcomes for athletes and teams.

What is ‘mental health’?

Mental health refers to how a person feels, thinks and behaves. Our mental health is influenced by a range of factors, such as genetics, our life experiences, social relationships, and how we process or interpret our thoughts.

In general, good mental health is a state of mind that enables us to be able to cope with the ups and downs of life. Emotions such as sadness, anger, irritability, worry and anxiety are all normal parts of the human experience. It’s when these emotions or ‘symptoms’ persist for weeks or months, or have impact on our day-to-day functioning (e.g. the ability to play sport, or to connect with others), that they may be a sign of a mental health condition.

Mental health exists on a continuum; that is; a person can be mentally fit and healthy, or may have a mental illness, or may be somewhere in between. People experiencing mental illness can recover and have periods of optimum mental health, while people without a mental health problem can experience times of poor mental health (such as feeling stressed or overwhelmed).

Mental health continuum

Mentally fit and healthy	Mild to moderate distress	Mental illness
The person feels good about themselves, their relationships and what they do in their social groups or community. This allows them to live a productive and happy life	The person may be dealing with everyday life challenges. They may feel anxious, sad, angry, or irritable, but they are able to manage these feelings themselves and/or with the help of their friends and family	The person experiences symptoms for more than a few weeks; may not able to live their usual day-to-day lives; and may not able to manage how they feel without professional help

How common is mental illness?

Most mental illnesses (around 75%) begin before the age of 25 with anxiety, depression and problematic substance use (alcohol or other drugs) the most common forms of mental ill-health. As Figure 1 indicates, the onset of mental illness peaks in adolescence and early adulthood and is the most common illness affecting young people (compared to all forms of physical illness, such as cardiovascular disease, cancer, diabetes, etc).

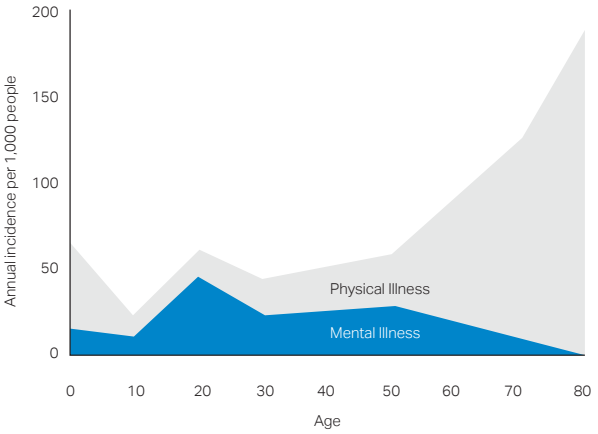

Figure 1. Burden of illnesses according to age

One in four young Australians (24%) will experience mental illness in any year, and almost half the population (45%) will experience a mental health disorder in their lifetime.[2]

This means that within community sporting clubs and environments, 1 in 4 people aged 25 years or less – such as players, coaches, or staff/volunteers - will experience a mental illness at any time.

What are the rates of mental ill-health in elite athletes?

Research summarised by an International Olympic Committee expert panel in mental health shows that currently competing elite athletes report a range of mental health *symptoms*, including psychological distress, anxiety/depression, performance anxiety, disordered eating, and trouble managing their emotions. The rates of these symptoms vary according to the type of sport and the gender of athletes, but overall, they range from 19% for psychological distress and/or alcohol misuse, through to 34% for anxiety/depression.[3]

Therefore around 1 in 3 professional or elite sportspeople will experience mental health symptoms during their career,[4] even if they haven't spoken about them.

Less is known about the rates of *clinically diagnosed* mental disorders in athletes, but where research does exist (e.g. for generalised anxiety disorder), the rate in elite sports (6%) is double that of the general population (3%).[4]

What are common mental health symptoms or 'signs'?

There is a broad range of mental health disorders, which means that there is also a variety of symptoms or 'warning signs'.[5] These signs include:

- Changes in 'typical' mood or personality, such as being more irritable, sad, angry or worried than usual
- Losing interest or pleasure in sport and other things that are usually enjoyed
- Low self-esteem or having a poor self-view
- A drop in performance in sport, including difficulties concentrating or paying attention
- Withdrawing from others, not making contact or going out as much
- Changes in appetite and weight, including weight loss or gain
- Difficulty with sleep (not getting enough or sleeping too much)
- Changes in appearance, such as poor grooming or hygiene (e.g. not showering or shaving)
- Reporting unusual, distressing or troubling thoughts
- Expressing feelings that life is hopeless, or even not worth living.

Some symptoms of mental health conditions can't be seen (that is, they're not observable). But *changes* in the person's behaviour or mood over a number of weeks are often the main signs that a person is struggling with their mental health.

What's the difference between a mental health *symptom* and a *disorder*?

Mental health *symptoms*, such as feeling anxious or down, can be thought of as feelings that many people can experience from time to time. A 'symptom' refers to one feeling (or thought or behaviour). Symptoms tend not to last long (e.g. only a few days) and don't necessarily interfere with your life, even though they may be unpleasant. Mental health symptoms can be self-reported or assessed using things like checklists.

Mental health *disorders* is a term used to describe clusters of mental health symptoms that are pervasive and persist in spite of many efforts to alleviate them. They include symptoms such as sleep disruption, cognitive changes and mood disruption that are experienced for longer periods of time and interfere with your sport/work, relationships and day-to-day living and other areas of functioning. Mental health disorders need to be diagnosed by a mental health or medical professional, such as a psychiatrist, psychologist, or a GP, who conducts an interview (or clinical assessment) to understand your symptoms, how severe they are, and what else is going on in your life that may be contributing to your experiences.

Mental health in sport

Professional and elite athletes can experience a range of stressors that may increase the likelihood of their experiencing mental ill-health.[3] These include **sport-related stressors** such as:

- serious physical injury (e.g. concussion, musculoskeletal or limb injury) or multiple injures,
- poor performance,
- unhelpful perfectionism (e.g. setting unrealistic standards or always needing to be in control),
- competition for selection (and being de-selected or de-listed),
- media scrutiny,
- frequent travel.

Some sport-related stressors also include the loss of protective factors for mental wellbeing, such as being away from primary support networks during competition times.

General life stressors (that are not specific to sport) can also affect the mental health of sportspeople, including:

- experiencing stressful or adverse life events, such as illness or death of a loved one, family violence, relationship breakdown, financial pressures
- not having adequate social support
- life transitions (such as changing teams; retirement; birth of a child)
- experiencing discrimination, such as racism, sexism
- experiencing cyber abuse

Mental health, sport and performance

Mental health and performance can also be thought of as a continuum, with mental illness at one end affecting life balance and performance, and optimal mental fitness being associated with 'flow' states (that is, being fully focused on the task at hand, or in 'the zone') states at the other. When athletes can manage life balance *and* use effective mental strategies to control stress, their chances of reaching their full potential are optimised.

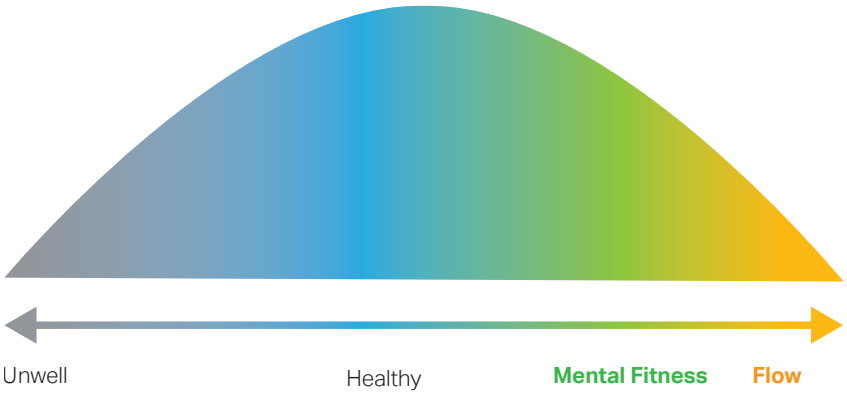

Figure 2. Mental fitness in sport

A stepped care approach to mental health interventions

Contemporary approaches to mental health promotions and treatment are commonly framed from a 'stepped care model'. The mental health pyramid is a common representation of the 'stepped' care approach to mental health interventions. The **first step** is building strong foundations via prevention programs; these focus on reducing risks and promoting protective factors, such as building self-management skills like adaptive coping strategies. The **second step** is early intervention for mental health symptoms. Early intervention includes intervening at the first signs of symptoms. The **third step** is specialist mental health care for managing diagnosed mental disorders. For more details, see each step within Figure 3. Note that this evidence guide concludes with a section on interventions to build mental toughness, since a number of professional and elite sports focus on this particular aspect of mental fitness.

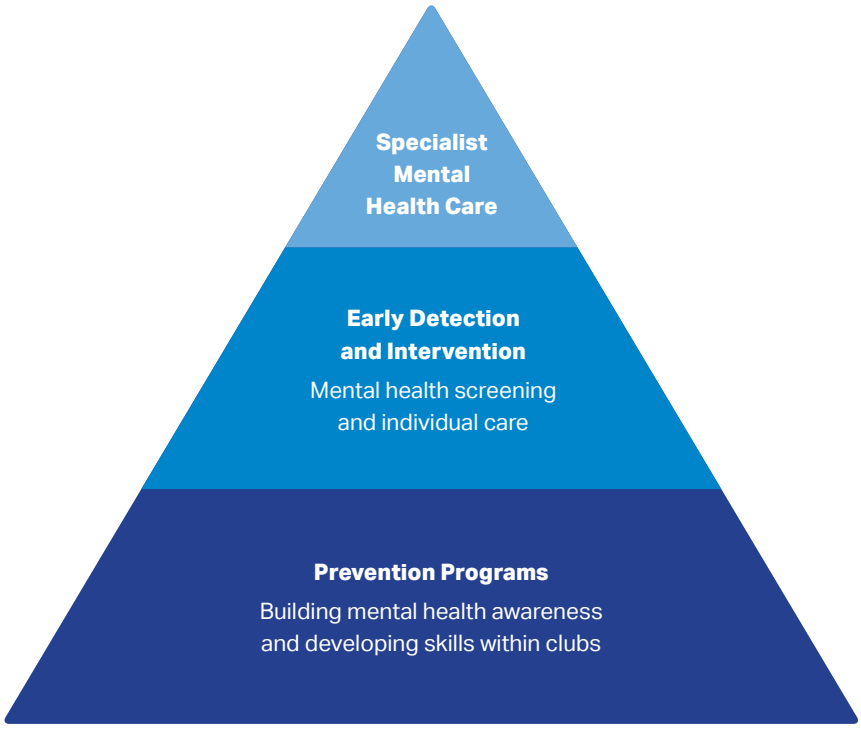

Figure 3. Stepped care approach to mental health interventions

It's worth noting that the same stepped-care approach is used in all areas of health, including sports medicine, such as managing knee injuries. In this instance:

- **Prevention programs seek to reduce injuries via strength and conditioning,**
- **Early detection and intervention seeks to identify knee pain or strain as early as possible and respond using rest or physiotherapy, and**
- **Specialist care can involve surgery on a torn ACL.**

Prevention aims to reduce the risk of a person experiencing mental ill-health. Prevention can take different forms:

Universal prevention	Selective prevention	Indicated prevention
focuses on reducing risk in a 'whole population', such as an entire team or even sports league. This form of prevention might involve changes to schedules or promotion of pathways to access non-athletic activities. The prevention interventions usually focus on systemic changes that are delivered to everyone in that population, rather than to specific people or groups	focuses on targeting people who have 'risk factors' for a mental health condition, but do not yet display symptoms of a mental health condition; for example, athletes who have experienced stressful life events, are having performance problems, or a serious injury	focuses on people who not only have risk factors for a mental health condition, but who are *also already experiencing symptoms;* for example, a recently concussed athlete who's withdrawing from friends and family, and becoming more angry than usual and unable to control their emotions

It's important to understand that prevention programs are designed to reduce risks and promote protective factors. They work to prevent the onset of mental health issues or prevent the worsening of very early signs of mental health *symptoms*. They're not the same or interchangeable for treatments for mental disorders.

> An example is relaxation techniques: these can be used with a whole team to help players with managing anxiety. But they are not appropriate as a stand-alone treatment for an athlete with an anxiety disorder, such as social anxiety disorder, panic disorder, obsessive compulsive disorder or post-traumatic stress disorder. Clinical conditions such as these need a multidisciplinary, comprehensive approach that provides effective support for the athlete (and their family and loved ones where appropriate).

Early detection and intervention programs aim to stop mental health symptoms from developing into mental disorders, or to reduce the severity or intensity of symptoms. The key stages are:

- *early detection*: this focuses on identifying as early as possible athletes (or coaches/staff) who are affected by mental health symptoms, so they can be provided with appropriate help as soon as possible. An example is a strength and conditioning coach, or a physiotherapist, who 'detects' that an athlete is suffering from symptoms of an anxiety condition (sleep disruption, muscle tension, anxious thinking, social withdrawal) and refers them to their club doctor or mental health professional for assessment;
- *early treatment*: this focuses on providing the most *comprehensive care* when the athlete (or coach/staff) is first diagnosed with a mental health condition. Providing effective, early treatment is likely to prevent worsening of the condition, additional psychosocial harms or comorbid conditions, further episodes of the condition, and can provide 'scaffolding' (support systems) to ensure that the athlete can continue to function in their sport and day-to-day life, while working towards full recovery.

Who is best equipped to deliver mental health prevention or early intervention in sport?

The stepped-care approach means that different skill sets, training, experience and qualifications are needed to respond at each level.

Mental health prevention programs

These programs or interventions usually focus on (i) building *protective* factors for optimal mental health and (ii) reducing *risk* factors. Many mental health prevention programs focus on recognising and understanding mental health symptoms and disorders, reducing the stigma associated with mental ill-health and promoting the benefits of seeking help and support. The programs are often referred to as 'mental health awareness' sessions or workshops. The content in these awareness programs should be developed and delivered by people (or organisations) who are appropriately qualified or accredited; for example, qualified mental health professionals, or people who have undergone certified training to deliver mental health or psychological first aid, or similar programs.

Former athletes with their own experience of mental health challenges are important to contribute to the understanding of a lived perspective of mental health challenges for athletes or sportspeople. For example, by discussing their personal experiences, former athletes can provide genuine insight into their journey from a mental health perspective within sports and the contributing factors that are unique to the industry. They also act as powerful role models to destigmatise mental health conditions and promote seeking help.

Ideally, mental health prevention programs should be co-delivered by a mental health professional and someone with a lived experience.

Unless a past athlete has obtained accreditation as a mental health professional, it may cause harm if they give advice on how to *manage or treat* mental health conditions. Mental health conditions are complex, have many causes and require individualised treatments. Advice from someone who is not a health professional may result in worsened symptoms and have other harmful consequences

Early detection and intervention programs

These programs seek to reduce emerging or existing mental health symptoms or disorders. Since this involves working with athletes who are *experiencing* mental health symptoms, these programs should be delivered by credentialed and qualified mental health professionals. **This can include psychiatrists and psychologists, as well as mental health trained nurses, occupational therapists or social workers.**

Sports medicine professionals, such as sports physicians, general practitioners, physiotherapists or nutritionists, also have an important role to play in detecting emerging mental health problems and referring players experiencing these problems to mental health professionals.

To be a registered health professional or credentialed mental health provider means meeting standards of education, training, supervised practice, professional development, and ethical and professional conduct. In Australia, most health professionals are registered with the Australian Health Practitioner Registration Agency (AHPRA). You can search for the qualifications of registered Australian health professionals using AHPRA's online register: https://www.ahpra.gov.au/Registration/Registers-of-Practitioners.aspx

While social workers are not part of AHPRA, if they qualify for the Australian Association of Social Workers membership *and* have demonstrated experience in the field of mental health, this is viewed as the gold standard for the profession.

Specialist mental health care

Only a minority of elite athletes are likely to need specialist mental health care to manage mental illnesses. Specialist care should be provided by a multidisciplinary team and may include a psychiatrist, clinical psychologist, addiction specialist, or family therapist, including experts *within* these fields (such as those who specialise in working with bipolar disorder, schizophrenia, or anorexia nervosa or bulimia for example).

An important note on 'wellbeing consultants', 'wellness coaches' 'counsellors', "mindset experts' and others …

It's important to understand that anyone can call themselves the following without appropriate accreditation or mental health training:

- **a counsellor,**
- **a mental wellbeing, or mental health consultant,**
- **a wellness or mental wellness coach or consultant,**
- **a psychotherapist or a neuro-psychotherapist**
- **a healer,**
- **a mindset coach or consultant,**
- **or any other type of 'expert' or 'specialist' in athlete mental health and/or wellbeing**

Always ask for the following information from someone providing mental health workshops or programs:

1. **What are your qualifications in relation to mental health and/or wellbeing?** (for example, what degree or course did they complete and what institution was the provider? The Tertiary Education Quality and Standards Agency website provides details of the standards of all Australian tertiary education providers: https://www.teqsa.gov.au)
2. **Are you registered with the Australian Health Practitioner Regulation Agency (AHPRA) or a professional society? If yes, which one?** (you should be able to search for the person and their qualifications on the website: https://www.ahpra.gov.au/Registration/Registers-of-Practitioners.aspx);
3. **What professional training do you have in mental health and/or wellbeing?** Ask for specific details on the course, including who provided it, how long it was (e.g. 1 hour or 1,500 hours) and how the course was assessed.

A note on "neuroscience"

It's important to critically appraise the evidence on which mental health prevention and treatment programs are based. For example, some programs may indicate that they are based on "neuroscience". This refers to the *specific study of the structure and/or the function of the nervous system and the brain* and can involve studies that have used a range of cognitive tests or brain imaging techniques.

Programs that refer to the use of 'neuroscience' should be able to demonstrate the scientific basis for the claim, such as research papers that have been published in peer-reviewed journals. Programs that cannot demonstrate their neuroscientific basis should be approached with caution, as the term may be being used to convey a highly scientific, innovative or cutting-edge approach that is not supported by evidence. This may increase the risk of the program being ineffective or worse, harmful to participants.

As with any mental health intervention, ask questions to establish the evidence-base for claims regarding neuroscience. If high-quality evidence can't be provided (i.e. evidence that has been reviewed, not expert opinion), then this should be a warning that it may be more *pseudo-science* than neuroscience.

How to use this guide?

This rapid evidence guide provides a summary of the scientific (or research) evidence for a range of programs or interventions that have been developed for or used in groups of athletes (or coaches). The reviews in this guide have been listed according to the stepped care pyramid, starting with prevention programs, then early intervention. Within each section, the interventions are presented ranging from those with the strongest evidence to the weakest evidence. Within each of these sections, we review the scientific evidence for each program/intervention to determine whether or not they are supported as being effective.

What is 'best-available evidence'? How do I know what to trust when there's so much information out there?

The best evidence comes from **research studies** that use a scientific – or step-by-step – approach to establishing facts and reaching conclusions. An example is research that (a) collects 'baseline' information on mental health symptoms (that is, before trying an intervention), (b) then provides a program, treatment, or intervention, and then (c) assesses the symptoms again at the end of the intervention to evaluate change and the potential impact of the program. The *'best evidence'* usually involves:

- a **large sample** of athletes, because you don't want to draw conclusions based on only a couple of people, especially if they don't represent the whole group or team;
- **valid measurements** for the outcomes that you're interested in, because you don't want to draw conclusions when you can't be sure that the outcome – such as levels of anxiety or depression – has been measured properly. For example, a measure that has been shown to be reliable in detecting anxiety symptoms is better than just asking athletes how they feel, because many may not know what the symptoms of anxiety are;
- the **use of both a 'treatment/intervention' group and a control group**, because without a control group who *don't* receive the intervention, you won't be able to tell whether it was the intervention that made a difference or something else. For example, athletes' mental health might have improved simply with time, but you can't tell this without a control (or comparison) group.

All good scientific research sets out to answer a question in a *systematic* way, which means that anyone else could use the same approach in their own club or sport to answer the same question. Anything that doesn't fulfil this basic definition is typically classified as "expert opinion", testimonials or anecdotal evidence. **Using 'expert opinion' or testimonials from influential people as the *only basis* to make decisions is a problem,** because the expert might use techniques that don't have good evidence, or the testimonial might not be independent. Expert opinion and testimonials can often sound very convincing, but you always have to ask "what's the *evidence* for that?" "how can you *prove to me* that this works?".

There are a number of programs and interventions that have been developed for, or are used by sports, to help prevent or respond to mental health problems among athletes and coaches. These include psychological or 'talking' therapies, self-help approaches, and sports science innovations (such as garments and devices). The interventions can vary in terms of the **'dose'** or the amount that's needed in order to achieve a benefit or effect. This ranges from a single, one-off session, through to multiple sessions over weeks or months.

It's important to note that some interventions are more *challenging or demanding* than others. For example, cognitive behaviour therapy (CBT) challenges the automatic thoughts, beliefs and 'self-talk' that are common in conditions such as depression or anxiety (for example thoughts of hopelessness in depression, or thoughts of being overwhelmed in anxiety). Compared to music therapy (e.g. listening to favourite music), CBT is much more demanding – but research also shows it's *much more effective* than listening to music.[6] Liking or feeling good about a particular intervention doesn't mean it will be effective.

The same is true of developing *physical* skills and conditioning: this requires dedicated work and facing challenges, which ultimately leads to better outcomes.

We have rated the evidence for the effectiveness of each intervention using the following scale:

There is evidence from at least 2 high-quality studies that the intervention works in sports

There is evidence from at least one good-quality study that the intervention has promise in sports, but more research is needed

There is no evidence that this intervention works in sports

There is evidence that this intervention doesn't work in sports

There is evidence the intervention works in the general community

The treatment has the potential to cause psychological injury, or has potential risks or side-effects

Throughout the guide, we refer to the *What Works for Depression*[6] (https://resources.beyondblue.org.au/prism/file?token=BL/0556) and *What Works for Anxiety*[7] (https://resources.beyondblue.org.au/prism/file?token=BL/0762) guides that have been developed by researchers (including the lead author of this guide) for Beyond Blue. These guides contain descriptions about many interventions that have been examined as treatments for depression and anxiety for the general community, and rate the available evidence for each intervention.

How was this evidence guide developed?

Systematically searching the literature

The evidence used to create this guide includes both peer-reviewed literature and 'grey' literature. Peer-reviewed articles are written by researchers who have conducted a study, and then reviewed by other experts in the field before the article is accepted for publication to ensure their quality and scientific rigour. In order to find relevant peer-reviewed literature we searched multiple databases, including the Cochrane Library, PubMed, PsycINFO, SPORTDiscus and Web of Science.

'Grey' literature is less formal and is not subjected to peer review. It includes documents like unpublished theses/dissertations, conference presentations, government reports, magazine articles, and websites. We used a variety of methods in to collect relevant grey literature. Firstly, we searched the database *OpenGrey*. Then we conducted a targeted search of the websites of a range of sporting bodies within Australia and overseas. Finally, we searched the websites of known programs that are provided for sportspeople in Australia.

Together, these methods allowed us to gather evidence in order to create the most comprehensive guide possible.

What type of programs and studies were included?

Articles were included as evidence for this guide if they met the following criteria: The article had to include a description of a program that has been implemented with the aim of improving the mental health awareness or mental wellbeing of athletes or sports personnel (e.g. coaches, other staff or referees). Therefore, we excluded *proposed* intervention programs that have never been put into practice.

Since the purpose of this guide is to highlight programs that lead to *sustained and generalised mental health benefits*, we excluded studies that focused exclusively on athletes' emotional states **during sporting events** (e.g. performance or 'state' anxiety). Furthermore, we only reviewed programs that have been implemented in groups of athletes or players, or in team settings, rather than interventions that are delivered to an individual (or one-on-one). We used this approach, given the focus here is on prevention and early intervention programs (rather than specialist mental health interventions).

The review included both Australian and international research and literature. However, we only included papers that were available in English. No restrictions were imposed with regards to when the research was conducted and published, or the age of the athletes who took part in the study.

Reviews focus on 'high-quality' studies first; then the rest

Research evidence can be grouped into levels that reflect its strength or trustworthiness. Research that involves a 'randomised controlled trial' (RCT) is generally considered to be high quality, because the participants have been randomly assigned to either the intervention group or a control group that does not receive the intervention. Random assignment means that the chance of introducing *any bias* into the groups is minimised: for example, if all athletes with high performance were assigned to one group, and all the athletes with poor performance to the other group, this would likely end up influencing the results. Randomly assigning people to groups helps to lessen this risk.

Other types of research include 'pre-post studies', where all the participants complete measures on their mental health before and after an intervention, and the results are compared. These types of studies do not involve a control group, so it's not possible to conclude whether the same results might have been found without the intervention. This is considered a lower quality study. Similarly, research that involves 'case studies' examine several people who have the same mental health conditions and receive the same intervention. This type of research is also considered lower quality because the findings might not 'translate' beyond the few people included in the study.

Writing the reviews

Each review was written by one of the authors who evaluated the research evidence. Where high levels of evidence for the program or intervention were available (e.g. an RCT), these were included in the review and lower-levels of evidence were not included. When an RCT wasn't available, the next level of evidence was used (such as an intervention and control group study without random allocation, or a pre-post study). The authors all agreed upon (or reached consensus on) the rating provided for each intervention.

A summary of what works for responding to mental health in team-based sports

Programs to Prevent Mental Health Problems	RATING
Australian Prevention Programs	
Ahead of the Game	👍
Mental Health in Sport	👍
Alive and Kicking Goals	?
Growing with Gratitude	?
Love Me Love You	?
Outside the Locker Room	?
Read the Play	?
The Resilience Project	?
Sport and Life Training	?
Tackle Your Feelings	?
Psychoeducation	?

Programs to Prevent Specific Mental Health Problems	RATING
Programs for preventing/reducing problematic alcohol consumption	
The Good Sports Program	👍
Other *club-level* alcohol reduction programs	?
Individual-level alcohol reduction programs	👍
Programs for preventing problematic eating habits or body image disturbance	
Structured peer-led psychoeducation programs	?
Professionally-led psychoeducation programs	?
Programs for preventing/reducing problematic gambling	?
Programs for preventing posttraumatic stress disorder	?

Early Interventions for Mental Health Symptoms	RATING
Cognitive behaviour therapy	👍
Mindfulness-based interventions	👍
Psychological skills training	👍
Recovery garments	👍
Acupuncture	?
Audio-visual stimulation training	?
Autogenic training	?
Positive psychology interventions	?
Reflective diaries	?
Sleep interventions	?
Yoga	?
Person-centred psychotherapy	✖
Programs for coaches who work with junior athletes	
Communication-based interventions	👍
Self-determination theory-based interventions	?
Stress-inoculation training	?

Programs to Increase Mental Toughness	RATING
Non-pressurised mental toughness training	👍
Pressurised mental toughness training	!

Programs to promote mental health and/or prevent mental health problems

Australian mental health awareness programs

A number of Australian mental health awareness programs have been developed to improve understanding of, and attitudes towards mental health in sports, including reducing stigma towards mental health and promoting help-seeking attitudes and behaviour. Most programs involve a single session or workshop (rather than a series of sessions over multiple weeks) and focus on improving knowledge about mental health. The majority of these programs have not been evaluated: therefore it remains unclear whether most of these program have any benefits for improving attitudes to mental health or promoting help-seeking.

The following section reviews the existing programs developed and offered in Australian sporting contexts. Programs with the most evidence are presented first, followed by programs with the least evidence (where the level of evidence is the same, programs are reviewed in alphabetical order).

Ahead of the Game

EVIDENCE IN SPORT 

Ahead of the Game works with sports organisations to improve the mental health and resilience of adolescent players.[9] Several single session workshops (of 1-2 hours) are offered, targeted to players, as well as coaches and parents. The programs are delivered at sports clubs before or after regular training sessions. Programs for players include a 1-hour educational workshop called 'Help Out a Mate', which focuses on increasing understanding of common mental health issues, recognising signs that a friend could be struggling, and building skills to initiate a conversation to help a friend to access appropriate support. A sport psychology program for young players ('Your Path to Success in Sport') consists of a 1-hour workshop and six 10-minute online modules, designed to teach coping strategies and increase resilience.

The program for coaches ('Athlete Motivation: A How-to Guide') is a 2-hour workshop, with additional online content, that focuses on coaching strategies to enhance player motivation and wellbeing. Participants take part in group mentoring sessions with other coaches to share ideas and receive feedback on their coaching techniques. The program for parents of young players ('Number 1 Supporter') is a 1-hour workshop on adolescent mental health, including recognising warning signs for mental illness, talking about mental health with their child and appropriate sources of support and professional care.

Is there evidence it works?

Two studies have examined the effectiveness of Ahead of the Game programs. The first high-quality study[8] randomly assigned nine junior soccer teams (102 male adolescent players) to either the Help Out a Mate program or to 'waitlist' control group (in waitlist control studies, the players are provided the program/intervention at the end of the study). The 45-minute 'Help Out a Mate' workshop was delivered by volunteer student facilitators. The results showed that the HOAM group reported increased knowledge about depression and anxiety, decreased stigma, and greater intentions to provide help to a friend who may be experiencing mental health difficulties compared to the control group. These benefits were sustained at 1-month follow-up. However, the program did not improve the participants' *personal* help-seeking intentions or self-reported levels of psychological distress.

Another study[9] compared 350 adolescent male athletes who received the HOAM and 'Your Path to Success in Sport' programs to a control group of 466 young male athletes who did not receive the programs. All young athletes played within community-based, organised sporting clubs, comprising soccer, Australian Rules football, tennis, rugby, basketball and other sports. The results showed that athletes in the intervention group reported an increase in their mental health literacy, help-seeking intentions and resilience one-month after the programs were delivered compared to the control group. However, there were no differences between the groups in relation to stigmatising attitudes to mental health, perceptions of family support, or psychological distress. While this study has a large sample sizes, the participants were not randomly allocated to the groups, which lowers the quality of this study.

Are there any risks?

There is a potential risk that the young players who complete the 'Help out a Mate' program may not be adequately prepared for the emotional impact that can arise from trying to support a friend who is experiencing mental health difficulties.

Summary

There is emerging evidence that the programs provided by Ahead of the Game may be effective for improving mental health awareness and attitudes in young male players. However, the effectiveness of the programs in adolescent *female* players is unknown. More high-quality research is needed to increase confidence in the effectiveness of the 'Your Path to Success in Sport' program.

Mental Health in Sport

EVIDENCE IN SPORT 

Mental Health in Sport (MHS) is a 4-hour group workshop designed for coaches and other support staff working with elite athletes in Australia. The program aims to increase the participants' mental health literacy and teach them how recognise signs that an athlete may be struggling with their mental health. Participants are also taught how to support athletes to access professional help when required. The workshop was developed and is delivered by registered psychologists (including from the Australian Institute of Sport) and consists of lectures, videos, facilitated group discussions, case studies and role-plays.

Is there evidence it works?

One good quality study has evaluated the MHS program.[10] The participants were 166 coaches and support staff working with Australian elite athletes. The participants were allocated to the MHS program or to a waitlist control group based on their location (rather than being randomly assigned). Participants completed baseline and post training measures of knowledge of the signs of depression and anxiety, as their levels of confidence in helping someone with a mental health problem. The results showed that the MHS workshop group reported improved knowledge about depression and anxiety, and increased confidence in their ability to support athletes with mental health difficulties, compared to the control group.

Are there any risks?

None that are known.

Summary

There is promising evidence from one study that the MHS program builds mental health awareness and confidence in coaching and high performance/elite sport support staff. However more research is needed to be confident of this result and to determine whether the benefits of the program are sustained (i.e. do participants continue to feel confident in their ability to assist athletes weeks or months after the training) whether the program actually improves the *level of support provided to athletes* by coaches and other staff.

Alive and Kicking Goals

EVIDENCE IN SPORT 

Alive and Kicking Goals is a peer education program that aims to reduce rates of suicide among young Aboriginal and Torres Strait Islander men in the Kimberley region.[11] The program aims to show people that seeking help does not reflect weakness and to provide hope for the future. The training is provided in partnership with a men's outreach service and members of the local football team. The peer educators learn how to recognise risk factors and warning signs of suicide, as well as healthy coping skills and strategies for helping people who may be at risk. The peer educators then deliver workshops about suicide prevention in their community setting. Training sessions occur every week after training sessions for a period of 12 months. The program also involves culturally appropriate educational DVDs, one-on-one mentoring and professional counselling.

Is there evidence it works?

An evaluation of a pilot program for Alive and Kicking Goals,[11] in which 16 young men became peer educators, showed that the program helped them to develop practical skills for recognising people at risk of suicide. It also demonstrated engagement of the community with the program, especially amongst young men. The program was regarded as helping to dismantle stigma towards suicide in the community and to promote help-seeking.

Are there any risks?

There are no known risks.

Summary

Preliminary evidence suggests that Alive and Kicking Goals is a culturally appropriate program for suicide prevention in Aboriginal and Torres Strait Islander community, especially for young men. However, more research is needed to understand the benefits of the program both to the peer educators and the communities in which program is provided.

Growing with Gratitude

EVIDENCE IN SPORT

Growing with Gratitude Sports (GWGS) is a program that aims to help coaches and junior sporting clubs build the mental health of young athletes.[12] The program provides coaches with resources to teach young athletes to practice kindness, empathy, gratitude, mindfulness, and serving others. The program is structured to allow coaches to incorporate these learning objectives into their regular training sessions and matches. The GWGS model is based on the premise that through learning these values and skills, young athletes will build empathy and resilience, leading to greater mental wellbeing.

When sports clubs sign up for GWGS, their coaches are provided access to online resources and training to enable them to implement the program with their athletes. In addition, clubs are provided with ongoing support from a GWGS facilitator who can provide coaches with additional guidance when required.

Is there evidence it works?

The Growing with Gratitude program has not been evaluated, so there is no information as to whether or not it works.

Are there any risks?

None that are known.

Summary

There is no evidence yet as to whether the GWGS program is effective in achieving its aims. The program needs to be evaluated before it can be recommended.

Love Me Love You

EVIDENCE IN SPORT

Love Me Love You (LMLY) is an organisation that provides sporting clubs with programs to increase awareness of mental health and decrease stigma.[13] The 'Lifetime of Wellbeing' program consists of four 45-minute workshops that teach athletes about common mental health challenges, along with self-help strategies and coping skills. These workshops are tailored to suit a child or adult audience depending on the needs of the club.

The 'Welfare Warrior Training' program teaches sports club personnel how to assist individuals who are experiencing poor mental health. The 2-hour program focuses on instructing participants how to initiate conversations about mental health and where to find extra support and resources.

Is there evidence it works?

The Love Me Love You program has not been evaluated, so there is no information as to whether or not it works.

Are there any risks?

There is a risk that the 'Welfare Warrior Training' program may not adequately prepare participants for the emotional impacts that can arise from talking to someone they know (e.g. within their sporting club) about their mental health.

Summary

There is no evidence yet as to whether the LMLY program is effective in achieving its aims. The program needs to be evaluated before it can be recommended.

Outside the Locker Room

EVIDENCE IN SPORT 

Outside the Locker Room (OTLR) is a psychoeducation program that works with sporting clubs to provide players with information and resources on various topics, including mental health, resilience, suicide, drugs/alcohol and gambling.[14] This information is presented through interactive workshops that are delivered at participating clubs. Workshops are typically held after training sessions and last 60 minutes. The program is delivered by facilitators who have undergone a 12-month training program with the Australian Counselling Association.

Sporting clubs that sign up for OTLR are given access to the program over a 12-month period. In addition to workshops, OTLR also offers an app for players from participating clubs that provides additional resources and information about where to seek further support.

Is there evidence it works?

The Outside the Locker Room program has not been evaluated, so there is no information as to whether or not it works.

Are there any risks?

None that are known.

Summary

There is no evidence yet as to whether the OTLR program is effective in achieving its aims. The program needs to be evaluated before it can be recommended.

Read the Play

EVIDENCE IN SPORT 

Read the Play (RTP) is a mental health literacy program designed for junior levels of sporting clubs (athletes usually aged between 14-16 years). RTP delivers mental health information to young people using interactive games that are delivered at their sporting club. RTP aims to increase young people's knowledge and understanding of common mental health disorders and to create environments at sporting club that de-stigmatise mental illness and promote help-seeking behaviours.

Is there evidence it works?

Two small studies have examined RTP, both using a pre-post survey design. The first study surveyed participants at baseline (2 weeks before their club's RTP session) and follow-up (immediately after the session) regarding their mental health literacy and their confidence in seeking help for themselves or a friend, and comfort in speaking openly about mental health with others.[15] Of 49 young participants (aged 14-16 years) who completed the baseline survey, 30 completed the follow-up. Scores on the measures of mental health literacy and comfort in speaking about mental health did not significantly differ between baseline and follow-up, however overall understanding of mental health problems and confidence in seeking help significant improved. A larger study of RTP is currently being conducted, following on from this preliminary evaluation.

A previous, different version of the RTP program was also evaluated in a low-quality study.[16] Forty volunteer from netball and football clubs took part in the training program, including players, coaches and parents. Knowledge and attitudes regarding mental health, and the volunteer's confidence in their ability to assist people with mental health difficulties were assessed both pre and post the training. The results showed that knowledge, attitudes and confidence all significantly improved at the end of the training. Since the volunteers in this study were motivated to take part in the training (rather than being randomly assigned to the training), this may have influenced the results.

Are there any risks?

None that are known.

Summary

Read the Play has promise as an effective mental health literacy training program for young players, but more high-quality research is needed before it can be recommended. A forthcoming larger evaluation will be important to determining whether it can be recommended in the future.

The Resilience Project

EVIDENCE IN SPORT

The Resilience Project provides a single session presentation (usually 60-90 minutes) to sporting clubs and associations (as well as education and corporate settings). In the sporting context, the program content is relevant to players, coaches, club staff, and family or loved ones. The workshop focuses on the principles of empathy, gratitude and mindfulness, as key components to building resilience and assisting participants to live in the moment. Participants are provided with, or can buy, additional materials such as a 21-day wellbeing journal or app that encourages users to record moments of gratitude and to practice mindfulness exercises each day.

Is there evidence it works?

The Resilience Project has not yet been evaluated (although a research project is underway), so there is currently no information as to whether or not it works.

Are there any risks?

None that are known.

Summary

There is no evidence yet as to whether the Resilience Project is effective in achieving its aims. But a forthcoming evaluation will be important to determining whether it can be recommended in the future.

Sport and Life Training

EVIDENCE IN SPORT

Sport and Life Training (SALT) is a psychoeducation program that offers sessions on a range of topics including mental health and wellbeing, alcohol/drugs, and peer pressure.[17] The sessions are presented at sporting clubs by trained facilitators from SALT. Sessions are typically held after training and last for 60–90 minutes. SALT offers sessions specifically tailored for players of different ages and genders to recognise the different social challenges they may face. Additionally, SALT provides training for coaches on positive coaching techniques that aims to assist them to build greater motivation and resilience from athletes.

Is there evidence it works?

The SALT program has not been evaluated, so there is no information as to whether or not it works.

Are there any risks?

None that are known.

Summary

There is no evidence yet as to whether SALT is effective in achieving its aims. The program needs to be evaluated before it can be recommended.

Tackle Your Feelings

EVIDENCE IN SPORT 

Tackle Your Feelings is a training program designed for coaches at community football clubs. The program aims to increase the coaches' mental health awareness and teach them how to create a coaching environment that supports the emotional wellbeing of their players. The training consists of a 60 minute face-to-face training session, along with three online modules.

Is there evidence it works?

The Tackle you Feelings program has not yet been evaluated (although an evaluation is underway), so there is currently no information as to whether or not it works.

Are there any risks?

None that are known.

Summary

There is no evidence yet as to whether Tackle your Feelings is effective in achieving its aims. But a forthcoming evaluation will be important to determining whether it can be recommended in the future.

Psychoeducation

EVIDENCE IN SPORT 

Most of the Australian prevention programs reviewed before are based on principles of psychoeducation. Psychoeducation involves giving people information about a particular mental health condition to help them to better understand that condition, its potential causes and treatments to promote recovery. It can take the form of education sessions (e.g. workshops or webinars), or be provided via fact-sheets and other printed resources or via websites.

By providing accurate information in plain language, psychoeducation can help people to develop better knowledge about their mental health condition and how to manage symptoms. As a result, it may help people to feel less worried or anxious about their mental health. Additional benefits are reducing stigma about mental health problems and promoting help seeking for these issues.

Is there evidence it works in team-based sports?

While various psychoeducation programs have been developed for athletes, coaches and club leaders, these have all taken the form of *mental health awareness programs;* that is, improving knowledge and awareness of mental health conditions in general. Some studies suggest that psychoeducation programs can be effective for particular mental health problems, such as eating disorders (see page 36). However, there are no studies that have demonstrated whether psychoeducation programs in sporting contexts may improve *actual symptoms* of mental health among people experiencing difficulties.

Is there evidence it works in non-sporting contexts?

There is some evidence that psychoeducation may be helpful for people with depression,[18] but it is not as effective as other types of treatment. There are no high-quality studies that have found a relationship between psychoeducation and reduced anxiety symptoms.

Are there any risks?

There is a small risk that providing detailed mental health information could increase anxiety or worry for some people.

Summary

There is no evidence as to whether psychoeducation can improve mental health symptoms in sporting contexts (amongst players, coaches or staff). There is evidence from community-based studies that it can be a helpful for depression, but it is less effective than other treatments.

Programs to prevent specific mental health problems

Reducing problematic alcohol consumption in sporting clubs

Community and professional-level sporting clubs in Australia are often settings where high levels of alcohol are consumed (certainly higher levels than in the general community). High levels of drinking is not only associated with problematic *health* behaviours, but also has social impacts such as violence and risk-taking behaviour (e.g. drink driving). A number of interventions have been developed to reduce risky (or 'hazardous') levels of drinking and to promote a healthier drinking culture in sporting clubs.

These programs usually include education about the risks of hazardous levels of alcohol consumption, emphasising impacts on both the players (e.g. risk of drink driving and poorer athletic performance) as well as the sport more generally (e.g. reduced club memberships and violence among spectators). These programs also usually discuss strategies to reduce excessive drinking at the club level, such as providing non-alcoholic beverage options, ensuring taxi services are available, and increasing monitoring of risky alcohol consumption.

The Good Sports program

EVIDENCE IN SPORT 

The Good Sports program is designed to change the culture of alcohol consumption in Australian sporting clubs via a 3 stage (sequential) accreditation program that targets the following policies and strategies:

I. Stage 1 focuses on clubs complying with state liquor laws, along with the responsible service of alcohol, and only serving alcohol during specified hours;

II. Stage 2 focuses on clubs serving low and non-alcoholic beverages, providing free tap water, and serving food when the bar is open, and avoiding practices such as 'happy hour' or other drink-related promotions/competitions;

III. Stage 3 focuses on clubs having written policies that address responsible service of alcohol, non-alcoholic alternatives and underage drinking (among others).

The program was developed by the Australian Drug Foundation (https://adf.org.au/programs/good-sports/) and is free to implement.

Is there evidence it works in team-based sports?

The Good Sports program has been evaluated in a series of related high-quality studies. The first study[19] randomly assigned 87 community sporting clubs (Australian Rules football, rugby league and rugby union) to either the Good Sports program or a control (no intervention) condition. The clubs assigned to Good Sports received assistance over 2 years to implement the program, including access to project support officers, printed materials, online training and some accreditation costs. The results showed that the Good Sports clubs had implemented a higher level of responsible alcohol practices than the control group clubs. This study showed that, with support, it's feasible to change drinking practices within community sporting clubs.

In the second study[20], which included an additional sporting club (resulting in 88 clubs in total), the members of the Good Sports clubs reported less risky alcohol consumption than the control clubs (29% vs. 24%). Clubs that had completed all 3 stages of the program had the greatest reduction in risky drinking (from 31% at baseline to 20% after implementing the program). An additional report,[21] using the same sporting clubs, showed that reducing risky levels of drinking increased the active participation of club members, such as helping out more at the club and attending more events.

Are there any risks?

None known.

Summary

There is promising evidence that the Good Sports program can improve the drinking culture within sporting clubs and lead to a reduction in risky or hazardous drinking, which can have additional positive impacts such as increasing member participation. However, the three studies described here used the same sporting clubs (all located in New South Wales), so it is important to examine the effectiveness of the program in a wider range of clubs before *Good Sports* can be given a stronger recommendation. It is also important to examine whether the changes in drinking behaviour and adherence to safe drinking and alcohol provision guidelines are sustained over time.

Other *club-level* alcohol reduction programs

EVIDENCE IN SPORT 

A study in Ireland randomly assigned Gaelic athletic association clubs to receive either a 4-month, multi-faceted intervention to reduce alcohol consumption or to a control condition.[22] The intervention group included 12 clubs who received education for players and coaches, alcohol policy training for club managers, and an awareness campaign about risky drinking. The control group included 27 clubs who received education on sports nutrition (but this did not refer to alcohol). All participants reported baseline and post-intervention levels of alcohol consumption. The results showed that although alcohol consumption decreased during the study, there was no difference between the groups. It is possible that high rates of hazardous drinking in this sample at baseline (almost 75% of participants) and the relatively short intervention (4 months) may have contributed to the findings.

Individual-level alcohol reduction programs

EVIDENCE IN SPORT 

A high-quality study in US college athletes tested the impact of providing electronic personalised (i.e. individual) feedback on drinking that was tailored for athletes, including information on how drinking may affect athletic performance, compared to providing education alone, or standard (e.g. non-athlete specific) personalised drinking feedback.[23] 263 college athletes (76% female) were randomly assigned to one of the 3 conditions and completed a baseline survey on their drinking. There were no differences in the reported average number of drinks consumed per week across the 3 groups at 1-month follow-up (post- intervention). At 6-month follow-up, the group that received personalised drinking feedback had a lower peak blood alcohol concentration than the other groups. The results indicated that personalised feedback may have different effects for heavy drinkers and for drinking in-season.

While more research is needed to determine whether personalised feedback on drinking behaviour tailored for athletes is effective for male athletes, the results of this high quality study are promising.

Programs for preventing problematic eating habits or body image disturbance

Structured Peer-led psychoeducation programs

EVIDENCE IN SPORT 

Several programs have been developed to promote healthy nutrition, eating habits and body image in athletes, and reduce harmful activities such as restrictive dieting and the use of steroids or other substances (e.g. laxative abuse). These programs have mostly been tested in the US among young female athletes in gymnastics and other 'aesthetic' sports that emphasise a lean body type (such as diving and synchronized swimming). Examples are the ATHENA (Athletes Targeting Healthy Exercise & Nutrition Alternatives) and the FAB (Female Athlete Body) programs.

These programs mostly involve structured education sessions or workshops that have been developed by mental health and/or nutrition experts. They are delivered by peers (other athletes or coaches) who have receiving appropriate training by qualified professionals to deliver the programs. Peers often have similar life experiences to the people receiving the program, so they approach the content with relevant background knowledge of the sports setting and understand from first-hand experience the pressures being experienced. They can therefore be a useful resource for the administration of these types of programs.

Is there evidence it works in team-based sports?

There are four high-quality studies of peer-led athlete eating programs, 2 of which tested the ATHENA program[24, 25] and one that tested the FAB program.[26] All studies involved high-school or college athlete programs in the US. Overall, the results of these studies are mixed. One study[24] found that participants randomly assigned to eight, 45 min sessions of the ATHENA program reported less use of diet pills, better nutrition and education knowledge, and less intentions to use restrictive dietary practices compared to participants in a control (no-intervention) group. However, another similar study[25] found that the 8-week program only improved 2 out of 15 outcome measures; otherwise there were no differences between the ATHENA and control groups.

For the study that examined the FAB program, athletes received either three 90-minute education sessions (over 3 weeks) or no intervention.[26] The results compared body shape and weight concerns 18-months after the intervention was provided to assess the longer-term benefits of the FAB program. Participants in the FAB group reported less dietary restraint/restrictive eating, but there were no other group differences for body weight or shape concerns.

The final study[27] compared athletes who received one of two interventions (focused on either body image or healthy weight) that were delivered over 6-weeks in 3 team-based sessions. The results showed that both interventions reduced shape or weight concerns, although neither approach was superior.

While these studies suggest that appropriately trained peers may be suited to delivering eating disorder focused education programs, it's important to note that they haven't compared peers against others, such as mental health professionals, so it's unclear whether the *peer* component is important, or the content of the program that is delivered.

Are there any risks?

There is a risk that peers may over-step the boundaries of their expertise and knowledge, however this is reduced by using structured programs that standardise the content and its delivery.

Summary

There are mixed results for peer-led psychoeducation programs for reducing problematic eating habits and body image disturbance in junior athletes. More research is needed to understand which programs, or program components, are effective for preventing these problems in sports.

Professionally-led psychoeducation programs

EVIDENCE IN SPORT 

Research has also examined programs delivered by professionals, such as mental health clinicians, nutritionists or exercise physiologists to improve healthy nutrition, body image and eating habits.

Is there evidence it works in team-based sports?

Two high-quality studies have examined prevention programs for junior female athletes. One study[28] randomly assigned adolescent females in aesthetic sports (e.g. gymnastics, diving, synchronized swimming) to receive nutrition education from a registered dietician plus targeted help to reduce the intention (or plan) to use restrictive dietary behaviours to lose weight, or nutrition education alone. Each group received three, 60-minute sessions for the interventions. The results showed that knowledge about nutrition improved in both groups, but only the athletes in the targeted intervention reported being less likely to have any intention to use restrictive diets to lose weight.

The other study[29] compared the use of a single session education workshop (BodySense) delivered to young female gymnasts to a no-intervention control group. There were no group differences on the key outcome measures of body esteem, pressure to be thin, eating attitudes and behaviours after the intervention.

Are there any risks?

There is a small risk that providing detailed information about eating disorder symptoms could trigger some people to use unhealthy eating practices.

Summary

The results of two high quality studies have been mixed regarding professionally facilitated psychoeducation programs. It's possible that the number of sessions used in these programs is important, with a single session workshop being less effective than multiple sessions. More research is needed to determine whether professional led psychoeducation for eating disorders are effective in sports settings.

Programs for preventing or reducing problematic gambling, including sports betting

EVIDENCE IN SPORT 

Problematic gambling occurs when a person has an urge or desire to gamble, despite this behaviour leading to harmful negative consequences such as relationship breakdown, debt or losing more money than can be afforded. There's evidence that problem gambling may be more common among athletes than the general community.[30] Common reasons for gambling in athletes include as a form of entertainment, to make money, a social activity, to relieve boredom, to cope with emotions and for an adrenalin rush/buzz. Male athletes are more likely to report problem gambling behaviour than females, and it's more common in professional sports (where disposable income is usually higher) compared to elite/Olympic sports.[31]

Programs for preventing or reducing problem gambling, including sports betting, are usually focused on *educational* material that provides information about rules that restrict sports betting, along with information about the risks and potential harms of gambling. Many professional sports deliver such education sessions to players and teams as part of their sports' integrity programs, which additionally focus on the serious ramifications of match fixing.

Is there evidence it works in team-based sports?

The National Collegiate Athletic Association (NCAA) produced a video-based gambling education program called *Don't Bet On It* (www.dontbetonit.org), which was evaluated in a small but high-quality study[32] with 33 players from a college baseball team. All players completed measures of current gambling activities and attitudes towards gambling in sport, and then half were randomly assigned to watch 9 *Don't Bet On It* videos (15-20 mins total education time), while the other half did not (the control group). At the end of the video session, and two weeks later, both groups completed the gambling attitudes measure. The results showed that participants in the video group reported a significant improvement in attitudes towards gambling in sport immediately after the intervention compared to the control group, but that these changes were not sustained at 2-week follow-up.

Other programs not evaluated

The International Rugby Board developed the *Keep Rugby Onside* program. This includes an interactive online learning program on sports integrity and the risks associated with matching fixing, an outreach program for educators to meet with teams, players, coaches, and other rugby stakeholders, and resources available for download.[33] While the program was developed in 2013, there is no available information as to whether the program is effective for preventing or reducing sports betting.

Are there any risks?

None known.

Summary

The results of one study suggest that a brief video education intervention may improve attitudes to gambling in sport in the immediate term, but any gains are not sustained over time and are therefore unlikely to change behaviour. More comprehensive programs, such as *Keep Rugby Onside*, might be more effective, but these do not appear to have been evaluated to date. More research is needed to understand the role of education programs in preventing or reducing problem gambling behaviours.

Programs for preventing posttraumatic stress in athletes exposed to a traumatic event

EVIDENCE IN SPORT 

Please note: This section describes an intervention that can be administered to a group of athletes who have all been exposed to the same traumatic event. The aim was to reduce distress and prevent the development of post-traumatic stress disorder (PTSD). Any person who develops symptoms of PTSD should always be referred to a mental health professional for individual assessment and treatment.

Posttraumatic stress disorder (PTSD) is a mental health condition that can develop following exposure to a traumatic event. The symptoms of PTSD include flashbacks (re-experiencing aspects of the trauma), being hyper-vigilant or 'on-edge', avoiding reminders of the event, and changes in mood (e.g. increased anxiety or depressed mood).

Is there evidence it works in team-based sports?

One low-quality study examined the effect of group-based supportive psychotherapy for athletes exposed to a traumatic event.[34] The participants were 18 members of an Iranian adolescent girls' soccer team, who were exposed to a major earthquake while attending a tournament in Nepal. The supportive psychotherapy program was initiated by the team doctor and all players (and their parents) consented to talking part. The intervention commenced two weeks after the earthquake when the team was back in Iran. The program was delivered online since the players lived in villages across Iran. Over 12 months the players took part in online group sessions where they discussed their experience of the earthquake and any psychological distress resulting from it. At the start of the intervention, sessions were conducted every day, and the frequency was gradually reduced to once a week and finally once a month.

Posttraumatic symptoms were measured at multiple time points across the intervention. The results showed that the players reported experiencing symptoms of posttraumatic stress in the weeks following the earthquake, but these significantly reduced by the end of the intervention. However, since there was no control group in this study, it's impossible to tell whether the same results would have occurred without any intervention.

Are there any risks?

There can be major risks in providing interventions to people who have been exposed to traumatic events. Such interventions should never be mandatory (that is, provided to people who don't wish to take part) and should only be provided by mental health experts.

Summary

In the event that a sporting club or team is exposed to a traumatic event, help to manage any psychological distress should be provided. However, there is a lack of evidence as to whether supportive psychotherapy, or other types of interventions, are effective in sporting contexts. The current Australian guidelines on managing PTSD (in the general community) should be used, always in consultation with mental health experts.

Early interventions for mental health symptoms

Cognitive-behaviour therapy

EVIDENCE IN SPORT 

EVIDENCE IN THE GENERAL COMMUNITY 

Cognitive behaviour therapy (CBT) helps people to understand how their characteristic ways of thinking ('cognition') and/or behaving might contribute to mental health difficulties, such as anxiety and/or depression.[6,7] Often people are not aware that they have particular way of thinking or interpreting their experiences that are related to their mental health. For example, overly negative or critical thinking is often associated with depression, while anxiety is often associated with thoughts that over-emphasize threats, danger or feeling vulnerable. Certain behaviours can also contribute to mental health difficulties, such as avoiding people or situations (when feeling anxious) or withdrawing from social activities (when feeling depressed).

CBT is designed to help people to recognise unhelpful ways in which they think or behave and to replace them with better ways of coping. It involves working individually or in groups with a therapist, usually for between 4 to 10 sessions (although more sessions are not uncommon). Here we have only reviewed studies that have provided group based CBT.

Is there evidence it works in team-based sports?

Three high-quality studies have examined CBT interventions in team-based sports. One study[35] randomly assigned 48 male adult rugby players to either a cognitive behaviour stress management (CBSM) intervention or a control (no intervention) group. The CBSM was delivered during the pre-season in 6 group sessions (90–120 mins) over 4 weeks. Sessions progressed from relaxation, to cognitive strategies (mental imagery, cognitive re-structuring) and goal setting and planning. At the end of the intervention, the CBSM group reported increased coping skills and a decrease in worry compared to the control group. The CBSM group also reported missing less time due to injury than the controls.

Another study[36] randomly assigned 39 US college baseball/softball athletes to either a CBT program, a control group that watched sports videos, or a second control group that received no intervention. The CBT and the video groups met for 1 hour over 3 weeks. The CBT group reported less fear of negative evaluations/feedback than the control groups at the end of the intervention, as well as less emotional responses associated with negative feedback (e.g. feeling upset, helpful, angry, frustrated depressed). There were no group differences however for self-esteem.

A final study[37] randomly assigned 2 youth gymnast clubs (average age 14 years) to either a cognitive behavioural stress-management program (CBSM) or a control condition (a series of lectures on nutrition). Each group met for twelve 1-hour sessions over 6 months. The CBSM program covered a range of cognitive strategies both in general and sport-specific contexts (e.g. competition). At the end of the 6-month intervention and at 3-month follow-up, there were no differences between the groups on measures of general and sport-specific stress, or injury outcomes.

Is there evidence it works in non-sporting contexts?

There is very strong evidence from high quality studies that CBT is an effective treatment for a range of mental health conditions in adolescents and adults.[38]

Are there any risks?

There are no major risks associated with CBT, although it can be emotionally challenging to confront difficult patterns of thought and/or behaviour in the immediate term.

Summary

There is evidence from at least two high-quality studies that brief CBT programs can help players/athletes to manage emotions such as worry and to improve coping skills. CBT is also well established as an effective treatment for a range of mental health conditions in the general community. Nonetheless, more research is needed to further establish the effectiveness of group CBT to respond to other mental health problems in sport, such as depression.

Mindfulness-based interventions

EVIDENCE IN SPORT 

EVIDENCE IN THE GENERAL COMMUNITY 

Mindfulness-based interventions refer to number of approaches, including mindfulness-training, Mindfulness-Based Cognitive Therapy (MBCT), Mindfulness-Based Stress Reduction (MBSR) to name a few. Common to these approaches is learning a type of meditation or mental state called "mindfulness" (or "mindfulness meditation") that teaches people to pay attention to the present moment.[39] People are encouraged to be aware of whatever they are experiencing in the moment, including worries, emotions, ideas, and body awareness, without being judgemental or trying to get rid of or change these experiences. Mindfulness therapies can be accompanied by other interventions such as yoga (see page 52), or self-compassion, which targets self-criticism, something that may be especially relevant to sport given performance demands and expectations. Mindfulness training can be delivered in groups or individually.

Mindfulness is thought to help with mental health symptoms by assisting people to change their state of mind so that they can experience what is happening in the present, rather than worry about the future or what has happened in the past (types of thinking that commonly affect people experiencing anxiety or depression). In the context of sport, mindfulness is thought to be helpful for enhancing the 'flow state'.[40] 'Flow' is a term that is used to describe the mental state of being in 'the zone', which is associated with peak performance.

Is there evidence it works in team-based sports?

Two high-quality studies have examined sports-specific mindfulness programs in elite adult athletes. In one study[41], 57 Portuguese soccer players were randomly assigned to either a Mindfulness Based Soccer Program (MBSP) or a control/ waitlist group. The MBSP program was delivered over 8-weeks, with each 90-120 min session combining mindfulness techniques with group discussion, yoga and homework exercises. The control group did not receive any intervention. At the end of the 8 weeks, the MBSP group reported a marginal improvement in anxiety symptoms, and significantly better outcomes than the control group on various aspects of mindfulness (e.g. acting with awareness, compassion/kindness) as well as 'flow'.

The other study[42] randomly assigned 52 NCAA athletes from mixed sports to receive the Mindful Sport Performance Enhancement (MSPE) program or a control/ waitlist group. The 6-week program consisted of 75 min weekly group meetings that worked through various elements of mindfulness, along with instruction on how to use the techniques to help improve performance. Overall, the MSPE group did not differ from the control group on the main outcome measure of self-reported depression symptoms. However, athletes who completed at least 5 of the 6 sessions reported greater improvements at the end of the intervention on measures of worry, life satisfaction, and flow.

Mindfulness with self-compassion

Two studies (both unpublished research theses) examined mindfulness with self-compassion (SC) in US college athletes. One study[39] compared a 6-hour/6 session MSPE program against MSPE-SC, and a control/ waitlist in 2 teams of long-distance runners (n=55). It was thought that self-compassion would be relevant to improving body image and disordered eating in these athletes. The results showed that there were no differences between the mindfulness groups in relation to body image, or to any mindfulness outcomes (or performance) at the end of the intervention.

The other study[43] compared the 6-hour/6 session Mindfulness Meditation Training for Sport 2.0 program to a control/waitlist condition in US college men's soccer teams. There were no differences between the groups on life satisfaction or the ability to tolerate negative emotions at the end of the intervention, nor any benefits for various aspects of mindfulness (including psychological inflexibility).

Mindfulness-Acceptance-Commitment

Mindfulness-Acceptance-Commitment (MAC) is an intervention designed within a sport psychology context. It emphasizes that enhanced performance comes from an athlete's ability to persist with the 'task-at-hand' and be present in the moment, regardless of any internal discomfort. A small study[44] randomly assigned 22 NCAA female basketball players to a 6 hour/6-week program of MAC, compared to psychological skills training (PST). The MAC group reported greater reductions in self-reported substance use and hostility compared to the PST group at the end of treatment, however other important measures did not differ between groups, such as symptoms of depression, psychological distress, eating concerns or generalized anxiety.

Is there evidence it works in non-sporting contexts?

There is strong evidence from high quality studies that mindfulness-based cognitive therapies/MBCT is an effective treatment for depression in adults.[45]

Are there any risks?

There are minimal risks associated with mindfulness-based interventions.

Summary

There is mixed evidence regarding the effectiveness of mindfulness-based interventions for improving mental health in groups of players/athletes.
The research suggests that these programs can improve aspects of *mindfulness* (i.e. being 'present'), but they do not necessarily improve mental health outcomes, such as psychological distress or anxiety.

More research is needed with larger groups of athletes (ideally from same rather than mixed sports) to understand whether mindfulness-based approaches work for improving mental health and whether particular components are more important than others.

Psychological (or Mental) Skills Training

EVIDENCE IN SPORT 

EVIDENCE IN THE GENERAL COMMUNITY NOT TESTED

Psychological skills training (PST) is a term used to refer to a range of techniques, such as goal setting, motivation, mental imagery, self-talk and mental rehearsal, which are used by athletes to enhance performance by having greater mental preparation for competition.[46] PST often involves other components, such as relaxation training and breathing exercises.

PST is thought to assist mental health by building self-management skills to improve self-confidence and reduce anxiety.[46]

Is there evidence it works in team-based sports?

One high-quality study[47] randomly assigned 88 NCAA (mixed team sports) college athletes to a mental skills training program or to a waitlist control group (no intervention). The mental skills training consisted of five 50 min group sessions where participants practiced examining their self-talk, breathing relaxation, mindfulness and acceptance, and developing a growth mindset. Athletes in the PST group reported greater improvement in symptoms of anxiety at the end of the intervention compared to the control group. However the groups didn't differ in terms of rating their symptoms of depression or overall psychological quality of life.

There have been 3 other good-quality studies of PST in athletes[48-50] but all have focused on competition/sports anxiety. Two of these studies found that PST was better than no intervention for sports anxiety, while the third study found no significant effect for PST.

Is there evidence it works in non-sporting contexts?

There are no high-quality studies of PST for mental health outcomes in non-sporting samples.

Are there any risks?

None that are known.

Summary

There is not enough evidence yet as to whether psychological or mental skills training can improve mental health in sporting contexts, although there are promising results from one study. Psychological skills training appears to help manage sports/competition anxiety, but more research is needed to be confident of this result.

Recovery Garments

EVIDENCE IN SPORT 

EVIDENCE IN THE GENERAL COMMUNITY NOT TESTED

Recovery garments refer to forms of clothing that are made from, or coated with, particular materials that are intended to promote recovery.[51] Athletes wear these at particular times, such as following exercise or during sleep. It's thought that such garments assist athletes with rest and recovery, which are important to reducing burnout or overtraining syndrome, both of which are associated with psychological distress. It's not known how the garments work, but it's suggested that they may help with regulating immune responses in the body.

Is there evidence it works in team-based sports?

One high-quality study[51] examined recovery garments in 38 male Japanese baseball players. Half were randomly assigned to wear an experimental recovery garment (treated with a nanomaterial called DPV576) and half to a control/non-coated garment. In both cases, the garments were full-length bottoms and a half-sleeve top worn for 14 nights during an intensive training program. The results showed that, at the end of the 2-week program, players in the recovery garment group reported lower levels of mood disturbance and reduced cortisol/stress levels compared to the control group.

Is there evidence it works in non-sporting contexts?

No studies have examined the use of recovery garments in people with mental health difficulties such as anxiety and depression in the general community.

Are there any risks?

There are no known risks associated with wearing recovery garments.

Summary

There is not enough research on recovery garments yet to support their use in sports to assist with mental health outcomes during periods of intensive training or competition. However, the results of one promising study suggest that more research is warranted in this context.

Acupuncture

EVIDENCE IN SPORT 

EVIDENCE IN THE GENERAL COMMUNITY 

Acupuncture usually involves inserting fine needles into specific points on the body, which are then rotated by hand (a laser beam can sometimes be used instead of needles). Traditional Chinese medicine regards acupuncture as working to correct the flow of energy in the body, while Western medicine contends that it may stimulate nerves, which results in the release of neurotransmitters/chemical messengers in the brain.[52]

Is there evidence it works in team-based sports?

Only one high-quality study[53] has examined acupuncture in a sporting context, but this focused specifically on *competition*/sports anxiety. The study allocated 45 adolescent football players to one of three groups: (1) actual acupuncture, (2) 'sham' (or fake) acupuncture (where the needles are not fully inserted, or not placed at the correct points) or (3) no treatment. All the players completed a questionnaire to measure their anxiety before and after the intervention. Players who received the actual acupuncture reported lower anxiety following the treatment period compared to the other two groups, but there was no difference between the groups on other measures (such as self-confidence).

Is there evidence it works in non-sporting contexts?

There's evidence that acupuncture can improve symptoms of anxiety in adults with particular anxiety disorders (such as generalised anxiety disorder or post-traumatic stress),[54, 55] although these studies are not high quality. In adults with depression, acupuncture is more effective than 'sham' treatment, but the effects tend to be quite small.[52]

Are there any risks?

Acupuncture is relatively safe when practiced by a properly accredited professional, but minor bleeding and bruising may occur.

Summary

Acupuncture may be helpful for reducing competitive anxiety, but more research is needed to be confident of that result. There is no evidence for the use of acupuncture to assist clinical anxiety or other mental health problems in sporting contexts. While acupuncture may be effective for adults with depression and particular anxiety disorders, evidence shows that it is less effective than other treatment such as CBT and mindfulness.

Audio-visual stimulation training

EVIDENCE IN SPORT 

Audio-visual (AV) stimulation training involves delivering audio 'beats' and light flashes via headphones and specially designed eyeglasses.[56] The types of audio and visual stimuli can differ (e.g. the colour of lights) as well as the length and number of training sessions. It's thought that AV stimulation training can regulate mood and emotional states by influencing brain activity.

Is there evidence it works in team-based sports?

One low-quality study[57] compared self-reported 'psycho-emotional' symptoms in track and field athletes who were exposed to AV stimulation training (25 athletes) versus a control condition (no AV stimulation; 40 athletes). The AV stimulation training lasted 25 mins and was administered over 20-22 sessions (each session being separated by at least a day). Athletes in the AV stimulation group reported a significant decrease in anxiety and frustration levels compared to the control group. There was no follow-up to see if these benefits lasted beyond the period of taking part in the study.

Is there evidence it works in non-sporting contexts?

No studies have examined the use of AV stimulation training as an intervention for mental health in the general community.

Are there any risks?

None that are known.

Summary

There is not enough research on AV stimulation training as a method of improving mental health in sports. More evidence is needed to assess whether the short-term benefits of AV stimulation translate into meaningful and sustained improvements.

Autogenic Training

EVIDENCE IN SPORT ?

EVIDENCE IN THE GENERAL COMMUNITY ?

Autogenic training is a relaxation technique that uses visualisation or other simple mental exercises, such as concentrating on breathing, heartbeat, or the temperature or weight of body parts, to increase body awareness.[58] Autogenic training is thought to assist mental health by promoting relaxation and reducing tension.

Is there evidence it works in team-based sports?

One low-quality study[59] reported using autogenic training (plus mental imagery) for anxiety in a group of field hockey players in India (n=31). No information was provided about the autogenic training, including the duration of the intervention, or how and by who it was delivered. Compared to baseline levels, anxiety was reported to have significantly reduced after the intervention. Since no control group was used in this study, it can't be determined if the reduction in anxiety was due to the intervention or other factors.

Is there evidence it works in non-sporting contexts?

There is not enough high-quality research to say whether autogenic training is an effective intervention for depression and anxiety in the general community.[6]

Are there any risks?

None that are known.

Summary

There is not enough evidence as to whether autogenic training is useful as an intervention in sporting contexts. More high-quality research is needed.

Positive psychology interventions

EVIDENCE IN SPORT ?

EVIDENCE IN THE GENERAL COMMUNITY ?

Positive psychology aims to build wellbeing by recognising and developing an individual's strengths.[60] This is in contrast to many traditional mental health approaches that focus on the 'deficits' or the challenges that people with mental health problems experience. Positive psychology approaches often focus on positive emotions, engagement, relationships, meaning and achievement and interventions involve activities or exercises that target these aspects of wellbeing.

Is there evidence it works in team-based sports?

Only one, low-quality, small study[61] has examined a positive psychology intervention in a sporting context. A group of 21 female college athletes received a 7 week program facilitated by a sports consultant. The athletes completed individual exercises each week (e.g. identifying their strengths, describing their best possible future self, practising gratitude, etc.) and met as a group on four occasions for a facilitated discussion to reflect on the exercises. No measures of mental health or wellbeing were assessed. Rather, athletes provided feedback on the intervention via interviews at the end of the study, which suggested a beneficial impact on overall wellbeing. Since this study did not measure mental health outcomes pre and post the intervention, or include a control group, it can't be determined how or if the intervention itself improved wellbeing.

Is there evidence it works in non-sporting contexts?

Research suggests that positive psychology interventions can be effective in improving wellbeing[62] but there is not enough evidence yet as to whether they are effective for managing mental health conditions such as depression.[6]

Are there any risks?

None that are known.

Summary

There is not enough evidence to support the use of positive psychology interventions in sporting contexts. More high-quality research is needed on this approach.

Reflective Diaries

EVIDENCE IN SPORT 

Reflective diaries are used to record a person's life experiences, along with the thoughts and feelings that can accompany them. Through the process of writing and recording these events, it's thought that diaries can act as a coping mechanism for managing life stressors, by providing an opportunity for reflection and learning.

Is there evidence it works in team-based sports?

One low-quality study[63] examined the use of reflective diaries among 10 male county cricketers in England who consented to keep a diary for 1 month during the competitive season (out of 48 players who were approached). Feedback provided by players in interviews at the end of the study showed that most valued the process of writing, but some identified the need to voice their views and concerns with others in order to benefit more from the experience.

Is there evidence it works in non-sporting contexts?

No studies have examined the use of reflective diaries in people with mental health difficulties such as anxiety and depression in the general community.

Are there any risks?

None are known.

Summary

More evidence is needed from high-quality studies before any conclusions can be made about the benefits of reflective diaries in sports.

Sleep interventions

EVIDENCE IN SPORT 

EVIDENCE IN THE GENERAL COMMUNITY 

Sleep interventions are designed to establish good habits that promote restful sleep, and/or to target specific problems such as insomnia (i.e. problems with the quality and/or amount of sleep). Good habits (sometimes called 'sleep hygiene') include stopping the use of electronic devices an hour before bedtime, reducing caffeine or alcohol consumption in the afternoon/evening, keeping the bedroom cool and dark, and limiting daytime naps. There is a strong association between sleep disturbance and poor mental health, although it is not clear whether sleep disturbance is a symptom that co-occurs with particular mental health problems or whether sleep disturbance in fact *contributes* to mental health outcomes.

Is there evidence it works in team-based sports?

The best quality study to date[64] compared a sleep intervention in 15 adolescent male soccer players to a control group (of somewhat older males). Both groups slept for 8 weeks on a specially designed pillow with integrated speakers on the corners, but only the soccer group received 'sleep brainwaves' (audio 'beats' delivered to both ears) throughout the night. The results showed that while the perceived quality of sleep and waking up improved in the 'brainwave' group, a measure of psychological strain didn't differ from the control group, nor did actual sleep behaviour (e.g. time of going to bed, or being awake during the night).

Five other (lower quality) studies have examined a range of sleep interventions in athletes using pre-post designs. One of these studies[65] involved 25 AFL players (from 1 club) who received a 6-week sleep 'optimisation' program, consisting of improving sleep habits, sleep extension (which aims to achieve a longer sleep duration, usually around 10 hrs per night) and feedback on their sleep patterns. Overall, the intervention did not improve most aspects of sleep, nor did it help depression or tension symptoms, although players reported less fatigue and more vigour/energy. The other 4 studies[66-69] examined either sleep habits or sleep extension in different athlete groups, with mixed results.

Is there evidence it works in non-sporting contexts?

Research has examined the technique of sleep deprivation in people with depression (e.g. forcing the person to stay awake for 24 hours, or a lesser period of time). This research generally shows that symptoms of depression improve immediately after the sleep deprivation, but the benefits don't last in either the short or long term (e.g. they tend to re-emerge with the next sleep).[6]

Are there any risks?

There are no known risks associated with improving sleep habits or sleep extension, however sleep *deprivation* may pose a risk for people with epilepsy or bipolar disorder.

Summary

There isn't enough high-quality evidence yet as to whether sleep interventions are helpful for mental health outcomes or for improving sleep itself. More research is needed to understand what, if any, sleep interventions are likely to work best for players/athletes.

Yoga

EVIDENCE IN SPORT 

EVIDENCE IN THE GENERAL COMMUNITY 

Yoga exercises the body and mind by using physical postures, breathing techniques and meditation. There are many forms of yoga practiced in Western countries, including ashtanga, bikram, hatha and iyengar. Yoga can focus either or meditation or exercise depending on the form. It is thought to be beneficial to mental health by reducing stress, improving relaxation and helping to provide a distraction from negative thoughts.

Is there evidence it works in team-based sports?

There have been 2 studies of yoga in sporting contexts. One study[70] involved 80 female athletes who were diagnosed with 'sport anxiety' (high levels of anxiety associated with competition). Half were randomly assigned to receive Hatha Yoga twice a week for 2 months and half were assigned to a control group. Results showed that athletes in the yoga group had a significant reduction in anxiety scores at the end of the intervention compared to the control group.

The other study[71] involved 13 male NCAA athletes who attended eight 90 min group mindfulness sessions, followed by a 1hr Hatha Yoga session, over 5 weeks. A control group of 13 athletes was also included. The results showed that athletes in the mindfulness/yoga group scored better on measures of mindfulness, goal directed energy and perceived stress at the end of the study compared to the control group, although no other outcomes differed. No conclusions can be made about the effectiveness of yoga from this study, since it was always paired with mindfulness.

Is there evidence it works in non-sporting contexts?

Research shows that yoga is an effective intervention for adults with depression, with the benefits mostly associated with meditation-based rather than exercise-based yoga.[6] However, the quality of these studies is low. Similarly, there's evidence from low-quality studies that yoga is effective for reducing anxiety symptoms in people with generalised anxiety disorder.[72, 73]

Are there any risks?

There may be a low risk of injury associated with particular yoga postures. Yoga should be practiced in a class with a qualified instructor to help minimise risks.

Summary

There's not enough high-quality research in sports regarding the effectiveness of yoga for mental health outcomes. Further research into the benefits of yoga within sports-settings is warranted.

Person-centred psychotherapy

EVIDENCE IN SPORT 

EVIDENCE IN THE GENERAL COMMUNITY 

Person-centred psychotherapy is a type of talking therapy that is 'client-centred', meaning the therapist does not give instructions but instead follows the client's lead and helps them to uncover their own solutions to the problems they are experiencing. The aim of person-centred therapy is to help the client work towards a state of 'self-actualisation', in which they have a deeper understanding and acceptance of themselves and lead a fulfilling life.

Person-centred therapy focuses on the principles of authenticity, acceptance and empathy.[74] Therapists seek to create a warm and non-judgmental environment, which helps the client work towards self-discovery. This intervention is usually delivered individually (or 1 on 1) given the intense focus on the client's needs, but the principles of acceptance, authenticity and empathy can also be applied in group settings.

Is there evidence it works in team-based sports?

Once high-quality study has examined person-centred therapy in a team sports setting.[75] Adolescent male soccer players (n=44, aged 13 – 15 years) were randomly assigned to 9 months of a person-centred program or a control (no intervention) group. The person-centred therapy consisted of one 50-minute group session per week, facilitated by a therapist. The athletes were allowed to direct the group discussions and were encouraged to raise issues that felt significant to them. All players completed measures of self-confidence and anxiety at baseline and at the end of the 9-month intervention. The results found that there was no difference between the groups for self-reported levels of anxiety, and that the therapy group reported a *decrease* in self-confidence compared to the control group.

Is there evidence it works in non-sporting contexts?

There is mixed evidence for psychotherapy in the general population. It may be somewhat helpful in the short term for managing depression, but not the long term. There is little evidence that it works for anxiety disorders.

Are there any risks?

None known.

Summary

The only high-quality study to data suggests that person-centred psychotherapy is not effective at reducing anxiety, and may in fact be harmful. Given that this is usually provided as a 1 on 1/individually-based intervention, it is not recommended as an intervention for groups of players/athletes in sporting contexts.

Programs for coaches who work with junior athletes

Coaches have a large influence on the sporting experience, particularly for junior athletes. Several programs have been designed that aim to improve coaching styles and relationships within the team environment. These programs may have beneficial impacts on athletic performance, the desire to participate in sport, and athletes' emotional wellbeing.

Communication-based interventions

EVIDENCE IN SPORT 

Communication-based coaching interventions aim to help coaches understand how their reactions to particular situations can contribute to athletes' mental health difficulties (as well as their athletic performance). For example, responding with harsh criticism when a player makes a mistake can increase the player's feelings of anxiety, and consequently their desire to take risks in games, and so on. These interventions try to help coaches recognise unhelpful patterns in their coaching styles and replace them with ways of communicating and behaving that can improve mental health outcomes for individual players and the team.

Example of programs include the Coach Effectiveness Training (CET) and the Mastery Approach to Coaching (MAC) program Both programs discourage the use of punitive instruction and encourage treating mistakes as opportunities for feedback and improvement. They are run as single session workshops of 75-90 mins duration.

Is there evidence it works in team-based sports?

One study[76] examined CET with 152 Little League baseball players (aged 10-12 years) and 18 coaches. Training was delivered by a workshop leader two weeks prior to the start of the baseball season. One group of players had coaches that were provided CET and the other group had no coach training (i.e. the control group). The junior athletes were interviewed about their characteristic levels of competitive anxiety (termed 'trait competitive anxiety) pre-season and immediately post-season. The baseball players in the CET group reported lower sports anxiety post-season than the players in the control group. The second study[77] examined the MAC program compared to a control condition in 216 basketball players (aged 10-14 years) and 37 coaches. Measures of anxiety were completed at baseline and 12 weeks later during the final week of the basketball season. Players in the control group reported higher anxiety scores at the end of the season, compared to players whose coaches received the MAC intervention, who reported a decrease in anxiety over time.

Are there any risks?

None known.

Summary

There is promising evidence that communication-based coaching interventions can improve anxiety in junior players.

Self-Determination Theory-based interventions

EVIDENCE IN SPORT 

Interventions based on self-determination theory (SDT) focus on enhancing the motivational needs of athletes by increasing feelings of autonomy (feeling able to make your own decisions), connection to others, and perceived competence in one's abilities.[78] Coaching interventions informed by SDT attempt to address these areas in order to enhance athletes' wellbeing, increase motivation, and reduce negative experiences such as burnout.

Is there evidence it works in team-based sports?

One good-quality study[79] examined a self-determination theory-based intervention in Gaelic football coaches. Three coaches received six, 1-hr sessions of SDT coaching training provided to them one-to-one over 12 weeks and 3 coaches acted as a control group (no training). The training aimed to increase coaches' support for players and decrease their use of controlling coaching styles. Football players in the SDT and control coaches teams (n=87) completed baseline and end of study measures of burnout and motivation. The results showed that while players in the control coaching group showed an increase in burnout, no burnout was reported in the SDT coached players. However, there were no differences between the groups in terms of motivation.

Is there evidence it works in non-sporting contexts?

Self-determination theory-based interventions have not been applied in the general community to respond to mental health conditions.

Are there any risks?

None known.

Summary

There is not yet enough high-quality research in sports regarding the effectiveness of self-determination theory-based coaching interventions for athletes' mental health outcomes. The one good-quality study to date reported mixed results, with SDT coached players less likely to report burnout, but no better motivation than the control coached players. More research is warranted on the benefits of SDT based coaching for improving player wellbeing.

Stress-inoculation training

EVIDENCE IN SPORT 

Training and competition can induce stress not only in athletes, but coaches. Coaches who respond to stress in adaptive ways are more likely to enhance player (and team) wellbeing than coaches who respond to stress with anger or hostility. Stress-inoculation training helps individuals to cope with stress and prepare themselves in advance for upcoming potentially stressful situations. Training involves teaching participants to understand how they tend to react to stressful situations and feelings of anger. Following this, participants learn to re-interpret stressful events and ultimately reduce responses characterised by anger or aggression when such stressful events are encountered.

Is there evidence it works in team-based sports?

One low-quality study[80] examined the effectiveness of stress-inoculation training with four male high school basketball coaches. The coaches were given five training sessions, each lasting 60 minutes. The results showed that coaches reported less tension/anxiety and anger/hostility in game situations, but other measures of anger and aggression (such as anger control or observed aggression) showed no significant improvement.

Is there evidence it works in non-sporting contexts?

No studies have specifically examined the use of stress-inoculation training in people with mental health difficulties such as anxiety and depression in the general community.

Are there any risks?

None known.

Summary

There is not enough high-quality research regarding the effectiveness of stress inoculation training in coaches on players mental health outcomes. More research is needed.

Programs to increase ‘mental toughness’

What is mental toughness and what is its role in sport?

Athletes, coaches and researchers agree that psychological factors play an essential role in an individual's success in sport.[81] Mental toughness (MT) has been proposed as a key psychological component in sport, but there is little agreement as to what it is, how it's measured and whether improving mental toughness actually improves *mental health.*

Mental toughness is usually taken to mean having high levels of self-belief, resilience and persistence. People who are 'mentally tough' are described as being able to cope under pressure and to maintain their concentration in spite of distractions.[81] It is not surprising therefore that mental toughness has become an important concept within sports.

Research suggests that an individual's level of MT is determined by genetics and early life experiences, but can also be increased through targeted training. A number of mental toughness training programs have been developed for elite athletes. However, the role of MT in sport is contentious, since this concept can be regarded as both a positive and a negative.

The positive argument for mental toughness	**The negative argument for mental toughness**
Players who are mentally tough are able to persevere in the face of adversity and reach their full potential. These factors are seen as indicators of good mental health.[82] Therefore, MT is seen as a component of mental health, or could enhance optimal mental health.	Mental toughness glorifies the view of 'traditional masculinity' and stoicism that is prevalent in professional sports.[83] As a result, players may be reluctant to seek help for mental health issues for fear of being seen as 'weak' by teammates or coaches. Therefore, MT training could exacerbate the stigma of mental health in sport.

This debate remains unresolved due to a lack of research into the relationship between mental toughness and mental health.

Despite this, MT programs are now seen as commonplace within many sports. To evaluate these programs, we have separated them into two groups: (1) programs involving psychological skills training that are delivered in a non-threatening environment, and (2) programs that use a form of "pressure training", in which the players are exposed to stressful or adverse stimuli as part of the training process.

Mental toughness training in non-pressurised environments

EVIDENCE IN SPORT 

Programs in this context use psychological skills training to increase mental toughness. The skills that are typically taught include goal setting, mindfulness, concentration and emotional awareness. Additional MT-specific concepts may be included, such as techniques to push through the pain barrier during training and competitions.

Is there evidence it works in team-based sports?

Two studies have tested MT programs in non-pressurised environments. The first was a high quality study that randomly assigned adult basketball players to an MT intervention or a control group.[84] Players in the intervention group completed the Mindful Sport Performance Enhancement (MSPE) program. The program consisted of weekly 90-minute sessions over six weeks, with homework exercises between sessions. The intervention group were taught a sport-specific form of mindfulness in which they were asked to visualise themselves in various sporting scenarios and mentally rehearse how they would respond. The researchers used the Mental Toughness Questionnaire[85] to measure MT at the beginning and end of the study. Compared to the control group, the intervention group reported an increase in MT at the end of the program. The study did not measure whether the intervention improved any mental health outcomes (such as anxiety).

Another study[86] compared a specific MT training program to a general psychological skills training (PST) program in 75 adolescent male players (aged < 15 years) from three Australian football teams. One team was assigned to MT training, one to the PST program and one to the control group. The MT group participated in 6 weekly group sessions focusing on tough attitudes, practiced concentration and problem-solving exercises, and learned techniques to manage their emotions in stressful situations, and discussed ways to push through the pain barrier during training and games. In the PST group, 6 weekly group sessions focused on learning skills such as goal setting, emotional awareness, concentration techniques, affirmations, and imagery. The control group received no intervention. The results showed that MT and PST were equally effective in increasing mental toughness. The study didn't measure whether either intervention improved participant mental health.

Are there any risks?

Most of these psychological techniques are unlikely to cause negative side effects. However, it is possible that advising players to 'push through pain' during training sessions and games could increase the risk of injury.

Summary

Psychological skills training delivered in non-pressurised environments can increase mental toughness. But it is not yet clear whether *MT-specific components* are needed. More high-quality research is needed before we can be more confident of the effectiveness of MT training in non-pressurised environments.

Mental toughness training in pressurised conditions

EVIDENCE IN SPORT 

One aspect of mental toughness often described in sport is the ability to perform under pressure.[81] Therefore, some programs expose players to stressful situations in order to develop MT. In 'pressure training', players are intentionally exposed to increased pressure during training sessions to build MT. These programs use a variety of methods to create feelings of pressure, including physical challenges, introducing negative consequences for poor performance, and/or taking players out of their comfort zones.[87]

Is there evidence it works in team-based sports?

In one low-quality study[88], 19 Dutch female basketball players were exposed to pressure situations in their regular training sessions over three weeks. Players completed a game simulation exercise, which focused on the last two minutes of a game and a free throw exercise. Pressure was added via distractions during the task, negative consequences (e.g. a missed free throw resulting in the whole team having to run sprints) and fatiguing the players before the session. At the end of the study, athletes and coaches 'perceived' that the team became more resilient to stressors experienced in game settings as a result, but mental toughness was not measured (nor the effects of the program on player mental health).

Another low-quality study[89] evaluated the Mental Toughness Education and Training Program with 3 English soccer league referees. The referees took part in 6 monthly workshops that involved pressurised role-plays. The program also incorporated elements of CBT, such as training to acknowledge and change unhelpful thoughts. All 3 referees reported higher scores on a measure of MT at the end of the program.

Are there any risks?

Introducing high levels of pressure may have harmful effects on mental health, including increasing feelings of acute anxiety (such as panic). Extreme pressurised training may also lead to negative impacts on relationships between team members, and reduce feelings of safety within the sporting environment.

Summary

There is not enough high-quality evidence regarding the benefits of mental toughness training in pressurised environments. Given the current evidence base suggesting the potential risks of these programs, they are **not recommended** as a way to increase mental toughness in sports.

Programs for retiring athletes to manage the mental health impacts of transition out of sport

Numerous sporting bodies in Australia and overseas have developed programs to help athletes to transition out of sport as smoothly as possible. However, none have evaluated or conducted research on whether these programs assist athlete mental health. The few studies that have been conducted have focused on *career* outcomes rather than mental health outcomes. Therefore, it is unclear whether existing programs are effective at improving the mental wellbeing of athletes during the retirement process.

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