Team Physician Consensus Statement: Return to Sport/Return to Play and the Team Physician: A Team Physician Consensus Statement—2023 Update

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Return to play (RTP) is the process of returning an athlete to participate in his/her/their sport. Return to sport (RTS) is applicable to all sports and athletes. For the purposes of this consensus statement, RTS will be used to include both the process and the decision, focused on non-game-day RTS. It is important for the team physician to recognize RTS represents a continuum: return to participation, RTS, and return to performance (1). This progression can be applied for any sport, athlete, or injury/illness. The RTS decision is ongoing, is context dependent, and may change over time.

The team physician has the central role in not only protecting the athlete's health, but also protecting the athlete from coercion to participate. The final RTS decision should be led by the team physician (2,3) as part of a shared decision-making process (SDM) (4–6). This model remains the best practice in making the RTS decision (4–6). The process is dynamic, and decision points may change over time based on evolving information and risk.

SDM is a model of patient-centered care that enables and encourages patients to participate in medical decisions that affect their health (7,8). It operates under two premises:

- Patients empowered with information will participate in the medical decision-making process by asking informed questions and expressing personal values and opinions about their conditions and treatment options.
- Physicians respect patients' goals and preferences and use them to guide recommendations and treatments (7,8).

For the team physician, an athlete plays a central role in SDM, providing input and direction for the RTS decision (4–6). Other stakeholders may be involved in the process. SDM goals achieve athlete-centered care with these objectives (5):

- Present the science and unknowns regarding the diagnosis
- Summarize individual athlete risk profiles
- Discuss evidence-based options and plans considering the athlete's values and preferences

Injury and illness are common in sport, and RTS decisions are made using a variety of established frameworks (1–3,9–12) and criteria. The decision requires understanding the nature of the injury/illness and athlete- and sport-specific factors in the context of SDM. Challenges include the level of existing and evolving science and the lack of consensus in the clinical community.

Age, sex, sport, time of season, athlete risk tolerance, and psychological readiness (13,14) are other factors to consider in the RTS process. Physician and organizational risk tolerance and medicolegal issues should also be considered, along with existing policies and consensus recommendations (1–3,9–12,15).

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RTP DECISION-MAKING PROCESS

RTS is the process of returning an injured/ill athlete to exercise, strength and conditioning, sport-specific activity, and full participation.

RTS decisions are dynamic, complex, and multifactorial and require ongoing review and reassessment. Factors that influence expectations and risk tolerance include (1) the following:

- Type of injury/illness
- Athlete age
- Type of sport
- Physical demands of the sport
- Physical and psychological readiness
- Effects of exercise/physical activity
- Level of competition
- Significance of upcoming participation opportunities
- Social consequences
- Financial implications

History of RTS processes. The original (2) Team Physician Consensus Conference (TPCC) RTS was referenced and used as a foundation for other frameworks, including the *Model for RTP Decision-Making* (9). It was later modified to the *Strategic Assessment of Risk and Risk Tolerance* framework for RTS decision-making (11). The TPCC update (3) incorporated the many factors discussed in the Creighton publication and also provided more detail regarding psychological readiness and the medicolegal as well as ethical issues related to decision-making for the team physician. RTS decision-making includes an evaluation of the athlete's health status, participation risk, and extrinsic factors (e.g., risk tolerance, peer/coach/family pressure, timing of season) (3,9). Some frameworks have focused on evaluating measures of load and overload (10) and the psychological readiness as a component of the rehabilitative process (1,12)

RTS processes. RTS decision-making involves an assessment of the athlete's health status on the field of play or in the office. It includes medical and psychological status, physical examination findings, and diagnostic testing considerations. Sport-specific demands, position and level of competition, functional performance, hydration, nutrition and energy balance, physical and psychological readiness, role of taping/bracing/devices, and effects on other athletes (e.g., infectious disease, cast) are additional considerations.

Extrinsic factors that may modify the decision-making process include the acceptable level of risk, timing within the season/career, conflicts of interest, employment agreements, medicolegal issues, and understanding of rules, regulations, or other policies (e.g., no knee brace in rugby; skin infection in wrestling) (3). An agreement of medical care and administrative responsibilities should be developed between the team physician and the organizing body, including a reporting structure from the athletic care network (3). Protocols should be established within disclosure regulations for the release of information regarding an athlete's ability to RTS after an injury/illness.

Other factors. RTS decision-making also evaluates workload/load cycle (10,16,17). Examples include number of pitches thrown, distance run, length of season, hours of training, and/or amount of weight lifted (18). Load creates a demand or stress (both physiological and psychological) and has internal and external components. Safely managed load may result in improved athletic capacity and performance, injury and illness risk reduction, and optimized RTS (18). Emerging technologies (e.g., wearable devices, analytics) (19–21) and physical and psychological readiness (1) are other considerations.

It is essential the team physician:

- Lead the SDM process, with the athlete playing a central role in providing input and direction.
- Understand other stakeholders may contribute to the process.
- Understand RTS decision-making is dynamic, complex, and multifactorial and requires ongoing review and reassessment.
- Understand RTS decision-making includes an evaluation of the athlete's health status, participation risk, and extrinsic factors (e.g., risk tolerance, conflict of interest [COI], external pressure, timing of season).
- Understand rules, regulations, and policies may impact the RTS decision.

It is desirable the team physician:

- Evaluate the athlete's health status and discuss participation risk.
- Understand sport- or event-specific rules, regulations, and policies.
- Develops an agreement of medical care and administrative responsibilities between the team physician and the organizing body, including a reporting structure from the athletic care network (22).
- Address extrinsic factors that modify the level of risk for the individual athlete.
- Communicate the RTS process to stakeholders.
- Establish protocols within disclosure regulations for the release of information regarding an athlete's ability to return to practice or competition after an injury or illness.
- Educate the athletic care network about the RTS process.

EVALUATING INJURED/ILL ATHLETES FOR RTS

Evaluation of an injured/ill athlete is the key step in establishing a diagnosis, determining risk and directing treatment, and is the basis for guiding RTS.

Health status. A condition-specific medical history and physical examination should be performed and documented, including the description of injury/illness, timing, setting (practice vs. game), whether the athlete continued to play or finish the practice/game, and a full description of symptoms. Relevant components of the history may include prior similar episodes, time lost to similar episodes, injuries and surgeries, treatments, hydration, nutrition and energy balance status, psychological readiness, and protective equipment or braces.

Severity is a key component in injury/illness assessment to stratify risk. For example, for hypertrophic cardiomyopathy,

several factors determine severity (e.g., wall thickness, late gadolinium enhancement, presence of arrhythmia, and history of syncope) and contribute to determining associated risk for sudden death (e.g., age, sex, sport) (23–25). A musculoskeletal example may be the grade of ligamentous injury. Specialty consultations, diagnostic imaging, and other testing may aid in determination of severity and risk.

Athlete risk. Injured/ill athletes should be assessed for risk factors, including type of sport, competition level, position, and ability to protect themselves from further injury/illness (3,11,15). Degree of risk and severity should be assessed for each injury/illness.

Extrinsic factors. The RTS decision may be impacted by sport-specific modifiers. These include the following:

- Type of sport (contact/collision vs. noncontact sport)
- Position played (goalkeeper vs. midfielder)
- Dominant extremity (throwing shoulder vs. nonthrowing shoulder)
- Level of competition (recreational league vs. college athletics)
- Timing and season (final competition vs. off-season practice)
- Protective equipment or devices (e.g., pads, braces, casts, automated implantable cardioverter defibrillator)

Additional factors may require consideration:

- Risk tolerance

Risk tolerance for both the athlete and team physician is part of the RTS process.

Accuracy of information helps estimate the level of acceptable risk(s) associated with the RTS decision (11).

- Pressure from external sources

Opinions and/or pressure from stakeholders (e.g., parents, coaches, teammates, agents) with competing interests or motivations.

- COI

COI refers to any factor that may compete or interfere with the physician/athlete relationship. COIs are common and should be acknowledged, disclosed, and managed. If not properly managed, COI may interfere with an optimal RTS decision (3).

Psychological readiness. Psychological readiness incorporates the emotional reactions that can accompany an athlete's RTS. These factors include terms defined as competence (e.g., fear of recurrent illness or reinjury, or inability to return to previous levels of activity), relatedness (e.g., feelings of isolation as they attempt to return, loss of social identity), and autonomy (e.g., increased pressures to return before an athlete feels ready) (13,26).

Rules, regulations, and policies. Federal, state, local, and governing body rules, regulations, and policies for RTS criteria and timelines exist, including guidance on protective equipment that may be required or permitted (e.g., eyewear in women's lacrosse, knee braces allowed by the local wrestling governing body, league rules related to participation with upper extremity casts in soccer). Additional resources may be consulted, including administrative staff, other members of the athletic care network, and published regulatory guidelines.

It is essential the team physician:

- Understand the role of evaluation in the RTS process, including condition-specific medical history and physical examination and functional testing.
- Understand the role of psychological readiness in the evaluation of the athlete.
- Document the evaluation of the athlete.
- Recognize severity of illness/injury and its association with risk.
- Consider sport-specific modifiers such as type of sport, position, level of competition, and protective equipment when evaluating risk of RTS.
- Understand the need for specialty consultations, diagnostic imaging and other testing, and the role in determination of severity and risk.

It is desirable the team physician:

- Conduct the evaluation and athlete assessment to inform the RTS decision.
- Coordinate specialty consultations, diagnostic imaging, and other testing that may aid in determination of severity and risk.

ROLE OF TECHNOLOGY/ANALYTICS FOR RTS

Technology is increasingly utilized for activity tracking, sports performance, and load management assessments. Some technologies utilize proprietary information, devices, and analysis (19). Although technology is increasingly used to measure athletic performance, monitor workload, and/or attempt injury risk prediction, its efficacy in RTS decision-making has not been consistently demonstrated.

Limitations. Technologies to measure performance and injury recovery have limitations, including sensitivity, specificity, reliability, and validity of data and analytics (10,18). Many devices exist on the market, but no single device or combination of devices has been shown to be reliable (20).

Data accuracy in wearable sensor technology and predictive modeling for athlete safety and performance is a needed and growing field of study (21). Although there is broad interest in these technologies and devices, more research is needed for many of these to understand their application. Main limitations include (18) the following:

- Limited large-scale, independent, longitudinal data
- The need to place devices at specific anatomical locations
- Movement artifact
- Frequency of data sampling
- Monitoring of a few selected variables (as opposed to a suite of variables)
- Lack of measurement of environmental factors (e.g., temperature, humidity, altitude, and UV radiation)
- Inconsistencies and accuracy in algorithms that collect, analyze, and distribute data
- Variability of data interpretation by interested parties, including athletes, coaches, researchers, and medical personnel

- Inability to transmit data indoors, underwater, and in built-up areas, and interference from other physiological responses (e.g., vasoconstriction and hypovolemia).

Emerging technologies. Artificial intelligence and machine learning research is rapidly increasing in sports medicine, but there are no current peer-reviewed, publicly accessible algorithms to direct RTS decision-making (27).

It is essential the team physician understand:

- Technology is increasingly used to measure athletic performance, monitor workload, and/or attempt injury risk prediction, but efficacy in RTS decision-making has not been consistently demonstrated.

It is desirable the team physician understand:

- Technologies to measure performance and injury recovery have limitations.
- Emerging technologies may have future applications in the RTS process.
- The need to work with the athletic care network and educate the medical staff about the benefits and limitations of technology.

TREATMENT AND REHABILITATION FOR RTS

The purpose of treatment and rehabilitation of injured/ill athletes is to restore overall health and function and optimize RTS. After evaluation, a treatment plan includes medical therapies (e.g., medications, injections, procedures) and function-based rehabilitation. Determination of preillness or injury physical and psychological status, athletic performance, and training norms is important to developing an individualized treatment plan. RTS is a continuum that runs in conjunction with recovery and rehabilitation (1).

Treatment and rehabilitation protocols are developed and monitored so that

- Anatomical, physiological, functional, and psychological components of the injury/illness are addressed.
- Treatment plans are identified, established, and communicated with the athlete and the athletic care network.
- Progress in rehabilitation is assessed and modified as needed.

The RTS decision-making process requires an ongoing assessment of risk tolerance of the athlete and team physician based on the athlete's diagnosis and progress.

Goal setting. Goal setting is part of the process from the beginning of an injury/illness and assessed and modified throughout the course of recovery.

Interval goals in the progression of recovery include attention to the following:

- Anticipated, realistic, and individualized timeline
- Anatomical healing of injury and recovery of illness
- Optimizing physiological function
- Optimizing hydration, nutrition, and energy balance
- Optimizing strength, power, endurance, motor control, and sport-specific skills
- Psychological status (e.g., fear of reinjury, coping, catastrophizing, kinesiophobia)

Monitoring recovery. Rehabilitation/recovery of the injury/illness should begin in a timely manner, should be specific to the short- and long-term needs of the athlete, and may include consultation from specialists. Consider future risk and complications if the injury/illness is not initially recognized, fully treated, or rehabilitated. The team physician should make periodic assessments regarding the athlete's progress in the designed treatment plan and collaborate with the athletic care network to develop a realistic prognosis and timetable for safe and timely RTS.

It is essential the team physician:

- Understand the role of goal setting in the rehabilitation/recovery process.
- Communicate realistic expectations for the time to recovery and RTS after the injury/illness.
- Understand the RTS decision-making process requires an ongoing assessment of risk tolerance of the athlete and physician based on the athlete's diagnosis and progress.
- Understand psychosocial factors influence the RTS treatment plan.

It is desirable the team physician:

- Set goals at the beginning of an RTS process during rehabilitation/recovery with modifications as needed.
- Understand the general and sport-specific anatomical or physiological considerations of the illness or injury, including anticipated time to rehabilitation/recovery, healing, or readiness.
- Be engaged with or monitor the treatment or rehabilitation/recovery program, including participating in goal setting and determining goal attainment, load progression, healing, readiness, and RTS.
- Understand the psychological response to injury/illness in the rehabilitation/recovery process.
- Consider future risk and complications if injury/illness is not initially recognized, fully treated, or rehabilitated/recovered.
- Understand the role of various members of the athletic care network in the treatment and rehabilitation/recovery of the injured/ill athlete.
- Coordinate a rehabilitation/recovery team, including the athletic care network and consultation from specialists as needed.

PSYCHOLOGICAL READINESS

Psychological readiness recognizes the critical contribution of the biopsychosocial model to successful athlete RTS. Baseline mental health status contributes to psychological readiness. The psychological response to injury/illness, including cognitive, behavioral, and emotional responses, are well documented and associated with outcomes (13,28,29). After anterior cruciate ligament (ACL) reconstruction, mental health scores are correlated to RTS (30–32). In contrast to low or high preinjury

adversity groups, injured athletes with moderate preinjury adversity experienced less negative psychological responses (33).

When treating and coordinating care for injured/ill athletes, these factors should be considered (34):

- Building trust and rapport
- Educating the athlete about the injury/illness
- Identifying misinformation about the injury/illness
- Preparing the athlete for the recovery process
- Inclusion of other relevant stakeholders while respecting rules of confidentiality
- Encouraging the use of specific stress coping skills

Evaluation for psychological readiness should be included in RTS decision-making. An athlete who returns to sport when not psychologically ready may be at increased risk for mental health crisis, physical injury, or both (35,36). Monitoring psychological readiness and informing RTS decision-making can be optimized by utilization of mental health and injury-specific screening tools (Table 1), application of first-hand knowledge of the athlete, and adoption of an interdisciplinary, SDM approach (e.g., athletic care network). Factors that can positively influence injury recovery include (13) the following:

- Realistic understanding of injury and recovery goals
- Establishing short- and long-term goals for recovery
- Preinjury stress coping skills
- Positive self-talk
- Relaxation techniques such as meditation, deep breathing exercises, progressive muscle relaxation, massages
- Continued interaction with team, teammates, and friends (social support group)

Athletes with problematic emotional reactions should be referred to licensed mental health professionals. Early intervention/referral to the mental health network is important.

Standardized screening and assessment tools have been developed to evaluate mental health symptoms and disorders in athletes. The International Olympic Committee Sport Mental Health Assessment Tool 1 (SMHAT-1) was developed for sports medicine physicians and other licensed/registered health professionals to assess elite athletes who are potentially at risk for or already experiencing mental health symptoms and disorders (37). In addition, the International Olympic Committee Sport Mental Health Recognition Tool 1 was developed to assist athletes, coaches, and other nonclinical individuals in recognizing mental health symptoms (37). Other condition-specific tools (44) exist in the literature, although robust reliability measures (e.g., sensitivity and specificity in athlete-specific populations) are limited, to help assess psychological readiness and guide RTS decisions.

An athlete who is psychologically ready to play has realistic expectations of performance, high self-efficacy, and low anxiety (26,45–47). High levels of optimism and self-efficacy and lower levels of depression and stress are associated with improved recovery from injury, and tentativeness (due to fear of injury) and lack of confidence (due to fear of incomplete physical recovery) may lead to diminished performance and increased anxiety for repeat injury (29,41,45,48–56). Warning signs characterizing poor adjustment to injuries include (13) the following:

- Unreasonable fear of injury
- Loss of athletic identity
- Continued denial of injury severity and response to recovery
- General impatience and irritability
- Rapid mood swings
- Withdrawal from support network
- Guilt about letting the team down
- Dwelling on minor physical complaints
- Obsession with question of RTS

Athletes experience emotional responses to injury, most of which are transient. Some athletes may experience full physical and mental health recovery and elect not to RTS based on personal reflection and analysis of potential risk for future injury (risk tolerance). In addition, they may return but at a different (usually lower) level of participation or competition. Loss or end of athletic career, at any competitive level, may increase risk for mental health disorders. Athletes with problematic emotional reactions should be referred to licensed mental health professionals, preferably those with experience working with athletes (13).

TABLE 1. Psychological readiness-specific screening tools (examples).

SMHAT (37)	Screening Tool for Mental Health Symptoms and Disorders in Elite Athletes
Athlete psychological strain questionnaire (APSQ)	APSQ; SMHAT Triage tool
General Anxiety Disorder-7 (GAD-7)	Assesses the presence of symptoms of anxiety
Patient Health Questionnaire-9 (PHQ-9)	Assesses the presence of depression
Athlete Sleep Screening Questionnaire (ASSQ)	Assesses the presence of sleep disturbance
Cutting Down, Annoyance by Criticism, Guilty Feeling, and Eye-openers Adapted to Include Drugs (CAGE-AID)	Assesses the presence of substance misuse
Brief Eating Disorder in Athletes Questionnaire (BEDA-Q)	Assesses the presence of disordered eating
Tampa scale-11 for kinesiophobia (38,39)	Measure to assess pain-related fear of movement
Reinjury anxiety inventory (RIAI) (40)	Instrument to measure reinjury anxiety
Injury—psychological readiness to RTS questionnaire (i-PRRS) (41)	Psychometric test to specifically assess psychological readiness of injured athletes to RTS participation
Fear avoidance beliefs questionnaire (FABQ) (42)	Assesses fear avoidance beliefs about physical activity and how it contributes to low back pain and disability
ACL—RTS after injury inventory (ACL-RSI) (43)	Psychological readiness measurement tool after anterior cruciate ligament reconstruction (ACLR)

It is essential the team physician understand:

- Psychological factors are important determinants of RTS.
- The psychological response to injury and psychological readiness are associated with RTS.
- Several screening and assessment tools exist that evaluate psychological readiness of injured athletes to RTS.
- Psychological readiness is a component of the ongoing assessment of risk tolerance.
- Referral to licensed mental health professionals should be considered for athletes with problematic emotional reactions.

It is desirable the team physician:

- Evaluate psychological factors as an important determinant of RTS.
- Integrate sports psychologists and other mental health professionals into the athletic care network.
- Incorporate screening and assessment tools into the RTS decision-making process.
- Complete psychological screening to assess the need for intervention
- Understand the loss or end of athletic career, at any competitive level, may increase risk for mental health disorders
- Coordinate referrals for mental health services as needed
- Coordinate the athletic care network to monitor the psychological readiness of athletes who are preparing to/have RTS.

RETURNING AN INJURED OR ILL ATHLETE TO PLAY

The decision for safe and timely return of an injured/ill athlete to practice or competition is a complex process with challenges, including the level of existing and evolving science and lack of consensus (3,11,57). Recent consensus statements have identified the RTS decision as a process that includes evaluation, risk assessment, and SDM (1,3,9,11,15).

It is important for the physician to recognize RTS represents a continuum: return to participation, RTS, and return to performance (1). Recognition of these elements emphasizes a graded, outcome-based progression that can be applied for any sport, athlete, or condition (15,58–61) The RTS decision is ongoing, is context dependent, and may change over time. The team physician has the central role in not only protecting the athlete's health, but also protecting the athlete from coercion to participate.

RTS involves assessing and monitoring the physical and psychological status of the individual, may involve input from multiple sources, and is an SDM process. The team physician considers these factors in addition to risk assessment to lead the RTS decision.

Certain situations may preclude the use of SDM, with the team physician making the final RTS decision (e.g., cervical spine injury, traumatic brain injury, unstable mental health condition, high-risk cardiac condition).

Assessment, reassessment, and goal review should be frequent and context dependent. It is important to continue to monitor competing interests, risk tolerance models, and medicolegal issues.

Potential risk factors should be discussed in an SDM framework to identify those most relevant to the injury/illness and which mitigation strategies are warranted (6,62). Premature RTS can result in athlete reinjury and long-term debilitating outcomes. Delayed RTS can have consequences, including psychological distress, declines in fitness, and postinjury athlete and team performance (12). For example, one study found a 28% injury risk reduction for every additional month before return to training after ACL reconstruction in professional soccer players (62). When considering risk of reinjury, additional time may be important to RTS success.

There should be a process in place to resolve disagreements among stakeholders regarding the RTS decision, and the ability to modify RTS if necessary.

It is essential the team physician:

- Understand the RTS decision is a dynamic process that includes evaluation, risk assessment/reassessment, and SDM.
- Recognize the RTS decision is ongoing, is context dependent, and may change over time.
- Understand that RTS represents a continuum: return to participation, RTS, and return to performance.
- Understand certain situations may preclude the use of SDM, with the team physician making the final RTS decision.
- Understand the need for a process to resolve disagreements among stakeholders regarding the RTS decision.

It is desirable the team physician:

- Understand risk mitigation strategies.
- Develop a process to resolve disagreements among stakeholders regarding the RTS decision, and the ability to modify RTS if necessary.
- Assess and monitor the physical and psychological status of the athlete.
- Understand RTS may involve input from multiple sources.
- Monitor conflicts of interest, risk tolerance models, and medicolegal issues as the athlete is preparing for return to full activity.

Limitations. The objective of this consensus statement is to provide physicians who are responsible for the health care of teams with a decision process for determining when to return an injured or ill athlete to practice or competition. This statement is not intended as a standard of care and should not be interpreted as such. This statement is only a guide, and as such is of a general nature consistent with the reasonable and objective practice of the health care professional. Individual decisions regarding the return of an injured or ill athlete to play will depend on the specific facts and circumstances presented to the physician. Adequate insurance should be in place to help protect the athlete, the sponsoring organization, and the physician. This statement was developed by the

collaborative effort of six major professional associations: American Academy of Family Physicians, American Academy of Orthopedic Surgeons, American College of Sports Medicine, American Medical Society for Sports Medicine, American Orthopedic Society for Sports Medicine, and the American Osteopathic Academy of Sports Medicine.

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