Injury Prevention.

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ABSTRACT

This article explores injury prevention, how injuries occur, what preventative actions can be taken, and what coaches should promote with each tennis player’s career. At the top level the season is demanding and virtually non-stop, thereby requiring a combination of thoughtful periodization and recovery. Being injury free means that a player is more likely to achieve his or her true potential – on and off the court.

INTRODUCTION

Playing competitive tennis means that the “mind-body,” which is the physical, emotional, mental and spiritual self, must be progressively developed in order to compete to the best of one’s ability. The tennis player never achieves a final level of development. Each time you learn a new stroke, a new technique, or a new lesson of what it means to win or lose, you can become ready to use this new foundation as a springboard to develop even further. However, injuries impede this process, and for too many players, failure to address injuries leads to a plateau or even a decline in the developmental process. Injuries are not simply physical sprains and strains, but occur across the spectrum of the mind-body.

To improve in competitive tennis means that you must train properly to improve. Training does not simply mean hitting more balls or spending more time on a court. Indeed, too much court time can lead to overuse injuries and burnout. Overuse injuries are physical injuries that result from an improper balance of what is demanded from the body versus what the body is able to withstand. Burnout is the psychological, emotional and spiritual equivalent of an overuse injury, and is accompanied by physical lethargy and withdrawal. The first principle of injury prevention is to understand that you must have a proper balance, which means you must have a schedule that serves your needs.

PERIODIZATION

Periodization is an organized approach to training that involves progressive cycles of on-court training, off-court training and recovery during a specified time period. Periodization is the underpinning of injury prevention, and should be the driving force of your short-term and long-term training and competitive goals. Without periodization, players simply train and compete without proper awareness of the needs of the mind-body.

A good periodization schedule maps out your needs and goals on a daily, weekly, monthly, and seasonal basis. The schedule may need to be adapted based on how you are feeling or performing. The schedule is essential, but should not drive your training and recovery in a rigid manner; rather, the schedule should be set with an agreement between you and your coach, with the understanding that it may need to be adapted from time to time. In any periodization schedule, there are short-term and long-term goals. One of the best examples of a long-term goal is a Little League pitcher in baseball, whose throw is similar biomechanically to the tennis serve. Young pitchers are not allowed to throw over a specified number of times in a game, in a week, and in a season. In essence, the essential question is: “Do you want to be the best 12 year-old pitcher or the best 18 year-old pitcher?” Tennis players need similar short-term and long-term schedules and limits to answer a similar question.

OFF-COURT TRAINING

Off-court training is essential to injury prevention. Plyometric training is designed to produce fast, powerful movements that improve the function of the entire mind-body. To perform plyometric exercises properly, you must learn to focus on your ability to move in an explosive, powerful manner, which is the essence of tennis play. To support plyometric type exercises, off-court exercises must also focus on strength, agility, balance and flexibility. Explosive tennis power is generated from the legs, and moves in a kinetic-chain manner through the trunk to the upper body, shoulders, and finally the arms and wrists. A breakdown in any part of the kinetic chain leads to an overcompensation elsewhere, which leads to overuse injuries.
It is important to understand the kinetic chain principle in tennis. For example, a shoulder injury may actually result from improper leg movement secondary to poor leg strength and balance. Without the push-off from the legs, it is not possible to generate full shoulder movement and strength. Young tennis players very often have poor strength and agility in the ankles, the knees, the core abdominal and back muscles, and the scapular stabilizing muscles of the shoulder. Such diminished strength and agility impedes proper stroke execution and makes you more vulnerable to injury. However, to train properly on these important aspects of strength and agility requires patience, will power, focus, and the desire to improve slowly and progressively over time. It is often much easier to hit 1000 cross-court forehands than to spend one hour on carefully applied plyometric exercises with appropriate strength, agility and flexibility training. Proper off-court training requires a long-term sense of purpose in your life.

ON-COURT TRAINING

The most essential element of on-court training is mindfulness. Each time you step onto a court, know why you are there and what you want to achieve. You should be able to check in with yourself and know that you want to train on the court with a specific purpose in mind. Simply hitting and playing sets without a purpose impedes proper development of the mind-body, and leads to overuse injuries. Be certain that the on-court training is part of your short-term and long-term periodization schedule.

RECOVERY

Recovery is as important as on-court and off-court training. Failure to address recovery is a leading cause of underperformance and overuse injuries. Recovery must be multi-dimensional, addressing the entire mind-body. As with on-court and off-court training, recovery should address short-term and long-term goals. Short-term recovery is critical in addressing your daily needs. Indeed, the first 45 minutes following on-court or off-court training (or competitive play) determine the efficiency of how the body will regain essential glycogen and protein stores—which are critical to refueling and rebuilding the muscle—plus regaining proper hydration balance, which enables proper physiological balance. Players should replace lost fluid with about 20 ounces of a sport drink for every pound lost during the training/competition session. Immediate nutrition should include at least 30-60 grams carbohydrate and at least 10 grams protein within 45 minutes of completion of a training/competition session.

Following each training/competition session, the body needs to warm down with a slow walking or cycling session, followed by proper stretching. During this time, you should check in with your goals and assess how you performed during training/competition. Come to terms with your anger, fear or elation. Understand your tactical errors or lack of mindfulness. Place your training or competition in a bigger context in terms of your purpose in playing tennis. Failure to address your mind-body in recovery means that you become under-fueled physically, emotionally, mentally or spiritually, and this leads to underperformance, overuse injury and burnout.

Recovery is not simply daily or weekly, but should also include time off from the sport. Most sport scientists recommend 3 months of time away from your sport each year. The 3 months do not need to be consecutive, and can be taken in intervals such as 3 intervals of 1 month away from tennis. It is noteworthy that the WTA Tour has recently applied this recovery model into their yearly schedule.

LISTENING TO YOUR MIND-BODY

It is critical to develop a daily habit of checking in with your mind-body. At a physical level, never ignore pain, as this may be the first sign of an overuse injury. Be certain that a physician or certified athletic trainer evaluates new pain and addresses the issue comprehensively. If new pain is the result of an overuse injury, then something is out of balance and must be addressed. It is not enough to simply rest until the pain abates. Just as importantly, check in with your emotional, mental and spiritual self. Learn to journal, which is a great way to come to terms with where you are in your path of becoming a tennis champion.
CONCLUSIONS

Injury prevention is best accomplished by addressing the short-term and long-term needs of your mind-body in a periodization schedule that meaningfully addresses on-court training, off-court training and proper recovery.