

THERE ARE TWO TYPES OF INJURIES:

1) Repetitive Stress Injury = overtraining and overuse

2) Traumatic Injury = concussions, lacerations, fractures, strains, sprains, and tears. Traumatic injuries, while “accidents,” may arise from fatigue/weakness brought on by the same causes as overuse injuries.



WARNING SIGNS OF OVERTRAINING

- Fatigue – lack of motivational focus, irritability
- Drop in performance quality even with increases in training/higher intensity
- Frequent illnesses
- Changes in normal heart rate response

RECOVERY STRATEGY

- Rest and daily therapy – massage, cold plunge/ice bath, acupuncture
- Recovery NUTRITION – staying calorically balanced throughout the day
- Getting enough rest and recovery time

PREVENTION – PROACTIVE ACTIONS

- Planning: getting a PPE, using an experienced off-ice trainer, and performance dietitian
- COMMUNICATION between your coach and all medical/training staff
- Periodization of on-ice and off-ice training throughout season
- Warm-up/dynamic stretching before workout
- Cool-down/static stretching after workout
- Proper nutrition/hydration for performance and recovery
- Stay ahead of equipment issues

TREATMENT

SELF-TREATMENT OPTIONS

VS.

SEEK MEDICAL ATTENTION FOR INJURY IF...

- REST
- Work with professional staff – coach, trainer and/or PT – to structure your practices and balance training load
- Supportive treatment (massage, acupuncture, foam rolling etc.)
- Address equipment issues (irritating spots in boot, boots too stiff, broken down, etc.)

- Pain is severe and limiting daily activities
- Pain increases over time (hours or days)
- Pain lasts for more than 7-10 days without improving
- Pain affects normal sleep
- Pain is sharp and localized
- There is numbness or weakness
- Bowel or bladder dysfunction

STRATEGIES FOR TRAINING YOUR BODY TO BE INJURY RESISTANT

EXERCISE	FREQUENCY OF PRACTICE
• Foot/ankle warm-up and mobility	Incorporate into your warm-up
• Theraband exercises for ankle prehab/rehab	No injury: 2-3x/week as warm-down; With injury: as directed
• Back and abdominal stability and strengthening	Part of a 3-5x/week core routine, typically end of workout
• Yamuna ball protocol for foot and anterior tibia recovery and proprioception	2-5x/week as desired by coach/trainer, typically end of workout
• Foam roller	Part of recovery routine 3-5x/week, typically after workout

WHERE TO GET MORE INFORMATION:

DOWNLOADABLE EXERCISE GUIDE AND INJURY PREVENTION GUIDE: WWW.STARSCOMBINE.ORG – SHARE WITH YOUR COACH/TRAINER
CONTACT U.S. FIGURE SKATING SPORTS SCIENCE AND MEDICINE – PETER ZAPALO: PZAPALO@USFIGURESKATING.ORG

OVERUSE INJURIES IN FIGURE SKATING

by DR. JEN BURKE BASED ON THE WORK OF DR. MAHLON BRADLEY, foreword by DR. KAT ARBOUR

Training for skating or any sport, even when done safely and appropriately, can potentially lead to overuse injuries. This is because training causes tiny injuries, called microtraumas, to the tendons, bones or joint structures. Recovery and good nutrition allow the body to naturally repair these microtraumas, and the body actually heals stronger than before.

To train as safely as possible, both on- and off-ice training should be tailored appropriately for your age, skating discipline and level. Because there is limited data available regarding overuse injuries and training certain elements repeatedly, specific recommendations are not available at this time as far as how many reps are “too many.” However, your coach may want to consider monitoring the number of repetitions per day on skills that could put your body at risk for injury, especially those skills requiring overstretched body positions or repeated impact. This



would include Biellmann positions, spread eagles, twisted or bent positions, and an excessive number of jumps or falls.

An overuse injury starts out as a nagging ache that gradually worsens over time. If an athlete is developing an overuse injury, it is implied that the microtraumas are ac-

cumulating more quickly than the body can recover between training sessions. If this is happening, your training routine could be either *too difficult* for your current level of conditioning (for example, this could be related to strength or flexibility), or the skills you are attempting could be within your ability to perform, but you are practicing them *too often* without allowing for the recovery needed between training sessions.

Listening to your body is the key! Many overuse injuries can be nipped in the bud by taking time to recover and/or by making slight modifications to the skill causing you pain or injury.

An acute injury, such as getting cut by a blade, breaking a bone, spraining a ligament or pulling a muscle, occurs when the loads applied to your body in one instance exceed what the tissues can handle. There is little to do in the way of training to avoid these unfortunate accidents.

Here are Dr. Bradley’s “Top 10” points on avoiding overuse injuries in skating:

At the recent 2012 Professional Skaters Association Conference in Boston, Mass., orthopedic surgeon Mahlon Bradley presented information to the assembly discussing some of the most commonly seen impact-related skating injuries. The majority of injuries in figure skating are overuse injuries. If they are diagnosed and managed early, training is less likely to be significantly disrupted and recovery is faster.

1) Overtraining is common in figure skating. Be aware of what you are doing off the ice and factor that into your training (e.g., participating in other sports, not getting enough sleep, etc. can all contribute to overtraining). Recovery is essential to avoid overtraining.

2) Don’t forget about recovery nutrition as well: healthy food choices and appropriate timing of snacks and meals are important. Making sure you get enough sleep (seven to nine hours per night) is important. Think of recovery as part of training. Remember that recovery includes both emotional and physical aspects.

3) When an athlete seems to be developing a chronic injury, open and honest communication between coaches, athletes and parents is necessary to identify injuries early and to implement training changes. Communication can help prevent more severe or lingering injuries.

4) Young athletes, particularly those who are going through a growth spurt, are at much higher risk of injury. Bones grow more quickly than tendons (which attach the muscles to bone) can stretch. The growth plates are at the end of bones and are particularly vulnerable to stress fracture. During and just after a growth spurt, athletes are often less flexible, more fatigued and can appear as if

they are struggling through their elements. Patience is important during this time, as is decreasing or modifying training, to decrease impact across joints.

5) Choosing the appropriate boot and blade is critical to helping prevent injury. Inappropriately stiff boots may lead to ankle instability and poor proprioception. Proprioception encompasses both the positional awareness of where the body is in space and the unconscious sense of where the body is in relation to itself. Proprioception can be increased by including pattern/agility exercises, ankle strengthening exercises and balance exercises in the athlete’s off-ice training program. Specific information on how to train these skills can be found at www.STARScombine.org — see the downloadable injury prevention guide.

6) Stress fractures initially present with an ache in the bone that resolves after training but recurs during the next session, often felt earlier in the session. Even with a few days off, the ache will recur. With continued training, without modification, the ache increases and persists throughout the day. These injuries often occur three to six weeks after increasing the training load. If a stress fracture is not diagnosed and the athlete’s training not modified, a more significant fracture can occur.

7) Tendonitis initially presents with soreness in the area of the tendon. These injuries can present with a progressive ache or with an acute pain. They often happen after an increase in training load, and are because of asymmetry of muscle strength or relative weakness. Hip or groin tendonitis should be evaluated sooner, rather than later, and physical therapy is typically necessary.

8) Vitamin D is crucial to maintaining bone health and recovery. Athletes should be tested annually to ensure their Vitamin D levels are within the best-practice range of 50 to 80.

9) Based on tibial shock data (the forces in your ankle when you land a jump), the impact forces experienced in a jump are the same for a skater whether it is a single, double or triple jump. The impact forces related to a popped jump have been measured to be higher than that of a correctly executed jump.

10) Be proactive in the management of your athlete’s injuries. If possible, talk to the physician or physical therapist. Be sure the physician/PT knows what the athlete is doing in training (particularly when working on new elements), upcoming events, and your thoughts about how the injury may have occurred. Invite the physician/PT to watch a training session or bring a video to the appointment. Ask questions!