Prevention is Key: 5 Ways to Prevent Hip Related Injuries In Hockey

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"First seek to understand, than seek to be understood." I must say before I go deeper into this article that these beliefs are a culmination of industry professionals that I admire and respect a great deal. I have learned more from Michael Boyle, both in the practical sense and through his experience than any other person in the field today. Through further readings of McGill, Sahrmann and Kendall these beliefs have been solidified. More importantly, through my own experience training hockey players, the results have been the most impressive of all.

Before we begin, lets explore the hip anatomically. There are 7 muscles that flex the hip: the TFL, rectus femoris, sartorious, adductor brevis (weak flexor/adductor), pectineus (weak flexor/adductor), illiacus and the psoas. Of these 7 muscles, only two are capable of flexing the hip past 90 degrees, the psoas (with origin from T12 through the entire lumbar spine), and the illiacus (posterior of the ilium). If these muscles are not firing correctly synergistic dominance will occur and a hip related injury is just around the corner. Other muscles are jumping in trying to help out, performing the job of both the psoas and the illiacus. Eventually, fatigue sets in and the injury cycle begins. Also of extreme importance are the adductor brevis and the pectineus. Although these muscles don't flex the hip past ninety degrees (they have origins on the pelvis), they are critical in the quest of preventing hip related injuries for hockey players. OK! Enough anatomy lets KISS (Keep It Simple Stupid!). After all of the readings, lectures, practical experience and notes: here are 5 ways to prevent hip injuries in the sport of ice hockey.

1. **MORE IS NOT ALWAYS BETTER:** Ok! I know! What does this have to do with strength and conditioning? Well, in my mind, it has everything to do with it. Our current thought process from mite-pro is "play more hockey." Weather it's scheduling more games, practices, summer hockey or skating treadmill sessions (I will get to this later), this needs to stop. Most players spend too little time on athletic development, and far too much time playing and practicing. As Michael Boyle says "the road to Division 1 college hockey goes through the weight room." Too much hockey leads to overuse and a predictable injury pattern. If you look at the biomechanics of the skating stride (hip flexion/open chain adduction in the recovery phase) it is clear to see where this overuse is originating. It is our job to educate head coaches, athletes and parents on the need to focus on athletic development. MORE IS NOT ALWAYS BETTER!

2. **Technical Proficiency:** If it's not done perfect, it's not worth doing at all. I know this sounds cliché, but it's amazing to see so many athletes squatting well above parallel, failing to perform activation exercises correctly, or simply performing the exercise with sub-par form. If it's not done perfect, either reduce the weight, or focus on an easier progression. Simple as that!

We as coaches need to explain this to our athletes and physically show them what we mean by technical proficiency with each and every lift.

3. **Proper Warm-UP:** It is imperative to follow a logical, warm-up progression. This focuses on 1.) Soft tissue manipulation, 2.) Static stretching and, 3.) A Dynamic element. This order should not be tampered with.

   Foam rolling is of extreme importance in decreasing density while promoting blood flow to the working muscle. All of our athletes pack a lacrosse ball in their hockey bags to perform these rolls. We roll hip extensors, external rotators, and adductors (we use a foam roll for this) before we progress to static stretching. It is important to note that we also roll after training, practices and games. Recovery is vital. If we have restricted blood flow in the muscle, how is it able to get the nutrients it so desperately needs? Furthermore this density can lead to strains and sprains associated with play.

   Static Stretching is performed after our soft tissue rolling. Again, the focus is on hockey specific musculature such as the quads (rectus femoris), piriformis, hamstrings and hip flexors. Immediately afterwards we add a dynamic element focusing on movement specific patters such as deep squat (Cook's squat movement pattern), lateral squats, and lunges all while warming up the central nervous system in preparation for the demands of the game. These movements focus on full range of motion. In particular to hip injuries, the lateral squat is an excellent exercise in working both the hip flexors and adductors in an eccentric closed chain fashion.

4. **Activation:** If there is one thing that has changed the way I prepare my athletes, it's activation. If the brain is not communicating with the muscle efficiently, how is it supposed to fire properly in the weight room, let alone a sport like hockey, which is organized chaos? If these neural pathways are blocked, our body will take the detour, which is the path of least resistance. Think for a second, the number one issue I see on a daily basis with hockey players is impaired hip flexion (most are TFL dominant): something is not firing properly, a detour is being taken. I can assure you that in due time this detour will lead to a closed road called injury lane. Activation is key to opening these roads and creating efficient pathways for movement. The key to activation is progression. For the psaos and illiacus this progression starts with floor based, supine exercise protocol. As the movement/activation is mastered, the second phase of activation occurs. We simply add joints into the mix and perform the exercise in a seated position. Finally we can fire the muscle standing up.

5. **Off-Season Training:**

- **Get off the bike:** If your off-season anaerobic training revolves around the bike, GET OFF! The bike is not a bad option during the season, for the same reason that it's a bad idea in the off-season. It offers PASSIVE hip flexion and incomplete hip extension. In short it does not prepare the hip musculature for the demands of the game. If these muscles are not conditioned properly during the off-season than injury is eminent. Many players won't be able to make it through training camp if their entire summer is spent crouched over on a bike.
- **Avoid the skating treadmill:** Gimmick marketing at it's best. Again more is not always better. We are essentially taking a dysfunction and reinforcing it when we are on this apparatus. Coupled with the fact that the skating treadmill does not allow us to produce ground reaction force because in this case, the ground/ice is always moving.
- **Squat to parallel:** This goes along with technical proficiency. Failure to squat to parallel (12" box) can cause tight, over dominate quadriceps, tight hip flexors (all of those except the psoas and illiacus) all while ignoring the importance of the gluteus maximus, hamstrings and the adductor muscle groups. Restoring proper hip flexor motor pattern, while taxing the hip adductors are a two for one bonus of squatting to parallel. So get your butt down and go to work.
- **Run Fast (tempo, shuttle):** Hip flexion/extension is the result of running, and running fast. This may be the key to off-season training. Focus on tempo running (linear) and shuttle running (change of direction) during the off-season. This allows for true anaerobic conditioning for the game of hockey while, most importantly taxing the bodies musculoskeletal system. Do not run north/south all off-season. The game of hockey involves acceleration, deceleration, and change of direction. We need to train for these demands.
- **Slideboard:** In my opinion, the BEST bang for your buck piece of equipment you can invest in. This taxes the hip like no other piece available. Unlike the recovery leg in hockey (open chain/one leg off the ground), the slide board taxes the hip flexors/adductors, eccentrically (lengthened) in a closed chain manner (foot on the ground). This serves to cement proper function of the adductor brevis, and the pectineus, while simultaneously activating/strengthening the other hip flexors. Each and every summer, when my players finish their first slide board workout, invariably, the next day their hip flexors/adductors are extremely sore. These muscles are many times are overstretched (stretch weakness) and under worked by hockey players. The slide board exploits this weakness and forces the athlete to strengthen during each and every stride.

There you have it, this information has been recycled by myself from the best in the business and used in practice for all the teams that I currently train. I have had great success in avoiding hip related injuries during the coarse of the last five

hockey seasons (over 500 athletes trained). As coach Boyle always says, "The secret is that there is no secret." Our jobs as strength and conditioning coaches is to reduce the likelihood of performance related injury, while building stronger, bigger and faster athletes. In short, these five keys have kept me from turning down injury lane.

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