HOCKEY SPECIFIC STRENGTH AND CONDITIONING

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Fall is upon us and most hockey players are working on their pre-season strength and conditioning programs to help them report to camp as fast, strong and powerful as possible. As hockey has grown more popular, so have strength and conditioning specific programs. The purpose of this article is to present an overview of our pre-season training program for high school athletes.

Hockey is an interesting sport to train due to its high energy system needs, as well as high muscular demands. Hockey is a game of speed and power and should be trained according to its specific demands. When you look at the playing intervals of hockey players, you find that most athletes experience a three times rest to one part work ratio. So having said this, it's important to think about developing the ability to play hockey, not the theoretical model of conditioning.

The Process

When we sit down to develop our pre-season program, we take into account the possibility that we will have athletes come through our program that have little, if no experience with strength and conditioning. We follow a yearly three-step process to determine how our strength and conditioning program can be more specific to the needs of our hockey team.

1. Assessment: Every sports-conditioning and training program begins with testing and evaluation of each athlete participating in the program. By learning athlete's strength and weaknesses, it is much easier to direct their training and achieve maximum results

2. Design: Once we have assessed an individual or team, a program can be designed to accomplish the necessary needs of the athletes. Drills and exercises must be combined systematically to improve the strength, conditioning, speed and agility necessary to play at a championship level.

3. Implementation: These exercises and drills must be organized into a plan on a yearly, monthly, weekly, and daily basis to prepare players as they go into the season. The year is divided into four phases, in a building block procedure. Each phase has conditioning objectives that lay the foundation for the next more intense phase.

Before the Puck Drops

When designing our program, we look to emphasize three key components: interval training, torso strength, and lower body power.

Not long ago, most of the conditioning done for hockey, relied on circuit training, and high aerobic threshold as the staple of off-season training. We have tweaked this model based on our own style of play and the evolution of hockey, as a game of short bursts, fast pace, intense, collision sport. In the words of Wayne Gretsky, "For a better conditioned athlete there is less chance of injury, and conditioning promotes career longevity. The player also becomes mentally stronger, after enduring the intense efforts required for conditioning..."

INTERVAL TRAINING

Interval training can be defined as repetitions of high-speed/intensity followed by short periods of low level activity or rest. In regards to hockey, on average players perform for 15-20 minutes of a 60-minute game. A typical interval on the rink lasts 30-80 seconds with a 4-5 minute rest interval between shifts. These shifts tend to be anaerobic in nature with short, intense bouts of high speed skating and aggressive body contact, demanding a high level of anaerobic endurance and muscle strength.

Our conditioning program incorporates similar work to rest ratios as the game of hockey. To get our players in top shape for the season, we use slide-boards, runs and on-ice skating. We try to incorporate movements and drills that allow for hip extension / flexion and involvement of the abductor and adductor muscles. If athletes perform steady state aerobic activity on a bike or stairclimber, we tend to see more strained groin muscles as we begin to skate. We have a policy of only one steady state workout per week during the summer (30 to 45 minutes), none during pre-season. We might also incorporate a steady state session, if we have athletes that are overweight or need to burn calories without taxing other systems.

TORSO STRENGTH

The torso can also be classified as the abdominals or the core. We like to include the neck and traps as part of our torso training component. We perform this component after our warm-up, prior to strength training, with all our athletes twice per week during the pre-season. The torso training component is divided into a three step continuum:

Stabilization: The primary action of the muscles of the trunk is to stabilize. We perform all the stabilization exercises on the floor. These exercises are body weight and would include: sit-ups, reverse crunch, hip crossovers, side crunches, opposite arm/legs, superman holds, front bridges, etc.

Strength: The strengthening exercises for the torso are developed with medicine balls. We utilize 2-5k med balls to provide resistance while performing our exercises. Our routine incorporates drills on their backs, sitting or kneeling. Example exercises include: reverse crunch, reach and grab, seated half-twist, tic-tac-toe, seated full-twist and kneeling half-twist.

Power: Our power component involves rotation exercises, standing, twisting and diagonal movements. The majority of these exercises will be performed in a standing position with the athlete, horizontal or perpendicular to a wall. We also incorporate medicine ball explosive movements for time or distance.

LOWER BODY POWER

We consider lower body strength, speed and power, one of our most important components, when developing the complete hockey player. It is no secret, that for a hockey player to be successful on the ice, he must develop an overall strong base and increase his lower body strength.

When designing your strength and power program consider these three components:

Balance: Utilize single-leg squat variations to develop the proper balance and stability required to increase proprioceptive demands. We emphasize single-leg activities to involve the pelvic muscles and stimulate proper balance between opposite limbs. Single leg activities may include: step-ups, single-leg squats, walking lunges, slide-board backward lunges, slide-board lateral lunges and slide-board leg curls

Strength: In order to work within time constraints, our athletes perform three 75-minute workouts each week. These workouts consist of dynamics, torso, strength, conditioning, and agility routines. At this point in the calendar, strength development takes a back seat to mobility, speed and conditioning. We utilize compound movements (e.g., squat, front squat, leg press, and dead-lifts) first within our workouts. Inserted between each set of a compound movement is an upper-body movement. We call this a bi-plex, and it allows us to group exercises together for a more efficient use of our time.

Explosive Power: Lower body power is best developed by using a comprehensive plyometrics program. Plyometric training has been shown to be one of the most effective methods of improving explosive power, but must progress gradually from lower intensity (e.g., jump rope, squat jumps and box jumps) to higher intensity drills (e.g., bounding, lateral hurdle hops and tuck jumps.) We normally perform 1-2 sessions per week with 48 to 72 hours between sessions. We don't recommend that you schedule your plyometrics session for the day after a heavy lifting session, due to muscle soreness. As a safety precaution, the landing surface must possess adequate schok absorbing qualities. Good choices include grass, a suspended floor and or exercise mats.

CONCLUSION

Hockey has become more popular in recent years and so have sport-specific conditioning programs. Due to its high energy and muscular demands, it's extremely important to develop comprehensive programs that take into account the specific parameters that make hockey players strong, durable and fast.

The assessment process will allow you to determine strength and weaknesses. Only once you have determined what your specific team needs will be, can you truly implement a team specific program. Design drills and exercises that are combined systematically to improve strength, speed and agility to play at a championship level. Have a plan that has conditioning objectives that lay the foundation for the next more intense phase. Your workouts should not be long and time consuming. Create a practical approach that maximizes the athletes time in the weight-room with their on-ice conditioning.