



Athletes who aren't naturally agile

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Of all the athletes I've worked with over the years, one of my biggest challenges came from a group of ice hockey defensemen. At first, they looked like a strength and conditioning coach's dream team. They were big and strong. They were aggressive. They skated fast and checked hard.

But as preseason training camp progressed, it became clear that many of our smaller forwards could outmaneuver them and easily beat them in one-on-one situations. Agility and first-step quickness were not in their repertoire.

The coaching philosophy of ice hockey revolves around getting to the puck first and winning every one-on-one challenge to control the play. Therefore, my job was to address these skaters' mobility issues—to turn these players into agile athletes who could use their strength and size as assets instead of liabilities.

On paper, that didn't sound too hard to the sport coaches. But, as any strength coach knows, it is. Improving athletes' agility may be the most elusive goal for any coach to achieve. Working with athletes who are unagile from the start makes the task even harder.

No Easy Task

In every sport, on every team, there are players who simply cannot move or react to fast-changing situations during competition as well as other players. There are many reasons. Sometimes, it's the bulky football lineman who is overweight for his position. Other times, it's the tall and clumsy basketball player who has not fully grown into his or her body. But, in most cases, there are multiple factors that contribute to an athlete's inability to be agile on the court, rink, or field.

These factors may include a lack of strength, power, sport-specific skill, balance, or flexibility; the ratio of slow-twitch to fast-twitch muscle fibers; muscle balance; the ability to read and react to competitive situations; excess bodyweight; or the level of proprioceptive ability. In other words, there are no simple solutions to solving the unagile athlete problem.

Making the task even harder is that there is no consensus on the best way to improve agility. Last year, when the National Strength and Conditioning Association asked its Research Committee to issue a position paper on speed and agility, it found that the available information on the topic did not provide a basis for a position statement. While many different forums have been held to discuss training methodology, which program works and why is difficult to scientifically validate.

Therefore, strength and conditioning coaches faced with training unagile athletes must start each program from scratch. They must take into account the particular athletes, the sport, and the resources available.

To start, coaches should understand the basics of agility. It is defined as the ability to change direction of the body or body parts rapidly and under control. The process begins with the central nervous system (CNS) as it receives commands from the brain to perform a certain action and then decides which muscles it needs to use, and in which order. As it receives feedback from the muscle fibers on details such as muscle length, tension, pressure, speed, direction, and rate of change, the CNS matches up the original commands with the feedback and makes adjustments to the movement as necessary. Each time you train agility, it reinforces the motor pathways of the action, making it easier to repeat the next time.

Traditional types of training focus on the obvious forms of agility seen in competition, such as accelerating, decelerating, changing direction, or stopping. But agility should also encompass all kinds of movements that may be seen during the sport, like falling down and getting back up, jumping over objects, hitting and taking a hit while staying in balance, ducking, or reading the play to anticipate movements.

I have found that the most successful programs include two components. The first is thoroughly testing each athlete to better understand his or her deficiencies. The second is making the entire program very sport-specific.

Testing

The first step in solving the problem of poor agility is objective and repeatable testing. The goal is to determine which athletes may need more work than others and where their deficiencies lie. The testing guidelines should be designed by the entire coaching staff with three criteria in mind.

The first criterion is that the testing drills mimic the movements and conditions faced in competition. By focusing on sport actions instead of general agility drills, the testing becomes much more sport-specific and the carryover effect for athletes is usually higher.

The second criterion is that the drills allow coaches to objectively measure the movements. This is the only way to know precisely where problems are arising and whether improvement is occurring as a program is implemented.

The third criterion is that the drills should reveal any potential weaknesses in specific areas, such as skill, agility, power, proprioception, muscle balance, flexibility, speed, and strength. By zeroing in on specific areas, a plan can be developed to address those areas most in need of help.

For example, with my ice hockey team, I set up a series of drills that were sport-specific and measurable, and tested different movements. The drills included:

- Timed skating around a short obstacle course of pylons forward and backward, with and without the puck.
- Timed skating from one part of the ice to another, such as from the front of the net to the boards and back.
- Two-player drills with and without the puck to see how players battle for the puck, balance, and coordinate movements, and what result occurs from each drill.
- Passing the puck, then movement to a target for a return pass, and then a shot on goal.

If videotaping is possible, it is great to record the tests. Then, instead of evaluating just by times and your first impressions, you can carefully review the tapes to better spot deficiencies in athletes.

If an athlete, for example, completed the obstacle course in 10.5 seconds when turning to the left and in 13.2 seconds when turning to the right, we knew there was some problem with his left-side agility. Looking at the video, we would compare the triple extension of the ankle, knee, and hip, as well as the angle of the trunk, from the athlete's right and left sides. I would also compare his movements to those of more agile skaters on the team to examine what the differences were.

Planning the Program

Through the testing you should learn exactly which areas of agility your athletes need the most work in. From there, you can implement a periodized program, starting with basic exercises and leading up to more sport-specific drills. The following is a collection of training suggestions to help you design your program.

Improve pure power in the legs and torso with quick movements such as the snatch, clean and jerk, swings, squat pulls, and plyometrics. Make sure to use the one-arm variations of these movements using kettlebells or dumbbells to promote muscle balance and unilateral strength and stability. Vary the landings for these lifts (such as the split style landing or sumo type landing) so that you teach the feet to move quickly. The more power the athlete is able to generate, the better the agility will be during competition.

Improve general body balance, muscle coordination, and stabilizing ability in the core and lower body so there is a stable platform to develop and improve agility. The old saying "you can't shoot a cannon from a canoe," is the idea behind this principle.

Improve the fundamental skill level of the athlete by breaking down skills into the basics and teaching athletes to be proficient at a slow speed before adding more complex drills or increasing the speed of the drills. By eliminating technical flaws in the basic skills, players are able to eventually compete at a much faster level because they do not have to think about what skill to perform during the action.

Develop proprioception by teaching athletes to learn where their bodies are in space. Use a wide variety of basic skills like catching, hitting, or throwing objects, or cross train with other sports such as football, soccer, or volleyball to provide stimuli for proprioception development. Because these drills are not all that sport-specific, it is best to use them as a warmup prior to sport activities or during the off-season when specificity is not as important.

Improve the flexibility of the unagile athlete, if needed. A flexible muscle moves without impingement, while a limited range of motion is a recipe for inefficient movement.

Teach correct positional play so that athletes know where to be and what to do when they are called to act. In ice hockey, for example, the defensemen should look at the center of the opposing player who is trying to get to the net, keep him or her to the outside with their own body between the other player and the net, and then angle them off into the corner areas of the rink where they are less of a scoring threat. By knowing where to look and the specific movement objective, an athlete is less likely to get caught off balance or exhibit confused body movements.

Address bodyweight problems in athletes, if possible. Some athletes' agility problems stem from being overweight, and reducing the excess baggage will go a long way toward improving the strength-to-bodyweight ratio and allow the athlete to move more freely.

Use read and react drills that relate to game-type situations. Improving these skills can be done in a wide variety of settings, with several players or the whole team. Many read and react drills can provide friendly competition within the team as less agile players strive to keep up with more agile or faster players. (See "Read & React Drills," below, for examples.)

Use quick feet drills to condition players to move in all directions with greater ease. These drills can be used as a warmup to any sport training program, or separately to focus on specific agility problems. (See "Quickness Drills," below, for examples.)

Choose quality training over quantity. Repeating drills at half speed teaches athletes to move slowly. Since agility training is about conditioning the CNS to respond and move faster and faster, it is unproductive to practice at anything less than full speed once the fundamental skills are in place.

Place drills carefully so they have the greatest positive effect. Make sure agility training is done at the start of a workout when the athletes are fresh, instead of thrown into the mix at the end of practice to finish off the day. After each drill it is also important to use active rest such as jogging or other slow but steady movements to speed recovery.

Use testing results to tweak the program. If an athlete's agility is being hampered by an ankle problem, prescribe specific exercises for this. If an athlete is having trouble turning with speed, start them with more core work. You can also combine the testing with weightroom training to spot deficiencies. Watching the athletes' overhead squats, lunges, medball drills, and deadlift reaches allows a coach to see any further weaknesses and tweak the program to remedy them.

Making It Work

With the unagile hockey defensemen, we used several of these principles to improve agility. We started with technical proficiency and skill acquisition, then added improved body balance and power. The athletes learned the basics of positional play from the coaches, and many lost weight through our intense training and with a few nutritional tips. By the end of the year we had a more mobile and much better-conditioned group of players who were able to contain the best forwards in the league.

We also retested our hockey players at the midway point and then again at the end of the season, using the same testing drills we had used at the start of the season. Other options are to retest some aspect of the original test every few weeks with the weaker athletes, and less often with the more skilled players.

Conditioning the unagile athlete is a difficult task for the strength and conditioning professional since there are no hard and fast rules. But, as long as you analyze the athletes and the sport they play, and make the plan progressive, you will see the deficiencies disappear and the clumsiness turn to gracefulness.

Table One: Read & React Drills

One important component of agility is the athlete's ability to read and react. The following drills aim to improve the athlete's efficiency in reading what is happening (seeing where a person or an object is going to move) and reacting to that movement by making a counter-movement. All of these read and react drills involve several athletes or a group of athletes and a coach.

Reaction balls. Using a reaction ball (a multi-sided object that bounces unpredictably when dropped or thrown), set up a game of bouncing the reaction ball between two players, off a wall, or with a coach as a warm-up for athletic activity. Allow two bounces for the athlete to catch the ball. The athlete must move very quickly in reaction to the ball's unpredictable bounce.

Hacky sack. Athletes stand in a circle and attempt to keep the sack in the air as long as possible. You can allow athletes to use both hands and feet, just feet, or just hands. This is a great warm-up for sports, and also works to improve agility and proprioception, especially in the lower body.

Reaction belts. The reaction belt is attached to two athletes with a Velcro™ section holding the athletes together. The drill involves the first athlete trying to move away from the other, and the second athlete trying to counter-move toward the first athlete so the Velcro™ does not break apart. The drill continues until the Velcro™ breaks.

Shadow drills. This idea can be used in a variety of ways, from follow the leader type drills to copying action movements. One athlete is instructed to follow another athlete and copy his or her movements and skills. This is a great drill for teams as it allows weaker athletes to train with faster athletes to improve agility and quickness.

Rule the circle. Inside a large circle, two athletes hold onto one stick and compete to see which one can either knock the other off balance or take the stick away. Variations to this drill involve pushing or wrestling each other in the circle to knock the other person out, sumo style. This is a great drill for contact sports as it develops balance, agility, and strength along with reaction ability.

Medicine balls. While medicine balls are primarily used to improve core strength and balance, they can also assist with reaction training. A coach can throw the medballs to an athlete in an unpredictable pattern or two athletes can throw medballs back and forth, each trying to get the ball past the other.

Bouncing balls. Using a tennis ball, racquet ball, or another similar type of ball, bounce one or two balls between two or more athletes. Balls can be thrown at the athletes, bounced on the ground, or bounced off of a wall.

Fun Games. Activities like tag, dodge ball, monkey-in-the-middle, and keep-away teach athletes to read and react with games they already know how to play and enjoyed as younger kids. These drills can also be used as a warmup or cooldown from the bulk of the workout.

Table Two: Quickness Drills

Quickness drills are designed around short bursts of movement in various directions to improve the ability to move the feet and develop first-step quickness. These drills can be done either for a set distance or as read and react type drills where players change direction after a whistle from the coach.

Back-to-front runs. Running backward to forward, or forward to backward helps an athlete improve his or her stopping ability and quickness to change direction. This drill is best done with a coach dictating the change of direction.

Side shuffles. Moving sideways, the athlete shuffles from one foot to the other. This builds medial and lateral strength in the upper leg, coordination, flexibility, and quick feet.

Grapevine. While moving sideways, have the athlete cross one foot over in front, and then behind the other. This drill is good for building coordination and footwork.

Outside edges. The athlete moves forward by crossing one foot in front of the other, then moves the foot that was just crossed over the first foot. This forces the athlete to always land and move on the outside edge of the foot. The result is development of the hip in terms of strength, flexibility, coordination, and balance.

Line drills. On any type of playing surface with lines (basketball court, tennis court, hockey rink) have players sprint between lines moving in all directions (forward, backward, sideways, crossovers, etc.) with the coach signaling changes.

Iron Cross. This hockey drill involves running or skating in a cross type pattern within a small

circle. This idea is to get the feet moving and learn to cross over and push off from both sides of either foot.

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A former nationally ranked athlete in both cross country skiing and triathlon, Coach Pollitt brings a wealth of experience to clients he coaches. He holds a degree in Physical Education from the University of Manitoba and is a graduate of the Olympic Academy of Canada. David is certified with distinction from the National Strength and Conditioning Association and from the Canadian Society for Exercise Physiology. David has professional coaching certifications in weightlifting (both in Canada & the USA), intermediate levels in hockey and track & field, and is a master coach in cross country skiing. He has had internships at the Calgary Olympic Development Association High Altitude Camp and with the Canadian National Ski Team Development Centre. Throughout the years Coach Pollitt has won several awards such as the 3M Coaching Award for work with minor hockey in Canada and he was part of the Eastern College Coaching Staff of the Year (for work with Duquesne University). His client list ranges from all varieties of athletes from amateur to the professional ranks. He has worked with Duquesne University, The Banff Hockey Academy, The Canmore Eagles, along with a number of corporate clients such as Taco Bell and TAB Answer Network. His companies DP Hockey, OP Coaching and Optimal Performance all work with a number of clients in the pursuit of improving conditioning and sport performance. David has submitted his original research and ideas with articles in popular journals and magazines as *Training and Conditioning*, the *Strength and Conditioning Journal*, and the *Performance Training Journal*. David serves as the assistant editor for the *Performance Training Journal*, and is a peer reviewer for the *Strength and Conditioning Journal*. His first book on conditioning for junior hockey players will be published in early 2007 and he is working with Angelo Maggio of Magic Hockey and Clint Hazen from ProKinetics on a goaltender development manual and DVD. David's state of the art training facility is set to launch in mid 2007 in southern California.