Summer 2015 TRAINING GUIDE

MORE TIME AT THE GYM THIS SUMMER, LESS TIME AT THE RINK

Rarely do the parents of a young star house or travel player hear from other parents, 'Your son is really good. You should get him some training.'

However, players looking to take their game to the next level over the summer in anticipation of the upcoming season may be better off spending the bulk of their time in the gym, rather than on the ice.

That's a big piece of advice that U.S. National Team Development Program strength and conditioning coach Darryl Nelson offered, during the Great Lakes Hockey Strength and Conditioning Clinic.

"The biggest thing I would say for the spring and the summer is don't get caught up trying to play in every tournament in all the exposure tournaments and this and that," Nelson said. "Take your offseason to actually get better at hockey. Take your parents' time and money into training and practicing your skills, not into playing more games."

And as Advantage Strength and Conditioning (Ann Arbor) founder Brian Sipotz put it, off-ice training isn't just for the big boys.

"We want people to know that this training is as approachable for kids from age 10 – and there's ways to train ages 6 to 8-year-olds – so really we want people to know that there is age-appropriate training, and there is effective training that's safe and creates better athletes," Sipotz said.

To get a gauge of how NCAA Division I hockey players train, the University of Michigan's Joe Maher shared the details.

Maher, the strength and conditioning coach for the Wolverines, prepares a plan that covers an entire calendar year and stressed its significance for having a team that is "dialed in" for 365 days, in season and out of season.

Maher's outline consists of four main phases that correspond to different points of the year – Transitional, a period between the end of the season and beginning of summer; Preparatory, the majority of the off-season training focused on building strength and explosiveness; Competition, the phase that covers hockey season; and a second Transitional Phase.

"Strength and conditioning is always going to be in there, but at certain times we're really gonna emphasize nutrition and certain aspects of nutrition," Maher said. "And it might be different in season versus out of season. Macronutrients are going to be a little different, supplementation might be a little different, hydration might be a little different."

During the summer, the emphasis is set on General Physical Preparation (GPP), training for basic strength, maximum strength, and then converting that strength into a combination of both power and speed.

The exercises, sets and reps vary throughout the summer, depending on what the particular phase calls for, but the Wolverines do things like lunges, squats, sled drags, box jumps, deadlifts, bench press and also other exercises where the focus is staying low and building explosive core and leg strength.

Nelson said that "you can't really do sport-specific things in a weight room, per se," adding that you should rather target the muscle groups that you're likely to utilize most and build up strength in deficient areas to help prevent injury.

"What you're better off doing is using tools like functional movement screening or like posture restoration, instituting those things and look for the trends you're going to see in your sport. You're going to have a trend of certain injury patterns. Most likely what you're going to find is certain deficiencies."

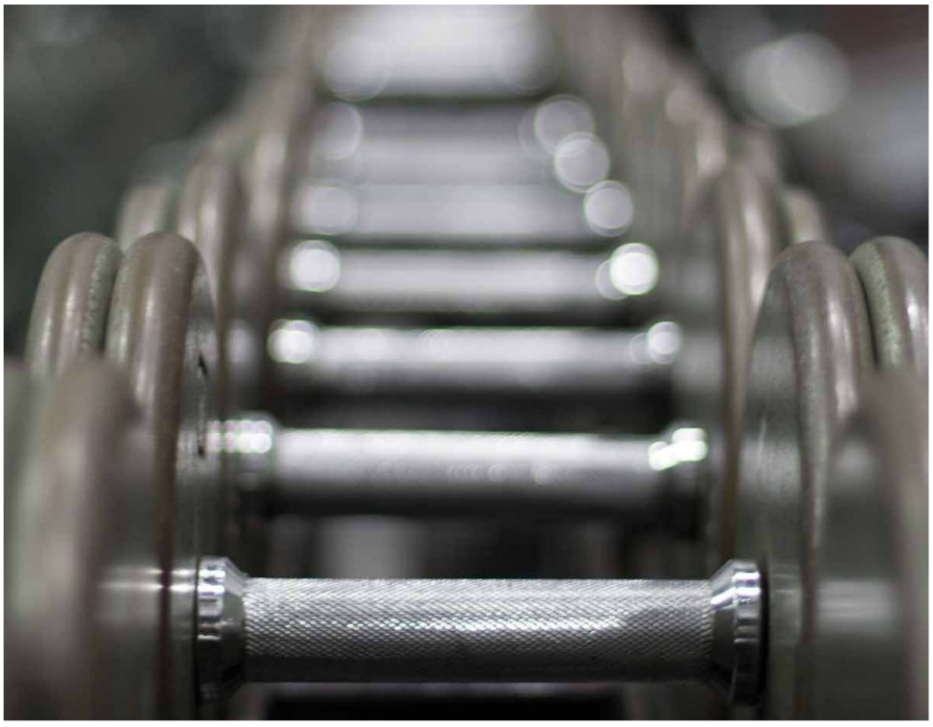
The Wolverines even spend the majority of the off-season just building up foundational strength and athleticism.

"We go through about 16 weeks of training before we even get into anything that's 'hockey-specific," Maher said. "And that's for a number of different reasons, again, because we want them to be away from that, we need to build overall athleticism. Our guys are 18-22 years old, they need to get stronger. We need to work on that."

So much like Nelson's original message, the focus during the summer should be placed on becoming more explosive, building strength and power, and ultimately developing into a more dynamic player.

That's not to say a player shouldn't be on the ice at all, but as Nelson wisely put it, "nobody makes personnel decisions with their team based on summer hockey performance, so use your resources to train, get bigger and stronger and faster to improve your skills."

- STEFAN KUBUS



A LOOK AT THE WOLVERINES' YEARLY TRAINING SCHEDULE

Joe Maher is tasked with keeping one of the country's most prestigious college hockey programs in tip-top shape, not just in the off-season, but throughout the entire calendar year.

Maher is the strength and conditioning coach for the Michigan Wolverines, and he recently shared the extensive, annual plan he prepares for the team at the Great Lakes Hockey Strength and Conditioning Clinic.

In the 2015-16 training plan, there's actually 385 days accounted for. There are four main phases: Transitional, the period of time between the end of the past season and the summer; Preperatory, which covers the period of off-season training from late April to mid-October; Competition, essentially the entire season from October to April and a second Transitional phase to wrap up the season and head into summer.

The exact dates are subject to change year to year, depending on how far the Wolverines advance in the postseason. Maher said that even within aspects of strength and nutrition, those are tweaked throughout the year to help the players adapt as needed.

"Strength and conditioning is always going to be in there, but at certain times we're really gonna emphasize nutrition and certain aspects of nutrition," Maher said. "And it might be different in season versus out of season. Macronutrients are going to be a little different, supplementation might be a little different, hydration might be a little different."

TRANSITION PHASE I

With players fresh off the season, the opening Transitional phase primarily places emphasis on recovery, regeneration and rest, with little to no conditioning done. The players will do a lot of soft tissue work, hamstring work and things that are going to prepare them to start training hard again and also correct any imbalances that may have formed throughout the year.

"A big thing also during this time is we're going to have a nutritional intervention," Maher said. "So what that means is our nutritionist is going to come in, she's gonna give a lot of educational materials about nutrition at this time to get these guys to now think about nutrition as something to help build their bodies and refuel... It doesn't always need to be all this super-clean eating. What she's giving them is ideas and concepts and thoughts and what have you to build their bodies, whether guys need to put weight on or take weight off."

PREPARATORY PHASE

As mentioned, the Preparatory phase lasts 24 weeks from April to October. Within this phase, there are eight smaller time periods, called mesocycles, that focus on building strength, power and speed. Nutrition plays a bigger role in this phase in terms of recovery and body

Photo by Andrew Knapik/MiHockey

composition, as does psychology with regards to mental aspects like teamwork and work ethic.

"Basically, the way it works for me is, you build capacity, then we build some basic strength, then we build maximum-effort strength, then we take all that stuff and we try to build it into power," Maher said. "Then that power can be moved into speed, and then we start doing a mix of both, maximum power, speed and endurance."

Maher also was sure to point out that at the end of each mesocycle, there's a 'deload' segment, where the weight and volume will be toned down to promote recovery as players move on to the next mesocycle.

The first two weeks of the Preparatory phase, known as the General Physical Preparation (GPP) mesocycle, focus on increasing work capacity and tempo to prepare the body for the rest of the summer. Maher said this is typically the toughest stretch since the players have just had a month off.

From mid-May to early June, the focus is on building foundational strength, using moderate-to-high intensity loads (70-85-percent of their maximum capacity) and moderate volume (5-7 sets of 5-8 reps).

Then, from June 6 to July 1, the Wolverines will work on building maximum strength. This is where players will lift 85 to 100-percent of their weight capacity with moderate volume (8-15 reps). The team will do a lot of single-rep and double-rep lifts during this time, as well to try to build top-end strength. There is also a progressive increase in conditioning intensity.

"We're going to video a lot of lifts for them to give instant feedback on what is it they did right or wrong and how it looked," Maher said.

The team will receive a break from July 1 to July 12, a recovery mesocycle, before heading into the power/speed mesocycle that runs from July 13 to August 7.

In the power/speed mesocycle, strategies are set in place focused toward transforming the previously developed strength into power and speed by what Maher referred to as increasing the rate of force development (RFD) and peak rate of force development (PRFD). Doing so, players will lift light to moderate loads (30 to 70-percent of max capacity) with high to moderate volume (4-8 reps; multiple sets). Plyometrics and contrast sets (a heavy lift followed by an unweighted explosive movement that mimics the heavy lift) are utilized during this time.

"This is where we're starting to transition some of that stuff, all that strength, all that capacity that we had, we're starting to build power into it," Maher said. "We're working on speed, we're working on repeated speed, we're working on impulses… Research has shown that lighter loads are going to help with (becoming more explosive).

"We're going to start to try to mimic the speed that they have on the ice. Now you can't run as fast as you can skate. Angular velocity can be just as high, though, so we're going to start to work on that."

From here, the training will shift into more 'hockey-specific' anaerobic power/endurance conditioning with a slight transition to on-ice power skating elements, as well. This occupies the month of August.

"Typically, what happens is you develop a body to do all these things, that's great and then all of a sudden you throw them on the ice and hip flexors, groins and lower backs are bothering you," Maher said. "Why? Because you built all this power, all this speed, all these great things and then you put them in something that's pretty high demanding and you didn't give them transition time. So we'll transition into some on-ice time at that point."

For the first two weeks of September, the players will undergo another max strength mesocycle where they will be tested on one-rep maxes, pull-ups and more.

The pre-season mesocycle begins in mid-September. Just as it sounds, the pre-season portion focuses on 'hockey-specific' training for all components, primarily on-ice skill development and conditioning. As with the other mesocycles, there is a high nutritional component involved, emphasizing recovery and proper fueling.

COMPETITION PHASE

The Competition phase will last 26 weeks, includes 34-44 games, roughly 98 practices, at least 36 days off and 20 or more travel days.

Lifts are reduced to two per week during the season and will cover many of the mesocycles the players endured during the Preparatory phase, the goals being to increase power, speed, agility and stamina.

Due to the demanding nature of hockey, there will also be an increase in maintenance and recovery sessions during the season. Maintenance work is done in short, intense sessions up to four times per week and focuses of basic movements, mobility and flexibility.

"There's gonna be times where we might have a lift on Monday and Wednesday, and they're gonna come in and foam roll, do a couple jumping jacks and get out, and that's just the way it is, that's the plan," Maher said. "That's to help them recover and adapt from a strenuous couple weeks beforehand."

TRANSITION PHASE II

A second Transition phase will ease players out of the season's grind and into the summer off-ice training.

Maher said the biggest challenge he sees with new players coming into the program is adjusting to having such a detailed, organized training plan for the entire year, regardless of where they come from.

"What you tend to find with a program like ours is, we're starting to get some of these high-end players, these blue-chip players, so genetically they have a ton of potential. They're really strong, they're fast, they done all these things, but they've never had an organized training program, so teaching them and letting them learn how to actually train is one of the biggest things, especially I think with a guy coming from Midget.

"Coming from junior tends to be a little bit different. What they have to understand is that we're not playing every other night or we're not playing 60 games or something like that, so the majority of their time is going to be spent training. So understanding that everything we do is training is a little more of a transition for them at that point."

- STEFAN KUBUS

Photo by Andrew Knapik/MiHockey

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STRETCHES AND DRILLS TO INCORPORATE INTO YOUR TRAINING

Above all else, the single biggest issue that U.S. National Team Development Program strength and conditioning coach Darryl Nelson sees in incoming players he works with is something that players can improve on their own time.

"The biggest thing really for new guys coming in, a lot of guys are just tight, especially through their shoulders and hips," Nelson said. "They've just played hockey. They've never really done any cross-training, so that's the biggest thing. So foam rollers, stretching, soft tissue work... that's the biggest transition for them. They come in on the first day, everybody is using the foam rollers, and they're making old man sounds, groaning and all this."

Nelson added that players should look for trends in their specific sport and implement stretches and exercises into their routine to maximize training and prevent injury.

Here are some stretches to help improve overall flexibility and help prevent injury, and exercises to get stronger and more explosive.

FOAM ROLLING – The beauty of foam rolling is how common and simple it is at the core. You can use a foam roll to massage the tissue in everything from your hip adductors and abductors to your lower back, quads, hamstrings. In essence, it's a poor man's massage therapist.

ROTATION STRETCH – With your feet spread apart just outside shoulder width, take a light dumbbell or kettlebell and hold it straight up in the air. With your other arm, reach down and touch the ground in between your feet, all the while keeping your legs straight and looking up at the dumbbell/kettlebell. Then, after about eight to ten reps, switch arms and repeat. This will stretch out your lower back, obliques, hips and also promote shoulder stability in the process.

JUMP ROPE – Certified strength and conditioning coach Jim McKee (Fluid Being Sports Performance and Fitness Training) said one of the best methods to improve flexibility in the ankle is jumping rope. It also serves as a great warm-up and there are plenty of variations you can add to constantly challenge yourself. McKee added it was a great mental tool, as well, since it can be frustrating to develop quickness and rhythm for beginners.

HIGH KNEES – To improve hamstring flexibility and simulate explosive quickness, run in place bringing your knees up in front of you as high as you can.

GLUTE CURLS – Lay on your back with your arms flat on the ground at a 45-degree angle to your body. Place your fully-extended legs on top of an exercise ball. With your hips and butt in the air, curl the ball in underneath you and back out.

HIP STRETCH – This one is real simple. Put one foot on the ground and the other flat on a bench in front of you. With the foot that is on the bench, simply raise the leg up above 90-degrees to stretch out the hip.

Nelson said his players rarely do any sort of lift on both legs partially because of what is known as the bilateral deficit, which states that "the sum of force production of each leg individually is greater than the force production of both legs working together." Single-leg training allows for more leg loading and lower spinal loading.

It makes perfect sense, too, from a functional standpoint. There are very few times in hockey when we push both legs together; we alternate legs when we stride, pushing one at a time.

GOBLET SPLIT SQUAT – This type of squat trains the quadriceps differently than regular back squats, as this, with the split-foot stance, will open up your hips, increase flexibility and also develop balance.

SINGLE-LEG DEADLIFT – A variation of the deadlift. While standing with just one foot on the ground, take a dumbbell in your opposite hand and bend down for a deadlift and return to starting position. Nelson said to remember a slight knee bend when deadlifting, around 20-degrees.

BULGARIAN SPLIT SQUAT TO SHOULDER PRESS – With one foot resting on a bench behind you and either kettlebells or dumbbells up in both hands, squat down with the other leg and as you come back up, press the kettlebells/dumbbells overhead. Nelson suggests always using dumbbells/kettlebells when doing overhead presses over a straight bar.

ALTERNATING JUMP LUNGES – Focus on exploding upward as you land one lunge and jump right into the next, switching legs in the process.

BOX JUMPS – Emphasizing explosiveness, be sure to perform these with plenty of control. Land softly; your landing on top of the box shouldn't make much noise.

LUNGE SIDE THROWS – Grab a medicine ball and stand parallel to a wall roughly five yards away from it. In a slight lunge position, take the ball from the side opposite the wall and explode across to throw it across your body toward the wall. A great method to ultimately improve slapshot velocity, especially if you get bored with shooting pucks all the time.

10-5 SPRINTS – Sprint forward 10 yards, then sprint backward five yards. Especially great for defensemen and an easy one to do outside, it simulates quick changes of direction, having to pivot forward to backward and vice versa.

- STEFAN KUBUS

Photo by Michael Caples/MiHockey

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IS YOUR STRENGTH TRAINING PROGRAM UP TO DATE?

In commercial gyms and high school weight rooms all over America millions of people lift weights every day. They sit in different machines that are designed to 'isolate' muscles. We have all seen this before. They train back and biceps on one day and chest and triceps on the next day. In fact, the standard workout has not changed much at all since the 1960's or 70's. However, what else in our lives is like it was in the 1960's or 70's? Do we wear 60's style clothes anymore? Do we make calls on rotary dial phones? No, instead we are wearing the latest Under Armour or Dryfit clothing and foot wear - half of which is made from recycled plastic bottles. Our phones take pictures, surf the internet and keep us up with social media. Actually, calling somebody with it is almost unheard of. These parts of our lives have changed because there is more functional technology available to us. There are also ways to make our strength training more functional as well.

We have created an environment in which athletes can participate in functional strength training that is highly organized and performance oriented. Functional strength training can simply be defined as training that prepares an athlete to perform better. It is not about trying to lift heavy weights or building big arm muscles to have a showy physique. Enhanced appearance is a positive by product of training, not the end goal. The basic goals of functional strength training are to make the athletes faster and reduce the rate of injuries. Essentially, functional training will make the athlete better prepared for competition. To better understand what constitutes functional training we must ask ourselves what hockey really demands.

Far too many people still perform strength training exercises while seated. How many sports skills are performed sitting down? The only ones that come to mind are canoeing and kayaking. No hockey skills are performed seated! In fact, the sitting we do all day at school and work is a major contributor to low back pain. Therefore, a good strength training program should be designed to get us out of a seated posture and counteract the negatives associated with it.

How many sports skills involve movement in only one joint? The answer to this question is zero. So why then do we 'isolate' muscles when training? Performing sports skills like skating, running, jumping, throwing, and striking require highly synchronized contractions of different muscles and muscle groups across multiple joints. Think of something as simple as swinging a golf club...what joint does not move?

How many sports are played in rigid, one dimensional environments? Again, the answer is zero. When an athlete is on a field, track, court, or ice sheet they must provide stability for themselves. This fact is the very downfall of machine-based strength training programs. Body weight and free weight exercises are the most functional exercises. Free weight and body weight exercises are multi dimensional and, for the most part, require the athlete to be weight bearing. Barbells, dumbbells, kettlebells, stability balls, TRX Suspension Trainers, and medicine balls are by far the most effective pieces of strength training equipment.

Functional strength training also incorporates small amounts of instability and single extremity exercises. By doing exercises on one foot or with one arm the athletes will learn to quickly regain their stability when it has been lost. Remember, hockey is played on steel blades that are only 1/8 of an inch thick. Therefore, the ability to create force and power during instability is the highest form of strength.

Too often athletes and coaches waste time and energy by lifting with two feet or two hands at the same time. This is ineffective because it is not the way our bodies are designed to function. Again, think of sports skills and how they are performed. Almost all sports skills are performed by using the left and right sides of the body separately from each other. When shooting a hockey puck one hip joint will internally rotate while the other externally rotates. The bottom hand pushes the blade of the stick forward while the top hand pulls backward. A baseball can be thrown further with one hand than with two. In football, a field goal is kicked by planting one foot and striking the ball with the other foot.

Another major mistake often made by athletes and coaches is performing too many reps with too little rest while lifting weights. The reality is that increases in strength are made when performing a relatively low number of reps with long rests between sets. Basically, anything above ten reps is not strength training at all.

In closing, a good strength training program should comprise lots of single extremity exercises performed for low reps with strength and power development being the primary goal. In fact, six reps or fewer with three-minute rests between sets should make up the majority of sets performed in a good strength training program because ice hockey is an intermittent, sprint-based sport.

Darryl Nelson and Brian Sipotz are regarded as top experts in the field of strength and conditioning for ice hockey performance. Darryl has been the head strength and conditioning coach for USA Hockey's National Team Development Program since 2000 and also serves as the director of performance for Advantage Strength and Conditioning in Ann Arbor. Brian played seven years of professional ice hockey and is the founder and strength coach of Advantage Strength and Conditioning. Darryl and Brian are also the cofounders of hockeystrengthandconditioning.com.

Want to get stronger this off-season? The Summer Performance Strength Program begins June 15 - more information at advantagestrength.com.

- DARRYL NELSON & BRIAN SIPOTZ

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