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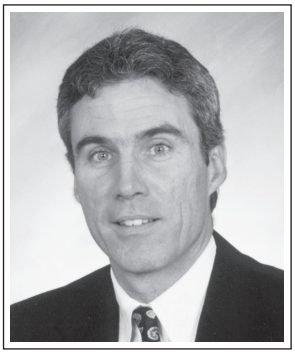
FROM THE EDITOR

RUSS EBBETS

US OR THEM?



When I was in my early 20's I had five interviews in one day for work with the New York State government. They were bureaucratic jobs that paid about double what I was making as a teacher/coach. They offered job security, benefits and the opportunity to spend the rest of my life in a 4x6 cubicle.

The last interview of the day was for a computer science position. This was the mid-seventies and the nerdy were just beginning to trade their slide rules for pocket calculators. All the interviews asked the same questions for the first 10 minutes. By #5 I was tired so I decided to ask and answer the standard questions in my initial statement on "Why I wanted this job."

It was late in the afternoon and I could see my interviewers were taken aback by this, like, "How does he know what we were going to ask?" When they asked, "But why computers?" I told them, "Computers are the next link in the evolutionary chain."

I went from wiseguy to Wise Guy in one sentence. I had read that tidbit somewhere and thought it would be an appropriate response. This became the focal point of the remainder of the interview. I scrambled to support the thought, referencing Isaac Asimov's *I, Robot,* smart machines and how science fiction has often forecast the future. I think I went 2-for-5 for the jobs but in the end stuck with teaching.

Today, calling computers ubiquitous is an understatement. Our cell phones contain more technology than NASA had when they sent Neil Armstrong to the moon. The quantity of information, literally at our fingertips, is staggering. The quality of information can be equally mystifying.

Various predictions have postulated that cell phones will be smarter than humans as soon as 2025, certainly by 2035. Hmmm, politicians, maybe 2010? Computerized algorithms already have the ability to predict our needs, wants and desires. Our personal calendars remind us what we have to do – is it such a stretch to think our little buddy will soon start to tell us simply what to do?

Analytics are all the rage in professional sport. Moneyball details how the use of statistics and projections were used to revolutionize baseball. But this revolution (or evolution?)

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EDITORIAL COLUMN

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has reduced the game to home runs, strikeouts and the pull hitter's shift. The more we rely on data, hard cold facts to drive decisions, the further and further we get away from the human element.

I always laugh when I remember the story an older football/track coach, in the league where I got started, frequently told. His team was on the 10 yard line, 4th quarter, five points down and only enough time for one more play. As he walked to the huddle for his last timeout, he decided to use a trick play, with players running this way and that, using illusion and confusion to get the final score.

His star tight end jogged up to him and said, "Throw me the ball." The coach walked to the huddle and proceeded to diagram his trick play. The tight end interrupted again, "Throw me the ball." Angered and ready to erupt he looked the kid in the eyes and once again the kid said, "Throw me the ball." For an eternal second the coach stood there, then turned to his quarterback and said, "Throw him the ball." The kid caught the ball.

Joe Paterno said that great athletes make great plays. Sometimes you have to trust the person. Algorithms, tendencies and artificial intelligence are all well and good but greatness is not a "central tendency," it is the act of an outlier.

What does all this mean for coaching? The scientifically generated data of analytics can be helpful but also can be very rigid. If the plan calls for the athlete to run 10 quarters and they show up with a sore foot, better to change the plan than to ruin the foot. The reality of the real world is that things that don't bend, break. Flexibility is one of the biomotor skills for a reason, and it is also an important part of the art.

No doubt the day will come when robots can run, jump and throw better than humans. I have no doubt these competitions will be entertaining and exciting showcasing the abilities of the gifted engineers who created these technological marvels. And no doubt one day the technological marvels will probably create the selfsame technological marvels. Will that spectacle supersede the competitions of human models? I guess it depends on who is making the decisions. Is it us, or is it the "next link?"

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RUNNING PERIODIZATION PART 3: BLOCK AND UNDULATING PERIODIZATION

BY JASON R. KARP, PHD, MBA

Adapted from the book *Running Periodization: Training Theories to Run Faster, by Dr. Karp.*
This is the third article in this series.

"The concentrated training of limited abilities separately is more effective than the training of varied athletic abilities simultaneously."

In addition to linear and reverse linear periodization, the subjects of the first two parts of this series, there are a couple of other ways to plan your athletes' training.

BLOCK PERIODIZATION

Multi-targeted training doesn't provide a sufficient stimulus for long-term improvement. Concentrated training cannot be managed for multiple targets at the same time. Your athletes may get great results initially, but they can also plateau quickly. With multi-targeted training, you're asking them to respond and adapt to multiple stimuli at the same time. Their bodies are pretty smart and could probably handle the job given enough time to do so, but there will almost certainly be a trade-off, since different types of training—like aerobic and anaerobic training—provoke different responses and adaptations, some of which can be incompatible.

A clever way to avoid incompatible adaptations is with another model of periodization—**block periodization**, which includes sequencing of specialized mesocycles, called *blocks*, that concentrate on only a single or a couple of compatible abilities at a time using a large volume of workouts, and train multiple fitness factors consecutively rather than concurrently. Since physiological and biochemical changes require periods of at least two to six weeks—the typical duration of mesocycles—blocks are organized as mesocycles. Block periodization consists of three types of specialized mesocycle blocks: (1) *accumulation*, which develops basic abilities, such as technique, aerobic capacity, and muscular endurance (with an emphasis on mitochondrial biogenesis and metabolic capacity of slow-twitch muscle fibers);

(2) *transmutation*, which uses shorter mesocycle blocks that include high-intensity workouts to develop race-specific abilities, such as anaerobic endurance and more specialized technical skills; and (3) *realization*, which develops speed, race-specific tactics, and recovery (taper) prior to the race.[1] Thus, *accumulation* is analogous to the general preparation phase of the traditional linear periodization model, *transmutation* is analogous to the specific preparation phase, and *realization* is analogous to the competition phase.

The major principle of block periodization is that the concentrated attention on and training of single targets or abilities separately is more effective than the training of several fitness factors or athletic abilities simultaneously. While variation is a critical component of periodized training, periodically reducing that variation to concentrate on a specific target can induce rapid development of that target. Low-intensity and high-intensity training are carried out in specific blocks to promote beneficial training adaptations, with high-intensity training succeeding low-intensity training.

Block periodization may be more effective than traditional linear periodization for highly trained and elite runners, since developing multiple abilities at once is challenging in this population, primarily because very fast runners are closer to their genetic potential, and the accumulated fatigue from the volume and intensity of training needed to squeeze out even more improvement would likely exceed the capacity to recover from the training stress. Recreational runners and lower-level runners (like high school freshmen and sophomores), on the other hand, who are far away from their genetic capabilities, can often benefit from training multiple fitness factors simultaneously.

BLOCK PERIODIZATION MAY BE MORE EFFECTIVE THAN TRADITIONAL LINEAR PERIODIZATION FOR HIGHLY TRAINED AND ELITE RUNNERS

The main problem with block periodization is that the training of only one fitness factor at a time increases the risk of detraining other factors that are not being stimulated during the specific block. To avoid that from happening, it's important to use maintenance workouts that provide a sufficient stimulus to prevent previous adaptations from being lost. Since some fitness factors decline faster than others, the sequencing of blocks is also important to maximize the residual effects from previous training blocks. New runners lose fitness quickly when they stop training. If your athletes have been training for many years, they can hold on to their fitness longer. Experienced runners retain their "trainedness" for a longer amount of time, in part because the physiological adaptations they have made become a more permanent part of their biology.

Block periodization is more effective and time efficient than linear periodization, causing greater increases in VO_2max, power output at VO_2max, and power output at lactate threshold. That is the conclusion of several scientific studies that have compared the two types of training. In one of those studies, scientists at Lillehammer University College in Lillehammer, Norway divided 19 trained cyclists into two groups: (1) a block periodization group, which did a one-week block of five high-intensity workouts (6 x 5 minutes or 5 x 6 minutes at 88 to 100 percent max heart rate (zone 3) with 2½ to 3 minutes recovery between reps), followed by three weeks of one high-intensity workout per week plus a high volume of low-intensity training, and (2) a traditional periodization group, which did two high-intensity workouts per week for four weeks plus a high volume of low intensity training. Both groups did the same volume of interval training and low-intensity training over the entire four weeks. For two months prior to the study, neither group did any interval training. The cyclists in the block periodization group increased their VO_2max by an average of 4.6 percent and their submaximal power output by 10 percent, while VO_2max and power output did not change in the linear periodization group.

In a similar study on 15 trained cyclists by the same group of researchers, the same training intervention was extended to 12 weeks, with the block periodization group repeating three times the four-week pattern of one week of five high-intensity workouts and three weeks of one high-intensity workout per week, while the linear periodization group did two high-intensity workouts per week for the entire 12 weeks. After 12 weeks, the block periodization group increased its VO_2max and submaximal power output slightly more than did the linear periodization group. Both groups increased

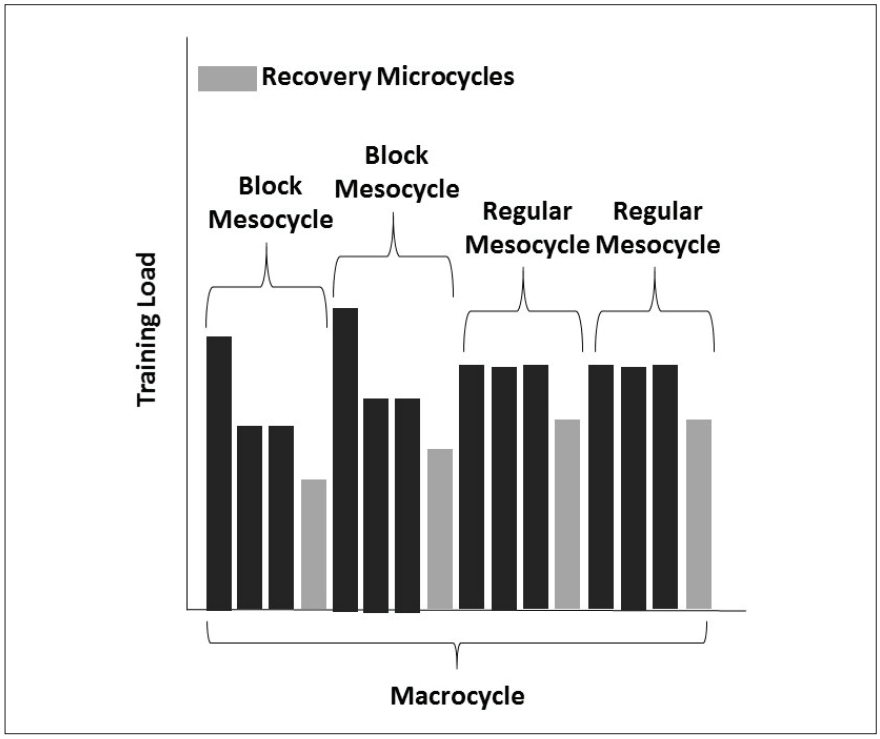
peak power output and the average power output during a 40-minute time trial, however, there was no difference in the amount of improvement between groups.

While these and other similar studies are relatively short (11 days to 12 weeks) and did not use running as their training interventions, they do suggest a possible effective way to structure mesocycles—one week of low-volume/high-intensity training with several hard workouts, followed by three weeks of high-volume/low-intensity training with just one hard workout per week. In other words, go hard for one week with multiple workouts, then back off the intensity for three weeks, doing one maintenance workout each week. However, a word of caution is necessary here, because the greater relative anatomical stress of running (and thus its greater injury potential) compared to other endurance sports that have been the subject of research studies may necessitate more recovery between high-intensity workouts in a block periodization program for runners.

One way to include more recovery is to use microcycles that are longer than one week and spread the intense workouts around that longer time frame. For example, your athletes can include three to five intense workouts in a 10-day (instead of 7-day) microcycle, as part of a 40-day (instead of 28-day) mesocycle block. If it's too challenging to deviate from a 7-day calendar to plan the training this way, they can keep the 7-day duration for the three non-intense microcycles of the mesocycle block and extend only the intense microcycle block for more recovery during that training period.

Block periodization is not without criticism. For starters, it's fairly obvious that using concentrated blocks of specialized, intense training will cause your athletes to get fitter in a hurry, especially when they have not been doing intense training. It has been known for a long time that when intense interval training is added to an endurance training program, fitness and performance improve. Also, compared to varied training, concentrated training causes a shorter-lasting fitness effect. That's why it's important to use maintenance workouts to maintain fitness and prevent detraining after the concentrated block.

Perhaps the best way to train with block periodization is to add a concentrated block mesocycle at the beginning of each macrocycle, when your athletes are just coming off a recovery microcycle and beginning a new phase of training. For the first one or two mesocycles that begin each of the three major macrocycles of the year—general preparation, specific preparation, and competition—concentrate their training on just one fitness factor. Plan several stimulating workouts that focus on that fitness factor during the first microcycle of those mesocycles. Then, spend the next few microcycles (weeks) backing off from that stress, using occasional maintenance workouts to maintain fitness. Since the congregated training stress of block periodization can cause a lot of fatigue, limit the duration of those



Block periodization. During the first microcycle of the first two mesocycles, the training load is increased with increased intensity. The next two microcycles decrease the intensity but increase the volume before backing off on both volume and intensity for a recovery microcycle. The third and fourth mesocycles are designed similarly to regular, non-block-periodized mesocycles.

mesocycles to three to four weeks.

The controlled nature of block periodization can make your athletes' training better, because it narrows their focus. They become more productive, focusing on what will get them where they want to go and eliminating what won't.

But running, like life, is not always blocked into neat, little, organized spaces, nor is it linear. Running must be fluid with life and the constant journey that feeds your athletes' souls with desire and passion. Running, like life, has ups and downs that coalesce into a beautiful, undulating rhythm.

And so there is one more model of periodization we need to talk about.

UNDULATING PERIODIZATION

Many years ago, I was talking to a coach of a successful college cross country team, an Olympian himself, who had his athletes do one type of workout on Monday, another type of workout on Wednesday, and what the coach called a "wildcard" workout on Friday that the athletes could choose based on what they thought they needed to work on. The coach believed in training multiple aspects of fitness and all the metabolic energy systems all the time. Runners and other coaches often do the same, training multiple fitness factors simultaneously within a microcycle.

A standard week of training for many runners is an interval workout on Tuesday, tempo run on Thursday, and long run on Saturday or Sunday, with a mix of aerobic runs and perhaps strength training on other days.

Although the coach who prescribed this training to his athletes didn't mention it during our conversation, there is a term for this type of training—*undulating periodization*, which includes drastic variations in volume and intensity either daily or weekly throughout the training program. It is based on the theory that if a training stimulus is repeatedly presented in the same way, its effect diminishes. So instead of repeating the same stimulus, you constantly change it—from week to week and even from day to day.

Undulating periodization can serve as a way to maintain (or even increase) aerobic development during latter mesocycles of a macrocycle, which is often neglected in a linear periodization program, when the latter mesocycles focus on intensity. Since aerobic development is always important for a distance runner, undulating periodization injects volume throughout the training program.

As with most of the scientific research on periodization, undulating periodization has been studied most often as it pertains to muscular strength. Indeed, it was developed specifically for strength training. Studies that have compared undulating periodization to other periodization models have shown that undulating periodization is equally or slightly more effective as linear periodization to increase strength.[,,,] However, a review of 23 studies on strength training found that undulating periodization increases muscular strength, but is less effective than linear periodization.

UNDULATING PERIODIZATION CAN SERVE AS A WAY TO MAINTAIN (OR EVEN INCREASE) AEROBIC DEVELOPMENT DURING LATTER MESOCYCLES OF A MACROCYCLE

Due to the constant variation in volume and intensity, creating an undulating periodization program is considerably more work compared to designing other types of periodization programs. When the intensity is low, the volume is high, and vice versa. The intensity pattern doesn't need to be repeated; it can vary throughout each week. For example, a four-week mesocycle early in a macrocycle (when the focus is on volume) can take the following pattern:

Week 1: easy / medium / easy / medium / easy / hard
Week 2: medium / easy / medium / easy / medium / hard
Week 3: easy / hard / easy / medium / easy / medium
Week 4: medium / hard / easy / medium / easy / medium

A four-week mesocycle late in a macrocycle (when the focus is on intensity) can take the following pattern:

Week 1: hard / medium / easy / medium / hard / easy
Week 2: medium / easy / hard / easy / medium / hard
Week 3: easy / hard / medium / hard / medium / easy
Week 4: hard / easy / medium / hard / easy / hard

Any type of periodization training program is (or at least should be) undulating in nature, consisting

of hard days, moderate days, easy days, and rest days, which causes undulating peaks and valleys within each microcycle. The unique characteristic of undulating periodization is that these peaks and valleys are of different stimuli. By contrast, linear, reverse linear, and block periodization are narrower in their focus, planning the training with more specific themes to each microcycle and mesocycle. I am more in favor of the linear, reverse linear, and block periodization approaches, which focus on one or two fitness factors at a time. That doesn't mean that every day of a microcycle or mesocycle is the same, as the volume and intensity are manipulated to drive adaptation to a specific stimulus. Perhaps undulating periodization is best reserved for strength training, as it was initially intended. Unlike running, strength training has a narrow focus regardless of how it's done, whether for muscular endurance, hypertrophy, or muscular strength. Running has a much wider focus that incorporates many body systems and can be done from very slow for hours to very fast for seconds, which represent completely different stimuli and adaptations. My experience supports that it's better to narrow the focus on one or two stimuli, habituate to that stimulus through repetition, and then increase the stimulus (via increases in volume, intensity, or volume of intensity), which requires a linear, reverse linear, or block periodization approach.

Part 4 of this series on periodization will discuss the special circumstances of high school and college periodization.

Dr. Jason Karp is a coach, exercise physiologist, bestselling author of 15 books and more than 400 articles, and TED speaker. He is the 2011 IDEA Personal Trainer of the Year and two-time recipient of the President's Council on Sports, Fitness & Nutrition Community Leadership award. His REVO$_2$LUTION RUNNING coaching certification, which has been obtained by coaches and fitness professionals in 26 countries, was acquired by International Sports Sciences Association. In 2021, he became the first American distance running coach to live and coach in Kenya. *Running Periodization* and his other books are available on Amazon.

REFERENCES

1. Issurin, V.B. Biological background of block periodized endurance training: a review. *Sports Medicine,* 49:31-39, 2019.

2 Issurin, V. Block periodization versus traditional training theory: a review. *Journal of Sports Medicine and Physical Fitness*, 48:65-75, 2008.

3. Issurin, V.B. New horizons for the methodology and physiology of training periodization. *Sports Medicine*, 40(3):189-206, 2010.

4. Issurin, V.B. Block periodization versus traditional training theory: a review. *Journal of Sports Medicine and Physical Fitnes*s, 48:65-75, 2008.

5. Issurin, V.B. Periodization training from ancient precursors to structured block models. *Kinesiology*, 46(Suppl. 1):3-8, 2014.

6. Kiely, J. Periodization paradigms in the 21st century: evidence-led or tradition-driven? *International Journal of Sports Physiology and Performance*, 7:242-250, 2012.

7. Rønnestad, B.R., Hansen, J., and Ellefsen, S. Block periodization of high-intensity aerobic intervals provides superior training effects in trained cyclists. *Scandinavian Journal of Medicine & Science in Sports*, 24:34-42, 2014.

8. Breil, F.A., Weber, S.N., Koller, S., Hoppeler, H., and Vogt, M. Block training periodization in alpine skiing: effect of 11-day HIT on VO-2max and performance. *European Journal of Applied Physiology*, 109:1077-1086, 2010.

9. Rønnestad, B.R., Hansen, J., Thyli, V., Bakken, T.A., and Sandbakk, Ø. 5-week block periodization increases aerobic power in elite cross country skiers. *Scandinavian Journal of Medicine & Science in Sports*, 26(2):140-146, 2016.

10. Rønnestad, B.R., Ellefsen, S., Nygaard, H., Zacharoff, E.E., Vikmoen, O., Hansen, J., and Hallén, J. Effects of 12 weeks of block periodization on performance and performance indices in well-trained cyclists. *Scandinavian Journal of Medicine & Science in Sports*, 24(2):327-335, 2014.

11. Rønnestad, B.R., Hansen, J., and Ellefsen, S. Block periodization of high-intensity aerobic intervals provides superior training effects in trained cyclists. Scandinavian Journal of Medicine & Science in Sports, 24(1):34-42, 2014.

12. Rønnestad, B.R., Ellefsen, S., Nygaard, H., Zacharoff, E.E., Vikmoen, O., Hansen, J., and Hallén, J. Effects of 12 weeks of block periodization on performance and performance indices in well-trained cyclists. *Scandinavian Journal of Medicine & Science in Sports*, 24(2):327-335, 2014.

13. Kiely, J., Pickering, C., and Halperin, I. Comment on "Biological background of block periodized endurance training: a review." *Sports Medicine*, 49(9):1475-1477, 2019.

14. Harries, S.K., Lubans, D.R., and Callister, R. Systematic review and meta-analysis of linear and undulating periodized resistance training programs on muscular strength. *Journal of Strength and Conditioning Research*, 29(4):1113-1125, 2015.

15. Hartmann, H., Wirth, K., Keiner, M., Mickel, C., Sander, A., and Szilvas, E. Short-term periodization models: effects on strength and speed-strength performance. *Sports Medicine*, 45:1373-1386, 2015.

16. Buford, T.W., Rossi, S.J., Smith, D.B., and Warren, A.J. A comparison of periodization models during nine weeks with equated volume and intensity for strength. *Journal of Strength and Conditioning Research*, 21(4):1245-1250, 2007.

17. Rhea, M.R., Ball, S.D., Phillips, W.T., and Burkett, L.N. A comparison of linear and daily undulating periodized programs with equated volume and intensity for strength. *Journal of Strength and Conditioning Research*, 16(2):250-255, 2002.

18. McIntyre, A. A comparison between the efficacy of traditional periodization, undulating periodization, and plyometric training and their lasting effects on performance outcomes in youth athletes. A systematic review and meta-analysis. *Master's Thesis, South Dakota State University*, Brookings, South Dakota, 2019.

INTERVIEW WITH GREGORY HAFF

G. Gregory Haff, Ph.D., C.S.C.S.*D, FNSCA, is a professor of Strength and Conditioning at the School of Medical and Health Sciences of Edith Cowan University, Joondalup, West Australia. He was awarded the National Strength and Conditioning Association's 2021 Impact Award in recognition of the impact of his research, teaching and service to the strength and conditioning profession.

BY RUSS EBBETS

Gregory, what is your background in sport?

GGH: As a youth athlete I participated in gymnastics and track & field especially the sprint and throwing events. As a teenager I pivoted toward football and track & field which really fit my personality and skill sets. When I was 11 years old my father snuck me into the West Morris YMCA in Randolph, New Jersey, and introduced me to strength training. Ultimately, the time spent with my dad lifting weights set the foundation for my athletic and professional career.

When I entered college, I walked on the track & field team as a thrower, but probably should have focused on the 100 and 200m sprints as in hindsight I had more potential as a sprinter than a thrower as I only weighted about 83kg/180# and my sprint times were very good. The issue was that I liked lifting weights and many track coaches at the time thought this would make you slow so they directed me to the throwing events because those were the people who lifted.

While on the track team I got introduced to competitive weightlifting and eventually got talent identified by York Barbell, so I pivoted to weightlifting. I competed in weightlifting from 1988 till 2002. In 2003, after I retired from competitive weightlifting, I became interested in track cycling and began racing on the Frisco Velodrome in Frisco Texas. In many ways I wish I had found track cycling when I was a teenager as the sport really was interesting to me as it leverages strength, speed, strategy, and technology which are all things I have always been interested in.

Overall, I am now 53 and have consistently lifted weights for the past 42 years and continue to explore how to challenge myself physically and more recently have been dabbling in CrossFit as many of the military people I work with advocate this type of training.

How did you get interested in sport science?

GGH: When I was a freshman at East Stroudsburg University, I was lifting in the university weight room

and Professor Frank Pullo and Professor Arnold Goldfuss directed me toward the sport science emphasis in the physical education course and particularly with a focus on strength training. In fact, Prof. Pullo introduced me to the NSCA and at the time the Husker Power text written by Boyd Epley.

During that time, I was on the track & field team as a thrower and occasional sprinter, and I met Coach Rich Fields who was one of the track & field coaches at the university. He introduced me to the sport of weightlifting, which in reality began my journey into the area of sport science. At a Pennsylvania State Championship weightlifting meet I happened to meet Andy Fry, who was studying for his PhD with Prof. William Kraemer at Penn State and over time we became lifelong friends. Andy is probably the one person who really got me interested in sport science as he would come to East Stroudsburg to collect data on the tennis team from time to time and what he was doing piqued my interest.

He also introduced me to the legends of our field including Prof. Mike Stone, Prof. John Garhammer, and Prof. Kyle Pierce all of whom were working with USA Weightlifting doing research on things like overtraining and talent identification. At the time I was most interested in biomechanics and wanted to figure out how to optimize my personal weightlifting performance and Prof. Garhammer was someone who I admired greatly.

I eventually ended up going to Appalachian State University, mainly to become a strength coach, but in working with Prof. Stone I found someone who truly inspired me athletically and professionally. I spent three years with Prof. Stone studying, researching, and training – those were the most formative years of my life as I learned more from him than anyone I have worked with since. That time and my continued friendship with Prof. Stone have allowed me to grow into the professional I am today.

How do you define sport science? What do you see as your area of expertise?

GGH: Sport science is the use of scientific methods to answer questions that inform the training process. Sport science is not just using devices and instruments to collect data, but a systematic process of answering questions through testing and interpretation of data with a lens toward the optimization of performance. A strength scientist, which I consider myself to be, is a sub-specialty within sport science in which the scientific method is used to inform decisions associated with the optimization of the athlete's maximal strength. As such, I leverage various scientific disciplines, such as nutrition, physiology, biomechanics, data analytics, etc. in order to inform specific programmatic decisions related to the optimization of performance with an emphasis on strength development.

Who were some of the early influences in your athletic career?

GGH: I think as an athlete growing up, I was influenced by the Olympic Games, the Wide World of Sports and professional football, and to some extent the World's Strongest Man competitions that were prevalent on ABC in the late 1970s and early 1980s. I think my father was probably my first major influence as he is a Marine and physical training is a part of the Corps ethos, so at a young age training was something we just did — we lifted, swam, did athletics, cycled, etc. In many ways he was preparing me to join the Marine Corps, something I wish I had actually pursued. As a high school athlete a PBS special about the New York Giants strength training program under Jonny Parker and Head Coach Bill Parcells really caught my attention and helped me figure out that strength training and football went together. This got me interested in football, which I played for a while, but ended up focusing on track & field which I was also competing in at the time. From a track & field perspective, Mac Wilkins and Al Feuerbach were two people I looked up to, especially Al because he was a track athlete and competitive weightlifter. As I pivoted to weightlifting, I think Coach Lyn Jones and Prof. Mike Stone were my greatest influences – when others tried to convince me to not be a weightlifter, Jones and Stone actually encouraged me and probably believed in me more than I believed in myself.

Did you ever have much experience with coaching?

GGH: As a college student at East Stroudsburg University, I was a physical education student with an emphasis in sport science. As part of their curriculum, I had to learn how to coach a variety of sports including team (i.e., soccer, football, volleyball, basketball, etc.) and individual sports (i.e., track & field, gymnastics, tennis, golf, badminton, powerlifting etc.), as well as be able to instruct activities such as yoga, strength training and conditioning. The vast majority

of my sports-based coaching has been related to powerlifting and/or weightlifting. I am a National Class Weightlifting coach in both the United States and Australia and have coached the Australian Junior Oceania Weightlifting team in international competition. Currently, I am the co-head coach for the a barbell club in Joondalup Western Australia and coach approximately 15-20 hours a week. As a strength coach I have worked with rowing, women's volleyball, women's soccer, and track cycling at various universities.

What do you see as critical factors in the preparatory or preseason phase of training?

GGH: When considering the annual training plan the preparatory period is really the place where the foundation for high level performance is established. This phase is where specific physiological, psychological, and technical adaptations are targeted to set the foundation for high levels of performance during a competition period. The more novice the athlete the more time spent in the preparation period. With modern sports and increased competitive densities one thing we see is a reduction in time spent in the preparation period, which often results in deficiencies in the athlete's physiological and performance foundation.

How do you define periodization?

GGH: Periodization is the logical integration and sequencing of training factors (i.e., volume, intensity, training density, training frequency, training foci, exercise selection and mode) into mutually dependent periods of time designed to optimize specific physiological and performance outcomes at predetermined time points. More practically, one could simply consider periodization as a strategy for organizing training.

WHEN CONSIDERING THE ANNUAL TRAINING PLAN THE PREPARATORY PERIOD IS REALLY THE PLACE WHERE THE FOUNDATION FOR HIGH LEVEL PERFORMANCE IS ESTABLISHED.

How would you describe a microcycle?

GGH: A microcycle is probably the most important level of the planning process as this is where we apply very specific training objectives and strategies. The length of a microcycle generally ranges between several days to 1-2 weeks, with seven days being the most commonly used duration for this planning structure. Conceptually, microcycles should be considered as interchangeable structures that can be used to target the training goals established by mesocycles (i.e., 2-6 weeks of training)

At what age do you see periodization as an effective training tool?

GGH: This is a question I get all the time and I always answer that all athletes have some degree of periodization. We must remember that periodization is a framework or a scaffold from which training decisions are actually made at the programming level. We can think of periodization on a sliding scale of very loose rudimentary planning to very detailed and structured planning. So, if we look at a youth athlete who is in the early stages of his/her long-term athletic development (LTAD) plan there would be a basic periodized training plan which has the development of motor literacy as the main goal, and we would target those goals with various training strategies. On the other side of the scale is the elite athlete who engages in highly focused training where we leverage monitoring, programming tools such as AI and machine learning, nutritional strategies, etc., to seek out those 1% gains that separate the elite form the rest of us. So, for me, all athletes require some form of periodization, though the complexity of the plan will vary.

How do you feel about the effectiveness of periodization in team or ball sports? How does the application of periodization differ between team/ball sports with a defined season versus individual/Olympic sports that more lean towards seasonal goals and the Olympic cycle for performance results?

GGH: Periodization can be applied to both team and individual sports. When examining team sports there is a schedule which is aligned with the calendar year, where you have defined an off-season, pre-season, in-season, and post-season. As such, periodization is a framework that defines the goals objectives for these periods.

Ultimately the primary confusion about periodization is that people conflate it with programming. While interrelated periodization and programming are actually two different constructs. Periodization

provides the scaffolding from which programming decisions are made and all sports require some degree of periodization.

So, in our team sport example we can periodize our goals and objectives based upon the various season and the targeted goals for the annual plan. From there we can engage in planning and choose one of the periodized models (i.e., parallel, sequential or emphasis) to guide our programming decisions. The beauty of these structures is the annual plan is rather rigid as the competitive season is defined by the league, but programming is very fluid and can be modified based upon our integrated monitoring program and the individual rate of adaptation or progress of the athlete. Ultimately, periodization is applicable to all sports.

Now if we look at long-term planning or the multi-year training plan, we often look at the quadrilinear cycle, which is most associated with preparations for the Olympics – but this can be adapted and employed for high school and collegiate sports. So, let's consider our high school volleyball athlete. As a freshman she will have different goals than she would as a senior so our multi-year training plan would have progressive goals established for each annual training plan, which would align with her long-term athlete development plan. Programming would vary from year to year in response to her adaptation and progress toward her projected goals.

What are your feelings about early specialization? Why is it good or bad? Are there any exceptions?

GGH: This is another common question. Generally based upon the science, athletes who have broad multi-lateral development as youth athletes tend to be more successful as they generally have a greater motor literacy. Thus, for me I think having young athletes engage in complementary sporting activities is important. For example, playing football, basketball and participating in track & field can provide a prospective football player with a variety of motor skills that only serves to make him better in the long run. Now there are exceptions here, in sports like gymnastics which require early specialization you really have no choice but to start young in focused training as these athletes' elite careers can be over by the time they are 20.

ATHLETES WHO HAVE BROAD MULTI-LATERAL DEVELOPMENT AS YOUTH ATHLETES TEND TO BE MORE SUCCESSFUL AS THEY GENERALLY HAVE A GREATER MOTOR LITERACY.

Do you have any "rules of thumb" when specialization should begin in earnest?

GGH: For me I am a proponent of focusing on multi-lateral training at a younger age as this will allow for the maximization of the athlete's movement literacy. As the athlete develops greater levels of specialization can be implemented. Often you have to think about this as a "it depends" scenario – for example, young gymnastics athletes are required to specialize at a much younger age than an American football player. So, in this context it really depends upon the sport and the athlete's level of development within that sport.

How do you define training age? When does it start and why is it an important consideration in training design?

GGH: Training age is the number of years that an athlete has engaged in physical training. As such the athlete's training age begins when at the first stage of their long-term athlete development plan. With each year they progress within their plan their training age will increase. Now training age can be contextualized as being a general training age and a specific training age. The general training age would be the years dedicated to fundamental training and learning to train which are typical components of an LTAD plan. These would be multi-lateral and not sport specific. The Specific training age would then include time spent in a specific sport that is targeted.

Bompa has written often that the training should be 65% efforts so as not to "fatigue the system." What does that mean and what training can a child do so as not to fatigue the system? What constitutes a 65% effort?

GGH: This is a great question about a quote that I really have never been able to wrap my hands around and have never been able to get Prof. Bompa to explain to me. What I think he means is that we should not train to absolute failure, but to be honest I really don't know what he is talking about here.

Regarding this "don't fatigue the system," how I have taught this is that the energies of a child can be spent on growth and development or on training and competition. Where there is early specialization and the coach/parent tries to make the child the next superstar they use the body's energies that could go for growth and development, in order to achieve a highly trained performance now. The future is spent on the present.

Years ago, I wrote the curriculum for the Youth Level 2 Coaching Ed. One thing I found out was that any child that held a Junior Olympic record before age 16 never amounted to much in the sport. For instance, I have referenced the kid from India, Budhia Singh who they made a movie about, Marathon Boy, on Netflix. All felt he was destined for world-beating marathon times but topped out in his early 20's injured with a lifetime best in the 2:30's. Anyway, that is my take on the "don't fatigue..." issue. It is preferable to have lots of multi-lateral development and create a larger skill inventory that they can draw upon later.

Personally, the statement that training should be at 65% of the effort so as to not fatigue the system is a bit nebulous and without context is difficult to really explain. I agree that when working with athletes we would need to balance their life with their development. What we're talking about is more about specialization too early in the training process and pushing the athlete too hard too early. To me this is more of an example of the Too Fast to Ripen, Too Fast to Rot principle talked about by Verkoshansky. Basically, the rate of gain is proportional to the intensity of training, but the duration of sustaining that performance is inversely related to the rate of gain. And the rate of gain is inversely proportionate to the final performance level. A more systematic and steady gain will result in a more sustained performance capacity that is able to be held for a longer duration.

A MORE SYSTEMATIC AND STEADY GAIN WILL RESULT IN A MORE SUSTAINED PERFORMANCE CAPACITY THAT IS ABLE TO BE HELD FOR A LONGER DURATION.

Were you to employ testing for talent identification which tests would you use? At what age do you feel the test result become a valid indicator?

GGH: I am not a fan of talent identification as it limits who gets into a sport and tends to find individuals who are born early in the year or mature early. If you simply went on talent identification Michael Jordan, arguably the greatest basketball player of all time, may never have played basketball. The issue I see is that talent is more than physical traits, it encompasses other things that are difficult to measure. If you look at Tom Brady the greatest quarterback ever to play football. From a physical perspective, he really would never be talent identified as he is less than impressive, but he has something special that drives him to be the best that he can be. Recently Troy Aikman called him the least athletic quarterback to ever play the game, but man does he command the game when he plays. It's that special something that I do not think you can measure. Now as a sport scientist I do test athletes and I measure things like aerobic capacity, anaerobic power, maximal strength etc. as all of these things can give me an idea of what sports the individual's physiology aligns with. But these are really just the starting point; the will and resiliency that drive ultimate success are what makes people really successful. Those people, much like our special forces community, have something very special that allows them to push themselves to places where other people would simply quit. That truly defines talent in my honest opinion.

Which tests do you feel are most useful? In terms of information gained, their ability to predict future performance and reproducibility when used in the future.

GGH: This is a hard question to answer because it really depends upon the sport and attribute being tested and why testing is being implemented. I tend to use the 1) isometric mid-thigh pull, 2) vertical jump tests on force plates, and 3) the 30-15 Intermittent Fitness test for many of the team sports athletes that I work with. My cornerstone test is the isometric mid-thigh pull as it can be used to inform on lower body force production as well as how that force is produced (i.e., rate of force development). It is reliable and is used in a variety of sports as well as the military. I am a bit biased as I conducted the first study in the Western literature on this test when I was a graduate student.

How does testing focus change throughout the season or do you

simply use performance times/ distances as markers to fine tune future plans?

GGH: Again, this is a "it depends" answer. First you must decide if you are benchmark testing or if you are monitoring. For example, when benchmarking you would have a small battery of tests that are used to determine the athlete's progression over time. These are done at a key time point within the annual training plan and provide information on how the athlete is tracking toward his annual training plans goals. Monitoring on the other hand is the use of frequent testing to determine the athlete's current state and provide information from which micro-adjustments are made to the training program.

Talent identification is more regimented in autocratic countries. The countries aligned with Western thought more leave things to chance. What are some programs you have become aware of that do a good job in identifying and developing young talent? (Australia, Canada, Europe, etc.)

GGH: Talent identification is an interesting construct and one that often doesn't actually identify talent. Often these programs simply identify fast maturing athletes and specific performance attributes often failing to find the factors related to resiliency and work ethic which are likely the higher order attributes for true success. While in Australia we do a lot of talent identification to find athletes to put into our institute system the reality is that these types of programs actually limit the talent pool more than they provide targeted development of athletes. Fundamentally, you want to have as many people participating in sport as possible so that you can examine a larger amount of people and the let the system identify athletes for you.

How does the application of periodization for masters (40+) sports differ?

GGH: The application of periodization is no different for a masters athlete than it is for a youth or adult athlete. Basically, you plan a competitive season and you then set goals to establish the framework from which you make programming decisions. Your programming strategies will be different for masters athletes as they will need to have more recovery training and usually have limited capacity to recover from repeated high intensity or high load training. So, it is programming strategies that will differ, not so much periodization models.

Traditionally periodization is done with a two cycles per year but a distance runner in the American collegiate system might require three cycles per year. How effectively can this be done and is anything lost because of training this way?

GGH: Conceptually, what you are referring to are macrocycles – it is not uncommon for athletes to have between 1 and 3 competitive seasons depending upon their sport or the sports they participate in. Conceptually, to effectively create an annual training plan with 2-3 seasons it's all about how these programs sequence and how later seasons build off the previous season. Fundamentally, the more competitive season, the less time for physical development, but that being said you can construct these types of programs to be effective at elevating performance and for developing the athlete.

EVIDENCE BASED DECISION MAKING IS A CENTRAL PART OF COACHING

Do you feel there are significant differences between structuring a season for speed/power events versus endurance events?

GGH: Annual plans are constructed based upon the number of competitive seasons and the competitive schedule. Considering that all sports have these, the basic process of designing periodized training plans is actually similar for all sports. The main difference is in the structure of the annual plan and the needs of the sport and athlete. The main difference between speed/power and endurance events is at the programming level and the physiological and performance outcomes targeted.

Societally it seems we are in a period of evidence based decision making. Up to what point do you feel evidence based thought should drive decision making and when should common sense or experience come into play?

GGH: Evidence based decision making is a central part of coaching and a part of how we train athletes. For me, all decisions are made based upon evidence, but I must contextualize it based upon my experience and the construct of human interaction. Coaching is not a plug and play algorithm as the human part of the process must be considered. As such, the information we collect has to be filtered

based upon human understanding and experience.

Mental health has been given much focus lately with some high profile athletes sharing their struggles. What do you feel are some critical areas or points of emphasis a coach could consider to ensure a training and team environment that promotes a strong mental health?

GGH: We have seen an alarming rise in mental health struggles in society and within sport. What we know is that resiliency is a learned and practiced skill as such we must expose people to difficult things in their life in order to help them develop the ability to tolerate the stressors of life. While exposing people to difficult things is a critical component of this development, the secondary component is that we must challenge them in a caring and nurturing environment. As coaches we must always remember we are working with humans who have different feelings and experiences. As such we must be cognizant of how we communicate and interact with people.

Regarding plyometrics – what is the value of plyometrics?

GGH: Plyometrics are a training tool in which we engage the stretch shortening cycle (SSC). Plyometrics are simply a method for developing the capacity to maximize the effectiveness of the SSC.

What preparation is necessary to successfully integrate plyometrics into a training program? At what age can plyometrics be safely started?

GGH: Anyone theoretically can perform plyometrics. If we look historically children who engage in free play often jump over things, drop off of things or engage in jumping activities such as skipping rope. These are all forms of plyometric activities. The issue that we have is that many youths today do not engage in free play and are significantly lacking in the requisite strength levels to maximize the effectiveness of plyometric training. As such, in these populations we need to first build strength before we engage in plyometric training. If the athlete lacks the requisite strength, he will not be able to tolerate the eccentric loads associated with plyometric training.

THE INTEGRATION OF PLYOMETRICS INTO A TRAINING PROGRAM IS REALLY DEPENDENT UPON THE GOALS OF THE TRAINING PROGRAM AND THE STRUCTURE OF THE PROGRAM.

At what point in a training cycle should plyometrics be introduced?

GGH: The classic answer to this question is "it depends". The integration of plyometrics into a training program is really dependent upon the goals of the training program and the structure of the program. For example, if you use a sequential model of periodization, you would not bring plyometrics into the program until you have first targeted strength endurance and then maximized strength. As such, plyometrics would come into play during the strength-speed and speed-strength phase of the training program. If, however, you were using an emphasis model of periodization you would have plyometrics in every stage of the training plan, but the emphasis would vary.

In this example, when targeting strength endurance as the primary emphasis we would do lower level plyometrics at a reduced volume and strategically place these exercises to minimize the impact of cumulative fatigue effects within the training block. In a speed/strength-focused block of training, we could increase the emphasis on plyometric training and integrate higher level plyometric exercise such as depth jumps, etc. As such, where you put plyometric, and which plyometric you use is largely predicated by what your training goals are and the program structure you are using.

That being said another consideration is the overall level of the athlete and in particular the relative strength of the athlete. While any athlete can perform plyometrics it is important to remember that stronger athletes benefit more from plyometric training and are able to undertake higher level plyometrics more effectively. Conversely weaker athletes get less benefit from plyometrics and have consistently been shown to benefit more from increasing relative strength in lieu of focusing on plyometric or power-based training.

Do you have any rules of thumb regarding leg strength necessary before plyometrics could safely be used? (I'm referring to the old 1.5x bodyweight in the squat).

What strength markers would there be for the arm and trunk?

GGH: when looking at plyometric training the stronger you are the more effective plyometrics will be. Generally, for lower body plyometrics we would use a 1.5x (body mass) BM cut-off, but in reality, the threshold of 2.0x BM is probably a much more effective threshold. With the upper body a threshold of 1.0-1.5 x BM is the strength minimum. The other issue that we see is that stronger people are able to better tolerate plyometric training and can better perform higher level plyometrics. That being said lower level plyometrics such as pogo, etc. can be used with weaker people, but one must consider the volume and load interactions. One must also consider that with weaker people, those that for example cannot squat 2x BM would get much more benefit from getting stronger than spending large amounts of time with plyometric training.

What do you feel is the greatest misunderstanding or misapplication of plyometrics? (too much too soon, mistakenly used as a conditioning exercise, age/ability inappropriate, etc.)

GGH: The biggest issues I see is using high level plyometrics such as box jump, drop jumps and repeated box jumps with weaker athletes. With these athletes they are not strong enough to offset the eccentric load that occurs from the acceleration associated with gravity. Additionally, when thinking of these types of activities one must consider the size of the athlete – bigger athlete will be exposed to higher loads upon ground contact. The other issue I see is people perform high volumes of plyometric under fatigue which lengthens the time between the eccentric and concentric phase of the SSC which reduces the effectiveness of the plyometric. Finally, performing plyometrics as conditioning causes the same issues.

How do you recommend one quantify plyometric efforts? By number of ground contacts performed or the timing of a series of efforts?

GGH: The answer to this question is it depends. For me plyometrics should be applied with the less is more principle and must be considered in the context of everything else that the athlete is doing. For example, if I am in-season with a volleyball player who in technical practice is doing large numbers of jumps practicing their technical skills then there is really no need to add high volumes of plyometric training to their training plan – so in this case we would focus on strength development and strength speed in the weight room. I would look at the interplay of contacts and also intensity when designing plyometric training programs. I would not recommend programming based upon time, it is more difficult to control the training dose.

What is overtraining? How can this be prevented?

GGH: When we think about fatigue, we can look at it across a continuum from acute fatigue to functional overreaching, to non-functional overreaching, and then overtraining. Within the literature overtraining is defined as an accumulation of training and non-training stress resulting in long-term decrements in performance capacity with or without physiological or psychological signs or symptoms of maladaptation in which restoration of performance capacity may take several weeks or months. Conceptually overtraining is the result in an imbalance between training loads and recovery, resulting in reduced performance. The best approaches to avoiding overtraining is to 1) use well-crafted periodized training programs, 2) plan and structure sleep strategies to match, 3) optimize nutrition strategies, 4) monitor athletes with subjective and objective tools.

IF WE LOOK AT OVERTRAINING IT IS SIMPLY A DECLINE IN PERFORMANCE THAT OCCURS AS A RESULT OF ACCUMULATED FATIGUE FROM TRAINING OR OTHER STRESSORS.

With regards to overtraining – do you do much to differentiate between sympathetic and parasympathetic nervous system OT?

GGH: There is much debate about sympathetic and parasympathetic overtraining. Personally, if we look at overtraining it is simply a decline in performance that occurs as a result of accumulated fatigue from training or other stressors. Overtraining can result from both sympathetic and parasympathetic overwork. It is very difficult to differentiate between sympathetic and parasympathetic overwork because the symptoms often overlap. As such I often avoid getting too granular when looking at overtraining and deal with the issue more holistically.

At what point would you discourage an athlete's personal style and their deviation from an accepted technical model?

GGH: Style is an interesting concept as there are key known mechanical principles that relate to performance that inform basic models of performance. There are instances where athletes can be very successful with an individual style. For example, Michael Johnson whose running style was very atypical achieved higher levels of success with his personal style than with a more typical running style. For me this is another "it depends" question if the style is not maximizing performance than we must change it to one that does.

Recovery, to me, is the piece of Yakolev's Model that gets the least attention. We are all about making someone tired and have 1001 different ways to accomplish this task, but as for methods to recover, not so much. What do you see as some "must do's" to enhance recovery and what are some underutilized modalities, treatments or practices that you feel would be worth investigating more in the future?

GGH: I actually disagree, but this may because I am in Australia where it seems all they care about is recovery and often spend an inordinate amount of time on recovery, often at the detriment to training. My base belief is all the recovery in the world will not overcome bad training. I am not sure where the idea that making someone tired is a primary goal came from as an idiot can make another idiot tired. For me it is about dosing training in a prescriptive manner and then matching recovery to that training dose. Ideally at the center of this process is having an effective training program that is correctly periodized. From there the two corner stones are 1) nutrition and 2) sleep.

In most instances, if your program is well structured, your nutrition is optimized, and you are getting enough sleep, recovery will take care of itself. In some instance more advanced strategies are warranted including peristatic pressure (i.e., Normatek), water immersion (i.e., cold, contrast and thermoneutral), compression as well as massage can all be beneficial. Things like mindfulness and meditation can also aid in the recovery process.

THERE IS A LARGE DEGREE OF INTERINDIVIDUAL VARIATION IN OUR ABILITY TO RECOVER.

In my experience I have found that there is a lack of focus on periodizing recovery to align with the training process and this really impacts the effectiveness of the training process. For example, if the athlete is engaging in an overreaching block increasing carbohydrate intake, increasing sleep, sleeping with compression garments on, as well as strategic use of water immersion protocols may be useful. I believe more research on the periodization of recovery methods is warranted. Much like training, if you do the same recovery all the time it will begin to lose its effectiveness.

Charlie Francis spoke of the 10-Day Rule following an exceptional or personal best performance and the subsequent rest period necessary following such efforts. Has there been much new research/thought that either supports or refutes these thoughts?

GGH: While I am sure for the athletes that Charlie Francis trained this principle worked, but for me I do not believe we can pigeonhole people to rules like this. There is a large degree of interindividual variation in our ability to recover. In fact we are currently doing research to determine if there is a genetic component to the time-course of recovery. As such, it really depends upon athlete phenotype and how their program is structured, their athletic level, their type of performance, the overall design of their training process, and how dialed in the their nutrition and recovery strategies are. We are limited with the number of truly maximal performances we can present in an annual plan and this is really where periodization helps us determine where we want those performance to most likely occur.

Are there any other disciplines that you have investigated to see "how they do things" and if so, what are some of the things you have learned? (I'm thinking not necessarily of sport-related disciplines such as swimming or cycling but more musical development, artistic development)

GGH: I am a firm believer in reading and having a diverse reading list. I spend a lot of my time reading. For example, over the past few years I have been spending a large amount of time reading about leadership and how to motivate people as well as biographies from about people who are the best at what they do be it coaching, sport, business, cooking, etc. One thing I note is

people who are the best at their chosen profession have a lot of commonalities. I am a huge fan of the book *Extreme Ownership* by Jocko Wilinik and Leif Babin as well as General Stanley McChrystal's book *Team of Teams*. From these books I have learned about how to lead and organize organizations. Conceptually, a sporting team is a team of teams. You have a medical team, a human performance team, a nutrition team, a rehab team, athletes, businesspeople all of whom need to function with agility and in concert with one another. Through creating interactive teams, you can better service the athlete's needs, whilst making the organization more efficient. The principle of extreme ownership is about taking ownership over one's actions and not falling prey to victimhood or blaming others for the things that go wrong in our life.

What do you see are the greatest differences between coaching men and women?

GGH: Personally, I coach athletes and the sex of the athlete is irrelevant. If you ascribe to principles of individualized training, you will train the person based upon his/her needs and develop communication styles to align with the way that person requires communication, and their sex really does not dictate these demands. Fundamentally I do not see much difference between men and women but do see differences between individuals regardless of sex. Some athletes need a more direct and authoritative communication style, others need a more sympathetic style. Each individual will have physical weaknesses that we will target. Now there are some physiological differences between the sexes that we must understand and work with, such as the menstrual cycle, but again each female responds differently to menstruation so again it comes down to training individuals.

What accommodations should be made for the late adolescent (ages 18-21)? This seems to be more a problem with the "one and done" basketball players that go professional early. It seems that the grind of the NBA seasons seems to generate season ending injuries consistently within the first two years of a career.

GGH: The issue with late adolescent athletes transitioning to professional sport is centered on where they are in their developmental pathway. They may be highly developed as basketball players, but underdeveloped physically. As such they are at greater risk of injury because they do not have the physical profile to support their level of play. As such, the key is the implementation of multilateral training at younger ages and structured strength and conditioning and not solely focusing on the skills development for the sport.

Regarding career longevity – What defines a "career" at a high level? How long does an athletic career last? What can be done to prolong longevity?

GGH: This is an interesting question, and it really depends upon how you look at it. For me career longevity is the ability to continue to operate at a high level for as long as possible. The length of a sporting career is a very individualized thing and relates to a lot of factors. I would say "luck" which is the residual of preparation is what allows one to have a long career. If you want to have a long career you need to maximize things like effective training – more is not always better. Optimize your diet as nutrition is probably one of the most critical aspects of performance. As I have aged, I come to believe that range of motion, which declines with aging, is an essential component of maintaining performance levels for a long period of time. Another factor is maintaining strength. Strength is critical as the aging process results in strength loss – fundamentally weak things break more frequently. Finally, one must work to ensure that mental health and wellness is retained. It is well documented that psychoemotional stress impacts the recovery process – so maintaining healthy levels of psychoemotional stress is important.

CAREER DEVELOPMENT IS A PROGRESSIVE JOURNEY, AND IT TAKES TIME TO MASTER ONE'S SKILLS.

Is there an area that you researching currently? What contribution do you hope to see these efforts make?

GGH: Currently we are exploring the concept of personalized training and how we can integrate technology into the training process without losing the art of coaching. Everything we are doing is centered on maximizing performance for as long as possible.

For a newer coach – what three areas would you recommend they focus their attention on or try to develop a level of mastery early in their career?

GGH: When looking to develop as a coach I ascribe to the principle that you must understand the science that underpins the principles of training, be diligent in your practice of coaching, and compete at something athletically. Career development is a progressive journey, and it takes time to master one's skills. Often mastery does not come until one has failed and had to be reflective about that failure. I believe that the first thing you must do is find a mentor, someone who has achieved great success and is deemed a master. For example, I did a large amount of my academic study under Prof. Mike Stone, an icon of strength and conditioning research, but simultaneously worked under his wife coach Meg Stone one of the legends of strength and conditioning. This work was the beginning of my professional journey, from which I have continued to evolve through self-study and continued learning.

Any authors or articles you'd recommend for further study?

GGH: It is my belief that to be the best professional you must be an engaged reader, not only in your area of focus but across a broad spectrum. At the moment I am very interested in leadership, particularly within the military so I would recommend the following

- McChrystal GS, Collins T, Silverman D, and Fussell C. *Team of teams: New rules of engagement for a complex world.* Penguin, 2015.

- Fussell C and Goodyear CW. *One mission: How leaders build a team of teams.* Penguin, 2017.

From a sport science perspective, I think reading the works of the icons is key, people like Prof. Hakkinen, Prof. Stone, Prof. Komi, Prof. Schmidtbliecher, and Prof. Verkoshansky, as until you understand the past you cannot understand the future. Some modern authors I like are Professor Comfort, Professor McBride, Professor Fry, and Prof. Sinclair.

I think the biggest emerging area will be in the area of data analytics, machine learning and AI as these tools will inform our future training practices and understanding how to use these tools will be an important part of coaching in the future.

Anything else you'd like to add?

GGH: Coaching is an art which is based upon science. To truly be a master coach you must understand the science that underpins how the body functions and how it responds to various stimuli. But you must also understand how to get people to do things that they may not particularly want to do. So being able to leverage science to support the softer skills of coaching is critical. The other thing that I always tell my students is that you must be humble, and you must consider that you do not and will not know everything and there is always something to learn. One must consider that criticism comes with the territory, and you must not let this define who you are when people critique your work, they are critiquing your work not who you are as a person. The athletes you train are people, and you must always remember we are in the people business so the ability to communicate, motivate and display empathy are keys to being successful.

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TRACK FACILITIES: KEEPING THEM IN SHAPE

BY MARY HELEN SPRECHER

This brief guide to track maintenance is provided by Mary Helen Sprecher of the American Sports Builders Association office. Obviously, this is an important part of the track coach's job.

You don't have to be in Eugene at the iconic Hayward Field, nor do you have to be hosting the Olympics, to have a track & field facility that wows athletes and spectators. What you need is a facility that is well-built and, just as importantly, well-maintained.

A facility that gets regular care and maintenance should offer years of service. To maximize the useful life of a track regardless of the type of surface, the owner should develop and implement a regular schedule of maintenance. That may sound daunting but all it really involves are three things already at your disposal: Both feet, both eyes, your phone (for taking pictures only) – and your attention.

Here's the routine you'll want to follow, according to members of the American Sports Builders Association, who publish the book, *Running Tracks: A Construction and Maintenance Manual*. The good news: None of these tasks are difficult to do and, when done regularly, they can help you spot small problems before they become big ones (translation: expensive repairs).

For your reference, a sample checklist has been included with this article; you can personalize it to include any features of your track & field facility that might not be listed here.

TAKE A WALK

Get started by walking around your track, looking straight down and looking at every lane. What do you see? You should see an even surface with no undulations, cracks, depressions, bubbles, peeling, flaking or other irregularities. Remember that those irregularities, while you might be able to avoid them, could potentially cause an athlete to trip, slip or fall, particularly in the heat of competition, when they are looking forward (not down) as they run. Make sure lines and markings are clearly visible. If you spot problem areas, take photos of them and make notes about where they are, then keep walking.

Next, climb to the top of your bleachers and look down. Look for any undulations or changes in the track that might not have been visible previously. At the same time, take a good look at your field, with an eye to areas where the grass is skinned or, in the case of synthetic turf, where the lines are not straight, where turf seems to be bunched up, etc.

Using the suggested checklist, keep a record of cracks in asphalt and irregularities in the track surface over time. Some cracks may merely be signs of normal wear and tear, while others may signify more serious problems. Weeds growing through cracks will accelerate their expansion. Use an approved herbicide and soil sterilant to prevent regrowth. Experienced professional track surfacing contractors (we'll discuss this in a minute) repair cracks and are experienced in determining the types of cracks and the appropriate methods of repair. Only crack repair materials specifically designed for use on track surfaces should be used. In most cases, it is more cost effective to consult with a professional when faced with the need to repair a crack; using an unsuitable product or method will only worsen the problem.

When you have a list of your areas of concern, call the company that installed your track & field facility. (It may be that two different contractors were involved – one for each field – so be sure to search records carefully. If you can't find the name of the original builder, don't do a random Internet search. You'll get better results by reaching out to colleagues in the area who have had facilities built or improved. Who was their contractor? Would they recommend that company?

Track and Facility Field at Billerica Memorial High School: Photo courtesy of Warner Larson Landscape Architects

ASBA also offers a free "Find a member" feature on its website at www.sportsbuilders.org, allowing those interested to locate specialty contractors in the area, or with particular expertise. (There are also contractors who hold the designations of Certified Track Builder (CTB) or Certified Field Builder (CFB); this information is also available on the website.

CHECK IRRIGATION SYSTEMS

Next, turn on your irrigation system. Make sure water is spraying out of all sprinkler heads at an even rate. Also, ascertain that the sprinklers are properly directed toward the field. Water should not be spraying onto the track or onto adjacent structures, like benches, bleachers or storage sheds; that's just wasted water that, over time, can damage your track. Again, take pictures and note any problem areas.

Shut off the water and check drainage. If there are areas on your field that seem to hold water for too long, it's a sign of drainage problems. This is true whether your field surface is natural grass or synthetic turf. (If you see water puddling on your track and not draining, note that as well).

Keep an eye on curbs, drains and other areas as well, and clean drain inlets on a regular basis. If there is a field around the track, ascertain that grass clippings or other material (leaves, twigs, etc.) are not building up along the bottom edge of the fence and creating a dam that holds water.

A common cause of inadequate drainage on a track is that the asphalt under a porous surface is lower than the curb or other barrier on the side where the water drains and the water cannot escape. Another problem occurs when owners or the governing body rules require minimal slope (as is often the case on high jump approaches), and the slope is not adequate to move the water.

While tracks are referred to as "all-weather," meaning they can be used in the rain, excessive water can be a problem, particularly if it gathers in low spots. Over time, an overload of water can lead to delamination or degradation of

the surface. Even a professionally designed and built track may be subject to some water accumulation now and then; the key is to identify and address areas where water stands too long.

ON THE SURFACE

A key step in maintaining all types of track surfaces is regular cleaning. Remove debris immediately and spot clean spills as soon as they occur. Practice preventive maintenance by prohibiting food and beverages (except water) on the track surface, as well as chewing gum and tobacco. Some facilities prohibit smoking entirely while others have designated smoking areas that are separated from the bleachers and thus, are less likely to interfere with the facilities.

Provide lidded waste and recycle containers to encourage athletes and spectators to keep the area clean. Additionally, when it comes to those who actually use the track, require proper footwear. Remember that track shoe spikes of excessive length can damage the surface and accelerate wear. Spikes should never exceed 3/16" (5mm) in length and should be conical or pyramidal in design. Needle spikes or "Christmas tree" spikes may accelerate wear on the track and should be discouraged. Should the track be available to the community for use when the facility is not busy, make sure a list of rules is clearly posted – it should also prohibit children (who often accompany their parents who want to get some exercise) from bringing in scooters, tricycles and other toys that could damage the surface.

Remove dirt, mud or debris of any kind tracked onto the surface. Abrasive materials such as sand or dirt can be ground into the track and cause premature wear. If athletes in sports like soccer or lacrosse will be crossing the track to get to the field, put down mats to protect the track surface. (If any maintenance vehicles need to be driven in, place boards over the track, followed by mats, to create a crossing area).

Lane lines and track markings, over time, will naturally fade and wear; track contractors recommend remarking the track every four to seven years, although that number can vary depending on the type of surface and the amount of use the track gets. Your track contractor is the best person to speak with about this, since lines and markings will need to be professionally verified in order for your track to host sanctioned meets. (Note that before any work on lines can take place, the track surface should be inspected for surface issues, such as bubbles, cracks, wear, peeling and flaking. Any necessary corrective work will need to be completed first).

The amount of maintenance required by a particular track facility will vary depending upon the weather it is subjected to, as well as the amount and type of use. Keep records of all inspections you have done, problems that have been spotted, and any work done (either by you or by a contractor).

CLEANING EQUIPMENT FOR TRACK SURFACES

A large-size push broom with soft bristles or a leaf blower may be used to remove leaves and other debris. Wet/dry vacuums, and jet spray cleaners (known as water brooms) also may be used to clean and remove stains. Check with your track installer before using a power washer on the surface. Power equipment will require a 110V outlet, and jet sprayers and pressure washers will require a hose connection with adequate pressure and volume.

TRACK CONTRACTORS RECOMMEND RE-MARKING THE TRACK EVERY FOUR TO SEVEN YEARS.

If leaves, twigs, grass or other debris are allowed to stand on the surface of the track, stains may develop. To remove stains, track builders recommend starting with the gentlest treatment possible. A soft brush and clear water may do the trick; if not, try a mild detergent. (When using any detergent, it is best to put a small amount of the detergent/water mix in an inconspicuous spot outside of the competition area to make sure it will not cause discoloration or damage).

If a simple soap and water solution is unsuccessful in removing the stain, contact the track surfacing installer or surface manufacturer for a recommendation. Do not use petroleum or solvent-based cleaning solutions. Tree sap, fruit, berries, bird droppings and other organic matter also can stain the surface, particularly if not addressed right away. Prevent problems by trimming back tree limbs that overhang the area.

If mold, mildew or algae have appeared in shaded areas of the track, ask the track contractor how to remove them. Mold and mildew often grow where surfaces are contaminated by food spills, soft drinks or decaying matter. Unfortunately, they can create slippery areas that are dangerous to athletes. Keeping surfaces clean and dry will prevent these problems.

If any kind of stain has been allowed to remain on the surface for a period of time, natural bleaching of the color coating may have occurred around the stain. Unfortunately, there is no way to correct such bleaching. Do not try to touch up a stain or bleached area by dabbing on leftover surfacing material. Since all tracks fade from exposure to the sun, new material applied to touch up a surface blemish will have a different appearance from the existing track surface and may leave the track with a patchy, freckled look. Some overall fading of colored surfacing is to be expected as time goes on.

CHECKING THE FIELD AND ALL FIELD EVENTS

Next, check your field events. Are water pits for steeplechase events still holding water? At the long jump/triple jump landing areas, sand should be added to bring the level of sand to the top of the border surrounding the pit. The new and existing sand should be mixed and leveled. Any sand or vegetation build-up around the perimeter should be removed. For those pits that have perimeter sand traps, the traps should be cleaned. (If jumps that use water and sand do not have covers, order those now; they will save you a headache during the busy season and can help ensure that your facilities are ready for use whenever you need them. All fixed equipment, such as takeoff boards, vault boxes, stop boards, etc. should be checked to ensure that they are anchored securely in place. Rotted or dilapidated boards and boxes should be replaced. Check the state of landing pads for events like pole vault and high jumps. Look at your hurdles carefully as well. Any equipment that is wearing out should be repaired or replaced; after all, its condition won't get better with time, and the earlier you can order new equipment, the more likely you are to have it when practice begins.

LANDING AREAS

Particular care must be taken to assure that landing areas for field events are prepared to host athletes safely each season. Low areas that may have developed in the landing sector of the shot put need to have additional product placed in order to bring them back to level. The best approach to this task is to lightly scarify the area and mix in new material, then finish by leveling and compact rolling. Make sure weeds or grass are not encroaching. Check all safety cages and barriers used in the throwing events.

Depending on the schedule of use for the track, identify a time (at least once a year) to inspect all equipment used on site. The end of the season may be a suitable time to shop for bargains and to order replacement parts so that equipment can be repaired during the off season.

ON THE FENCE

Your fence is another aspect of your facility that benefits from regular upkeep. Fences that sag, bulge or have broken rails, or those that are rusted, bent or have torn fabric are an eyesore and make the facility look unkempt. Regularly inspect all fencing including the frame, fabric, hardware and footings. A fence that is heaving or buckling should be repaired. Fence footings should be inspected for any movement. Gates should be tested; they should move freely, and the latches should function properly. Make sure none of the gates leading to the track or field are dragging over the surface, as this will cause damage over time.

The structural integrity of bent posts may be compromised; if you see these, it is best to remove and replace them. If fence fabric is in good condition, it is possible to remove snags and tears and tighten the fabric on the frame. Fencing contractors are adept at these types of repairs and can do them quickly and efficiently; their work can dramatically improve the look of any track facility.

DON'T OVERLOOK LANDSCAPING

Landscaping in the area around a track and field facility should be checked regularly (at a minimum with each new season). Mulch should be added as needed. Prune back shrubs and prune any trees that might be overhanging the area (even those not affecting the track itself).

If grass around the facility (or the field inside the track area) needs reseeding or fertilizing, care should be taken to avoid doing this work

too close to the track surface. Fertilizers may burn, discolor or otherwise damage track surfaces. Note that string trimmers and edgers can damage track surfaces.

If your track encircles a natural grass field, a good practice is to create a mow strip a minimum of 6" (15.24cm) wide to help keep equipment away from the track edges. Make sure all cuttings are blown away from the track surface. Also, when adding seed, sweep or blow off any seeds that might have landed on the surface of the track; like weeds, they can take root.

GENERAL WEAR AND TEAR

Some wear is normal. Track surfaces will tend to wear in lanes 1 and 2 due to high use, as well as at the takeoff areas in the field events. If your track is open to community use, have signage encouraging users to confine their activities to the outside lanes.

Regularly trim the grass and landscaping around the track to permit proper drainage of rainwater from the track surface. Weeds left growing around the perimeter of the track will invade the surface at its edges and over time, will break down the surface. A border around the perimeter of the track should be kept free of vegetation to prevent surface damage. Household-grade herbicides and soil sterilants can be used (or you can just hand-pull weeds).

LIGHTING

If your track & field facility is lighted, turn on all light fixtures and check to make sure they are functioning correctly and lighting the track evenly. Check light poles too, as they can become corroded over time. Sports lighting contractors can provide consultation to determine if your system is operating correctly, and if there are ways to make it more energy-efficient.

Fred Kelly Stadium at El Modena High School: Photo courtesy of Byrom-Davey, Inc.

Note, however, that even with regular maintenance, every track (no matter how meticulously cared for) will experience wear and over time will need repairs. Eventually, all tracks reach the point where more extensive work becomes necessary. Whether this involves only a replacement of the running surface or whether it will require complete reconstruction, (including replacement of the underlying pavement), may not be evident until the existing surface is removed. Your track contractor will be able to evaluate the issues present and recommend a course of action.

PRESEASON MAINTENANCE-WINTER

If your track is in an area that has the kind of weather that will result in closure, take some time to do preseason maintenance before locking the gates. Note any cracks and, if possible, have them repaired before winter sets in. If water settles in a crack and freezes, it will enlarge the crack. Periodically remove any debris (assuming the track is not covered with snow and ice) to minimize staining and bleaching.

Check drainage systems and clear drainage structures and pipes. If necessary, repair any damaged structures or pipes that are not functioning correctly. Inspect the entire facility for any evidence of drainage problems or erosion; repair as necessary.

Do not allow anyone to try to remove snow and/or ice from the track & field facility in order to do training, get their exercise or anything else; it inevitably causes damage to the surface.

PRESEASON MAINTENANCE-SPRING

Once snow has melted and the track is ready for use, do another check to make sure no weather-related damage, such as cracking, has occurred. Drainage and irrigation systems should also be checked to make sure they are working correctly.

It sounds like a lot. But over time, regular maintenance becomes routine, and turns into a part of the job that results in a facility that inspires athletes and impresses spectators.

Track & Field Facility Inspection Report

DATE PERFORMED:

Surface Condition
___Good

Problems (note locations where appropriate)
- ___ Bubbles
- ___ Peeling
- ___ Flaking
- ___ Loose material
- ___ High spots
- ___ Low spots
- ___ Cracking (note length and width of crack(s) as well as whether weeds are present
- ___ Weed/grass encroachment on surface
- ___ Stains
- ___ Mold/Mildew/Algae
- ___ Dirt, sand on track
- ___ Color looks faded (overall or in spots; note specifics):
- ___ Other:

Condition of Lines and Markings
___ Good
Problems (note):

Irrigation System Condition/Performance
___ Good

Problems (note locations where appropriate)
- ___ Sprinklers malfunctioning
- ___ Water flow weak
- ___ Water misdirecting outside of field
- ___ Other:

Drainage System Condition/Performance
___ Good

Problems (note locations where appropriate)
- ___ Drains backing up
- ___ Water standing on field
- ___ Water standing on track
- ___ Other:

Synthetic Field Condition/Performance
___ Good

Problems (note locations where appropriate)
- ___ Lines look crooked
- ___ Surface appears uneven
- ___ Infill material displaced, creating ridges
- ___ Stains on turf
- ___ Damage to turf
- ___ Other:

Grass Field Condition/Performance
___ Good

Problems (note locations where appropriate)
- ___ Rutted or muddy areas
- ___ Brown or dead grass
- ___ Standing water
- ___ Areas where grass has been worn away/skinned
- ___ Weeds
- ___ Signs of pests (grubs, insect nests, moles, voles, groundhogs, etc.)
- ___ Other:

Field Events
Note: Inspection should include run-up, take-off and landing areas

Steeplechase/Water Jump
___ Good
___ Problems:

Long Jump
___ Good
___ Problems:

High Jump:
___ Good
___ Problems:

Pole Vault:
___ Good
___ Problems:

Throws Areas (include cage in your inspection):
___ Good
___ Problems:

Fencing
___ Good
Problems (note locations):
___Sagging fence
___ Broken rails
___ Bulging fence fabric
___ Gates touching the surface of track or field
___ Rust on fence fabric or posts
___ Footings coming loose (fence post can be easily moved)
___ Other:

Landscaping
___ Good

Problems (note locations):
___ Mulch needed
___ Pruning needed
___ Pest infestation
___ Other:

Lighting
___ Good
Problems (note locations):
___ Fixtures not lighting/weak
___ Poles corroded
___ Other:
Other Areas Inspected:

For information on publications (including *Running Tracks: A Construction and Maintenance Manual*), contractors, designers and suppliers, contact:

American Sports Builders Association
www.sportsbuilders.org

USATF COACHING EDUCATION

USATF CALENDAR OF SCHOOLS

https://www.usatf.org/programs/coaches/calendar-of-schools

May 19-22	Level 1 – Zoom #2023-20 (Eastern Time)
June 2-4	Level 1 – Zoom #2023-22 (Pacific Time)
June 9-12	Level 1 – Zoom #2023-23 (Central Time)
June 12-16	Emerging Elite Coaches Camp (In Person)
June 16-17	Cross Country Specialist Course #1 (Zoom)
June 19-21	Level 1 – Zoom #2023-24 (Eastern Time)
June 23-26	Level 1 – Zoom #2023-25 (Eastern Time)
July 7-9	Level 1 – Zoom #2023-27 (Central Time)
July 14-15	Cross Country Specialist Course #2 (Zoom)
July 18-22	Level 2 (In Person)
July 21-23	Level 1 – Zoom #2023-29 (Eastern Time)
July 28-30	Level 1 – Zoom #2023-30 (Eastern Time)
August 4-6	Level 1 – Zoom #2023-31 (Pacific Time)
August 11-13	Level 1 – Zoom #2023-32 (Central Time)
August 18-21	Level 1 – Zoom #2023-33 (Eastern Time)
August 25-27	Level 1 – Zoom #2023-34 (Eastern Time)
Oct 1-Nov 18	Level 2 – Weekend (Online)
October 20-22	Level 1 – Zoom #2023-42 (Pacific Time)
October 27-29	Level 1 – Zoom #2023-43 (Central Time)
November 10-12	Level 1 – Zoom #2023-45 (Eastern Time)
November 17-19	Level 1 – Zoom #2023-46 (Eastern Time)
November 24-26	Level 1 – Zoom #2023-47 (Pacific Time)
December 1-3	Level 1 – Zoom #2023-48 (Eastern Time)
December 8-10	Level 1 – Zoom #2023-49 (Central Time)
December 15-18	Level 1 – Zoom #2023-50 (Eastern Time)
December 27-29	Level 1 – Zoom #2023-52 (Pacific Time)

SAVE THE DATE FOR TWO SUMMER SPECIALIST PROGRAMS, REGISTRATION OPENING SOON

The USATF Cross Country Specialist Course and Emerging Elite Coaches Camp will be open for registration soon on the Calendar of Schools.

USATF members will have two opportunities to complete the popular USATF Cross Country Specialist Course with courses dates being offered June 16-17 and July 14-15, 2023 – both will be hosted on Zoom. The USATF Cross Country Specialist Course is based on the methodology of Legend Coach, Dr. Joe Vigil. The 12-hour course provides an opportunity to learn the theory and skills that have produced collegiate and world cross country medalists. The course features technical sessions, cross country specialty drills, periodization training for the cross country season, team building strategies, and long-term athlete development for the endurance runner. The course is open to all USATF members (minimum 18 years of age), regardless of previous training or certification.

The Emerging Elite Coaches Camp, a prestigious four-day camp at a designated High Performance Training Center, will be hosted in person, June 12-16, 2023. Serious-minded coaches seeking advanced information, strategies, and tactics with an eye towards elevating their coaching knowledge and developing national and international, medal-winning, capable athletes are invited to apply.

The camp provides immersion in an intensive science and technical based study. Participants learn from a team of USATF Master Coach educators, sport scientists, and guest lecturers.

Preferred qualifications include meeting at least one of the following requirements: Primary coach of qualifiers to state high school association, collegiate, or USATF Championships; Upper-level coaching education; Previous experience as an elite athlete or staff coach on a USATF international team.

USATF LEVEL 2 PROGRAM ADDS FIELD EXPERIENCE REQUIREMENT FOR FIRST-TIME PARTICIPANTS

To enrich the learning experience and align with evolving National Committee for Accreditation of Coaching Education (NCACE) standards, a field experience requirement has been adopted as part of the Level 2 curriculum for all first-time participants. The field experience assignment was piloted during the 2022 USATF Level 2 Weekend Program and further refined following the program based on participant and instructor feedback. The assignment requires at least 50 hours of practical application outside of Level 2 classroom time via a combination of reflective journaling exercises and opportunities to interview, shadow, and connect with Level 2 instructors, peers, and experts you select to serve as mentors. *The Sport Coaches Handbook* and *Successful Coaching* textbooks are required textbooks and supplement the 21 assignments included in the field experience packet.

Coaches may begin the field experience assignment once enrolled in the Level 2 Sports Science course or at time of Level 2 Event Specific School acceptance. The field experience assignment must be completed

in the calendar year you enroll in Level 2 and by the conclusion of the Level 2 Event Specific School attended. Out of season coaches may meet field experience hour and activity requirements through interfacing with other sport teams performing training activities also used in track and field (e.g., speed work, interval training, strength training, or plyometrics).

Applications for the next USATF Level 2 School, July 18-22, 2023, will open on the Calendar of Schools soon. Quarterly registration for first-time participants seeking to get a head start on the additionally required online Level 2 Sports Science course remains available on USATF Campus.

2023 EMERGING FEMALE COACHING GRANTS AVAILABLE FOR USATF LEVEL 1 AND 2 SCHOOLS

The Emerging Female Grant is provided by USATF and provides a select number of minority women track and field coaches the opportunity to attend USATF Coaching Education Level 1 or 2 Schools (or an approved USATF specialty course). Grants are valued at the respective course tuition fee and room and board if school is hosted in person.

Interested applicants must be a minority female coach, USATF 3-Step Safe Sport Compliant, provide a resume of coaching background/experience, and position statement via an online application.

Applications for Emerging Female Grants are accepted on a rolling basis until funds are expended. Applications are reviewed on the first (business) day of each month and must be received a minimum of 30 days prior to the start date of the requested program/school. Grant recipients will be notified via email.

Apply at: https://www.usatf.org/programs/coaches/grants/emerging-female-coaching-grant

APPLY NOW TO SHADOW A USATF MASTER-ELITE COACH AT THE 2023 USATF NATIONAL CHAMPIONSHIPS IN EUGENE, OR

The National Championships Mentorship Grant provides a unique up-close and personal experience of the strategies, meet prep, mental preparation, and “in-the-moment” coaching for an emerging elite coach in a chosen event. The grant recipient will shadow one of USATF’s Master-Elite coaches through the rounds and final of a chosen event in Eugene, OR at the 2023 USATF Outdoor Championships, July 6-9. A group administrator will lead sessions after each round to discuss the grant recipients’ experiences. Up to eight grant experiences will be awarded and include a registered coach credential and reimbursement up to $1000 towards travel expenses.

Interested applicants cannot have an athlete competing during the designated dates of the mentorship. Applicants must be a current head or assistant coach with a minimum of five years’ experience, have coached an athlete at the USATF Outdoor Championships, U20 Championships, NCAA, NAIA, or NJCAA

Championships or State High School Association Championships in the last five years, member of the USATF Coaches Registry, and provide a two-paragraph position statement on the value of attending the mentorship, submitted with online application. A USATF Level 2 Coaching Education certificate is also preferred.

Applications are due no later than May 21, 2023.

Apply at: https://www.usatf.org/programs/coaches/grants/national-championship-mentorship-grant

USOPC NAMES USATF'S BOBBY KERSEE OLYMPIC COACH OF THE YEAR AND DR. CHRISTINE BROOKS COACH EDUCATOR OF THE YEAR

Long regarded as one of the top track and field coaches in the world, Bobby Kersee has been named 2022 Olympic Coach of the Year by the USOPC after guiding Sydney McLaughlin-Levrone and Allyson Felix to historic achievements. Track and field is the only sport with two honorees, as Dr. Christine Brooks received acclaim as the Coach Educator of the Year, the USOPC announced.

Coach Educator of the Year — Dr. Christine Brooks
As a sports science instructor, Dr. Brooks taught more than 200 coaches entering the USATF Level 2 Program in 2022. Her students, some of whom have doctorate degrees and some of whom are Olympians, have praised the Level 2 Sports Science course she developed as the best online course available in human performance. In addition, she created a modernized USATF instructor training course, which ushered in 16 new USATF Level 1 instructors during 2022. Brooks authored an updated 20-hour hybrid curriculum in a matter of months, which included video lectures and multiple teaching assessments, including a culminating in-person practicum.

Olympic Coach of the Year — Bobby Kersee
Kersee guided 400m hurdler McLaughlin-Levrone to a World Athletics Championships gold medal last July in Eugene, where she ran a stunning 50.68 to smash her own world record. It was the second time McLaughlin-Levrone lowered the WR in 2022, following on the heels of a 51.41 to win the USATF Outdoor Championships a month earlier. In addition to her hurdling exploits, McLaughlin-Levrone anchored Team USATF's women's 4x400m relay to gold in 3:17.79 with a 47.9 split that was one of the fastest in history.

Closing out her career as the most successful American female track and field athlete at the Olympic Games and World Athletics Championships, Felix helped the U.S. to gold in the women's 4x400m relay in Eugene by running in the heats, and then earned bronze in the mixed 4x400m relay to bring her career medal haul at the World Championships to 20.

Other award winners include:
Paralympic Coach of the Year - David Hoff (USA Hockey)
Developmental Coach of the Year - Mike Peplinski (USA Curling)
College Coach of the Year - Ryan Martin (National Wheelchair Basketball Association)
Volunteer Coach of the Year - Jacob Roberts (US Speedskating)
Service Provider of the Year - Jose Polanco (USA Boxing)
Doc Counsilman Science & Technology Award - Tom West (US Rowing)

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The official technical quarterly of USA Track & Field, *Track Coach* (formerly *Track Technique*) has been the sport's major technical publication since 1960. TC became a digital-only publication in January 2015.

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