

Weekly Programming using Ends to Middle Approach

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Introduction

All my words should be taken with a grain of salt, they are in no way shape or form the end all be all. This is meant to be an article with suggestions and examples on how I quantify training for sprinters week to week through a year. If you take anything from it, take away overarching concepts on how you may potentially organize a week of training depending on what phase of training you are in. Note that certain training methods discussed in this article will not be appropriate for certain populations (i.e. youth athletes). Coaches should make educated decisions on when athletes are ready in their development for some of these intense training methods.

Complimentary/Compatible training

I like to think of a coach in the same sense as a chef. All chefs have the same ingredients, but the difference between a bad chef and a great chef is in how certain ingredients are combined, and the order in which these ingredients are combined. This metaphor highlights two concepts that coaches should understand: complimentary and compatible training. Complimentary training is sequencing training sessions in a particular order to enhance the training effect. Compatible training is the combination of certain training activities in a single session that enhance each other, increasing the effectiveness of the session. This can also apply to the exclusion of certain types of training from a session. We spoke briefly about these two ideas without specifically stating them. When we talked about grouping training by high and low neuromuscular demands, that describes compatible training. When structuring training to follow a high low pattern over the course of a week, that describes complimentary training.

- Other compatible training ideas
 - Group by metabolic/energy system demand
 - Group by power output duration
 - Group by force application timeframes (ground contact)/directions
 - Group by technical commonalities
 - Group by static/dynamic nature of activity
- Other complimentary training ideas following a completed session
 - Day of rest
 - Restoration activities
 - Training same qualities of day before, but training them deeper
 - Training same qualities of day before, but training them shallower
 - Training same qualities of day before, but training them in alternate way
 - Training session of differing theme with a contrasting quality

Neural/General Recap

To recap and further expand the concept of grouping training by neuromuscular demand, we will first discuss the upsides to this approach and list which training activities fall into which group. When grouping training in this manner, you get the added benefit of clear signals sent to the body as to what qualities are being targeted. Rather than muddy the water with activities that send conflicting signals, keep these biochemical signals as straightforward as possible. This idea rings true through the entire preparation phase, keeping each respective training day to a single quality being targeted. This allows the most effective work to be completed. This will change during competition periods where multiple qualities may be trained in a single session due to time constraints placed on a training week by meets.

- High neuromuscular activities are those that place a high demand on the nervous system, often activities that show signs of high force or rapid movements. Training activities falling into this category include acceleration development, top speed development, speed endurance, special endurances, plyometrics of all kinds, Olympic lifts, static lifts, ballistic lifts, and multi throws.
- Low neuromuscular activities are those that place a low demand on the nervous system, often activities showing lower force outputs and speeds. These activities include tempo running, general strength circuits, medicine ball circuits, weight room circuits, and low intensity technical work.

We'll now look at weekly programming during the general prep phase along with what this phase is meant for (hint, it's not just "getting fit").

General Prep

In this phase we have a few goals we are looking to accomplish:

- **Neuromuscular improvements**
- **Body balancing**
- **Lactate based restoration**
- **Technical skill development**
- **Work capacity development**
- **Preparation for next phases activities**

Neuromuscular improvement: The main improvements being chased are in recruitment abilities (how much muscle tissue can be activated), rate coding (how fast that muscle tissue is activated), and synchronization (can be thought of as coordination of muscles involved in the movement). To achieve this, movements must explosive, but safe: This phase's activities should be lower intensity than those seen in competition but still high enough to help (rule of specificity). These activities include

- Acceleration development

- Reps of 10-40m
- Ladder up constructs (i.e. 3 x 10, 20, 30)
- Quality over quantity
- Resisted acceleration development
 - Reps of 20-60m
 - Sleds, hills, stadiums (every 2 steps)
 - Quality over quantity
- Olympic lifts (basic power development)
 - Simple movements
 - 5-8 sets of 4-5 reps
 - 50-65% intensity
- Multi throws
 - Medball or shot put
 - Various throws/positions
 - 3-5 reps of 4-6 exercises

Speed and strength improvements are rooted in nervous system improvements (show me two identical athletes, the athlete with a more efficient nervous system at activating muscle tissue will be much faster/stronger/more coordinated etc.). Because of this fact, this type of basic power development training (and corresponding neuromuscular improvements) will continue throughout the entire training year, from day one to day last.

Body balancing: Track and field can become a very repetitive movement sport as running is a cyclical movement, so work must be done to balance across the body's different planes. Sticking to activities only in the sagittal plane (such as running) can create imbalances from the front to back of the body, or side to side. The key to "fixing" these issues is based in variety of movements, not single so called "corrective" exercises. Wide variety of exercises should be placed in certain areas of training such as warm-up, cool down, and general training activities. In addition to these activities, strength training (discussed later) through large range of motions can also help improve body balancing efforts/mobility.

Lactate Based Restoration: As briefly touched upon in part one (middle to ends approach to sprint training), work that produces moderate levels of lactate within the body can cause certain endocrine responses that result in restorative effects. These endocrine responses center around the release of human growth hormone caused by the mild lactate accumulation. There are many activities that can force this response, including

- General strength circuits
 - Wide variety of movements
 - Bodyweight exercises
 - Exercises move from gross to specialized
 - 15-30 second work bouts
 - Work to rest ratios of 1:1 or 1:2
 - Don't go past 12 minutes (power outputs drop)
- Medball circuits
 - Either in repetition or circuit fashion

- 2:1 work to rest
- Mild eccentrics in catch and toss work cause lactate production
- Weightroom circuits
 - 20-24 sets of 10 reps
 - Load is enough to feel the last few reps of each set
 - Large number of exercise (10-12)
 - 60 to 90 second rest between sets
- High neural activities
 - Slight incomplete rests in acceleration development/basic power development in Olympic lifts see similar lactate production levels

Technical skill development: Learning to apply force in both a horizontal and vertical direction is a skill. During this time of the year, learning these skills is very important to sprint athletes to better train specific qualities later in the training year. To learn these skills, we can look at two categories

- Horizontal plyos
 - Focus on applying force horizontally to jump for distance
 - Standing long jumps, standing triple jumps, bounds of 5 and less
- Vertical plyos
 - Focus on applying force vertically, jumps for height with little to no forward movement
 - Hurdle hops, rudimentary short bounding over medium distances

Work capacity development: Work capacity is task specific, in this phase certain training qualities are geared towards building capacity/tissue tolerance for more stressful training to come. These include

- Tempo running (extensive)
 - Building general running base to place more intense work on
 - <79% intensity
 - 100-400m reps
 - Reduced rest intervals
- In place jumps circuits
 - Variety of movements
 - Build lower leg tissue capacity and tolerance
 - Pogos, squat jumps, lunge jumps, line hops, speed skaters, etc.
 - 1:2 work to rest ratio

Preparation for specific prep activities: During specific prep, training will be geared towards higher intensity training methods. These activities will be listed below with the training that will occur in the general prep phase to prepare for that quality.

- **Top speed work**
 - Acceleration development
 - Technical speed work
 - Wickets, stadium runs (every step)
- **Absolute strength work**

- Static lifting
 - Squats, presses, pulls
 - 4-6 sets of 5-8 reps
 - 60-75% intensity
 - One exercise per body region (upper/lower)

Weekly Training Set-Up

Overarching themes when looking at a week: When planning out your program, a coach must look at the different factors associated with your program and respective athletes. These can include the number of days you will have them per week, access to facilities and equipment, number of athletes, age and maturity of said athletes, etc. Once these factors are laid out, one should have general ideas on which training methods are possible for their situation and which are pipe dreams. Following these steps, coaches should divide their training days into two types, neural and general days. These two types should operate in a 50/50 split, how you structure this within a week is up to the coach's imagination. I have found a high/low split to work best for my athletes and respective situation, but a high/high/low/low pattern is a viable option. The important lesson to take from this is that neural training takes time to recover from, the more loading seen from this type of training, the more rest and recovery will be needed following such. More rest is not a bad thing as it is what enables you to reach during your high intensity training (the training that provides the specific adaptations you are after). It should also be noted that better athletes will produce more internal damage at all intensity levels, therefore these athletes require more rest (between reps, between high days/etc.) than athletes of lower abilities. This could manifest itself in a 40/60 or lower ratio of neural to general training.

Creating training sessions: As stated many times, days should be grouped by neuromuscular demand, we will now look at specific combinations of training methods in the context of a day depending on training session focus.

- Acceleration development
 - Force application primarily horizontally directed, supportive training methods will showcase similar force applications, improving skill acquisition.
 - Horizontal short bounds, moderate to heavy weight medball throws for distance, power development Olympic lifting protocols, and static lifting through large range of motions
- Top speed prep
 - Forces are directed primarily in vertical fashion, force application directions similar in supportive training methods
 - Vertical bounds/jumps, lighter medball throws for height, power development Olympic lifting protocols
- Resisted acceleration development
 - Similar to flat acceleration development

- Can place in place jumps circuits here to establish/build plyometric volumes
 - Extensive tempo
 - Fitness training stimulus, low neural demand, supporting activities showcase same qualities
 - General strength/medball/weightroom circuits

Example week in general prep (Elite HS sprinter):

Monday	Tuesday	Wednesday	Thursday	Friday
Acceleration Dev.	Ext. Tempo	Top speed Prep	Ext. Tempo	Res. Acc. Dev.
4 x 10, 4 x 20, 4 x 30 (2'/4') From a rollover start	Hurdle Mobility	3-4 x 50m technical runs	Hurdle Mobility	12 x 30 hill sprints 2' rest
Horizontal short bounds SLJ, STJ, RRL, RLRL x 4	6 x 200 @70% 2' rest	12 x stadium runs (every step)	12 x 100 @75% 1' rest	In place jumps circuit x 2 15:30
Multi-throws OHB, UHF, HHR, HHL x 5	BW circuits x 2 20:20	Short vertical bounds x 2 x 20m	BW circuit 20:20 Meball circuit 40:20	Multi-Throws OHB, UHF, Hop-OHB, Hop-UHF x 4
Lifting Power Clean 6 x 5 @55% Bench Press 4 x 8 @60% Back Squat 4 x 8 @60%		Lifting Snatch Pull 6 x 5 @55%		Lifting Clean Pull 6 x 5 @ 55% Front Squat 2 x 6 Overhead Squat 2 x 6 Pull-up 4 x 6-8

Monday: This training day features acceleration development as the focus. You can notice the ladder up construct of the acceleration runs. This serves both as both a specific warmup for the next set to come but also as a safety checkpoint, i.e. if an athlete senses something fishy when running their set to 20m, this athlete can finish their sets sticking with 10m as that distance was characterized by speeds/tension levels that did not pose a risk to the athlete. Following these acceleration runs, we move onto some short horizontal bounds that begin in double leg support and transition to single leg, show large horizontal forces, and relative long ground contact times (all characteristics seen in acceleration). Following the bounds we move into a multi-throw routine, which teaches the athlete how to project an object (medball or shot put). Following multi-throws we move into the weight room (if you have access and athletes are old/mature enough to adequately handle) where we start with an Olympic lift movement featuring light loads and fast bar speeds (can be any Olympic lift derivative you choose). Following this, our static lifts of bench and squat, which will feature large range of motions (specifically below parallel squats), finish our training day.

Tuesday: To allow the nervous system to recover from the taxing day before, while also training other qualities, Tuesday becomes a day focused on extensive tempo and restoration-based

circuits. On recovery days such as these, I like to implement hurdle mobility at some point, whether that be on the front or back end is up to your discretion. Moving to the focus of the day, extensive tempo, with 200's at 70% intensity/effort (if specific times are desired, take athlete's 200m PB or guestimate of it and divide by .7 to get time goals for this workout). The goal is to keep these times of all 6 runs consistent across the board rather than having the athlete kill the first one to two runs then fall apart the remainder of the workout. Early in the training year is about building specific capacity for faster work in specific prep and competition phases, ensure athletes understand this workout is not about running faster than the goal time/intensity. As general prep progresses, these runs will gradually increase in intensity, closer to the top range of extensive tempo (79%). Following the tempo running, bodyweight circuits are next on the agenda. These circuits will be structured in a 20 second bout of work followed by a 20 second rest period for 10-15 exercises, being sure not to pass 12 minutes of work in a circuit (anything past that is likely to see power outputs drop, which reduce lactate production levels which are necessary to see restorative effects).

Wednesday: This day is a top speed preparation day. Starting with technical runs which expose the athletes to upright running postures/mechanics like those seen at top speeds but at much lower intensities. Early in the season it is not a good idea to let athletes reach top speed as this is a very taxing activity on both the neuromuscular/muscular system (You may be wondering why we have full intensity sprints out to 10, 20, and 30m on the first day if this is the case? Well, athletes are still accelerating at the 10, 20, 30m marks, therefore they are not reaching top speed during these runs, but these workouts are building the frameworks for that work to come in specific prep). Following the technical runs, we see stadium runs where each step is hit. Hitting each step causes the postures to be much more upright, force applications to be vertical in nature, and creates shapes that mimic those seen at top speed. These characteristics are seen in the next training item with short vertical bounds where the athlete is focused on landing/takeoff mechanics of the foot while prioritizing vertical lift as opposed to horizontal distance. As the general prep phase progresses, these bounds can progress in intensity to show further and higher jump distances/heights. Finishing in the weight room with more Olympic lift power development protocols.

Thursday: This day is like Tuesday in structure, but the specific activities differ to help accomplish that body balancing effect seen through variety of movements. The tempo running is shorter this day with shorter rest intervals as to expose the athlete to slightly faster/shorter work, while also getting away from potential monotony of the same workout day to day. Following tempo running, the circuits chosen here will be different than the two chosen on Tuesday, and will be different than the two done the following Tuesday.

Friday: This day features acceleration development again but adds a resistance factor to it with hill sprints as opposed to flat runs. This addition serves two purposes, to change the stimulus to avoid monotony of training, and the ability of resistance to teach acceleration mechanics. This resistance can be in the form of sleds, manual resistance, hills, or even stadium runs where the athlete is covering multiple steps at a time with a forward leaning posture. Following these runs, our in-place jumps circuits are placed here to establish our plyometric volume, helping build the capacity in the lower leg needed for intense plyos/running to come. Next is a multi-throw routine that features some of the same throws as Monday plus additional new ones. Ending in the weight room, we start with our power development Olympic lifting. Followed up by front and overhead

squats to provide work in these positions as sessions in specific prep/competition phase will feature intense Olympic lifting sessions where high loads will be seen in both the front rack and overhead positions.

Progressing through general prep: Progression can come in many forms, most notably in terms of volume and intensity. One form of progression people don't often speak about is mastery, that is getting better at a certain task. Generally, I will set volumes relatively high early in general prep and use mastery as my form of progression, seeking to do each of the tasks at a higher quality (technical/fluidity). This approach does lead to a high amount of work being performed each week, which stresses the need for rest weeks. During these rest weeks, volume drops significantly, while intensity stays high. This drop in volume and associated recovery effects enable the athlete to reach during the next cycle. These rest weeks can be compared to making deposits into a bank, allowing you the ability to make withdrawals (training weeks) in the next cycle. Now how long you have an athlete and how long your training year is, will dictate how rapidly you progress from general prep to specific prep, as well as how you may change training during general prep. For example, an athlete who trains solely for track may spend the first cycle of general prep in trainers and progress to spikes later in general prep. While the athlete who comes to you on the first day of spring track practice, which is 12 weeks away from the postseason, does not have the luxury of time and will need to speed up this progression.

Specific Prep

Specific prep is the phase of training where games/competitions are won. The intensities you reach in this phase will be the level of performance you can expect during competition times. Pitter patter around here, and you can expect the same results come championship time. Training should be very intense and specific to the qualities that are needed in the event. This phase has additions of a few training methods such as

- Top speed work
- Absolute strength work
- Rate of force development prep
- Intensive tempo
- Elastic strength work
- Preparation for next phase's activities

Top speed work: Once an athlete reaches top speed (or close to it), athletes are only capable of holding it for 3 seconds, this should be understood when structuring training for this quality. In any of the sprint events, an athlete's top speed will be the best predictor of success/potential in that event. This work is very intense and requires a rested/fresh athlete to ensure quality is high and intensity levels can be reached. This is an important concept to note, and we will talk about how to structure your week to maximize your training time/efforts and increase effectiveness of this training. This quality is trained through listed methods below, with each show complete recoveries between runs.

- Straight sprints between 40-70m

- Flying sprints
 - Timed segments with a run-in
 - i.e. 10m fly off a 40m run-in
- Sprint-float-sprint
 - Run characterized by 100% sprint efforts and float (focus of maintain speed with less strain) segments
- Overspeed (possibly with advanced athletes)
 - Wind/bungee/pulley systems to expose athlete to speeds slightly higher than natural ability

Absolute strength work: As athletes become faster and more explosive, the strain placed on connective tissue/joints reaches great levels. This requires anchoring to become an important task of muscles (think of shooting a cannon out of a rowboat) to maintain/encourage health. This is where absolute strength work comes into play. This ability also helps lay foundation, in addition to the rate of force development prep, for ballistic lifting and rate of force development work that will come during the competition phase. Absolute strength work is placed here in specific prep rather than earlier in the training year as the neuromuscular improvements seen in general prep helps potentiate the strength work, helping raise its effectiveness to a higher level. This work should only be performed once every 7 days as it is extremely tough on proprioceptors, which we will talk about during the weekly structure at the end of this section. This work is characterized by

- Simple compound movements (large range of motions)
 - Back squat, bench press
 - 4-6 sets of 1-5 reps
 - 80-100% intensity
 - One exercise per body region (upper/lower)
- Complementary lifting protocols addition
 - Absolute strength work can only be done so often, must have other training
 - Large range of motion unilateral exercises
 - 4-6 sets of 5-8 reps
 - One exercise per body region (upper/lower)

Quick note on absolute strength, developing and regaining it are two very different training tasks. Developing a quality is much more difficult than regaining it. Athletes with high training ages and developed levels of absolute strength will require much less work/time spent training this than athletes with lower training ages. Strength is an essential part of developing athletes early in their career, but it matters much less for elite performers in speed sports such as the sprints. Understand there are tradeoffs for every training modality you program.

Rate of force development prep: This is a precursor to RFD (Rate of force development: how fast an athlete can develop high levels of force) work to come during the competition phase. This work, like absolute strength, should be used once every 7 days. Training for this quality look like

- Olympic lifts
 - Generally clean from floor due to loading ability
 - 5-8 sets of 2-4 reps

- @75-85% intensity

Intensive tempo: This training is the next step in the progression from extensive tempo to special endurance 2 that was discussed in the previous article. This training shows higher intensities than those in extensive tempo, which warrants the need for lower volumes and longer rest intervals.

Elastic strength work: This work describes the ability of muscles to rapidly produce force following the elastic loading of the musculature/tendon involved. This work includes extended bounding (bounds over extended distances (30-60m) and depth jumping (dropping off of a height and rebounding into a jump). This work follows the trend set earlier in that it should be performed once every 7 days. This work helps push progressions in speed/power abilities but also helps to inoculate athletes to soft tissue injuries. Tension levels experienced in this work can exceed those seen in the event itself, preparing the athlete for the loads they will be placed under during competition.

Preparation for next phase's activities: In the competition phase to come, training will see the addition of RFD lifting, ballistic lifting, and the competitions themselves (speed endurance/special endurance demands). This phase is meant to bridge the gap between the general training activities in general prep to the specific competition demands in the competition phase.

General prep activities that stay: During specific prep, a few training activities will remain put to continue their purpose, or to help provide stimulation to the nervous system between the high intensity training qualities discussed in this phase. These activities include

- Neuromuscular improvement training
 - Provides the stimulation to begin week, between higher intensity session, between competitions
 - Acceleration
 - Resisted acceleration
 - Power development Olympic lifting
 - Multi-throws
- Body balancing work
 - Large variety of work in circuits/large weight room ranges of motion
- Lactate based restoration
 - Bodyweight/medball/weightroom circuits
- Technical skill development
 - Short horizontal/vertical jumps
 - i.e. standing long jumps, hurdle hops

High intensity concerns: As stated, this phase is meant to reach very high intensity levels, which requires lower volumes. Always err on the side of less when writing training in this period for the high intensity training methods (absolute strength, top speed development, elastic strength). Better to leave one rep in the tank than to go one rep too far.

Weekly Setup:

Polarization of intensity: Training intensities in the general prep did follow a high low pattern, but in specific prep phase, these intensity zone differences grow further apart. This means that intense days are more intense, and the low days are even lower. This concept becomes a necessity during this phase as the lowering of the low days allows for the high intensity days to be of even higher quality. This carries over to the next phase, competition, as well. Training days should be either specific enough to help drive adaptations in speed/strength/power, or easy enough to recover from.

Training sessions: Focuses of training sessions during this phase and their respective supportive training look like

- Acceleration development
 - Supportive training similar to general prep sessions
 - Horizontal short bounds, moderate to heavy weight medball throws for distance, power development Olympic lifting protocols, and static lifting through large range of motions
- Top speed work
 - Vertical force application, supportive volumes similar
 - Depth jumps, hurdle hops, vertical medball throws, RFD prep
- Intensive tempo
 - Lactacid capacity, exposing athlete to progressively higher levels of lactate
 - Activities with similar metabolic or low end power endurance demands
 - Extended bounding, elastic endurance, weightroom circuits
- Restoration
 - Restoration methods remain same as general prep without extensive tempo
 - Circuits of all kinds
 - Bodyweight/medball/weightroom

Example week in specific prep (Elite HS sprinter):

Monday	Tuesday	Wednesday	Thursday	Friday
Acceleration Dev.	Restoration	Intensive Tempo	Restoration	Top Speed
Blocks 3 x 20, 30, 40 2-3'/6'	Hurdle Mobility	300, 250, 200, 150 @85% 5' rest	Hurdle Mobility	3 x 80m SFS (50-20-10)
Multi-Throws OHB, UHF, HHL, HHR x 4	General strength circuits x 2 20:20	Elastic endurance series 2 x 20-30m	General strength circuit 20:20 Medball circuit x 15 reps	Depth jumps x 20- 30
Lifting Hang power clean 6 x 5 @60% Bench press 5 x 3 @85% Back squat 5 x 3 @85%	Extended barefoot cooldown	Lifting Power snatch 6 x 5 @60%	Extended barefoot cooldown	Lifting RFD prep Power clean 6 x 3 @80%

Monday: Normally coming off the weekend, neuromuscular abilities drop off with the lack of stimulation, so Monday serves as a way to turn off the check engine light on rate coding and recruitment capabilities. Acceleration runs on this day have progressed from standing starts of 10, 20, and 30m in general prep to block starts out to 40 meters. As this change has increased the level of intensity seen (longer distances allow athletes to reach faster speeds), the respective rest intervals have changed to reflect this. Following block starts, we move into a multi-throws series. While I have chosen this activity, any of the horizontal or vertical oriented plyos could also be placed in this spot. My rationale for this decision is the fact that there is a high density of high intensity plyos coming the rest of the week. Following multi-throws, we head to the weight room where we start with our basic power development Olympic lifting. It is worth noting that the acceleration development/multi-throws are potentiation tools for the Olympic lifting protocols (enhance rate coding/recruitment). This Olympic lifting is then used as a tool to further potentiate the body for the absolute strength work with our bench and squat sets. These neuromuscular enhancements help improve the effectiveness of the absolute strength work through activating more muscle tissue, faster.

Tuesday: This day is solely focused on restoration efforts. General strength circuits remain as the main tool to accomplish this effect. Cycling through different circuits over the course of restoration days in a week and month helps keep monotony down and variety of movements high.

Wednesday: This day's focus is on intensive tempo runs. The workout is a ladder down of 300, 250, 200, 150 @85% intensity. This ladder down construct is designed to maintain high power outputs while fatigue accumulates, maintaining quality in later reps. Death marches do more harm than good in majority of cases, and exposes the athlete to high injury risk potentials. Following these runs, we move into an elastic endurance series of 20-30m. The sprint events are characterized by 50-200 elastic contacts, thus placing a premium on this elastic endurance ability of the lower leg to help minimize deceleration late in race. This series has exercises such as skips for height, skips for distance, straight leg bounds, alternate leg bounds, etc. We finish the day with power development Olympic lifting. RFD work such as high intensity Olympic lifts can be very effective following bouts of run training that produces high levels of lactate (speed endurance/special endurance), assuming there is adequate rest between the run training and subsequent lifting. This set-up can be a potential option when high level RFD work is wanted during competition periods. Lactate is a very important metabolic substrate (energy source), and high levels can cause a cascade of positive benefits from an endocrine system standpoint such as HGH and testosterone level increases. Remember though, everything has tradeoffs (will talk about downsides of high lactate levels soon).

Thursday: Same as Tuesday, restoration is the focus. The general strength circuit is different than the two used on Tuesday, with the addition of a medball circuit.

Friday: This day is the highest intensity day of the week and the day that is going to drive the highest level of adaptations for the athlete. Earlier in the specific prep section I mentioned that absolute strength work is very taxing on the proprioceptors, which is responsible for coordination and kinesthetic awareness. These structures recover to baseline levels within 48-72 hours, which is one reason why many successful sprint programs have their high intensity days as Monday and Thursday. In this case, I placed the most important training day with top speed work and elastic

strength, two qualities that coordination is extremely important for, on Friday. This extra day allows for the proprioceptors to return to baseline and then super compensate to levels higher than they were on Monday, resulting in more effective training to occur. We start with 80-meter sprint-float-sprint runs, separated into 50-20-10-meter segments. I chose this organization because the initial sprint segment (50 meters) allows the athlete enough time to reach their top speed and maintain it for 1-2 seconds. This is followed by a 20m float segment, then a 10m sprint segment on the end to touch top speed once again for another 1 second. This construct falls in line with the 3 second window of top speed maintenance, with the added speed coordination ability that is an important skill to have in the sprint events where pacing/speed shifts is needed (200/400). Next comes depth jumps for 20-30 contacts. The first 10-20 contacts will be from a height that is similar to or slightly below the height of an athlete's jumping capability. This helps prepare the athlete for the next 10-15 contacts that will be from a platform that is slightly higher than that athlete's jumping capability. For example, if an athlete has a 24" vertical, placing them on a 12" box will not expose them to an environment they are not capable of producing themselves and will not serve as a true depth jump. Last comes the RFD prep Olympic lifting that prepares the athlete for RFD work that will occur in the competition period.

Progressing through specific prep: As mentioned in this section, the intensity you reach here is the level of performance you can expect in competition. As this phase progresses, training should become more intense (more specific). For example, the intensive tempo work on Wednesdays could progress by keeping intensity levels stable while extending rep distances or keeping distances stable while increasing speed of reps. Remember though, as intensity increases, rest must increase elsewhere to maintain homeostasis. This rest could be as granular as increasing rest intervals, decreasing number of reps in a workout, or as macro as increasing the number of rest days within a week or shortening mesocycles to increase the number of rest weeks in a phase.

Competition

Competition periods show increased intensities and stressors (competitions, travel, etc.). This constitutes the need for lower training densities, increased restoration training, and further increase of polarization of training (largest difference of the whole training year, most important during this time). The final touch on polarization of training is the idea of water, beer, and whiskey. Water is good for you (low intensity training), whiskey gets the job done quickly (high intensity training), beer is neither good for you nor does the job well (middle intensity zones, 75-90%), stay away from beer (middle ground intensity training). The high intensity training helps enable improvements with as little baggage as possible, while low intensity training helps maintain endocrine support through the lactate-based restoration and encourages recovery to occur.

This phase has goals and additions of

- Neuromuscular improvements
 - Rate coding/recruitment capabilities in check
 - Introduction of RFD Olympic lifting
 - 5-8 sets of 1-3 reps @90%+
- Absolute strength maintenance

- Static lift density drastically dropped/eradicated
 - Once every 7-17 days
 - 4-6 sets of 1-3 reps @90-100% (hit it and quit it)
- Ballistic lifts introduction for strength maintenance
 - 4-8 sets of 5-12 reps
 - Weighted jumps/speed presses
 - 10-30% of BW
- Top speed maintenance
 - Introduction of speed endurance and special endurance training (take top speed improvements and apply to specific race demands)
 - Delay high level lactate work (nervous system irritant)
 - 7-10 weeks of lactate tolerance training for 400m runners (special endurance 2)
 - Less than 7 weeks does not give enough time for adaptations
 - More than 10 weeks can decrease amount of time possible for skill acquisition
- Elasticity level maintenance
 - Depth jumps as in specific prep
 - Density drops (once every 10-17 days)

Example week in competition phase without meet (Elite HS Sprinter):

Monday	Tuesday	Wednesday	Thursday	Friday
Blocks 3 x 20, 25, 30	Hurdle Mobility	4 x 40m straight leg bounds	Hurdle Mobility	Race modeling for 200m
Multi-Throws OHB, UHF, Hop+OHB, Hop+UHF x 5	General strength circuits x 2 20:20	3 x 250 @90% 10' rest	Medball circuit x 2 x 15 reps	2-3 x 120 from 200m start @ race pace 8-12' rest
Lifting Hang power clean 6 x 5 @60% Quarter squat jumps 4 x 8 @20% of BW Speed bench 4 x 8 @40% BW	Extended barefoot cool down	Lifting Power split snatch 6 x 5 @60%	Extended barefoot cool down + low walks	Lifting Power clean 6 x 1 working to 90- 95%

Monday: Start the week with the stimulation day as discussed in specific prep. The distances have decreased in the block starts as intensity levels have increased to greatest levels during this phase, so the distance has dropped to minimize risks. Following block starts we see continued use of multi-throws to maintain neuromuscular improvements throughout entire training year. Followed up by our standard Olympic lift power development protocols, used as potentiation for next menu item. This item being the introduction of ballistic lifts with weighted quarter squat jumps and speed bench. These qualities help to maintain absolute strength levels developed in specific prep without

the proprioception fatigue and elasticity dampening effects that absolute strength work can produce. This ballistic work also helps with an athlete's ability to transition from eccentric to concentric contractions under various loads/depths/etc.

Tuesday: This day shows similar training as specific prep restoration days.

Wednesday: Here we begin to introduce our special endurance 1 work with multiple 250m reps at 90% intensity. You may have noticed that most plyo training has come after the respective run training within a session, but on this day, I placed the bounding before the running to help maintain the quality of the bounding. If the bounding was completed following the runs, the quality of those bounds could decrease because of the lactate accumulation experienced in the runs. This is not to say these bounds could not or should not be done following the runs. If the coach wants to focus on the athlete maintaining proper posture and train power endurance with the bounds, placing them at the end would be a great idea. Ending the day in the weightroom with power development Olympic lifting. The lift used on this day is a power split snatch which is a new exercise derivative solely for the sake of change. Doing the same 2-3 exercises in this type of training of the course of a full training year can be very monotonous. This idea can be more imperative for athletes training for most of a calendar year rather than those who train/compete for a small portion of the year.

Thursday: Same as Tuesday, but use of medball circuits chosen for the mild eccentrics seen in catch-toss work. These help produce the mild lactate levels, while also helping break adhesions and restore rotational components in the shoulder/hip regions that could've been stiffened during special endurance work the day before.

Friday: This day has race modeling reps in the form of speed endurance reps over 120m. Training both the technical components of the 200m race and the speed endurance qualities needed for success. With these runs at race pace, the recoveries are those of near complete to maintain quality. Finish the day in the weight room with rate of force development lifting (normally through power cleans from the floor due to their loading abilities).

Week as a whole: This week showcases ballistic lifts, special/speed endurance, and RFD lifting, training that was not seen during the specific prep phase. The week does exclude depth jumps, absolute strength work, and top speed work. This highlights the concept of decreased density patterns of high intensity training days/methods. Even without those few high intensity training methods, this week has two very high intensity days, requiring extra rest/restoration days on the back end (following week/cycle).

Example week in competition phase with a Saturday invitational (Elite HS Sprinter):

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
4 x 30 3 x 120 SFS	Hurdle Mobility	Extended warm-up	OFF	Pre-Meet	Meet
Depth Jumps x 20-30 contacts	General strength x 2 20:20	Go home		Block starts/Relay Hand-offs	Special Endurance focus (200/400/4x4)
Lifting Power clean 5 x 1 @95%					

Monday: Most days up to this point have shown a single training quality in the context of a single session. With the addition of competitions in the week, training days must be combined to ensure qualities are being trained on a regular basis. This day shows both acceleration and speed endurance work. These 30m sprints also help potentiate the 120m reps to come. These reps are in a sprint float sprint construct, helping speed coordination and gear shifting abilities needed in sprint races. Then depth jumps were on the agenda as they made their way back around in the rotation of density patterns. Along the same lines, RFD lifting finished the day. With these three activities (speed endurance, depth jumps, RFD lifting) in a single session, multiple easy days will be needed as can be seen over the next three days.

Tuesday: Restoration day with general strength circuits. Similar to those in previous phases.

Wednesday: Extended warm-up with build-up runs at the conclusion to help maintain stimulation between high intensity training sessions/meets while not adding baggage associated with full training sessions.

Thursday: Meets are the highest intensity levels reached for athletes; therefore, extra rest will be essential to adjust for them.

Friday: Following off days, the body can become stagnant, and a pre-meet practice can help kickstart the nervous system for the competition ahead. This day is similar to stimulation days consisting of acceleration development/multi-throws/etc., just at lower volumes.

Saturday: Meets can be used as training and should be factored into your program when considering total volumes. Meets can be used to focus on certain training qualities, in this case I will use the meet as a special endurance training effect with the athlete competing in the 200/400/4x4. Meets with speed or speed endurance focus could have the athlete compete in 100/4x1 and 100/4x1/200 events respectively.

Important competition periods: As the season progresses, coaches should plan on high intensity days slowly decrease in density while ensuring each specific quality is being trained on their own respective timelines. While certain qualities may be trained every 10 days early in the season, this could shift to every 14-17 days as the post season approaches. These decreased density patterns will allow for increased rest/recovery days, allowing performance levels to increase due to lowered fatigue. As the final, most important meets are approaching, a good plan of action would be to slowly increase the time between the last high intensity training session and upcoming meet. For

example, here in Florida, there are districts, regionals, and states during the postseason. For a state qualifying level athlete, the last high intensity training session before the district meet may be 4 days out. Moving to the regional meet, the last intense training session may be 5-7 days out. For the state meet, the final and most important meet of the season, the last intense training session should be between 7 and 10 days out. Athletes who can handle and do best during periods of higher volume may be closer to the 7-day mark, while athletes who seem to do better during periods of high rest opportunities should shift closer to the 10-day mark. This outline on training close to the district/regional/state meet highlights the decreased density needed for “peak” levels of performance. Meets can also be used as “high intensity training” in the context of this example. If there is 7-10 days between your regional and state meet, use the regional meet competition as your final important training session. This is not to say that you would not practice between the two meets, but training would consist of mainly restorative/stimulative training as opposed to these very intense reaching days.

Competition phase thoughts: Competition phase’s training follows a sort of plug and play fashion. Adding specific intensive training as needed during breaks between competitions. If there is one meet in a week, you may have to add in an intense training session of speed endurance and depth jumps earlier in the week, for example, to take advantage of this “free” time. If you have two meets in a week, your training days may be solely restorative, with the possibility of a stimulative day if you decide this is needed. Remember training during the competition phase should be either specific enough to drive adaptations (this includes the competitions themselves) or easy enough to recover from.

Closing thoughts

As I started this article with, I will end the same way, take my words with a grain of salt. This approach to training is what I have found to work best for my athletes and situation regarding access to facilities/equipment, number of days working with athletes, etc. Hopefully you can take some of the concepts and training methods discussed here and apply them to your own training philosophies. A few of these concepts I want to reiterate are

- The progression of training becoming more specific/intense through the training year
 - General early in year, specific during competition times
- The interplay of volume and intensity
 - As intensity climbs through season, the volume of that training must drop
 - Rest/recovery opportunities increase (within a session/week/month)
- How different training methods produce short term/long term effects on the body and using these different recovery timelines to better plan training on a weekly, monthly, and yearly basis
 - Using specific prep’s example training week to highlight this concept

- Using the absolute strength work on Monday to possibly produce higher quality speed work to be completed on Friday due to proprioceptor's supercompensation

On the way out, please understand that every athlete is unique in their own physical abilities and each athlete will respond differently to the same training. Keep an eye and note trends in how athletes respond to and recover from this training. These insights will help you write training, week to week, to maximize adaptations/improvements and help you plan training during peak competitions times.