

**JOE RUBIO'S
FUNDAMENTAL
TRAINING
PRINCIPLES FOR
THE COMPETITIVE
1500M RUNNER.**

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TRAINING SUGGESTIONS FOR US POST COLLEGIATE CLUB LEVEL ATHLETES

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“The person who makes a success of living is the one who sees his goal steadily and aims for it unswervingly.” Cecil B DeMille

ATHLETE PROFILE

This manual is intended for the competitive post collegiate middle distance runner who has recently completed their college eligibility.

MANUAL FOCUS

There are really no training “secrets” hidden within these pages. 95% of what’s written here is the same information you’d find in books written by Harry Wilson, Dr. Joe Vigil, Ray/Benson, Martin/Coe and others, it’s just written from a slightly different perspective. There is not a profound fundamental difference in training schedules between this manual and those texts, which is a good thing. It implies that there is an established successful route to follow if racing a fast mile is your goal, this one follows a similar path. This manual was initially written to serve as a reminder to the author of what training worked for his milers over the years. In subsequent seasons it has served as a guide to potential athletes on exactly what the author’s training philosophy entails. This manual is based on the same fundamental training principles that the majority of top middle distance runners have used with success since the 1960’s. Additionally, several current concepts have been incorporated based on recent data from reliable sources. The

primary thing to take away from this manual is that the major training themes that have worked for the past 40 years continue to be valid today. You just have to follow them for a few seasons and they will pay off.

MANUAL ASSUMPTIONS

Assumption #1: The athlete following the suggestions in this manual is an experienced middle distance runner looking to make significant improvements in their ability to race a 1500 or mile. These athletes should have at least 4-8 years of experience racing and training at a competitive level. This program is not intended for beginners. This program assumes that the athlete will use race results as the basis for determining the success of their program. The goal for the athlete following this program should be to improve significantly enough that they are able to set PR's and are capable of racing athletes that they were previously unable to compete against. The expectations are for the athlete following this program to race regularly throughout each season and to determine in a competitive situation if they are having success with their training or not.

Assumption #2: A sound training program that includes an emphasis on ALL areas of fitness such as aerobic conditioning, anaerobic conditioning (tempo work), long runs, doubles day, aerobic capacity (VO₂max development), anaerobic capacity (top end speed) and recovery are the most important factors in influencing how well you race. Nutrition, flexibility, plyometrics, drills, weights and many other ancillary training protocols are secondary in importance to the actual training schedule you follow. This is not meant to imply that these ancillary items are not important to 1500m success, they certainly are. Unfortunately many athletes loose sight of the fundamental training that will have the most profound positive effect on their racing times. These athletes spend a disproportionate amount of time focusing on ancillary items while taking shortcuts in the training that will pay the biggest dividends. This manual covers the fundamental training needed to become a

competitive 1500 runner and provides an overview of workout schedules that consistently gain improvements in the race times of the athlete's who use them. The ancillary training such as those listed above are not covered in this manual. For a very good source on these items, please refer to: <http://www.brianmac.demon.co.uk/> .

Assumption #3: Real improvement requires a multi-year commitment. Post collegiate running should be viewed along a timeline similar to high school and college. High school and college careers are generally divided into four-year time periods. It is within these four-year time segments that most athletes learn what it takes to compete at that level. Training loads and race expectations increase over each four-year period such that the athlete is much more competitive as a "junior" or "senior" than they were as a "freshman" or "sophomore". Post collegiate running can be viewed in a similar manner. Significant improvements generally do not happen the initial two years in high school or college and they generally will not occur within the first two years of post collegiate running either. By the third or fourth year of competing at all levels, the commitment and corresponding workloads should be sufficient to allow the athlete to realize the fruits of their collective efforts. Many athletes under-perform their first year out of college, become discouraged and then pack it in because they are frustrated or in many cases, have unrealistic expectations of what they should be able to do right out of their familiar collegiate environment. Patience, faith and hope are all key components in the process. Real improvement will take time and unfortunately most of it will require the individual athlete to step up and perform the necessary work alone. In post collegiate running few care if you improve and even fewer are there to provide support. You must possess a burning desire to race fast and you must be mentally prepared to do most of the necessary training alone. Do not kid yourself, there will be many frustrating seasons ahead before any real progress is made in the form of faster race times.

Assumption #4: The athlete must increase their annual training workload. In the same manner that junior and senior athlete can handle much harder training than they could as a freshman or sophomore, the young post collegiate runner should make it a goal to increase their annual training volume each year of their post collegiate career as well. For some reason athletes get out of college and decide that training at the level of their junior year in high school will result in substantially better times. Why would training at a lower level result in anything but slower race times? By the third and fourth years after graduation the post collegiate athlete should be able to tolerate a greater volume of work, at a faster rate of speed and with less recovery than they were able to accomplish in college or high school which will generally result in PR's. This increase does not have to be heroic every year, just a bit here and there is all it usually takes. The athlete must continually strive to increase their individual workloads and raise their personal expectations to ultimately perform as fast as they are physically capable of.

Assumption #5: The athlete cannot improve if they are injured or sick. The athlete should do everything in their power to stay healthy both from a structural standpoint and a sickness one as well. Tending aggressively to both when they first appear is mandatory. In many cases, an injury can be forced to go away simply by doing everything a physical therapist suggests such as taking 1-2 days off, getting massage, anti-inflams, ice 3x daily, etc. Trouble is, most athlete get lazy and expect Devine intervention to heal their wounds. An athlete must take the time not training due to injury and use that same time rehabbing the area so they can get back to the regular routine of training as soon as possible. If the athlete is constantly sick, either they are burning the candle at both ends or their diet needs attention. More than 1 cold or flu bout a season indicates something is amiss and needs attention.

Bottom-line Assumption: The athlete has a burning desire to improve and has the necessary commitment to train as hard as will be required to achieve substantial results. Without a 110% commitment to this dream, there really is not much point in putting

yourself through the level of training this program entails. Training halfheartedly and going through the motions will not get results. It is assumed the athlete wants to improve and is willing to train at a very high level for a number of years to obtain this goal. Having a job, training alone in the dark, living on macaroni and cheese and living pay check to pay check are a given.

This manual is designed for the competitive 1500/miler. Being a competitive runner implies that once the program is decided upon there is little paralysis of analysis on what comprises the training. Instead, the mental energies of the athlete should be focused on how well you race. Decide on a training program (any program, just make up your mind), set up your schedule, train within yourself, execute your race plan and make adjustments along the way as you learn more about yourself.

INTRODUCTION

“When a man is sufficiently motivated, discipline will take care of itself.” Albert Einstein

Improving as a middle distance runner (which is defined as a faster, more competitive one in the context of this manual) is a function of addressing the basic training principles described below. Without covering these principles adequately, there’s little chance that the athlete will race faster.

The basic tenet of competitive distance running is that a poorly conditioned athlete will make the greatest gains in performance by focusing on developing their aerobic capacity. Those athletes who are already highly conditioned will realize their greatest performance gains through a program designed to improve anaerobic capacity, running economy and fractional utilization of VO₂max while maintaining their already well-developed VO₂max (Vigil, Road to the Top p.18). Stated another way, the best way to improve your race times as a competitive runner is by first focusing on maximizing your VO₂max before placing the training emphasis on tempo work, speed work and drills.

To fully develop the VO₂max of an individual athlete may take as long as several years or as little as several months, it really depends on the level of training that the particular athlete was exposed to previously. During the time when we are focused on developing VO₂max we must still address the development of the other energy systems through tempo work, speed work, long runs and speed drills but we do not make these elements the emphasis of the program until we are fairly certain that we have fully addressed the athlete’s VO₂max and developed it to the highest level possible for that season. Early in a career it will take more time to accomplish this task than in subsequent seasons, but it still must be done.

Developing the VO₂max of the athlete invariably provides the largest performance gains and is generally the area that college middle

distance runners are found to be weak in, which is why we start the recent post collegiate athlete here.

Once the VO₂max is developed through a solid 4-6 month program of progressive work that focuses primarily on 5k and 10k paced workouts, we can begin to give greater emphasis on runs performed at half marathon pace in the form of consistent tempo runs as well as the ensuring the pace of most runs away from the track (i.e. weekly long run) are run at a pace slightly slower than marathon race pace for good percentage of the run. These runs performed at 70-75% of VO₂max increase the athlete's ability to utilize a greater percentage of their aerobic capacity developed the previous fall. Development of an athlete's VO₂max, tempo runs and longer runs at faster than recovery pace work together to provide the aerobic conditioning necessary for the athlete to improve dramatically in the 1500m. The 8-10 weeks immediately following XC season are the time to take the fitness acquired during the previous XC season and apply that fitness directly to running a base the way in which it was intended, specifically a higher volume of weekly miles at very solid paces.

I have found that significant improvements in 1500m and mile race times invariably occur when the post collegiate athlete spends the 6-8 months before the outdoor season on a program designed to improve their aerobic capacity (VO₂max) and anaerobic conditioning (tempo runs) such that the athlete attains the fitness of a competitive 5k runner first, then focuses their energies in the final 8-12 weeks of the season on becoming the best 1500 runner they can through a greater emphasis on anaerobic capacity work (traditional intervals run at 400, 800 and 1500 paces). When an athlete does a full summer, fall and winter of what could be loosely defined as cross country training, the 1500 runner "suddenly" improves the following spring. I read a quote from one of the Kenyan coaches at the Atlanta Olympics who said there was not a real difference in the training between their marathoners and their 800 runners. Those who had the best kick ran the 800, those with the least ran the marathon. Everything else in their training program was surprisingly similar.

I've done the same here and had a high level of success in doing so as well.

We should always start competitive 1500 training by becoming a competitive *distance* runner first. We must develop the aerobic and anaerobic conditioning aspects as well as the aerobic capacity component to the highest levels possible for the current season and each successive season afterwards before we will see any significant performance gains made by incorporating a large volume of anaerobic capacity work, aka speed-work. This should not imply that we do not focus on the other areas of development and fitness, we definitely do. Initially though we need to choose our training focus for the coming year and that choice should be improvement of VO₂max for the recent post collegiate athlete. By and large 1500 and mile success is based on primarily on the moderate and hard aerobic work that comprises the summer, fall and winter months. Without this background the fast, sustained speed work of the spring will not be effective in producing faster race times. The mile is a distance event and therefore needs to be treated as an event based on sound distance training principles the majority of the training year.

Without this highly developed aerobic system in place, development and improvement through speed work, drills, plyos, etc is unlikely.

Additionally, it is mandatory for the competitive 1500m athlete to improve their basic 100-400m leg speed throughout the year as well. This may seem like a contradiction based on the paragraphs written above, but the 1500 and mile are unique in that they require an athlete to possess the aerobic strength of a top 5k/10k athlete and the basic foot speed of a 4 x 400 athlete. Without both, an athlete will not be as effective a 1500m runner as they could be. Therefore, while the initial training focus of the athlete is on development of aerobic capacity (VO₂max) it would be fool hearty to forgo the development of a middle distance runner's functional leg speed for any significant length of time during the training year. When we say we are a distance runner first, this is not defined as spending 10 weeks jogging 100 miles per week in the fall to establish a base. It

means we focus on developing aerobic capacity while at the same time working consistently on improving their functional leg speed.

We acquire increased leg speed by scheduling consistent speed enhancement sessions throughout the summer, fall and winter months. The goal of these sessions is to increase the functional leg speed of the athlete as well as increase the efficiency of the athlete while running at 100-400m speeds. Increasing neuromuscular efficiency and basic 100-400 leg speed is ultimately the goal, but a nice bonus is that these sessions also improve lower leg strength thus decreasing the chance of injury. The athlete should be extremely comfortable at running fast year round. We can accomplish this through 5-10 second efforts performed at 400 pace up to and including 30-60 second efforts at 1500 race pace while providing plenty of recovery between reps (2-4x or more) to establish these patterns of movement (i.e. muscle memory). Additionally, we should incorporate several periods of approx 5 seconds bursts that are near top end speed to facilitate the development of all-out top end speed. We want to perform all of these sessions with the best form possible and let our bodies adapt slowly to faster speeds using the concept of consistency and progression to obtain improvement. Hands on the knees, Barf-O-Rama anaerobic sessions is not the idea here at all and should be avoided at all costs. These sessions should be completed well within the abilities of the athlete. In this way, 100-400m leg speed is improved and efficiency at 400, 800 and 1500 is increased during periods of training that are focused primarily on aerobic development. Without attention to leg speed in the summer, fall and winter, there will be much wasted time in the spring teaching an athlete to run fast, efficiently again. It is much more effective to maintain a weekly or bi-weekly speed component in the program year round.

Finally, it is essential that the efficiency with which the athlete performs 1500m race pace is increased. By increasing efficiency at race specific speeds, the energy required to maintain race pace is decreased. This should result in faster overall race times everything

else being equal. This increased efficiency at 1500 pace is accomplished by consistent workouts completed at 1500 pace throughout the cross country and true base phases. These are not heroic sessions in the least, rather they are regularly scheduled workouts such as 200's, 300's and occasional 400's run at 1500 effort which ensure that the athlete is always familiar with 1500 race pace and can run it any time of the year smoothly, efficiently and with minimal effort.

THE 1500M AS AN AEROBIC EVENT

Approximate energy breakdown of the 1500:

Aerobic:	76%
Anaerobic:	22%
Phosphate:	2%

(Source: Martin/Coe, Training Distance Runners. P. 127)

Approximate % breakdown of training for an effective 1500m:

Aerobic conditioning (endurance):	45%
Anaerobic conditioning:	20%
Aerobic capacity:	20%
Anaerobic capacity.	10%
Phosphates:	5%

(Source: Bill Tokar, Ventura HS)

DEFINITION OF TRAINING TYPES

(Source: Martin/Coe, Training Distance Runners)

2 Aerobic conditioning. Performed primarily through moderately paced sustained runs of 30-120 minutes at 55-75% VO₂max.

This particular training zone is responsible for:

- A. Improved oxidative capacity in cardiac muscle and the muscles used in running.
- B. Improved joint and tendon strength.
- C. Increased capacity to store fuels such as carbohydrates and fatty acids
- D. Increased number and size of mitochondria (the powerhouse of the cell).
- E. Improved O₂ delivery and CO₂ removal through increased blood volume and capillary density.

Associated real world paces: Performed primarily through easy to moderately paced sustained runs of 30-120 minutes at 55-75% VO₂max. This training zone makes up the majority of training most distance runners do within a standard training week. These are the runs that go anywhere from a warm-up jog to everyday conversational pace running. Most general training runs during the week fall into this category. This pace also encompasses recovery runs, which for all intents and purposes entail running at less than 65-70% VO₂max.

3 Anaerobic conditioning. Performed primarily through 15-25 minute efforts completed at 75-90% VO₂max

This particular training zone is responsible for:

- F. Increased adaptation of Type IIA fast twitch fibers to utilize glycolytic and oxidative enzymes.
- G. Increase stroke volume of the heart.
- H. Increased capillary density and blood volume.

Associated real world paces: Performed primarily through 15-25 minute efforts at 75-90% of VO₂max. These runs are generally defined as tempo or steady state runs and are run at anywhere from slightly slower than marathon race pace down to as fast as 10k race pace. The main goal of this workout is to complete a comfortably hard effort for a sustained period of time.

4 Aerobic capacity. Performed primarily through 2-8 minute reps at 90-100% of VO₂max.

This particular training zone is responsible for

- I. Increased adaptation of working muscles to utilize glycolytic and oxidative enzymes.
- J. Increased blood buffering capacity
- K. Continued activation of fast twitch muscles.

Associated real world paces: Performed primarily through 2-8 minute reps at 90-100% of VO₂max. These are classically defined as interval workouts or fartlek runs whereby the athlete runs at a particular pace and then takes a recovery jog between hard efforts. In this case, the harder efforts are performed at primarily 5k to 10k race pace. This is the fastest of the aerobic paces.

5 Anaerobic capacity. Performed primarily through 30-120 second reps at better than 100% VO₂max.

This particular training zone is responsible for:

- L. Improved functional leg strength and overall speed.
- M. Increased ability to tolerate high levels of lactic acid through increased buffering capability.
- N. Increased plasma volume and improved neuromuscular recruitment.

Associated real world paces: Performed primarily through 30-120 second reps at better than 100% VO₂max. This effort is anaerobic and is considered “speed work” to most. Reps are generally performed at roughly mile to two-mile race pace for most distance runners, although middle distance runners should run consistent reps at 1500m race pace and faster with regularity.

6 Phosphates: Performed primarily through maximum all-out efforts of 5-10 seconds in length.

7 Recovery (not listed above): Performed primarily through easy runs at less than 65% VO₂max and usually between 20-45 minutes in length. Encompasses the pace of all recovery runs, warm-up, warm-downs and the start of every run begins at this easy effort.

The above charts make a very strong statement. They highlight the fact that the majority of energy required to race the 1500 effectively is derived from the aerobic side of the fence. 76% of the energy needed to race the 1500 effectively is developed primarily through runs performed at 70-100% of VO₂max pace (roughly 5k pace or slower). The remaining 24% is made up of runs done at greater than VO₂max pace (1500 pace or faster). Of this 24%, 22% comes from workouts performed roughly at 1500m, 800m and 400m race pace while the final 2% or so comes from short bursts at max efforts.

Put into training terms 85% of the training needed to race a top level 1500 comes from aerobic paced training. 45% of this is developed by 30-120+ minute runs finishing the last part at a decent clip, 20% comes from 20-50 minute tempo runs and 20% comes from reps completed at approximately 5k or 10k race pace. These efforts are all classified as aerobic paces, yet none of these are “easy.” These paces and efforts are considered hard to most competitive runners. The common misconception in the American running community is that aerobic running is “easy.” Aerobic running is definitely not easy. Quite the contrary, they’re usually pretty hard. If you want easy mileage you’re in the wrong manual, that’s called jogging and it’s what recreational fitness runners do. This point needs to be reinforced to young athletes that if there is any “secret” to racing a fast 1500 or mile it is that it takes months of hard aerobic work that is just plain tough. To run a fast mile requires consistently hard 800’s, 1k’s and mile reps, 4-8 mile tempo runs and 12-18 mile runs at uncomfortable paces for the majority of the training year. The sustained “speed work” of fast 300’s and 400’s done in the spring is the fun stuff for the competitive miler. Performing the solidly paced

aerobic sessions during the 8 months that precede this is invariably what separate the 1500m runners who make improvements in race times versus those who do not.

Because 5k training centers primarily on the same aerobic paces that the 1500 runner should focus on to improve their aerobic component, spending the summer, fall and winter months training as a competitive 5k/XC runner is the basis of the most significant improvements the competitive 1500 runner is likely to make in their careers. The emphasis of competitive 5k training centers primarily on VO2max paces, but there is still a large quotient of 1500 specific and tempo paced workouts performed to develop a well rounded, aerobically fit athlete capable of running a fast 400 or 10k/half marathon if needed. I have had 3 athletes make significant 1500 improvements from the previous year by training in this fashion (3:46 down to 3:39, 3:47 down to 3:40, 4:34 down to 4:18). I have also been fortunate to know a substantial number of sub 4 minute milers and in every instance, all were very competitive distance runners. They all had the ability to break 14 minutes for 5k or score in the top 10 for most cross country races as well. Their Sunday long runs were done with the national class 10k and marathon runners, plus their runs away from the track were generally completed at a fairly substantial pace. This ability wasn't accomplished by focusing primarily on speed work, it was accomplished by spending a significant portion of the training year developing their aerobic capacity. Sub 4 minute miles were the byproduct of their largely competitive 5k based training efforts.

Ideally, the athlete should be exposed to every pace (100, 400, 800, 1500, 3k, 5k, 10k, tempo, MP, AE, Recovery) as it's defined above throughout the training year. The difference is the emphasis placed on the various paces. In the summer, fall and winter months, the emphasis is on aerobic paces, in late spring it's on the anaerobic paces. Still, we must expose the athlete to all paces no matter how fast or how slow consistently throughout the year so the athlete maintains a familiarity with every relevant energy system. To accomplish this task we focus on a program of periodization,

meaning we run all paces year round we just change the workout emphasis on each depending on the time of the year.

DEFINITION OF “TRUE BASE” TRAINING:

Probably the biggest point of confusion among young competitive runners has been all the chat on the Internet regarding base work. Most of the messages you read suggest endless miles of easy running. Although this is correct for young and beginning runners, at some point the pace needs to be progressively increased if the competitive miler is going to fully benefit. Ideally base work as it's classically defined includes a higher volume of weekly miles performed at 70-75% effort with a once weekly run at roughly 85%. Put into training terms, this would mean a 4:00 miler would complete most runs during the true base phase at between 5:45-6:15 pace with a weekly 20-50 minute tempo run at 5:00-5:10 pace.

This actually poses a bit of a problem for many athletes. Most runners in the fall and summer have established new weekly mileage goals that should to be adapted to first before we concern ourselves with the pace with which these miles are run. It is therefore prudent to let the athlete adapt to that new level of workload for a fairly substantial period of time before worrying about the pace with which the runs are completed. It is suggested that all runs classified as AE runs are done in a conversational manner throughout the summer and fall (basically the entire XC season). The goal during these initial few months of the program is to cover the distance and not worry about the speed. If pace becomes an issue, using 65-70% of current 5k fitness as the fastest pace allowed during this time usually ensures that the athlete is keeping the paces conservative enough so they adapt to the miles and stay healthy, which is ideal for the fall.

Following the small break after XC Fall Nationals is ideally when we start concerning ourselves with the pace of the runs away from the track. The 8-10 weeks following the Christmas break is really the true base phase as its classically defined, which means to say it's all

about a higher volume of weekly miles completed at faster aerobic paces approaching 70-75% VO₂max. At this point of the training year the athlete should be fully adapted to the weekly mileage goals established 6 months earlier and we can set about fully developing the aerobic and anaerobic conditioning components of the athlete. These will be the building blocks for the real 1500 improvement we will see in the spring and summer. During the 8-10 weeks of the Aerobic Endurance Phase (1/1-3/1) the pace of most runs should be monitored. The pace for the last 25% or so of these runs should be completed at 70-75% of 5k fitness. It should not go faster than this, but as much of these runs that should be completed at these paces as possible.

So again, it's easier runs in the summer and fall about covering distance and not the pace with which you run. Pace is dictated by 65-70% of 5k fitness. In the winter and spring we start monitoring the paces of the runs away from the track because by this time the mileage of the run is a given, we need to up the ante on the pace to maximize aerobic fitness. The goal of AE runs at this time of the year is to cover a large percentage at 70-75% of 5k fitness.

PACES DEFINED

AEROBIC PACES

Recovery: Also called active rest and the one pace that those who over train and under perform invariably forget. Most non-elite runners tend to run this pace much too fast for their abilities, thus they never allow themselves adequate recovery which is essential in the process of overcompensation. The body (muscles, tendons and neuromuscular system) need adequate time to regenerate and become stronger. Never, ever forget that regular recovery is the most vital and most overlooked aspect of the training process. A recovery run is typically defined as 20-45 minutes of slow and easy jogging. The idea is to move the crap out of your legs, not to get in an extra 4 mile tempo run. The pace should be no faster than 65% of your 5k pace at any point in this run (usually in the low to mid 60% range is what

we want). If you allow 6+ hours between sessions, doing one of these easy recovery runs in the AM and another in the PM is fine and within the definition of a recovery day if you'd like to maintain double days within the schedule.

Aerobic Conditioning/Endurance (AE): 30-120+ minutes (includes the long run). A run that starts at recovery pace and picks up to nearly marathon race pace by the end of the run after the athlete loosens up. Usually they are finishing at a decent clip without really forcing the issue. This run makes up the large bulk of the weekly training outside of recovery running for most distance runners and can be pretty brisk at points when they're in shape, so roughly 70-80% of 5k pace which is usually figured at between 4-10 seconds per 400 slower than your current marathon pace. When they're not that fit this run is usually done at recovery pace or slightly faster.

Marathon Race Pace: A pace that's 4-5 seconds per 400m slower than $\frac{1}{2}$ marathon race pace or 4-5 second faster than AE. If you want to get fancy about determining this pace take your mile pace for 400m and add 20 seconds if you're a sub 4:30 miler ($67.5 + 20 = 92.5$). Add 25 seconds if you're sub 5:00 minute miler ($75 + 25 = 100$) and 30 seconds if you're sub 5:30 miler ($82.5 + 30 = 112.5$). The other option is take your pace for a 3k and divide by 80%. Example: A 4:00 miler runs 60 second pace, if you add 20 seconds as it's suggested above, you get a suggested MP pace of 80/400 or 5:20 per mile pace. The same 4:00 athlete should be able to run about 64 pace for a 3k, so $64/.80 = 80$ second pace or the same 5:20 mile.

Anaerobic Conditioning/Tempo: Pace that's 4-5 seconds per 400m SLOWER than current 10k race pace or 4-5 seconds per 400m FASTER than marathon race pace. If you're doing a tempo run and can't honestly maintain the pace for 50-60 minutes then it's probably too fast. The idea is a strong run within yourself, not a killer 8 mile race. This pace is roughly your $\frac{1}{2}$ marathon race pace and if you do enough of this you become very, very strong. Not particularly fast, just strong. This run done consistently over time improves the

percentage of VO₂max you can effectively use (fractionalized utilization). So while it doesn't directly affect your racing ability, it greatly enhances the available tools you have to run a fast mile. Performed at roughly 85-87% of VO₂max.

10k: Your current 10k race pace which is roughly 4-5 seconds per 400m faster than tempo pace or 4-5 seconds per 400m slower than 5k pace. Approx 90% VO₂max.

5k: Your current 5k race pace which is roughly 4-5 seconds per 400m faster than 10k pace or 4-5 seconds per 400m slower than 3k pace. Approx 95-100% VO₂max.

3k: (warning: too much work at 3k pace can tank you. Better to stick to 5k pace as much as possible particularly for males). Your current 3k race pace which is roughly 4-5 seconds per 400m faster than 5k pace or 4-5 seconds per 400m slower than 1500 pace. Approx 100-105% VO₂max.

ANAEROBIC PACES

1500: Your current 1500 race pace which is 4-5 seconds per 400m faster than 3k pace or 4-5 seconds per 400m slower than 800 pace.

800: Your current 800 race pace which is roughly 4-5 seconds per 400m faster than 1500 pace or 4-5 seconds per 400m slower than 400m race pace.

400: Potential all out finishing speed for most distance runners.

PHOSPHATE

Max efforts: 5-10 seconds at full top end speed. Used to enhance phosphate utilization.

OTHER DEFINITIONS

Strides: Approx 15-30 second efforts performed at the same pace throughout. Should be smooth, relaxed and loose. Recovery is generally twice the time run.

Accelerations. Starting at one pace and working through several “gears” ultimately finishing at a faster rate of speed than the one started with. Can also be done with a “burst” of speed within specified sections (sprint/float/sprint). Most burst should last from 5-10 seconds (no more). Ideally the acceleration should include a section 5-10 seconds at near top end speed. Maintaining form is paramount as is ensuring the effort does not become an overly stressful one. The goal here is RELAXED speed, not straining speed. Therefore plenty of recovery is given between efforts and majestic form is required. IE. 4-6 x 120 accelerations. Diagonals of football field w/ easy walk across recovery. Start at 1500 effort, finish last 10m at best relaxed top end speed.

Fly-ins: All out max efforts of about 5-10 seconds done with a flying start. Used to enhance phosphate utilization.

Hill reps: There are 3 basics speed we use when doing hill reps. Usually done on soft, smooth surfaces such as dirt or grass. Moderate incline, 250-300m in length. Please note that hill reps are a form of strength training. If you cannot get into a gym, don't stress. Consistent hill reps are probably better than hitting the weight room particularly since most people try to gain strength through osmosis in the weight room seeing as few have a specific lifting program. They just do a few bench presses and call it a day. Hill reps are much better than this form of lifting.

- **Form:** This is where the athlete concentrates on running uphill with the best form they can. Running tall, hips forward, feet landing under the center of gravity, good arm action, strong/quick push off, quick turnover. Basically a poor man's plyo. Usually these are done at tempo/10k effort early on. These do a great job early in the season of getting the strength built up in your legs such that when you add the real fast stuff you are better prepared to handle the increased intensity. They look easy on paper but usually make you pretty sore the first time or two you do them. If you do this properly, the pace is faster than anticipated simply because it's hard to run jogging slow if you are doing all the good form stuff.

Good to keep in the back of your mind in a race that if you concentrate on the form, you'll be running fairly brisk when you run up hills.

- **Moderate:** These hill reps are done at roughly 3k/5k EFFORT, not pace. You want the form to stay in tact, but the emphasis is a moderately hard uphill run. In fact, as you get fitter the “form” speed and the “moderate” speed almost become the same pace. Early in the season, the times are about 3-5 seconds apart on a 300m gradual hill.

- **Brisk:** These are done at 1500/3k EFFORT, not pace. Hard, fast rep with the emphasis on fast turnover, while maintaining great form. If the form falls apart, the athlete is done. The time is usually 3-5 seconds faster on the brisk ones than on the moderate ones for a 300m long uphill.

Progressive Hill Reps: Starting at a very modest effort and running each successive rep 1 second faster than the previous. IE. 54, 53, 52, 51, 50, 49, 48, 47, 46. Usually start at tempo effort and finish at 1500 or better effort.

All Out Hills: Steep incline. 80-120m in length. Reps performed at best effort with full recovery. Done to enhance phosphate utilization.

Fartlek: My definition of the way a fartlek is supposed to be run is different than most. In similar fashion to the way in which the Kenyan runners perform their fartlek sessions, we ask that the recovery portion is at a fairly solid (not jogging) pace and perform surges off this faster, sustained recovery pace. Ideally, fartleks are performed in the summer and fall when the 1500m runner is concerned with aerobic development. This is best accomplished by training at pace faster than LSD for extended periods of time (20-50 minutes). Therefore, we want to maintain a solid aerobic pace of at least aerobic conditioning pace as the “off” portion of the workout. The faster “on” portion is really a surge performed off of a good, strong aerobic pace which is much more difficult and beneficial than

the traditional method of running too hard on the “on’s” and taking a very easy recovery jog between these overly hard efforts.

Essentially the goal is to be able to surge consistently off of a 20-50 minute AE paced run. Gaining the ability to do this indicates solid aerobic development. As the athlete attains greater fitness throughout the fall, the “off’s” of the fartlek should begin to increase in pace. They should start in early fall at the slow end of aerobic conditioning pace (2 min/mile off 5k pace), then drop to about 75% of 5k pace by the middle of XC season. Finally, the pace should get down to 80% (approx 60 sec/mile off 5k) by the middle to end of the fall. The fast “on” pace should not change drastically. Generally these “on’s” will be run at 10k-tempo effort in the summer and get down to roughly 5k-10k effort by the end of the fall. Most fartleks will be run with equal amounts of “on” and “off” or slightly less time on the “off’s”. “On’s” are run anywhere from 15 seconds to 3 minutes in length, sometimes even up to 5 minutes in length by the middle to end of the fall. Usually a total amount of 10-25 minutes of total “on’s” are plenty.

Fartlek examples include:

- “Minutes”: 10-25 x 60 seconds on/off.
- “NAU” fartlek: 3-8 x 3 minutes on/off. Done every other week. Recovery decreases 30 seconds each successive time this workout is run until the athlete gets down to 1 min.
- “Waitz” Fartlek: 1 on/off, 2 on/off, 3 on/off, 4 on/off, 5 on/off, 4 on/off, 3 on/off, 2 on/off, 1 on/off.
- “Jane Fonda” (20 min workout): 15 seconds on/off, 30 on/off, 45 on/off, 60 on/off, 90 on/off, 120 on/off, 90 on/off, 60 on/off, 45 on/off, 30 on/off, 15 on/off.
- “Wake Forest Drill”: Find a gradual uphill slope of approx. 800m. Run up at 5k-10k effort, hit the top, turnaround immediately and run the same downhill section at 10-20 second slower, turnaround and immediately run uphill at 5k-

10k effort. Continuous run (no breaks), up and down = 1 rep. Total workout = 3-8 reps.

- For those coming off an injury or extended break: 6-10 x 30 second on/90 off or 4-8 x 1 min on/5 off.

Adams State Reps: We do these towards the end of XC season to increase leg turnover during mile reps. We do our mile reps on a XC course that's 1500m long and is gradually uphill on dirt. We'll run an uphill rep, take our 3 min recovery, then turnaround and focus on running the downhill portion at a fast, controlled pace. There is usually a 20 or so second difference between the uphill and downhill portions and we always finish with a faster downhill rep. The downhill portion is really the emphasis. It's where we teach the athlete to run downhills at a faster rate of speed and do it efficiently. XC courses go up and down, this helps the athlete develop efficiency on both while increasing turnover as well.

TRAINING PRINCIPLES

The following principles of progression, workload volumes, rest intervals, workout paces, multi-paced training schedules and recovery days/weeks are extremely important. These guidelines can help the athlete establish a program that is effective, personalized and appropriate for them. These principles provide a structure that ensures the correct volume of work is performed, at the proper pace and during the appropriate time of the training year. This greatly increases the odds of obtaining significant improvements while staying healthy and maintaining mental focus. The athlete is allowed to adapt to stress gradually (chronic stress = adaptation) and avoid many of the problems associated with adding too much, too soon (acute stress = breakdown). Signs of over training include injuries, races below the level of workouts, lack of motivation, constant fatigue, etc – none of which are conducive to setting PR's. We want the athlete healthy, fit and ready to race which the following guidelines help accomplish.

Most athletes left to their own devices will tend to overtrain in some areas, while under train in others. Athletes naturally like to do workout which give them confidence. In most cases, milers like to do fast 200's, 300's and 400's. They tend not to like things like mile reps, tempo runs or long runs with the 10k/marathon guys that are just a bit too fast to ever feel comfortable. Because of this natural tendency to do what athlete's are proficient at while avoiding the things that they are not very good at, many athletes will rationalize themselves into performing one workout instead of another. For instance, the athlete may choose to do 12 x 400's at 1500 pace (i.e. 64 pace) instead of the scheduled 3 x 1600 at 5k pace (i.e. 72 pace) rationalizing that because both are the same volume of work the 12 x 400 version is better because it is performed at a significantly faster pace. Or the athlete is scheduled to run 8 x 400 at 62 and ends up running the entire the workout at 58 pace because it felt "easy",

while a workout that calls for 6 x 800 at 2:10 are never completed because the athlete rarely feels “good” on these harder VO2max sessions. In this fashion the athlete over trains at 1500 pace while at the same time under-train other vital energy systems. This goes on day by day, week by week, season by season and the athlete ultimately fails to make any significant progress. This is usually not great for an athlete’s motivation.

Progression: The basic law of progression states that as the body improves in fitness, the ability to tolerate individual workloads increases. Progression is a systematic format that allows the athlete to do more work at a faster rate of speed and with less recovery at the end of the season than they were able to perform at the start. This should result in a fitter athlete and faster overall racing times. This is one of the best ways to increase fitness effectively and maintain an athlete’s health along the way.

In the real world, we can manipulate one of three variables to bring about changes in fitness:

You can do more.

Ex. Long runs:

Month #1: 12 miles

Month #2: 14 miles

Month #3: 16 miles

Month #4: 18 miles

You can do it faster.

Ex. 800m reps:

Month #1: 10 x 800 at 10k pace

Month #2: 8 x 800 at 5k pace

Month #3: 6 x 800 at 3k pace

Month #4: 4 x 800 at 1500 pace

You can do it with less recovery.

Ex. 5k paced reps:

Month #1: 12 x 400 at 5k pace

Month #2: 6 x 800 at 5k pace

Month #3: 5 x 1000 at 5k pace

Month #4: 3 x 1600 at 5k pace

We always start each at a manageable training level and then raise the level of work each month either by doing more, doing it faster or doing it with less recovery. This allows us to expose the athlete to a tolerable level of stress, allow them time to adapt (usually 3-4 weeks) and then raise the workload again. We do this not only within each season, but from year to year as well. In this fashion we can start an athlete with say 12 x 400 at 68 in month #1, then progress them to 6 x 800 at 2:16 in month #2, 4 x 1200 at 3:24 in month #3 and finally 3 x 1600 at 4:32 in month #4 just before XC nationals. All workouts add up to 3 miles worth of running at 68 pace, we just remove a bit of recovery each month while maintaining the same pace and increasing the amount of ground covered at 68 pace. This should result in a fitter athlete by season's end. Another example is using the following sample progression to obtain 4:00 mile fitness by the time USATF Nationals rolls around. Using a schedule based on progression, we would expect the athlete to be able to achieve the following: 12 x 200 at 30 in January, 8 x 300 in 45 in February, 6 x 400 at 60 in March, 4 x 600 at 1:30 in April and finally 3 x 800 at 2:00 in May right when the big qualifying meets are held.

Workload Volumes: The volume of work to be performed per session at each individual training pace is pre-determined for the athlete before the season begins. In this way, neither the coach, nor the athlete overwhelms the athlete with an inappropriate volume of work at any one pace in a single workout. For instance, if we set the volume of work for an athlete at 3200m worth of work at 1500 pace in a standard workout, we could do any number of workouts such as: 16 x 200, 10 x 300, 8 x 400, 5 x 600, 4 x 800. If the athlete came to

us in April after a huge PR and said they read about a workout that Jim Ryun completed of 16 x 400 at mile race pace that they wanted to try, we could adapt it to this particular athlete and set it up to run at 8 x 400. This allows the athlete to try the Ryun workout, but at an appropriate workout volume for that particular athlete. We could then throw out the carrot and set the goal for next year of completing 10 x 400, then 12 x 400 the following year, then 14-16 the year after. This helps tremendously in setting long term goals and showing athletes that development within the sport can be planned for.

The athlete will maintain these pre-set volumes for an entire season and then adjust them for the following season. During the annual break, the coach and athlete should sit down and decide which paces need adjusting and which do not. Please note, not all workout pace volumes should be adjusted annually. In some cases, only adjusting 1 or 2 set volumes will be all an athlete needs. More is not always better.

Example: Athlete A is a female 1500 runner. This is her first year out of college and the following volumes of workload at each workout pace have been set based on her college logs which indicate the level of work she has been exposed to up to this point. Some paces have stayed the same as college while others have been increased.

<u>Pace</u>	<u>Total Volume of Work Performed per Session</u>
400 pace:	800m (total volume in '02), 800m (planned volume in '03). Example workout: 4 x 200 at 400m pace = 800m of running done at 400m race pace.
800 pace:	1200m (total volume in '02), 1600m ('03). Ex. 4 x 400 at 800 pace
1500 pace:	1600m (total volume in '02), 2400m ('03). Ex 6 x 400 at 1500 pace
3k pace:	2800m (total volume in '02), 3200m ('03). Ex. 4

	x 800 at 3k pace.
5k pace:	4200m (total volume in '02), 5000m in ('03). Ex. 5 x 1k at 5k pace
10k/tempo:	5000m (total volume in '02), 6400m in ('03). Ex 4 miles at tempo
Long run:	10 miles in ('02), 14 miles in ('03).

Guidelines for Setting Rest Intervals between Reps: Manipulating recovery rates (rest intervals) is one of those aspects of training that there really is not much written about. Ideally you want the correct length of recovery such that the athlete is able to perform the prescribed workout, yet not so much that the value of the workout is diminished. If you fail to provide enough recovery over a length of time, the athlete will become overworked from straining unduly to hit the workout times and begin the process of breaking down due to over-training. In most cases providing a bit too much recovery is much better than providing too little. Most of it though is based on trial and error. Over the years, I have used the following chart as my guideline for setting recovery rates for each workout pace. I have found it to work well for my athletes. There have been a few who have handled less recovery, but this did not allow them to perform any faster in races than they did when they worked under this chart.

Approximate recovery times based on the time run at indicated pace.
 IE. 60 seconds of running at 1500 pace at 2x recovery = 120 second recovery

400 pace:	8x (i.e. 100 in 12. $12 \times 8 = 96$ seconds recovery)
800 pace:	4x (i.e. 200 in 30. $30 \times 4 = 120$ second recovery)
1500 pace:	2x (400 in 70. $70 \times 2 = 140$ seconds recovery)
3k pace:	1x (800 in 2:30. 150 seconds x 1 = 2:30)

	recovery)
5k pace:	.75x (1600 in 5:20. 320 seconds x .75 = 240 seconds recovery)
10k pace:	.50x (3200 in 11:20. 680 seconds x .5 = 340 seconds)
tempo pace:	.25x (3200 in 12:00. 720 seconds x .25 = 180 seconds recovery)

Another trick as the season progresses is to shorten the recovery in half as part of a set, then double the recovery between sets. This allows us to expose the athlete to a higher stress at points of the season.

Example:

Current fitness: 8 x 400 at 1500 pace (60) w/ 2:00 recovery.

Potential “set” workout to progress fitness: 4 x [2 x 400 (60)]. 30 sec between each, 4 min between sets.

Both examples above have the same volume of work at the same pace, but we have greatly reduced the recovery between particular reps making each set very similar to 800’s at 60 pace and then overcompensated with a 4min recovery. This format of running reps in sets is very effective in helping athletes jump from one fitness level to the next, higher one.

Establishing Workout Paces: Workout paces are the one area of training that most young athletes get a bit out of control and overly anxious with. Many, many athletes get overly caught up in their workout times (and those of others) at the expense of their races. In too many instances an athlete’s race times will not equate to the paces being accomplished in practice. For example, an athlete is consistently running 1500 pace workouts at 58 pace in practice, while actually racing a 1500’s at 62 pace. It seems like the only way to slow the guy down is put a uniform on him. If this happens, it is

a strong indicator that the athlete is probably over training or at the very least, leaving their Saturday races at Wednesday's workout (over reaching). Most success is achieved by training at a pace just slightly slower than the athlete is capable of, "train optimally, race maximally." All workouts paces ideally should be based on the best available data for determining current fitness. In this way, we are fairly certain that the athlete is performing the assigned workout at a pace that's appropriate for them and not someone they read about on the internet. Since most athletes lack lab facilities, the use of race results and the subsequent use of comparison charts allows for setting appropriate workout paces based on an athlete's true fitness. Race results are the most effective means for most to determine how fast they can actually run a set distance. Fitness charts are widely available through sources such as Dr Daniels, Dr Purdy (Running Trax), Benson/Ray's "Run with the Best" and Frank Horwill all have versions of comparison charts, plus there are many other versions available on the internet.

We use a form of Horwill's 4 second rule mostly because I can do it in my head at the track and not have to carry a chart around with me all the time. Maybe it's surprising, maybe it's not, but the results from all the various charts come out very similar to each other so please do not conclude that one is better than another. Use the one you feel most comfortable using. To determine your ideal workout paces using Horwill's system, start with the distances of 400, 800, 1500, 3k, 5k, 10k, tempo and marathon then apply the 4 second rule if it's a 4 minute miler, 5 seconds if it's a 5 minute miler, 6 seconds if it's a 6 minute miler. To determine your theoretical race/workout paces, you would convert a recent race result into its corresponding 400m pace. Then you would add 4 seconds to each successive distance above the performed race distance or subtract 4 seconds for each individual race distance below the race distance. For instance, we have an athlete who has just run a 4:00 1500. This would translate into a fitness level of approx 64 pace for any workout performed at 1500 pace. For determining 800 paced workout reps we would subtract 4 seconds from the recent 1500 race pace of 64

and get 60 (64 – 4). We would then have the athlete run their 800m race paced workouts at 60 pace. We would also expect the athlete to be able to race an all out 800 at 60 pace and would set that as an expected and appropriate goal for the athlete. For 400m race paced reps, we would set 56 as the pace (60 – 4). For 3k reps we would set the pace at 68 (64 + 4), 5k would be at 72 pace (68 + 4), 76 pace for 10k paced reps (72 + 4), tempos at 80 (76 + 4), marathon paced workouts would be at 84, aerobic conditioning runs would be completed at 88-92 pace and recovery run would be completed at no faster than 92.

In reality, the paces at 1 or possibly 2 speeds above or below your best race distance are most accurate. In some cases, you will have the above 4:00 1500 athlete who can only run 16:30 for 5k instead of the projected 15:00. If this is the case, you would use 2 charts for that athlete. One for the 400, 800 and 1500 based on the stronger 1500 pace of 64. The other chart would be based around the 80 second 5k fitness the athlete possesses (3k = 76, 5k = 80, 10k = 84, tempo = 88, marathon = 92, AE = 96). A large gap between your theoretical race time and your actual time for any distances can help pinpoint where you are comparatively weak in your development and can serve as an area to emphasize future training upon. In the above example where an athlete can run 64 pace for a 1500 and only run 80 pace for a 5k, this indicates additional work is needed to develop their aerobic capacity. This would then be the focus until the 5k pace drops into the range we would expect, in this case 72 pace or better for a 5k given the same 1500 time. Few athletes will be equal across the board with their 400 equating to their marathon, but these charts are great for setting workout paces and determining a training focus for the coming season.

For instance, here are some paces from an actual athlete I worked with in 1997-2000. His PR times from college were:

400 50

800: 1:52 (56)

1500: 3:46 (61)

3k: NT

5k: 14:46 (71)

Given his 400 speed, we should have seen the following:

400: 50

800: 1:48 (54)

1500: 3:38 (58)

3k: NT

5k: 13:45 (66)

Obviously, the athlete needed some work on aerobic capacity considering that every step up the distance chart resulted in an even greater spread than the previous one. We spend 2 years working on aerobic conditioning and aerobic capacity, plus tempo work (anaerobic conditioning) and these were his times by 1999:

400: 50

800: 1:47 (54.5)

1500: 3:39 (59)

3k: 8:06 (65)

5k: 13:49 (66)

The actual times achieved above were much more in line to what we should see from an athlete who has been trained with a greater emphasis on aerobic development.

This type of comparison chart or any of the other fine charts can prove invaluable for helping set the appropriate paces for the athlete's workouts. Here is an actual example from this past 2002 XC and 2003 outdoor track season on the use of the Horwill system to set workout paces:

Athlete A has run a best of 4:34 for 1500m in the 2002 outdoor season and holds a 4:27 PR set in 2001. We decide to apply the 5 second rule to set her workout paces since she is essentially a 5

minute miler at her best. The athlete runs conservatively on all workouts in July and August making sure she is keeping all workout paces at a manageable effort well under the effort run the previous spring. She runs a certified 10k road race in September and finishes with a 36:34 (88 second/400 pace). We then set her workout paces as follows using the 5 second rule based on a current reliable figure of 88 second pace for 10k:

- 400: 63 (68 – 5)
- 800: 68 (73 – 5)
- 1500: 73 (78 – 5)
- 3k: 78 (83 – 5)
- 5k: 83 (88 – 5)
- 10k: 88

tempo: 93 (88 + 5)

marathon pace: 98 (93 + 5)

AE: 103 (98 + 5) – 108 (103 + 5)

Recovery: No faster than 108 pace

We maintain the workout paces at this level until we have a compelling reason to adjust which is generally a comparatively better race time at any race distance, a time trial or a reliable real world test result such as a Kosmin Test. In this case, since the athlete did not run another road races or indoor race and only ran XC races in the fall, every workout from September through early March were run at the above paces. The first week of March we had her run a 1500 Kosmin test (<http://www.brianmac.demon.co.uk/kosmin.htm>) to determine current fitness. The athlete covered 1460 meters, which projects a time of 4:24 (71) for 1500m. We then adjust the workout paces to the following using the 5 second rule based on this reliable test result:

400:	61
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800:	66
1500:	71
3k:	76
5k:	81
10k:	86
tempo:	91
marathon pace: 96	
AE:	101-106
Rec:	Slower than 106 pace

In mid March, the athlete ran an 800 in 2:12 which confirmed the Kosmin test conducted two weeks earlier. Since this was the same level performance as the chart indicated above, the workout paces stayed the same.

In late March, the athlete was instructed to set a goal pace of running 71 pace for her first 1500 of the year. Although this was a 3-4 second PR, we knew the athlete was capable of this type of performance based on the Kosmin test as well as the 2:12 800m race which confirmed her fitness. She ran a PR 4:22 (70) for the 1500 in winning her heat of the Stanford Invitational. Her workout paces were adjusted as follows based on this new, higher level of fitness and using the 5 second rule:

400:	60
800:	65
1500:	70
3k:	75
5k:	80

10k:	85
tempo:	90
marathon pace: 95	
AE:	100

In May, the athlete ran another PR 1500 in 4:20 (70 pace). This pace was not substantially faster to justify changing the workout paces. If she had run 4:18 or better, her workout paces would have dropped another second per pace.

In this fashion we adjust the workout paces as fitness increased ensuring an appropriate level of work for that individual athlete. Remember, we kept the workout paces the same from September through March without adjusting them because we did not have reliable information to indicate they should be adjusted even though it was obvious that the workout level at times was below her ability. In this case, the athlete started with 1500 pace workouts being performed for much of the year at 73 pace. By the end of the year, she was racing at 70 pace which was a good 15 seconds faster at the 1500 that she was able to race the previous year. She maintained her health the entire year and maintained or improved her performances at every meet throughout the season.

Multi Paced Schedule: Over/Under Training: I have found that a bi-weekly schedule of multi-paced training whereby we dedicate an entire training day to an individual workout pace (i.e.. Mon: 1500, Wed: 800, Sat: 5k) allows us to manipulate the necessary training components/energy systems within an outline that's easy to use and effective, all necessary training paces are addressed while none are ignored. The plan that follows are organized around the multi paced concept of "over/under training" which implies that within 3 successive workouts, one workout will be run at primary race pace, one will be run at slower than primary race pace and one will be run at faster than primary race pace. In early spring, the standard training week for most 1500 runners would include one workout to

be run at faster than 1500 pace (all-out, 400, 800), one workout to be run at slower than primary race pace (3k, 5k, 10k or tempo) and the final workout for the week would be run at primary emphasis pace for this time of the year, which is 1500 pace. In the fall, the primary emphasis is on developing the athlete's ability as a 5k runner.

Therefore, the primary race pace would be 5k pace. In the course of 3 successive workouts, one would be at 5k pace, one would be slower (10k or tempo) and the next would be performed at faster than 5k pace (800, hill rep, 1500, 3k)

This is how it would look written another way:

March rotation of workouts:

Week #1:

Mon: 800 pace (faster)

Wed: 1500 pace (at primary race pace)

Sat: 5k pace (slower)

Week #2

Mon: 400 pace (faster)

Wed: 1500 pace (at primary race pace)

Sat: Tempo run (slower)

RACES:

“Great fear will always loose out to great faith.” Zig Ziglar

“Baseball is 90% physical. The other half is mental.” Yogi Berra

Racing is the best way we have to immediately impress upon the athlete how well they are doing. Racing provides instant feedback and makes it very easy to determine what needs attention and what is working. Races are invaluable in helping teach athletes to challenge themselves and learn to be mentally tough. In many cases, athletes will spend months, even years training without ever racing. They are always preparing for the future without living in the present. They

never receive real feedback during this “base” time and develop many unrealistic expectations about their true fitness level. There is no possible way to improve as a competitive miler without racing consistently. On average, the 1500 runner is required to race a 5k-1/2 marathon at least once a month in the late summer and fall, and then on the track every two to three weeks once the outdoor season gets under way. It takes 5-7 800 or 1500 races to work the bugs out and actual race reasonably well. Do not make the mistake of passing up low key early season meets as your opportunity to work on race strategy, increase fitness and serve as rust busters before the main qualifying meets of the season. By the time the big meets in May roll around, the club level 1500 runner should have at least 3-4 meets under their belt. Opening up in April is generally too late unless you have already qualified for USATF’s or the Trials for that season and even then it’s late.

A meet schedule for the athlete should be set up before the start of each season and should not change dramatically from week to week. This racing schedule is set up in conjunction with the training schedule so both work together to help the athlete develop the highest possible fitness and correct mental outlook to race their best at the right time of the year. Goals should be set for each meet so that the results can be appropriately analyzed. The scheduled meets should be ranked 1-3 (1 being most important and 3 being least). #1’s are the championship or qualifying races where nothing is held back and the race strategy is known well in advance. Easy weeks (see Recovery below) precede these and the athlete should be at a very high level of fitness and race readiness entering these events. #3’s are early season, low key events that are used primarily to increase fitness and more importantly, work on various race tactics. You cannot expect to race the “plan” at the top meets of the year if this “plan” isn’t tried out repeatedly. The #2 and #3 ranked meets allow the athlete a great chance to work on various tactics within an environment that has much less at stake. These meets also offer the athlete a chance to race off distances which is great in helping to determine if the program is developing all aspects of fitness. #3’s are

a good time to let the athlete race the 400 to test leg speed or the 3k/5k to test aerobic capacity. #2's are usually higher level, early season 1500 or 800 races where we would like to begin establishing solid racing patterns that we want the athlete to execute without thinking during the top meets of the year. Each race should have a goal attached to it so the athlete understands what is expected and an assessment can be conducted afterwards to determine if the athlete was successful in achieving the preset goal for that particular meet. Too many athletes do not have a plan or goal attached to each race, they just want to run "good" or "fast." Well what does that mean? Have a clear goal for what should be accomplished at each meet throughout the season.

Being a competitive runner implies that you sincerely want to race and challenge yourself. This is the one area that is paramount in helping athletes improve. Unfortunately, it's often the least focused upon aspect of most athlete's careers. Many post collegiate runners worry constantly about training programs. In fact they study training programs for weeks, months, even years on end. They can tell you the difference in Lydiard, Cerutti, Igloi and most anyone else, but in the area of racing, the one area that will pay the biggest dividend in their careers, they know agonizingly little. Ask them about Coe and they'll give you a dissertation. Ask them about a race plan or a strategy based on their individual strengths and all they'll give you a blank stare. This whole manual is supposed to be giving you the fitness to do one thing, race! The whole reason we do all this training is to beat people we shouldn't beat and win races we shouldn't win. There are a few things to address when deciding which race strategy will potentially work for you:

Do you have a short, fast finish?

Do you lack the ability to produce a short, fast finish but are very proficient at a longer 300-400m type finish? How about a 500-600 finish?

Do you lack both types and instead need to drop people early in the race?

What are the strengths and weaknesses of your opponents?

These are just a few items to think about, but you should have a good idea which type of finish works best for you so you can go about setting up a strategy that will maximize your strengths and minimize your weaknesses. After this is decided upon it's time to start looking at tapes, learn what others have done before and what might work for you. Use the #2 and #3 ranked meets to try leading, try following, go out slow and finish the last 800 fast, go out fast and hang on, run for the tape from 500-600 out, take the lead and slow the pace, whatever you think will work for you, try it. Experiment and don't be afraid to try something new. Take a chance, push the limits, experiment with a few ideas and record the results. Over time the best race plan for you will emerge. The worst thing to do is let others dictate the race your entire career. Make a plan and try to execute it. No one is successful the first time out so expect some failures along the way. Remember, you cannot learn what you're capable of by avoiding the opportunity to race nor will you race your best by continuing to let everyone else dictate what happens in a race. Take a chance, what do you have to loose? Plan your race, race your plan.

RECOVERY DAYS/WEEKS:

Regularly scheduled recovery days are planned every week to allow for regeneration of muscles, tendons and the neuromuscular systems as well as serving as a mental break. Improvement will not occur without taking 1-2 recovery days per week. Recovery is also called active rest and is the one day of training that those who over-train and under-perform consistently forget. 20-45 minutes slow and very easy is all that's needed. Remember, rest is not a 4 letter word, it's a vital part of the training process that is usually passed over by many runners. When the day calls for a recovery day, the goal is to rest, flush the toxins out of the system and mentally freshen up a bit. Don't be afraid to take days off! I know your HS coach said to never miss a day and your college coach said never miss a day, but I'm here

to tell you that taking a full day off may be a much better idea than trying to sneak extra work in that'll do more harm than good. If you are just mentally and physically dragging, trust the little man inside you and occasionally take a day off. No need to be a hero every day.

An easier recovery week should be scheduled approximately every 4th week with the goal being to have the athlete exit the week feeling fresher and healthier than they entered it. In most cases the volume of miles for the week as well as the volume of reps performed in each individual workout is cut by 15-20% over the previous 3 week's levels (i.e.. 16 mile long runs should be cut to 12-13 miles, 8 reps should be cut to 6). In some cases, we want the athlete to be very fresh for an upcoming race, so we will also cut back on the number of harder workout days preceding the race to allow more recovery days between harder efforts (1 harder workout for the week versus 2). Studies indicate the greatest gains in fitness are made within the first 21-28 days of being exposed to a new stress or stimulus. This coincides with the 3 weeks at a particular level of work followed by one week of recovery. We would then raise the workload the following 3 week period after adaptation has occurred. Ideally, an athlete should end the easy week with a meet, time trial or a Kosmin Test (<http://www.brianmac.demon.co.uk/kosmin.htm>) to help determine fitness and establish future workout paces. Scheduling a meet following an easy week is generally very productive because the athlete is rested and mentally fresh which is the ideal time to race effectively. Scheduling races in this manner also limits the "I was training through this race" excuse that many athletes use when they race poorly. We want athletes to take personal responsibility for how they race, easy week help accomplish this by removing excuses for performing poorly.

OTHER HELPFUL HINTS:

Make your hard days hard: In the same manner that we want recovery days to be easy, we ideally would like the harder workout days to be hard. These are the days to do your AM runs, longer

warm-ups, longer cool-downs, maybe sneak in extra strides, do the weights, etc. It is counter productive to attempt to make every day add up 12 miles if you want to be a top level miler. It is much more effective to have one training day be an easy 4 miles and the next one be a double day of 40 minutes in the AM and an evening workout that includes a 30 minutes warm up, 8 x 100 strides, 6 x 1600 at 10k pace and a 20 minute cool-down for a total of 14 miles in the afternoon and a total of 20 for the day. This would result in the same two day average of 12 miles, but it would result in a much tougher program while providing the necessary recovery needed to handle these difficult training days.

AM/Lunch runs: There are a few misconceptions about double days. Many feel they help by adding a few miles to the program. They do add a few more miles to the weekly bottom line totals, but this really is not the reason we ask 1500 runners to do them. The real reason we have athletes do them is for several other more important factors. First, establishing a pattern of double days is a tell tale sign of commitment. Doing double days reinforces the idea that the athlete is serious about their training. There is little fun in getting out of bed to run 30 minutes at 6:00 AM in the dark before work, but it does pay off in the mental focus an athlete develops.

The second and more important reason we have 1500 runners do AM runs particularly before any harder afternoon workouts such as track work or tempo runs is because of an interesting study conducted in Italy a number of years back. It showed that the human body produces elevated levels of human growth hormone (HG) in the bloodstream during the 4-6 hours following a run of 30-40 minutes. It is theorized that an AM or lunch runs doesn't necessarily loosen you up for the afternoon run as much inject the body with naturally occurring hormones that allow the afternoon workout to be performed with less effort. This is the reason that most top 1500 runners will run an easy 20-40 minutes without fail a few hours before a big meet. They know this easy run will make them feel better for a hard effort performed a few hours later. Developing runners tend to sit in their hotel rooms before their races

because they feel they need the rest. The earlier runs increase blood flow, loosen you up and provide some added solitary minutes to become mentally focused. They are a very good habit to get into.

Avoid Raising Mileage and Intensity Simultaneously: One of the biggest mistakes young runners make is they attempt running new weekly mileage PR's while also trying to maintain their 2-3 times weekly track sessions. They usually crash and burn and later complain that anything over 40 miles a week results in injuries. Not true. Trying to raise your weekly mileage while at the same time trying to increase your intensity causes injuries. Don't make this mistake. Stress of any sort needs to be incorporated slowly enough so that the body can adapt without breaking (chronic stress vs. acute stress). Increased mileage and increased intensity are two different stresses that need to be adapted to individually. Increasing both at the same time is to be avoided. Start first with the raising the mileage by spending the summer and early fall months adapting to your new mileage goals before pushing the limits on the effort of the regularly scheduled workouts. The scheduled workouts accommodate this added stress of increased weekly mileage by starting out at a very manageable intensity level. Follow these guidelines as they are outlined and resist the urge to hammer the first few workouts. Spend the summer and fall getting your legs underneath you before upping the ante on the scheduled workouts. Once you've adapted to the mileage, then it will be time to increase the intensity with which you run these miles. Ideally during the "True Base" phase from 1/1 through the end of February the athlete will be fully ready to hammer some miles they way they are supposed to be run. Until then, adapt to the easy mileage first and be patient before hammering the scheduled workouts.

As the athlete matures it becomes less stressful to resume higher mileage weeks. It's just one of the added benefits of long term training that once you have successfully attained a fitness level, resuming that same level of training is easier and less stressful than it was to initially attain that level in the first place. Therefore a more

experienced athlete can get back up to a higher weekly volume of mileage sooner, they can also get back on the harder workouts sooner than an athlete with less training background.

Warm-up Routines: One of the least utilized periods of an athlete's limited training day is the time spent warming-up. In most cases, it looks like something like this:

10-15 min easy. 4 half-hearted strides. BS a bit. Run the workout.

The summer and fall are the time of the year that our goal is to have elevated mileage levels. A warm-up routine that provides a thorough warm-up as well as enough strides at various paces to ensure the athlete is prepared to run any pace scheduled that particular afternoon should be the goal. Here is the warm-up routine we follow from 8/1-3/1. We stole this from the great Portuguese 1500 runners:

25-30 min easy-moderate. 6 x strides (2 @ 3k, 2 @ 1500, 2 @ 800 effort).

When athletes first try this, they usually complain because they are not prepared for the volume of running required in the Portuguese warm up. The overall volume of this particular warm-up is necessary for another important reason. In the pre-comp phase of training from 3/1-5/1, we incorporate a pretty intensive warm-up routine that literally takes 40-45 minutes. If a 30-40 minute warm up is not adapted to in the previous 8 months of fall and winter, then the athlete risks falling into the valley of fatigue from over-training through an overly ambitious warm-up routine that is much too difficult for that athlete given the level of track work that follows.

Here are the warm-up routines we incorporate for the pre-comp 1500 specific training phase of 3/1-5/1. As you can see, both add up to a lot minutes:

Warm up A: For all out speed, 400. 800 or 1500 paced workouts

- 20 min progressive run (10 min easy, 5 at AE, 5 at tempo)
- 1200-1600 of stride the straight/jog turn
- 1 x 150-200 at 1500 pace

- 1 x 150-200 at 800 pace
- 1 x 150 acceleration (1500/800/400)
- 1 x 150 Sprint/Float/Sprint (400/800/400)
- 5-10 minutes, then proceed with scheduled workout.

Warm Up B: For 5k, 10k or tempo workouts

- 25-30 min easy
- 4 x 80-100 light strides
- 6-8 x 120 diagonal accelerations (1500/800/400) on grass field, walk across recovery
- 5-10 minutes then proceed with workouts.

Setting Weekly Mileage Goals: Weekly mileage really should be viewed as a byproduct of the work performed during the week versus a goal in and of itself. Set up the schedule based on the individual components and the weekly mileage will take care of itself. Still, many runners get nervous because they have been taught their whole careers to chart their weekly mileage. Based on the workloads prescribed by this program, it should become apparent that the minimum weekly mileage for the competitive miler following the outlines written here are:

65-70 for females

75-80 for males

This isn't written in stone, but if you take the standard suggested training week below and chart is out, it will result in the weekly figures listed above.

Here's an example from the suggested fall schedule:

Sun:	Long run, easy (20-25% weekly mileage)	Sunday total: 13 miles.
Mon:	AM: 20-40 min easy (optional)	Mon total: 3 miles AM, 9 miles in

	PM: AE run followed by form runs at speed.	PM
Tues:	AM: 20-40 min easy PM: Workout: faster than 5k pace (hill reps, 1500 or 3k paced)	Tues total: 3 miles AM, 9 miles in PM
Wed:	Mid week longer run in the hills. 15% weekly mileage.	Wed: total: 10 miles in PM
Thur:	AM: 20-40 min easy (optional) PM: 20-40 min easy recovery. Can substitute hike, swim, bike, DNR if fried.	Thurs total: 3 miles AM, 3 miles in PM
Fri:	AM: 20-40 min easy PM: Workout: strength (5k, 10k, tempo) or Saturday Speed day if race.	Fri total: 3 miles AM, 9 miles in PM
Sat:	AM: 20-40 min easy (optional) PM: Speed enhancement day or race.	Sat total: 3 miles AM, 7 miles in PM

Absolute minimum weekly mileage without optional AM runs and runs at the low side of the suggested range = approx 65 a week @ 7 min pace.

Each year there should be an increase in some of the workout volumes at particular paces. Adjusting for these individual changes and the corresponding changes in the mid and end of the week long

runs, the increase usually amounts to approximately 5-10% per year for weekly mileage.

Perform Shorter Length Interval Work on Soft Surfaces in the fall and winter: As much as possible, it is ideal if the athlete can perform all 200's, 300's and 400's during the fall and winter months on a measured dirt, woodchip or grass area. By having them do their shorter reps off the track, we can have them to focus on effort and form while keeping them on softer surfaces. These surfaces tend to build lower leg strength as well as keep the athlete hungry for the rubber oval.

10 Days Out: Any harder workout performed usually pays off 10 days after it is completed. What this means is that if you run a super hard workout say Wednesday of this week, it will pay off with greater fitness next Saturday. Before next Saturday though, the body will need to adapt so it's usually not a great idea to hammer a Wednesday workout and expect super results a few days later. Using this concept, we try to set up the training schedule such that we have the athlete perform a harder race specific workout 10 days before a bigger meet and then coast in the week of the meet with lower miles and lighter workloads. For instance, if we have a big 1500 scheduled for May 10th, we would schedule a workout on May 1 that would be a tough 1500 specific workout (i.e. 3-4 x 800 at 1500 pace). If there was a big 5k on March 22th, we would schedule a hard 5k specific workout (4 x 1600 at 5k pace) on March 12th. After these were completed, we would start dropping the miles a tad and make sure we're fairly well rested heading into the big race to ensure a positive experience for the athlete.

One Primary Effort per Week: Athletes have a limited amount of mental energy to devote to any activity. Usually you can ask them to get "up" for one particularly hard effort per week. It helps to schedule a single primary workout for the week so the athlete doesn't become overwhelmed with day after day of being hammered in practice by over reaching type workouts. This "primary" workout is usually a marker workout the athlete should be able to

hit, but will have to dig to get it done. The other workouts for the week take on the feel and effort of “maintenance” workouts. These workouts are not of the effort that the primary workout is. In a sense, they are taken for granted. The primary effort for the week is the tough one that makes the athlete a bit nervous. If there is a race the coming weekend, this should serve as will the emphasis for the week.

SUGGESTED TRAINING OUTLINE

The following is the general plan we use for our 1500 runners the entire training year. I say general because it is not set in stone, it serves as an outline we utilize to check our progress and act as a roadmap. There are always slight changes to be made based on any number of personal and not so personal factors that come into play. Still, we try to stick to 85-90% of what follows the best we can.

Summer/Fall XC (7/1-12/15):

4 weeks active recovery/easy base: July
8 weeks aerobic endurance (90-100% MPW): Aug & Sept
8 weeks XC race prep (80-100% MPW): Oct & Nov
2 week taper: Fall XC Nats (80%, 60% MPW): Early Dec.

Active Recovery/Easy Base Phase (7/1-8/1)

Goal: Active mental and physical recovery

Week #1 (break): Completely off, no running.

Week #2 (break): Run every other day. Length of runs up to athlete.

Weeks #3: Resume daily training and steadily build mileage to an adequate level. Emphasis is on consistency, not on pace. Efforts should be easy and of a social nature. Experienced athletes should reintroduce a double run of 20-40 minutes 2-5 days per week.

Lighter fartleks can be done as 30 seconds on/90 off or 1 min on/ 4 off x 6-8 within a 60 min run if the mood hits.

Week #4: Resume regular summer/fall weekly schedule of training.

*Athletes should aim to reach their individual mileage goals for the fall within 4-6 weeks of starting in week #4 above. Experienced athletes should reach 90-100% mileage levels within 2-4 weeks after week #4 listed above.

SUMMER/FALL SUGGESTED WEEKLY OUTLINE:

Sun:	Long run, easy (20-25% weekly mileage)
Mon:	AM: 20-40 min easy (optional) PM: AE run
Tues:	AM: 20-40 min easy PM: Workout: faster than 5k pace (hill reps, 1500 or 3k paced)
Wed:	Mid week longer run in the hills. 15% weekly mileage.
Thur:	AM: 20-40 min easy (optional) PM: 20-40 min easy recovery. Can substitute hike, swim, bike, DNR if fried.
Fri:	AM: 20-40 min easy PM: Workout: strength (5k, 10k, tempo) or replace with speed enhancement day if Saturday race.
Sat:	AM: 20-40 min easy (optional) PM: Speed enhancement day or race

WEEKLY COMPONENTS FOR SUMMER/FALL PHASE:

Individual run guidelines:

1. Individual runs of 20-120+ minutes per day on dirt and in the hills as much as possible, 6-7 days per week. Unless a recovery run, the pace for the last 25-75% of the run can be at 70-75% of your current 5k fitness level (listed as AE pace) but the goal of summer and fall mileage is less on the pace as it is covering the distance. In the winter and spring, the pace of these runs should be faster. Being conservative in the summer and fall as you adapt to the mileage goals is prudent. If the athlete feels good, the pace definitely should NOT be faster than 80% of 5k pace in XC.
2. Long run at end of week = 20% (25% if experienced) weekly mileage and completed as a single easy run.
3. Double days 2-5 days per week. 20-40 min easy.
4. Mid week runs of 15% of your weekly mileage done as a single run through the end of the aerobic endurance phase of the winter/spring.
5. Weekly speed maintenance/development day is advised.
6. 1 recovery day per week. Recovery days are defined as a day off or AM &/or PM x 20-45 minute very easy (70% or less of 5k speed) runs w/ breaks if needed.
7. 1 recovery week approximately every 4th week or in a week preceding a race. Cut mileage and volume of reps by 15-20%.

Other Guidelines:

- 90-100% of planned weekly mileage.
- Goals: Safely increase aerobic endurance and add some lighter intensity to the program.

- 2 primary workouts per week.
- Stick to established workouts volumes set during breaks on all workouts. Ex. If 6400m of tempo work is the goal set in the off season, then this amount should be adhered to throughout the training year.

WORKOUTS: XC AEROBIC ENDURANCE PHASE (8/1-10/1)

SPECIFIC WORKOUTS 8/1-9/1:

8 Tempo run once per week: Controlled up-tempo run done once a week. 25-30 minute easy run straight into 20-50 minutes starting at AE (75-80%) and ending at MP. Light strides following (i.e. 4-6 x 100m on grass barefoot w/ 100m jog or 50m walk recovery).

9 Shorter rep workout once per week (do one every other week):

O. 2 x (4-6 x 200) at 3k **effort** w/ 100 jog btw each and 400 jog btw sets every other week. 25-30 min warm up, 4-6 strides (2-3 at 3k, 2-3 at 1500), 15-20 min cool down. Stick to pre-set volumes of work for 3k pace and run on a measured softer surface if possible.

P. 6-9 x 300m gradual uphill slope on dirt or grass if available, concentrating on running with great form. Jog down recoveries. Done every other week. 25-30 min warm up, 4-6 strides (2-3 at 3k, 2-3 at 1500), 15-20 min cool down.

10 Weekly speed maintenance day: AE run (70-80%) of 25-30 minutes followed by 2400m of stride the straight/jog the turns running the first few at 3k effort, the middle ones at 1500 effort and the last 1-2 at 800 effort. All un-timed. Focus on good form, turnover, push off, etc. Easy 15-20 minute cool down.

11 Optional races: A single 5k-10K road races can be done given they are approached as tempo-type workouts (first $\frac{3}{4}$ of race

distance run at tempo effort, hard last mile finish if mood hits). Should include a fairly substantial warm-up and warm-down (i.e. 25-40 min).

SPECIFIC WORKOUTS 9/1-10/1

-Add doubles days if not done so previously.

A. Tempo run or fartlek workout once per week (do one every other week):

1. Tempo: Controlled up-tempo run done once every other week. 25-30 minute run straight into 20-50 minutes (volume dependent on pre-set levels for tempo work) starting at MP and ending at tempo. Light strides following (i.e. 4-6 x 100m on grass barefoot w/ 100m jog or 50m walk recovery). Done every other week.

2a. Fartleks: Harder “on’s” at tempo/10k effort. Slower “off” recoveries at AE-MP pace w/ 1:1 recovery time. Reps should be 3 minutes in length or less with total “on” times adding to 10-20 minutes. 25-30 min warm up, 6 strides (2 at 3k, 2 at 1500, 2 at 800), 15-20 min cool down. Done every other week.

2b. Cutdown miles: 4-6 x 1600 w/ 3 min recovery. Start at MP and drop each successive rep by 5-10 seconds. I.e.. 4 min miler would go 5:20, 5:10, 5:00, 4:50, 4:40

B. Hills or 300’s workout once per week (do one every other week):

1. 300’s: 2 x (3-4 x 300) at 3k effort w/ 100 jog btw each, 400 btw sets on grass or dirt. No track if at all possible! 25-30 min warm up, 6 strides (2 at 3k, 2 at 1500, 2 at 800), 15-20 min cool down. Done every other week. Stick to pre-set volumes of work for 3k pace.

2. Hill reps: 8-12 x gradual uphill slope on dirt or grass if available, with jog down recoveries. Done as sets (form, medium) or as progressives. 25-30 min warm up, 6 strides (2 at 3k, 2 at 1500, 2 at 800), 15-20 min cool down. Done every other week.

C. Once weekly speed maintenance day: AE run of 25-30 minutes followed by 2400m of stride the straight/jog the turn. Un-timed strides starting 2 at 3k effort, 2 at 1500 effort, 2 at 800 effort + 4-6 x 60 accelerations (last 10m at best RELAXED top end effort) with walk back recovery. Optional 1 x 200 at 1500 effort, un-timed after a 5-10 minute recovery following accelerations. Focus on great form, turnover, push-off, etc. Easy 15-20 minute cool down.

D. Races: A single 5k-10k road or XC races can be done given it is approached as tempo-type effort (first $\frac{3}{4}$ of race distance run at tempo effort, hard last mile finish if mood hits). Should include a fairly substantial warm-up and warm-down (i.e. 25-30 min).

WORKOUTS: XC RACE PREPARATION PHASE **(10/1-12/1):**

Goal: Raise level of aerobic and anaerobic conditioning, plus boost VO₂max to highest levels for the Summer/Fall period.

- Race strategy takes on greater importance.
- If racing, only one additional harder effort preceding the race of hill reps, 400's, 300's, or 200's.

SPECIFIC WORKOUTS 10/1-11/1:

A. Fartlek/Wake Forest Drill or 10k paced reps done once per week (do one every other week):

1. Fartlek: 10k effort "on's" of 3-5 min in length with 1:1 recovery (5 on/5 off or 3 on/3 off), "off's" at MP effort or Wake Forest drill. Longer 25-30 min warm up, 15-20 min cool down. Done every other week.

2. 10k paced work: 1k-1600 reps w/ approx 60% time recovery run (5 min mile = 3 min rec. 3 min 1k = 2 min rec). 25-30 min warm up, 6 strides (2 at 3k, 2 at 1500, 2 at 800), 15-20 min cool

down. Volume should stay at pre-set levels for 10k paced work. Done every other week.

B. 5k or 3k, done once per week (do one every other week):

1. 3k paced work: 2 x (3-4 x 400) w/ 100 jog btw each, 400 jog btw sets. First set at 3k pace, second set 1-2 seconds faster. 25-30 min warm up, 6 strides (2 at 3k, 2 at 1500, 2 at 800), 15-20 min cool down. Volume should stay at pre-set 3k levels. Every other week and no track if possible.

2. 5k paced work: 6-8 x 800 at 5k pace w/ 400 jog. 25-30 min warm up, 6 strides (2 at 3k, 2 at 1500, 2 at 800), 15-20 min cool down. Volume should stay at pre-set 3k levels. Every other week and no track if possible.

C. Once weekly speed maintenance/development day: AE run of 25-30 minutes followed 1200m of stride the straights/jog the turns (2 @ 3k pace, 2 @ 1500 pace, 2 @ 800m pace) then 3-4 x 60 RELAXED accelerations (last 10m at best RELAXED top end speed) w/ walk back recoveries. Then 4-6 x 40 at best RELAXED top end speed with super easy walk back recoveries + optional 1 x 300 at 1500 effort, un-timed after a 5-10 minute recovery following accelerations. Focus on great form, turnover, pushoff, etc. Easy 15-20 minute cool down.

D. Race. 1 race every 3-4 weeks and should be approached more seriously working on aspects of competition.

Specific Workouts 11/1-12/1:

-Easy week preceding regionals race:

A. 5k paced work: 1k's or 1600's w/ 400 jog done Adams State style. 25-30 min warm up, 6 strides (2 at 3k, 2 at 1500, 2 at 800), 15-20 min cool down. Volume should stay at pre-set 5k workout levels. Done every week.

Alternative: 10 days before Regionals do the following: 3200 at 5k pace. 15 min break. 2 x 1600 hard with 3 min recoveries.

B. 3k paced or 1500 paced work, done every other week and either should be done as the lone primary workout the week before a meet.

3k paced work: 600-800's w/ ½ distance jog. 25-30 min warm up, 6 strides (2 at

3k, 2 at 1500, 2 at 800), 15-20 min cool down. Volume should stay at pre-set 3k workout levels. Done once every other week and no track if possible.

2. 1500 paced work: 300's - 400's w/ equal time standing rest. 25-30 min warm up, 6 strides (2 at 3k, 2 at 1500, 2 at 800), 15-20 min cool down. Volume should stay at pre-set 1500 levels. Done once every other week and no track if possible.

C. Once weekly speed maintenance/development day: AE run of 25-30 minutes followed 1200m of stride the straights/jog the turns (2 @ 3k pace, 2 @ 1500 pace, 2 @ 800m pace) then 3-4 x 80 RELAXED accelerations (last 10m at best RELAXED top end speed) w/ walk back or easy 320m jog recoveries. Then 4-6 x 30 at best RELAXED top end speed with super easy walk back or easy 370m jog recoveries + optional 1 x 300-400 at 1500 effort, un-timed after a 5-10 minute recovery following accelerations. Focus on great form, turnover, pushoff, etc. Easy 15-20 minute cool down.

D. Race. Start of championship season, so we want the athlete to race hard.

XC Nationals Taper phase (12/1-12/14)

2 weeks

Goal: Round into final racing form. Sharper focus, mental imagery, lower miles.

Program:

Week #1: Cut mileage to 75-80% of previous months levels

Week #2: Cut mileage to 50-60% of previous months levels

Suggested Workouts for Taper (12/1-12/15):

1. 5k: Lighter 5k paced workout with ½ distance jog. Ex. 1600, 1200, 800, 600, 400
2. 3k pace: 3k time trial 10 days before Nationals or 4 x 800 at 3k with 200 jog or 3200 at 5k pace, 15 min break. 1600 hard.
3. 5k: 4-6 x In/out 400's. 400 at 5k, 400 at tempo continuous workout.
4. 1500/3k pace: Alternate 300's at 3k (floating effortlessly image) w/ 300's at 1500 intensity (visualize being on the starting line, getting out, etc) or 400's in same fashion.
5. Light, fast strides to stay loose.
6. Suggested speed maintenance/development day during December: AE run of 25-30 minutes followed 1200m of stride the straights/jog the turns (2 @ 3k pace, 2 @ 1500 pace, 2 @ 800m pace) then 3-4 x 100 RELAXED accelerations (last 10m at best RELAXED top end speed) w/ walk back recoveries. Then 4-6 x 30 at best RELAXED top end speed with super easy walk back recoveries + optional 1 x 300-400 at 1500 effort, un-timed after a 5-10 minute recovery following accelerations. Focus on great form, turnover, pushoff, etc. Easy 15-20 minute cool down.

12/7 or 12/14: USATF Fall XC Nationals

WINTER/SPRING (12/15-7/1):

2 week transition (60%, 80% MPW):	Dec
8-10 weeks aerobic endurance (95-100% MPW):	Jan & Feb
8-10 weeks pre-comp (70-100% MPW):	Mar & April
8-10 weeks comp (50-80% MPW):	May & June

TRANSITION PHASE (12/15-1/1):

2 weeks:

Goal: Build mileage back up to max levels. Reestablish weekly routine including AM runs. Long runs, mid week runs, etc. Should be back up to early-mid fall levels by 1/1.

1/1-3/1 WEEKLY OUTLINE

Sun: Long run, easy (20-25% weekly mileage)

Mon: AM: 20-40 min easy

PM: Faster than 1500 pace workout (400, 800 pace)

Tues: AM: 20-40 min easy (optional)

PM: AE run

Wed: AM: 20-40 min easy

PM: 1500 specific workout

Thur: Mid week longer run in the hills. 15% weekly mileage.

Fri: AM: 20-40 min easy (optional)

PM: Easy recovery run or DNR, cycle, swim, whatever

Sat: AM: 20-40 min easy

PM: Slower than race pace strength workout (3k, 5k, 10k tempo). Race replaces.

WEEKLY COMPONENTS FOR TRUE BASE :

Individual runs of 20-120+ minutes per day on dirt and in the hills as much as possible, 6-7 days per week. Unless a recovery run, the pace for the last 25-75% of the run should be at 70-80% of your current 5k fitness level (listed as AE pace). This shouldn't be forced and definitely NOT faster than 80%, but it should be monitored and serve as a goal for the spring.

Long run at end of week = 20-25% weekly mileage and completed as a single easy run. Last 2-3 miles at 70-75% 5k pace.

Double days 2-5 days per week. 20-40 min easy.

Mid week runs of 15% of your weekly mileage done as a single run. 70-75% (AE) effort in the latter stages of the run.

1 recovery days per week. Recovery days are defined as a day off or 1-2 x 20-45 minute very easy (65% of 5k speed or less) runs w/ breaks if needed.

TRACK AEROBIC ENDURANCE PHASE (1/1-3/1): **TRUE BASE PHASE**

Goal: Finalize development of aerobic endurance while making the transition to regular mid distance training. Continue to bring mileage up to max levels as soon as possible.

- 8-10 weeks (95-100% weekly mileage)
- 3 workouts per week.
- Easy week every 4th week or in a week preceding a race:

SCHEDULED WORKOUTS 1/1-2/1:

- Monday faster than 1500 pace workouts:

1. Suggested speed maintenance/development day: AE run of 25-30 minutes followed 1200m of stride the straights/jog the turns (2 @ 3k pace, 2 @ 1500 pace, 2 @ 800m pace) then 3-4 x 100 RELAXED accelerations (last 10m at best RELAXED top end speed) w/ walk back recoveries. Then 4-6 x 30 at best RELAXED top end speed with super easy walk back recoveries. Focus on great form, turnover, pushoff, etc. Easy 15-20 minute cool down.
2. 800 specific day of AE run of 25-30 minutes followed 1200m of stride the straights/jog the turns (2@ 3k, 2 @ 1500, 2 @ 800) . 150's at 800 effort (stick with pre-set 800m workout volumes). All with easy 250 jog recoveries. Focus on great form, turnover, pushoff, etc. In spikes if possible. Easy 15-20 minute cool down. Do this every other week.

- Wednesday 1500 workouts:

1. 25-30 minutes followed by 4-6 light strides (3k, 1500, 800), 4 x (4-6 x 200) or 4 x (2 x 300) at 1500 effort w/ 100 jog btw each, 400 btw sets. 15-20 min cool down. Maintain pre-set 1500 pace volumes.
2. 25-30 minutes followed by 4-6 light strides (3k, 1500, 800). 9-12 x 300m gradual uphill concentrating on form w/ jog down recoveries. Done as sets (form, medium, hard) once every other week. 25-30 min warm-up, 15-20 min cool-down. Maintain pre-set 1500 pace volumes.

Saturday strength, slower than 1500 workouts:

1. Controlled marathon type up-tempo run. 25-30 minute run straight into 20-50 minutes starting and ending at tempo. 2-4 x 150-200's finishes following. Done every other week. Workout volume should stay at pre-set tempo level.
2. 25-30 minutes followed by 4-6 light strides (3k, 1500, 800). 12-16 x 400 at 5k pace w/ 200 jog. Done every other week. Workout volume should stay at pre-set 5k level.
3. Races, time trails, indoor races or fitness test substitutes for the strength workout above

- Races, Time Trials, Fitness Test

1. Longer 10k-1/2 marathon races can be done given they are approached as tempo-type workouts. 10k's should include a fairly substantial warm-up and warm-down (i.e. 25-40 min).
2. Time Trials, race simulations, indoor meets and Kosmin tests should be done after the easy week to test fitness.

SCHEDULED WORKOUTS 2/1-3/1:

- Monday faster than 1500 pace workouts:

1. Suggested speed maintenance/development day: AE run of 25-30 minutes followed 1200m of stride the straights/jog the turns (2 @ 3k pace, 2 @ 1500 pace, 2 @ 800m pace) then 3-4 x 150 RELAXED accelerations (last 10m at best

RELAXED top end speed) w/ walk back recoveries. Then 6-8 x 30 at best RELAXED top end speed with super easy walk back recoveries or 4-6 x hard 80-120m steep hill reps. Focus on great form, turnover, pushoff, etc. Easy 15-20 minute cool down.

2. 800 specific day of 25-30 minute warmup followed 1200-1600m of stride the straights/jog the turns (3k pace start, 1500 pace finish). 2 x 4 x 200 at 800 pace w/ 100 jog btw each, 400 btw sets. In spikes if possible. Easy 15-20 minute cool down. Do this every other week and maintain pre-set 800m workout volumes

-Wednesday 1500/3k pace specific workouts:

1. 3-4 x (2 x 300) at 1500 effort w/ 100 jog btw each, 400 btw sets <or> 3 x (4-6 x 400) w/ 200 jog btw each and 400 jog btw sets. 25-30 minutes followed by 4-6 light strides (3k, 1500, 800), 15-20 min cool down. Maintain pre-set 1500 pace volumes.
2. 8-12 x 400 at 3k w/ 200 jog every other week. 25-30 minutes followed by 4-6 light strides (3k, 1500, 800), 15-20 min cool-down. Maintain pre-set 3k workout volumes.

-Saturday strength, slower than 1500 paced specific workouts:

1. 4-6 miles at tempo w/ 2-4 x 400 at 10k bookend (2-4 x 400 at 10k, tempo, 2-4 x 400 at 10k). 2-4 x 150-200's finishes following. 25-30 minutes followed by 4-6 light strides (3k, 1500, 800) warmup, 15-20 min warm down Done every other week. Workout volume should stay at pre-set tempo level.
2. 6-8 x 800 at 5k pace w/ 200 jog. 3-4 x 150-200 finishes. 25-30 minutes followed by 4-6 light strides (3k, 1500, 800), warmup. 15-20 min warmdown. Done every other week. Workout volume should stay at pre-set 5k level.

3. Race simulations, low key indoor meet or Kosmin test following easy week.

TRACK PRE-COMP PHASE 3/1-5/1: FINALLY TIME TO BECOME A MILER!

8-10 weeks (80-100% weekly mileage)

- Should take an easier week preceding all 1 or 2 ranked meets.
- Same basic weekly outline as above. Exception is on easy weeks, where there should be an acceleration type day Monday and a lighter 800/1500 workout preceding the race.
- Workouts rotate around primary race distance. Workout paces will include a weekly workout at primary race pace, then another at 1 or 2 speeds faster and another at 1-2 speeds slower (i.e. in week #1, 1 workout at 800 pace, the next at 1500 pace, the next at 3k pace. Then in week #2 it would go at all-out speed, the next at 1500, the next at LT pace. Week #3 would start the whole rotation over again.
- Long runs should be maintained at 80-100% volumes.
- Very important to maintain the paces of all non-recovery runs at 70-75% of 5k pace. Very easy to loose aerobic fitness in this stage, which is why we have progressive warm-ups as a consistent element.
- If racing, work on tactics. Should get in 1-2 meets per month. 400 on a double is advised to determine current 400 pace.

Add new warm-up routine:

To maintain the previously developed components of AE, tempo, 3k, 1500, 800 and 400 speeds, we want to incorporate these speeds consistently within the warm-up routines to maintain these systems while we focus more attention to 800 and 1500 specific workouts. These should be maintained throughout this 8-10 weeks of training

to help bring fitness levels to their highest for the season before the competitive season.

Warm up A: For all out speed, 400. 800 or 1500 paced workouts

- 20 min progressive run (10 min easy, 5 at AE, 5 at tempo)
- 1200-1600 of stride the straight/jog turn
- 1 x 150-200 at 1500 pace
- 1 x 150-200 at 800 pace
- 1 x 150 acceleration (1500/800/400)
- 1 x 150 Sprint/Float/Sprint (400/800/400)
- 5-10 minutes, then proceed with scheduled workout.

Warm Up B: For 5k, 10k or tempo workouts

- 25-30 min easy
- 4 x 80-100 light strides
- 6-8 x 120 diagonal accelerations (1500/800/400) on grass field, walk across recovery
- 5-10 minutes then proceed with workouts.

3/1-5/1 WEEKLY OUTLINE

Sun:	Long run, easy (20% weekly mileage)
Mon:	AM: 20-40 min easy PM: Slower than race pace strength workout (3k, 5k, 10k tempo).
Tues:	AM: 20-40 min easy (optional) PM: AE run
Wed:	AM: 20-40 min easy PM: 1500 specific workout or change of pace workout if meet follows later in the week.

Thurs:	AM: 20-40 easy (optional) PM: 30-60 AE run
Fri:	AM: 20-40 min easy (optional) PM: Easy recovery run or pre-meet day
Sat:	AM: 20-40 min easy PM: Faster than 1500 pace workout (all-out, 400, 800 pace). Race replaces.

SPECIFIC WORKOUTS 3/1-5/1:

Note: Each workout listed per workout pace should be completed in order, meaning do not try the 800's at 1500 pace before successfully completing the 400's at 1500 pace with equal standing rest, then the 600's at 1500 pace. Also, maintain pre-set workout volume at each pace and maintain appropriate recovery rates between reps to ensure you do not overdo things. It's very easy to train beyond your abilities at this stage of training. The result is falling into the valley of fatigue which usually means you aren't injured, you just cannot finish a workout to save your life and racing isn't even an option because you physically cannot run very fast. The only recourse is down time which is not ideal at this point in the season.

Also please note: it's very important to reference comparison charts to ensure workouts are being performed at the correct pace. Don't race the workouts, race the races!

- All Out Speed (Warmup A):

- 350, 300, 250, 200 or 300, 250, 200, 150 at best effort with 400 walk recovery
- 8-10 x 100 accelerations. (800/400/best effort) w/ 300 walk/jog
- 4-6 x 200 at best effort w/ 4 min rec.

- 3-4 x 300 at best effort w/ 6 min rec.
 - 2-3 x 400 at best effort w/ 8 min rec.
- 800 (Warm up A):
- 5-6 x 300 at 800 pace w/ 3 minutes
 - 3-4 x 400 at 800 pace w/ 4 minutes
 - 500/60 sec/300. 5-6 min 400/60 sec/400 all at 800 pace.
 - Finish 800 pace workouts with fly-ins following a 5-10 min break such as 4 x 60 fly-ins with full recovery
- 1500 (Warm up A)::
- 4 x 2 x 400 at 1500 pace. 100 jog btw each, 5 min btw sets
 - 6-8 x 400 at 1500 pace w/ equal time standing recovery
 - 4-5 x 600 at 1500 pace w/ 2x time recovery
 - 3-4 x 800 at 1500 pace w/ 2x time recovery
- 3k (Warm up B)::
- 30/40's, 32/42's, 35/45's. 8-12 x 200 at 1500/200 at 10 seconds slower continuously run without recovery. Goal is to go as long past 8 laps as possible.
 - 5-7 x 600 at 3k pace w/ 300 jog
 - 4-6 x 800 at 3k w/ 400 jog
 - 3-5 x 1k @ 3k w/ 400 jog.
- 5K (Warm up B)::
- 5-6 x 1k w/ 400 jog
 - 5-6 x 1k (800 at 5k, 200 at 3k) w/ 400 jog
 - 3-4 x 1600 at 5k w/ 400 jog
 - 3-4 x 1600 (laps alternating at 2 seconds faster, then 2 seconds slower than 5k pace, i.e. 65/70/65/70 for 4 flat miler)

- Should finish all 5k paced workouts w/ 3-4 x 150-200 finishes.
- Tempo/10k (Warm up B):
- 3 miles at tempo, 1 mile at MP, 1 mile at 10k-5k
 - 2 x 400-800 at 5k, 3-5 miles at tempo, 2 x 400-800 at tempo. All with 200-400 jogs.
 - 4 x 4 x 400 (first 3 at 10k, last at 5k). 100 jog btw each, 200 btw sets.
- Change of Pace (Warm up A):
- 3 x 3 x 300. 100 jog btw each, 5 min btw sets. First set at 3k, second set at 1500, last set at better than 1500.
 - 200-300 acceleration: 200, 220, 240, 260, 280, 300. 200 at 1500 pace. Add 1.5-2 seconds each successive rep. 300 should be at 400 race pace or close to it. Jog back recoveries.
 - 600 at 1500 pace, 100 jog, 300's at 800 pace or better. 2-4 reps w/ 5 min btw sets.
 - 100-200 acceleration: 100, 120, 140, 160, 180, 200. Start at 800 pace and end at best effort. Easy walk/jog back recovery

Races: 1-2 meets per month should be scheduled during this time. #3 ranked meets should focus on doubling with one or two events above and below the 1500 distance (i.e. 800, 400 double or a single 3k or 5k). 1500's can be run during a #3 ranked meet, but the race strategy should be an experimental one. One or two #2 ranked meets should be scheduled as well focusing on the 1500 distance. Easy weeks should precede these meets .

COMP PHASE (5/1-7/1)

8 weeks

-Mileage at 40-80% of max mileage.

-Lower volume, high intensity, rotation of workouts around primary distance.

-Racing 1-3 times weekly.

-Travel and DNR's are likely.

-Being fresh takes priority! DNR's because of travel are to be expected.

-All workouts should be fast and relaxed, versus straining to hit splits. Plenty of recovery should be provided between reps, volume of work is approx race pace distance.

Sun:	Usually 75-90 minutes
Mon:	AM: 20-30 min easy (optional)
Tues:	AM: 20-30 min easy
	PM: Lighter 1500 specific workout PM: 30-45 min run finishing at AE if athlete chooses.
Wed:	AM: 20-30 min easy (optional) PM: 30-45 min run finishing at AE if athlete chooses.
Thurs:	AM: 20-30 min easy PM: Lighter 800 specific workout
Fri:	AM: 20-40 min easy (optional) PM: Easy recovery run or DNR. Pre-meet day if Saturday Competition
Sat:	Meets as much as possible. If no race, race simulation or change of pace workout.

SCHEDULED WORKOUTS COMP PHASE 5/1-7/1:

All out:

-2-3 x 200 at best effort.

800: -4 x 200 at 800 or slightly better w/ 200 jog. Ex. For 1:48

800: 28, 27, 26, 25

-3 x 200 at 800 or slightly better + 100 at best. 200 jog btw each

-6 x 100 at 800 or slightly better with easy walk/jog back recovery.

1500: -4 x 400 at 1500 pace or slightly better w/ 400 easy jog

-3 x 400 at 1500 or slightly better + 200 at best effort w/ 400 easy jog btw each.

-5 x 300 w/ 3 min recovery.

Race Simulations:

- -1200 as if the first or last 1200 of a race.

Change of Pace:

- 300-200 acceleration: 300, 280, 260, 240, 220, 200. Start the first 300 at 1500 pace and make each successive rep slightly faster such that the last rep is at best effort. Jog back recovery.
- -600 at 1500 pace, 100 jog, 300's at 800 pace or better. 2-3 reps w/ 5 min btw sets.
- -100-200 acceleration: 100, 120, 140, 160, 180, 200. Start at 800 pace and end at best effort. Easy walk/jog back recovery

Race as much as possible! All that work the previous 10 months was to get you fit for this time of the year.

APPENDIX I:

The following progression I have used as a guideline for setting appropriate workload volumes at various points within a season.

FALL PROGRESSIONS:

Example

Athlete A has the following approximate workout volumes set for each pace prior to the start of the training year:

400 pace:	800m
800 pace:	1600m
1500 pace:	2400m
3k:	3200m
5k	5000m
10k/tempo	6400m
Marathon pace	8000m

TRANSITION MONTH (8/1-9/1)

Usually we ask the athlete to get on their weekly mileage, establish their routine for the fall of AM runs, long weekend runs, mid week longer runs, recovery days etc. Early in the week we tend to do light hill reps focusing on form only which should result in almost ridiculously easy speeds or 200's at XC race effort, again, the speed and effort is very light. Later in the week is a social tempo run, meaning within an hour run 20-30 minutes will be at a steady state effort, meaning controlled but faster than a normal run pace. For a 4:20 female 1500 runner, pace would be roughly 6:20-30 pace. For a 4 flat miler, 5:20-30 pace. Usually we go 20 min in week #1, 25 min

in week #2, 30 min in week #3. Pace would drop a bit each week as well. Strides a few days per week are advised.

MONTH #1 (9/1-10/1):

<u>Rep Length</u>	<u>Rep pace</u>
200/300:	3k pace (2 x 8 x 200 or 3 x 4 x 300 = 3600m), hill reps (11 x 300 at 3k effort)
400:	5k pace (12 x 400 = 5000m)
800:	10k pace (8 x 800 = 6400m)
1600:	Cutdown's starting at MP and drop each approx 5-10 seconds.
3200:	Tempo (2 x 3200 = 6400m)

MONTH #2 (10/1-11/1):

<u>Rep Length</u>	<u>Rep pace</u>
200/300:	Tend not to do any, but if we did, they'd probably look like this: 1500 pace (2 x 6 x 200 or 2 x 4 x 300 = 2400m), hill reps (8 x 300 at 1500 effort)
400:	3k pace (8 x 400 = 3200m)
800:	5k pace (6 x 800 = 4800m)
1600:	10k (4 x 1600 = 6400m)
3200:	None scheduled generally
6400+:	We tend to do Wake Forest drills at the end of this month in place of a pure tempo run here. Same volume of work, just more XC appropriate.

MONTH #3 (11/1-12/1):

<u>Rep Length</u>	<u>Rep pace</u>
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200/300:	Tend not to do any, but if we did, they'd probably look like this: 800 pace (2 x 4 x 200 = 1600m)
400:	1500 pace (6 x 400 = 1600m)
800:	3k pace (4 x 800 = 3200)
1600:	5k pace (3 x 1600 = 4800m)
3200:	1 x 3200 at 5k pace, 15 min break. 2 x 1600 hard with 3 min recovery.
6400:	Wake Forest Drill

Once weekly turnover sessions:

Aug: 6 laps of stride the straight/jog the turns (2 laps at 3k effort, 2 laps at 1500 effort, 2 laps at 800 effort)

Sept: 6 laps of stride the straight/jog the turns (2 laps at 3k effort, 2 laps at 1500 effort, 2 laps at 800 effort). 4-6 x 60 acceleration (last 10m at best RELAXED top end speed). Walk back recovery.

Oct: 6 x 80-100 strides (2 @ 3k, 2 @ 1500, 2 @ 800) w/ easy jog back, 4-6 x 60 acceleration (last 10m at best RELAXED top end speed), walk back. 4-6 x 30 at best RELAXED top end speed, super easy walk back.

Nov: 6 x 80-100 strides (2 @ 3k, 2 @ 1500, 2 @ 800) w/ easy jog back, 4-6 x 80 acceleration (last 10m at best RELAXED top end speed), walk back. 4-6 x 30 at best RELAXED top end speed, super easy walk back.

Dec: 6 x 80-100 strides (2 @ 3k, 2 @ 1500, 2 @ 800) w/ easy jog back, 4-6 x 100 acceleration (last 10m at best RELAXED top end speed), walk back. 4-6 x 30 at best RELAXED top end speed, super easy walk back.

Jan: 6 x 80-100 strides (2 @ 3k, 2 @ 1500, 2 @ 800) w/ easy jog back, 4-6 x 150 acceleration (last 10m at best RELAXED top

end speed), walk back. 4-6 x 30 at best RELAXED top end speed, super easy walk back.

Feb: 6 x 80-100 strides (2 @ 3k, 2 @ 1500, 2 @ 800) w/ easy jog back, 4-6 x 150 (50m accelerate/50m float/50m accelerate) with last 10m of each 50 acceleration at best RELAXED top end speed, walk back. 6-8 x 30 at best RELAXED top end speed or 4-6 x 80-120m hard, faster hill reps on fairly steep incline either with super easy walk back recoveries.

SPRING PROGRESSION:

MONTH #1 (1/1-2/1)

<u>Rep pace</u>	<u>Rep length</u>
400 pace:	8 x 100 accelerations = 800m or 5 x 150 accelerations = 750m
800:	10 x 150 = 1500
1500 pace:	2 x 6 x 200 = 2400m
3k/5k:	12 x 400 at 5k = 4800m
Tempo:	1 x 6400 at MP = 6400m

MONTH #2 (2/1-3/1):

<u>Rep pace</u>	<u>Rep length</u>
400 pace:	6 x 150 accelerations (50m 1500/50m 800/ 50m 400) = 900m
800:	2 x 4 x 200 = 1600m
1500 pace:	6 x 300 = 2400m
3k/5k:	6 x 800 at 5k = 4800m

Tempo:	1 x 6400 at tempo = 6400m
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MONTH #3 (3/1-4/1):

<u>Rep pace</u>	<u>Rep length</u>
400 pace:	4 x 200 = 800
800 pace:	5 x 300 = 1500m
1500 pace:	6 x 400 = 2400m
3k/5k:	5 x 1000 at 5k = 5000m
Tempo:	2 x 400 at 10k, 1 x 4800m at tempo, 2 x 400 at 10k = 6400m

MONTH #4 (4/1-5/1):

<u>Rep pace</u>	<u>Rep length</u>
400 pace:	300, 250, 200, 150 = 900m
800 pace:	4 x 400 = 1600m
1500 pace:	4 x 600 = 2400m
3k/5k:	3 x 1600 at 5k = 4800m <or> 5 x 600 at 3k = 3000m
Tempo:	3 miles at tempo, 1 mile at MP, 1 mile at 10k.

MONTH #5 (5/1-6/1):

<u>Rep pace</u>	<u>Rep length</u>
400 pace:	3 x 300 = 900m <or> 2 x 400 = 800m
800 pace:	1 x 500/300, 1 x 400/400 = 1600m
1500 pace:	3 x 800 = 2400m

3k/5k:	4 x 800 @ 3k = 3200m
Tempo/10k:	16 x 400 at 10k = 6400m