

Dan Pfaff on Tapering for the Big Meet

Q: The Olympics will be starting shortly, how do you go about tapering an athlete for a major competition?

Dan Pfaff: “Tapering” is a very ambiguous term. I know how to get an athlete ready to compete at an incredibly high level for 4-6 weeks but I wouldn’t call it classical tapering. During our “taper period”, we do quite a bit of work and we probably work a little harder and at a little higher intensity than a lot of people might but our athletes are conditioned and they need that amount of work to maintain the various strengths they have already developed.

If I had to define our taper I would say that the volume and intensity stay fairly similar but the density decreases. This is because volumetrically with some things you are trapped as you don’t get any learning effect unless you do enough work for the athlete to develop timing, awareness or positive chemistry. Also, when it comes to practicing the event the attempts need to be pretty high intensity for you to feel those things. So the nature of what you are doing has to stay the same (as in competition). Therefore, the only other variable you can alter is the training density – how often you work on a quality in any given time frame.

Another thing that is often overlooked is that as you introduce more rest some entities will be climbing while others are declining or stabilizing at best. I think it is a myth that all systems are at a really high level when great performances happen. Going back to the time when Obadele Thompson had a nerve entrapment in his foot shortly before setting a PB in the 200m, he only did bike workouts for three weeks prior to that! So was his timing and his technique optimal going into that meet? How could they be? He hadn’t been on the ground in three weeks! But his chemistry was probably super optimal because of what we had been doing on the bike, the therapy was spot on and his general strength was really high because he didn’t have anything else to do since he couldn’t run. So a lot of those things were generally higher than what we would classically like before we send someone into a meet. So it really got me thinking what dose of technique is really needed for someone to stay on top of it once you have already learned a skill? Did the cyclic motion of the bike keep his technical timing going? We don’t have the technology to answer that but something did!

Q: Ideally what should an athlete be doing six weeks before the Olympics?

Dan Pfaff: Six weeks before a major games the work is done. You had better be stabilizing and actualizing at that point because if you haven’t got the training done by now then you simply won’t be ready in time! The stress levels are so high and the demands are so great that all you can do is polish rather than improve.

In the run up to the games you have to decide how you will freshen the athlete up while keeping control over the psychology. For example, with some people if you start to taper and introduce more rest six weeks out they feel like they are detraining even if they are not, so you need to deal with that. The perception of the athlete needs to be managed because they must be confident going into big meets. Those athletes that feel guilty when they don’t do a large amount of training are the ones where you will keep a few more things in to calm their nerves.

So how long can an athlete hold their best form?

Dan Pfaff: I think for power speed people you can be in very good competitive shape for maybe twelve weeks if you have done your homework. Within this time period there will then be a second window of around 3-6 weeks where you can really achieve your best performances.

That's a very long time, so you think it is possible for an athlete to be in good shape for most of the competitive season?

Dan Pfaff: The way IAAF season is set up, athletes have to go out and drop some times in March and May to get on the list and get invited to meets. Then they have their national champs in June or July so they have to perform well there and finally they have to come to Europe and be on the circuit from July to September and keep doing it year on year or they won't get paid! So we have already proven that people can compete at a very high level for at least twelve weeks and the whole professional athletics circuit has been going on long enough now for coaches to figure out how to do this. If you are careful with how you choose meetings you can perform well when it counts almost the entire season, although some athletes are certainly more durable than others.

So do you have any tips?

Dan Pfaff: In my experience with 100m runners if they compete regularly for 2-3 weeks then they will need 10-14 days of down time to get away from racing and let their bodies recover. **We have a rule in my squad; if you PB you come home because it takes about ten days for the body to adjust to that stimulus.** With power speed athletes when they hit a PB effort everything gets screwed up for 7-10 days and it isn't safe to keep competing. You can do some training but you just need to be careful.

[JIMSON'S NOTE: I wrote about this when Tyson Gay pulled his hamstring after his 9.68 PB at the 2008 USA Olympic Trials. He should not have run the 200m the next day. Click here to read [Rest and Taper After a Maximal Performance – Thoughts on Tyson Gay from 2009](#)]

Like when Suzy Powell set the US record in the Discus last year she had a follow up meet and still threw at a real good level living off that high but that night after that meet she got sick as a dog and the next ten days she couldn't train at all. You see the problem when athletes peak is that they are doing things at a higher intensity or if something important is coming up, like a major games, then their arousal is up, their attention is up and the detail is up so they burn energy faster than normal.

Classic problems that we see in first year athletes include the issue that they hydrate at a normal rate during training but they will go to a meet and hydrate like crazy because they are nervous drinkers and suddenly the electrolytic environments are dilute and so they may get a muscle cramp or tear because they are OVER hydrated! I see a lot of times kids who usually don't do static stretching before workouts, or they usually do it at night, suddenly start stretching at big competitions. They are doing stretches you've never seen before and doing them a lot deeper than normal, which is dangerous because they are not adapted to that kind of routine.

So when an athlete gets ready for that kind of event you need to monitor all this kind of stuff. An interview at a preseason meet may not cost them anything but an interview before the Olympic final might just drain them, especially if they have to get in a car and drive to the interview. That single interview could provide enormous amounts of stress and lower the athletes' performance level, something which you obviously want to avoid just before the most important race of your life. So every entity needs to be looked at and you need to realize that going into a major games all systems are through the roof. You need to plan and prepare for that

Dan Pfaff on the Importance of Rest and Recovery

Q: Rather than goals, what priorities do you have as a coach?

Dan Pfaff: The first priority is health! So we look at what entities can be addressed to increase the wellness of the athlete. Is it mechanical? Is it inappropriate training? Is it how training elements are being combined? Is it diet? Is it nutrition? Is it sleep? Is it a lack of co-ordination of the therapy groups and the therapy styles?

Our second priority is increased mechanical efficiency because statistics show that the more mechanically efficient you are, the less injuries you have, the higher the degree of performance and the less energy you expend so you then have more energy to spend on rehab and prehab.

Generally with most of the aging athletes that come to me just dealing with those two parameters is the whole deal! If you get those two things going the rest will take care of itself.

Q: How do you go about ensuring athletes can stay healthy?

Dan Pfaff: I think the major problem is that a lot of people are into a stimulus/adaptation motif when it comes to training and instead I feel there are four steps to improving performance. Once you have stimulated and the athlete adapts to that stimulus, then you have to spend a certain amount of time allowing that new performance level to stabilize. Then in the fourth step the athlete must learn to actualize it in any kind of environment and under any kind of stress, at any point in time. I think a lot of coaches fall into the trap of stimulating and adapting and as soon as the athlete looks like they have got things under control they then change something and push forwards for greater gains and in doing so compromise the adaptation process and set the scene for injury.

Q: In addition to being careful with how you progress training, you are known for setting up excellent therapy programs for your athletes. Why do you spend so much time on therapy?

Dan Pfaff: Unless you have integrated sports medicines, therapy, rehab and prehab you will indeed you must, reduce the overall efficacy, volume and density of your training. You simply cannot afford to do this at the elite level because it is a slow virus, you do not know how much you are losing until it is too late. A top athlete is like a formula one car and have you seen how much fine tuning they do with those things?

What you learn from the therapy sessions also guides what you do in training. If an athlete is not getting regular therapy there are less checks and balances. The ability to run your hands over an athlete and know what is restricted gives you immense inside information into their functioning. You cannot expect the athlete to tell you either because they are terrible barometers when it comes to knowing what they are ready for. Just asking "are you ok for today's workout?" is not enough because their motivation is so high athletes do not necessarily listen to what their own body is telling them.

Q: Where does the coach fit into the therapy setup?

Dan Pfaff: One of the analogies I use to describe my approach to sports medicine is that joints are pulleys; connective tissue (muscle, tendons, ligaments) are ropes; and this pulley system is driven by a computer. To achieve high performance you have to do correct therapy to rehab and prehab the ropes so they do not fray. You have to ensure the pulleys are clean so that everything can slide efficiently and then you have to clean up any viruses in the computer program to remove guarding or dysfunctional movement patterns.

If you get away from that trinity you are doomed to failure. Now I think there are some very good therapists that can fix pulleys, like chiropractors, but the most common thing you hear with a standard

Chiropractor is that “Yeah I felt great but the next day it was back!” This happens because they fixed the pulley but forgot about the soft tissue (ropes) and it pulled the joint right back out of alignment again. Then there are therapists that are really advanced and they fix the joint and clear up the soft tissue pulling at it. However, even then they do not go in and fix the viruses that are controlling the whole thing. So injuries start to go away but do not have permanence because they have missed the role of the coach – to fix the computer.

And so the coach and therapy team must work closely together. After years of doing this I have come to understand sports medicine and soft tissue work myself and so now I can understand what needs to be done from all angles, co-ordinate the team and do some of the necessary treatment myself. If the coach knows and understands therapy they are in a better position to consistently get the improvements they want from their training programs.

Q: You also seem to spend a lot of time talking about rest with your athletes.

Dan Pfaff: That is a problem steeped in the authoritarian roots of coach as taskmaster. Rest and recovery are significantly under appreciated by coaches and athletes alike. We spend copious hours and tons of energy studying work. How do we do this workout? How do we do these activities? We research it to death and talk to our colleagues about it. If you had a microphone on and if you monitored how much time you and the athletes spend thinking and talking about work and you compared it to how much you spend on rest you would be shocked. It is probably less than 1%. As I have aged and coached aging athletes, I have come to appreciate that designing and implementing rest and types of rest is perhaps more important than work and the types of work.

I think that is why in some countries we see great youth programs, great junior programs and then when they get to the emerging and elite level it stops. The culprit is the work to rest balance and when that is not correct the injuries mount. If you do not have a great medical team then you are dead in the water; that athlete is out of the sport.

Q: Despite your best efforts you cannot always prevent everything. When things do go bad how do you deal with it?

Dan Pfaff: If things are not going well we move to plan B, and as a rule of thumb plan B is “try and stay as close to plan A as possible!” This means that we do not stop training just because we are injured. If we cannot run we do bike workouts to keep the chemistry going. If we cannot throw we look at what things we can do in the weight room to replace that. You can do more than you might expect with Plan B. I mean there was a time when Obadele Thompson had a nerve entrapment in his foot and did bike workouts for three weeks. He did a test sprint workout one day before he flew to Japan and then he did a lifetime best in the 200m – 19.9 something into a 1.80m/s headwind and he had not even run a step in three weeks!

Even for more serious injuries that require surgery it is important that you keep training going as much as possible before the operation so the athlete’s systems are amped up ready for recovery. At Tri Valley athletics I have a few masters athletes with cancer and one of the main aims of our training is to get their body into as good physical condition as possible before they go in for chemotherapy to minimize the functional decline that inevitably comes with the treatment.

Dan Pfaff on Training

Q: For power speed athletes (sprints, hurdles, jumps and throws) what systems do you train?

Fundamentally we train Frank Dick's five bio motor abilities (speed, stamina, skill, suppleness and strength) and then each one of those categories has maybe 20-30 subcategories. [Read his book [Sports Training Principles](#)]. Energy system wise we are primarily training ATP and alactic systems but more interestingly we work on training neurochemistry and neuropsychology which are the most important factors for power speed athletes.

Q: What is neuropsychology?

Neuropsychology to me could be the fascial matrix, it could be the central nervous system; it is the biophysics and the neurology of the psychological process – mind, thought and subconscious movement. The classic example is someone is running, they hear a shout and they turn and catch a baseball or something like that. Those kind of reflexive movements are only possible when athletes are in 'the zone' and I'm really intrigued by these 'flow state' mechanics. When it happens, they are unconscious about what they did and what they felt. You always hear, 'coach the gun went off and I was at the finish and I didn't feel anything. I didn't notice anybody.' Well how do you explain that they just ran 100m in 46 steps and recorded a lifetime best when they don't remember a thing?! And Oschman the biophysicist feels that the semiconducting fascial matrix allows the body to react and transmit information faster than what is possible given the traditionally accepted pathways. So trying to tap into this system is the new frontier for coaching and all human performance and something we work on daily in our training.

Q: Turning to training, how do you begin to put an athlete's training program together?

Putting an athletes training and season together is a lot like a jigsaw puzzle. The wellness of the athlete and efficiency of the training are the two foundations that we build the house upon and then we aim to improve the relevant sub systems that are deficient. A lot of it is about checking and deciding what needs to be dealt with and I operate on the premise that you want to keep athletes strengths foremost in their minds. We don't stop training their strengths, instead we try and work out how to maintain them or slightly improve them whilst we are dealing with the viruses, weaknesses and uncertainties that affect the modern track and field athlete.

Q: So how do you decide if something needs to be worked on?

The way we design training is a kind of a self tutorial, where the athlete, the coach and the team mates can readily identify weaknesses. A case in point is when people come to us and start doing acceleration development workouts. When they are doing them correctly, with the focus and intensity required, they are fatigued after nine or ten runs. However, people who have been in the system longer can do the same exercise eighteen times before they fatigue. The new athlete that is only doing nine reps looks around at everyone else who is doing eighteen and they know straight away that they have to upgrade that quality. Then we go to the Olympic platform and do twelve sets of one rep for power clean or snatch and they have to start reducing the weight on the bar after the sixth or seventh set, while the other athletes continue to increase load on the bar for all sets. It quickly becomes obvious where their weaknesses are.

Q: So more is better?

Well you can only do what the athlete can withstand and there is a cost benefit analysis to it all. Could we do more? Y

es, but then the risk of injury rises which could mess up their biochemistry and stall their progress. So we did more but where did it get us? There is this myth that if you train harder and longer, or you do more of it then you will be instantly be a better athlete. This is one of the single greatest myths in power speed out there. It is like how strong do you need to be to be a world class thrower? Or how far do you need to stretch out your sprint runs in order to develop endurance. I've had several sub-10 athletes who NEVER ran anything further than 150m in training. Now there are systems where athletes run 500, 400, 300 and do intensive tempo 10x200m and all that kind of stuff and they are very successful but the way we train and package things we try and see how little we can do to get the maximum results because we want to minimize the injury risk and maximize the use of the time we have available.

Q: So as a workout unfolds how do you know when the athlete is becoming prone to injury?

I look at postural integrity. If they start to change postures and sub-recruit muscles they shouldn't be using I stop the workout. I look at the reflexivity of the joints and how fluid the motion is. If the fluidity goes away and it starts to look mechanical we stop. In terms of recovery between sessions and readiness to train that day, depending on the budget we also look at many markers of recovery from pulse rate right through to using portable blood lactate analyzers and taking blood and urine to look for chemical markers.

Doing this kind of analysis on world class athletes tells you a lot of things, for example, on acceleration development days we may do 5x3x10-40m with 3-5min minutes between runs. Well with guys like Donovan Bailey, Oberdaley Thompson, Karim Street-Thompson, Bruny Surin, they would be pumping 18mmols of lactate at the end of that workout whereas a world class quarter miler at the end of the race is only pumping 10-11mmol. **So lactate isn't the enemy.** Actually if you study the Krebs cycle lactate is very anabolic so we want lactate, we just want to control what days we get it, how much and what we do when it is in the blood stream. The better the power speed athlete the greater the amounts of lactate they can produce. I mean we have throwers on the Olympic platform and when they are done with the lifts they are pumping 12-14mmols of lactate and they haven't run a step. Also on block workout days we then go to the Olympic platform and we setup curves of lactate infusion because one of the problems we have in sprinting, at the world class level, is four races in two days at the big championships and so there are huge slopes to these blood lactate levels. The athletes have to learn how to weather very steep lactate introductions into the tissue and then rapid dismissal of it. And that is very different to putting an athlete in tempo training or interval training – during which you would traditionally get an athlete to a certain level of lactate and do work there. Sprinters and Jumpers never encounter that kind of lactate environment in competition so why train them there?