

An Interview With Charlie Francis

Track Coach editor Russ Ebbets sat down with Canadian coach Charlie Francis at the 3rd Annual Society of Weight Training Injury Specialists at Mississauga, Ontario, Canada, in November 2001. Francis, of course, is the coach who guided Ben Johnson to world notoriety in the 100 meters.

1. **If the phraseology is not correct, feel free to correct me. Your training concept of speed or maximal effort throughout the year was a tremendous innovation to sprint training. Could you elaborate a little on that? Do you feel you were one of the first people using that or where did it come from?**

I was probably one of the earliest, but I don't think a lot of people were a long way away from that. It was a natural progression to go to the next step. It wasn't anything too obscure.

2. **In *Speed Trap* [Francis's autobiography published in 1990] you mentioned that the central nervous system fatigue is 9 times as long as musculo-skeletal regeneration. Have you ever thought why that is? Is it the exhaustion of the chemicals in the axioplasm or . . .**

I think there is a series of functions that goes right down through the whole body. The effects are not well understood, but certainly there would be effects right into the internal organs, the nervous system itself. The exchange of the alignment of the

positive and negative electrons on either side of the ion pumps in the nervous system takes a significant amount of time. Sometimes you have to go through an entropic phase before the alignment is corrected so you can get normal transfer. But I'm thinking there in terms of neurological overload as opposed to actual training effect. Although you cannot avoid certain neurological overload if you break the world record, you've got one right there, and yes it will take 10 days to get over it. But on a normal sprint day, 48 hours [recovery] will be sufficient.

3. **That leads to the next question—you rested your athletes for 10 days following a stellar effort.**

Yes, well, I wouldn't say "rested," but I changed the training so that you are never above the 95th percentile of maximal speed. So you are right on the cusp of high speed, but not above it. Not to say that they are running slowly. The difference for 14 flat for 150 meters and a 14.7 is immense, yet 14.7 is vastly beyond the average person's ca-

capacity to run at all.

4. **This is a question about Ben. Reflex action results from a high state of CNS function. Do you feel that the drugs aided Ben's reaction time? You hinted at this before—how quick he was—or do you feel it was the electro-muscular stimulation (EMS) that lead to the strength and clarity of the nerve pathways?**

No, he simply had a fast reaction time. But there is a combination where strength applies because reaction time, as measured in sport, is measured by the rate at which you achieve the force to trip the mechanism that times it. So, for example, in men's and women's reaction times, women's are always slower. That does not mean that their actual reaction times are worse; it's that it takes them longer to achieve the poundage required to press because they are not as strong. That also is an influence. So the stronger you are and the better your mechanics the faster your reaction will be in the blocks. The same with Ben. The fact that he had so much emphasis on the

rear foot which will contact first [after the gun] will also influence his reaction time to be quicker than it might otherwise be.

5. **And you mentioned that you really keyed on [the movement of] his lead hand. . .**

Yes, because everybody's hand is going backwards and up. You never really have to think about it because it is just going to happen. It is just your natural reaction. You have to emphasize the lead hand to go forward, because it is harder to go. The natural instinct is for the lead hand to fold up under you, very close to the body, and the back hand will go way back but you won't throw the center of gravity far enough out, and so on.

6. **The question on overspeed training that you had dealt with the concept of "maximal velocity," you were working at 12 or 12.1 meters per second.**

Yeah, 12.35 mps was the fastest he ever ran at in any race, but that was with an easier start. . .

7. **OK, in Tudor Bompas work I remember reading about "new and faster stereotypes" and it is similar to the wind aided 9.79. . . But, I was always a proponent, when I was a coach, that we did some dragging [overspeed training] but we had to do it so the form would not break down. . .**

But [even though] you can't see it, you are being pulled down into the ground, further ahead of your center of gravity, and there is no question about that, definitely. FIDAL did studies on this, the Italian Federation. They have probably one of the best sport science departments. And they found a significant increase in ground reaction forces on all towing at all velocities. So I would

be against it.

What I have heard that some people think that towing might do is aid in getting going. For the same reason that you don't do all of your 150's or whatever from the blocks because you want to raise your center of gravity perhaps, then some slight assist during the acceleration phase provided would get you going if they dropped the weight before they got anywhere near top speed.

But I still would be very nervous about using it [towing]. I wouldn't do it.

8. **In 1983 I studied in the Soviet Union at the Institute of Sport and Physical Culture and they had a 130-meter track [straight-away] where they put you in a harness and they actually had a harness that could go 25 miles per hour.**

But you know you also have to understand that they may or may not have been doing this with their top people. The Soviets had lots of theories. If you look at Borzov he didn't do any of them. And in fact he was so adamantly against the standard policies going on in the Soviet Union he wouldn't take part in any of the relay camps and Petrowski would basically back him and keep him out. And the reason was that the lifting and the intensity and the frequency of their sprint work was so much more than he was prepared to do. He did not want to get caught up in it because then he would be forced to say no constantly to work and there would be trouble, so he just wouldn't call. And of course he was very unpopular [with the authorities] and so was Petrowski, but on the other hand he was successful. And they always said he was a "creation," but if he was where was the next one? There never was another of his quality.

9. **Did you ever use stage control tests? If so, which ones? And did you use them in a weekly plan or a three-week cycle? I am thinking of standing long jump, vertical jump, little things like that to monitor fitness.**

No, just eyeball it. The reasoning being that testing generally may be the reverse of what you think it might be. If you tried to emphasize the standing broad jump, for example, as one of your parameters, you would be degrading in your result throughout the season from the beginning to the end because it would peak out about halfway through your maximum strength phase—in Phase I of the three, because all the emphasis is on more lifting, more ability, more jumps-ups, and so forth. Then you would think something is wrong because you would see it dropping off throughout the season. And yet it's just that the elastic response is changing and the actual flat response is not.

10. **30-meter sprint time?**

But they are not going to get any better, and they are not going to get any worse, but the other part is going to move.

11. **What do you feel creates the psychological qualities you like to see in a sprinter? And which ones do you rate as most important?**

Well the psychological quality you *have* to have in a sprinter is obviously to have the confidence to remain relaxed under intense pressure. But the way to build confidence in a sprinter is to build tasks that the sprinter in fact successfully completes. So daily he is faced with success. And of course the idea that you've "done it before." You get to the biggest meet and now his principal thought must be "nothing spe-

cial." He must go out there and do what he has done 1000 times before.

And just in recent years a pretty clear example of this is Maurice Greene. He never puts pressure on himself [by excessive talking]. Maurice does not worry about that; he lets somebody else do the talking. He is a very, very savvy, tough competitor, who never puts himself behind the 8-ball and that is just, sort of beyond coaching, because, you know John [Smith] is saying this, of course, but, you know, Maurice is listening [laughs], it is all on the other side.

12. What do you feel is the most difficult problem an elite sprinter will face? One of the things you mentioned was being in "the box" prior to going out on the track, but I'm looking for psychological stresses, or things that, even in *Speed Trap*, you mentioned regarding the difficulties you had getting your people from "being in the final" to thinking they could "win the final."

Yeah, it is a big jump, and it was done in a series of stages. You don't just go to the Olympics and decide, "This is how I will learn to deal with the Olympics." You go to all the Grand Prix meets, all the competitions you can get into, under various circumstances. You know it is a revelation for a lot of these people.

You go to Zurich—"Wow! This is a great meet! Wow! I gotta get ready for my race." Where do you warm up? You go out in a field, there is no track. You're running in the back yard.

And so people are relying on race rehearsal and all these little things, and they're suddenly thrown for a loop [in a major championships] because they go,

"Holy Cow! You can't do that!" Same in the Olympics, you can't do that stuff. But you don't need to. If you really had to rehearse your race and the warmup, you'd have to warm up to warm up, wouldn't you? These are experiential things that people learn by doing.

13. Now I have a question. I may be "This guy out there," [that Charlie Francis had mentioned in his general presentation], but in the *Charlie Francis Training System* you mentioned that the glute medius [a dynamic stabilizer of the trunk in single support and also involved in leg abduction and internal thigh rotation] for lateral stabilization really plays no role in sprinting. Do you feel that is still correct? Because I have a picture here. . .

Well, first of all, some of the stuff that is added in [the book]. . .

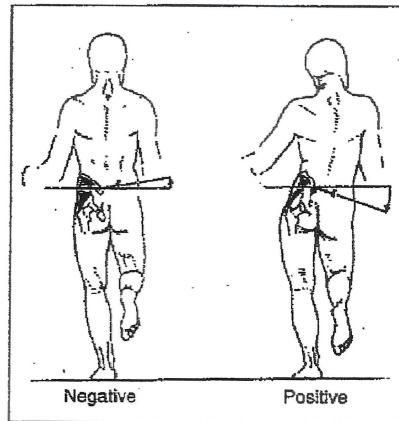
14. Of Ben showing a positive Trendelenburg Sign [an orthopedic test indicating a dysfunctional hip abductor/glute medius complex], which is a weakness of the glute medius.

Yeah, but that entirely depends on where you are and what you are doing.

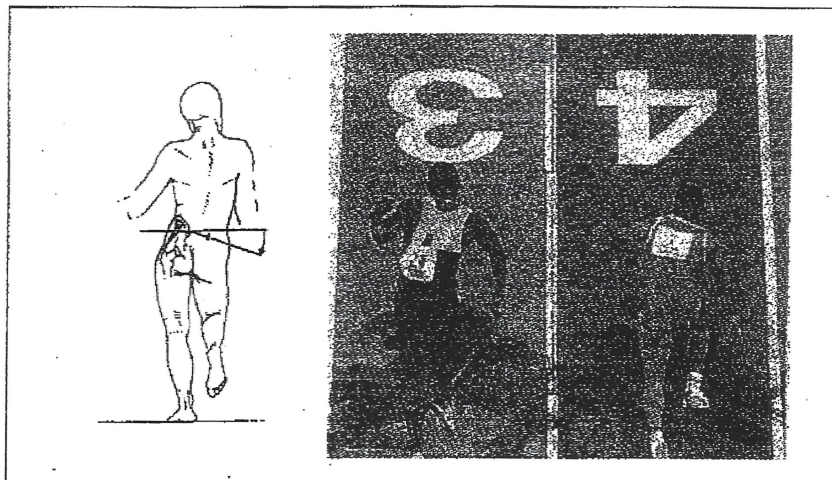
15. Well this is his first step out—I know this is from a *Sports Illustrated* article when he ran in Hamilton, Ontario, whenever that was [January 11, 1991].

Yeah, but, first of all he'd just flown back from Europe and there is a whole series of things. Second of all, as far as that comment is concerned there is a lot of stuff in that manual that's put in there by Paul Patterson, who sort of puts his two cents worth in and "translates" what I'm saying. You know?

All I can tell you is that there was nothing wrong with Ben Johnson. You know, the functioning. But what you are going to see here is that there are several things happening that are a prob-



1. Trendelenburg Sign from orthopedic text.



2. Positive Trendelenburg seen with World Class Sprinter in Lane 3.

lem. One, he has "popped up." Two, he has compressed; he has not fully left the block, right?

He's had a terrible reaction, because already this other guy is almost completely out of the block and Ben is not. He still broke the world record in this race by the way, but. . . (pauses). Furthermore you take a photo on an indoor track and you don't know what you are seeing because the boards are not a stable surface.

Editor's note: Francis was mistaken regarding this race. The picture is from a January 22, 1991 Sports Illustrated article "A New Start" on Johnson's first race after his initial drug suspension. He placed second in the race to Jamaican Daron Council who ran 5.75 to Johnson's 5.77 for 50m. As far as I could find Johnson never set an indoor world record after his first suspension.

16. What type of conditioning did you guys do? Was there ever really an "off season" for you. And did you ever use any balance work?

Couple of weeks.

17. Couple of weeks off-season? Any balance work, or you didn't get into that?

I have a couple of slides that I decided not to put up there—I'll show you after. Um, you know I didn't like doing squats on roller skates at the top of a flight of stairs. I really don't like combining things. We did balance work, like you might cross your feet over a medicine ball and do situps where you have to support yourself in a free movement space, but these are low intensity activities. But never combining high with low.

Don't do the bench press in a destabilized way, don't do squats [that way] and so forth. I was waiting to be asked that and I had

my pictures there.

18. I've seen what you are talking about. One presenter was talking about X-Games people doing 360's on a physioball. What do you feel is the most common mistake a sprint coach makes? Could be improper emphasis. . .

Pushing, pushing people. Most athletes are already highly motivated and if you ask the wrong question and act in the wrong way they're going to try to do more than they are probably ready to do. There is an old Brozov quote, "I'd like to thank all the coaches I worked with for never asking more of me than I was capable of giving." That is a pretty thoughtful remark.

19. From an analytical point of view how did you break down the sprint race? And I'm looking for things like the start, the first 30 or however you did that, what were the stages? And did that change for the 200? Did you ever do anything like Tommie Smith's "On-off" Method? Have you ever read about that, how he won in '68?

Tommie used to say, "I go in my Tommie-Jet gear." You know you hear all that crap, the same thing that. . .

20. He took eight steps on, eight steps off, I don't know if he got that from Bud Winter but he attributed that to how he completed the final [at the Mexico City Olympics] with a strain and pull.

That sounds a little questionable. Winter's specialty, I don't know if you know, was as a relaxation specialist, trained by the US Navy to train fighter pilots in World War II. So his key to everything was utter relaxation. Whatever it took to make the athlete be as relaxed as conceivably possible. And he also stuck with

very low volumes. Tommie would run a 200 and if it wasn't below 20.2, he'd do another. Okay, very, very high quality, full-recovery work, done at a time when people were pushing a lot more, and with a tremendous emphasis on the relaxation aspects. Which is not just relaxation, it is also partly because you are prepared for the work on the given moment. It's not that you are relaxed, even though you have done 50 other reps (laughs). So there were a lot of factors there.

20. Breaking down the 100. . .

Well, you know, I'm a little dubious about some people's thinking about, "Well, you should breathe here, breathe there." You breathe, you can see the curves in the electronic timing. There were spots when the acceleration went up and a lot of times you get the data from Quick Facts in Cologne and then you see it from Charles University after it has been massaged and they have just smoothed off the curves. You know they think that there must be something wrong, but, it's [just that] people are breathing. Breathe in and you accelerate less. Breathe out and you get the Valsalva maneuver and you accelerate more. You're breathing out from say 45m-70m or something and then you breathe in and you slow down a little, breathe again at 65m, let's say.

But then they say, "Well, because 'they' do it, you should." Well, the more "stuff" you start bringing into your thought process the more you move the activity of sprinting from the hind-brain to the forebrain. The hind-brain is incredibly fast, the fore-brain is slow. So you don't want to get into telling anybody [too much].

Ben was a tremendous competitor, and yet I'm not entirely

clear how he did it. But the last thing I was going to do was ask him, because, of course you can destabilize the whole thing, because it's, "Don't you know?" Then he starts thinking. I'd just wait and see what he says to somebody else, if they ask him and get a little bit of a handle on how he visualizes things and so on.

And what he had in his mind was not always what the execution was, you know. Like he was talking about blasting the 30 out there in Seoul and yet if you look closely at the difference between that performance and everyone else's it was from 30-70m and even 80 that was where the devastation took place. You know it was exactly the same as the Rome 30, but he picked up 9/100ths on the 9.83 between 30 and 80m which means if he runs through the line he'd have run 9.71 or .72 on a slower track than they are using now. It's worth 2-3/100ths on the new tracks.

21. **A couple of questions on the drug issue. In *Speed Trap* there appeared to be a lot between the lines, but is it possible to succeed without them?**

At the very highest levels, no.

22. **Do you see a time coming when drugs are going to be legalized or at least they are just going to let it go?**

No. . . well, they are letting it go now, but legalize it, no, because there are too many pressures at work. There's the team of people, the parasitic group that's in there in the sport, of course, that profits from all the testing and so, even though they know, they claim to be protecting the integrity of the sport itself. Even though they know all the top athletes [because they are looking at their urine analyses, they are looking at their ATO and their growth hormone levels



**Charlie Francis
In 1988.**

and everything else] and they know exactly what's going on.

23. **Could drugs be eliminated then?**

No, the stage has changed year by year. I don't even want to get into the examples, but I could certainly spell them out for you.

24. **Is it more an ethical issue than a political one?**

There are no ethics involved in drugs. Drugs have no ethical position at all, any more than spiked shoes or, you know, rubber tracks.

25. **Anything you've been studying lately, any areas you've been into or any books you'd recommend for someone else?**

Well, I'm obviously very interested in therapies of all sorts, particularly active release technique, being such an effective and fast therapy [a soft tissue technique that improves the neuromuscular response of the muscles]. I think it has great promise. I work with Scappaticci [a Canadian chiropractor] a lot. You know he handles many of the top sprinters. That is one area

where we are very strong; we have a lot of good therapists out there.

Several training tidbits gleaned from Francis's lecture:

- *Regarding plyometrics: Early season practice acceleration by jumping onto a box. Mid-season do plyo's over hurdles. Late season do plyo's off a box. Workout is 40 touches off a 30" box maximum.*
- *He did break the 100m down in terms of training demands:*
 - 0-8m requires strength developed with weights and electro-muscular stimulation*
 - 12-20m power developed with medicine balls and box jumps*
 - 20-30m he called "power speed" developed with bounds, box jumps and hurdle hops*
 - 30-70m speed training*
 - 70-150m speed endurance I, 7.5-15 seconds.*
- *Specific weight training: Cleans involve 85% of the muscles in the body; Squats involve 65% of the muscles in the body; Bench press involves 35% of the muscles of the body.*