

## **Clyde Hart coach to Michael Johnson and Jeremy Wariner.**

### **1. THE GREATEST 400m COACH OF ALL TIME**

Clyde Hart can stake a claim to being the greatest 400m coach of all time.

He has guided Michael Johnson and Jeremy Wariner to the top but there is far more to the man than that. He has worked with a 3min 50sec miler and 1min 44sec 800m runner. On top of that the man from Baylor is always fun to listen to.

So we found out what he had to say about training and preparation when he visited the UK.

#### **Introducing the system**

Clyde told us about the set up in Texas. He said: "I have been coaching for 40 years and have always admired the British system. A lot of what I have done in coaching I have stolen from the British and the best coaches around the world. With any good coach if they have not stolen from the best men in the business then they are a fool.

"This is what not only Michael Johnson did for 15 years but what the kids will be doing in Waco, Texas, today and what was done before Michael Johnson got on the programme. He didn't influence us to change the programme. I learned a lot from Michael - I have stolen from coaches and gained from every one of the athletes I have had.

"A lot has been added to the programme that is there due to the problems Michael Johnson and the others were having.

"Our system is different to that in the UK but you should never criticise until you have walked a mile in another man's boots."

Clyde believes the 400m is a good event to focus on when building a team: "When I first came to the university I coached all the running events. I thought, 'you have got to have quarter milers as they can move up or down'.

"Our relay squad would often be two quarter milers and the others may be hurdlers or half milers."

"I have had sub-four minute milers - I have coached Todd Harbour- a 3min 50.34sec miler. But the quarter mile has always remained the focal point of our track programme."

Hitting top form at the right time is a key part of Clyde's programme: "If you look at where my kids have run their best times most of them have been run at the big championship meets."

### **2. LEARNING FROM SCHEDULES & NO-ONE'S PERFECT**

#### **Learning from schedules**

Clyde is keen to point out that it is not just a case of copying his schedules to run well. He said: "When you get a workout whether from a book or a magazine [you are not going to get the same results out of them]. I have got Seb Coe's workouts but I have never had a 1min 41sec runner - I have had a 1min 44sec guy. Some of the stuff I have got from them is good information but I am not going to get exactly the same results out of them.

"Going over Michael Johnson's workouts - which is what I am going to do - is much the same as if we were all chefs and I was giving out a recipe. If I gave some recipe out and said to bring back your casserole I doubt that any one would taste the same as any other. Some of you would take a taste and decide to add a little salt, or some more spices. The secret is not in the workout or training, it is in why you are doing it or the time of year you are doing it. You need to know when to implement it, when to back off, when to add to it - you need to know why and analyse it."

#### **No-one's perfect**

When Hart started out it was a case of 'We ran speed yesterday, let's do strength tomorrow and then let's do over-distance'. The systematic approach has been developed over the years.

"I was a bit better for the distance runners. But it was a bit of flying by the seat of your pants, there

was no systematic approach. But I had national champions before Michael Johnson."

As with all coaches Clyde has had his regrets: "I probably made my biggest blunder in 1990. But hindsight is always 20:20. I had always dreamed of winning the national champs. I had Michael Johnson, Tyrell Davis and three pole-vaulters. That was not enough to win unless each of them won or got pretty high. We got second in the 4 x 100m and a half miler got second in 1min 47sec. Michael won the 200m, in second was Frankie Fredericks and then 45min later he ran a 43.4sec relay leg. If he'd run the 400m we'd have won."

But Clyde knows if he had done things differently history may have run a different course: "In 1995 he [Michael] wanted to double at the Olympics. I said, 'Why don't you think about winning the 200m or 400m?' He said that had been done and that he wanted to do them both. He won both at the World's in Gothenburg. If he'd run it in 1990 and got second we'd have won. But may be it would have soured him and then he'd have not gone on with the event [the 400m].

### **3. THE LEARNING PROCESS & THE SYSTEM**

#### **The learning process**

Clyde has always been a scholar of coaching and looked to learn and improve. He said: "I thought, 'There has got to be a better way to train the 400m people. I am not training people to produce Olympians, I am doing it to produce a team for the university, our job is to produce a good collegiate team.

"Talking to coaches around the world I came up with the best things people are doing to train 400m people. We have cleaned it up here and there and learned a bit. But basically the programme we use is the same as 30 years ago but a bit better. We have got it better. The rest factor has changed because we are learning all the time."

#### **The system**

Clyde has developed a highly successful framework that leads to success: "Virtually every Monday we are going to do 200ms. In our system we have a year round programme. We do get some kids who have been playing football. One ran 45.1sec - he'd played football all Fall and I got him in the January.

"We start in the fall. Our college season is on until June - about six weeks to two months out from here.

"From September to December is basic training. The four to five weeks up to October they are on the grass areas, running ideally on a slight hill. They build basic conditioning with aerobic work. Aerobic ability is important. The 400m is not just about anaerobic - that view is antiquated.

"From what I have learned in the last 30 years I am not learning much new knowledge but my knowledge is being reinforced. Coaches today are not smarter than in the past but they have a bigger vocabulary. We used to do 'related work' - now we do 'plyometrics', everything has a label to it and science proves what we're doing."

Clyde believes the principles of training are the same for many events: "I trained Michael Johnson like I trained a four minute miler. A four minute miler was doing a lot of the same things Michael Johnson was - a lot of the same things in training but more of them.

"Everything in the programme is based on progression or regression."

This gives Clyde his first 'golden rule': "The best coaching advice I have ever had is 'Go from quantity to quality'. That is for anything you ever do for a sprinter, quarter miler, miler or whoever. You get a base of quantity and go to quality.

"Right now [October 11] we are doing quantity - 30min running each day. That could be 6 x 5min run or 2 x 15min run, running some stadium steps and plyometrics. They are going to be in good shape.

"On Monday is 200ms. Then for two days a week for six weeks we are on the grass doing over distance work. We want to keep the oxygen uptake there. Some kids have never gone beyond 200m but they are going to do some half mile runs.

"I'm not interested in how fast they run their half mile runs. I'm interested in what they come through 400m in during their half mile runs. I put them down a cone at a quarter mile. I tell them what to go through in."

Clyde is very clear that 'training' is just that – it is where you get fitter, not where you prove yourself.

"We race when they fire the gun, we train to train."

So there are not big hang ups on what the training times are at this stage: "I say, 'Come through [400m] in 70sec and then see what you can finish in'. Some of them die, some finish strongly. Then you say come through in 69 or 68. When you have got the point where they are hitting half a mile comfortably instead of saying, 'We are now going to do 1100m' you say 'It's 750m'. Then they come through faster. You don't have to tell them to do that. They give it a bit more as they know they are not running as far. Then you cut it to 700m.

"By the time we are taking them to train on the track I want them to be running a 600m. Then we stay at that until they have got their 400m time down.

"In March-April-May we get down to 450m. That's still 50m further than they will run in a race.

"From March we never run more than 450m. I give them 50m more than they need. They may be do two of them with a 10min break. Each one is in 57-58sec. We tried 15min and then cut it to 14min, 13min...I found that they could handle 10min. Michael could handle 6min to 8min rest. At his best he would run 2 x 450m in 50sec with 8min rest.

"The longest workout we have ever done - not counting warm up and warm down - would be under 20min, I think we have never worked more than 20min. That's not counting the Fall phase."

#### **4. THE 200m SESSION**

The 200m session is bread and butter work for Clyde's 400m runners. It also reveals a lot about his training ethos – the emphasis on controlling the level of the work rather than flogging his athletes hard.

He explained the way it works: "The first time we do 15 in 35sec for the guys and 38sec for the women with a little over 2min rest. We run them as a five man relay - that means they can't go off to the rest room and they can't go and be sick.

"By accident I came across the greatest instrument - coach beeper. It is a box with a horn on it. You set a time and it will go off every however-many seconds. I got it for the distance kids so I could see how they were going while I was working with the high jumpers."

He could set it to go each 8sec, for example, for what should be a 64sec 400m pace session, and with cones each 50m he could see if they were running at the right pace.

"They keep going until they have run the number of 200ms they need to do. We call it a cold weather work out because you don't get cold - you can keep your sweats on to do it.

"One of the kids would run 28sec for one and the next would be 32sec. I didn't like the fact they were inconsistent but they still got the workout done.

"One day I said it was 8 x 200m in 28sec. They would run one in 26 then one in 32 to take a rest and that was not doing what I wanted. I introduced coach beeper and said he would be running 7sec for each 50m.

"The first time they were 15m ahead at the cone. By number six they were back on the beeper and a number of them were struggling. On number eight one guy actually leaned to beat the beeper on the line. I looked around and couldn't see the rest of them. They were all lying around or being sick. Even pace is harder than running hard and then taking a break. The rule is now they can't get more than two strides ahead of the beeper or I stop it."

The second golden rule Clyde has is this: "Speed and strength are synonymous. Or put the other way strength and speed are synonymous."

The 200m session sees the target time being the number of reps plus 20. For example, 8 in 28sec, 10 in 30, or 15 in 35sec.

"Michael Johnson did eight in 28 in 2000 and he did the same in 1987. It is for training the body, it is not he couldn't go any faster. He could have been doing 5 in 25sec but where was he going to go? He would hit a wall. It is about the amount of work being done. You can use a whistle and a watch or a watch with a beeper.

"By mid-May it is 5 x 200m in 25sec for the top kids. If you have got five people per team you only get 1min 40sec rest rather than the 2min 20sec for the 35sec efforts. You have got to go faster with shorter rest. There are only a handful that can do five in 25sec. Michael got down to three in 23sec before Atlanta. He was taking 1min 30sec rest and did it from a dead start not a rolling start as a relay.

"Other kids have tried four in 24 and not managed it. It depends on how you time it. It should never be a race and never be a time trial. It is a progressive session."

## **5. FROM BLUE MONDAY TO TUESDAY, SPEED AND STRENGTH ARE SYNONYMOUS**

Clyde does not have the sessions on given days by chance there is method to what is done when. Clyde explained the thinking behind Tuesday's training. He also gave proof of how conditioning is key.

He said: "Monday is a good day to do the session. We used to do it on Tuesday's. They race Saturday and rest Sunday so Monday ought to be a good work out. But they complain and moan on a Monday - we call it 'Blue Monday' as they gripe and moan. By Tuesday most of the kids have got it out of the system.

"Tuesday is an over distance day. We start it early in the year doing the half miles and cutting it down, moving the finish cone, getting shorter but faster. We do them in sets of two. The half milers may do more sets but with the same principle.

"For 400m we do 2.5 times race distance so workouts are about 1000m long but we can go well over that when building the base.

"I'll give you two examples of why these workouts work. We don't have the luxury of going in the lab to measure VO2max or lactate every day.

"The very first year I put it in the 200m workout we had our mile [4 x 400m] relay team run 3min 12sec mid-April - that's a 48sec average. It was going to take 3min 10sec to win the Texas relays. We had always put off speed work until two weeks before the Texas relays but we kept postponing our speed work because of the bad weather. The kids kept saying 'We have not done our first speed work'. One kid said: 'All we have been doing is those stupid 200s'. They had done seven in 27. As I have said I believe that strength and speed are synonymous. We had been doing drills and quick step work in the gym.

"We got in a battle with Texas Southern in the relays and finished in 3min 6.8sec - a dead heat."

The team had averaged 46.7sec per 400m leg.

Clyde revealed: "On the way back I asked our anchor leg runner, "How did you feel, you were worried about not being quick and fast?" Without hesitation he said, 'Number five.' I asked what he meant and he said he felt like he was running number five of the 27sec efforts. That was in 1975.

"Six in 26sec still hurts even for Michael Johnson. The 400m is a phosphate race. You can replenish your reserves even if you take a short rest.

"In 1997 in the third week of April Michael ran 43.68sec. Michael had not run faster than 28sec for 200m - he had done drills and 40 yard sprints and he had done hills. I also had a collegiate runner do 45sec the same day so it was not just Michael.

"Speed and strength are synonymous."

## **6. FASTER WORK AND INJURIES**

Clyde has had to work out ways to ensure the athletes reach the races fit – and that includes injury free.

Clyde said: "This system was working for him [Michael Johnson] but he was getting hurt doing 150m to 100m one day a week. So we changed his stretching and weight room routine. By 1990 he was injury free. Michael only ran 100m twice. He ran 10.11sec in the prelims at Waco but hurt his hamstring before he ran the final. At Knoxville he wanted to run the 100m, he ran 10.08sec but injured his hamstring again. That is why he never ran a lot of 100ms. From 100m to 400m is too far apart.

"We decided that nothing was to be all out except the relay exchange practices and starts. We would go from 15m to 60m run hard off blocks on the bend prior to competition. Other than that it was 400m type workouts.

"We did some 150m build ups or 50m hard, 50m relax, hard 50m."

"He didn't do a lot of speed work, he did a lot of hard work. The rest of them were doing the same workouts."

Clyde was asked about Johnson's training before running 19.32sec for 200m and said that this was still the case then.

Clyde said Johnson would not go flat out in training and that it was not desirable to do so: "We were not trying to set world records [in training] we were interested in getting fast. Michael Johnson can't run as fast as he can race in training. It has got to be submaximal. You need to slow it down and get more work done. I have nothing against doing faster 200m intervals but it can be done the other way.

"We don't do full racing speed or time trials but after training we will do 4 x 40m hard with 30sec rest. I tell them that's their reward for a good workout."

## **7. THE 350m SESSIONS**

Clyde coaches with a mix of science, intuition and humour. His sense of fun comes out as he tells the story of why his athletes moved from a 300m session to doing 350m runs.

He said: "The workouts changed because of what research said. Many people get into their mind that running 300m is a 400m workout. It is not. It's a long speed workout. 3 x 300m is a 400m workout - or the last one is. But why waste the three others? You need a hard run of 40sec to get anaerobic. There is not a quality sprinter who won't run better than 40sec for 300m in practice so they are not getting lactate until the second or third. So the next time they came to the workout of 352 yards [300m] I had moved the cone to 350m. The first kid hadn't noticed and went off as though it was 300m and then at 320m it was like he had been shot."

Clyde's sense of humour was really shining through as he related the tale: "When he got off his knees and came through the finish he was saying some very bad things about the stadium manager for putting the cone in the wrong place."

Clyde then explained what he had done and why.

"The guys were coming through in 28sec and running 48sec to 350m so they had 8sec of lactate build up. They were doing four off 5min to start.

"I got the ladies to run the same distance, they were running 31sec and 51sec." Due to hitting 40sec earlier than the men the girls were filling up with lactic acid earlier and not hitting targets. They had 15sec of build up. It is about the amount of time spent in lactate. So the men do 350m and the women 300m."

But the women do not get off so lightly! Clyde seems to enjoy adding a twist to their session: "The men do 350m x 3. The women do 300m, 300m then 350m. Why 350m on the last one? Because they have got all day to go throw up then."

"Michael would run 3 in 45 sec off 5min. When he ran three in 43sec off 4min I knew he had never done that so I knew he was in the best condition for running off lactate that he had ever been."

Clyde underlined the principle of training not being racing. It is about preparing the body to race: "The body, like anything else, responds to stress. You can't put it under stress in a big competition and expect it to respond unless you have put it in stress in training.

"With the 350ms I can get three out of them. They can run them fast and take 5min off and do another. Cutting the rest is the way to progress. Michael tried 3min recovery once and it got to him more than anything."

## **8. USING 300m RUNS**

While 300m have limitations in terms of conditioning for a 400m race Clyde uses them for other purposes: "The 350m is not done each week. We also do 300ms - it is not as good for conditioning but it is not that 300m can't help at 400m. I call them event 300m, they go through in 28sec and 300m in 40sec. They have got to run faster in the third 100m.

"After 50m nothing is going to happen to your body that can hurt you. Whether you run 7/8sec or 9/10sec nothing much different happens to the body. Someone that gets out hard for 50m then gets their breath and relaxes, will always be better than someone who comes out slow and has to get hard to hit the time for the first 100m.

"The second biggest mistake 400m runners make is not going out hard enough."

Clyde broke off to tell us the biggest mistake made by 400m runners: " There is no bench to take a rest on in lane 9, so don't go out too fast. If you are slow at 200m you have got time to make it up. If you are too fast you have got a problem."

Then it was back to the Event 300ms: "In the session they run 50m hard then back off for 150m then back on to get the 7sec beeper. Then with 28sec at 200m they start to use their arms a bit more so they are 2sec faster than the beeper at 300m."

This simulates 400m running.

## **9. THE FOUR PS & STRIDE LENGTH**

### **The four Ps**

Clyde has a simple way of remembering the key points of 400m racing: "There are four Ps of 400m running: Push - the first 50m. Pace - 200m at target time. Position - the race starts at 200m so move into position. Then Pray - there's no more that can be done so pray that you keep technique and drive through the line."

### **Stride length**

One thing many people have noted about Michael Johnson was his distinct stride. Clyde spoke about the key principles of 400m technique.

He said: "Don't try to overstride and try to get to the finish line too quickly. There is not a big jump at 300m. The biggest strides are taken by the 100m runners. Distance runners take shorter strides - shorter strides are more efficient.

"You need to get your footstrike right. It needs to be under your centre of gravity. It won't be too far back as you will fall over if it is."

So Clyde said try to pull your footstrike back - if you end up on your nose it is too far back! That is not the same as removing all knee lift though - it's that which allows you 'time' to get your foot down rather than it hitting the ground in front of you.

"One thing Michael could do different to other sprinters was his recovery leg came through quicker than any of the others. If your foot is hitting too far forward it is hitting the brake."

## **10. TARGETING THE 400m WORLD RECORD**

Clyde told us the tale of the 400m world record that many thought Johnson was capable of long before he broke it. From it comes the story of another of Hart's tricks to boost fitness.

Clyde said: "In 1999 he decided he wanted to break the world record. But he got injured and didn't run another race before Seville - so it shows you can race train and not race to run your best. He had run 43.39 at Gothenburg in his seventh race so he could have broken the world record. In Seville his splits were 21.2sec and 31.7sec. In the semi-final his splits were 21.0sec and 31.5sec and then he walked in. The way he ran on that could have been sub-43sec. But he'd decided that he wanted to do it in the final.

"So [in order to help break the WR] in 1999 we put in an additional drill. He'd run 37/38sec to 300m, then take 1min and then have to run under 12sec [for 100m]. He'd take 5min rest and do three. He got down to 11.2/3sec. We had started it early in the year because your body learns and adapts."

But Clyde also knows that more is not always better.

"Once we were in another catch up situation. We went to three work outs a day getting ready for the championships for about 11 days. He would work out in the morning, do running in the early afternoon and lift after that."

But after that 11 days Johnson was cooked and went back to a more normal routine.

Clyde learned other ways of getting extra fitness out of his athletes. He took pieces of knowledge from one area and applied them elsewhere.

"When a guy I coached said he wanted to break 4min [for a mile] I said you have got to know what it feels like to run at that speed so he ran 15 x 200m in 30sec off 30sec rest. It got his body settled at running at 30sec pace, he got to doing 24 at that pace."

Hart adapted this for use by Johnson to add endurance to his training given even he could not sustain three sessions a day!

"After practice we would do a 30sec 200m as part of the cool down for Michael. Then he did a 30sec 200m, 30sec rest and then another one. He said that hurt more than the workout! That little extra push made a difference. You don't have to be 10% better than your opponent, you just have to be 1% better. We even got to a point of doing 3 x 30sec 200m and two sets.

"The Australian scientists have come to the conclusion that the 400m is more aerobically demanding than people had ever thought.

"Only 10% of the 400m is anaerobic. But the more aerobic work you do the more training you can do and that comes out in competition."

## **11. IN THE GYM - NO SHORT CUTS & CONDITIONING THE KEY**

### **In the gym - no short cuts**

Clyde told how Johnson developed his weight training routine. He said: "In 1988 Michael didn't like to lift. He was just doing the routine - just doing what he had to. He needed a long term plan. Other people were using drugs."

The significance of 1988 was that it was the year of the scandal of Ben Johnson's positive test in the Seoul Olympics. Hart and Johnson knew it would take hard work to stay clean and beat the drug cheats.

"So I said we have got time to get where you need to be if you work in the weight room. This registered and he spent a lot of time working on his abs and hamstrings. He was a demon in the weights room for five years. My assistant would work out with him and it was something else to see them work out in that room - there were no short cuts. People think there are short cuts but people who want instant results are not going to get there."

### **Conditioning the key**

Clyde kept going back to the theme of conditioning being key. He said: "Your body has two engines. One burns oxygen the other is anaerobic. The longer you can use engine one the more that delays going on to engine two."

'Going lactic' means a build up of waste products. Clyde likened this to the build up of ash in a fire that then inhibits the proper burning of the remaining fuel. Going to the anaerobic system means more build up of lactate which is like the ash. So the later you move to the anaerobic system the better.

Clyde said: "I had thought you would have to train fast to run fast. I no longer think that. You have to know how to run fast and you need a coach who teaches you to run fast. You need drills to enhance your fast twitch fibres but then it is a matter of conditioning.

"Michael ran a 0.6sec difference between his first and second 200m in the world record. He could do that because the difference between his 200m split and 200m speed was good. Even pace is the best way to run. You were never going to beat Michael Johnson by beating him to 200m."

## **12. FROM 400m TO 200m & CRILL AND STRENGTH TRAINING**

### **Switching from 400m to 200m in championships**

It was hard to do specific training for 200m in major champs because of all the rounds including the 400m. But Hart had a few ways of helping that transition to occur.

"At Gothenburg we realised Michael had the slowest reaction time in his heat. We went to the warm up track and did reaction work. That still worked the nervous system and got him switched over from the 400m. The music he listened to for the 400m was a lot more mellow than for the 200."

### **Clyde Hart's drills and strength training**

In terms of drills Clyde keeps it simple. He said: "We do high skips, low skips - it is basic mechanical stuff - I have never seen a kid run sideways in a race yet. The backwards runs we do use. They do stretch out the hamstring and you push off with the feet. We don't do high bounds."

"We also do as many steps as you can in a small space - for example 10 yards."

Another drill his athletes do is what he calls 'Speedmakers'. For this you run the width of a football pitch as slow as you can. 'Pitter patter' (fast feet) into the corner then explode - no build up. Run 60 yards fast with full relaxation - what Clyde calls 'jaw bounce' as your face is fully relaxed. When you are at 60 yards stop using your arms. You are not putting on the brakes just relaxing and slowing down. Do 4 of these sprints. The 800m guys do 5 laps, then 4 then 3 then 2 then 1.

The athletes do use the gym: "There are certain muscles that need strengthening in the weights room. We feel that abs are key and the upper body is more important than some people seem to think. We do hamstrings and compensate with the quads. There are a lot of pull-ups and dumbbell work, lots of flies, a lot of sit ups with weights."

In conclusion Clyde told us: "Very little of what I do is scientifically proven - it is based on 40 years experience."