

North America, Central America and Caribbean Track & Field Coaches Association

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The NACACTFCA Bulletin is a semi-annual mailing which will include calendar events (including competitions and coaching education offerings), articles from NACACTFCA Congresses and region coaches, NACACTFCA Congress information, and other news of interest to the coaches in the NACAC region. Current NACACTFCA members will receive the NACACTFCA Bulletin. Any contributions of materials, news, articles, and calendar information would be greatly appreciated! This Bulletin is separate from the IAAF-NACAC Bulletin published by the RDC in San Juan . NACACTFCA is the official coaches organization of the IAAF-NACAC Region. Website: www.nacactfca.org; CAC site: www.athlecac.org; RDC – NACAC site: www.rdcspanjuan.org

2004 Bonaire Congress Articles

BREAKING 13.00 SECONDS A PRACTITIONER'S GUIDE

Stephen Francis – Jamaica

Thirteen seconds has traditionally been an important barrier in the life of the developmental female hurdler. It sits at the crossroads. It is a sign that participation at the elite level of the event is possible. It indicates that the hurdler's dream is not far off.

By breaking 13.00 seconds, the hurdler shows potential to earn at the event in the near future. She is now a possibility for participation on the European circuit. She has achieved the "A" standard for the World Championships. She has met the "B" standard for the Olympic Games (the "A" standard was a ridiculously high 12.95 in 2004.)

What are the ingredients of a sub-13 hurdler? How does one go about transforming a 13.20 or slower hurdler to a sub-13.0 hurdler? I present to you today a guidebook for success. A set of proposals that when put together can transform a hurdler of reasonable talent to a near elite hurdler. The main chapters of the guidebook are:

1. Technique
2. Start and Acceleration
3. Speed
4. Speed Endurance

These should be the main areas of focus for the hurdler and her coach. Improvement in any of these areas will probably lead to improvement in the PB of the athlete. Improvement in all four will lead to huge gains.

SPEED DEVELOPMENT AND THE 100M HURDLES

Speed development is the most important aspect of 100 meters hurdles training. Many coaches see the women's 100 meters hurdles as a mirror of the men's meters meter hurdles, but in fact it is vastly different. In the men's event, because of the higher relative height of the hurdles, technique and height become more important considerations. In the women's hurdles the most important factor is speed. As a matter of fact, if one were to compare the techniques of the top women hurdlers against that of the top men, the women would come out very poorly. Most top women hurdlers have very poor knee drive to the hurdle on approach, an incomplete trail leg carry over the hurdle, and poor arm action during hurdling. Yet they manage to be among the very best in their event. Men do not have that luxury. The very best hurdlers are also the very best technicians in the event.

Looking at the 100 meters hurdles empirically, one will see that most top class hurdlers are almost guaranteed to be world class sprinters. To break 13.00 over 100 meters hurdles, the hurdler must be capable of running 11.75 seconds or better over 100 meters.

What is the implication of this for preparation? In general, the 100 meters hurdlers should train as if they were 100 meters sprinters for most of the training microcycle.

TECHNIQUE

Obviously, time must be spent refining the hurdling technique, but how much time?

And what specifically must the time be spent on? I propose that the focus of the coach and athlete should be in the following three areas:

1. The speed of the lead leg
2. The length of the trail leg
3. The positioning of the trail arm.

Deficiencies in the above three will be corrected by the use of drills. All of this is not new, and from my observation most coaches of hurdlers who I have seen spend quite a lot of time doing a myriad amount of drills of all types. For drills to be useful, each drill should be specifically aimed at developing one or more of the above facets.

Speed of the Lead Leg

As a general rule, the slower the lead leg, the more time spent over the hurdle, the slower the overall time of the race. How does one improve the speed of the lead leg? There are many drills devised that if done properly can lead to improvements in lead

leg speed. The most effective are those that are done at racing speed. One of the problems that I am sure all of you encounter when coaching hurdlers is the difficulty that most hurdlers have when asked to replicate their drill form at racing speed. All of a sudden the hurdler with perfect form at the slower paces of the drill, look amateurish when asked to pick up speed, or to hurdle at maximum intensity.

For this reason, I advocate that a large amount of drill time should be spent on technique using a 3 step rhythm at near to racing speeds. The advantage to practicing the drill at low intensity is the possibility of the athlete teaming the perfect technique at a slower pace. When the athlete is doing the drills at walking or jogging pace she will have a lot of time to do the correct thing. The same holds true when the athlete practices hurdle clearances with 5 or more strides between the hurdles. In my view, however, it is better that the athlete learns the correct thing over a longer period of time in a way that she can easily reproduce in a race. This means that she will run a number of races with relatively poor technique, but over time as the technique develops and improves she will yield superior times. As she improves in practice, she will be able to do the same thing in races over the weekend. Although the technical improvement will be difficult to achieve in practice, the athlete will be able to apply some in her races.

The high intensity drills can be facilitated by setting up the hurdles with 6.5m to 7.0m between the hurdles, thus ensuring that the athlete can do

the drill using a three step rhythm even though she is not going at full speed.

With these guidelines in mind, there are three drills, which in my experience may be the most effective ones.

1. Skipping lead leg snaps at the sides of the hurdles
2. Running lead leg half hurdle with one stride between the hurdles
3. Running lead leg snaps (half hurdle) with a three-step rhythm.

Only when the athlete is able to master these drills can you be confident that the athlete will be able to carry the technique into a race situation.

Trail Leg

The trail leg is probably the most important aspect of the hurdle technique. In fact for men, it is the most crucial part of the male sprint hurdle technique. It is not as important for female hurdlers because of the shorter distance between the hurdles. There is a caveat to this though. Smaller hurdlers, especially those 5'4" and less have to spend relatively more time on the functioning of the trail leg, for obvious reasons.

Why is the trail leg important? Well, it is the first of three strides between the hurdles. In fact, it is the second longest of the three strides in female hurdling. There are two distinct ways of carrying the trail leg. Smaller women have to by necessity carry the trail leg high and full - i.e. the knee of the trail leg passes close to the chest. Taller women can de-emphasize the height of the trail leg in deference to the quickness of the leg. These

taller athletes tend to have longer strides between the hurdles, so they can carry the knee of the trail leg at just above waist height.

Carrying the trail leg high may be useful even for the taller woman. The high trail leg will ensure that the distance she has to cover over the next two strides will be less. She can then focus on making these two steps quicker than they would normally be when she carries the trail leg lower.

In general, the hurdler should try to avoid making ground contact with the trail leg too far from the center of the body. This is a very real possibility when the knee of the trail leg is carried at or below waist height over the hurdle. The trail leg then lands off to the side, and the hurdler is forced to over-stride to make the strides in between the hurdles. At the very least, the hurdler should improve her trail leg to the point where on landing, she can run normally between the hurdles.

The following drills can improve the trail leg.

1. Skipping trail leg over the half hurdle
2. Running trail leg over half hurdle with one stride between the hurdle
3. Running trail leg over half hurdle with three strides between the hurdles

Trail Arm

The main function of the trail arm is to maintain the balance of the body on landing. Most hurdlers (whether elite or not) tend to carry the trail arm very wide and high with a resulting twist of the

body on landing. This twisting of the body fractionally delays the second stride between the hurdles, as the athlete must regain her balance before making the next step. This is something that male hurdlers are forced to perfect, because of the height of the hurdles. Twisting off of any of the hurdles can lead to disaster by the next hurdle. For the women, they are not air-borne as much, so the effect of twisting will not be as pronounced as it would be for the men.

I estimate that over a series of 10 hurdles, this type of delay can contribute a total of 0.3 seconds to the total time of the race. Ideally, the trail arm should be as close to the body as possible, especially the elbow and the upper part of the arm. The arm should also be carried as low as possible in an effort to counteract the natural twisting motion of the upper body.

Drills for the trail arm are essentially the same as for the trail leg.

START AND ACCELERATION

As it is in any 100 meters sprint, the start is very important to the outcome of the race. The hurdler will take eight strides to the first hurdle, and during this time, she will have to get close to top running speed by the first hurdle. For the remainder of the race momentum is broken by the athlete having to clear the barriers, so the increase in speed later in the race is not as drastic as it is in the 100 meters.

The main issue with block clearance and starts for the 100 meters hurdles is that the block must be set so that the trail leg is in the front block. Although

this seems to be basic, it does have a lot of implications for the approach to training, especially the training of acceleration. A lot of power work must be done on the trail leg. All starts must also be done using the trail leg in front. If the athlete also runs the 100 meters, then the 100 meters start must be adjusted to have the trail leg in front.

After the block clearance comes the acceleration, which begins at stride 2 and continues to the penultimate stride before the first hurdle, i.e. stride 7. Most hurdlers will begin looking at the hurdles immediately after block clearance. Others will concentrate in the first three strides on pushing against the ground without looking at the hurdles. Only after getting enough ground force will the athlete then focus on clearing the upcoming hurdle.

The athlete needs to focus on getting her hips high enough to negotiate the hurdle on takeoff. This is not as challenging as it is for the men's 110 meters hurdles as the hurdles are relatively lower. Several women hurdlers pay too much attention to the first hurdle and not enough to initial acceleration. Their body angles are usually wrong over the first four strides with the result that they get to the first hurdle at less than ideal speed.

The following exercises will develop block clearance and acceleration.

1. Jump, Jump, Throw with medicine ball
2. 6-8 x 30 meters steep hill sprints
3. 6-8 x 20 meters using bullet belt
4. Front shot throw on toe board
5. 6-8 x 20 meters using towel (or other types of resistance)

SPEED

As mentioned earlier, 100 meters speed is a good predictor of hurdling potential and ability. Training the speed component for the 100 meters hurdler is a little more complicated than training the speed component in the 100 meters. The coach has to take into account the presence of several barriers that have to be negotiated.

How does one develop the speed component? The athlete has to go through the same processes as the 100m speed development. All the various training regimens for developing maximum speed have to be employed including:

A. Maximum Strength Development.

This should cover at least 16-20 weeks of the training year. The focus should not be on the core bodybuilding exercises, but rather on exercises that are more specific to the running motion. As an example, it would probably be more beneficial for the athlete to do split squats and front squats instead of back squats. The front squat is more useful because the athlete can focus on the technique of squatting and not the weight she is squatting with. Split squats are even more relevant as they are done on single legs, like sprinting. Here balance and the minor muscles of the thigh come into play, just as it does in high speed sprinting.

Other exercises would be:

- Cleans
- Jerks
- Hyperextensions (single and double leg)
- Jump squats
- Inverted Rows

These exercises should be eventually done in such a way as to develop maximum strength.

B. Jump Drills (plyometrics)

The aim of these categories of exercises is to develop the ability to exert more force from the

ground each time the foot strikes. By improving this capability of the muscle, the athlete will be able to cover more ground with the same amount of ground contact time.

This area of training is well covered by several experts, but a few drills to include are:

- Bounding (Run)
- One Leg bounds
- Ankle Bounding
- Alternate Split Jumps
- One Leg Hopping
- Hurdles Jumps

Two very good indicators of progress are the:

1. Standing Long Jump test
2. Standing Vertical Jump test

Significant improvements in either of these indicators (that is not technique driven) will normally suggest an improvement in maximum running speed potential, other things being equal.

C. Medicine Ball Work

Under this category of exercises fall all the hundreds of exercises designed to improve both upper and lower body power. These exercises include overhead throws, twists, throws from behind the head, throwing then running, etc.

D. Sprinting

Maximum sprinting speed requires practice if it is to be improved. Most speed improvement programs schedule copious amounts of sprinting as their focus. It is usually believed that these sprint workouts determine the success of the individual at sprinting.

For the 100 meters hurdler, the typical sprinter exercises must be mixed with sprinting over the hurdles. It is worthwhile for the sprints over hurdles to be done at heights lower than the competition height as this allows the hurdler to

focus more on the running between the hurdles and not so much on the task or negotiating the barriers.

Typical Sprint workouts

Without hurdles - 3 x 3 x 30-60m

With hurdles

1. 2 x 3 x 3-6 hurdles from block or 3 point start
2. Place all hurdles at 30". The athlete runs at full speed over the first two set at regular spacing. The next two hurdles are removed. The athlete will run hard in the resulting space before clearing the next three hurdles (hurdle 5, 6 and 7).

SPEED ENDURANCE

This is the final major component that needs to be trained. A lot of elite female hurdlers apparently spend very little time working on this component. Each year we see many hurdlers running between 7.85 seconds and 8.05 seconds for 60 meter hurdles, but come outdoors are unable to run equivalent times when the last five hurdles are involved.

This component is what separates in most cases the hurdler who is able to run at the very top level of the sport, from those who flirt at the edge of stardom and elitism. It is also the most underestimated and ignored component in the training of sprint hurdlers. It is very common to ignore the effect that repeated clearances of barriers will have on the physical capacity of the 100 meters hurdler athlete. The athlete will effectively run more than 100 meters (in terms of effort) during a 100 meters hurdles race. It may be wise to train the athlete to run a distance of say 120 meters, in order to handle the speed endurance demands of the 100 meter hurdles.

How is this speed endurance built? The first step is to build general speed endurance. This develops

the ability of the athlete to run distances over 60m at high speed. There are many ways to go about doing this. Personally, I like to ensure that the athlete is able to run a very fast 300 meters. How fast? Well, an athlete who wants to run 12.90 should be able to run a 300 meters time trial in at least 38.00 seconds, assuming that she has 100 meter speed of 11.70 to 12.00.

The athlete who aims for 12.4's or 12.3's should be able to run 300 meters in 36.0 seconds, a time which comparable to the world's elite. My experience suggests that being able to meet these types of times over 300 meters indicates that the athlete possesses more than enough speed endurance to meet the demands of 100 meter hurdling. When enough general speed endurance is present the speed endurance problem is not yet solved. In the 100 meters hurdles race, the athlete has to cover the last 3-4 hurdles while ensuring that her technique does not breakdown enough to slow her up.

This is a demand unique to hurdling among athletic events. In no other event or group of events is the athlete required to execute a highly technical sequence under conditions of extreme exhaustion. In fact, during the last 4 hurdles of the race, poor technique caused by fatigue is the biggest contributor to the slowing of the athlete. Many things happen during this period.

1. The athlete's stride shortens, so she takes off too far from the hurdle and begins to hit them, usually with the trail leg.
2. The athlete fails to continue to snap the lead leg. The result is expanded airtime over the hurdles, or "floating".
3. Wild trail arm action leads to the athlete becoming severely unbalanced, with the resulting delays on landing on the ground.

The athlete must therefore practice hurdling at high speeds under stress. Ways of achieving this include:

1. Runs over 12 hurdles from blocks with proper spacing. The 12th hurdle will be past the finish line. The athlete is timed using touchdown times.
2. Runs over 13 hurdles using 7.5 meters between each hurdle
3. 100 meters hurdles runs with hurdles 5, 6, 7 removed

CONCLUSION

The CAC region has under-performed in the 100 meters hurdles in comparison to a number of other regions. With 100 meters speed being so important to the outcome of the event, it is somewhat surprising to see the relative dominance of the Europeans. The Caribbean part of CAC has long been seen worldwide as one of the main speed producing regions, but there has been appallingly little success over the 100 meters hurdles. I believe that by seeing the 100 meters hurdles more as a sprint than an obstacle event, it is possible for the Caribbean to drastically improve on their historical performance in the 100 meters hurdles, and to match their success in the sprints without barriers.

Preparación del martillo femenino en Cuba Lic. Eladio Hernández González (CUB)

INTRODUCCION

El desarrollo del martillo femenino, comienza con la selección primaria del talento, o sea, las atletas con las características somatotípicas ideales para la práctica de esta disciplina deportiva. En nuestro país la selección comienza desde edades tempranas con una participación en diferentes niveles, pero con un desarrollo multilateral, o sea, en disciplina combinadas que permiten a los atletas llegar a la práctica de la disciplina específica con un nivel de habilidades coordinativas superior. La

verticalización de los atletas en la práctica del martillo femenino comienza con atletas de 14 a 15 años.

ETAPA GENERAL

En esta etapa nos planteamos el desarrollo de las capacidades motrices generadas, creando las bases para la preparación especial y competitiva para esta primera etapa de trabajo nos planteamos 2 direcciones fundamentales de trabajo:

I. Lograr un nivel de desarrollo físico integral. Para ello realizamos un sistema de trabajo dividido en dos bloques pero relacionados entre si. Ideamos un grupo de ejercicios que nos permitan lograr un desarrollo importante de los planos superiores e inferiores:

Complejos de ejercicios en la playa

Complejos de ejercicios en el gimnasio

II. Lograr un nivel de desarrollo de las habilidades técnicas importantes. Para este bloque de trabajo que consideramos tan importante como el desarrollo físico de la atleta, pues le permite y facilita utilizar todas las variantes técnicas del lanzamiento del martillo.

En este tipo de trabajo logramos una relación entre el complejo de ejercicios de playa y el complejo de ejercicios en el gimnasio que se extienda por un espacio de 8 semanas divididas en 2 ciclos de 4 semanas.

Ejercicios de playa -

- Ejercicios de coordinación con pelotas medicinales.
- Ejercicios de coordinación con discos de pesas.

- Ejercicios de coordinación con martillos.
- Ejercicios con otros medios que nos permitan completamente este trabajo.
- En este trabajo desarrollado en la arena empleamos un grupo de saltos generates que nos permita la preparación optima de diferentes planos, para adentrarnos en los saltos pliométricos de la próxima etapa.

Ejercicios de gimnasio:

- Ejercicios clásicos:
 - Arranque
 - Cuclillas
 - Cuclillas por adelante
 - Clin
 - Remo

Ejercicios especiales de fuerza :

- Remo alto
- Alón lateral
- Despegue lateral
- Pase acostado

Trabajo Para el desarrollo de la fuerza en la preparación general

Aumento en oleaje de las cargas 50%-55%-60%. Para una sesión de entrenamiento utilizamos de 13 a 15 ejercicios y un número de 3 series de 6 a 10 repeticiones cada una, las repeticiones disminuirán a medida que aumenta el % de trabajo, el trabajo de los brazos adquiere mayor énfasis y se diferencia del trabajo indicado para los planos inferiores.

MEDIOS	%	%	%		%	%	%	
	50	55	60	Compr obación	65	70	75	Compr obación
Arranque	3/10	3/10	3/6	Test	3/8	3/8	3/8	
Cuclillas	3/10	3/10	3/6		3/6	3/6	3/6	
Clin	3/10	3/10	3/6		3/8	3/8	3/8	
Cuclillas por adelante	3/10	3/10	3/6		3/6	3/6	3/6	
Subida al banco	3/10	3/10	3/6		3/6	3/6	3/6	

La fuerza especial:

Le damos vital importancia, porque nos desarrollan los músculos en los cuales los ejercicios clásicos no intervienen, utilizamos el aumento en oleaje de las cargas 50% - 55% - 60% para una sesión empleamos 5 ejercicios y un número de 3 series de 6 - 8 repeticiones cada una.

Preparación de fuerza:

El entrenamiento de Fuerza máxima actúa como base sobre el cual se edifica el entrenamiento de velocidad ya que este requiere la generación de altísimas tensiones musculares en cortos espacios de tiempo.

Es considerada vital para lograr los objetivos competitivos que nos tracemos, es por ello que realizamos una etapa previa profunda que nos permita comenzar la preparación de fuerza en un estado óptimo de predisposición para el desarrollo de la fuerza.

Para la preparación de fuerza utilizamos un grupo de ejercicios que contribuyen al desarrollo de la misma durante el ciclo de (4 año). Nos fuimos trazando objetivos que fuimos cumpliendo paulatinamente logrando un incremento considerablemente de la fuerza en el ciclo entre un 10 % y un 12%.

Ejemplos en ejercicios de fuerza:

- Arranque  Remo alto
- Cuclillas  Alón lateral
- Clin  Despegue lateral
- Cuclillas por adelante
- Subida al banco

MEDIOS	%	%	%		%	%	%	
	50	55	60	Comprob ación	65	70	75	Compro bación
Alón entre piernas	3/8	3/8	3/8		3/6	3/6	3/6	
Pase con la barra	3/8	3/8	3/8		3/6	3/6	3/6	
Pase acostado	3/8	3/8	3/8		3/6	3/6	3/6	
Despeque lateral	3/8	3/8	3/8		3/6	3/6	3/6	
Alón lateral	3/8	3/8	3/8		3/6	3/6	3/6	

Se utiliza un porcentaje de trabajo entre el 80% y 95% con un grupo de ejercicios empleados en la etapa previa, pero aquí lo utilizamos con una mayor intensidad. **Muestra de planificación de una sesión en la etapa de preparación de fuerza**
Hay muchas formas de trabajar la preparación de fuerza pero es necesario distinguir cual es la especifica para la actividad a entrenar y para el

deportista según sus aptitudes y valencias de cara a su especialidad.

Nosotros escogimos el aumento en oleaje de las cargas porque creemos que es el más adecuado para nuestras atletas de acuerdo a sus características específicas 80%-85%- 90%-80%.

El número de ejercicios practicados en una sesión es en principio de 3 ejercicios específicos y tres ejercicios auxiliares número de series para cada ejercicio de 3 - 4, y de las repeticiones para cada ejercicio en una serie de 3-4, en relación con la carga. Totalizando se obtienen aproximadamente de 40-45 repeticiones por sesión .

En esta etapa comenzamos el trabajo de combinación de los martillos de diferentes pesos para establecer un contraste en el desarrollo de la fuerza, estabilización y velocidad de la misma; este trabajo lo combinamos con cables variados de diferentes tamaños pensamos que lo esencial de este trabajo es la correcta ubicación de cada longitud de cable con su correspondiente peso del martillo.

Ejemplo de relación de los martillos y los cables:

Nº	Peso del Martillos	CABLES
1	3 kg	100cm
2	4 kg	100cm
3	5 kg	90cm
4	7 kg	60cm
5	8 kg	60cm
6	10 kg	50cm

ETAPA ESPECIAL.

Es para nosotros de una importancia singular, ya que es la etapa donde se desarrollan las capacidades motrices especiales y se mantiene el nivel general alcanzado, trabajamos mayor intensidad en los lanzamientos pesas y saltos existiendo una relación muy estrecha entre estos tres elementos. Ej., en los lanzamientos trabajamos intensidades del 97% con implementos pasados (5kg). Realizamos intensidades al finalizar cada microciclo, este trabajo nos revela con exactitud como va siendo asimilada las cargas de trabajo por parte de las atletas .

Trabajo de saltos: Los realizamos combinados, (pliométricos y generales) la intensidad de los saltos en este trabajo es similar en % a la de los lanzamientos empleados. Trabajo de fuerza con pesas : Lo realizamos con un porcentaje entre el 95-100% con un elevado nivel de intensidad, que se relaciona en % al trabajo de lanzamientos y saltos. Los ejercicios que utilizamos en esta etapa son los mismos empleados en el trabajo de fuerza especial de la etapa general .

Pensamos que el éxito de las martilleras cubanas ha sido el uso de la variación de los martillos combinando los con cables de longitudes variadas. Ej., en esta etapa hemos tenido una combinación del trabajo de PESAS-LANZAMIENTOS PESADOS. Este trabajo lo realizamos con el objetivo de desarrollar los valores óptimos de Fuerza y Velocidad para la prueba específica, donde los movimientos son óptimos o precisos en el tiempo y espacio .

Ejemplo de relación de los martillos y los cables:

Nº	Martillos	CABLES
1	2 kg	100cm
2	3 kg	100cm
3	4 kg	100cm
4	5 kg	90cm
5	7 kg	60cm
6	8 kg	60cm
7	10 kg	50cm

ETAPA COMPETITIVA

Mantener los niveles de fuerza entre un 80 y 90% el trabajo técnico lo mantenemos entre un 90% y 95% de los resultados logrados en la etapa anterior con nuestras atletas nos a dado muy buenos resultados tenemos que recordar que mantenemos las intensidades altas porque trabajamos con diferentes tipos de cables y esto nos permite mantener el trabajo en estas intensidades.

Nº	Martillos	CABLES
1	2 kg	100cm
2	3 kg	100cm
3	4 kg	100cm
4	4.5 kg	90cm
5	5 kg	90cm

Trabajo de saltos:

En esta etapa los realizamos a un 90% de los mejores resultados alcanzados en la etapa. Sugerimos prestar una especial atención a la relación trabajo descanso.

Ej., de saltos :triples s /carrera.

Por las características de las atletas cubanas los mejores resultados alcanzados después de estudios realizados se acercan más a su marca personal o mejoran las mismas trabajando de la forma antes descrita trabajo que lo hemos puesto en práctica con otros atletas de otros países.

Resumen:

El trabajo nuestro es el resultado de años al frente de la selección nacional de martillo femenino, y la aplicación y el perfeccionamiento constantes de métodos, medios y procedimientos metodológicos. El éxito depende del trabajo diferenciado para cada atleta, el atleta debe recibir lo que estrictamente necesita para su desarrollo.

Recomendaciones:

Aplicar este tipo de trabajo solo en atletas que hayan transitado por los diferentes etapas en un orden metodológico (nivel técnico- físico) y de esta forma dando cumplimiento a los diferentes objetivos propuestos, lo que en su suma daría como resultado un atleta más hecho, con un nivel como las atletas de referencia (Yipsi Moreno y Yunaika Crawford). No violentar las etapas y nunca pasar a un mayor grado de complejidad sin antes estar bien seguros del dominio del mismo (el actual).

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Individual Responses To Defined Training Loads - Dr. Wolfgang Ritzdorf

EACA Conference - Abano Terme, November 2004

Dr. Ritzdorf is Senior Lecturer at German Sport University Cologne, Vice Director of Institute of Motor Control and Movement Technique, Head of Department of Athletics. His research experience includes being a member of the biomechanical research team at WC Rome 1987 & Athens 1997, which completed a biomechanical analysis of world top performances. He has produced research & publications on strength training, reactive strength training, periodization of training and long-term adaptation of top junior athletes. Former German national high jumper coach of Ulrike

Meyfarth, gold medalist OG Los Angeles 1984 and Heike Henkel, gold medalist OG Barcelona 1992. His email is: ritzdorf@dshs-koeln.de

General Intention

- To identify typical individual responses and their time delay in top athletes

Questions

- Are there general or individual responses to defined training loads in top athletes?
- Is there a typical profile in time delay of adaptations? How long is the delay?
- Are there any typical training contents that prove to be ideal for each athlete?

Database

- 10 female high jumpers (national team) with PB's between 1.87m and 2.01m
- Period of observation:
 - 10 athletes during 3 weeks training camp
 - 5 athletes - 6 months daily training

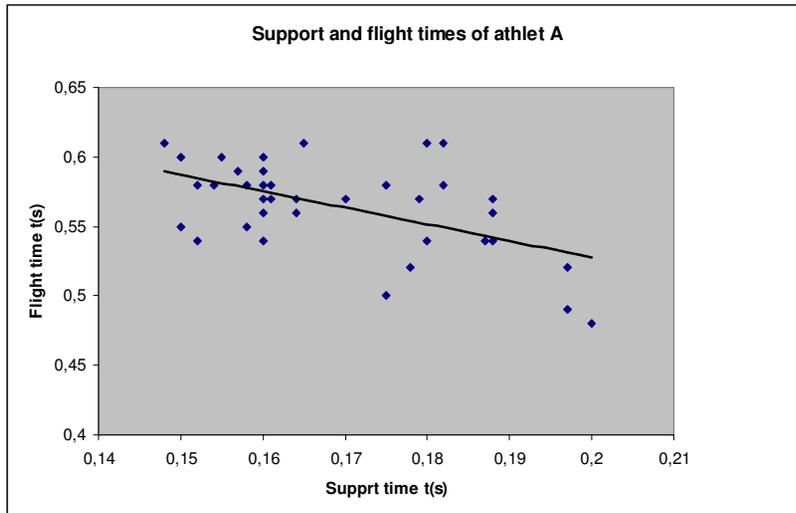
Method

- Depth jumps from 30cm onto a contact mat
- Measured support & flight times (ht. of flight)
- 3 jumps per session (best jump analysed)
- Athletes "competed" and the testing took only 10 minutes

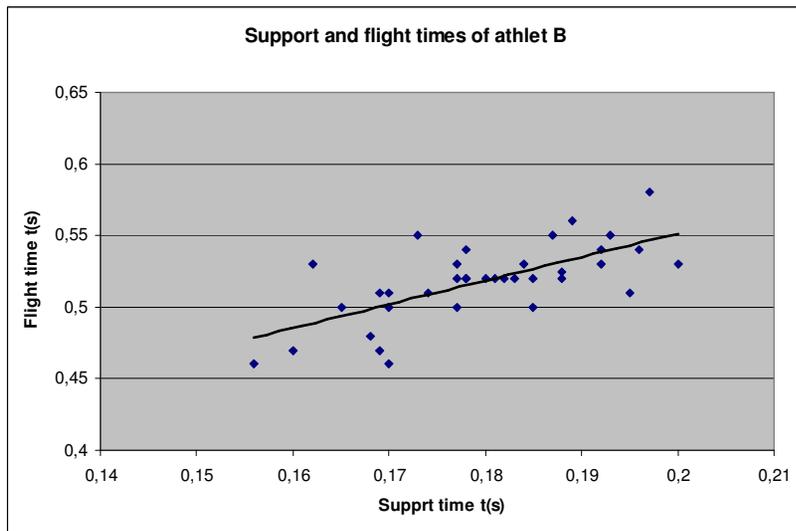
Result 1: General

- Typical correlation shown by 8 of 10 athletes
- The shorter the contact time the longer the flight time
- Proof of good reactive strength quality

Result 1: General (Athlete A)

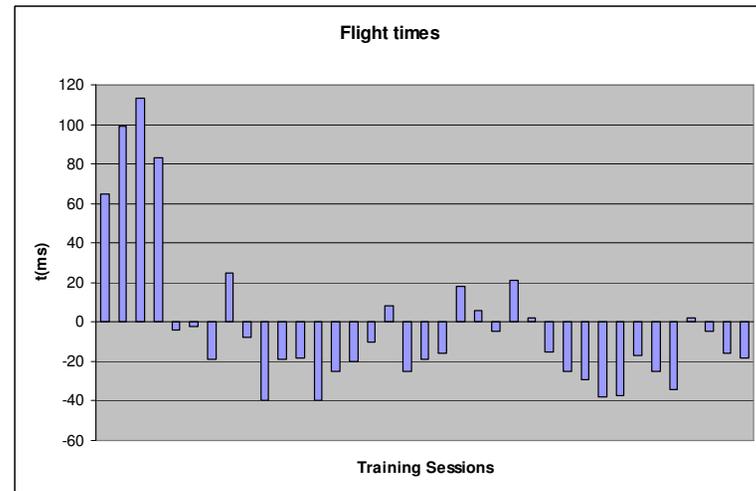


Result 2: General (Athlete B)



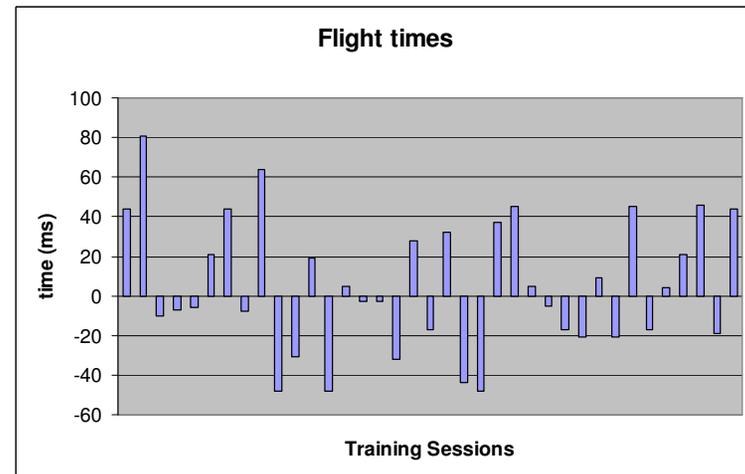
- The exception (PB 1,96m) 1 example of inverse correlation
- Longer support time-better flight time
- Technical consequences?
 - Tried to change TO pattern but negatively affected whole technical pattern
 - Improved Depth Jump technique, but it DIDN'T work with HJ technique!

Result 3: Training Camp - Athlete 1



- Depth Jump carried out during each training session
- „0“-Line: Individual average during the whole camp (=584 ms)
- +/- : Deviations from average

Result 4: Training Camp - Athlete 2



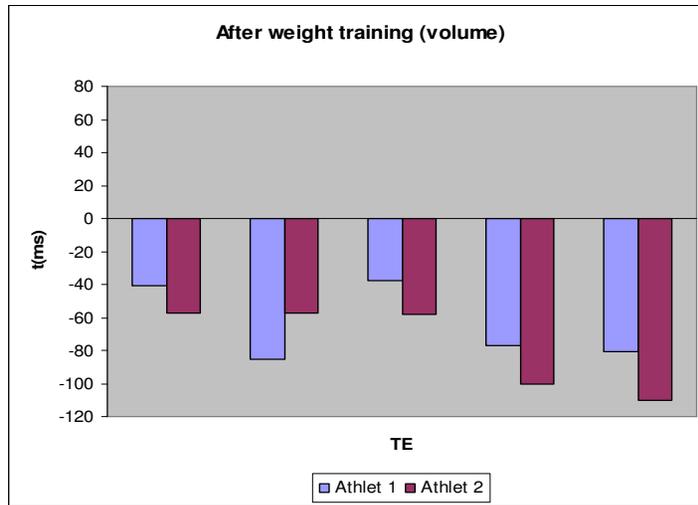
- Depth Jump carried out during each training session
- „0“-Line: Individual average during the whole camp (=621 ms)
- +/- : Deviations from average

Questions

- What makes the ups and downs from session to session?
- Is there any systematic cause due to training contents?
- Are there individual profiles or a group response?

Result 5: Depth Jumps After Strength Training (volume)

- After weight training – dependent on volume the day before or on same day
- Negative effect on depth jump test result



Result 6: Depth Jumps After Vertical Jumps

- After vertical jumps (hurdle hops)
- Athlete 1 – no clear, decisive response (some positive / some negative)
- Athlete 2 – consistently great positive result in depth jump test improvement

Findings

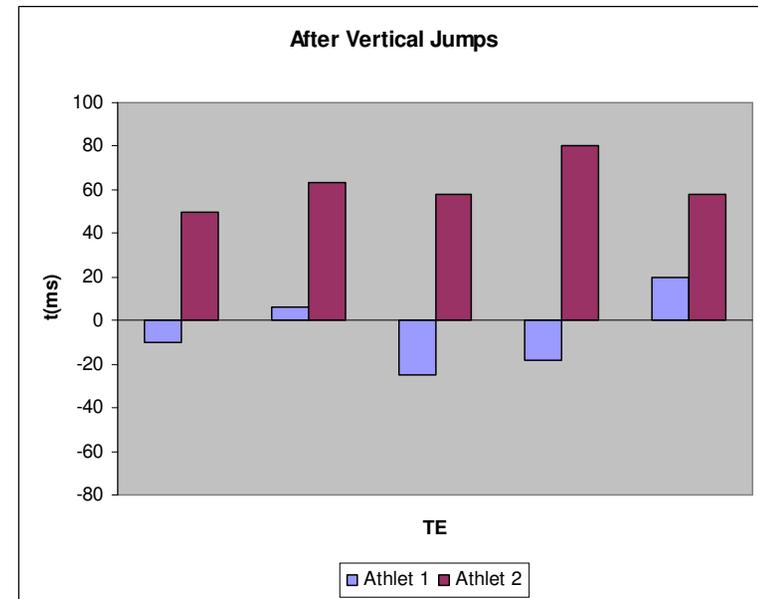
- We could find positive individual adaptation profiles for 8 of the 10 jumpers
- 3 athletes after vertical jumps, three after sprints, 2 after high intensity weight lifting (2-3 repetitions @95%)
- We used these findings to plan the content of the last training session before competition
- Suggests afternoon session before morning competition; morning session before afternoon competitions

Time delays in adaptation (Studied 5 Athletes who trained for six months)

- How long does it take till major changes in training do affect support and

flight times?

- Are these delays general or individual?
- Method used: time series analysis



Summary of Time Series Analysis

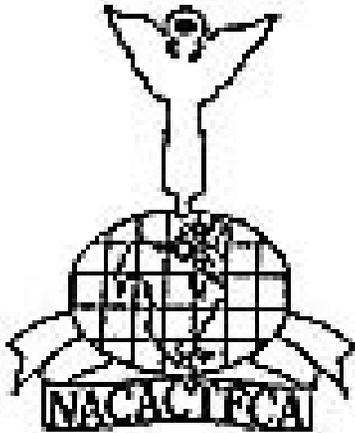
- Huge individual variety, but no common adaptation pattern
- Time delays for adaptation are between 6 and 17 days
- Consequence: must employ individual strategies for periodisation of training

Practical Use for Competition Preparation

- Last effective training session should be day before or morning of competition
- Individual training with short and intense sprints, jumps, weights, or throws
- Vital psychological effect for athletes to believe what they are doing!
- Huge individual variety, but no common adaptation pattern
- Time delays for adaptation are between 6 and 17 days

Notable Examples of Pre-Competition Sessions with short, intense exercise

- Heike Henkel (Olympic Gold Medalist) used short sprints
- Stefka Kostadinova (WR High Jump) - overhead throw with 4k shot (18 meters PR!)



2005

**15th
NACACTFCA
INTERNATIONAL
ATHLETICS
CONGRESS**

**October 13-16, 2005
Boca Chica Beach
Santo Domingo, Dominican Republic**

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CONGRESS THEME

**Endurance and how it is applied in all track
and field disciplines**

CONGRESS GUEST SPEAKERS

Keynote Speaker

Dr. Joe Vigil - USA

**Master coach, Joe Vigil will deliver two
presentations, one on Endurance and one on the
Long Term Planning in Middle and Long Distances
events. Dr. Vigil is the personal coach of Deena
Kastor bronze medalist in the
marathon in Athens 2004.**

**Don Babbitt - USA - The throwing events coach at
the University of Georgia. Personal coach of Adam
Nelson, silver medalist in Athens in the shot put.
One of the best
throwing events coaches in the world.**

**Mike Holloway - USA - Men's Head Coach at the
University of Florida and an expert in the sprints
and hurdles events. Will speak on the 400 and 400
hurdles events.**

**Dr. Al Morris - USA - Dr. Morris is an expert in
nutrition and diet for high performance athletes and
is the Director of Coaching Education of the USATF
Potomac Association.**

**Dan Pfaff - USA - Coach Pfaff had world class
athletes in all disciplines of track and field but this
time he will do a presentation on the short sprint
events.**

**Ricardo Ponce - Cuba - An expert in the horizontal
jumps with world class results in the triple jump.
The personal coach of the new breed of Cuban triple
jumpers.**

CONGRESS PROGRAM

Thursday, October 13

All Day - Arrivals

1600 - 2000 - Registration

2000 - Board of Directors Meeting

Friday, October 14

0800 - 0900 - **Registration**

0900 - 0945 - **Congress Inauguration**

1000 - 1200 - **Keynote Presentation** - J. Vigil -USA

1200 - 1400 - **LUNCH**

1400 - 1600 - **Throws** - D. Babbitt - USA

1615 - 1715 - **Short Sprints** - D. Pfaff - USA

1730 - 1830 - **Discussion Panel**

2000 - 2200 - **Welcome Reception**

Saturday, October 15

0900 - 1030 - **Long Sprints** - M. Holloway - USA

1045 - 1145 - **Nutrition** - A. Morris - USA

1145 - 1300 - **LUNCH - Sponsor - MONDO**

1315 - 1445 - **Horizontal Jumps** - R. Ponce - Cuba

1500 - 1645 - **Long Term Planning** - J. Vigil

1700 - 1900 - **General Assembly**

2000 - 2200 - **BANQUET AND CLOSING**

Sunday, October 16

Departures

There will be simultaneous translation

MONDO

CONGRESS HEADQUARTERS HAMACA CORAL BY HILTON BOCA CHICA, DOMINICAN REPUBLIC

This 24 hours a day, All-Inclusive Service, Hilton-style beautiful resort has been selected by the NACACTFCA to be 2005 Congress headquarters. A special rate of \$112.00 Single and \$92.00 Double per day per person is being offered to our delegates for this year Congress. Located just 10 minutes from the airport and 20 minutes from the capital Santo Domingo, the Hamaca Coral by Hilton rest serenely in Boca Chica Bay, one of the Dominican Republic's most famous beaches.

You must make your own reservation since NACACTFCA will not include the hotel in the registration fee.

Please make your reservation with:

Michelle Saladin

Group Coordinator

Coral Hotels & Resorts

Tel. 809 - 562-6725

Fax. 809 - 562-0660

email: grupos@coralhotels.com

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Make sure you mention that you are making your reservation for the NACACTFCA Congress in order to get the special rate. Make your reservation quickly since the rooms under that rate are limited. Please visit the NACACTFCA web site:

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CONGRESS REGISTRATION FEE

\$175.00 for NACACTFCA members

\$225.00 for non-members

Congress fee includes registration, materials, proceedings, T-shirt, welcome reception, door prizes, banquet, ground transportation. **(To provide ground transportation we must receive your arrival information by October 11th).**

***In order to get the registration fee discount for members you must have paid your membership fee by September 30th, 2005.**

Please complete the above registration form and return with International Bank Draft, Traveler Check or Money Order. You can send registration by Federal Express, UPS, DHL or Express Mail to:

Víctor López

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