

SKILL AND DRILLS  
TECHNICAL  
LONG JUMP / TRIPLE JUMP

### **CLUB-THE TECHNICAL MODEL APPROACH**

How Often-Once per week, put brief short number of reps in any one week if trying to learn a new aspect

- Short approach, 4,6,8 strides slower give better vertical lift
- Take off drills-Driving thigh land, Driving thigh land using tape as an incentive, Driving thigh land two feet, Driving thigh switch to practice hitch-kick
- Skipping on the track emphasising take off action, walk , then run
- Jumping with high thigh over low hurdles on the track
- Jumping over low hurdle in the pit-remove hurdle if technique is compromised
- Jumping from ramps or box tops to perform the technique in the air
- Technique in the air is what comes naturally for most
- Landing practices to include jumping from a box, leg shoot into target.

### **INTERNATIONAL-THE PROBLEM SOLVING APPROACH?**

How Often - Again once per week, good conditions if possible, at a time when the athlete is most fresh i.e. after a rest day. Competitions decide the frequency of technical work in training.

- Long approach-e.q. minimum of 12 strides, this assumes that the technique is 'good'
- Take off angles for men between 21-24 degrees (Pedroso 24.9(97) Lewis and Powell greater than 24 degrees, women between 18-22 degrees, Johannson 28 degrees?
- Limited sinking
- Active take off
- Reaching followed by backward and downward movement .Angle to the vertical 26 degrees to maximise vertical velocity, 70% eccentric, 30% concentric,max take off angle 140
- Jumps at speed over hurdles
- Landing keep straight-tape used to focus on linear movement in the air and with the feet on landing
- As with club, use of boxes to perfect technique
- Free leg alignment at take off needs checking-view from the front

There has been research done on the use of ankle weights and vests to condition at take off. The research does not recommend this and neither do I since it changes the rhythm to the board and in most likely to encourage sinking prior to take off and sinking during the approach run.

**SKILLS AND DRILLS**  
**RUNNING AND RUN-UP**  
**LONG JUMP**  
**CLUB**

How often - Normal sprinting at least once per week, longer running (see specific programme) run-ups once per week after conditioning running.

- As fast as you can
- Standing start
- Even strides
- 16 strides-16 years
- Accuracy guess where you are on the board-within 5cms
- High knees on the approach to take off-practice walking(if you have the time, running high knees)
- Use of check and cues-not necessary unless problems of inaccuracy or fear occur
- Board awareness drill-run from any point take off
- Sprint start, run to encourage LJ to get hips forward.

**INTERNATIONAL**

How Often-Run-up every week, sprinting every week, probably four running sessions per week, almost throughout the year .

- As fast as you can
- Try not to use check or cues, run up is a perception
- Use visualisation to see yourself on the board
- Run up length to achieve maximum speed via maximum stride length, 18-20 strides for most world class LJ and TJ(with exception of Pedroso)30-35m women, 35-40m men
- Need to find a rhythm-check marks wont help with this
- Range of movement on to the take off board is crucial to penetration at take-off. Many athletes forgo range for leg cadence-wrong
- Emphasis in training on 11-6,6-1m see data from biomechanics handout, 0.1m/sec can make a difference of between 6-12cms in long jump
- Length of the second and last stride are also crucial
- Reason for no jumping is mental(see article by Modern Athlete and Coach panel 1997- Can we reduce fouls in horizontal jumps)

Big tip-Don't let your beginners watch Pedroso-even the Cuban coaches don't understand his run-up.

## **SKILLS AND DRILLS - BOUNDING AND PLYOMETRIC WORK CLUB**

How Often - Bounding activities once per week and it tends to be a mixed endurance programme, this includes skipping say over 50m plus hop, three steps and a jump.

Plyometrics is mainly limited to two-foot take-off

- Standing bounding, maximum run-ups 2-4 strides, again this is linked to competitive programme
- Sort out weak foot in triple jumpers
- Combination activities to develop coordination and have fun
- High skipping with the take off actions(for LJ and TJ)walking and running, sometimes single leg only
- Testing every month for individual evaluation, competitive edge and fun
- Plyometric work over low, collapsible hurdles, emphasis on speed of contact, all from two feet.

## **INTERNATIONAL**

How often - There is a need for two sessions per week but the activities within are more specific to long jump. Specific bounding 4 bounds and a jump, HHHSJ etc is done at least once per week, run up strides are increased to fit in with time of the year but more specifically competition period. Endurance bounding features in the conditioning phase and may involve 100m bounding, 50m skipping, 50m hopping etc. For experience athletes plyometric/Depth Jumping is done twice per week

- Much of the list below will be with resistance but if resistance hampers good technique the resistance is removed or reduced.
- Bounding activities from 6-8 stride run-ups, particularly important to have approach strides commensurate with the period.
- Use of resistance, weighted jackets 10kg max, pulling sledges weights vary from 7kg to 20kg(women to men)-the is worked out by me assessing the effect on technique.
- In a speed gaining phase or closer to competition much of this bounding is timed.
- Bounding backwards
- Over hurdles both on the track and in sand (much safer) the emphasis here can be straight up or forwards and up with the hurdles further apart, speed of contact is always encouraged. Timed six hurdles 90cm, 2.50m apart , 5 seconds from the attempt at the first to landing from the last-male longer jumper 7.50/110kg clean
- Much of the hurdles work is double foot but we also hop over hurdles
- Depth jumping forms the start of our endurance bounding session-since the neuro-muscular system needs to be fresh for this elastic work.
- Single leg efforts follow double foot warm-ups; distance between boxes is an individual thing and is recorded by each athlete. .
- Activities are arranged to duplicate specific sections of LJ e.g. stepping down from a 40cm box (all are this height) to the ground onto the LJ leg and into the pit. Hopping down to the LJ leg When taught technique must be emphasised, at this time the boxes are very close together and reduced in height. Some activities have run-ups attached-

might add that only one athlete I have ever coached has run-up for more than 6 strides to a sequence of box-floor-box-pit. I cant stress enough that good technique is essential-this is not for the club athlete

- Eccentric work is followed by concentric-this is the nature of take-off in LJ and TJ
- Part of the national squad biomechanics testing includes drop jumps, squat jumps and counter-movement jumps and the benefit of each to gain maximum power output

## **SKILLS AND DRILLS**

### **WEIGHT TRAINING**

#### **CLUB**

How often - Once per week for the first year

- Teach techniques early with minimal weight
- Safety of lifting/good technique key objectives
- Exercises to develop all-round strength
- Conditioning activity in the first years, a period of 1 x 10, 2 x 8, 3 x 6, 4 x 5, length of these periods depend on the athlete and the phase of training e.g. competition
- Age-dependes on growth-but usually 16+
- Exercises to include clean, bench press, squat, step-up, sit-ups, back work

#### **INTERNATIONAL**

How often - 2-3 times per week or 5 per fortnight. Every specific programme is followed by brief rest.

- Strong mental attitude required-create a weight training culture
- Specific exercises working through the range relevant to the event
- Sequence and repetitions linked to competitive programme but the cycle is usually, conditioning (6weeks-again depends on the athletes ability) strength gaining (maximum strength development) at least 4 weeks, fitted into the periodisation, speed (75-80%max for 6 reps) again at least 4 weeks and the retention work.
- Speed weights are timed e.g. 75% Bench Press for six reps under 10 second, cleans for six reps under 15secs(NB if technique suffers time restriction is removed)Step-ups 5 each leg again 15 seconds. Jumps squats dumbbell (x2) for 10 reps in 10seconds. These times are worked out from my experience not taken from textbooks or research articles.
- Combination exercises, e.g. bench followed by medicine ball or overhead shot if facilities allow, squat clean followed by quick jumps squats no resistance. Another combination move if facilities allow would be squat followed by bounding(not too sure about this and haven't had the appropriate facilities)
- Exercises must include, squats, cleans, step-ups, calf raises, soleus work, hanging sit-ups (no resistance) back raising (again no resistance) step down, concentric and eccentric hamstring work. Particular emphasis in the last two years has been on eccentric quad activity using all joints in take-off, stepping down over 6 sec in a Smith machine, step down eventually with more than you can step up!
- Muscle-function testing (been doing this since 1991) ideally when the emphasis of the programme changes but more likely October, March and if possible July/August. These times correspond with after conditioning, end of winter peak period and reduction to retention weights at peak summer competitive period.

## **LONG JUMP TECHNICAL MODEL**

### **VIDEO:PHILLIPPS,GAISAH,THOMPSON(AUS)**

- Fast Accurate approach(10.7m Pedroso, )
- High knee lift maintained until take-off
- No great sinking-its seems however, noticeably more than TJ. Arampatzis and Bruggemann(1997) in a review of the Athens World Championships, found the mean for the women and men of the second last stride to be 2.26m, 2.37m respectively and the mean for the last stride to be 2.19m and 2.23 respectively. Pedroso 2<sup>nd</sup> last 2.43m, last 2.16, May 2.29,2.25.
- Reaching flat foot at take -off. Work by Lees and Graham-Smith at John Moores has shown that an angle of 26 degrees to the vertical for the take off leg will maximise vertical velocity and a take off leg angle of no more than 140 degrees
- Active downward and backwards movement
- Combined with a forward and upward drive of the free leg, parallel to the ground
- Upright trunk
- Coordinated arms
- Long shape at some time during flight phase to reduce rotation, 2.5 hitch is recommended the best technique for men, some women do hitch-hang.
- As you come in to land shoulders down(head up)feet up
- Landing can be scoop/skid through or land followed by sideways sitting

## **PLYOMETRICS**

Literally the ability to rebound, essential to long and triple jump training particularly useful for the eccentric component of take-off, in effect the overcoming of the braking force. More specifically, to assist the braking force at take-off when momentum is arrested(plant), amortization, like compression when there is a powerful stretch reflex that leads to eccentric contraction, this is followed by the lift(or rebound phase) a concentric action or take-off

### **BASIC PRINCIPLES.**

- Drop, don't jump down, no excessive knee bend
- Fast contact, but ideally with a flat foot, contradiction in terms! stability versus speed.
- Classic depth/drop has hands by the sides or on hips-don't agree, natural to swing one or both, dependant on single or two leg contact.
- Resist the ground first
- Active landing, drive out(and up)
- Hips behind landing foot initially.
- Fast transfer ahead of the foot
- Trunk upright not leaning forwards(can be used with beginners)

### **PRACTICES**

- Double foot over hurdles for height
- Double foot over lower hurdles for distance
- As above with two contacts in between
- Squat Jump(concentric)-see National Camp stats-double foot
- Counter Movement(ecc-con)-double foot
- Drop Jumps from various heights, 20cm,40cm-tests results, 60cm best
- Drops jump from 60cm to 60cm+double fast
- Drop jumps from 60cm to 60cm+, double, squeeze(amortization)
- Single leg-35-40, to ground, complete LJ to pit, both legs for TJ
- 2strides on to the above
- Stand, two boxes 35-40cms high, various distances apart, bound, left
- As above bound right
- As above hop left
- As above hop right
- 2 strides onto the above four practices.

### **OTHER COMMENTS**

Plyometrics can be combined for the skilled performer with medicine ball or weights activities. Plyometrics isn't advisable for beginners, a good grounding in bounding and hopping, core strength should precede this plyometric work. Suggested one per week, done 10 days away from competition.