

日本陸上競技連盟「中国コーチ」走幅跳講習会  
Feng Shuyong コーチ 走幅跳クリニックレポート

2018年3月22日（木） 場所：ヤンマースタジアム長居

より遠くへ跳ぶために最も重要なことは「スピード」である。

世界の走幅跳ランキングは、トップ10のパフォーマンスのうち、上位8位までがマニョンガ（南ア）が占めている。また、アジア人のランキング20位までのほとんどが中国人である。以下アジア人と欧米人との比較。

【アジア人の劣っている点】

- ① 身体づくり
- ② スピード・パワー
- ③ 国際的な試合の経験

【アジア人の良い点】

- ① 賢い
- ② 整理して物事を考えることができる
- ③ 器用である
- ④ メンタル面の強さ

アジア人の中でも日本人はスプリント力が高く、中国よりもスプリンターが多い。例えば、10秒3～10秒6ぐらいで走れるような選手は世界を狙える。なお、世界トップクラスの男子選手の踏切前スピードは秒速約10.5m、女子は秒速約9.5mである。

以下トレーニングを4つにわけて考えていく。

<助走のトレーニング>

- ① 全助走練習は常に踏切動作を入れなければならない。
- ② 助走路で、リズム感を高めるトレーニングを多く行う。
- ③ 空間認識能力を高める（助走中→踏切板までの距離を見切る）練習をする。
- ④ 多くの走幅跳選手は、ダメな助走で失敗している。

助走の1歩目2歩目は極めて重要で、助走後半や跳躍の出来に大きな影響を及ぼす。また、ラスト6歩にセカンドマークを置くことが非常に重要であり、マークから踏切までのスピードを上げなければならない。特に最後の1～2歩は速くなくてはならない。しかし、多くの選手がピッチを上げるだけでストライドを変えずにピッチを上げることができていない。コーチは踏切位置だけではなく、助走全体をしっかりと見て、アドバイスすることが必要である。

### <踏切のトレーニング>

- ① 違う距離での助走から踏切練習を多く行う。
- ② 様々な違う距離からの助走で、着地を含めた跳躍練習をする。
- ③ スムースな助走からアクティブに踏み切る。
- ④ 踏切の最後は、水平方向の速いスピードと上昇エネルギーを得ることが重要である。

よりよい角度で力強い踏切をすることが大切であるが、そのためには最後の一步をどれだけ速く走ることができるかにかかっている。最後の一步は速く走ることができれば、ストライドが短くなり、遅くて弱いと長くなる。また、踏み切る直前には踏切脚の筋肉は予備緊張として引き伸ばされる。理想的な踏切角度は 23～24 度である。馬のように少し手前にかくように踏み切ると、水平方向から垂直方向への力を産み出すことができる。

### <運動能力トレーニング>

- ① 基本的なことは、速く走ることで解消される。
- ② 速くリズムカルに、正確な動作の 3 つをひとつにまとめること。
- ③ いつも、走幅跳に必要なだと意識しながらのトレーニングを行う。
- ④ リズムと正確で安定したスライド長を確保するためのトレーニングを多く入れること。

冒頭で記述しているように、より遠くへ跳ぶためにはいかに助走スピードを上げることができるかである。しかし、いくらスピードがあっても走幅跳に適した安定したリズムがなければならぬ。走幅跳の助走は「より速く、テンポよく、リズムカルに」が大切である。また、全助走をするときは、絶対に駆け抜けず、必ず踏切動作を入れることを忘れてはならない。

### <筋力トレーニング>

- ① 筋力トレーニングでは、速さと SSC(ストレッチ・ショートニング・サイクル)と加速を意識して行う。
- ② 重いウェイトを上げることが、ゴールではない。スピードと加速力を得るための筋力トレーニングである。
- ③ MAX 筋力 60～80%の重さが適している。
- ④ 多くの神経系を改善させた筋力づくりが、とても良い走幅跳の動きにつながる。

走幅跳に必要な筋力を養うためには、重いウェイトを上げること (=毎回動きを止めるような方法) に重点を置いてはいけない。スピードと加速力を得るために、MAX 筋力の 60～80%の負荷で、動きを止めないトレーニングが効果的である。

文責 船津・浄閑

以下、中国コーチの資料スライドを添付します。



# Long Jump



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# 2017 World Long Jump Ranking Male

| RANK | MARK | WIND | COMPETITOR  | DOB       | NAT | VENUE               | DATE      |
|------|------|------|---|-----------|-----|---------------------|-----------|
| 1    | 8.65 | 1.3  | <u><a href="#">Luvo</a></u><br><u><a href="#">MANYONGA</a></u>  | 8-Jan-91  | RSA | Potchefstroom (RSA) | 22-Apr-17 |
| 2    | 8.62 | 1.2  | <u><a href="#">Luvo</a></u><br><u><a href="#">MANYONGA</a></u>  | 8-Jan-91  | RSA | Pretoria (RSA)      | 17-Mar-17 |
| 2    | 8.62 | 0.8  | <u><a href="#">Luvo</a></u><br><u><a href="#">MANYONGA</a></u>  | 8-Jan-91  | RSA | Hengelo (NED)       | 11-Jun-17 |
| 4    | 8.61 | 0.7  | <u><a href="#">Luvo</a></u><br><u><a href="#">MANYONGA</a></u>  | 8-Jan-91  | RSA | Shanghai (CHN)      | 13-May-17 |
| 5    | 8.49 | -0.8 | <u><a href="#">Ruswahl</a></u><br><u><a href="#">SAMAAI</a></u> | 25-Sep-91 | RSA | Potchefstroom (RSA) | 22-Apr-17 |
| 5    | 8.49 | -0.7 | <u><a href="#">Luvo</a></u><br><u><a href="#">MANYONGA</a></u>  | 8-Jan-91  | RSA | Zürich (SUI)        | 24-Aug-17 |
| 7    | 8.48 | 0.4  | <u><a href="#">Luvo</a></u><br><u><a href="#">MANYONGA</a></u>  | 8-Jan-91  | RSA | London (GBR)        | 5-Aug-17  |
| 8    | 8.46 | 0.2  | <u><a href="#">Luvo</a></u><br><u><a href="#">MANYONGA</a></u>  | 8-Jan-91  | RSA | Bloemfontein (RSA)  | 8-Mar-17  |
| 8    | 8.46 | 2    | <u><a href="#">Luvo</a></u><br><u><a href="#">MANYONGA</a></u>  | 8-Jan-91  | RSA | Tignes (FRA)        | 16-Aug-17 |
| 10   | 8.44 | 0.6  | <u><a href="#">Jarrion</a></u><br><u><a href="#">LAWSON</a></u> | 6-May-94  | USA | London (GBR)        | 5-Aug-17  |

**Luvo has 8 of top 10, very consistent.**

**China's Shi, 21<sup>st</sup> with 8.31m(performance), 7<sup>th</sup>(athlete)**



## 2017 World Long Jump Ranking Female

| RANK | MARK | WIND | COMPETITOR                        | DOB       | NAT | VENUE              | DATE      |
|------|------|------|-----------------------------------|-----------|-----|--------------------|-----------|
| 1    | 7.13 | 2    | <a href="#">Brittney REESE</a>    | 9-Sep-86  | USA | Chula Vista (USA)  | 17-Jun-17 |
| 2    | 7.02 | 0.1  | <a href="#">Brittney REESE</a>    | 9-Sep-86  | USA | London (GBR)       | 11-Aug-17 |
| 3    | 7.01 | 1.4  | <a href="#">Brittney REESE</a>    | 9-Sep-86  | USA | Eugene (USA)       | 26-May-17 |
| 3    | 7.01 | 0.5  | <a href="#">Tianna BARTOLETTA</a> | 30-Aug-85 | USA | Sacramento (USA)   | 24-Jun-17 |
| 3    | 7.01 | 0.8  | <a href="#">Tianna BARTOLETTA</a> | 30-Aug-85 | USA | London (GBR)       | 9-Jul-17  |
| 6    | 7    | -0.3 | <a href="#">Darya KLISHINA</a>    | 15-Jan-91 | ANA | London (GBR)       | 11-Aug-17 |
| 7    | 6.98 | -0.2 | <a href="#">Brittney REESE</a>    | 9-Sep-86  | USA | Baie Mahault (FRA) | 17-May-17 |
| 8    | 6.97 | -0.2 | <a href="#">Tianna BARTOLETTA</a> | 30-Aug-85 | USA | London (GBR)       | 11-Aug-17 |
| 9    | 6.96 | 0.1  | <a href="#">Ivana ŠPANOVIĆ</a>    | 10-May-90 | SRB | London (GBR)       | 11-Aug-17 |
| 10   | 6.92 | 1.7  | <a href="#">Christabel NETTEY</a> | 2-Jun-91  | CAN | Chula Vista (USA)  | 17-Jun-17 |

Reese has 4(top 3) of top 10. Only 6 above 7m . The reason?



## 2017 Asian Long Jump Ranking Male

| RANK | MARK | WIND | COMPETITOR                      | DOB       | NAT        | VENUE           | DATE      |
|------|------|------|---------------------------------|-----------|------------|-----------------|-----------|
| 1    | 8.31 | 0.8  | <a href="#">Yuhao SHI</a>       | 26-Sep-98 | CHN        | Beijing (CHN)   | 25-Jun-17 |
| 2    | 8.29 | 0.3  | <a href="#">Jianan WANG</a>     | 27-Aug-96 | CHN        | Guiyang (CHN)   | 27-Jun-17 |
| 3    | 8.28 | 1.1  | <a href="#">Changzhou HUANG</a> | 20-Aug-94 | CHN        | Tianjin (CHN)   | 6-Sep-17  |
| 4    | 8.26 | 0.9  | <a href="#">Changzhou HUANG</a> | 20-Aug-94 | CHN        | Beijing (CHN)   | 25-Jun-17 |
| 5    | 8.23 | 0.6  | <a href="#">Jianan WANG</a>     | 27-Aug-96 | CHN        | London (GBR)    | 5-Aug-17  |
| 5    | 8.23 | -0.3 | <a href="#">Yuhao SHI</a>       | 26-Sep-98 | CHN        | London (GBR)    | 5-Aug-17  |
| 7    | 8.22 | 0.1  | <a href="#">Xinglong GAO</a>    | 12-Mar-94 | CHN        | Shanghai (CHN)  | 13-May-17 |
| 8    | 8.2  | 0.1  | <a href="#">Changzhou HUANG</a> | 20-Aug-94 | CHN        | Shanghai (CHN)  | 13-May-17 |
| 9    | 8.19 | 0.8  | <a href="#">Yaoguang ZHANG</a>  | 21-Jun-93 | CHN        | Shanghai (CHN)  | 13-May-17 |
| 10   | 8.18 | 1.3  | <a href="#">Yuhao SHI</a>       | 26-Sep-98 | CHN        | Hong Kong (HKG) | 14-May-17 |
| 10   | 8.18 | 0.6  | <a href="#">Xinglong GAO</a>    | 12-Mar-94 | CHN        | Tianjin (CHN)   | 6-Sep-17  |
| 12   | 8.17 | 1.7  | <a href="#">Yaoguang ZHANG</a>  | 21-Jun-93 | CHN        | Zhengzhou (CHN) | 12-Apr-17 |
| 12   | 8.17 | 0    | <a href="#">Xinglong GAO</a>    | 12-Mar-94 | CHN        | Taiyuan (CHN)   | 9-May-17  |
| 14   | 8.15 | -0.3 | <a href="#">Yuhao SHI</a>       | 26-Sep-98 | CHN        | Ordos (CHN)     | 3-Jun-17  |
| 15   | 8.14 | 0.5  | <a href="#">Jianan WANG</a>     | 27-Aug-96 | CHN        | Kawasaki (JPN)  | 21-May-17 |
| 16   | 8.13 | 0.5  | <a href="#">Yuhao SHI</a>       | 26-Sep-98 | CHN        | Ordos (CHN)     | 4-Jun-17  |
| 17   | 8.12 | 0.2  | <a href="#">Jianan WANG</a>     | 27-Aug-96 | CHN        | Tianjin (CHN)   | 6-Sep-17  |
| 18   | 8.11 | 0.6  | <a href="#">Jinzhe LI</a>       | 1-Sep-89  | CHN        | Beijing (CHN)   | 25-Jun-17 |
| 18   | 8.11 | 0.5  | <a href="#">Deok Hyeon KIM</a>  | 8-Dec-85  | <b>KOR</b> | Goseong (KOR)   | 5-Jul-17  |
| 20   | 8.1  | 0.4  | <a href="#">Hung-Min LIN</a>    | 7-Sep-90  | <b>TPE</b> | Hiratsuka (JPN) | 10-Jun-17 |
| 20   | 8.1  | -0.4 | <a href="#">Yaoguang ZHANG</a>  | 21-Jun-93 | CHN        | Guiyang (CHN)   | 27-Jun-17 |



# We must see the consistency of the jumpers---very important

19 out of top 21 (above 8.10m) were made by Chinese LJers (6 athletes)

**Shi** has 5 (8.31m, 8.23m, 8.18m, 8.15m, 8.13m)

**Wang** has 4 (8.29m, 8.23m, 8.14m, 8.12m)

**Huang** has 3 (8.28m, 8.26m, 8.20m)

**Gao** has 3 (8.22m, 8.18m, 8.17m)

**Zhang** has 3 (8.19m, 8.17m, 8.10m)



Shi



Wang



Huang



Gao

Only a **Korean** ranked 18<sup>th</sup> with 8.11m, a **Taiwanese** 20<sup>th</sup> with 8.10m



## Japanese rankings: Not good, but they are very young

22th 8.09 +2.0 Hibiki TSUHA 21 JAN 1998 JPN 1 Fukuroi (JPN) 09 SEP 2017

25th 8.06 +1.9 Natsuki YAMAKAWA 24 JUL 1995 JPN 2 Fukuroi (JPN) 09 SEP 2017

28th 8.05 +1.4 Yuki HASHIOKA 23 JAN 1999 JPN 1 Osaka (JPN) 24 JUN 2017

29th 8.04 +0.1 Yuki HASHIOKA 23 JAN 1999 JPN 1Yokohama (JPN) 26 MAY 2017

36th 8.00 +1.7 Shin-ichiro SHIMONO 10 OCT 1990 JPN 3 Kawasaki (JPN)21 MAY2017







## 2017 Asian Long Jump Ranking Female

| RANK | MARK | WIND | COMPETITOR                 | DOB       | NAT | VENUE              | DATE      |
|------|------|------|----------------------------|-----------|-----|--------------------|-----------|
| 1    | 6.68 | 0.2  | <u>Thu Thao BUI THI</u>    | 29-Apr-92 | VIE | Kuala Lumpur (MAS) | 25-Aug-17 |
| 2    | 6.67 | 1.7  | <u>Minjia LU</u>           | 29-Dec-92 | CHN | Ningbo (CHN)       | 2-Jul-17  |
| 3    | 6.63 | -0.1 | <u>Minjia LU</u>           | 29-Dec-92 | CHN | Tianjin (CHN)      | 7-Sep-17  |
| 4    | 6.62 | 0.6  | <u>Minjia LU</u>           | 29-Dec-92 | CHN | Taiyuan (CHN)      | 10-May-17 |
| 5    | 6.61 | 0.6  | <u>Minjia LU</u>           | 29-Dec-92 | CHN | Huaian (CHN)       | 3-Apr-17  |
| 6    | 6.58 | -0.4 | <u>Thu Thao BUI THI</u>    | 29-Apr-92 | VIE | Jinhua (CHN)       | 24-Apr-17 |
| 7    | 6.55 | 0.3  | <u>Minjia LU</u>           | 29-Dec-92 | CHN | Jinan (CHN)        | 16-May-17 |
| 7    | 6.55 | 1.2  | <u>James NAYANA</u>        | 18-Oct-95 | IND | Patiala (IND)      | 2-Jun-17  |
| 9    | 6.54 | 0.5  | <u>Varakil NEENA</u>       | 2-May-91  | IND | Bhubaneshwar (IND) | 6-Jul-17  |
| 9    | 6.54 | -0.5 | <u>Thu Thao BUI THI</u>    | 29-Apr-92 | VIE | Bhubaneshwar (IND) | 6-Jul-17  |
| 11   | 6.51 | -0.3 | <u>Xiaoling XU</u>         | 13-May-92 | CHN | Tianjin (CHN)      | 7-Sep-17  |
| 12   | 6.5  | 0.1  | <u>Olga RYPAKOVA</u>       | 30-Nov-84 | KAZ | Almaty (KAZ)       | 13-May-17 |
| 13   | 6.48 | -0.1 | <u>Minjia LU</u>           | 29-Dec-92 | CHN | Guiyang (CHN)      | 25-Jun-17 |
| 14   | 6.47 | 0.5  | <u>Maria Natalia LONDA</u> | 29-Oct-90 | INA | Kuala Lumpur (MAS) | 25-Aug-17 |
| 15   | 6.46 | -1   | <u>Varakil NEENA</u>       | 2-May-91  | IND | Jinhua (CHN)       | 24-Apr-17 |
| 16   | 6.45 | 1.6  | <u>Xiaoxue ZHOU</u>        | 19-Jun-92 | CHN | Huaian (CHN)       | 3-Apr-17  |
| 16   | 6.45 | 0    | <u>Marestella SUNANG</u>   | 20-Feb-81 | PHI | Kuala Lumpur (MAS) | 25-Aug-17 |
| 16   | 6.45 | 0.8  | <u>Qingling WANG</u>       | 14-Jan-93 | CHN | Tianjin (CHN)      | 3-Sep-17  |
| 19   | 6.44 | 0.2  | <u>Xiaoxue ZHOU</u>        | 19-Jun-92 | CHN | Melbourne (AUS)    | 11-Feb-17 |
| 20   | 6.43 | -0.4 | <u>Minjia LU</u>           | 29-Dec-92 | CHN | Tianjin (CHN)      | 6-Sep-17  |
| 21   | 6.42 | 1.6  | <u>James NAYANA</u>        | 18-Oct-95 | IND | Bhubaneshwar (IND) | 6-Jul-17  |
| 22   | 6.41 | -0.3 | <u>Thu Thao BUI THI</u>    | 29-Apr-92 | VIE | Taipei (TPE)       | 30-Apr-17 |
| 22   | 6.41 | -0.4 | <u>Xiaoling XU</u>         | 13-May-92 | CHN | Guiyang (CHN)      | 25-Jun-17 |



Can't see any Japanese Long Jumpers  
among Asian top 22

Why Asian Female LJers are not as  
good as the Males

**Speed problem!!!!!!**

**Why?**



## Are Japanese LJers hopeful?

Of course, For sure!!!

There have been many good sprinters

There were good LJers in the past (Asahara, Masaggi etc.)

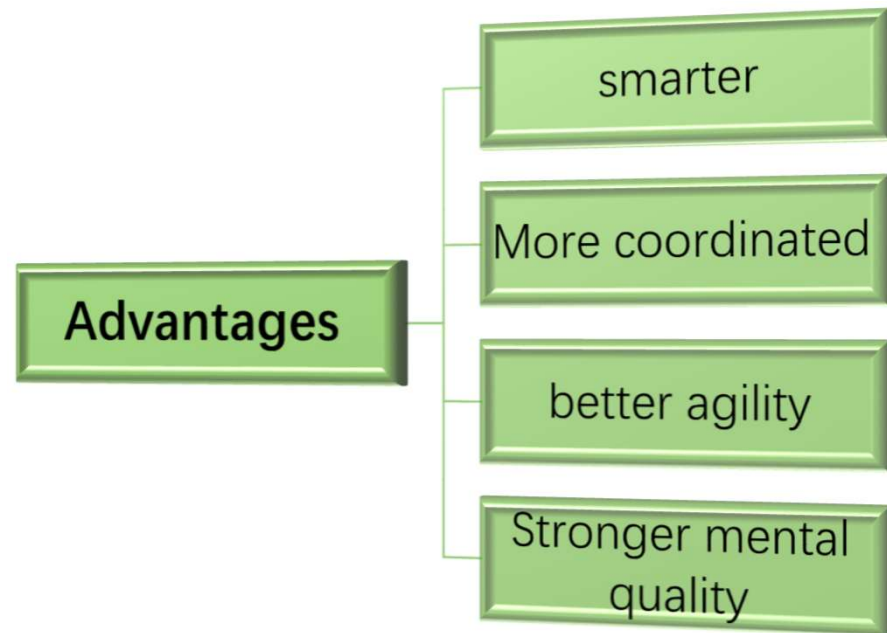
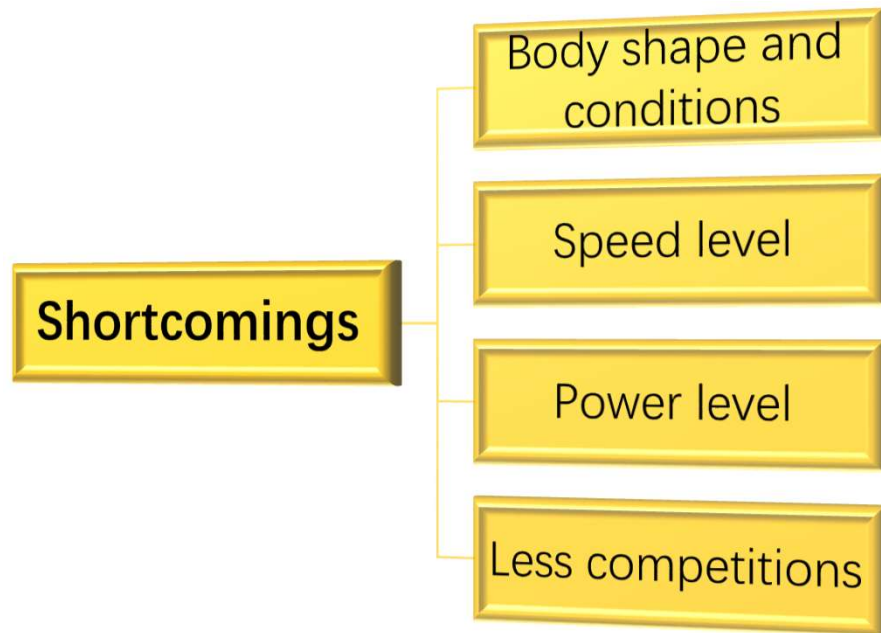
Japanese are similar with Chinese

Be confident first and then set a target!

Give more attention for LJ development



# The shortcomings of Asian Long Jumpers





## The Hope of Asian Long Jumpers-----Chinese experiences

1

Looking for true talents(fast & powerful and tall)

2

Better and more consistent Technique(good training)

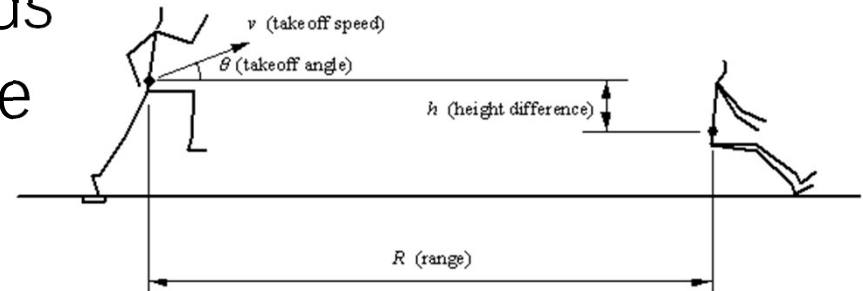
3

Learn how to compete best(obtain key abilities)



## What does LJ require?

- The jumping distance depends on take-off velocity and angle
- The key factors are the **horizontal velocity** at touch-down and **vertical velocity** after take-off
- So the speed ability and take-off ability under high horizontal velocity are the most important for a good LJer



## Among all time 8.60m and above jumps



Carl Lewis has 30

Ivan Pedroso has 9

Mike Powell has 7

Larry Myricks has 5

Dwight Phillips has 5

Luvo Manyonga has 5

They are all fast!!!





**Table1 Kinematic data of IAAF 2015 Beijing World Championships top 8 male long jumpers**

| Ranking | Name                  | Result (m)  | Accuracy (cm) | Step velocity (m/s) |              |              |
|---------|-----------------------|-------------|---------------|---------------------|--------------|--------------|
|         |                       |             |               | Penultimate step    | Last step    | Mean         |
| 1       | Greg RUTHERFORD       | 8.41        | 18.50         | 10.94               | 10.81        | 10.87        |
| 2       | Fabrice LAPIERRE      | 8.24        | 14.40         | 10.51               | 10.35        | 10.43        |
| 3       | Jianan WANG           | 8.18        | 9.10          | 10.86               | 10.76        | 10.81        |
| 4       | Xinglong GAO          | 8.14        | 13.50         | 10.79               | 10.69        | 10.74        |
| 5       | Jinzhe LI             | 8.10        | 15.40         | 10.74               | 10.66        | 10.70        |
| 6       | Aleksandr MENKOV      | 8.02        | 19.80         | 10.91               | 10.47        | 10.69        |
| 7       | Kafétien GOMIS        | 8.02        | 18.90         | 10.41               | 10.18        | 10.29        |
| 8       | Sergey POLYANSKI<br>Y | 7.97        | 10.40         | 10.44               | 10.19        | 10.32        |
|         | <b>Mean</b>           | <b>8.14</b> | <b>15.00</b>  | <b>10.70</b>        | <b>10.51</b> | <b>10.61</b> |





Table2 Kinematic data of IAAF 2015 Beijing World Championships top 8 female long jumpers

| Ranking | Name        | Result (m)  | Accuracy (cm) | Step velocity (m/s) |             |             |
|---------|-------------|-------------|---------------|---------------------|-------------|-------------|
|         |             |             |               | Penultimate step    | Last step   | Mean        |
| 1       | TOLETTA     | 7.14        | 17.60         | 10.12               | 9.93        | 10.02       |
| 2       | PROCTOR     | 7.07        | 9.50          | 9.66                | 9.43        | 9.55        |
| 3       | ŠPANOVIC    | 7.01        | 11.70         | 9.72                | 9.54        | 9.63        |
| 4       | NETTEY      | 6.95        | 10.90         | 9.89                | 9.63        | 9.76        |
| 5       | UGEN        | 6.85        | 16.70         | 10.05               | 9.68        | 9.86        |
| 6       | MIHAMBO     | 6.79        | 9.40          | 9.50                | 9.44        | 9.47        |
| 7       | SAGNIA      | 6.78        | 19.80         | 9.25                | 9.10        | 9.18        |
| 8       | DELOACH     | 6.67        | 10.60         | 9.54                | 9.50        | 9.52        |
|         | <b>Mean</b> | <b>6.91</b> | <b>13.28</b>  | <b>9.71</b>         | <b>9.53</b> | <b>9.62</b> |



**Table3 Kinematic data of IAAF 2015 Beijing World Championships top 8 male long jumpers**

| Ranking | Name              | Result (m) | Accuracy (cm) | Step length (m)  |           |
|---------|-------------------|------------|---------------|------------------|-----------|
|         |                   |            |               | Penultimate step | Last step |
| 1       | Greg RUTHERFORD   | 8.41       | 18.50         | 2.48             | 2.19      |
| 2       | Fabrice LAPIERRE  | 8.24       | 14.40         | 2.42             | 2.23      |
| 3       | Jianan WANG       | 8.18       | 9.10          | 2.29             | 2.16      |
| 4       | Xinglong GAO      | 8.14       | 13.50         | 2.67             | 2.16      |
| 5       | Jinzhe LI         | 8.10       | 15.40         | 2.31             | 2.38      |
| 6       | Aleksandr MENKOV  | 8.02       | 19.80         | 2.46             | 2.15      |
| 7       | Kafétien GOMIS    | 8.02       | 18.90         | 2.44             | 2.13      |
| 8       | Sergey POLYANSKIY | 7.97       | 10.40         | 2.40             | 1.95      |
|         | Mean              | 8.14       | 15.00         | 2.43             | 2.17      |



Table4 Kinematic data of IAAF 2015 Beijing World Championships top 8 female long jumpers

| Ranking | Name        | Result (m)  | Accuracy (cm) | Step length (m)  |             |
|---------|-------------|-------------|---------------|------------------|-------------|
|         |             |             |               | Penultimate step | Last step   |
| 1       | TOLETTA     | 7.14        | 17.60         | 2.22             | 1.98        |
| 2       | PROCTOR     | 7.07        | 9.50          | 2.28             | 2.16        |
| 3       | ŠPANOVIC    | 7.01        | 11.70         | 2.23             | 2.05        |
| 4       | NETTEY      | 6.95        | 10.90         | 2.19             | 2.06        |
| 5       | UGEN        | 6.85        | 16.70         | 2.37             | 2.24        |
| 6       | MIHAMBO     | 6.79        | 9.40          | 2.63             | 2.00        |
| 7       | SAGNIA      | 6.78        | 19.80         | 2.25             | 2.19        |
| 8       | DELOACH     | 6.67        | 10.60         | 2.38             | 1.91        |
|         | <b>Mean</b> | <b>6.91</b> | <b>13.28</b>  | <b>2.32</b>      | <b>2.07</b> |



**Table5 Kinematic data of IAAF 2015 Beijing World Championships top 8 male long jumpers**

| Rank | Name              | Result (m)  | TD-Velocity (m/s) |             | TO-Velocity (m/s) |             | Resultant V (m/s) | Take-off angle (°) |
|------|-------------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|--------------------|
|      |                   |             | Vx                | Vy          | Vx                | Vy          |                   |                    |
| 1    | Greg RUTHERFORD   | 8.41        | 10.34             | 0.38        | 9.51              | 3.52        | 10.14             | 20.28              |
| 2    | Fabrice LAPIERRE  | 8.24        | 9.92              | 0.65        | 8.75              | 3.84        | 9.55              | 23.68              |
| 3    | Jianan WANG       | 8.18        | 10.23             | -0.14       | 8.87              | 3.89        | 9.68              | 22.67              |
| 4    | Xinglong GAO      | 8.14        | 10.47             | 0.25        | 9.70              | 3.30        | 10.24             | 18.81              |
| 5    | Jinzhe LI         | 8.10        | 10.25             | 0.68        | 9.57              | 3.01        | 10.04             | 17.47              |
| 6    | Aleksandr MENKOV  | 8.02        | 10.13             | 0.37        | 8.91              | 3.59        | 9.61              | 21.97              |
| 7    | Kafétien GOMIS    | 8.02        | 9.84              | 0.22        | 8.90              | 3.47        | 9.55              | 21.31              |
| 8    | Sergey POLYANSKIY | 7.97        | 9.78              | 0.30        | 8.53              | 3.72        | 9.31              | 23.55              |
|      | <b>Mean</b>       | <b>8.14</b> | <b>10.12</b>      | <b>0.34</b> | <b>9.09</b>       | <b>3.54</b> | <b>9.76</b>       | <b>21.34</b>       |



Table6 Kinematic data of IAAF 2015 Beijing World Championships top 8 female long jumpers

| Rank | Name        | Result (m)  | TD-Velocity (m/s) |             | TO-Velocity (m/s) |             | Resultant V (m/s) | Take-off angle (°) |
|------|-------------|-------------|-------------------|-------------|-------------------|-------------|-------------------|--------------------|
|      |             |             | Vx                | Vy          | Vx                | Vy          |                   |                    |
| 1    | TOLETTA     | 7.14        | 9.63              | 0.34        | 8.62              | 3.21        | 9.20              | 20.43              |
| 2    | PROCTOR     | 7.07        | 8.99              | 0.31        | 7.76              | 3.35        | 8.46              | 23.37              |
| 3    | ŠPANOVIC    | 7.01        | 9.21              | 0.18        | 8.19              | 3.33        | 8.84              | 22.11              |
| 4    | NETTEY      | 6.95        | 9.29              | 0.43        | 8.45              | 3.07        | 8.99              | 19.98              |
| 5    | UGEN        | 6.85        | 9.17              | 0.11        | 7.71              | 3.28        | 8.37              | 23.05              |
| 6    | MIHAMBO     | 6.79        | 9.11              | -0.22       | 8.08              | 3.19        | 8.69              | 21.53              |
| 7    | SAGNIA      | 6.78        | 8.82              | -0.26       | 7.34              | 3.12        | 7.97              | 23.03              |
| 8    | DELOACH     | 6.67        | 9.35              | -0.38       | 8.37              | 2.95        | 8.87              | 19.40              |
|      | <b>Mean</b> | <b>6.91</b> | <b>9.20</b>       | <b>0.06</b> | <b>8.06</b>       | <b>3.19</b> | <b>8.67</b>       | <b>21.61</b>       |



**Table 7 Kinematic parameter of Powell and Lewis**

| Parameter  | Powell       | Lewis        |
|--|--------------|--------------|
| Official distance (m)                                | 8.95         | 8.91         |
| Effective Distance (m)                               | 8.98         | 8.91         |
| Wind Velocity (m/s)                                  | 0.30         | 2.90         |
| <b>Average Running Speed between:</b>                |              |              |
| <b>11-6m. to the board (m/s)</b>                     | <b>10.79</b> | <b>11.23</b> |
| <b>6-1m. to the board (m/s)</b>                      | <b>10.94</b> | <b>11.26</b> |
| The Length of the:                                   |              |              |
| Third-last Stride (m)                                | 2.40         | 2.23         |
| Second-last Stride (m)                               | 2.47         | 2.70         |
| Last Stride (m)                                      | 2.28         | 1.88         |
| <b>CM Horizontal Velocity (m/s)</b>                  | <b>9.27</b>  | <b>9.11</b>  |
| <b>CM Vertical Velocity (m/s)</b>                    | <b>4.26</b>  | <b>3.37</b>  |
| <b>Angle of Projection (degrees)</b>                 | <b>24.6</b>  | <b>20.3</b>  |
| Angle of Body Lean (degrees) at:                     |              |              |
| Touch-down   | 71.8         | 77.0         |
| Take-off   | 73.9         | 67.50        |
| Maximum CM Height (m)                                | 2.05         | 1.84         |
| Height of CM at Touch-down (m)                       | 0.54         | 0.49         |
| Horizontal Distance between the CM and Foot Mark (m) | 0.41         | 0.42         |



## Technical Elements

- **Run-up** is the most important one(**Aggressive**)
- **Speed** ---fast ( 10.50m-10.60m/s and 9.30m-9.60m/s)
- **Rhythm** ---good for take-off
- **Accuracy**—within 5cm to the front edge of board



The successful ratio(3 in 1) should be at least **80%**

This is a very important but a difficult task for  
LJers

Need to give a lot of attention, a lot of training



## Speed of run-up

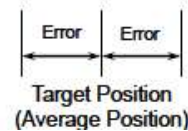
- Good LJers should be able to run **very fast**
- Select those with **good speed potential** to train for LJ
- Refer to the speed training and give priority for development of speed
- Speed should be a very key element in training
- **Slower jumper has little hope to be good!!!**





## Rhythm of run-up

- Must be Very Stable and relatively fixed
- The rhythm of first few steps has big impact on accuracy of take-off



- The rhythm of last few steps has big impact on take-off effect
- The rhythm from 2<sup>nd</sup> check mark to the board should be getting **quicker**, but try to maintain the **stride length!**

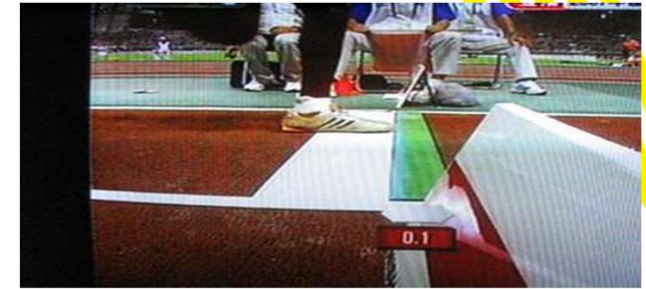
Sounds easy, but very difficult!!!

# 2015北京世锦赛男子跳远季军王嘉男8.18米





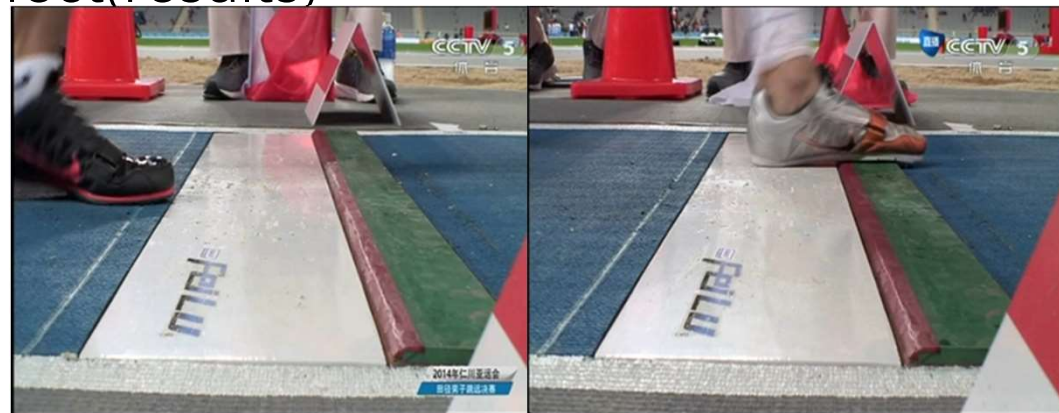
## Accuracy of take-off



This is very often an **ignored** factor—especially in training

The accuracy should be very **strictly requested** otherwise all the training will be no effect(results)

Stable rhythm is the key  
A lot training needed



Only the run-up with speed, good rhythm and accuracy(3 in 1) is a good (successful)run-up.

**Run-up should be one of the most important training for  
LJers**



**Table8 Statistics on Fouls of Jumping Events in 2015  
IAAF Beijing World Championships**

| Event | Qualification          |                  |       |               | Final                  |                  |       |               |
|-------|------------------------|------------------|-------|---------------|------------------------|------------------|-------|---------------|
|       | Number of participants | Number of trials | Fouls | Foul rate (%) | Number of participants | Number of trials | Fouls | Foul rate (%) |
| MLJ   | 32                     | 89               | 38    | 42.70         | 12                     | 58               | 29    | 50.00         |
| MTJ   | 28                     | 79               | 25    | 31.65         | 12                     | 57               | 19    | 33.33         |
| WLJ   | 34                     | 96               | 24    | 25.00         | 12                     | 59               | 23    | 38.98         |
| WTJ   | 28                     | 76               | 27    | 35.53         | 12                     | 60               | 13    | 21.67         |



**Table9 Accuracy Statistics of Beijing 2015 World Championships Jump Event Competition**

| Event | Qualification          |             |                    |                | Final                  |             |                    |                |
|-------|------------------------|-------------|--------------------|----------------|------------------------|-------------|--------------------|----------------|
|       | Number of participants | Valid trail | TD more than 10 cm | percentage (%) | Number of participants | Valid trail | TD more than 10 cm | percentage (%) |
| MLJ   | 32                     | 51          | 15                 | 29.40          | 12                     | 29          | 11                 | 37.90          |
| MTJ   | 28                     | 54          | 27                 | 50.00          | 12                     | 34          | 12                 | 35.30          |
| WLJ   | 34                     | 72          | 22                 | 30.55          | 12                     | 36          | 11                 | 30.56          |
| WTJ   | 28                     | 47          | 20                 | 42.30          | 12                     | 47          | 15                 | 31.9           |



**Table 10 Accuracy Statistics of Beijing 2015 World Championships Jump Event Competition**

| Event | Qualification          |                  |                    |                | Final                  |                  |                    |                |
|-------|------------------------|------------------|--------------------|----------------|------------------------|------------------|--------------------|----------------|
|       | Number of participants | Number of trials | TD more than 10 cm | percentage (%) | Number of participants | Number of trials | TD more than 10 cm | percentage (%) |
| MLJ   | 32                     | 89               | 15                 | 16.90          | 12                     | 58               | 11                 | 18.96          |
| MTJ   | 28                     | 79               | 27                 | 34.20          | 12                     | 57               | 12                 | 21.05          |
| WLJ   | 34                     | 96               | 22                 | 22.91          | 12                     | 59               | 11                 | 18.64          |
| WTJ   | 28                     | 76               | 20                 | 26.3           | 12                     | 60               | 15                 | 25.00          |



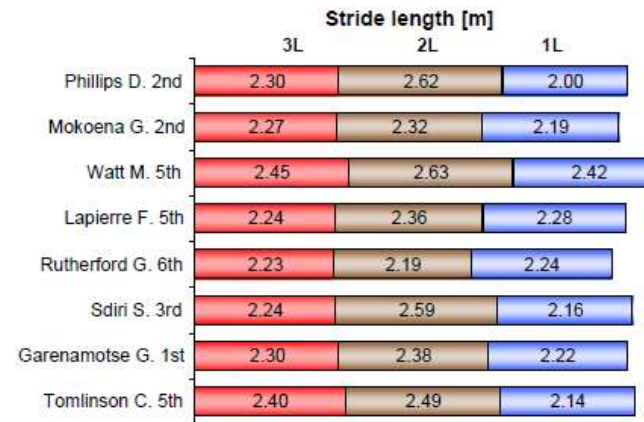
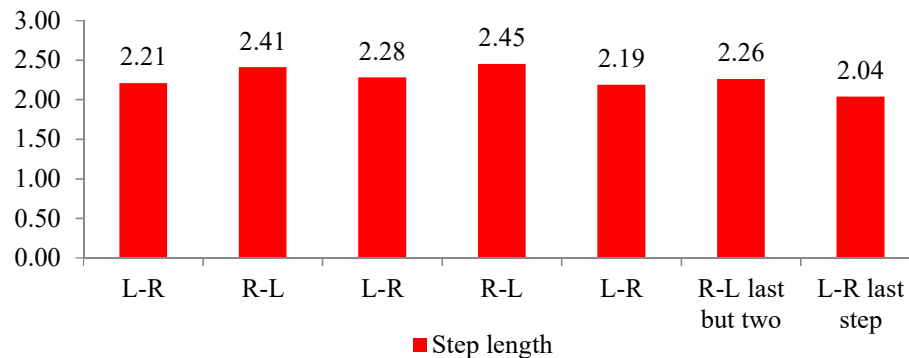
# Last 2 strides of run-up

Try to maintain the horizontal velocity to touch-down---goal

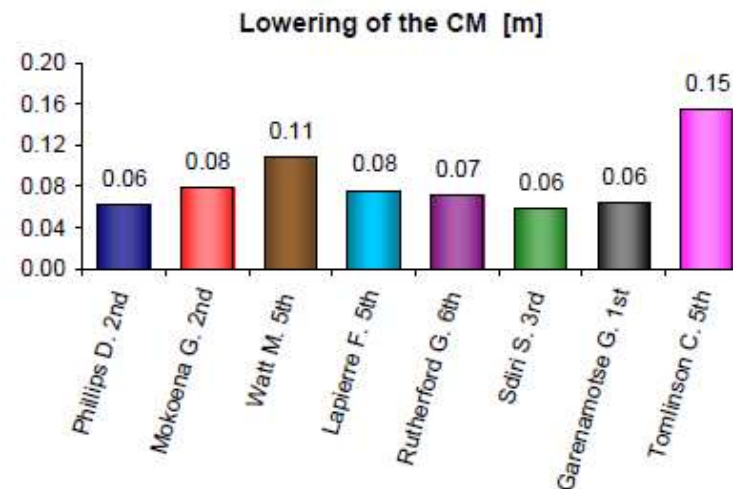
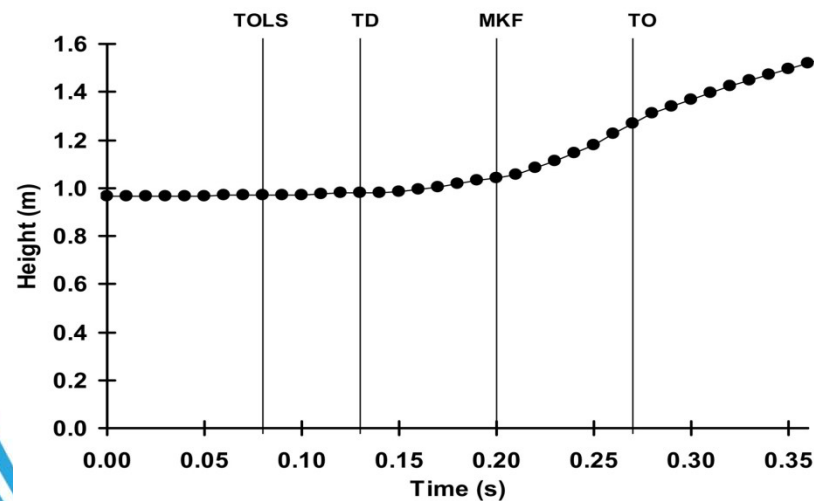
Some **facts** during the last 2 strides:

- Length of 2<sup>nd</sup> last stride is a little bit longer, and last stride shorter

## Step length



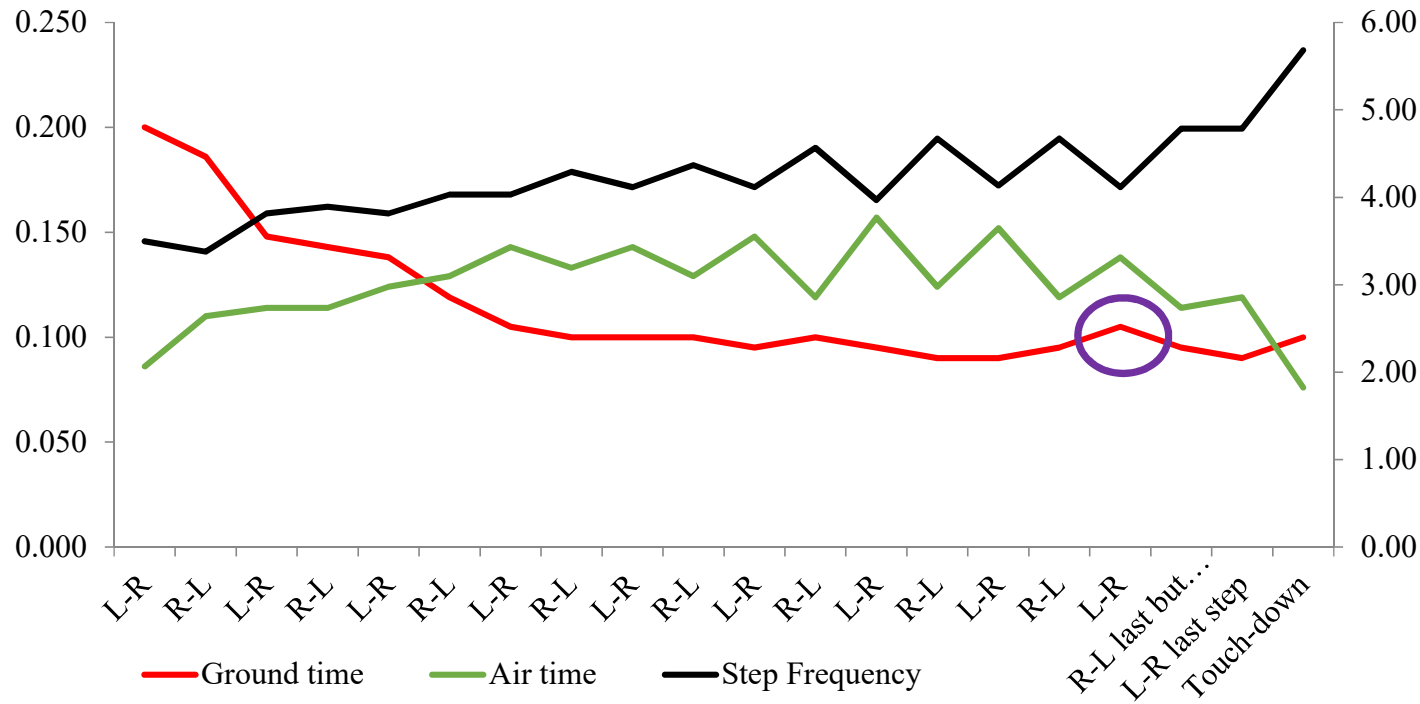
- The height of CG is lowered during 2<sup>nd</sup> last stride





# Last 2 strides of run-up

- The foot contact time with ground at landing of 2<sup>nd</sup> last stride is longer



**Remember:** these happen naturally before take-off, but can't teach athlete to do.

American and European-Asian styles (The reason?)





## Take-off

- Take-off time is very short---0.10-0.11sec
- Active touch-down is essential with quick pawing action
- Active and powerful swing of free leg and arms
- Pre-contraction of extending muscles of take-off leg
- Hip extension is often a problem—reducing take-off effect and causing more forward rotation
- Maintain more horizontal V and create more vertical V-----**Goal**





# Flight

- Maintaining balance in the air  
Sail—Hang--Hitch-kick-----All can be good
- A short waiting after take-off before starting movements
- Head position is very important

Flight techniques has some impact on run-up and take-off  
Especially the **hang** style



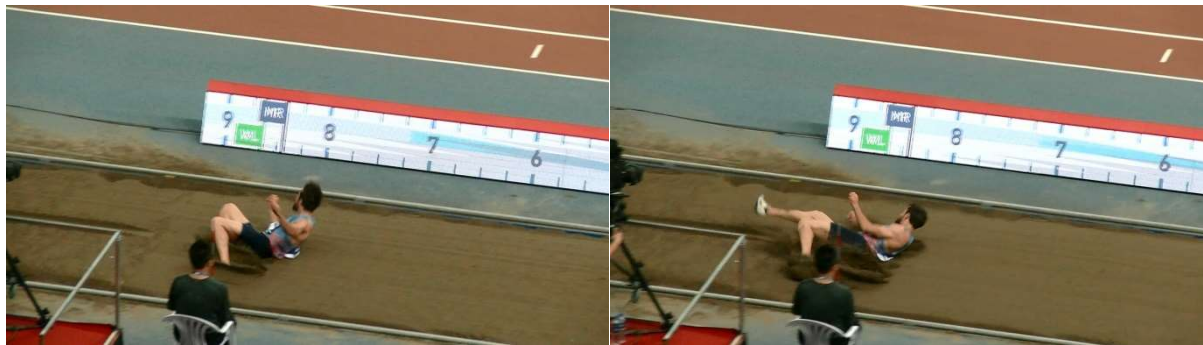


## Landing

Less importance, but often a big problem

### Importance:

- Tight uniforms are better, and be careful with bib



- Feet should be put together
- Try to maintain the height of butts at landing of feet and bring butts over forward with left horizontal V

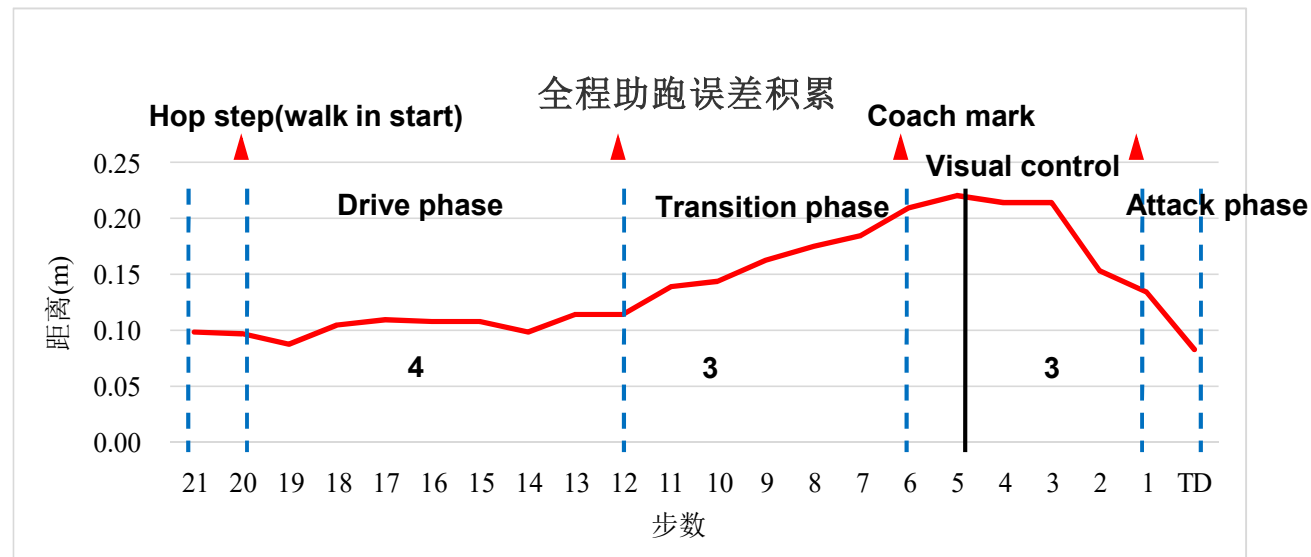
Many jumpers lost **big distance** with poor landing



# Technical Training of Long Jumper

**Run-up:** a lot training. Goal is to reach **80%** successful(3 in 1) rate

Check marks (1<sup>st</sup> and 2<sup>nd</sup> -- **coach mark**): need to give attention



**Consistency** on stride length(especially the starting section)

**Quickening** the rhythm in the last strides(not reducing stride length)



## Run-up training

Full run-up should always combine with take-off

A lot rhythmic training off the run-way

Space judgement ability is important

Too many LJers fail because of bad run-up



# Technical Training of Long Jumper



## Take-off

- A lot take-off with different approach distance
- Full long jumps with different approach distance
- Aim: combine smoothly with run-up, active touch-down, pre-contraction of extending muscles and coordinated with swinging parts
- Finally: can finish take-off under fast horizontal speed and gain proper vertical  $V$  (proper take-off angle)



# Motor abilities training of LJers

## **Speed** training:

Be able to run fast is the basic requirement

3 in 1: Fast, rhythmic and stable(accuracy)

Always remember the special need for LJ

So there should be many training for rhythm and stable stride length

**Must always remember these key points**

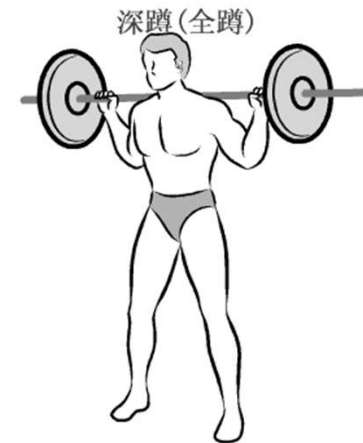
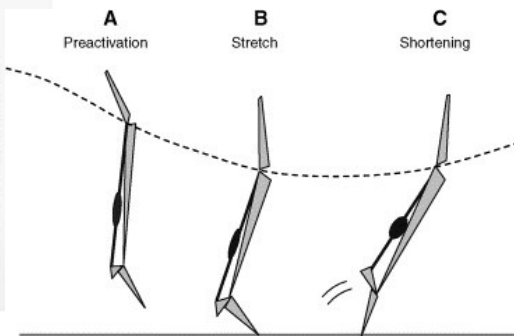
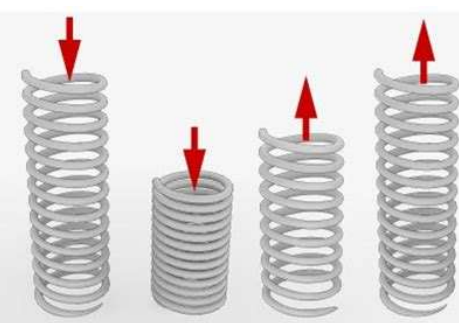


# Motor abilities training of LJers

**Strength** training:

Remember 3 typical features in LJ:

**Fast**, conversion from **eccentric** to **concentric** contraction and **acceleration**



So the **weight** is not the goal, but the **converting speed** and **acceleration**

**60-80%** of Max are the proper range of load weight

Try to do with fast possible moments

The load is actually **big** and **neuro-muscular** system can be very well developed.





# Motor abilities training of LJers

## Power training

$$P = F \times V$$

Various jumping exercises are the best for developing power--

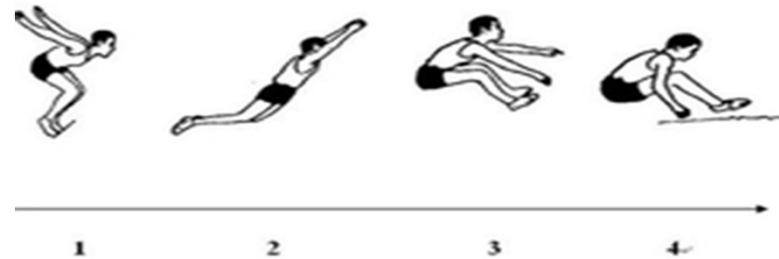
Vertical and horizontal

Double or single leg(s)

For speed or distance

**Speed** should always be the priority

**Bounding with short approach** is a specific drill for take-off power And is the test for checking the take-off ability





# Motor abilities training of LJers

**Conditioning** --- core strength etc

Trunk --- abdominal and back muscles

Arms --- shoulders

Hip flexors and extensors

Hamstrings — flexing knee & extending hip





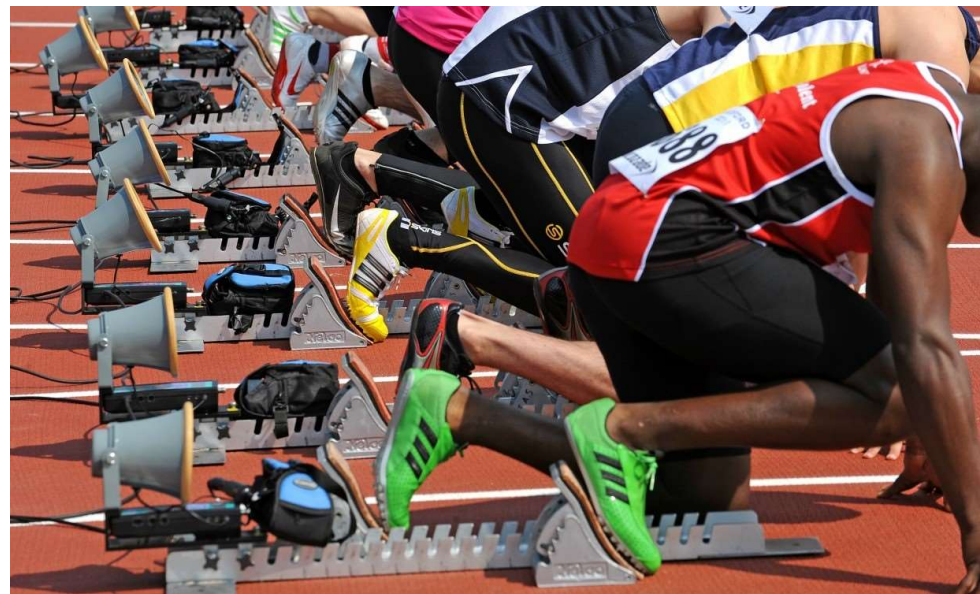
# Try to compete more

Always try to make 1st jump successful (close to PB or SB)

The 1st&2nd attempt are the key to a good competition

What to do when foul or take-off behind board

**Goal: make PB or SB at most important competition**





# Quality is always more important than quantity

Good Technique: LJ and other exercises

Proper Intensity: according to the planning

Rate of good jump: Stability and consistency

Rate of successful run-ups

Making record of train or competition

Better have more datas



## Evaluation of the training

Do it everyday, week, month, phase etc.

It is important as it helps to know how to continue

What are the key problems needed to be solved



## Prevention of the injuries

Knee, ankle, lower back are the areas which being injured easily

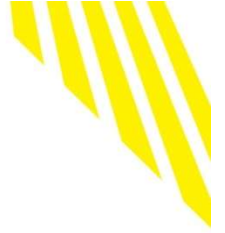
Warm-up and cool down

Stretching

Strengthening relevant muscles

No consecutive same training load (enough recovery)

No too much jumping on hard surface



**Thank you for your  
attention ! ! !**

**Questions!**

