

## EXPLOSIVE ADVANTAGE & THE POLYNESIAN 'WELCOMING COMMITTEE' - PART 2 BY MARK CALVERLEY.

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*Part 1 appeared in last week's Technical Journal.*

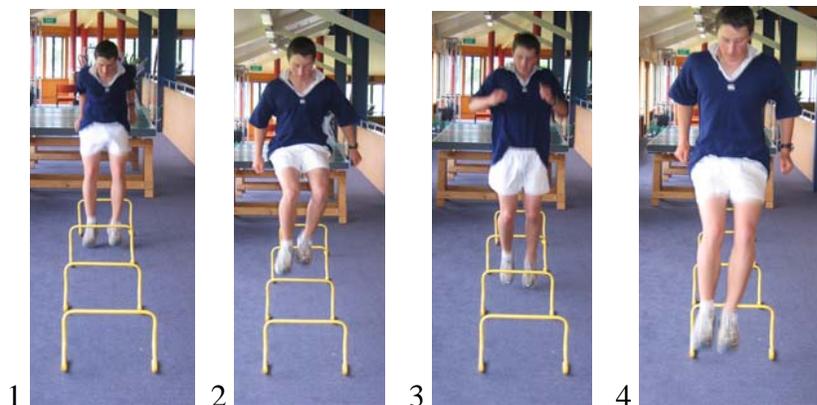
### GYMNASIUM EXERCISES.

- **Plyometrics**

The essential factors with all leg plyometrics are:

- Choose a forgiving surface (sprung floor, grass etc).
- Only do a few at a time
- Minimise contact time with the floor when landing. This means lightning-fast responses to landing and getting off the ground as fast and as soon as possible.

#### **Straight line hops:**

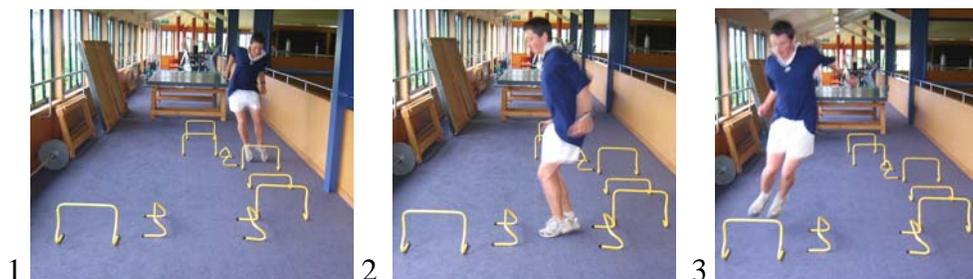


These certainly help to develop fast reaction time and dynamic, immediate movements. Use the arms to help you.

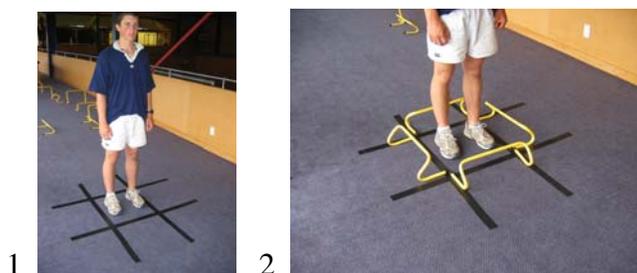
### Multi directional plyometrics:

These demand exactly the same guidelines as for ordinary plyometrics, but the changing directions aid the agility and balance required in rugby.

### Agility hops:



### Noughts & Crosses hops:



There are endless variations with this exercise, but it works on the same principle as multi-directional agility plyometrics shown above.

Possible movements for picture 1 can include:

- Jump from the centre spot forward then straight back. Then move one square on, clockwise and back to the centre square again. Carry this on until all outside squares have been jumped into. The exercise can be timed if required.
- Squares can be numbered and a partner shouts out a sequence that has to be followed as quickly as possible.
- Jumps can be single leg or double or a mixture.
- Jumps can involve twists to benefit agility too
- The hurdles in picture 2 can increase the difficulty of the exercise by ensuring quality and height of jump.

### Plyometric Single Leg Jumps (Single or Multiple Jumps)



Drive up off the ground with the lead leg. Use the back leg to assist by pushing off the bench too. Individual jumps can be done, but multiple jumps with minimal foot-to-floor contact time and maximum height are excellent power builders over 3-12 jumps.

Switch legs and repeat.

### Other exercises:

- Crash mat running (on the spot at sprint speed 3-8 seconds) or join 3-4 mats together and sprint the length of the mats at full pace.
- Box jumps and/or box jumps into short sprints (up to 10m).
- Dynamic one leg squat jumps.

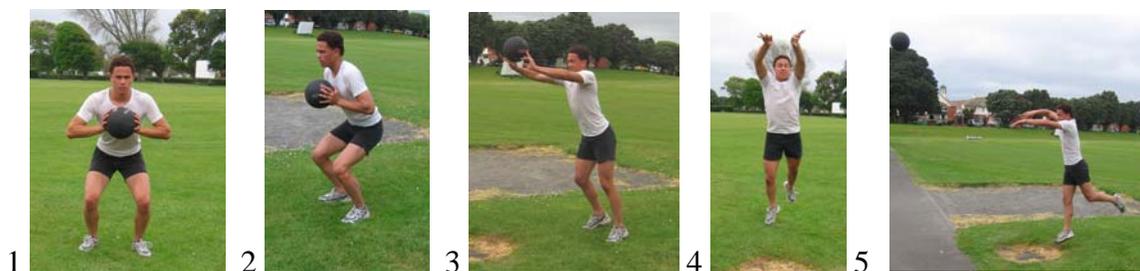
- **Medicine ball exercises**

### Dynamic Leg & Abdominal Drives:



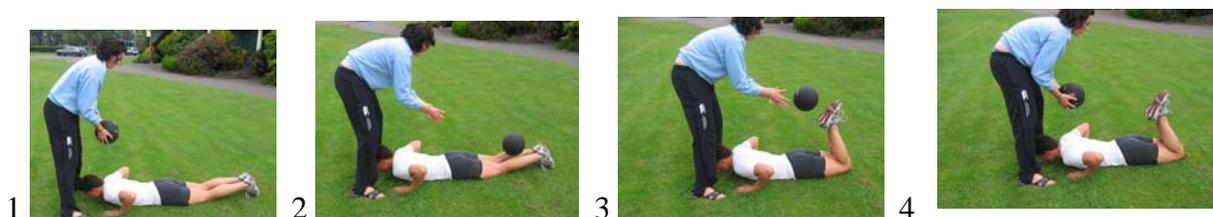
Apparently this is an old favourite of Scott Gibbs, who was not too shabby in the power department! Start with a medicine ball (3-5kg) firmly placed between the ankles. Explode upwards and drive the ball up as high as you can and slightly forward. This requires dynamic and explosive leg drive combined with strong abdominal muscles.

### Medi-ball Chest Press:



Good for developing a strong fend/hand off, but also a quick powerful leg-snap too. Do it against a wall or on to a slope to avoid having to fetch the ball back!

### Dynamic hamstring curls:



It is important not to concentrate solely on the quadriceps at the front of the legs, so this exercise helps get co-ordinated explosive hamstring power. Here a 3kg medicine ball is used.

- **Bounding**



An excellent activity for developing balance, core strength and leg drive. Note how the player has his toe raised in picture 2 (lead leg) and is not dropping it. This really helps increase his leg drive and stride length and is vital for sprint speed and power development.

Bounding can be done with a jogging lead in, into a short sprint at the end on flat ground or a hill.

- **Resistance Work**

**Weighted sled:** A specifically designed sled or an old tyre can be used, attached by a rope to a belt. If you do not have either, simply have a partner pull you back and add some resistance. The resistance/weight should not be so heavy that correct running form is affected or that explosiveness cannot be achieved.

Keep sprints to around 3-7 seconds. Do 3-5 resisted sprints followed by 1-3 non-resisted sprints. Initially you may lose balance, or even fall over, on the non-resisted sprints as your body's muscle nerve endings are fired up. In a short time, though, the body will adapt and the nerves, muscles and brain will co-ordinate in a more explosive performance. Always allow recovery between sprints. *Quality, not quantity!*



**'Dead Body' Drag:** Done on flat ground or uphill. This exercise will help increase leg drive and whole body strength. Use a partner who is lying on his back and maintaining a flat, stiff body; drag him backwards up hill or on flat ground. Work duration should be explosive and around 3-8 seconds. (The 'dead body' partner is also getting an excellent core exercise work out).

### **NATURAL ENVIRONMENT EXERCISES.**

It may be that your players don't have ready access to a weights room or gymnasium, or that some of the training takes place on holiday. No matter, the natural environment provides a wide range of options too.

Maintain the emphasis on quality not quantity. Don't turn these exercises into lactic acid tolerance tests (yet) but remain focussed on performing at 100% intensity all the time.

- **Short Hill Sprints**

Uphill sprints can be on varying gradients, but the higher the gradient, the shorter the sprint. For initial explosive power, try to keep maximal sprint work to no more than 5 second bursts of intensity.

Downhill sprints can also be performed to increase maximum leg speed and overall speed, but care should be taken to maintain safety. Again, short sprints are ideal.

- **Hill Bounding**

Again, short distances and varying gradients can/should be used. Emphasise the need for minimal ground contact time (like plyometrics) and co-ordinated, explosive, whole body movement. I would recommend an acceleration run-in of around 10m before the bounding starts and encourage the athlete to maintain momentum.

- **Hill Hopping (lateral momentum and vertical momentum exercises)**

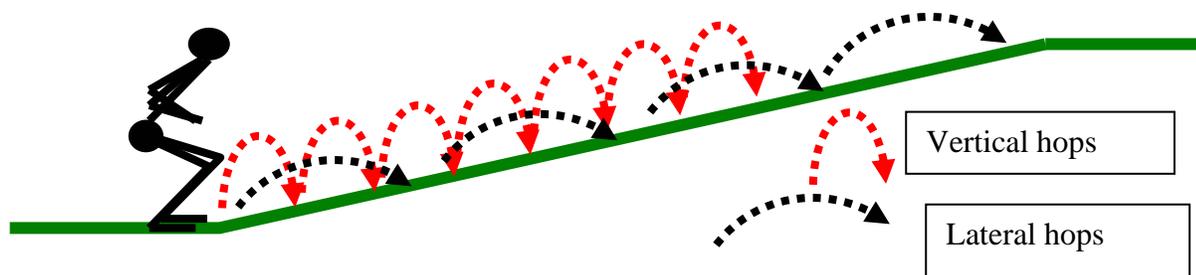
Like hill bounding, minimal foot to ground contact time must be emphasised. Essentially, I have included two separate exercises here, but they could be joined together for an elite performer.

**Lateral** – Fast explosive hops, leaning **forward**, up the hill, eating up the ground trying to **get over** the hill as fast as possible.

**Vertical** – Fast explosive **upward** hops trying to **look over** the hill as often and long as possible. As the athlete works further up the hill, emphasis needs to be placed on maintaining jump height and minimal ground contact time. A fall off in quality may mean that the whole hill is not (initially) completed. If quality drops, the player stops!

Both exercises require explosive and dynamic co-ordination of all body movements. (Force summation.)

Don't allow the player to sink too low when landing. Maintain the optimum rugby leg drive angle between hamstring and calf of about 80-90 degrees. Sinking lower than this will increase the foot to ground contact time and the player will feel as if he is jumping in treacle!





- **Downhill Lunges**

Done in isolation, or in conjunction with the uphill work, these should be slow and controlled, aimed at developing the strength needed to complete the speed work more effectively.



- **Sand Dune Training**

This is hard work and is excellent training for aerobic endurance, anaerobic endurance and for anaerobic explosive power utilising the body's immediate energy power source of creatine phosphate. (ATP-PC system.)

Any combination of the above exercises can be done. Care should be exercised as the dry, energy-absorbing qualities of (dry) sand will make these exercises much harder to perform and quality will be difficult to maintain. Therefore, shorter distances and/or exertion times should be used.

### **CONCLUSION.**

What has been included here is not the definitive 'how to do it' guide, but a resource to get you or your players going. There are plenty of other exercises and methods that can be equally effective in achieving the desired results, but this is a selection of tried and tested methods that can and will work in developing more explosive power.

I have not sought to include anything on testing, but below are some useful links that can help. Proof, hopefully, will be felt and shown by players in their on-field performance and effectiveness.

This article is also only dealing with one aspect of training and care and planning needs to be shown by integrating it into a programme that looks at other fitness needs for rugby and the position, size or make-up of each individual player.

Please feel free to share your thoughts and experiences with me on this or other issues at [mcalverley@collegiate.school.nz](mailto:mcalverley@collegiate.school.nz).

### **REFERENCES & RECOMMENDED READING.**

Sport Speed – Dintiman, Ward, Tellez. (Human Kinetics) ISBN 0-8811-607-2  
Smart Training for Rugby – McKenzie, Hodge, Sleivert (Reed (NZ)) ISBN 0-7900-0721-5  
Complete Conditioning for Rugby – Luger, Pook (Human Kinetics) ISBN 0-7360-5210-0  
Training for Speed, Agility & Quickness – Brown, Ferrigno, Santana ISBN – 0-7360-0239-1

### **USEFUL WEB SITES ON POWER TRAINING & FITNESS.**

[www.brianmac.demon.co.uk](http://www.brianmac.demon.co.uk) – Complete and thorough site with endless areas of expertise and associated links.  
[www.topendsports.com](http://www.topendsports.com) – Good sports web site for general and specific training info/fitness testing.  
[www.pponline.co.uk](http://www.pponline.co.uk) – Peak Performance website (subscription required for many articles). PP is always sending out offers and new information, but it is a well written and high quality resource with rugby-specific links.  
[www.saqinternational.com](http://www.saqinternational.com) – Various speed/power/agility resources (including books, courses, video/DVD etc.).