

# **EXPLOSIVE ADVANTAGE & THE POLYNESIAN 'WELCOMING COMMITTEE' BY MARK CALVERLEY.**

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In the land of the 'long white cloud', I have, as I slow down even more, been increasingly frequently on the receiving end of the Maori and Polynesian 'welcome committee' - namely the shuddering and explosive tackle or being trampled over like some hapless cartoon character! I can safely say it's not enjoyable and it gives a huge psychological, territorial and possession advantage to the team that offers the 'welcome'. It's time, I suppose, to retire – again!

People here often say '*its part of their culture*' or '*it's in their genes,*' both of which may be true. People also, quite wrongly, say '*it's because they're big.*' Yes, certainly, some are very big, but even the 'littlies' seem to have '*it.*' The '*it*' in question is explosive power combined with excellent timing and efficient body positions. The aggressive and explosive element of the game is so important to players from these ethnicities that they learn it and celebrate it very early on - and boy, do they like to practise it!

So where does the slow white player fit into this? Can we compete or are we just cannon fodder? This is not really a race issue, but an issue for every player of every position to try to increase and improve his explosiveness in contact and evasion skills.

In very simplified terms we are essentially made up of three muscle types:

- *Fast twitch fibres* ('explosive' in nature – energy fed by stores in the muscles and liver - but very short lasting before fatigue sets in).
- *Slow twitch fibres* (aerobic – energy fed by oxygen – and moderate to long-lasting before fatigue sets in).
- *Group 3 fibres* that lay somewhere in between the other two (physiologically they are known as Type IIa muscles). They are the scrum-halves of the physiological world as they are unsure whether they are a forward or back, but are open to persuasion/training and will adapt to the best and most common influence!

Specific explosive training will not only fine tune and improve the existing fast twitch fibres, but will also co-opt some of the group 3 fibres to adopt fast twitch tendencies. Therefore, *what* type of training that we do and *when* you do it in relation to the season, will have a direct effect on *how* the body adapts and improves. What follows later is essentially a programme of weights based, gymnasium based and natural resources exercises and drills to encourage and measure improvement.

Before the drills are explained, players and coaches need to understand the good news and the bad news. The good news is that any player, in any position and any of size, can improve his explosive advantage with the correct training. Some of your players, admittedly, will start out with a physiological advantage/disadvantage based on their genetic make-up, but all can improve!

The bad news? Well, gains made are only temporary and need to be maintained to be retained. Planning a programme and implementing it effectively needs to be carefully considered and periodised in relation to the off-season, pre-season and in-season needs. Players (or their coaches) should look to keep a diary of what has been done and conduct appropriate type and timed fitness tests to show improvement and progression and to aid motivation.

The biggest mistakes I see players and coaches make is to launch into a programme too late (i.e. a week before, or even during the season) and/or concentrate on it for a couple of sessions before something else becomes 'more important.' If it's important enough to do, it needs to be done every session in varying, interesting and challenging ways, sometimes with a ball, and sometimes without. Other mistakes include launching into explosive type exercises (such as plyometrics) before an adequate strength base has been established. This will result in injuries to players! Training needs to mature and develop along with the players' own understanding and development.

The length of time for implementing the programme, from the very start, is again very dependent on the physiological make up of the player undertaking the course, but realistically, a strength base should be built up in the summer (i.e. late June & July for N. Hemisphere and late December & January for S. Hemisphere.) Thereafter, the emphasis should shift towards more explosive training both in the weights room, the gymnasium and in natural environments (i.e. when away on holiday).

Remember too, that other types of training need to be addressed as the game also requires agility, skill development, high level aerobic capacity (i.e. jogging), anaerobic, explosive endurance (lactic acid tolerance, such as a two minute flat-out phase of play) and anaerobic recovery (interval training, such as repeated short burst of intense exercise).

For explosive advantage, the key to effective training must be *quality over quantity*. Don't turn this type of exercise into a test of aerobic endurance or a test of lactic acid tolerance. They can be done (nearer or in-season) but building and maintaining the base

strength and explosiveness is, initially, its own specific type of training. If done effectively, it will benefit the other types of training. For explosive advantage, allow the body time to *rest between sets*, but perform the drills, exercises at *maximal intensity, all the time, every time*.

I would strongly recommend that players and/or coaches consult a qualified gym trainer or PE teacher to work out a suitable, individually tailored and periodised programme of development initially over 12-18 weeks, but *it has to start not less than two months prior to the first game of the season*.

What follows is a series of drills and exercises that can be done **after** a basic weight training course of 4-6 weeks (2-4 times per week) has been undertaken to build a strength base. The better your initial strength base and the amount of existing strength training that is currently being done, the less time can be spent on this phase. I would, however, recommend a lead-in period of at least 2 weeks even for those with a good base, so that fine-tuning and specific needs can be addressed.

### **WEIGHTS ROOM EXERCISES.**

These need to be done safely, technically correctly and with help/spotting where required. Rest and recovery time needs to be included to maintain quality. The exercises shown are examples of those movements that are commonplace in rugby and that utilise the main specific muscles. The players pictured are mostly U18 and, as such, are still learning about some aspects of technique. For the purpose of staging the pictures, lighter than normal weights have been used.

The key difference here, when compared to the basic weights programme, is that *exercises are done as explosively as the weight attempted will allow, but always safely, with correct form and technique*. Reps and sets will vary depending on the player, but a rough guide would be 3-10 reps and 3-5 sets for beginners to intermediate players and 1-5 reps and 4-8 sets for advanced players. Beginners/intermediates should work with weights at about 60-70% of their 1 repetition maximum (i.e. the heaviest weight they could lift only once). More advanced athletes should work at between 70-100% of their 1 repetition maximum.

The biggest mistake that I see with players in the gym (who are training for power) is they move the weight too slowly and concentrate on quantity of reps rather than the quality. Build your strength base, control and understanding like this initially, but then get fast and explosive with the movements.

Power is a combination of strength and speed. For players wanting to work more on the strength side of their power, they should work at the higher weight end and lower repetition end of their appropriate schedule. For players wanting to concentrate more on the speed aspect of their power, they should work at the lower weight end but increase

the reps appropriate to their schedule. Whatever your aim, try to move the weight explosively and as fast as possible, but always maintain good technique and control.

Specific core training and strengthening needs to be done too, but has not been included in these exercises. Swiss ball exercises, bar twists and medicine ball drills are all excellent methods of improvement.

(Each exercise is graded A-C in terms of difficulty. A = easy, B = medium C = advanced)

### General exercises:

- **The Prone Pull Up (A)**



Tighten stomach and pull belly button back to the spine. Explode upwards towards the bar fast but with control. Lower slowly over 3-5 seconds.

- **The Long Arm Pull Up (B)**



Tighten stomach and pull belly button back to the spine. Explode upwards towards the bar fast but with control. Lower slowly over 3-5 seconds.

- **Bench Press (B)**



Explode the bar upwards fast but with control. Pull in tummy button towards the spine before pressing to tighten the core too. Lower slowly 3-5 secs.

- **Leg Press (B)**



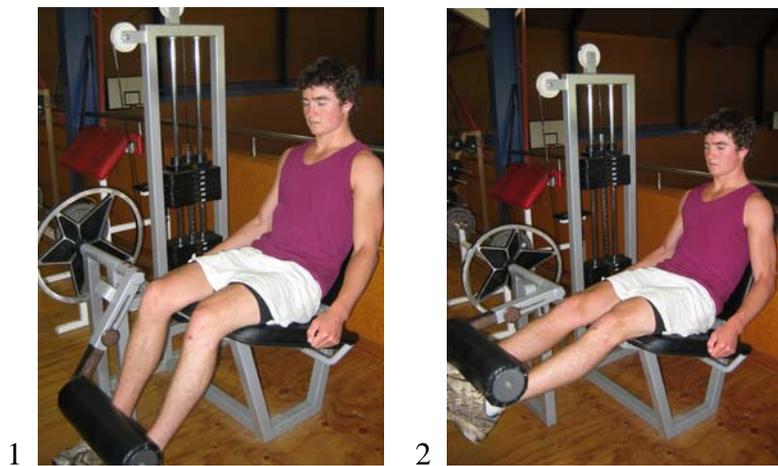
Lower the weight slowly (3-5 secs) then explode upwards. Weight can be lowered only as far as picture 2 for more realistic scrum, tackle, ruck or maul leg drive.

- **Shoulder Press (A)**



Explode forwards under control and return slowly over 3-5 secs.

- **Leg Curl (A)**



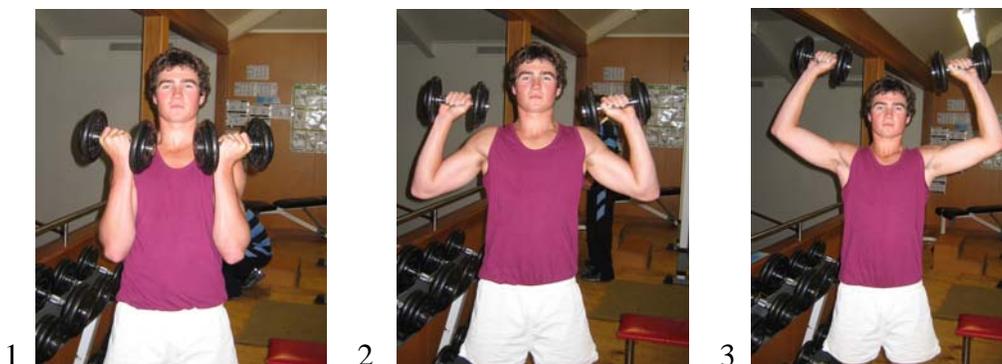
Drive legs up quickly and very explosively (the foot cushion should leave the foot due to the force). Return slowly (3-5 secs) and repeat. These could/should also be done with single leg explosions (at a lighter weight).

- **Hamstring Curl (B)**

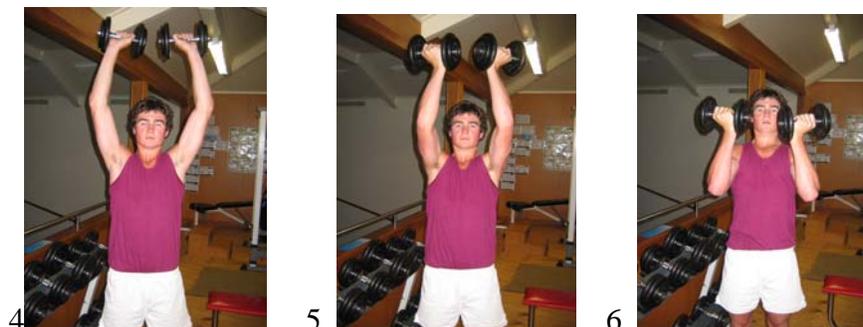


Explode the leg upwards towards the backside. When done with enough force, the heel pad should leave the heel due to that force. Be careful not to do this too hard or heavy as injury and/or cramp can quickly and easily occur. Single leg explosions can/should also be done (at a lighter weight).

- **Arnie's Deltoid Drill (B)**



Start with knuckles out (1) turn knuckles in (2) then drive the weights up, out and round, very quickly (3-4).



Twist hands to bring the knuckles facing outwards again and lower slowly. This is an excellent deltoid exercise that covers all 3 parts of the group of muscles that make up the deltoids.

### Olympic type lifts:

- **Single Leg Squat (C)**



Rest the free leg on a bench (1). Squat down in control (2) to no more than a 90 degree leg angle (3) in a slow, controlled manner. Return to start position with a quick, explosive (but controlled) leg drive. Keep the foot, the ankle and the knee in a safe vertical line with each other to assist balance and power.

- **Double Leg Squat (C)**



This is done at a controlled, slow speed going down, but the player should snap the legs upwards in an explosive manner. If the weight is heavy, the player will remain in contact with the ground. If the weight is lighter the player may end up driving on to his tip-toes momentarily, or even jumping slightly off the floor. Care should be taken on landing and a bar pad may be necessary (for the backs!).

Do not squat past a leg angle of 80-90 degrees. This represents the most efficient angle for leg drive power and distance and would be replicated in good, efficient scrum, ruck, maul and/or tackle drive situations. Too shallow an angle and less power is generated because of a reduced acceleration distance. Too great an angle and the initial explosive movement is not fast enough as the leg is in a weaker position for power creation.

Less experienced players should be encouraged to keep feet facing directly forward at shoulder width apart (pic 3). Feet splayed a little and knees facing outwards (pic 2) will

reduce the power, but work the inner thighs more than the fronts of the upper legs. Avoid changing foot placement during exercise (as this player has done!).

Always *maintain heel contact with the floor* to lessen the pressure on the Achilles Tendon and to maintain good form. *Hips should be tilted and backside pushes DOWN AND BACK*. Keep the *chin up* and always *look parallel to the ground and not down*. This helps maintain a good, strong, flat lower body shape.

Arms should be far enough apart to:- i) be *comfortable*, ii) *support the bar* at all times, iii) allow the lifter to *draw the shoulder blades together* to create a *strong flat upper back* shape.

- **Lunge (B)**



Maintain the back shape as for the double leg squat and also keep looking forward parallel to the ground and not down. This helps maintain good lower back shape. For the forward stepping leg, keep the heel in contact with the ground at all times. Replicate the ideal leg drive angle (80-90 degrees). Step forward in a controlled but slow manner. Hold for a second or two then drive the leg backwards to the starting position. Repeat and then change stepping leg.

The double leg squat and the lunge can be linked together if required so that the player performs a squat immediately followed by a lunge.

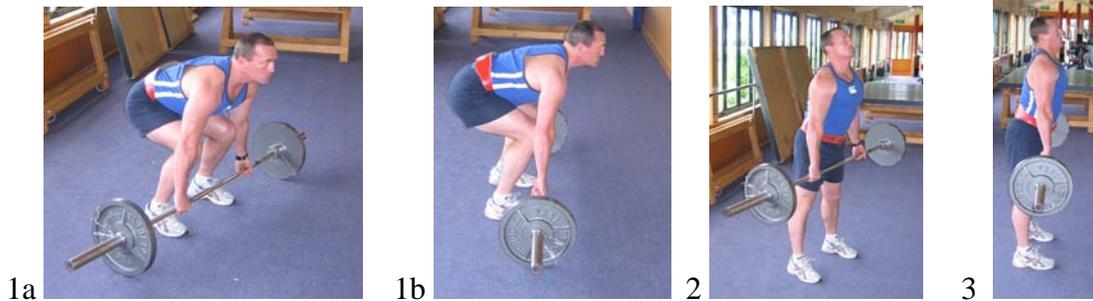
- **Upright Row (B)**



Feet shoulder width apart. Hips should be tilted and backside pointing down and back (say 45 degrees). Lower back needs to be strong and flat. Pull core muscles in to help aid strength. Chin should be up and vision remains parallel to the floor to maintain a strong upper back shape.

Explode the bar up towards the sternum quickly, safely and in a controlled manner. Return the bar slowly and repeat.

- **Deadlift (C)**

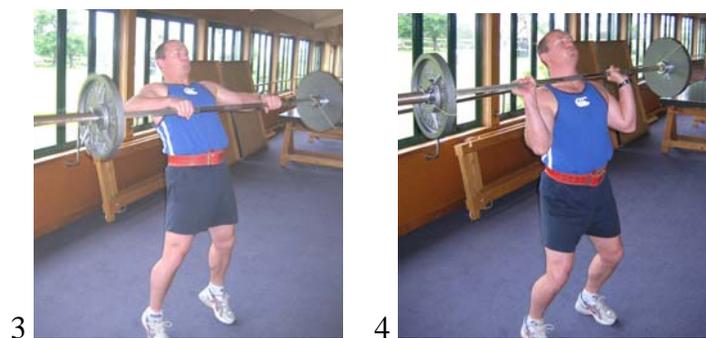


Head up, chin forward and hips tilted to present a strong upper and lower back shape. Conventional or alternate grip (shown here) can be used. Power comes from a sharp, explosive leg drive. Maintain vision parallel with the floor. Maintain the vision and back shape on the slow, controlled return – this is when most accidents occur as people relax and lose their power shape.

- **The Power Clean (C)**



The same starting position should be used as for the deadlift, but adopt a conventional grip. The upward movement needs to be controlled but very explosive. The power comes through the legs initially (pictures 1-2).



The momentum generated through the explosive leg drive is then transferred through the trunk and arms to maintain bar momentum (picture 3). Once the bar is at upper chest/deltoid height, quickly drop the elbows below the bar and catch the weight. The legs absorb the weight pressing down and act as shock absorbers. The return should be controlled and slow. Lower the bar to the thighs as in picture 2 and then to the return position in picture 1. Remember to maintain the power body shape on the return as well as the upward phase.

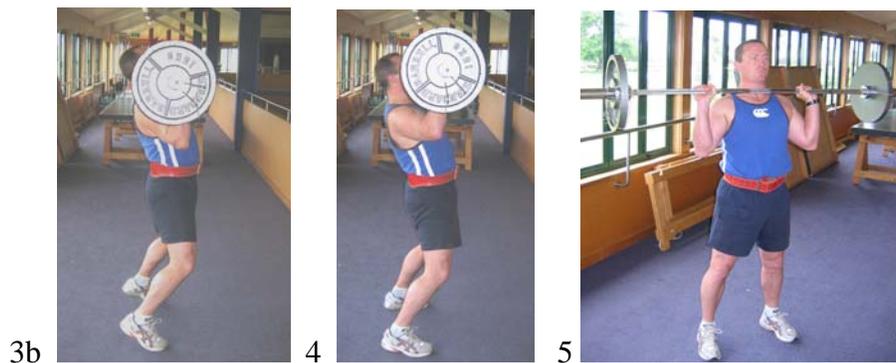
- **The Shoulder Press (C)**

This is easily added on to the cleans and is effective when 3-5 explosive shoulder presses are completed. Some leg sink and drive is also effective so that there is co-ordinated and efficient transfer of energy through the whole body (force summation/power transfer).

- **The Hang Clean (C)**



Raise the bar to the start position (picture 1) and maintain a strong body shape with hips tilted, upper and lower back flat but with a slight concave shape in the small of the back. This is an excellent scrum, ruck, maul and contact body shape that leads to effective and efficient transfer of power. Again, keep looking forward on the horizontal, parallel with the floor. Less initial power can be generated here when compared to the power clean. Initial drive comes from the hips pushing forward dynamically (picture 1b-2), immediately followed by the upward drive of the legs (picture 3). Thereafter, the trunk and arms seek to maintain the bar's momentum (picture 2-3a).



Once the bar is at upper chest height/deltoid height, tuck the elbows directly and vertically under the bar. The legs act as shock absorbers (pictures 3b-4). Return the bar slowly and safely to the thighs and then to the floor as in the power clean.

- **The Hang Snatch**



Raise the bar to the start position (picture 1a-1b) and maintain a strong body shape. (Hips tilted, upper and lower back flat but a slight concave shape in the small of the back). This is an excellent scrum, ruck, maul and contact body shape that leads to effective and efficient transfer of power. Again, keep looking forward on the horizontal, parallel with the floor. Less initial power can be generated here when compared to the power clean. Initial drive comes from the hips pushing forward dynamically (picture 1b-2), immediately followed by the upward drive of the legs (picture 3). Thereafter, the trunk and arms seek to maintain the bar's momentum (picture 2-3a).



This exercise is very similar to the hang clean, but the difference comes in pictures 3 and 4. Because the bar goes beyond shoulder level and directly into a long/straight arm finish, more power has to be generated through the entire body to complete the exercise. A lower weight, or fewer reps, may be required for this exercise when compared to the hang clean.

- **The Power Snatch (C)**



This really is an explosive, short duration movement. Speed of bar travel needs to be achieved in the initial drive if the movement is to be completed. The bar needs to travel on a vertical plane throughout and there needs to be co-ordinated and controlled movement of all body parts over a solid base throughout.

The bar grip is slightly wider than normal and should ideally be the length of your outstretched arm plus your shoulder width. In effect it is an A frame shape, wider than the other lifts.

*The second part of this article, dealing with gymnasium exercises, will appear in next week's Technical Journal.*

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

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 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  
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[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.).