

RESISTANCE TRAINING

**Effective ways to enhance
power in your fight game**

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Traditionally in combative sports, the implementation of resistance training or weight training has been perceived to be detrimental to fighter performance. These views have often held the belief it will increase lean muscle mass, decrease contractile properties of the musculature (heavy and slow), cause premature fatigue, hinder technique execution due to isolative movements (i.e. bicep curls), or lack specificity to combative sports. If implemented correctly, the benefits of resistance training can far outweigh the limitations and can assist fighters to become better-rounded athletes.

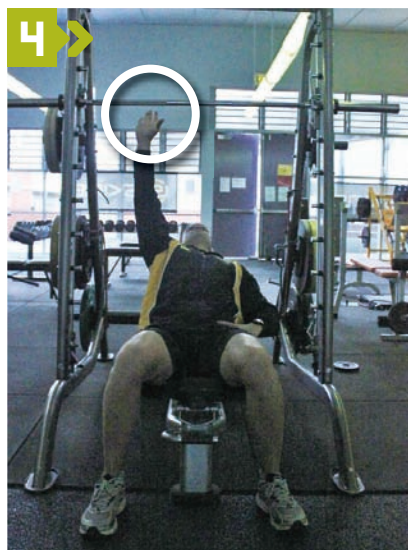
In regards to weight gain, traditional bodybuilding programs will increase muscle fibre size. This facilitates lean muscle growth leading to unnecessary bulk. A traditional bodybuilding program will incorporate a moderate to heavy lifting load and include several exercises per muscle group, a large quantity of sets, a moderate repetition range (8-12), limited recovery periods between sets, and involve a slow speed of execution (tempo) that accentuates the lowering phase of the lift, promoting muscular fatigue. This disrupts a homeostatic environment and promotes tissue breakdown, which is responsible for the muscles trying to rebuild themselves. In many contact sports where weight isn't an issue this can be beneficial, however, in weight restricted sports this can prove detrimental to any fighter's preparation.

To ensure this doesn't occur, a fighter's objective is to target the neuromuscular system. In order to achieve this, a lighter load should be lifted of 30-60 per cent of your maximum. Select a fewer quantity of exercises involving a variety of joints/whole body movements, complete less repetitions (1-8), provide longer rest (2-5 minutes) between sets, and ensure each exercise is executed at a faster velocity.

Targeting the neuromuscular system will firstly enhance the speed of signals provided by the nervous system (efferent impulses) causing the muscles to respond faster than in an untrained state. Secondly, it will optimise the contractile properties of

SINGLE-ARM BENCH ROW

The objective of these exercises is to achieve maximal velocity with each repetition, whilst implementing a release point, for point of impact. The aim is to replicate a cross or jab, depending if you're an orthodox or southpaw fighter.



SINGLE-LEG PRESS



fast twitch muscle fibres responsible for rapid movement. By performing exercises in an explosive manner with a lighter resistance it will encourage both neural and muscle activation to be optimised and thus enhance power output.

Premature fatigue is often caused in many fighters who participate in resistance training of a body building nature due to the increase in muscle fibre size and implications on its aerobic capability. As a fighter's aerobic capacity is increased, so too is the efficiency of the muscles to support it. By participating in a bodybuilding style program, this will limit aerobic gains achieved by the individual through combative training, and cause premature fatigue during a bout. By completing fewer repetitions in an explosive manner, the influence of fatigue is limited and speed of execution emphasised.

Many bodybuilding programs often use restrictive equipment (universal/machine weights), and are isolative in nature (single out a particular muscle group i.e. bicep curls). This often results in failed attempts to successfully execute the correct technique due to a lack of flexibility or interaction between several joints. To successfully overcome this and enhance your power, output movements should (where possible) be completed in an unrestrictive environment (i.e. free weights), throughout a variety of planes.

Finally, specificity is imperative for improvement in performance across any sport. If the trained movements/muscle groups/or energy systems aren't likely to relate to those within a sport, a positive transfer effect is unlikely to occur. Movements should involve a variety of muscles/joints and encourage the speed of execution, particularly throughout the final stages of execution. This will also eliminate the impact of a deceleration phase. Because many traditional resistance-training exercises rely on a deceleration phase at the end of the repetition execution (i.e. bench press), a release point should be considered (i.e. bench throw). This will ensure a greater transfer effect is likely to occur at the point of impact in combative sports.

Bodybuilding style programs may have benefits for those competing in heavier weight categories in a general preparation phase (or between fights) to maintain a heavier weight. However, this weight gain should be positively transferred as training commences in preparation for a bout to ensure power is optimized during the specific preparation phase (traditional pad work/sparring) and more importantly the bout itself.

Remember, training for power is only one of many fitness parameters that should be placed in a fighter's preparation. By combining this with a variety of other training modalities, it will assist in producing a more rounded athlete.

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PROFILE

Nathan Parnham is a Strength and Conditioning Specialist who has achieved success across a variety of sporting disciplines at both amateur and professional levels. He boasts undergraduate and post-graduate qualifications in Exercise Science and Strength and Conditioning. Nathan has been a guest physiologist on the Fox 8 boxing series *Contender*, is currently the Strength and Conditioning Coordinator for Westfields Sports High (winner of the International Olympic Committees Sport and Youth Trophy), and is a Strength and Conditioning Coach for the Balmain-Ryde Eastwood Tigers NSW Cup Rugby League team. Nathan has been practicing the art of Muay Thai for the last 12 years, and has had an active involvement in guiding the high-performance component in the newly established PTJ Muay Thai gym based in Sydney. **IK**