

PRODUCT INFORMATION

TR3 (TOTAL RECOVERY - PHASE 3)

POST-WORKOUT FORMULA

BASIC FUNCTIONS

Muscle Recovery, Anabolic Drive, Glycogen Replenishment, Reduced Inflammation

Evidence based view on key post-workout nutrients

By Dane Ivcevic: Dip, B.Sc, GCert, GDip

Nutritionist, Exercise Scientist and Clinical Biochemist



For many, maximizing the post workout window is a topic that is still very misunderstood as there is a lot of misconceptions circulating surrounding this simple but crucial phase of training. If you asked athletes and bodybuilders what the best post workout approach is, you would find that the majority still believe it's purely protein and maybe a few scoops of Branch Chained Amino Acid's (BCAA). However, this is yet again just a few pieces to a much larger puzzle and for anyone serious about achieving the most out of their training then every piece counts. The following article debunks these misconceptions and provides an evidence based review of the ingredients within one of the leading post workout products on the market, TR3 by GEN-TEC NUTRITION.

Choosing the correct source of protein and carbohydrates post workout is a crucial decision if training individuals are looking to maximise their anabolic profile. Therefore understanding what types of nutrients and why is imperative to perfecting an anabolic drive post training. Focusing firstly on protein, we find that there are various types of protein sources on the market today, from whey protein to rice and even pea protein. However, when it comes to a protein that contains the perfect amino acid profile with the highest digestibility rating, you can't go past a whey protein source. Whey protein (WP) comes in a few forms which are whey protein concentrate (WPC), whey protein isolate(WPI) and hydrolysed whey protein (HWP)(Phillips, 2011). During the post workout phase WPI, but more so HWP, are of most interest as these proteins absorb through the intestinal lumen (wall) and reach the blood significantly faster than other protein counterparts(Claessens et al., 2009, Buckley et al., 2010). HWP is WPI that has undergone enzyme hydrolysis resulting in smaller protein fragments called peptides (di-tri peptides). These peptides have been shown to significantly increase muscle protein synthesis (MPS) by reaching the trained muscles much more rapidly whilst also exhibiting a strong anti-catabolic affect when combined with BCAA(Dreyer et al., 2008).In addition, HWP demonstrates a strong capability to work with carbohydrates to stimulate anabolic hormones, therefore creating an optimal anabolic environment for the muscle-remodelling phase (repair and growth)(Buckley et al., 2010, Claessens et al., 2009).

Moreover, after exercise the body undergoes biochemical and cellular changes that are simply referred to as the "post workout window". This window is a 1-2-hour timeframe where the body has heightened potential to utilise and transport nutrients in a way that heavily dictates the results we seek(Bird,



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2010). During this time the body experiences a heightened ability to respond to certain nutrients which significantly up regulates nutrient transporters (takes nutrients to the muscles), boost metabolism and alter metabolic pathways to focus primarily on those muscles and tissues that were recently trained. Overall there is a dramatic potential to induce a huge anabolic drive and level of MPS. How this is done involves the nutrients contained within TR3, as TR3 contains not only fast releasing di and tri-peptides but also a carbohydrate blend that works synergistically to create an anabolic drive by stimulating insulin, which further stimulates various growth hormones whilst suppressing the inevitable rise in catabolic (breaking down) hormones like glucocorticoids (Betts et al., 2013, Poole et al., 2010, Deakin, 2010). A study by Schumm et al., (2008) demonstrated that the consumption of CHO post workout significantly increased androgen receptors (hormone receptors) and testosterone uptake by the muscle cells. Another study reported that the ingestion of CHO and protein reduced markers of muscle breakdown and increased MPS in healthy resistance trained subjects (Samadi et al., 2012).

Research also show that different types of carbohydrates have different effects on absorption rates and physiological responses, therefore consuming the correct blend of CHO is crucial to maximising an anabolic drive and nutrient delivery post training. A CHO blend consisting of oligosaccharides like maltodextrin, a high glycemic index (GI) CHO like dextrose and a low GI CHO like fructose would be most effective as the low GI CHO provides sustained glycogen replenishment whilst the other types are maximising your anabolic profile and rapidly increasing MPS (Wallis et al., 2008, Deakin, 2010, Schumm et al., 2008). The TR3 product contains 85% maltodextrin, 10% fructose and 5% dextrose with added chromium picolinate to improve insulin sensitivity which basically assists by cleaning the insulin receptor sites so the CHO blend can work more effectively, thus increasing anabolism (Di Luigi, 2008). Added arginine precursors and L-lysine also increase the anabolic highway capacity by inducing vasodilatation (larger diameter blood vessels) and thus increasing the rate of nutrient delivery (Collier et al., 2005). In addition to the anabolic effects, co-ingestion with protein and CHO have been strongly proven to mitigate some of the immunosuppressive effects that occurs from hard training (lower risk of infection), especially when combined with glutamine, zinc and vitamin C which TR3 also has (Deakin, 2010, Bird et al., 2006, Street et al., 2011).

Furthermore, TR3 contains an ingredient called bromelain that has recently received some very convincing evidence for its beneficial effects on joints and inflammation. Bromelain is a proteolytic enzyme derived from pineapple skin that has been shown to reduce local inflammation, alleviate arthritic pain and reduced muscle soreness from heavy resistance training (Miller et al., 2004, Walker et al., 2002). Its relevance for athletes is its effect on recovery and its effect on inflammation. During exercise we induce micro tears that initiate the first stage of the muscle-remodelling process. From this point forward athletes can experience varying degrees of muscle soreness in the coming days, called delayed onset muscle soreness (DOMS) which is thought to be a result of the mechanical micro tears induced by exercise and the inflammation aftermath that possibly inflicts DOMS and heightens a cortisol response (Buford et al., 2009, Miller et al., 2004). Strength is significantly affected by muscle inflammation,

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hence reducing the severity of this processes will improve recovery, reduce injury risk, reduce inflammation and ultimately increase muscle strength. Bromelain acts to reduce local muscle inflammation via many complex immunological processes but one of high importance is its ability to remove the inflammation receptors near the muscles that want to accept inflammatory cells (leukocytes) (Secor et al., 2009, Buford et al., 2009). It accelerates muscle recovery by reducing inflammation and supports the maintenance of strength (Buford et al., 2009, Miller et al., 2004). All other abilities of bromelain can be summarised as either immunomodulating (alters inflammation function) or proteolytic (breaks down and removes inflammation) (Buford et al., 2009).

Furthermore, the addition of creatine into this mix of nutrients is vital for replenishing the phosphocreatine system (PCr) to support energy production during short intense bouts on anaerobic activity (sprints, weights etc) and also to significantly increase the muscle strength. The addition of 3-5g of creatine is proven to be an effective daily dose without placing extra strain on the body to process and excrete it (Deakin, 2010). Combining creatine with arginine, HWP and CHO blend significantly improves the amount of creatine taken up by the muscles, therefore increasing the gains in strength and energy production experienced whilst consuming the compound (Little et al., 2008).

In summary, creating a post workout anabolic drive involves more than just protein or BCAA. The combination of ingredients contained in Australia's leading post workout supplements provides all key ingredients to carry out an array of performance enhancing effects that are imperative for an athlete to reach that next level in performance. The addition of Bromelain as a sports supplement is a first in the industry and will significantly impact the success of many athletes who use it.

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