Seven Letters

Letter #5

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Note that each of the Seven Letters Will Have Its Own Table of Contents.
Letters (and Contents) Will Be Consolidated into a Book When All Seven Have Been Distributed.

RELOAD Better - Introduction

This fifth of Seven Letters addresses what I believe is the fourth piece of the vital synergy.

Synergy is the title I use to describe the foundational concept that underlies all positive physical change, the foundation of the strategy I incorporate in designing all of my programs and protocols. You already know the first three pieces of "Synergy," as they are the elements that require you to be proactive – to take specific actions.

- The Right Nutrition
- Moderate Aerobic Exercise
- A Concern for Muscle

I'll repeat these shortly, as I believe "getting the synergy concept" is a vital prerequisite to achieving thrilling physical outcomes.

Allow me to introduce yet a fourth piece of the Synergy. Recovery.

We, the committed exercisers, know the feeling of being wiped out, of avoiding the timer on the treadmill for what we believe is a significant period of time so we can look and see "only three minutes left." We know the post-exercise sweat-dripping sense of accomplishment, but we also know the challenge between balancing those exercise sessions with optimal function in our real world daily activities.

It may not cut it if you have to tell the boss you can't complete your work because your hams are sore, or if you try to get a spouse to understand why you feel a need to plop yourself face down on the couch 10 minutes after you get home.

As in all areas, we need balance, and while we understand the need for exercise, we sometimes fail to plan for the balance between activity and recovery.

For those who are not yet committed to the exercise habit, the idea of regular exercise may in and of itself be daunting, and when the first few sessions lead to undue fatigue, it's easy to throw in the proverbial towel. This towel-throwing exercise is more likely a failure to properly implement the activity / recovery balance than it is an appropriate response to an appropriate challenge.

Recovery is a key element of improvement, provided, or course, it is accompanied by sufficient exercise stimulus driving the need for downtime.

Note: you can't just "recover" and skip the exercise part. Results will be limited!

While we often think of recovery as being a state of inactivity (downtime), there are principles, actions, and ideals that can optimize fitness results, and many of these "extras" relate to creating a physiological state that ensures optimal refueling, rebuilding, and re-energizing.

There are volumes of information, some of it conflicting, on optimal recovery, and while it is a subject I and my trainers hold as one of great importance, this Letter is not about the entirety of recuperative science. It is not intended to outline exercise controls, training protocols, periodization, pain relief, or performance or recovery enhancing drugs. Each of these topics can be a letter in and of itself.

So as not to omit those topics entirely, I will provide a few general rules, most of which are common knowledge among athletes and fitness professionals, and then I'll veer off into the primary topic of this Letter – supplementation to enhance the recovery process.

My intention with these Seven Letters is to provide you with a base of knowledge. It would be unrealistic to attempt to deliver "all you need to know." My TRANSFORM program provides complete exercise and nutrition information and it includes 17 hours of audio/video supplemented by a 368-page book. That, although it provides a thorough program with a vast amount of information, still asks the exerciser to continue to learn, as "all you need to know" is voluminous.

The Seven Letters should serve simply as a resource to help you make better decisions, to serve as a guide in determining where you may need additional direction or support, and to provide you with time-tested principles that have great application.

I make these points now as in this letter I'm going to share information specific to one of my nutritional products, and I don't want anyone to believe this is anywhere near the entirety of recovery science. It's a piece. I choose to address it within the Seven Letters because I become ever-dismayed by the false beliefs consumers hold related to supplementation and its link with results. There is science to support the virtue of post-exercise supplementation, but it need not be the random swallowing of compounds you can barely pronounce. The science is extensive, but I believe this letter will simplify things so any exerciser can find usable information specific to the nutritional recovery topic.

Before I go on to describing my recovery formula and the science upon which it was built, allow me to briefly share those general rules and guidelines I promised.

General Rules and Guidelines

Overreaching / Overtraining

There is a balance between stimulus and downtime. In other words, there's a cyclical nature to optimal exercise. Much as any mammalian carnivore, we are equipped with a fuel system that allows for all out bursts of energy and another for slower, longer duration energy. The tiger hunts, finds, and kills, and then after feasting, sleeps and recovers. For the tiger it's intuitive. It's instinctive.

Perhaps for our ancestors that same instinct was tied into lifestyle.

If you walk into the grocery store, stalk your prey through the aisles, see a piece of lean meat you want, and it runs away, all out . . . gasping as it takes off down the snack foods aisle, abruptly tearing off to the right toward the bakery, and you are in full pursuit, then perhaps instinct will kick in and ask you to rest after eating the meal. For most of us, we burn as many calories hunting for food as we do strolling through a mall. If we did hunt, run, and conquer to savor our meals, we probably wouldn't need to walk on treadmills or pass time on elliptical climbers and gliders. Because 21st century exercise is primarily a synthetic planned event, the recovery must be equally planned, and for too many the idea of achieving quicker or better results leads to an imbalance, where the desire exceeds patience.

One of the simplest ways to balance training and adequate rest is to moderate the training. I know most people, fitness professionals included, initially balk when I tell them I start most of my clients with 12-minute exercise sessions, but it ensures the avoidance of effort beyond that which the body can easily recover from. I slowly increase duration, but more importantly, increase intensity with many changes in stimuli, duration of which is only one. My clients learn to avoid overtraining by identifying the early symptoms of overreaching, and with the onset of those symptoms there is a shift intended to readjust the training / downtime balance.

Overtraining, especially for athletes, is severe. It comes with mood changes, drops in motivation, irritability, insomnia, aches, pains, and reduction in performance and desire. Overtraining can take weeks to recover from, and performance and body composition may deline during the recovery time. Think of overreaching as training beyond your body's ability or willingness to recovery based on your present lifestyle. Overreaching comes with clues, and with the onset of symptoms, it's simple to back off for a day or two and prevent excess fatigue. Some of the signs include uncharacteristic fatigue, elevation in resting heart rate, a heightened sense of anxiety, headache and/or excessive yawning, and significantly increased thirst. If those symptoms show themselves, examine the exercise / downtime balance, take a day or two off from exercise, and pay more attention to recovery.

In the previous letter I shared my Functional Six Exercise Routine. Two circuits through the six movements, 30-seconds of activity at a comfortable pace staggered with 15-seconds of active downtime should be enough of a stimulus to facilitate positive change, without taxing the body beyond its ability to adequately recover. As long as you progress without the onset of any of the symptoms I mentioned, you will find the outcome rewarding.

Pre-workout fueling

Two common questions every fitness professional faces related to nutrition are "what is the best thing to eat before exercise," and the common-sense follow up, "what's best after?"

The "after" part is easier to answer, as the research specific to addressing post-exercise recovery is more conclusive than the variations of research addressing "pre." There are far too many variables to determine a general "what is best pre-exercise" suggestion. What is important, however, is that adequate glycogen is available, stored in muscles and in the liver. The meal immediately post-exercise is less of a factor in determining glycogen storage than the meals in the 24 – 48 hour period prior. Interestingly, the post-exercise opportunity you face today can leave you better fueled for tomorrow's workout and may be more important than what you eat in the hours before exercise.

There have been many studies related to endurance and performance in distance athletes, and while a consensus seems to be that carbohydrate availability is vital, volume of carbohydrate tends to be a greater factor than type of carbohydrate in many of the studies. Other studies have inferred that a meal 2.5 – 3 hour before exercise or an event containing some protein and significant carbohydrate enhances performance and recovery.

The vital factors are adequate glycogen and adequate hydration. A complete low-fat meal containing adequate protein and a mix of starch and fibrous carbohydrate seems to work well for most exercisers if consumed 90-minutes before an exercise session.

Some endurance athletes find benefit sipping a dilute glucose drink beginning at the beginning of their exercise session. If you prefer to scan the science and draw your own conclusions, here are a few studies you might reference as a starting point:

> Effect of preexercise meals with different glycemic indices and loads on metabolic responses and endurance running. [Int J Sport Nutr Exerc Metab. 2008]
>
> The effect of a pre-exercise carbohydrate meal on immune responses to an endurance performance run. [Br J Nutr. 2008]
>
> Influence of high and low glycemic index meals on endurance running capacity. [Med Sci Sports Exerc. 1999]
>
> Effect of frequency of carbohydrate feedings on recovery and subsequent endurance run. [Med Sci Sports Exerc. 2004]
>
> The effect of high carbohydrate meals with different glycemic indices on recovery of performance during prolonged intermittent high-intensity shuttle running. [Int J Sport Nutr Exerc Metab. 2006]

I suspect, if you explore the available research, you'll draw similar conclusions to those I just outlined. Eat supportive meals frequently, optimize the post-exercise opportunity, and what to eat "before" will become less of a factor.

Periodization

Hans Selye is noted as one of, if not THE first, to understand and recognize the concept of stress and the body's responses and reactions to stressors. He's noted as having discovered the universal core of the stress response pattern and he named it "General Adaptation Syndrome." Because exercise is a physical stressor, applied with the best of intentions, it's valuable to understand the three stages Selye identified as consistent in any organism placed in a stress/survival situation.

The first phase is *Alarm*. The body is shocked, and if there were words to describe the response, the muscles, nerves, and glands would be unified in their shout, "what the ____ is going on here?" After the shout, those same key players would begin to mount their response.

The second phase is *Adaptation* (also referred to as Compensation or Resistance), where the body begins to change in order to compensate for the new stressors.

The third phase is *Exhaustion*. If the stressors overwhelm the body's fuel system, decay and ultimately death are inevitable (this is not to suggest if you train too hard you die, but if you consider the destruction of the likelihood of achieving a goal, "death," in this case, may mean the elimination of the immediate possibility of achievement).

We, in quest of change, want for Phase I and Phase II, as it's the *adaptation* phase that brings us positive change. Phase III is of course something we want to avoid, and that's why top coaches and athletes have learned to incorporate periodized training, strategic training systems that alternate higher intensity periods with lower intensity periods, or training protocols that shift frequently, by design, to allow for active recovery.

My TRANSFORM! Program is built upon my cycle training methodology, a cyclical system of periodization which varies training focus as follows:

Phase I – Metabolic Stimulation
Phase II – Strength & Growth
Phase III – Muscle Endurance
Phase IV – Fat Liberation

After completing Phase IV, you return to Phase I repeating the cycle of four training periods. This allows for continuous training while allowing the systems that govern each systemized training protocol to avoid exhaustion.

Pain-relief and energy kicks

Over the first four letters, I addressed drugs and my perception of the public's over-reliance upon them.

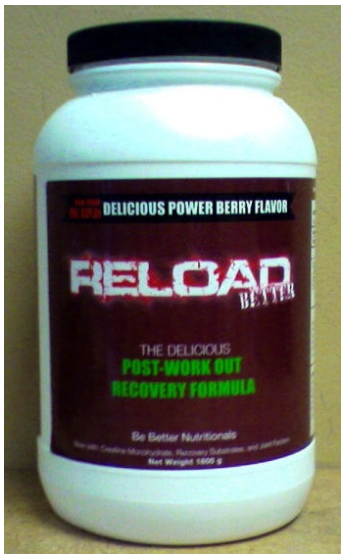
I'll keep this brief here, but I will suggest that while the use of occasional Non Steroidal Anti-Inflammatories may ease acute pain from minor microtrauma, or any drug, OTC or otherwise, is used to mask a recurring pain symptom it's preventing recognition of overreaching.

I'd say the same about stimulants (caffeine included).

When stimulants are used for an occasional training boost, I wouldn't globally fault the idea, but when controlled substances are abused, OTC products are overused, or recurrent use is perceived as necessary, the stimulant usage may contribute to wear and tear on the adrenals and mask some of the symptoms of overtraining as you head toward the third of Selye's stress phases.

For those who are not involved in competition, I believe a natural approach to exercise and recovery leads to longer term health and well being. I can again emphasize the importance of lots and lots of water, of frequent intake of lean proteins, starchy carbs, essential fats, and fibrous carbs, and I feel ready to move into a discussion on supplemental recovery aids. Here goes . . .

The Supplemental Recovery Product



I've created a supplemental product that is specifically designed to optimize the opportunities the post-exercise state offers, and it's been a consistent seller among my client base for years. The product was designed with consideration for scientific principles uncovered, proven, and reinforced over the course of 20 years of research, and the area of study in sports nutrition has become so prevalent, it's fallen under a recently coined category, Nutrient Timing.

My recognition of the principles supported by the science led me to create RELOAD, so it would be challenging for me to share the principles without naming the product.

Although parts of this may read as a promotion for the product, that is not my intention. After years of hearing client raves about the product, its benefits, its value, and its taste, I'm going to continue this letter with an emphasis upon the betterment quality of the RELOAD powder, and then I'll share the principles and direct you to the science so whether or not you opt to use the formula, you'll be able to *reload better* for better physical payoff.

I have never been an advocate of nutritional supplements presented as needs or solutions, and I'm often accused of being "anti-supplement" due to the rants I sometimes enter into about the deceptive advertising used to move products with questionable value.

With that said, I am the first to step up and express the value of adding nutrients to your eating regimen that have proven value and fill in the gaps we struggle with as a result of living in the real world.

I am not anti-supplement. I am anti—fraud. I use supplements, but a rare few.

I've built my reputation upon the Fitness Truth, and in this fifth of Seven Letters, I'll share some of the realities of recovery.

With that out of the way, what better way to move forward than by addressing some of the more recent "hype" aimed at putting supplements in the hands of consumers.

Promises, Deception, and Lies

"Chromium burns fat!"

That's one of the many assertions fitness minded people have read, heard, and believed in their quests for optimal physique and performance.

Add in *"Hoodia leads to weight loss,"* and *"Calcium builds bones"* and you have a collection of flawed interpretations of science, assumptions made in leaps of logic with little grounding in evidentiary support.

The reality is, chromium doesn't burn fat, hoodia isn't a weight loss miracle, and calcium is simply a component in skeletal structure.

Chromium is a mineral that is a component of GTF, glucose tolerance factor, and in that it plays a role in metabolism, glucose transport, and ultimately fat release, but to suggest it has a "fat burning power" is a blatant exaggeration bordering on an all out lie.

Hoodia was touted in an advertisement as "the weight loss secret of the Kalahari bush people." The overwhelming buyer response to this ad illustrates how desensitized an anxious marketplace becomes. People fail to use any rational thought to dissect claims. They want to believe a secret or miracle has come to the rescue. Hoodia is in fact a cactus that grows in the Kalahari desert, and it might help to stave off hunger during times of famine, but to suggest that the bush people ever needed a weight loss secret is like suggesting Pamela Anderson needs a dating service.

OK, maybe Pam has made some poor choices, but she never had the "need," never faced the "problem." I challenge anyone to find a Kalahari bush person with an obesity issue!

As far as calcium building bone, it's certainly a must-have mineral as a component of your skeletal system, but it's simply a single player in a complex symphony, a symphony best conducted with the incorporation of resistance exercise and supportive nutrition. Eating calcium to build bone is the equivalent of eating brains and expecting to be smarter.

Fat burners abound, at times with more risk than promise. Every January the sellers of fat burners find new ways to repackage stimulants as solutions, and the drug companies have now gone over the counter putting new labels on failed prescription drugs. Energy drinks have taken the allure of caffeine to an entirely new level turning it into a miraculous elixir. Supplements promise to add inches, add power, add prowess, and add sexuality, and the promises are so over the top the sellers no longer rely upon belief. They speak directly to emotion, and people respond.

With the liberties nutritional supplement companies take in making promises based on misinformation, I will not deny the boldness of my claim:

"Reload is one of a breed of the most valuable supplemental post-exercise recovery aids in existence."

Is the claim bold? Yes.

Is it honest? 100%.

Hook me up to a polygraph and you'll find that the product was created with an unbreakable attachment to the science, and I have never marketed the product publicly with anything other than mention of its true value.

In this Letter #5, I'll share the science upon which the product was built, and I'll then direct you to additional research you might explore.

I invite you to test the RELOAD product, to compare it with "best sellers" and to judge your results based on strength increases, energy increases, mood improvement, enhanced sense of well being, performance increases, and increases in lean body mass.

Is Reload miraculous? No. So why do so many users sing its praises above all other nutritional aids? They do so because it delivers. It's legitimate. It really does what I'm about to promise it does, and unfortunately that is more the exception than the rule.

In an industry where exaggeration is commonplace, only an adherence to science and proven results can support the longevity of a product never driven by hype, never advertised, and never promoted in the mass media.

Reload was created in 1996, and it continues to grow in popularity solely through education and word-of-mouth.

Let's explore why.

The Missing Element

As I mentioned in the introduction, every one of my fitness programs prescribed and designed over the past 25 years has its foundation in a concept I've coined as "Synergy," the synergistic combination of the three vital elements . . .

- The Right Nutrition
- Moderate Aerobic Exercise
- A Concern for Muscle

Without apologizing for repetition, as this point is primary in understanding the value of the information that follows, I'll repeat that beyond the three proactive concerns, there is a fourth consideration in optimizing performance.

Recovery suggests recuperation from a physical trauma.

For those who seek muscle development (as everyone should to some degree), a straight line is often drawn between modality and outcome. In other words, there is a prevalent belief that states, without qualification, "weight training builds muscle."

I'll challenge that with a bit of qualification.

Weight training, or the concept of challenging capacity in concern of maintenance or development of size and strength, does NOT build muscle.

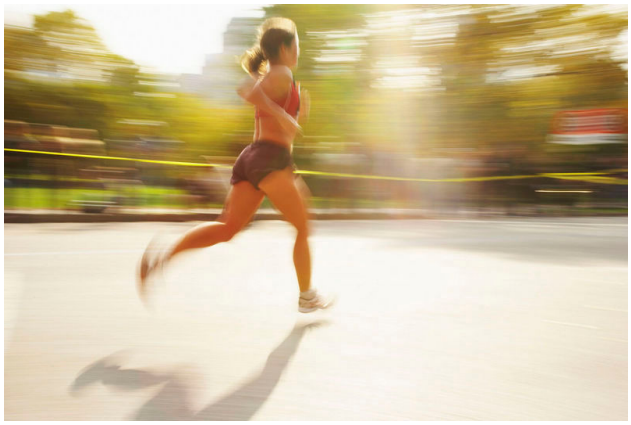
I know that sounds contradictory to much of what I profess, and blatantly contradictory to the aforementioned prevalent belief, but it's a simpler concept to grasp when you recognize that the resistance challenge is simply the stimulus.

An intense weight training session is the *physical stimulus* that presents microtrauma to muscle and connective tissue. The human body is incredibly adaptive, so it evokes systems and mechanisms to get to work repairing the trauma.

In plain English, weight training initiates a need for repair, and during recovery your body has the capacity to develop muscle.

With this understanding, optimal recovery becomes vital, and in order for you to prepare your body to recover optimally, it's helpful to understand what elements of recovery must be addressed.

First we can look at fuel supply.



Post exercise, the *phosphagens*, ATP and PC (phosphocreatine) are depleted from muscle and glycogen reserves are exhausted. These are energy-producing substrates stored at a cellular level in muscle tissue. Consider that when these substrates are lacking, the fuel tank is near empty.

Next we can look at primary hormonal activity.

Along with depletion of the phosphagen energy substrates, production of catabolic hormones, hormones that break down tissue (i.e. cortisol) is increased. As if an empty fuel tank wasn't challenging enough, tissue loss may accompany the energy drain. Not only is the machine low on gas, but the motor's shrinking!

To again crystallize with simplicity, phosphagens and glycogen are needed to fuel up, and some degree of control of catabolic hormones is necessary to prevent tissue loss.

Got it so far? If not . . . back to the top of the page. When "fuel supply" and "catabolic hormone control" are understood at a baseline level . . . read on.

I mentioned catabolic hormones as being responsible in part for the loss of tissue. That leads under-informed to want to shut down these perceived monsters. You don't want to shut them down (a recent wave of supplements falsely categorized as "cortisol-blockers" hit the marketplace with an ad campaign that led viewers and listeners to believe that these hormones are villainous.)

Catabolic hormones aren't evil. They have a vital purpose. They assist in protein turnover, in breaking down tissue so that new cells can be rebuilt. Catabolic hormones feed fuel supply as in the act of breaking down muscle tissue, they allow the release of amino acids which can be converted into glucose for fuel.

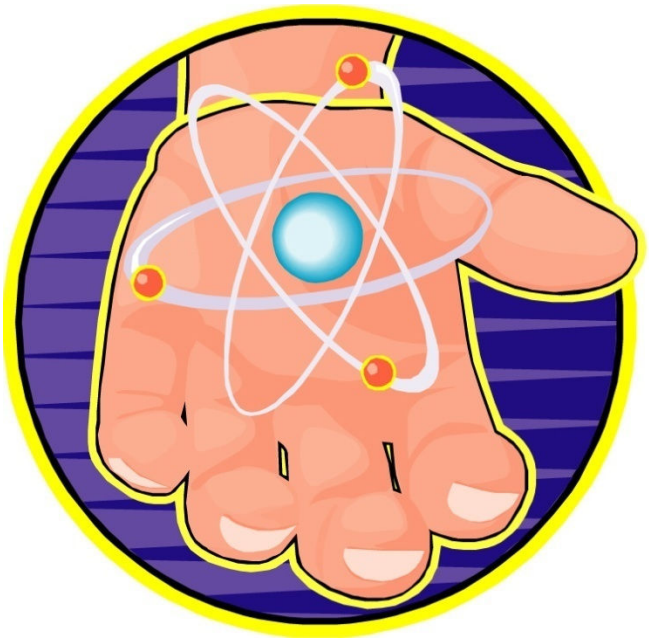
The key again lies in balance. With good intentions, catabolic hormones can elevate beyond optimal recovery levels, resulting a negative balance where tissue breakdown exceeds repair.

At this point we understand that we want to get as much post-exercise fuel into our respective fuel tanks as those fuel tanks will healthfully hold, and we also understand that we want to make sure tissue breakdown doesn't exceed the ability to repair and rebuild.

Finally, in our preliminary understanding of recovery, we can look at cellular protection.

If you've been in tune with any of the last decade's health reports, you've heard the term "free-radicals." You've likely heard them associated with poor lifestyle choices, but free radicals are prevalent and active even in the healthiest exerciser following an intense exercise session and they can partner up with catabolic hormones to amplify damage.

Stable atoms, if you can think back to high school physics, have evenly paired electrons to balance the charge. These atoms are inert. Remove an electron and you have reactivity. The absence of balance drives the atom to seek out an attachment, to fill in that missing electron, to connect to another atom.



Consider free radicals reactive oxygen molecules with unpaired electrons, and as they remain reactive, they can cause damage to cellular proteins, lipids, carbohydrates and DNA. They've been demonstrated to be the root of much if not all of inflammatory disease.

As catabolic hormones increase muscle breakdown, those free radicals, singlet oxygen molecules, are increased and begin to increase systemic attack and breakdown of cell structures.

All considered, immediately post-exercise, the internal environment is ideal for the destruction of muscle tissue. That certainly isn't comforting. It isn't what we want. Here's where recuperative strategy comes in.

This is not intended to evoke fear. Free radicals are the result of oxidative stress, and exercise increases oxidative stress. Exercise also, when balanced with recovery, appears to stimulate a greater ability to manage free radical activity. Naturally occurring enzymes, superoxide dismutase (SOD) and glutathione peroxidase scavenge free radicals and in well nourished athletes there exists an enhanced capacity for production of these enzymes. Well nourished exercisers will also tend to, through foods, consume naturally occurring anti-oxidants such as Vitamin C, Vitamin E, and Vitamin A, as well as flavanoids and naturally occurring plant phenols that contribute to cellular protection.

Anti-oxidants are free-radical scavengers, and in healthy exercisers, can mitigate the cellular damage.

Eat For Better Recovery!

You already understand supportive nutrition in terms of its balance of macronutrients, proteins, carbohydrates, and essential and healthful fats, and in general terms, a variety of vegetables and fresh fruit in an assortment of colors integrated into frequent meals can supply significant free radical protection.

You can get ample vitamin C from citrus fruits, kiwi, papaya, spinach, broccoli, peppers, asparagus, cranberries, strawberries, and cantaloupe just to name a few sources.

Vitamin E is found in abundant supply in almonds, sunflower seeds, sweet potatoes, some whole grains, and some oils.

Beta carotene (vitamin A) is found in tomatoes, carrots, yams, kale, collard greens mango, and a host of other foods found in the produce section of any grocery store or natural market.

If you are going to find ultimate value in a post-exercise recovery supplement, anti-oxidants clearly contribute to the recovery value of the product.

Key Recovery Factors

In the science of optimal recovery, beyond managing the hormonal environment and ensuring cellular protection, there are three key factors that must be considered:

- Rehydration
- Normalization of muscle glycogen levels
- Recuperation

We'll get to rehydration and glycogen restoration shortly, but let's begin by further defining the concept of recuperation.

Recuperation suggests restoration or a re-building, in this case the result of protein synthesis, the assembling of amino acids as new tissue.

We can break recuperation into "active" and "passive," active suggesting you move, passive suggesting you relax, and while again there might appear to be some contradiction, both types of recuperation contribute to the ideal.

While I described recovery earlier as inactivity, suggesting it isn't a proactive concern as eating and exercising are, ***active recuperation*** might be low intensity activity which may minimize muscle soreness, speed reduction of lactic acid levels, and optimize nutrient delivery to the recovering cells. It isn't by any means an intense challenge, but it may enhance blood flow.

Passive recuperation includes not only sleep, but rest time to allow a shift to hormonal environment primed for protein synthesis.

There's one more important consideration.

You can only optimize the recuperative condition by ingesting nutrients and nutritional compounds to aid in rehydrating, refueling, and rebuilding, and that's the premise from which my Reload product was born.

Reload provides a combination of the nutrients ideal to replenish, restore, and replete.

My clients, after drinking Reload, express that they "feel" the mental recovery in minutes. They also report enhanced muscle development, greater performance, and over a short period of time, a new sense of energy that translates not only to their exercise sessions but to their overall sense of well-being. It's important to note that not a one of my clients attribute these benefits to Reload, but rather to the integration of the Reload formula into a program relying on synergy, a program solidly built upon the ingestion of good, clean, quality, foods. Reload at best is an aid, but when all other pieces of the puzzle are in place, the Reload difference is discernible.

RELOAD NOTES:

You don't need Reload to benefit from the information in this Letter. I will share the specifics of the formula and you can acquire the nutrients as you see fit.

I should also mention that I will never strive to sell RELOAD as a mainstream product, as my costs are too high and I'd have to chip away at the quality to fit in the conventional retail model. I have, however, committed to inform, to share, with those in my circle of influence, the quality, the formulation, and the impact of a product that is ideal in meeting a widespread need.

The success and growth of Reload isn't based on marketing, it's based on outcome. I have only seen this formula lead to better outcomes because I relied upon science. The science isn't new. It's anything but.

In today's supplement marketing world, a single suspicion prompts the creation of a product, and the manufacturer funds research to support its value.

Reload was based on an extensive body of evidence accumulated from the 1960's through 1995 and the continuing science since has only validated its post-exercise value.

The science I'm referring to integrates the science of muscle hypertrophy, the science of recovery, and, the question of when specific energy substrates and nutrient compounds are best ingested.

Some background on the evolutionary science of Nutrient Timing follows.

The Science: Nutrient Timing

(Numbers in parenthesis direct you to specific studies listed on the last page of this Letter)

In a study published in 1966, the link between ingestion of carbohydrates and glycogen replacement was documented (1). That was 40 years ago! Back then, understanding the value and applying the act of sipping some sugar and water after exercise would have proven to be a glycogen replenishing aid. The science has since evolved radically.

Shortly after the recognition of the recovery value of carbohydrate consumed post-exercise (when the body is in a physiological state resultant from extended energy release), studies began to explore and document how combined ingestion of carbohydrates and amino acids created an anabolic environment, a hormonal condition necessary for protein synthesis (2, 3). What became evident was, the impact of the ingestion of these nutrients could be enhanced when "timing" in relation to exercise was considered.

Over the 30 years that followed, published research continued to replicate verification of the link between the post-exercise condition and the ability of ingestion of specific combinations of simple carbohydrates (glucose and fructose) and hydrolysates of protein (amino acids) to enhance recovery and increase protein synthesis (4, 5).

By 1995 the science had been refined to isolate specific amino acids that have greater recovery value, support minerals that assist in speeding recuperation, and added compounds that further support the hormonal environment (Growth Hormone and Insulin-Like Growth Factor) and performance (7,8).

Because the post-exercise state is a unique condition where the body seeks to recover and repair, a balance must be considered concerning the relationship between tissue breakdown and repair. This is best described by introducing the concept of *protein accretion.*

Protein Accretion

Protein sellers, in long-time marketing efforts, have led the fitness public to believe that intake of protein is formulaic based on weight or muscle volume. This well serves protein sellers, but has less real-world application than they'd like you to believe.

In the want to find enhanced fitness, reduced biological age, and enhanced performance, a greater consideration than supplemental protein intake is protein accretion.

Protein accretion is the balance between protein synthesis and protein degradation.

When synthesis exceeds degradation the body is in an anabolic (building) state.

When degradation exceeds synthesis, the body is in a catabolic (breakdown) state.

You already understand that without support, intense exercise creates a catabolic environment. If you ingest 40 grams of protein per pound of bodyweight in a single whey protein powder shake, but degradation is greater than synthesis, you lose muscle. Conversely, if you ingest 140 (a random number) grams of protein in a day from meats, fish, and eggs, you train intensely, and quickly recover from the post-exercise state, protein accretion swings to the positive side.

Reload allows for that quick "switch."

A study published in the American Journal of Physiology in 1999 (9) compared the ingestion of a placebo to the ingestion of mixed amino acids post-resistance-exercise and clearly documented that the amino-acid mix (the hydrolysate found in Reload), resulted in an immediate change from net protein degradation to net protein synthesis. Those who took the placebo remained in a catabolic state.

Reload is formulated to turn the post-exercise state into an opportune time to refuel energy stores, and to "switch" the catabolic-anabolic switch to the positive side.

Immune Function and Glutamine Preservation

Most exercisers fail to equate the exercise / recovery balance with immune function, but the two are linked by their respective needs for the amino acid L-Glutamine. Glutamine is the most abundant amino acid in muscle. When intense exercise results in drops in plasma glutamine concentration, immune cell function is compromised and an individual becomes significantly more susceptible to infection. Research indicates that glutamine levels fall significantly in the hours following intense exercise (10). In the case of emotional stress, physical stress, digestive stress, or immune distress, the digestive and immune systems have greater need for L-Glutamine, thus without restoration of plasma glutamine levels, all systems may be compromised. In high-stress states cortisol levels are increased, supporting a rapid shift to a catabolic condition.

Reload helps to restore not only plasma glutamine levels, but it also provides an added supply so in the event of immune need, muscle stores are protected. Without such protection, the immune system tends to rob L-Glutamine from muscle resulting in additional protein degradation.

Electrolytes

Rapid and complete restoration of fluid levels is a vital part of recovery. Although consuming post-exercise water is extremely important, as is the consumption of water throughout the day, without replenishing the electrolytes lost in sweat, rehydration capacity is severely limited. While we've heard of the importance of controlling sodium intake, sodium is a key electrolyte and for optimal recovery sodium is essential. Research indicates that optimal recovery is aided by post-exercise ingestion of moderately high sodium with adequate potassium (11). Failure to replete the electrolytes will limit full recovery and will further limit follow-up performance.

CAN YOU MAKE YOUR OWN FORMULA?

If you want to create a formula on your own, you can at its most basic value mix sugar and predigested protein, or you can get a bit more scientific.

- You can mix glucose and fructose into purified water.
- Ideally you'll mix in a hydrolyzed protein providing amino acids in the form of di-peptides and tri-peptides, the form in which the amino acids are most readily absorbed and transported. An exploration of labels in the health food store might bring you pretty close to finding an ideal protein.
- Add in 5 grams of 99% pure creatine monohydrate powder
- Add in 2 – 3 grams of L-glutamine (ideally in peptide form)
- Supplement the drink with a mix of anti-oxidants
- Supplement the drink with a mineral mix ensuring electrolyte replenishment
- Consider also adding glucosamine and chondroitin as these compounds work to mitigate joint and connective tissue damage

Of course there is another option . . .

RELOAD!

RELOAD! is designed to replenish lost glycogen immediately following an intense exercise session.

It has a mix of glucose and fructose to restore glycogen both to muscle reserves and to the liver.

RELOAD has 2.5 grams of L-Glutamine per serving to aid in recovery and lessen the likelihood of muscle catabolism.

Five (5) grams of creatine monohydrate in a serving is enough to increase phosphocreatine stores in muscle at a significant enough level to facilitate increases in performance.

The post-workout sugars provide an optimal biochemical environment to optimize creatine transport as well as to pump amino acids (16 grams of amino-acid complete proteins) through the wall of the digestive tract for rapid protein synthesis.

RELOAD contains added Vitamin C, Vitamin E, and Zinc for added anti-oxidant activity and contains glucosamine sulfate and chondroitin to facilitate repair to connective tissue. It is a complete formula aimed at maximizing the post-exercise window of opportunity to enhance recovery *(find a listing of the supporting research on the following page)***.**

A Sampling of the Research:

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