Abstract: The goals of sports performance can not be reached only through training, but it includes also nutritional supplements along a proper diet. Especially in body shaping sports (fitness and bodybuilding) supplementation is a key factor contributing to the performance and compromise its failure often results. But a nutritional supplementation means not just what is consumed but when.

Key words: bodybuilding, overtraining, central nervous system

Introduction
Sports performances can not be achieved only through training, but is requiring also a nutritional supplementation along a proper diet. Especially in body shaping sports (fitness and bodybuilding) nutritional supplementation is one of the contributing factors to the performance and compromise its failure often results.

Content
The right nutritional supplementation means not just what is consumed but when. From this point of view we can discuss about a modern approach of supplementation, athletes called periodization. The overall goal of periodization is to establish a plan of supplementation that can maximize the effects of workout. The main objective is to fight catabolic state (release into circulation of glucagon, epinephrine, norepinephrine, cortisol) and anabolic hormone activation (testosterone, GH, IGF1, insulin) with direct effects on muscle hypertrophy and recovery after exercise. It should be noted that each type of workout, as well as sports, have unique nutritional needs. Therefore periodization take into account the three key phases: before, during, and after training.

Before training – is energy phase which is designed to protect muscle glycogen and structural proteins, increase muscle strength in effort to limit immune suppression, reduce muscle damage, and facilitate post-exercise recovery. Consuming a carbohydrate and protein supplement (before and possibly during training) increases muscle endurance during exercise and protein intake stimulates protein metabolism, reducing demand for amino acids that could be taken from muscle tissue. Carbohydrates consumed during exercise inhibits the release of cortisol, limiting the suppressive effect of exercise on the immune system. Appropriate phase profile energy supplement should contain the following nutrients: 20-25 g carbohydrate high GI, 5-6 g of whey protein (fast digestible, high quality), plus 100 mg vitamin C, 50 IU vitamin E, 100-250 mg sodium.

During exercise - strength training does not require special needs on supplementation, however long aerobic efforts can be supported by consuming beverages with carbohydrates for athletes. As long as the exercise intensity is maintained at low energy is the main source of fat, increase body strength but if looking for a more fuel efficient and begin to consume carbohydrates. At one point glycogen is over and the athlete can not meet the request. If the athlete has taken care to fill their glycogen stores consuming low glycemic index
carbohydrates hours before exercise (egg, rice, apples, peaches) 1 g / kg body weight and
drink enough water during exercise is now complete need to consume a carbohydrate drink
(which is preferably contain 50% carbohydrates and 50% lower glycemic index
carbohydrates with high glycemic index). Solution concentration should be 7-10%, or
removal of stomach contents is too slow. They also rehydration drinks should contain
adequate levels of sodium, calcium, potassium and chloride electrolytes to replace losses
through perspiration.

After training is the period that involves two distinct phases: anabolic phase (range 0-
45 minutes), is a period that increases sensitivity to insulin and thus glycogen stores are
restored faster and faster muscle synthesis. In this interval is recommended to consume a
supplement rich in carbohydrates with high glycemic index, which serves as an activator of
insulin secretion. Also good also contain whey protein, which under the influence of insulin
will participate in the synthesis of muscle tissue. Profile of supplementation recommended:
simple carbohydrates, whey protein, glutamine, vitamins, growth phase – begins at the end of
anabolic phase and lasts until the beginning of the next workout. During this period it is
important to maintain increased insulin sensitivity and anabolic status to support muscle mass
and strength gains. In the early hours must be pursued refill glycogen stores, while
eliminating products of metabolism by increasing blood flow and stimulate muscle repair. In
the next 16-18 hours will be considered to maintain a positive nitrogen balance. This goal is
achieved by administration of 2 to 2.5 g/kg/day of protein. Profile of supplementation
recommended: whey protein, casein, glutamine and high glycemic index carbohydrates.

As with all things, periodization training leads to better results than those made at
random or without a specific structure. Therefore the first step in determining the best
supplements cyclization program is to understand the major goals of training, and their
relationship Supplement your side. These include: greater levels of muscle mass and strength
to a certain period - from this point of view there are many supplements that help increase
muscle mass and strength, preventing overtraining – many supplements can prevent or delay
Overtraining and undesirable associated with it, especially for high volume weight training,
use of supplements to support every phase of your workout – almost all supplements have
certain goals and helps to achieve different goals (some help to gain weight, others to lose
weight In addition, and so on) should therefore be used in conjunction with training, breaks
between workouts, or stop using the same type of Supplement your homeostasis to prevent
"negative" - if used too long the same type of supplements, without breaks, they will lose the
effect, the body adapts to them.

Looking from another angle, the following perspective is understanding what happens
when we train. General adaptation to stress theory puts on three phases of training and
physiological events occurring in time. Understanding them can help determine the scope
supplementation during each phase. Thus we have: shock – the first phase and last two weeks
of starting training (much more straightforward for beginners, although it is true for
intermediate or advanced when changing the type of training). Increased muscle performance
and reduce fever tend to occur at this stage. This Supplement your role should be to minimize
the impact on the muscles and maximize their recovery, strength – is the second phase, and is
the best time to exercise. Now produce mass increases, strength and resistance to supplement
during this period was to support growth, adaptation – is the third phase and represents a
period of stagnation, when the body adapts to external stimuli. During this time the role
supplements should be stimulating biochemical adaptation or install overtraining – is the
fourth phase and is characterized by muscle fatigue, extended to the whole body.

From another perspective, be known as planned workouts throughout the year. Sport
theory identified three forms of periodization so having: macrocycle - which is training plan
developed over a period of time (ranging from several months to a year) with a purpose. As a
Matching together the theory of periodization, an example of supplement program might look like this: Weeks 1-8 will be the main purpose anabolism. Be administered daily protein, multivitamins and antioxidants, plus a drink rich in carbohydrates and protein immediately after your workout. In addition they will enter one product energizing, plus a supplement containing isoflavones, Week 9 is the break – without supplements besides protein and multivitamins, Weeks 10-18 will be the main force to increase. Be administered daily protein, multivitamins and antioxidants, plus a drink rich in carbohydrates. In addition it will supplement with creatine and glutamine, 200 mg caffeine before exercise, and 1500 mg / day glucosamine, Week 19 is the break – no special supplements outside of protein and multivitamin and will gradually decrease caffeine, 100 mg for 3 days and 50 mg for 4 days, Weeks 19-27 will receive daily protein, multivitamins and antioxidants, plus a drink rich in carbohydrates, 8.6 g tyrosine, 2.1 g lecithin, 200 grams of coffee before exercise creatine (20 g / day during the first two weeks and then 10 g / day) plus 10 g of ribose per day, Week 27 is the break - without supplements besides protein and multivitamins and caffeine will gradually decrease, 100 mg for 3 days and 50 mg for 4 days, Weeks 28-35 will focus on defining and fat loss. Be administered daily protein, multivitamins and antioxidants, plus a drink rich in carbohydrates and protein immediately after training, 3-5 grams per day of fish oil, ALA 300 mg twice daily glucosol 50 mg twice daily and a thermogenic supplement twice a day Week 36 - without supplements besides protein and multivitamins.

REFERENCES:

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