

Breaking Through Plateaus

Part I: Strength

By

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Having trouble making strength gains? Have you hit a plateau? Walk into any large gym and you may see the majority of patrons utilizing the same exercises, with the same weight, week after week. Wondering why their strength gains are stagnant and their body composition does not change, many either begin injuring themselves, stop training with weights all together, or decide to spend their time on other pieces of equipment in the gym, (ie: the treadmill or elliptical). If this sounds familiar, 3 recommendations come to mind: 1. Change up your nutrition/supplementation, 2: Change up your training, 3: Hire a qualified strength coach.

Change up your Nutrition/Supplementation

Without proper nutrition or supplementation, the body can easily fall into a catabolic state. The adrenals become overworked, the nervous system does not recover properly, and the endocrine system can become compromised, all of which leave your body susceptible to fatigue, decreased strength/energy levels, sickness, and injury among many others. Proper nutrition is paramount in making gains in body composition and strength.

Some books we highly recommend to clients interested in learning more about nutrition and health include:

1. **The Paleo Diet by Dr. Lauren Cordain**
2. **Good Calories, Bad Calories by Gary Taubes**
3. **The 150 Healthiest Foods on Earth by Dr. Jonny Bowden**
4. **The Most Effective Natural Cures on Earth by Dr. Jonny Bowden**
5. **In Defense of Food by Michael Pollan**
6. **Fast Food Nation by Eric Schlosser**
7. **The Hundred Year Lie by Randall Fitzgerald**
8. **The Magnesium Miracle by Dr. Carolyn Dean**
9. **The Cortisol Connection by Dr. Shawn Talbott**

10. **Achieving Victory Over a Toxic World by Dr. Marc Schauss**
11. **Nutrition Made Simple by Robert Crayhon**
12. **The Anti Estrogen Diet by Hofmekler and Osborn**
13. **The Whole Soy Story by Kaayla Daniel (highly recommend if you eat soy)**
14. **Detoxify or Die by Dr. Sherry Rogers**

With regards to proper supplementation, world renowned strength coach Charles Poliquin has pioneered the most accurate blueprint for supplementation with his Biosignature Modulation. Through Biosignature, an athlete or fitness enthusiast can learn about their internal hormonal profile according to where their body has a tendency to store fat. Read both coach Poliquin's article ([click here](#) or visit www.charlespoliquin.com) and highly renowned strength coach/body composition expert Nick Mitchell's articles ([click here](#) or visit www.upfitness.co.uk) for more in-depth information on Biosignature Modulation. Upon learning about one's hormonal environment, and athlete/fitness enthusiast then has a roadmap to provide themselves proper guidance into which supplements will help them to achieve their goals, and those that could be a waste of time and money. The days of mindlessly following the supplementation program that worked for the synthetically enhanced bodybuilder in the ad report of the newest muscle building magazine are hopefully, slowly coming to an end, while more advanced supplementation design, such as Biosignature, are coming to the forefront.

Though in no way exhaustive, this brief overview includes a few basic supplementation recommendations which may be useful for breaking through a strength plateau:

- a. **Digestive Enzymes or HCL:** According to one of the foremost experts on the topic, Elizabeth Lipski "As we age the parietal cells in the stomach produce less hydrochloric acid (HCL). In fact half of all people over the age of 60 have hypochlorhydria (low stomach acid). Low HCL levels open us up to the possibility of food poisoning, dysbiosis and bacterial overgrowth of the small intestine. Adequate HCL is critical for absorption of vitamin B12 from food(9)."

Renowned health expert/author Dr. Carolyn Dean explains, "the elderly as well as people with arthritis, asthma, depression, diabetes, gallbladder disease, osteoporosis, or gum disease are often deficient in hydrochloric acid. ***The roiling and burning in the gut from sugary junk food and greasy fast food is being inappropriately blamed on too much stomach acid. In many cases, heartburn is due to sugar fermentation in the stomach and a***

backflow of pancreatic enzymes from the small intestine. By neutralizing normal stomach acid levels, antacids make it impossible for us to absorb minerals or digest food properly (5).” Without proper HCL or digestive enzymes, the human body is left susceptible to the negative health effects associated with deficiency of certain minerals and vitamins, as well as improperly broken down food particles leading decreased absorption of macronutrients.

b. Fish Oil: By now, enough research has been compiled in this extremely valuable supplement that pharmaceutical companies are even jumping on the fish oil wagon (\$\$\$\$) as witnessed by the now FDA approved LOVAZA (not sure why prescription/FDA approval is necessary when you have brands such as ***Metagenics, Poliquin, Douglas Labs, Solaray, Natural Factor, and Pure Encapsulations.*** Just some of the benefits of fish oil include

- Insulin regulation
- Decreased inflammation
- Increases in cognitive function
- Cardiovascular health
- And many others..... (click here for Coach Charles Poliquin’s very informative [Top 10 Reasons EFA's are Essential Article](#))

c. Zinc: “Zinc is one of the most important nutrients for immune function, blood sugar balance, and optimal health (4).” A deficiency of zinc will greatly impair the body’s defenses. Critical to proper energy production, zinc is quickly depleted by stress, whether physical or emotional. All new tissue growth requires zinc. Since strengthens membranes of our cells and helps them function optimally (4).“

In her book Chemical Sensitivity, Sherry Rogers states, “with a zinc deficiency, the metabolism of Vitamins A and B6 suffers because the enzymes that convert them to usable forms are zinc dependent. And so are many digestive enzymes that are needed for proper nutrient absorption (15).”

Among its many benefits, zinc is also involved in production of testosterone. ***Low levels of zinc have been shown to inhibit the pituitary gland from releasing leutinizing and follicle stimulating hormone, both of which are critical in testosterone production*** (Ishikawa et al 2008, Prasad et al 1996, Om and Chung 1996). ***Zinc also inhibits the aromatase enzyme, preventing androgens from aromatizing (converting) to estrogen,***

thus, producing testosterone (Om and Chung 1996). Below is a quick overview of some of the research:

1. Ae-Son OM and Kyung-Won Chung. **Dietary Zinc Deficiency Alters 5 α -Reduction and Aromatization of Testosterone and Androgen and Estrogen Receptors in Rat Liver.** *Journal of Nutrition*. 1996 (Need pages)

“Hepatic conversion of testosterone to dihydrotestosterone was significantly less, but formation of estradiol from testosterone was significantly greater in rates fed the zinc-deficient diet compared with freely fed and pair-fed control rats. There were significantly lower serum concentrations of luteinizing hormone, estradiol and testosterone in rats fed the zinc-deficient diet”

2. Kilic M, Baltaci AK, Gunay M, Gokbel H, Okudan N, Cicioglu I. **The effect of exhaustion exercise on thyroid hormones and testosterone levels of elite athletes receiving oral zinc.** *Neuro Endocrinol Lett.* 27(1-2); Pp247-52. 2006

“Both resting and exhaustion total and free testosterone levels following 4-week zinc supplementation were found significantly higher than the levels (both resting and exhaustion) measured before zinc supplementation” “physiological doses of zinc administration may benefit performance.”

3. Yuko Ishikawa, Hideki Kudo, Satoe Suzuki, Nahoko Nemoto, Shuji Sassa, Shinobu Sakamoto. **Down regulation by a low-zinc diet in gene expression of rat prostatic thymidylate synthase and thymidine kinase** *Nutrition & Metabolism* 5; Pp 12. 2008

“Although there were few differences in plasma biochemical markers, plasma levels of luteinizing hormone and testosterone were reduced by the low-zinc diet”

d. Magnesium: What can't magnesium do for you? According to magnesium expert, and author of *The Magnesium Miracle*, Dr. Carolyn Dean states “magnesium's hundreds of activities in the human body can be divided into five essential categories:

1. “Magnesium is a cofactor assisting enzymes in catalyzing most chemical reactions in the body, including temperature regulation.”
2. “Magnesium produces and transports energy.”
3. “Magnesium is necessary for the synthesis of protein.”
4. “Magnesium helps to transmit nerve signals.”
5. “Magnesium helps to relax muscles (5).”

Magnesium expert “Jerry Aikawa refers to magnesium as the ur-mineral, being the most important mineral for man (1)”. One of the most important factors when choosing a magnesium product is the form(s) of magnesium in the product. Dean states “chelated magnesium, bound to organic amino acids, is far better absorbed magnesium oxide but is more expensive. Complimentary medicine practitioners rely on chelated magnesium , such as magnesium glycinate, taurate, and orotate to treat serious cases of magnesium deficiency. Weight for weight and dollar for dollar, magnesium citrate is the best buy for general use (5).”

To ensure absorption an oral supplement containing multiple forms of magnesium may be best, as some individuals may not absorb an elemental form. Also, an individual with low stomach acid levels may benefit from topical forms of magnesium, as this does not pass through the digestive system.

e. Carnitine: Thought of so highly by nutrition expert, Robert Crayhon, he wrote an entire book (The Carnitine Miracle available free at www.crayhonresearch.com) on this important non-vitamin nutrient. According to Crayhon, “L-Carnitine is a nutrient that acts like a forklift, carrying fatty acids to the part of the cell where they are transformed into energy. Carnitine is helpful in promoting weight loss and energy production (4).” Carnitine also plays a role muscle building/recovery with its beneficial effects on testosterone binding sites. In simplified terms, testosterone in the form of free testosterone is the highly desirable (and usable) form of testosterone with regards to building muscle. The problem is, roughly 98% of testosterone is in bound form. Therefore it is basically unusable in terms of muscular/strength gains. A greater number of unbound androgen receptors and free testosterone is desired. Carnitine has been shown to increase the amount of unbound androgen receptors, leading to increased recovery and hormonal response from bouts of weight training.

1. Karlic H, Lohninger A. **Supplementation of L-carnitine in athletes: does it make sense?** *Nutrition*. 20(7-8):Pp 709-15. 2004

“there is evidence for a beneficial effect of L-carnitine supplementation in training, competition, and recovery from strenuous exercise and in regenerative athletics”

2. Kraemer W. et al. **Androgenic Responses to Resistance Exercise: Effects of Feeding and L-Carnitine.** *Medicine and Science in Sports and Exercise*, pp 1288-1296. 2003

“with more undamaged tissue, a greater number of intact receptors would be available for hormonal interactions”

3. Kraemer et al. **Androgenic responses to resistance exercise: effects of feeding and L-carnitine.** *Medicine and Science in Sports and Exercise.* 38(7); Pp 1288-96. 2006

“These data demonstrated that: 1) feeding after RE increased AR content, which may result in increased testosterone uptake, and thus enhanced luteinizing hormone secretion via feedback mechanisms; and 2) LCLT supplementation upregulated AR content, which may promote recovery from RE”

4. Volek, Jeff S. Et al. **L-Carnitine L-Tartrate Supplementation Favorable Affects Markers of Recovery from Exercise Stress.** *American Journal of Endocrinology and Metabolism.* 282: Pp474-482. 2002

“The amount of muscle disruption from MRI scans during LCLT was 41-45% of the placebo area. These data indicate that LCLT supplementation is effective in assisting recovery from high-repetition squat exercise.”

- f. **Proper Post Workout Supplementation:** The sooner you are able to get your body back into an anabolic state the better. One of the most effective ways to do this is with proper post workout supplementation/nutrition which may include:

- Whey protein
- Alkalyzing greens
- Glutamine
- Glycine
- High Glycemic/antioxidant fruit juice (ie; grape juice)
- Carnitine (Acetyl and L-carnitine forms if possible)

- g. **Vitamin C:** Of the many antioxidant properties found in Vitamin C, it’s ability to assist in healing throughout the body and it’s ability to help the body rid itself of toxins may be of utmost importance with regards to breaking through a training plateau. In his book, *The Hundred Year Lie*, Randal Fitzgerald interviews vitamin formulation expert Scott Treadway, whom states, “in addition to ascorbic acid, real vitamin C must include bioflavonoids (the

natural pigments in fruits and vegetables) like hesperidin, rutin, quercetin, tannins, along with other naturally occurring compounds. Mineral cofactors must be available in proper amounts. If any of these parts are missing, there is no vitamin activity (6).” When shopping for a vitamin C which your body will actually absorb and utilize, a powdered mineral form of ascorbic acid containing the bioflavonoids hesperidin, rutin, and quercetin, may be most effective, and “is more easily saturated by most people because it doesn’t change pH balance (9).” ***For these reasons, Poliquin’s C+Bio Fizz is the best!!***

*****With regards to weight/fat loss, bio-available vitamin C in the form of ascorbic acid has also been shown to be quite effective.** In a study performed by Naylor et al (below), the researchers found that when “**obese non-dieting women were given 1 gram of vitamin C (ascorbic acid) three times a day for a period of six weeks, they lost 5.5 pounds without even trying to diet** (2). *(Just one more reason to take a bio-available form of vitamin C!!)*.

1. Naylor G et al. **A double blind placebo controlled trial of ascorbic acid in obesity.** *Nutrition and Health.* 4(1); Pp 25-28. 1985

“the weight loss during the trial was small in both groups but was significantly greater in the ascorbic acid treated group.”

- h. Pantothenic Acid (Vitamin B-5):** According to Lipski, “This vitamin has many functions. Of benefit to the adrenals, pantothenic acid is used in the conversion of food to energy and in the synthesis of the neurotransmitter acetylcholine. Research has shown that pantothenic acid helps in the gut-healing process (9).” The Institute of Functional Medicine’s Clinical Nutrition textbook states “fatigue that may be unexplained by other causes may be addressed with B5 supplementation. Any situation in which low energy production or reduced production of red blood cells or steroid hormones is evident or suspected may warrant B5 supplementation (10).”
 - i. Vitamin B12:** “Vitamin B12 deficiency may also cause an inability to properly metabolize cholesterol (15)”, which may lead to limitations in the body’s ability to combat inflammation and production of testosterone.

j. **Vitamin D:** This often overlooked vitamin has been shown to play an important role in muscle strength, inflammation defense, and immune health. Below are the findings of just some of the research.

1. Al Faraj S, Al Mutairi K. **Vitamin D deficiency and chronic low back pain in Saudi Arabia.** *Spine.* 15;28(2): Pp 177-9. 2003

“Findings showed that 83% of the study patients (n = 299) had an abnormally low level of vitamin D before treatment with vitamin D supplements. After treatment, clinical improvement in symptoms was seen in all the groups that had a low level of vitamin D, and in 95% of all the patients (n = 341).”

“Vitamin D deficiency is a major contributor to chronic low back pain in areas where vitamin D deficiency is endemic.”

2. Ceglia L. **Vitamin D and skeletal muscle tissue and function.** *Mol Aspects Med.* 29(6):Pp 407-14. Epub 2008

“Clinical studies have indicated that vitamin D status is positively associated with muscle strength and physical performance”

3. Schwalfenberg G. **Improvement of chronic back pain or failed back surgery with vitamin D repletion: a case series.** *J Am Board Fam Med.* 22(1):Pp 69-74. 2009.

“Chronic low back pain and failed back surgery may improve with repletion of vitamin D from a state of deficiency/insufficiency to sufficiency”

4. Heath KM, Elovic EP. **Vitamin D deficiency: implications in the rehabilitation setting.** *Am J Phys Med Rehabil.* 85(11):Pp 916-23. 2006

“Treatment of vitamin D deficiency produced an increase in muscle strength and a marked decrease in back and lower-limb pain within 6 mos”

There are many other supplements (beyond the scope of this article) including natural testosterone boosters, insulin sensitizing agents, immune boosting supplements, and other vitamins and minerals which may also be of benefit in breaking through a strength plateau.

Change up your training

Exogenous substances and genetic freaks aside, training with the same exercises, the same intensity, with the same weight, for the same reps and sets, will eventually lead to stagnation of results. A sample program we have used with great success at APECS is our plateau buster template. Influenced by the training/teaching of one of the greatest minds and one of the greatest performers in the strength industry, Charles Poliquin and Doug Hepburn respectively, this template, when used properly (alongside proper nutrition/supplementation) has helped many of our athletes/fitness enthusiasts achieve remarkable strength results in minimal time.

From the book *Strongman: the Doug Hepburn Story*, author Tom Thurston quotes Hepburn speaking on the topic “never push your body faster than it can physically withstand. This is probably the main reason why lifters fail (notice that I said lifters and not programs). Sadly many lifters over-train on a regular basis, but remain unaware that they are doing it. Look at it this way: when a lifter arbitrarily decides to increase his or her training weight ten pounds a week, he or she is really saying 520 pounds a year or 1050 pounds in two years--- a completely unrealistic and unattainable goal. Unable to keep up with such a rigorous schedule, the body will quickly “stagnate” –a weightlifting term that means become unable to lift past a certain poundage due to muscle fatigue. Although all programs will probably result in stagnation if followed long enough, it has been my experience that faithfully following the two rules about repetition and poundage will produce predictable gains for at least one year---quite probably two to three (16).”

A sample 4 day template is below.

Day 1
Relative Strength Upper Body Emphasis

Date _____

Warm Up

Exercise	Reps	Sets	Intensity	Tempo	Rest Interval
A1: Seated External Dumbbell Rotator	10-12	2		3020	30s
A2: Trap 3 lift	10-12	2		3010	30s
B1: Standing Cable Shoulder Retractions	12-15	1		2020	20s
B2: Prone Shoulder Protractions (push-up position)	12-15	1		2020	20s

Strength

Exercise	Set	(Reps) Wk 1	Wk2	Wk3	Wk 4	Intensity	Tempo	Rest Interval
A1: Fat Grip Barbell Bench Press with Chains	1	5	5	4	4	4-5 rep max	40X2	120s
	2	5	5	4	4			
	3	5	5	4	4			
	4	5	5	4	4			
	5	5	5	4	4			
	6	5	5	4	4			
	7	5	4	4	4			
	8	5	4	4	4			
A2: Weighted Chin-Ups	1	5	5	4	4	6 rep max	40X2	120s
	2	5	5	4	4			
	3	5	5	4	4			
	4	5	5	4	4			
	5	5	5	4	4			
	6	5	5	4	4			
	7	5	4	4	4			
	8	5	4	4	4			
B1: Standing Overhead Log Press	1	4	4	6	6	20X0		60s
	2	4	4	6	6			
	3	4	5	6	6			
	4	4	5	6	6			
B2: Fat Grip Barbell Curls	1	4	4	6	6	30X0		60s
	2	4	4	6	6			
	3	4	5	6	6			
	4	4	5	6	6			
B3: Tricep Dips	1	4	4	6	6	30X0		60s
	2	4	4	6	6			
	3	4	5	6	6			
	4	4	5	6	6			

Day 2
Relative Strength Lower Body Emphasis

Date _____

Warm-up Activity

Exercise	Reps	Sets	Intensity	Tempo	Rest Interval
A1: Hip Warm-up Sequence (Your choice)	10 per exercise	1			30s
B1: Wall Facing Body Squats	20	1		3010	30s
C1: Reverse Hyperextension	10-12	2		3020	10s
C2: Back Extensions	8-8	2		3020	10s
D1: Box Jumps or Overhead Keg Med Ball Throws	5	3		X0X0	120s

Strength

Exercise	Set	Reps	Wk 1	Wk 2	Wk 3	Wk 4	Intensity	Tempo	Rest Interval
A: Overhead Squat	1	4	4	5	5			30X2	90s
	2	4	4	5	5				
	3	4	5	5	5				
B: Olympic Snatch	1	2	2	3	3			X0X0	180-240s
	2	2	2	3	3				
	3	2	2	3	3				
	4	2	2	3	3				
C: Barbell Back Squat	1	5	5	4	4			30X0	120-180s
	2	5	5	4	4				
	3	5	5	4	4				
	4	5	5	4	4				
	5	5	5	4	4				
	6	5	5	4	4				
	7	4	4	4	4				
	8	4	4	4	4				
D1: Calf Raise	1	10-12						30X0	30s
	2								
	3								
D2: Ab Wheel Rollouts	1	10-12						3010	60s
	2								
	3								

Day 3
Hypertrophy Upper Body Emphasis

Date _____

Warm Up

Exercise	Reps	Sets	Intensity	Tempo	Rest Interval
A1: Seated External Dumbbell Rotator	10-12	2		3020	30s
A2: Trap 3 Lift	10-12	2		3010	30s
B1: Standing Cable Shoulder Retractions	12-15	1		2020	20s
B2: Prone Shoulder Protractions (push-up position)	12-15	1		2020	20s

Strength

Exercise	Set	Reps	Intensity	Tempo	Rest Interval
A1: Incline Dumbbell Bench Press (Neutral Grip)	1	10-12		40X0	15s
	2	10-12			
	3 (optional set)	10-12			
A2: Hang Pushups from Power Straps	1	15-20		2010	120s
	2	15-20			
	3 (optional set)	15-20			
B1: Lat Pulldowns	1	8-10		4010	15s
	2	8-10			
	3 (optional set)	8-10			
B2: Seated Cable Rows	1	15-20		2010	120s
	2	15-20			
	3 (optional set)	15-20			
C1: Tricep 21's with diamond pushups (7 overhead cable extensions, 7 top half tricep pressdowns, 7 full tricep pressdowns, 7 diamond pushups)	1	21 + 7		2010	60s
	2				
C2: Seated Dumbbell Curl 21's (7 bottom half, 7 top half, 7 full)	1	21		2010	150s
	2				

Day 4
Hypertrophy Lower Body Emphasis

Date _____

Warm-up Activity

Exercise	Reps	Sets	Intensity	Tempo	Rest Interval
A1: Hip Warm-up Sequence (Your choice)	10 per exercise	1			30s
B1: Wall Facing Body Squats	20	1		3010	30s
C1: Reverse Hyperextension	10-12	2		3020	10s
C2: Back Extensions	6-8	2		3020	10s
D1: Box Jumps or Overhead Keg Med Ball Throws	5	3		X0X0	120s

Strength

Exercise	Set	Reps	Intensity	Tempo	Rest Interval
A1: Poliquin Step-Ups	1 2	25-30 25-30		1010	45s
A2: Single Leg Cable Hamstring Curls	1 2	6-8 6-8		40X0	60s
B1: Front foot elevated dumbbell split squats	1 2 3	10-12 10-12 10-12		40X0	60s
B2: Barbell Box Step Ups	1 2 3	10-12 10-12 10-12		10X0	120s
C2: Hanging Knee Raises	1 2	N (as many as you can do with perfect technique)		20X0	20-30s
C3: Ab Wheel Rollouts	1 2	8-10		3010	45-60s
D1: Farmer Carry	1 2 3	30 yards			30s
D2: Backward Sled Drags	1 2 3	30 yards			90-120s

Hire a Qualified Strength Coach

Some of the baseline credentials one may look for are NSCA, USAW, or NASM certifications.. Quite possibly the most advanced and comprehensive strength coach certification has to be Coach Poliquin’s PICP program. Not only does a strength coach learn the proper tools for screening upper and lower body structural balance, but the certification also teaches the program design, rehabilitation, and

the technical methods of the most successful strength coach for the past 25 years. How to incorporate cutting edge nutrition/supplementation alongside training are also covered, along with his increasingly popular PIMST (Poliquin Instant Muscle Strengthening Technique) course. To gain an understanding of how effective his methods are, click on the website www.charlespoliquin.com and notice the amount of sold out events around the globe and one can realize how quickly other strength coaches/trainers are catching on.

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