

# E<sup>2</sup> Abdominal Training

By

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Are you getting tired of endless crunches and spending what seems like hours staring at the floor mindlessly counting dust particles on the floor (prone plank holds), all for the purpose of trying to attain that elusive “six pack”? Are the returns on your invested time and effort lackluster to say the least? If you answered yes, then perhaps it is time to evaluate your current approach to abdominal training. After all, shouldn't effectiveness *and* efficiency (E<sup>2</sup>) be the goals of any training methodology?



How many dust particles can you count in 1 minute while holding a plank?

What muscle group is a dead giveaway for disciplined nutrition and superior strength and conditioning habits. Unlike arms and upper torso musculature, abdominal development is often a mystery, as articles of clothing can simply mask what is beneath. How many times have you seen somebody who looked big with their shirt on, only to reveal a midsection that resembles frosty the snowman melting in the sun on a hot beach day when the shirt came off?



In our world of instant gratification the easy way out often means the quickest way requiring the least effort. If we can get results passively, without using much effort, then why not. If we could take a magic pill, and actually have it work (as many supplement manufacturers advertise), then obesity rates would not be hovering around 60-65% of the population, and nearly everybody would have washboard stomachs. But that is not the case, and unfortunately unscrupulous supplement manufacturers take advantage of this promise, trading profits for adverse health effects. In fact, recently one of the most successful fat loss supplements was pulled off the market and now faces a class action lawsuit due to the many health complications associated with its use.

Alongside with the supplements are the health magazines, portraying naturally unattainable combinations of muscle mass and leanness. Little do many realize, it may not actually be the supplement that got that fitness model/bodybuilder looking the way they do. You can also throw in the

magic of photoshop picture editing, and completely revamp a model's physique. Just a few clicks of the mouse, and some creative editing, and oullah, a defined midsection. Now we have the technology to take a completely obese person to model leanness in about an hour. Talk about evolution. It took us "thousands" of years just to stop dragging our knuckles on the ground (any recommendations for those of us who are constantly running to Walgreens for Band-aids?).



So maybe the first few options aren't realistic, therefore a defined midsection might require a little energy and effort. The next option might be one of those heavily marketed diet programs. You know the one's where they hire the big name actress and help her lose lots of weight and market the hell out of it. For a short time the actress touts the benefits of how easy the diet was and how great she feels, only to find herself 6 months to a year later on the cover Enquirer magazine looking like the female version of the Michelin Man. What could have gone wrong?

For starters restricted calorie diets can only last for so long, and they are seen as a stress to the body. As the calories dwindle down below 1000-1200 calories per day, the stress hormones begin to elevate and signal changes to one's metabolism. This combined with the synthetic chemicals used as additives/preservatives and potentially carcinogenic chemicals leached into the food from microwaving the plastic containers they come in, can cause some serious health complications and undesirable alterations to one's metabolism (stay tuned as that is the topic of an entire research article).

Well, we have seen that crunches, magic pills, and fad diets may not be the most effective, or for that matter, efficient (*and healthy*) methods for attaining a defined mid-section. Think about it, if all those diet books, diet programs, and quick fix fitness solutions really worked, would there really be a need for so many of them? So if the easy way out is not for you, and hard work and dedication pave the way toward your successes, then it's time to get down to the nuts and bolts of what really works in achieving those desirable "six pack" abs. Sometimes all it takes is a spark to light the fire, and to keep this fire burning bright, motivation and adherence must be nurtured.

## Check Your Nutrition

First things first, if you have too much bodyfat encasing your midsection, it may be nearly impossible to see abdominal muscle definition. You see, for the abdominal muscles to show definition and separation, low levels of bodyfat are of necessity. Generally, below 10% bodyfat for males and below 12-14% for females is the minimum “level” to begin washing your clothes on your midsection. Body composition experts have recommended even lower levels of bodyfat necessary for the linea alba (vertical line that separates the right and left rectus abdominis musculature) to become visible. So understanding that decreased bodyfat is first priority for the “six pack” look, what are the most effective ways to achieve this single digit leanness.

### 1. Proper Nutrition

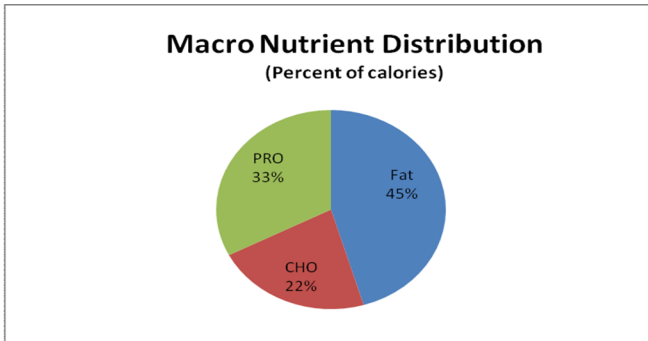
Obviously this is quite possibly the most important factor in achieving leanness. Here are some tips;

- Try cyclical ketogenic dieting as this has been shown to have not only very positive benefits on lean body mass, but also in improving cardiovascular risk factors including LDL cholesterol and triglyceride levels. ([Click here](#), or read *Fat Loss, Body Composition, and Overcoming Mediocrity more detail on the benefits of cyclical Ketogenic dieting*).

*Here is a 2 day example:*

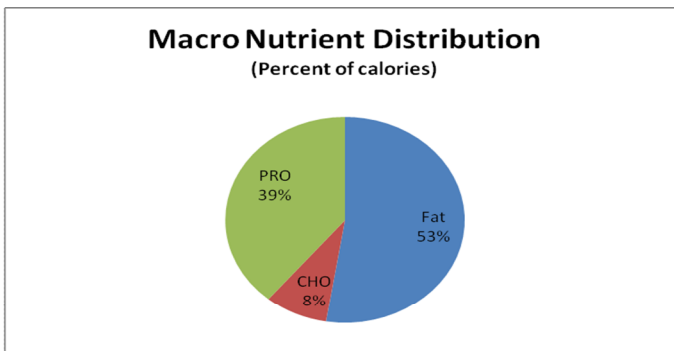
#### Day 1: Workout Day

Food Item	Servings	Calories	Fat (g)	Cholest (mg)	Sodium (mg)	CHO (g)	Sugars (g)	Fiber (g)	PRO (g)
Wegman's Organic grass fed Organic sirloin Steak	4	480	14	260	180	0	0	0	92
Whole Foods (365) Pine Nuts (Raws)	1.5	285	29	0	0	6	2	2	6
Anceint Harvest quinoa Garden pagodas gluten free	2	410	2	0	8	92	2	8	8
Plainville Farms Ground Turkey 94% fat Free	3	480	21	180	255	3	0	0	72
Organic Avocado	1	289	26	0	0	15	0	12	3
Whole Catch Wild Alaskan Cod Fillets	2	180	1	80	160	0	0	0	40
Whole Foods Organic Broccoli Florets	2	20	0	0	12	4	2	4	4
Challenge Organic Butter	1	100	11	30	90	0	0	0	0
ON casein Protein	1	120	1	10	250	4	1	1	23
Fage Total greek yogurt	1	300	23	40	65	7	7	0	15
King Oscar Sardines, Mediterranean style	1	150	10	110	320	0	0	0	13
Whole Foods Raw Macadamia Nuts	1	220	23	0	7	4	1	3	2
Tree of Life- Organic Goji	1	110	1	0	130	25	15	5	4
Blue Berries Raw	1	84	1	0	2	21	15	4	1
Cinnamon	1	0	0	0	0	0	0	0	0
Metagenics Omega-3 Fish Oil Soft Gels	7	140	14	28	0	0	0	0	0
Ito En sencha Shot	2	0	0	0	40	0	0	0	0
Vibrant Health Green	2	88	2	0	100	14	2	6	6
Totals	34.5	3456	179	738	1619	195	47	45	289



## Day 2: Non- Workout Day

Food Item	Servings	Calories	Fat (g)	Cholest (mg)	Sodium (mg)	CHO (g)	Sugars (g)	Fiber (g)	PRO (g)
Whole Foods Market Alaskan Wild Caught Stockeye Salmon	4	240	12	96	72	0	0	0	30
Organic Avocado	1	289	26	0	0	15	0	12	3
Wild Harvest Organic Fresh Herb & Greens Salad	1.5	30	0	0	53	5	0	3	2
Whole Foods Market Organic Free Range/ No Antibiotics chicken Breast	3	375	4	195	218	0	0	0	78
Whole foods Raw Macadamia Nuts	1.5	330	35	0	11	6	2	5	3
Wegman's Organic Beef Strip Steak	4	520	18	180	160	0	0	0	92
Whole Foods Organics Broccoli Florets	2	20	0	0	12	4	2	4	4
Whole Foods Market roasted Brussel Sprouts	1	120	9	0	500	8	0	4	4
Challenge Organic Butter	1	100	11	30	90	0	0	0	0
Fage Total Greek Yogurt	1	300	23	40	65	7	7	0	15
ON Casein Protein	1	120	1	10	250	4	1	1	23
Cinnamon	1	0	0	0	0	0	0	0	0
Metagenic's Omega-3 Fish Oil Soft Gels	7	140	14	28	0	0	0	0	0
Ito En Sencha Shot	2	0	0	0	40	0	0	0	0
Vibrant Health Green Vibrance	1	44	1	0	50	7	1	3	3
<b>Total</b>	<b>32</b>	<b>2628</b>	<b>154</b>	<b>579</b>	<b>1521</b>	<b>56</b>	<b>13</b>	<b>32</b>	<b>257</b>



- **Eat more protein and healthy fat:** Put down the bagel and try some quality proteins include grass fed beef, wild caught fish, cage free chicken, cage free organic eggs (whole eggs), sardines (not in soybean oil!), and . Some good sources of fats include Avocados, macadamia nuts, pine nuts, almonds, and whole fat Greek yogurt.
- **Eat your veggies:** All too often people go on low carb diets and decide it may be wise to cut out the veggies to avoid the calories. Bad idea, as this can wreak havoc on the body's delicate PH balance and levels of oxidative stress, which can further lead to elevations in triglycerides and LDL cholesterol.
- **Avoid processed foods:** Nobody knows for sure what half the chemicals in these foods actually do to the body by themselves, never mind the synergistic effects of multiple chemicals.
- **Do not eat foods that required microwaving plastics:** Every time you heat the plastic, chemicals from the plastics can leech into your food. When eating those process microwavable meals, talk about a one-two negative health punch. Never mind the negative health problems associated with your typical processed microwave meal additive/ingredients, but sprinkle a little potentially carcinogenic plastic on top, and there you have a recipe for some potentially serious health effects after long term use.
- **Get your antioxidants:** You can get many of these through high ORAC foods such as Prunes, Goji Berries, Blueberries, Acai (make sure it is cold-processed), raspberries etc.... You can also get valuable antioxidants is supplement form including R-Alpha Lipoic Acid, Vitamin E (be sure it includes a mix of all tocopherols and tocotrienols), Selenium, Co-Enzyme Q10, Vitamin C (be sure it is in bio-available form ascorbate with flavonoids Rutin, Herperidin, Quercitin), as well as Resveratrol.

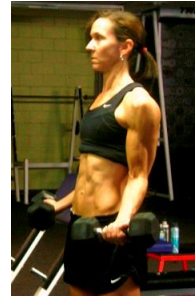
## 2. Combination Cardio

- Beginning a cardio session by sprinting at high intensity short duration intervals first has been shown to be an effective tool in fat cell mobilization.
- Performing steady state "fat burning zone" cardiovascular exercise immediately after interval training is an effective method for burning the mobilized fat cells which have accumulated into one's bloodstream.

## Ab Training:

Do you really need to do all those crunches or sit-ups to develop a washboard stomach? Is it possible to develop your abs without even directly training abs? Hmmmm. Let's delve into this topic.

- Did you know that in a study performed in 2007, Hamlyn and his research team compared the abdominal activation of horizontal "core" exercises versus squats and deadlifts. The researchers found the squats and deadlifts to have significant abdominal activation when compared to the targeted "core" exercises. So here we have significant activation of the abdominals while performing standing exercise that do not directly target the abdominal musculature. (2).
- Understanding that the standing loaded exercise had significant abdominal activation when compared to the horizontal (lying down) ab exercise, did you know that there is a way to further increase the abdominal activation? Loaded exercises while walking have been shown to have considerably greater activation than standing exercises. Imagine that, walking with an asymmetric load held at waist height in front of you, elicits 132% greater abdominal activation than standing loaded exercises (1). So basically, standing compressive loaded exercises (ie; squats and deadlifts) are more effective/efficient than horizontal targeted ab exercises, whereas loaded walking exercises elicit even greater abdominal muscle activation than their standing counterparts.
- Another study done in out of the Biomechanics lab of San Diego State University comparing 13 of the most common ab exercises found 3 of the 5 most effective exercises for rectus abdominis activation involved movement of the legs rather than typical crunching actions involving torso movement. For oblique activation the captain's chair, bicycle maneuver, and reverse crunch (all leg movement abdominal exercises) were the top 3 in terms of muscular activation.
- In a more recent study performed by world renowned low back/core specialist, Dr. Stuart McGill and his team, the researchers studied the EMG activation of different trunk musculature in strongman events. They found the greatest number of peak muscle contractions of the rectus abdominis, and internal/external obliques during the walking phases of the Farmer Walk, Super Yoke Walk, and Suitcase carry (3). Yet another study showing the benefits of strongman training involving compressive loaded walking.



Looking at abdominal training from a basic physiological perspective, and understanding that muscles need stimulation to increase in size and strength, then why do so many fitness enthusiasts still insist on hundreds of non-resisted crunches. Muscles require progressive resistance to stimulate protein accretion, which will in turn lead to gains in strength and lean muscle tissue.

An athlete/individual also wants to make sure they are utilizing the most effective methods which will lead to positive outcomes in the shortest periods of time. This would be considered efficiency of training. So if you could perform exercises that not only strengthen other parts of your body from a functional upright position, but have greater muscle activation than directly targeted horizontal abdominal training, doesn't it only make sense to add these to your training.

Isn't it ironic that almost all team sports are played standing in an upright position, whereas it seems almost all directly targeted abdominal exercises are performed from a laying horizontal position. The term transfer of training effect comes to mind. You know, the mimic the motions of the sport phenomenon that has swept across the fitness industry. (In my most sarcastic tone) *Standing on a bosu ball on one leg while performing pistol squats and holding a med ball out in front of you mimics motion of sport (not sure how, but let's go with it because we see it in the trade catalogs and in various athlete training publications).*

Well, then if all the "experts" touting the benefits of these toys, gadgets, and (ahem)"*sport specific*" training methods can adopt the transfer of training theory to these tools, then why do these same proponents still insist on performing their "core" exercises from laying horizontal positions in hopes of increasing standing/upright stability on the field of play???

Hmmmmm? Rehabilitation aside, *let's bite our tongue and stop there!*

Here is a quick peek at some examples of both effective and efficient abdominal training methods:

1. **Super Yoke Walk:** If you do not have access to a Super Yoke, you can set up a chain Yoke which involves setting up some lifting chains on both sides of a barbell. Weights or Kettlebells can be looped into the chains, hanging roughly 6" from the ground. Begin by unracking the bar from a squat rack, with the bar in proper back squat position across the shoulders. Keeping the torso stable, with significant intra-abdominal pressure to maintain stability, begin walking a pre-determined distance. Try to walk a straight line with little

lateral or anterior/posterior movement of the chains. Be sure you do not let yourself lean or bend at the torso, as this may lead to increased injury potential.

2. **Farmer Carry:** If you do not have access to farmer carry handles, barbells can do the trick as they require not only great levels of forearm strength/control, but with their 7' length, the core activation to control the bar can be significant. Similar to the super Yoke, pre-determine a distance, maintain torso rigidity/stability, and go.
3. **Overhead Slosh Stick Walks:** A Slosh stick is basically a large PVC pipe, roughly 8 feet long, partially filled with water (the degree of difficulty depends on how much water you want to add). Due to the fact that the water will "slosh" from side to side inside the pipe, it is very difficult to lift this tool, never mind holding it stable above your head while walking. That said, the core activation and spinal stabilization requirements are tremendous.
4. **Keg Carry:** Holding an asymmetric load at wrist or waist height in front of you while walking has been shown to have significant rectus abdominis muscle activation (1).
5. **Squat and Deadlift Variations:** Besides the highly effective conventional squat and deadlift techniques, an unconventional method for more advanced athletes is the asymmetric loading method. This method basically involves loading only one side of the bar (or loading more onto one side) while maintaining upright posture and spinal stability. Not only is this tremendously challenging, but elicits significant activation of the internal/external obliques, as well as the rectus abdominis.
6. **Chin up/Pull Up variations:** When stabilizing the lower extremities and torso properly, the abdominal and core musculature are heavily active. After a high volume of chin ups/pull ups, you may notice a little soreness across the midsection the next couple of days.
7. **Hanging Knee/Leg Raises:** Done from either hanging from a chin-up bar, captains chair, or decline bench, we have seen from the San Diego State University study, that abdominal exercises which involve movement of the legs have a high degree of muscular activation.
8. **Standing Jumpstretch Band Crunches:** Louie Simmons of Westside Barbell popularized this exercise years ago. With a Jumpstretch band looped around a chin up bar one can perform many variations of a crunch, but in a functional standing position. (*You should be able to find a demo on Youtube*)

9. **Ab Rollouts:** There are many variations to this including ab wheels, barbell rollouts, single arm rollouts, resisted rollouts, standing rollouts, and many more. *Once again, do a search on Youtube for some demos.*
  
10. **45 degree incline cable crunches:** Try setting up a 45 degree incline bench facing away from a high cable pulley. Attach a tricep rope to the cable. Place a Bosu trainer on the low back portion of the bench. Sit down on the bench with feet curled under you and heels apart. Have a partner hand you the rope. With fully extended arms and spine, look back at the cable and begin pulling the rope toward your shoulders, with arms at each side of the head. Once your hands are resting at the anterior portion of your delts, begin crunching your torso while exhaling as much as possible. Only crunch to the position in which you can maintain abdominal contraction. Once concentric contraction is completed, perform the eccentric contraction by slowly uncurling the body back to the full extension start position.

In closing, if you want a defined midsection, the diet is a good first place to start. After correcting your eating habits, a combination of E<sup>2</sup> abdominal methods and proper cardiovascular training should have you on your way to that all elusive “six pack”.

## REFERENCES

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