

# MD+MRP LoCarb

The Ultimate Anabolic, AntiCatabolic, Fat Burning, Meal Replacement Shake

## MRP LOCARB

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MRP LoCarb, the ultimate low carb, high protein meal replacement, is also engineered to increase the anabolic hormones and decrease the catabolic ones, increase fat burning, increase energy, and provide the body with an enhanced immune response to help recovery and combat overtraining.

MRP LoCarb is a high protein/low carbohydrate/ moderate fat meal replacement powder containing the most advanced protein blend on the market. One serving of MRP LoCarb contains 250 calories, 3 grams of carbs (excluding the fiber), 45 grams of protein (42 grams of whole protein and 3 grams of glutamine peptides), healthy fats and fiber, and a complete balanced Vitamin and Mineral profile, making it the highest quality, most nutritionally complete meal replacement shake on the market today.

But MRP LoCarb is much more than just a low carb, high protein meal replacement. It's also engineered to increase the anabolic hormones and decrease the catabolic ones, increase fat burning, increase energy, and provide the body with an enhanced immune response to help recovery and combat overtraining.

MRP LoCarb has a complete complement of macro and micro-nutrients, including:

1. A sophisticated blend of proteins (CFM whey protein isolate, calcium caseinate, egg albumen, soy protein isolate, and glutamine peptides) that give fast and intermediate spikes of amino acids that increase protein synthesis, and long duration increases in amino acids that decrease muscle breakdown. For more information about the properties of the protein blend, see the description of [Myosin Protein](#).

2. Choline and L-carnitine. This combination of ingredients has recently been shown to aid fat and weight loss.<sup>1</sup> The combination of ingredients increases fat loss by both increasing the breakdown and burning of body fat and, interestingly enough, actually flushing fat (in the form of acylcarnitines, which are actually chunks of fatty acids combined with carnitine) into the urine and out of the body.
3. Compounds (including choline and L-carnitine) that improve training, recovery and body composition by increasing energy, decreasing muscle damage, increasing protein synthesis, and increasing the mobilization and burning of body fat, including:
  - L-carnitine (1,000 mg per serving)
  - Lecithin
  - Choline
  - Inositol
  - CLA (conjugated linoleic acid)
  - Xylitol
  - D-ribose
  - ALA (alpha lipoic acid - 200 mg per serving)
  - Chromium picolinate
  - Phosphates
  - A complete vitamin and mineral blend that includes 24 vitamins, minerals (many as complexes with Krebs Cycle intermediates, and amino and organic chelates) and antioxidants.

For example, **L-carnitine** is essential for fatty acid transport and burning of fat for energy. As well, it's essential for proper muscle function and some studies have shown that carnitine supplementation improves exercise performance.<sup>2</sup>

Natural **phosphates**, as present in MRP LoCarb have also been shown to prevent a decrease in T-3 and increase the BMR.

**Choline, lecithin** and **inositol**, acting as neurotransmitter precursors and lipotropic agents, help optimize energy and fat metabolism.

**Chromium** enhances insulin sensitivity and decreases insulin resistance, and helps you to lose body fat.

**Conjugated Linoleic Acid (CLA)** has significant weight and fat loss properties. Studies in mice fed CLA showed a marked reduction in body fat and an increase in body protein levels.<sup>3</sup> Other animal studies demonstrated similar or even better results.

But CLA has marked effects in humans as well.<sup>4</sup> A study published in the International Journal of Obesity found that those who were given CLA for a four week period had significant decreases in abdominal fat.<sup>5</sup> As well, a recent study concluded that long term CLA supplementation not only helps to decrease body fat but also helps to maintain weight loss in the long term.<sup>6</sup>

**Alpha lipoic acid (ALA)**, a potent antioxidant<sup>7,8,9</sup> that can recycle other antioxidants such as vitamin C, vitamin E and glutathione.<sup>10,11</sup> ALA was

added to MRP LoCarb to increase insulin functioning and sensitivity<sup>12,13</sup> and decrease body fat by its actions on the pro-inflammatory cytokines<sup>14,15</sup> and on secondary cortisol elevations. Interestingly enough a combination of ALA and CLA, also in LipoFlush, had a synergistic effect on increasing insulin sensitivity.<sup>16</sup>

**D-ribose** is used to increase muscle metabolism and energy.

**Xylitol** and ribose make up the bulk of the carbohydrate content of MRP LoCarb, and increase its palatability. But there are other reasons why both of these were included in the formulation.

Studies have shown that xylitol affects metabolism in different ways than sugars and most other carbs and as such not impacting on insulin or fatty acid oxidation.<sup>17,18</sup> As well, other studies have shown that xylitol may improve nitrogen balance, increase fat oxidation and decrease carbohydrate oxidation (likely spares glycogen) as compared to glucose (likely secondary to a decreased insulin response).<sup>19,20</sup> Xylitol is also used to help preserve muscle mass.<sup>21</sup>

4. Significant amounts of the monosaturated, polysaturated, and essential fatty acids, including mono and diglycerides (diacylglycerol or diglycerides have recently been shown to enhance weight and fat loss,<sup>22</sup> GLA from evening primrose and borage oil, fish oil (EPA and DHA), alpha linoleic acid, alpha linolenic acid, and oleic acid.
5. Soluble and insoluble fibers (psyllium husk, oat fiber, cellulose gum, apple pectin, carrageenan, xantham gum, and pre and probiotics (including fructooligosaccharides, inulin and lactobacillus acidophilus) that keep the bowel and your body healthy, increase insulin sensitivity, and also help keep cholesterol levels in check.

MRP LoCarb, because it's a complete low carbohydrate meal replacement powder, can be used in confidence by anyone on the Metabolic Diet and any low carbohydrate diet plan including Atkins' and Protein Power. It's also useful for those on the Metabolic Diet higher carb plans, or other higher carb diets, because the level of carbs can be easily modified by mixing the powder with milk or juices instead of water or simply by adding carbs in the form of fruits or other carb sources including easily available maltodextrins.

The use of MRP LoCarb within a few hours of training increases the training response and protein synthesis, maximizes rebound macronutrient replenishment and improves recovery. The special blend of proteins in MRP LoCarb, like the Myosin Protein blend, maximizes protein synthesis and minimize protein breakdown for several hours.

Easy to prepare and use, our MRP LoCarb simplifies meal planning and can be taken in place of any meal, as an in between meal and/or before bed snack, and as a post training meal.

**Directions:** Add packet contents to 8-12 fl. oz. of cold water, milk or juice (depending on the carb level of the diet you're on) and mix/blend thoroughly.

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## Information For Those On The Metabolic Diet Or Any Lower Carb Diet

Several studies have shown the effectiveness of meal replacements for weight and fat loss.<sup>23,24,25</sup>

MRP LoCarb is the perfect meal replacement for anyone on lower carb diets. The blend of macronutrients is optimal for utilizing the beneficial effects of insulin on protein metabolism while at the same time avoiding the unwanted effects of insulin on fat metabolism.

One of the reasons is that when you're fat adapted insulin doesn't do exactly the same things as when you're carb adapted. For example insulin has less of an effect on lipogenesis and on decreasing lipolysis when you're fat adapted than if you're carb dependant.

As well, MRP LoCarb is ideal for maintaining body weight after weight loss. Not only does it provide high levels of quality proteins,<sup>26</sup> but also ingredients that increase metabolism and promote muscle retention and fat loss.

### Post Training Nutrition

MRP LoCarb is the perfect post training drink for anyone on a low carb diet as it dramatically increases protein synthesis, and replenishes all of the muscle cell energy sources including glycogen (partly through the gluconeogenic process) and the important intramuscular triglycerides pool, while at the same time limiting fat formation and storage and increasing recovery.

The special blend of proteins in MRP LoCarb, similar to the one that's in the Myosin Protein blend, maximizes protein synthesis and minimize protein breakdown for several hours, thus making efficient use of the increased protein synthesis that occurs up to 24 hours after training.

Since the presence of fat combined with protein and limited carbs does not decrease the insulin response or the absorption of amino acids and protein as it does with those who are carb adapted, MRP LoCarb is the perfect post workout meal supplement for those who are fat adapted and are on a lower carb diet.

The problem with taking in a lot of carbs post training is that while it increases insulin, something that amino acids and protein can do quite well, it also decreases GH and IGF-I expression. On the other hand using protein and amino acids to increase insulin also increases GH and IGF-I levels and provides a much more anabolic effect overall while at the same time preserving lipid oxidation post exercise.

Also the use of amino acids and fat, with a minimum of carbs post workout, in someone who is fat adapted, besides leading to an increase in insulin (without as much of an adverse effect on fat metabolism - at least for our purposes) and not affecting the

absorption of protein and amino acids from the GI tract, it also dramatically increases intramuscular triacylglycerol levels, which is the fat that is first used up with exercise, before blood levels of FFA.

At the same time there is also some increase in glycogen levels, both hepatic and muscular, first of all through the small amounts of carbs that are part of the MRP LoCarb, and more importantly through the gluconeogenic process in which the body forms only the carbs it needs by making glucose mainly from fats (the glycerol portion) and protein (various amino acids).

The slow increase in glycogen levels initiated by MRP LoCarb actually serves to keep insulin sensitivity high for long periods of time and thus increases amino acid transport and protein synthesis for several hours after training.

On the other hand, because of its sophisticated blend of ingredients, MRP LoCarb can also be used for those on higher carb diets. Using MRP LoCarb as the base, they can mix it in milk and/or add fruit, honey, ice cream, or other sources of carbs. Below is an example of a Metabolic Shake for those on lower and higher carb diets.

**Dr. D's Low Carb Metabolic Shake:** Uses only the three mixed together to minimize carb intake and is especially suited for the Cutting Phase.

MRP LoCarb  
(Creatine Advantage – optional)  
Myosin Protein

**Dr. D's Carb-Enhanced Metabolic Shake:** Includes extra carbs and is especially suited for the Mass and Strength Training Phases:

MRP LoCarb  
(Creatine Advantage – optional)  
Myosin Protein  
Add any combination of carbs, including maltodextrin, honey, fruit and ice cream, to desired carb level.

## References:

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