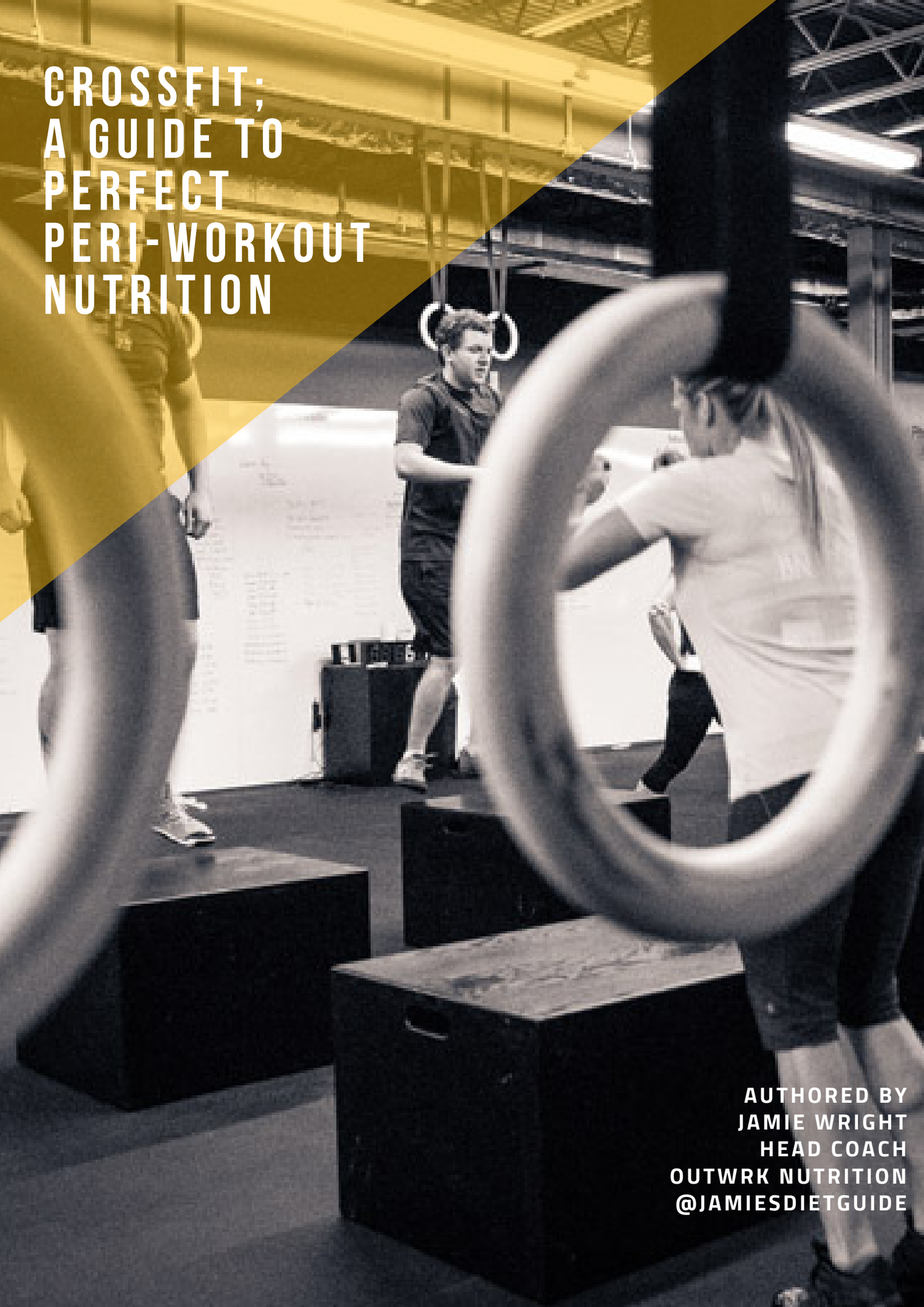
CROSSFIT; A GUIDE TO PERFECT PERI-WORKOUT NUTRITION



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INTRODUCTION

Crossfit is a multi-modal sport that involves varying levels of intensity across a diverse range of skills and movements modeled on other sports and or uniquely created for Crossfit itself.

It is an extremely challenging sport that demands a lot of the athlete and uniquely balances community with competition.

The intense nature of the sport demands a more concentrated focus on recovery and the various modalities that fall under the umbrella of "recovery".

Arguably the most important aspect of recovery is an athlete's diet. Acutely, the diet can also play an important role in how an athlete performs in a given session.

The focus of this guide is to give nutritional strategies surrounding Crossfit activities that will lead to optimized performance and recovery for the athlete.

PERI-WORKOUT; AN OVERVIEW

The peri-exercise period (that is; pre, intra and post-exercise) is a crucial time for an athlete to promote optimal performance and recovery.

Exercise is strenuous and, depending on the duration, intensity and environment of the activity, can result in; reductions and or depletion of existing glycogen stores, increased protein oxidation, muscular breakdown, reduction in circulating electrolyte levels and reduction in hydration levels. Crossfit is one of the more demanding sports out there so addressing these issues increases in importance (scaling with the level the athlete performs at).

All these associated factors can severely impede performance and recovery, if not leading to reductions in performance and recovery in subsequent bouts of exercise (be they the same day or in the days following). Adequate nutrition may in part address these issues.

Therefore, the goal of dietary intake around exercise should be;

· To have a glycogen sparing effect and or restore glycogen stores
· Reduce protein catabolism
· Increase muscle protein synthesis
· Restore any loss in electrolyte levels
· Optimize hydration levels and ultimately avoid dehydration

CROSSFIT; PRE-WORKOUT NUTRITION STRATEGIES

PRE-WORKOUT; NUTRITIONAL STRATEGIES

Before diving into the strategies it's important to define what the "pre-workout period" (or at least when we're referring to in this guide) is.

The pre-exercise period can refer to the entirety of the time from completion of one event/exercise session/class etc. to the next.

The use of a high carbohydrate diet has been shown to promote elevated levels of muscle glycogen (carbohydrate stores within muscle) which has translated into performance benefits amongst athletic populations.

The literature recommends between 7 to 10g/kg of carbohydrate a day for athletic populations however this may not be conducive for some individuals depending on their calorie intake. We prefer to work out carbohydrate intakes individually to ensure that other nutrients aren't compromised. We'd recommend a preference towards carbohydrate intake over fats however some individuals perform better with a higher fat diet than carbohydrate. It may be better to work with a coach to help determine the best course of action in this situation.

PRE-WORKOUT; NUTRITIONAL STRATEGIES

As we get closer to exercise we can start to manipulate dietary intake to address the other factors influenced by peri-workout nutrition (such as glycogen sparing effect, reducing protein breakdown etc.).

For example, if an athlete were to have a meal containing protein and carbohydrate (25 – 40g of protein and between 25 – 100g of carbohydrate depending on time between meal and beginning of exercise) this can not only provide an alternative fuel source (predominantly referring to the carbohydrate) to our stored glycogen and provide a “sparing” effect but it can also provide amino acids which will aid in combating protein catabolism whilst increasing protein synthesis. In times of more severe carbohydrate deprivation these amino acids can even be converted and used as an alternative energy source.

As we get closer to exercise the size of the meal should decrease. It may be of benefit to some to isolate the meal to carbohydrate only if it is to be consumed within sixty minutes of activity (to avoid any digestive issues).

It's also important to consider the type of carbohydrate too, when deciding on food choice and depending on when the meal is consumed.

PRE-WORKOUT; NUTRITIONAL STRATEGIES

Within 60 minutes of activity commencement;
A high glycaemic carbohydrate source would be recommended if the meal is to be consumed within 60 minutes leading up to exercise and would typically range between 20 – 60g for a meal. A prefect example would be a banana, which is also a rich source of electrolytes and contributes to hydration state.

Beyond 60 minutes of activity commencement;
A low glycaemic carbohydrate source would be more advised for any time beyond 60 minutes leading up to exercise and would be highly personalized (dependent on total calorie intake based on goals, lifestyle etc.) A serving of >60g would be our advice although, like I said, it is highly personalized and a serving of this size may be uncomfortably large for some. This may be more beneficial for those competing in more endurance based events (for example in Crossfit if it is a run, swim, bike etc. focused workout). I'd also consider combining this with a source of protein (somewhere between a 25 - 40g serving of protein). An example of this kind of meal may be a lean meat portion (chicken breast, turkey breast etc.) and a carbohydrate source such as wholegrain rice, sweet potato etc.

CROSSFIT; INTRA-WORKOUT NUTRITION STRATEGIES

INTRA-WORKOUT; NUTRITIONAL STRATEGIES

Intra-workout nutrition can have a significant effect on Crossfit event result outcomes, both in terms of the event currently being competed in and subsequent events if athlete's are performing multiple times on the same day.

These strategies should be focused on two key aspects; hydration levels and provision of glycogen sparing, high glycaemic carbohydrate.

Concentrating first on hydration, it is recommended athletes consume 250mls of water every 15 minutes of exercise. If this can be performed evenly throughout the 15-minute period it would obviously be more ideal for the performer but this isn't always practical.

Between events and or any other stoppages would be an ideal time to "catch up" on the recommend amount of water consumption throughout training (if the recommendation of consuming 250mls every 15 minutes is not entirely feasible).

Adequate hydration is critical for optimizing performance and recovery. As little as a 1% loss in body weight as a result of water loss can lead to significant performance/recovery detriment.

INTRA-WORKOUT; NUTRITIONAL STRATEGIES

Carbohydrate intake during exercise can be a useful tool to reduce the usage of pre-existing carbohydrate stores and maintain performance.

Regarding the intra-workout period we'd be aiming to consume high glycaemic/ simple forms of carbohydrate during long duration, intermittent and or low intensity exercise.

When ingesting these it's helpful to be aware of the limit limits of our body as it relates to how much carbohydrate it can handle and how, if we over consume carbohydrate during training, this can lead to abdominal pain and discomfort.

Our bodies are capable of oxidising (which is essentially making use of/metabolizing) approximately 60g of carbohydrate an hour. This is due to the limitations of our carbohydrate transporters within the intestine and amounts over 60g may over saturate them.

However, if we use multiple forms of simple carbohydrate e.g. glucose, fructose etc. our oxidative capacity can increase as our body utilizes different transporters for different forms of carbohydrate. A sports drink (powerade etc.) may be a good option, however fruit juice provides multiple forms of simple carbohydrate and so you may be able to consume more, reap more benefit and not suffer any digestive issues.

INTRA-WORKOUT; NUTRITIONAL STRATEGIES

For high intensity work, depletion of glycogen stores may not be as much of an issue (however this is highly dependent on the actual duration and type of activity performed) so carbohydrate supplementation during exercise may not be as beneficial. In Crossfit this is really dependent on the event. For example, a WOD with breaks between each rounds may require strategies like this to ensure consistent performance whearas a strength ladder (increasing weight up to 1/3/5RM) would likely have next to no benefit.

Electrolytes are also important to consider. As we train we sweat. This is to reduce core body temperature and obviously leads to loss of water. However, we also lose electrolytes in our sweat as well. The electrolytes are calcium, potassium and sodium and consumption of these should not be isolated to just the few hours surrounding and involving exercise but across the entire day.

Reduced electrolyte levels can manifest in; impaired cognitive function, poorer decision making, reduced accuracy, reduction in muscle power/strength, increased muscular fatigue and increased risk of cramping. If dietary intake of electrolytes is adequate then further supplementation is not required (which is the case for most athletes), however additional supplementation would likely have no negative consequences and therefore would be something we'd advise most athletes to consider taking with water during exercise.

CROSSFIT; POST-WORKOUT NUTRITION STRATEGIES

POST-WORKOUT; NUTRITIONAL STRATEGIES

Following exercise nutrition plays a very important role in recovery, optimizing muscular hypertrophy and preparation for the next exercise session.

The type, duration and intensity of exercise will influence the following, but exercise induces the following changes;

· Reduction in muscle glycogen
· Increased protein breakdown
· Increased muscle protein synthesis

It is the goal of the athlete to restore any loss in muscle glycogen, reduce protein breakdown and further elevate muscle protein synthesis.

These goals can be met with consumption of a protein and carbohydrate source after training.

Post-workout protein ingestion will not only further elevate muscle protein synthesis but it can also reduce protein breakdown and should be the priority when planning post-workout meals.

Post-workout carbohydrate can effectively “turn off” (if not significantly reduce) protein breakdown, whilst also being used to replenish any reduction in glycogen stores.

POST-WORKOUT; NUTRITIONAL STRATEGIES

Protein

We're aiming for a *high-quality protein source after training*. This means a protein source with an adequate amount of branched chain amino acids (BCAAs). BCAAs are considered constituent members of the essential amino acid group. This means quite simply that we cannot synthesize them ourselves and must attain them from our diet.

Examples of high quality protein sources which can be used following training are;

· Whey protein (or similar alternative)
· Egg white
· Beef
· Chicken
· Cod

For vegans and vegetarian's high quality protein sources include;

· Tofu
· Seeds
- Beans and legumes
- Spirulina

For best results, aim for between *25 – 40g of protein* with *5 – 10g of BCAA* after exercise to get the most optimal recovery response.

POST-WORKOUT; NUTRITIONAL STRATEGIES

Carbohydrate

Post-workout carbohydrate can have an additive effect when used in tandem with protein. You could say that carbohydrate is the "Robin" to protein's "Batman".

On its own, post-workout carbohydrate (referring to those of higher glycaemic index scores / more readily digestible carbohydrates), thanks to its role in increasing circulating insulin levels, can further down regulate muscle protein breakdown.

Notably carbohydrate alone has no direct effect on elevating muscle protein synthesis. Therefore, utilizing both protein and carbohydrate post-workout will have the best possible outcome for further elevating muscle protein synthesis and down regulating protein breakdown.

In addition, it also aids in replenishing our body's glycogen stores that are utilized as fuel during exercise (which can also play a role in reducing protein breakdown).

POST-WORKOUT; NUTRITIONAL STRATEGIES

There are no strict recommendations for carbohydrate intake (given that individuals may have a certain weight-loss/gain/maintenance goal in mind), however an equivalent to double the amount of protein consumed would be a more than sufficient amount of carbohydrate. For example, after training a person could have a meal containing 30g of protein with 30g – 60g of carbohydrate dependent on their goals and or calorie allowance.

Carbohydrate sources can vary greatly dependent on personal preference and overall calorie intake. A few of our favourites are; cereal, bananas, frozen fruits and even (on the odd occasion) sweets. It just depends on the person and their personal preferences (and we like to recommend this as a “treat” to look forward to after an exercise session!).

Much like "Robin" is to "Batman", carbohydrate is not essential after training but it will have an additive benefit. It really does depend on the situation, personal preference, dietary flexiblity etc. whether an individual chooses to combine the two nutrients or simply have protein in isolation.

The *perfect* post-workout meal?
We'd recommend whey protein (or equivalent alternative) plus a banana (rich in readily available carbohydrates and electrolytes)

IN SUMMARY

Peri-exercise/activity/performance nutrition can be a powerful tool for optimizing performance, recovery and adaptation for Crossfit.

Whilst not a "necessity" per se, it is a more optimal strategy and a means to take your current performance, recovery and adaptation to the "next level" (for lack of a better term).

Remember, your entire dietary outlook will determine your health, body composition, recovery etc. Peri-workout nutrition strategies may be the "cherry" on top (and the implementation of these strategies can be incorporated in a multitude of ways to fit into the grand scheme of your diet).

Supplementation of certain products may also provide further benefit and other recovery strategies (such as sleep quality and quantity as well as stress management) can also add to the effectiveness of your recovery and body's adaptation/ preparedness to compete again in the next session.

IN SUMMARY

We'd just like to take this time to say thanks for the support and interest in our guide and overall services.

It means a lot to us and we do sincerely hope it has helped!

If we have made a good impression and you'd be interested in working with a qualified nutritionist (MSc in Nutrition and accreditation with the Association for Nutrition) to hone in on your peri-workout nutrition, complete dietary intake, supplementation etc. get in touch.

We've worked with everyone from local box Crossfitters to internationally competing olympic weightlifters. All ages, experience levels, backgrounds, genders and competitors are welcome here and we offer a complete holistic approach matched with ongoing education and continuous support.

Once again, thank you so much for the support and look foward to hearing how this guide has helped you!

Cheers,

Jamie

Tag us @jamiesdietguide if this has helped!