CrossFit
SPECIALTY COURSE
COMPETITOR'S

CROSSFIT SPECIALTY COURSE: COMPETITOR'S TRAINING GUIDE

CrossFit
TRAINING

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12:30 Lunch

1:30 Competitor Programming Lecture

2:30 Weightlifting Skill Session

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DAY 2 (9 A.M.-5 P.M.)

9:00 Competitor Nutrition Lecture

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4:40 Q&A/Closing Remarks

INTRODUCTION

The CrossFit Specialty Course: Competitor's is designed to help both athletes and coaches improve their own or their team's athletic performance at any level of CrossFit competition. The course builds on the foundational CrossFit methodology presented at the Level 1 Certificate Course and explains how to apply that knowledge for competitor workouts, programming and game day. Topics such as nutrition, goal setting and inspiration are also covered. The goal is for any level of athlete or coach to leave more prepared for CrossFit competitions.

This course is designed for:

- CrossFit Level 1 Trainers of any experience level;
- Beginner, intermediate, advanced or elite athletes;
- Anyone interested in coaching an individual or team for CrossFit competitions.

You should leave this course with:

- The ability to prepare athletes for CrossFit competitions (based on identifying strengths and weaknesses);
- Improved understanding of how to prepare physically and mentally for competitions and workouts;
- The belief that anyone can compete in CrossFit at some level.

Learning Objectives:

- Identify strengths and weaknesses of individuals or teams and use this information to program for improvement and preparation for competitions.
- Understand how to apply CrossFit's nutrition recommendations to competitors.
- Analyze each CrossFit modality for improved performance by athletes in competitions.
- Understand the movement options for efficiency within each modality.
- Use a template for preparation of workouts and competitions with regard to strategy, warm-up, execution and recovery.

EVALUATING STRENGTHS AND WEAKNESSES

Assessment and observation allow a coach or athlete to optimize training. Weak areas can be targeted to increase the rate of overall progress. Coaches and athletes, however, need to be cautious to not stray too far from a traditional CrossFit.com program. Particularly for those interested in competitions, volume needs to be managed to foster long-term progress and reduce burnout and/or injury.

ASSESSMENT

Assessment allows for an athlete to continually progress. It should occur in a variety of areas to determine strengths and weaknesses. Repeated workouts are especially beneficial to allow evaluation of progress and guide future programming. However, some assessment (e.g., technique) can be evaluated in new workouts. Athletes should also reflect on their life outside the gym to identify factors that may be affecting progress.

A sample assessment sheet (Athlete Questionnaire) is provided on the next page and reviews these areas:

1. General/Lifestyle—areas outside the gym that are often neglected but have major implications on performance, recovery and training time, as well as realistic goal setting.
2. Strength—loads lifted by upper body versus lower body versus full-body lifts. All the weightlifting and powerlifting variations should be tested to evaluate raw strength, speed, power and technique.
3. Gymnastics—capacity at high-volume and low-skill elements to determine gymnastics stamina capacity, as well as capacity in more technical elements. Strict and kipping movements need to be tested to evaluate technique and strength.
4. Monostructural—capacity at running, rowing, biking, swimming and skipping (i.e., jump rope) elements. Tests need to be completed in various time domains: short (less than 2 minutes), medium (2-10 minutes) and longer durations (20 minutes to 2 hours). Intervals can be used to determine recovery capacity.
5. CrossFit conditioning workouts—capacity in mixed-modality conditioning workouts that should be the staple of a CrossFit competitor's program throughout the year. These workouts can test anything: light to heavy loads, low to high skill movements, short to long durations, stamina, cardiorespiratory endurance, etc.
6. Previous Open and Regional performance—capacity relative to other competitors and to various levels of competition (i.e., Games-level capacity). On the Athlete Questionnaire, for Open workouts use a "10" if close to the top times in the region, a "5" if near 50-60th place in the region, and a "1" if 400th place (or lower) in the region.

Testing periods can last for two to four weeks. This timeframe allows enough data to be collected to better guide the next block of programming over three to six months. The volume during the testing period needs to be managed so that the athlete can perform optimally on each test.

ATHLETE QUESTIONNAIRE

Name:_____

Height:_____Weight:_____Age:_____Estimated Body Fat %_____

Lifestyle:

How long have you been CrossFitting? _____

Describe your previous athletic background:_____

_____

Describe your nutrition habits:_____

_____

Describe your sleep habits:_____

_____

What is your work schedule?_____

Are you married?_____Do you have kids?_____

What does your current training program/structure look like?_____

_____

_____

Do you have access to CrossFit equipment where you can perform workouts outside of a classroom setting?

_____

Do you have workout partners?_____

What are your perceived strengths/weaknesses?

Strengths:_____

_____

Weaknesses:_____

_____

What are your goals?

1._____

2._____

3._____

4._____

5._____

ATHLETE QUESTIONNAIRE (continued)

Weightlifting Benchmarks	Mens 10	Mens 5	Mens 1	Your totals/ Rating	Womens 10	Womens 5	Womens 1
Press	245	185	155		155	125	95
Push Press	315	265	200		215	165	120
Push Jerk	350	285	245		235	190	155
Split Jerk	375	305	245		255	200	155
Bench Press	345	295	225		220	175	125
Deadlift	565	475	405		375	285	225
Power Snatch	265	215	165		180	145	115
Snatch	295	240	185		195	155	125
Power Clean	335	280	245		235	185	145
Clean	385	315	225		255	215	155
Clean and Jerk	365	295	245		245	205	145
Front Squat	375	325	275		275	215	165
High-Bar Back Squat	435	365	285		300	245	195
Low-Bar Back Squat	475	395	355		305	250	205
Overhead Squat	375	295	235		245	185	135
Gymnastic Benchmarks	**Mens 10**	**Mens 5**	**Mens 1**	**Your totals/ Rating**	**Womens 10**	**Womens 5**	**Womens 1**
Max Muscle-Ups	27	15	8		20	10	5
30 Muscle-Ups for time	2:15	3:45	5:00		3:00	5:00	8:00
Max Bar Muscle-Ups	27	15	8		20	8	3
Max Strict Pull-Up	30	18	8		25	15	6
Max Kipping Pull-Up (traditional or butterfly)	85	55	35		80	45	25
Max Chest-to-Bar Pull-Up	60	40	20		55	30	15
Max Strict Handstand Push-Up	35	20	5		30	15	5
Max Kipping Handstand Push-Up	65	35	10		65	25	10
Max Rep Ring Dip	45	25	10		35	18	5
100 Pistols for Time	2:40	4:00	6:00		2:40	4:00	6:00
L-Sit Max (seconds)	70	45	25		70	35	15
Unbroken Handstand Walk Distance	200	75	30		200	75	20
Max Toes-to-Bar	50	30	15		40	20	10

ATHLETE QUESTIONNAIRE (continued)

Monostructural Benchmarks	Mens 10	Mens 5	Mens 1	Your totals/ Rating	Womens 10	Womens 5	Womens 1
400 Meter Sprint	0:55	1:05	1:15		1:05	1:25	1:40
100 Meter Sprint	0:11	0:125	0:14		0:12	0:14	0:16
1600 Meter Run	5:00	6:00	7:00		6:00	7:00	8:15
5K Run	18:00	21:00	24:00		20:00	23:00	26:00
10K Run	40:00	44:00	48:00		44:00	48:00	54:00
Max Double-Unders	250	100	35		250	100	35
500 Meter Row	1:18	1:25	1:32		1:28	1:35	1:40
2K Row	6:25	6:58	7:20		7:10	7:35	8:05
5K Row	17:15	19:00	21:00		19:00	21:00	24:00
50 Yard Swim	0:25	0:35	0:45		0:28	0:38	0:48
100 Yard Swim	1:00	1:15	1:30		1:10	1:25	1:40
200 Yard Swim	2:05	2:35	3:00		2:20	2:50	3:15
CrossFit Benchmarks	**Mens 10**	**Mens 5**	**Mens 1**	**Your totals/ Rating**	**Womens 10**	**Womens 5**	**Womens 1**
Fran	2:10	2:30	3:00		2:15	2:50	3:25
Amanda	3:10	3:50	4:40		3:40	6:30	9:00
Diane	2:00	2:45	3:45		2:10	2:55	4:00
Helen	6:55	7:25	8:00		7:15	8:00	9:00
Angie	10:30	13:00	17:00		12:00	15:00	19:00
Cindy	32	26	20		32	26	20
Elizabeth (squat cleans)	4:00	6:15	8:00		5:30	7:30	10:00
Grace	1:15	1:50	3:00		1:30	2:05	3:00
Isabel	1:10	1:50	3:00		1:30	2:05	3:00
Nancy	10:00	12:30	15:00		10:45	13:00	15:30
Mary	18	14	8		16	12	6
Murph (vest)	32:00	37:00	44:00		36:00	42:00	52:00
Nate	20	14	8		18	11	6
Filthy 50	13:30	18:30	22:30		15:30	20:00	24:00
Fight Gone Bad	460	405	350		440	395	350

ATHLETE QUESTIONNAIRE (continued)

Open 2015	Mens 10	Mens 5	Mens 1	Your totals/ Rating	Womens 10	Womens 5	Womens 1
15.1- Snatch/Deadlift/ Toes to Bar	235	200	175		235	191	155
15.1a- Clean and Jerk Max, Post 15.1	355	305	265		235	190	160
15.2- Overhead Squat/ Chest-to-Bar Ladder	400	262	185		375	200	125
15.3- Muscle-Up/Wallball/ Double Under	600	485	370		500	375	160
15.4- Power Clean/ Handstand Push-Up	155	115	83		155	110	60
15.5- Row/Thruster	5:35	7:05	9:00		6:50	8:40	11:05
Regionals 2015	**Mens 10**	**Mens 5**	**Mens 1**	**Your totals/ Rating**	**Womens 10**	**Womens 5**	**Womens 1**
Randy	2:30	3:30	5:00		2:30	3:45	5:30
Tommy V	8:00	14:00	DNF		9:15	15:30	DNF
Chipper	25:45	Cap + 100	Cap +200		25:45	Cap +130	Cap +250
250 Foot Handstand Walk	1:25	Cap +30	Cap +120		1:30	Cap +50	Cap + 140
Snatch (1-repetition-max) 2 Attempts, Post Handstand Walk	285	215	185		185	135	105
Row/Chest-to-Bar Pull-up/ Deficit Handstand Push-up	11:30	Cap +9	4 Rounds		14:15	4 Rounds	3 Rounds
Muscle-Up/Squat Clean Ladder	1:20	2:45	5:00		1:40	4:30	DNF

Notes:

1) Values represent loads (lbs.), time (minutes:seconds), distance (feet), rounds or repetitions.
2) DNF = did not finish.

OBSERVATION

Part of the assessment needs to include observation of the athlete as he or she completes the workouts. This is no different than any other sport coach watching practices to analyze his or her team and making adjustments based on that.

The coach should observe the variance of the program and where the athlete succeeds, as well as where the athlete shows significant deficiencies. Consider the variance in loads, repetition schemes, times, movements and movement combinations to identify specifically where deficiencies are. While much of this can be determined simply by reviewing the overall performance data, the coach still needs to evaluate the athlete in real time.

Real-time observation also allows the coach to learn more about the athlete's: 1) technique and 2) mental strength. Good technique is necessary for athletes to realize their true potential, and consistent violations of the points of performance rob athletes of seconds and pounds. The Athlete Questionnaire can assist with this only in the general sense. For example, comparing certain lifts (e.g., push press versus push jerk) might indicate the athlete is blunting overall power due to technique, but it is through observation the coach can pinpoint the issue (e.g., not extending the hip). Observing one-repetition-maximum attempts is particularly useful to indicate the weak link in the overall system (as well as when the athlete is fatigued), but coaches should take advantage of watching a variety of repetition schemes.

The athlete's mental preparedness also needs to be observed and coached. This means observing the mindset before, during and after workouts or competitions. It also means coaching the athlete to a mindset that allows their best workout strategy. Finally, recovery needs to be evaluated to determine the appropriate volume and practices outside the gym. More information regarding mindset and recovery is provided in later articles.

THE ASSESSMENT WEB

This is a visual tool modified for CrossFit from some traditional strength-training circles to determine relative strengths and weaknesses.

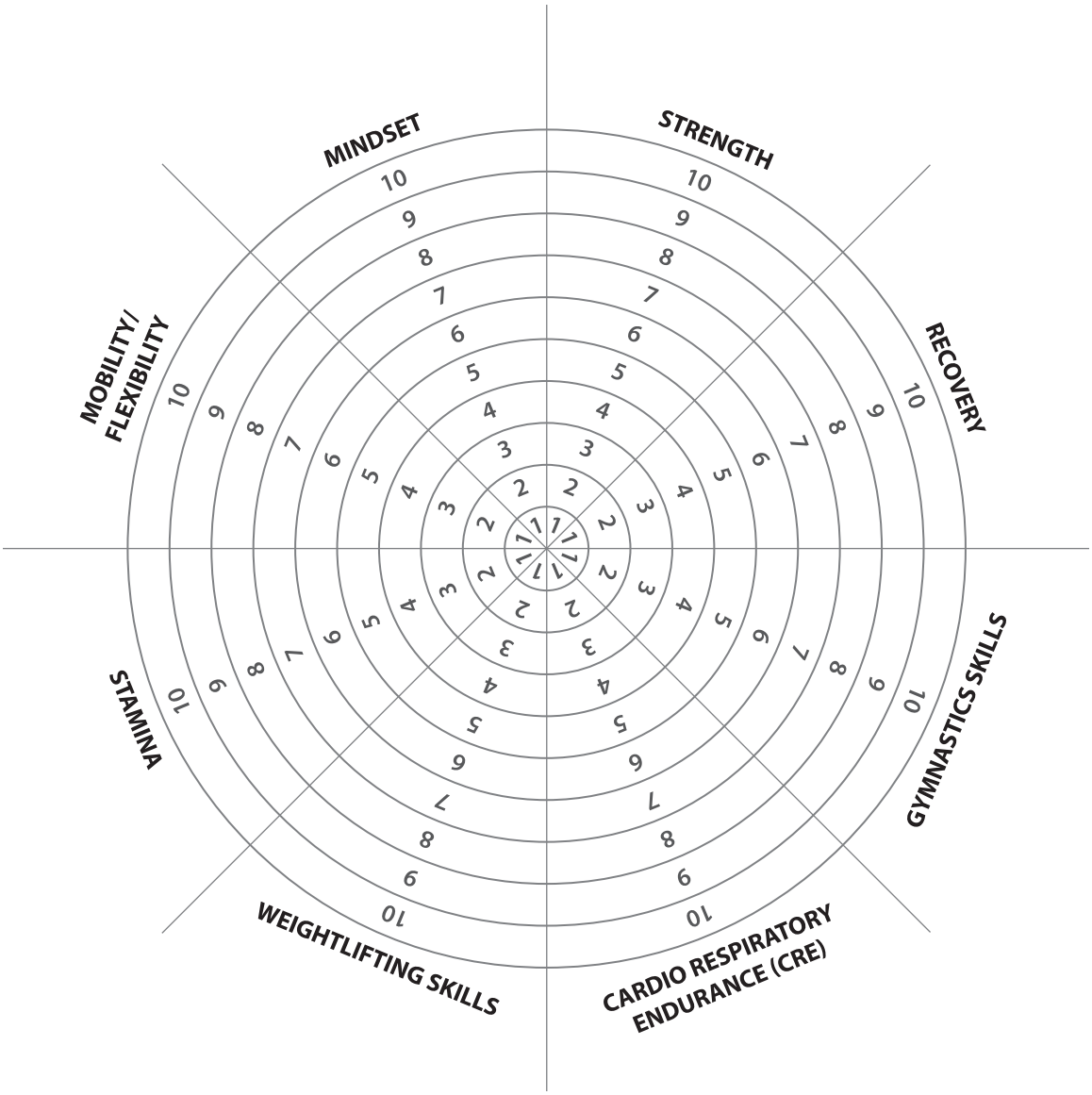

Figure 1. The assessment web.

The web's eight evaluation areas, with explanations of how to test and improve, are outlined below (Figure 1).

1. Cardiorespiratory Endurance (CRE)—the body's ability to gather, process and deliver oxygen. This is primarily tested by using medium to long-duration single- or mixed-modality CrossFit workouts. The coach observes to see if an athlete struggles due to a lack of "wind."
2. Stamina—the ability of body systems to process, deliver, store and utilize energy. Consider this similar to "muscular endurance." On the web, stamina is used to evaluate one's capacity in high-repetition workouts, but arguably this could be evaluated in many different ways (i.e., stamina at light loads, stamina at heavy loads, stamina at squatting movements, stamina at upper-body pressing movements, etc.). Here, stamina is tested with high-repetition conditioning

workouts and high-volume gymnastic tests. The coach observes to see if an athlete struggles due to not being able to lift the load or move the body; i.e., does the athlete hit muscular failure?

3. Strength—one's productive application of force. For this evaluation, it means maximum load lifted in 1-3-repetition schemes for a variety of lifts. The coach observes to determine strengths and weaknesses: lower versus upper body, fast versus slow lifts, etc.
4. Mobility/Flexibility—the ability to maximize functional range of motion about a joint. Evaluate the athlete's movement and analyze if he or she is restricted due to range-of-motion limitations that prevent optimal mechanics. Pick three to five movements; for example, a front-rack position, a handstand push-up, an overhead squat and a snatch-grip deadlift position. Look at all the anatomical relationships to determine what positions need improvement.
5. Gymnastics Skills—the athlete's capacity to have both efficiency in lower-skill movements as well as proficiency in more complex gymnastic elements. While some elements may be tested via workout performance, many high-skill gymnastics elements are difficult to measure specifically. Assessment here is largely completed via tests of competency.
6. Weightlifting Skills—weightlifting capacity at heavy loads, high repetitions and in conditions of fatigue. This area does not necessarily use the actual loads lifted as part of the evaluation but is rather technique based; i.e., what happens to mechanics under intensity? The coach observes to determine the athlete's technique in the fast lifts.
7. Recovery—how well the athlete is handling the current training volume, whether the athlete uses recovery strategies, and whether their lifestyle hinders or facilitates training. The factors that help determine this are discussed in depth in a later article.
8. Mindset—the athlete's mindset before, during and after a single training session or full competition. This is assessed through observation (see Mindset article).

This tool has both tangible and intangible markers. For cardiorespiratory endurance, strength, and stamina, athletes are evaluated largely based on the numbers reported (although observation should be a component as well). The other areas are evaluated largely based on observation and the coach's opinion (although numbers are used to a lesser extent).

This web can guide future programming, as well as strategy for current workouts. Different areas of weakness require different programming strategies for improvement. Strength, cardiorespiratory endurance, stamina, and mobility improve best with a well-organized training program that seeks physiologic adaptations ("organic" adaptations from training). Conversely, gymnastics and weightlifting skills are largely neurological aspects that require more technique refinement ("neurological" adaptations from practice). Mindset is a practiced habit as well. This is a very simplified description, and there is a natural overlap of both types of adaptations, but these considerations affect programming choices.

Some athletes may ask the question, "Can't I just do typical CrossFit workouts to help with these deficiencies?" The answer is yes. In a well-varied program, any athlete's strengths

and weaknesses will be tested. Even two disparate athletes—such a smaller/faster athlete and a larger/stronger athlete—can follow the same program. The same workout provides a different stimulus to each athlete depending on relative weaknesses. However, for a competitor, he or she may never truly eliminate weaknesses or turn them into strengths unless areas of deficiency are specifically targeted. Targeting specific areas of the web is described in more detail below, or in lectures and breakouts later in this course.

1) Conditioning

Conditioning in this context is specific to an athlete's capacity in cardiorespiratory endurance and stamina—two of the organic components of the 10 General Physical Skills model of the "What Is Fitness?" **article**. Capacity is ideally assessed somewhat independent of skill (although the two cannot be separated completely). During workouts, consider the athlete's challenge: breathing (lack of cardiorespiratory endurance) or muscular failure (stamina). In the former, there is the feeling that the athlete just "can't get the oxygen in," whereas muscular failure refers to unlabored breathing but inability to lift the load.

Both of these adaptations improve following regular CrossFit programming; however, a competitor can more directly target specific weakness for quicker improvement.

A) Cardiorespiratory Endurance

When an athlete struggles due to lack of oxygen in a workout, it is largely because the aerobic metabolic pathway is underdeveloped and struggles to convert fuel to energy (adenosine triphosphate (ATP)) with oxygen. Refer to the "What Is Fitness?" **article** in the Level 1 Training Guide for a review of the metabolic pathways.

The aerobic pathway is primarily used for longer duration activities typically performed at lower intensities. The aerobic pathway becomes increasingly responsible for the bulk of energy production as time increases, and this is even true for repetitive bouts of intense effort. Although significant cardiorespiratory capacity is necessary for CrossFit performance, excessive time spent training in longer efforts reduces capacity elsewhere. It often also adds too much volume, which could lead to over-reaching.

It is commonly thought that the only way to improve aerobic capacity is through long running, rowing, biking or swimming efforts. However, cardiorespiratory endurance capacity is largely specific to the modality in which it is trained. Therefore, an athlete can improve cardiorespiratory endurance in any modality in which he or she works at a sub-maximal effort to allow for (relatively) constant movement for long periods of time. Intervals can also be used, such as those longer than 3 minutes and having close to a 1:1 to 1:1.5 work:rest ratio. It is important to control volume in these sessions so as to reductions in intensity and/or recovery for multiple days afterward.

Cardiorespiratory endurance should be trained in whatever time domain the athlete typically finds "wind" is an issue. At shorter durations and higher intensities, the glycolytic pathway (anaerobic) is also a contributor to energy production, and the effort is less aerobic. Nevertheless, any effort lasting over 2 minutes in duration (and without full recovery in intervals) is largely aerobic. The longer the effort overall, the more aerobic it is. The aerobic pathway develops with stress at varying intensities, which is why specifically targeting problematic time domains is the most beneficial. (This strategy also improves

one's glycolytic capacity. Target the time domains where one is weak, and improvements in whichever pathways are used for that time domain will improve. Although this principle is not specific to cardiorespiratory endurance, the competitive CrossFit athlete needs capacity in all time domains and metabolic pathways.)

If cardiorespiratory endurance is a weak area, two to three sessions a week should be sufficient at certain points of the year when the weakest time domains are targeted. If it is not a weak area, then longer-durations workouts (e.g., 25 minutes or greater) a few times a month will likely provide enough stimulus to maintain one's aerobic capacity. Most competitions do not have events lasting longer than 25 minutes (largely due to logistics), with the CrossFit Games a notable exception. Building better aerobic capacity, however, also helps recovery between multiple workouts in a day.

B) Stamina

A lack of stamina is related to muscular fatigue and/or failure, where the muscles need rest to be able to complete the movement. This can be specific to load, movement and/or repetition scheme. A coach or athlete needs to observe and track the variable combinations that produce significant muscular fatigue or failure. Common examples include handstand push-ups, ring dips, muscle-ups, chest-to-bar pull-ups, squats (both with moderate/high loading and high repetitions with light or no loading), high-load deadlifts, and variations of at the Olympic lifts at certain loads.

There are two main strategies to improve stamina with infinite permutations: high-repetition sets versus accumulating high volume with lower-repetition sets. This work can be accomplished as a separate skill session or incorporated into a conditioning workout. An example of high-repetition sets is: 3 sets of 25 consecutive chest-to-bar pull-ups with 90 seconds of rest between sets. The next week could then progress to something such as 3 sets of 25 chest-to-bar pull-ups with 60-75 seconds between sets, or perhaps 3 sets of 27 reps with 90 seconds between sets. Even a workout such as 100 chest-to-bar pull-ups for time is a simple way to target this area. Accumulating high volume (with lower-repetition sets) is often accomplished with on-the-minute work. For example, every minute on the minute ("EMOM") for 20 minutes, perform 5 strict handstand push-ups.

Both strategies have value and should be incorporated when targeting stamina. Coaches and athletes need to be cautious not to rely too heavily on just one option. Many athletes, for example, become very proficient at on-the-minute work, but it does not optimize proficiency at a single set of high repetitions.

If stamina is a weakness, the athlete needs to devote one to two workouts a week to that movement, load and repetition combination. These sessions might not be very taxing for the cardiorespiratory system; improving muscular endurance is the goal.

2) Strength

Although many athletes realize strength is a relative weakness, they often do not want to take periods of time to focus on it for fear of losing their conditioning. However, it is possible to make significant progress in strength without losing too much capacity elsewhere—by not neglecting other modalities completely.

To lift near-maximal loads, the body primarily relies on the phosphocreatine (aka, phosphagen) pathway; see the "What Is Fitness?" **article** in the Level 1 Training Guide). With this system, the body essentially uses readily available ATP to fuel the first few seconds of work, while the phosphocreatine system is jumpstarted and contributes for a approximately 10-20 additional seconds (potentially lasting up to 30 seconds). To develop the body's capacity to produce energy via the phosphocreatine pathway, target very short time durations. Of course, this can be accomplished with classic strength sessions, which is primarily where athletes should focus.

Capacity can also be developed with fast touch-and-go repetitions in a short time frame or short bursts of gymnastics movements with adequate rest. These options are good choices for athletes who have good long-duration capacity and technique but do not move very fast on a single repetition or set of repetitions. Anywhere from a 1:12 to 1:20 work-to-rest ratio is optimal here.

Developing strength is also about stimulating the central nervous system to activate the maximum number of motor units simultaneously. Lifting heavy accomplishes this task, with single repetitions providing the greatest neurological stress (due to greatest load). Large rest periods between sets are typically encouraged but can be changed to shorter rests to offer variance (although shorter rest periods tend to lower the overall load lifted and result in more of a stamina adaptation). This system can be trained frequently, but the athlete needs to pay attention to the movement and modalities used. Stress on the central nervous system is the goal, but too much may lead to over-reaching.

Prilepin's Chart (Figure 2) can be used to determine approximate loads and repetition ranges.

Percent	Reps/Set	Optimal Reps	Total Range
55-65	3-6	24	18-30
70-80	3-6	18	12-24
80-90	2-4	15	10-20
90+	1-2	4	4-10

Figure 2. Prilepin's Chart.

The neurological stress correlates with overall load lifted and time under tension. This means that most can train the Olympic lifts more frequently than the power lifts because 1) the loads are typically lower and 2) there is relatively less eccentric loading in the Olympic lifts. A simple program for an athlete needing to increase strength could be:

- Squat heavy once or twice per week,
- Press heavy once or twice per week,
- Pull heavy infrequently (once every four to five weeks),

- Perform Olympic lifts heavy to moderate one to three times per week, and
- Add accessory work for weak areas.

Strength can also be improved by increasing contractile potential through hypertrophy. Contractile potential does not necessarily increase the maximum an athlete can lift, but it does raise the potential maximum. Hypertrophy targeting sessions could be multiple sets of 8-20 repetitions (or time under tension for 30-60 seconds), with little rest between sets. Conditioning workouts can also be structured to elicit a hypertrophy response by using appropriate intervals. It should be noted that the goal of CrossFit athletes is not to maximize mass alone. Rather, it is to maximize strength by increasing productive application of force or motor-unit recruitment. Increasing body weight should be an adaptation to training.

Actually lifting to one's genetic potential is heavily dependent on technique to allow productive application of contractile potential. This disparity between potential and actual performance is often seen in the Olympic lifts, where an athlete may not have the ability to squat snatch what he can power snatch and overhead squat. Technique work—ideally with a coach interacting with the athlete in real time—can close the gap between one's potential and actual performance. Technique work can be emphasized with light or heavy loads so long as the load is not too heavy to negatively affect form.

Strength is also is a component of conditioning workouts, especially as the loads approach the athlete's maximum. Therefore, strength is not only trained on heavy days. Nevertheless, these efforts provide the greatest stress for strength adaptations.

3) Skill Development

Athletes often neglect skill development—particularly high-skill gymnastics elements or specific deficient areas of the Olympic lifts. Improvements in either area carry over to other activities, as they help develop strength, proprioception and midline stability.

Here are options for how to include skill sessions in training:

- Pre-workout: Working on missing skills is a great way to warm up for workouts while growing more proficient with the targeted skill. For example, if the workout includes an overhead element, some basic gymnastics holds can be used to help stabilize, activate and mobilize the shoulder girdle; e.g., handstand walking, handstand holds or wall walks, to name a few. The goal is to practice the skill without fatiguing the athlete for the upcoming workout.
- Post-workout: Working on skills in a fatigued state has additional benefits as it forces the athlete to focus on coordination and control.
- Strict gymnastics movements and/or weightlifting skills sessions can also be used as accessory work in strength sessions.
- Combine skills with some lower-intensity monostructural training by putting 5- to 10-minute skill efforts between monostructural intervals. For example: 10-minute row, 5 minutes of handstand practice, 10-minute run, 5 minutes of planche practice. Combined training challenges the athlete to work on skills when he or she is somewhat fatigued, though not to the same degree as post-workout training.

It is also worthwhile to consider dedicating entire training sessions solely to working on

one specific skill. Athletes can and should reach out to coaches and specialists to help refine technique and improve rate of acquisition.

Additional areas of the web can be addressed individually and are the topics of their own sections later in this course. Routine assessment and observation are two factors critical to optimizing training programs and minimizing the time needed to improve fitness, and, therefore, performance at CrossFit competitions.

GYMNASTICS SKILLS SESSION

This goal of this session is twofold: 1) to provide instruction for how to perform gymnastics movements, and 2) increase efficiency for those athletes who are already proficient.

PULL-UPS

1) **Strict**
   - Hang from bar with a "hollow" position (squeeze butt and belly).
   - Complete the movement while maintaining the hollow position. Most athletes will overextend their midline during the pull.
   - Perform consecutive reps with some "spring" or rebound at the bottom of each repetition by having a rapid turnaround from the eccentric to the concentric phase of the movement (i.e., stretch-reflex).
   - Perform individual repetitions with a drop from the top of the bar for use when in competition and/or attempting maximum load that day. While controlling the descent to the bottom of the hang can be used to build strength, it can unnecessarily fatigue the athlete in competition.
2) **Gymnastics Kip**
   - The gymnastics kip should be mastered because of its transference to other movements.
   - The hollow position from strict pull-ups applies.
   - Perform consecutive repetitions with tight kip. Chest should barely move forward of the vertical plane formed by the rig.
   - As the athlete fatigues, the horizontal movement has to increase to reduce the upper-body demand. The feet can move further behind the athlete, and the low back can extend to increase the distance over which the athlete develops momentum. The athlete should only extend as far as the back comfortably allows.
   - Ideally, the kip stays more vertical and tight to reduce cycle time per repetition.
3) **Butterfly Kip**
   - The hollow position from strict pull-ups applies.
   - Develop the backswing by starting with the knees flexed and the heels at the glutes. Aggressively drive the feet down, extending the legs and pressing down on the bar with the arms.
   - Once the chin clears the bar, it is a controlled "fall" to arm extension as the feet are brought back to the glutes.
   - Keep the elbows down and in front of the bar at the top of the pull-up to avoid pulling through the bar.
   - Athletes should come to a "dead" stop after each set regardless of the number of repetitions.
   - Slowly increase the volume of consecutive repetitions as long as the athlete maintains control.
4) **Chest-to-Bar (Any Kip)**
   - Consider widening the grip—roughly one palm width wider than usual—to reduce the range of motion and allow for easier retraction of the shoulders.
   - Set the gaze above the bar, looking for the top of the facing wall.
   - Use a slight extension of the spine to reach chest to the bar.

- Specific to the butterfly kip, the chest should brush the bar on the descent of the movement.

DIPS

- High-repetition dips in competition should be performed with a kip to reduce cycle time and fatigue on the upper body.
- The drill below is designed to help athletes learn how and when to kip. Ideally, the knees drive up (or back depending on the kip), followed by the press. The leg drive and press should not occur at the same time.
- Kipping-Dip Drill
    - Start at the bottom of the dip with feet off the ground, slight bend at the hip, and legs straight.
    - Swing the feet back, then bring the knees up, and then press to arm extension. Complete three swings (legs straight to knees up), adding the press to complete the dip in the third repetition.
    - To decrease the cycle time, repeat this without swinging the legs back (just knees up). The technique with the legs swinging back better transfers to a muscle-up, whereas high-repetition ring dips are better served by reducing the leg swing.

MUSCLE-UPS

- Hold the rings in a "pseudo false grip," such that the base of the palm is on top of the ring.
- Work kipping-swing efficiency by keeping the body straight, and ensuring the pull of the arms occurs at the right time.
- Pull the rings to the chest while rotating the rings so the knuckles face one another.
- Once the transition is complete, pause to give the knees time to drive up to kip the ring dip.
- In the transition, the athlete can attempt look for the toes as he or she moves over the rings. This is immediately followed by the legs' swinging back to assist the dip.
- Larger athletes might prefer to catch the muscle-up higher in the dip to reduce the range of motion to complete the dip, as well as to utilize a larger layback/push-away from the top of the rings to maintain momentum. The overall cycle time might be longer with this technique, but the demand on the upper body is reduced. Smaller athletes may prefer to catch in a deeper dip to save the pull and have a more vertical drop to increase cycle time. These considerations are also determined in the context of the prescribed repetitions, other movements and loadings.

ROPE CLIMBS

- Some of the more secure wraps can be slower. It is worth learning a new wrap style to increase efficiency in both the ascent and descent.
- Each wrap variation is best drilled sitting on a box until the athlete is comfortable with foot placement.
- Regardless of the wrap style chosen:
    - Always jump to start the first pull to reduce the range of motion.

- Keep the arms long with every reach.
- Drive off the feet, bringing the hips toward the rope.

- The descent can also be time consuming. The athlete is best served by widening the feet in the wrap and cupping the rope in the hands.

HANDSTAND PUSH-UPS

- In all handstand-push-up variations, the base of support is key to an athletes balance. Make sure the load is shared by the hands rather than supported just by the neck.
- Also, after each progression have the athlete practice falling out of the movement into a forward roll to learn how to bail in a handstand.
- The progressions below can be used to help any level of athlete progress to a freestanding handstand push-up.

1) Headstand

- Start in a "frog stand," in which the head and hands form a triangular base of support. Place the knees on the elbows.
- Rotate the hips up so that the low back is flat and the knees are still bent.
- Extend the legs and hips while maintaining a hollow position at the top to form a headstand.

2) Kipping Handstand Push-up

- From the frog stand, have the athlete drive the hips and knees open, aiming for the wall that they are facing. The feet should hit the ground after the arms have extended. The athlete completes the movement in the top of the push-up position.
- Move the athlete to the wall. The athlete starts roughly 2 feet away, facing the wall in the frog stand. Drill as in the previous step but emphasize a more vertical leg drive. The feet should hit the wall after the elbows have extended.
- As the athlete shows competency, the hands can be moved closer to the wall, which necessitates a more vertical movement.
- Once the previous steps are mastered, have the athlete kick up to the wall for kipping handstand push-ups (facing away from the wall). Have the athlete lower to their base of support used in the previous steps. As the knees come down toward the elbows, the hips should rest against the wall. When the legs and hips extend vertically, have the athlete look for the far wall where it joins the ceiling. Practice this same drill without letting the hips touch the wall.

3) Freestanding Handstand Push-up

- Have the athlete start in a frog stand on the open floor.
- Have them kick vertically and lower under control.
- Encourage the athlete try to minimize movement at the top of the handstand push-up (e.g., stay within one stall mat).

- An example gymnastics skill session for the kipping handstand push-up is as follows: perform a reverse Tabata mash-up (4-8 rounds, 10 seconds on; 20 seconds off) alternating between a handstand hold and frogstand hold (both with the back to the wall). For the first 10 seconds, perform a handstand hold, rest 20 seconds, then perform a frogstand hold for 10 seconds, then rest 20 seconds. That is 1

round. Repeat for 4 rounds for 4 minutes; 8 rounds for 8 minutes.

TOES-TO-BARS

- Athletes should aim to keep the knees bent and close to the body on both the concentric and eccentric phases of the movement. To maintain the kip swing, the shoulders should stay in front of the bar through the point at which the toes touch the bar.
- Identify an athlete's mobility for this movement in the hips and hamstrings by having him or her sit on the floor with straight legs together; the athlete then reaches for the toes.
    - If the athlete can reach the toes and touch the nose between the knees, he or she has the mobility to "pike" the toes-to-bars (i.e., keep the legs straight).
    - If the athlete cannot reach that position, bending the knee and kicking the bar will help prevent fatigue through the hips.
- Use the same kip as that used for gymnastics kipping pull-up.
- Build onto the basic kip by pressing down on the bar and bringing the knees up toward targets that progressively increase in height (e.g., hips, then armpits, then elbows).
- Once the athlete can kip with the knees reaching the elbows, have him or her start kicking the bar.
- Build to small sets of consecutive repetitions with a focus on keeping the knees tight to the body and heels driving straight down to reset the kip. Athletes should be able to come to a dead stop at the end of each set.
- The rhythm of the kip can be practiced by combining pull-ups and toes-to-bars (e.g., 2 times through a set of 3 kipping pull-ups right into 3 toes-to-bars without coming off the bar).

PISTOLS

- Having ample range of motion in the ankle is critical to performing pistols.
- In the pistol, the torso is not upright; the athlete should reach forward and round the back in the descent.
- Here are some progressions:

1) Use a Counterbalance

- A light plate or kettlebell can be used as a counterbalance for athletes struggling with this movement. Progressively work toward lighter weights, and eventually eliminate the counterbalance.

2) Box Progression 1

- A modified pistol is performed with one foot on the floor ("grounded foot") and one foot on a box ("box foot").
- The box height should be such that it allows the athlete's hip crease to move below the knee of the box foot.
- Drive off the toe of the grounded foot and drive off the heel of the box foot, finishing in a standing position on the box.
- As the athlete becomes more proficient, he or she should work to drive only with the foot on the box.

3) Box Progression 2

- In this progression, the athlete attempts repetitions from the top of the

movement.
- Lower while letting the non-working leg hang as low as possible before putting the non-working leg down to assist. Drive back up into a standing position
- As the athlete becomes more proficient, he or she should work to use lower boxes, forcing the non-working leg to be held higher throughout the range of motion.

4) Candlestick Progression
- Lying on the ground, the athlete drives the hips up so the heels and hips are vertically stacked over the shoulders.
- Tuck the knees in toward the chest and begin to roll back to the feet.
- Plant the heel of the working leg on the floor and keep the opposing leg extended.
- Use the momentum from the roll to help the working leg extend as the athlete stands.
- Alternate legs to develop competency on both sides.

COMPETITOR PROGRAMMING

Most CrossFit athletes do not need individualized programming. CrossFitters improve work capacity simply by exposure to constantly varied functional movements performed at high intensity. Capacity improves in every area that is touched by programming, which should address strengths and weaknesses—particularly in the long-term.

For competitor programming, more frequently program weaknesses in order to increase the rate of progress. Improving weaknesses not only raises capacity in the weakness but it also creates a stronger athletic foundation to advance one's strengths. Therefore, the additional time spent on weaknesses can speed one's progress to a certain competitive level.

Weaknesses are often addressed in specific blocks of time (i.e., cycles) between the competition seasons. The degree to which an athlete can improve on these weaknesses is heavily dependent on training volume (as well as the current capacity). This article focuses on general programming principles for the CrossFit competitor, with example templates for athletes of varying capacities.

PROGRAMMING BASED ON WEAKNESSES

The Assessment Web (Figure 1) identifies relative weaknesses for an athlete or a team to target. By programming to address these elements, athletes progress in those specific areas. This illustrates the principle of specific adaptation to imposed demands (SAID), which means the body adapts to the stressors to which it is exposed (Figure 3). This also means the body will adapt more quickly and to a greater degree with increased exposure to this stressor (this, of course, can be taken to a unproductive extreme).

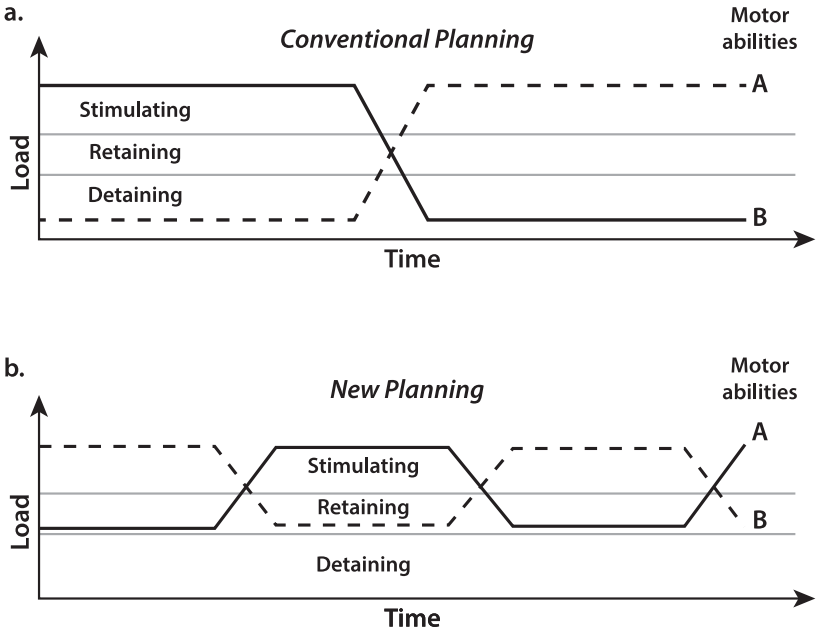

Figure 3. Conventional versus new planning regarding training adaptations. The bottom graph illustrates that the goal of training while targeting a weakness should be to increase performance in the weak area while not losing capacity in other areas through utilizing "retaining" volumes of training 2-3x/week.

CrossFit competitors often have to spend more time in one area or emphasize one skill over others based on relative proficiency in each area or skill. There is also the need, however, to increase each element relative to the competition level to which the athletes aspire. For example, an athlete may be well rounded in all areas on the web relative to each other, but he or she could be classified as weak relative to Games athletes. Conversely, an athlete could have Games-level capacity in one area but insufficient capacity everywhere else. The goal is to increase capacity to the greatest degree in all areas.

The application of programming based on weaknesses might include periods of dedicated strength, stamina or endurance work or high-skill gymnastics practice. While many athletes believe strength is their weakness and the most important element to improve, strength alone does not breed improved capacity everywhere else. Many athletes need to target other areas instead, such as running or simply general capacity in CrossFit. The daily application of programming based on weaknesses results in highly varied workouts for athletes who have different weaknesses and capacities. One athlete might complete 400-m repeats on the track while another is performing 30 pistols for time. Nevertheless, the athletes' goals are the same: improve capacity in weak areas while increasing overall capacity.

UTILIZING CYCLES

Cycles refer to a specified period of time allotted to achieve a certain goal (i.e., improve a weakness). Cycles based on the competition calendar can provide structures for these timelines.

There are three types of cycles:

1. Macrocycle: This cycle is the longest in duration. It is guided by the desired end state; e.g., "I want to finish in the top 200 of my region in the Open." In CrossFit, the macrocycle generally lasts one year. It begins at end of the season (the Open, Regionals or Games) and lasts until the start of the Open or Regionals the following year. The success of each athlete will determine the exact length of the cycle.
2. Mesocycle: These are mid-range cycles that break the macrocycle into shorter segments. A year-long macro cycle will generally contain three to four mesocycles, each lasting approximately two to four months. Each mesocycle generally has one specific goal or area of weakness to address ("Improve handstand-push-up capacity to be able to complete Diane in 2 minutes.").
3. Microcycle: Microcycles are the shortest cycles and comprise the weekly, or even daily, programming to accomplish the mesocycle goal (e.g., strict handstand push-ups, overhead press work, walking on hands, kipping handstand push-ups, etc.).

These cycles can be overlaid on the timeline the athlete has until to the competitive season and dictate what elements will be tackled more often in daily workouts. An example of the three types of cycles and programming is shown in Figure 4.

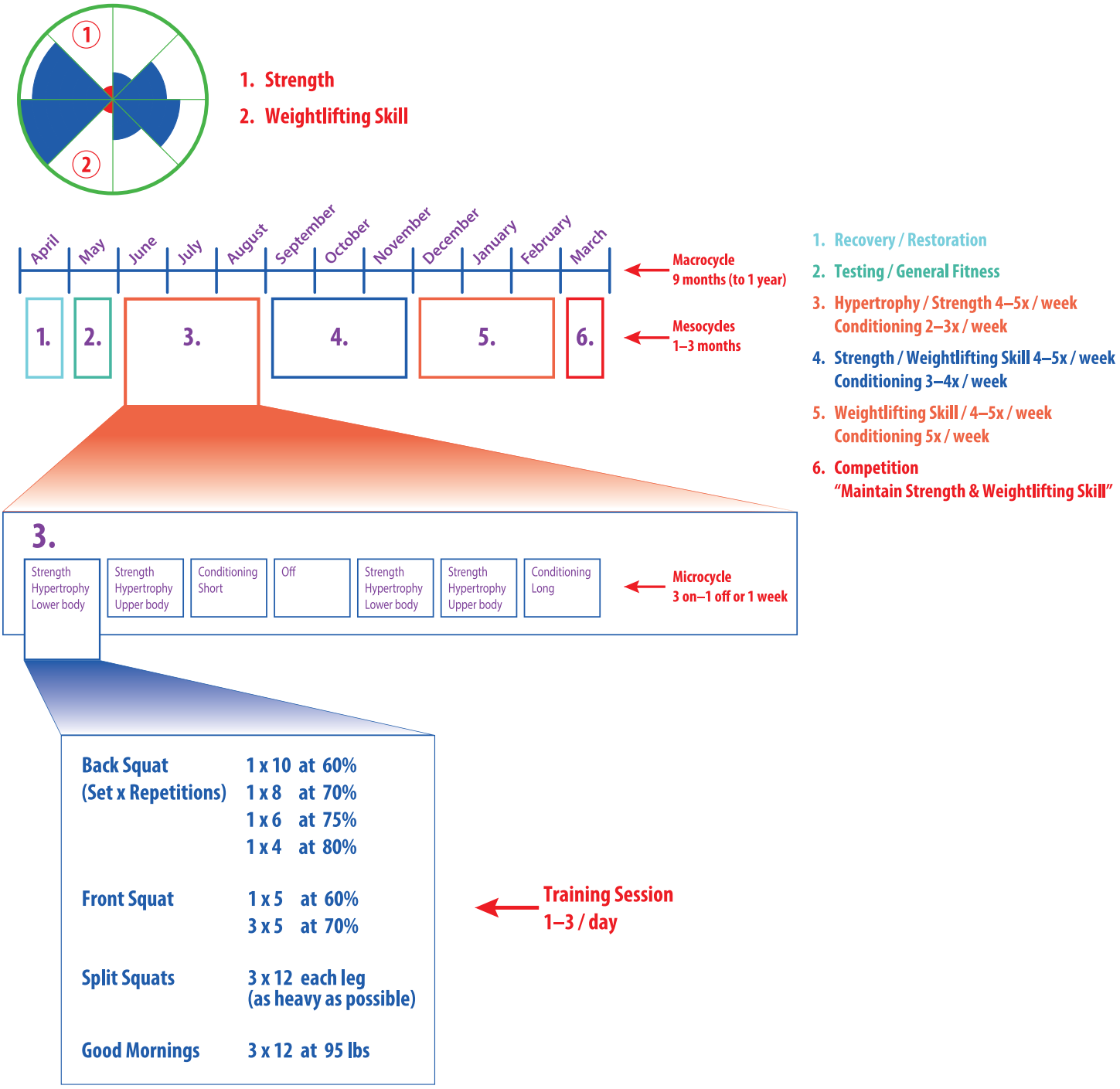

Figure 4. Example of macro-, meso-, and microcycles for a competitor.

Generalized Programming Templates Based on Athletic Capacity

1. Beginner

The beginner is someone new to CrossFit. He or she may or may not have previous athletic experience. Generally, beginners are classified as those individuals who see significant progress every time they test a benchmark workout or lift.

Regardless of athletic background, each beginner needs general CrossFit programming. This is what drives the desired adaptation (i.e., fitness)—even without individualization. General programming builds the necessary base of generalized fitness even for elite performance and remains the core of training and programming regardless of competitive level.

Frequency/Volume: Beginners generally should start at a training volume of three to four days per week. This gives them time to adapt to the training stimulus and recover. Frequency might increase up to six training days a week as the athlete progresses, and exceeding three training days in a row is not recommended. Resting a minimum of every fourth day allows for proper recovery, and fresh athletes can push at higher intensities to create the greatest results.

Beginners should complete only one training session per day; more are appropriate for those with greater capacity. With good CrossFit programming characterized by variation, athletes should see gains for a long time. Once this beginner no longer sees weekly or monthly improvements, he or she should consider moving toward an intermediate template.

2. Intermediate

The intermediate athlete is generally described as someone who: 1) may or may not be interested in competing in local competitions, 2) may have a specific goal for the Open, and/or 3) must work about three to six months to see progress on benchmark lifts and/or workouts.

These athletes must begin targeting weaknesses in addition to their regular base of CrossFit programming.

Frequency/Volume: Similar to the beginner, training days might approach six per week if the athlete shows continued progress (again, no more than 3 training days in a row). The intermediate athlete can also add more training sessions. To start, an intermediate athlete should have one "double day" a week. This additional session is focused on the athlete's primary weakness.

A simple example: Every Monday, an athlete completes the gym's regularly programmed workout in class. Later that day, the athlete returns to complete a workout as part of a specific program that emphasizes an element such as strength, endurance, etc.

This athlete can also add in additional skill work two days per week before or after a class. The goal is for the athlete to practice regularly and improve weak areas while keeping the overall volume and intensity low. For example, skill work might take the form of every-minute-on-the-minute ("EMOM") practice—10-minute EMOM of 30 double-unders,

8-minute EMOM of 3 muscle-ups, etc.

More double days per week may be added only as the athlete continues to progress, provided commitment and interest are present. Athletes and coaches should err on the side of caution when adding more double days. Take the time to observe the athlete for several weeks for signs of overtraining or decreased performance from a single additional double day. Additional training reduces the athlete's recovery time and can ultimately hinder progress.

3. Advanced/Elite

To be considered an advanced or elite-level CrossFit athlete, the individual must be a Games competitor or top 10 finisher in Regionals. One of the biggest differences in programming for athletes at this level is time commitment. The majority of the day is spent training, and it is not uncommon for these athletes to spend anywhere from three to six hours a day in the gym. These athletes will also need to be "training focused" even outside the gym, with attention paid to nutrition, stress, sleep and recovery techniques (e.g., extra mobility).

As an example, the week of programming below was used by Chris Spealler (seven-time CrossFit Games athlete, 2007-2012, 2014) in preparation for Regionals or the Games. It represents a microcycle roughly located in the third mesocycle. The first mesocycle was characterized by lower volume and a focus mainly on hypertrophy and strength work in the 1- and 3-repetition range. The second mesocycle shifted toward more volume to include heavy conditioning workouts. The third mesocycle further increases conditioning volume to be prepared for the competition season.

Relative to the other Games athletes, Spealler's weakness was strength, both in maximum-effort lifts and conditioning workouts with a heavy element.

EXAMPLE ADVANCED ATHLETE SCHEDULE

Monday:

Rest Day

Tuesday:

Heavy power lift (i.e., squat, deadlift, press variation)
Heavy Olympic lift (i.e., snatch, clean, jerk variation)
Conditioning workout 1
Conditioning workout 2
Accessory work

Wednesday:

Heavy power lift
Heavy Olympic lift
Heavy conditioning workout
Conditioning workout
Accessory work

Thursday:

Heavy power lift
Heavy Olympic lift EMOM
Conditioning workout
Accessory work

Friday:

Rest Day

Saturday:

"Super Heavy" conditioning workout
Conditioning workout
Accessory work

Sunday:

Athlete's choice

IN-SEASON MICROCYCLE FOR THE OPEN AND/OR MASTERS ATHLETE

Many competitive CrossFitters have a specific goal related to placing in the Open. Specifically, masters athletes need a certain placing to participate in the online qualifier for the Games. Below is a one-week microcycle template for best success during the five-week Open season.

Thursday: Open Announcement and Workout "Dry Run"

- Complete the workout at roughly 70 percent effort to help develop a strategy for repetition schemes, movement techniques and overall work-to-rest ratio.
- Be careful not to let the intensity or volume get too high, particularly if the Open workout contains a max-effort lift and/or loading at a high percentage of the athlete's one-repetition maximum.

Friday: Rest/Active-Recovery Day

- Foam roll, stretch and/or mobilize any areas that are typically problematic or need extra work in preparation for the demands of the Open workout.

Saturday: Game Day

- Complete the workout at 100 percent effort to post the best possible score.
- This timing also allows for a repeat workout on Monday, if necessary.

Sunday: Weakness Work or Active Rest

1. Weakness work: If Saturday's score was satisfactory, use this day to target a weakness. For example, it could be a heavy day, a skill-based workout or EMOM.
2. Active rest: If Saturday's score was unsatisfactory, the athlete should use this day as an active-rest day in preparation to redo the Open workout on Monday.

Monday: CrossFit or Open Redo

1. For athletes not redoing the Open workout, today should comprise classic CrossFit. Depending on recovery, athletes may choose to add some additional skill or mobility work.
2. Athletes redoing the workout should complete it at 100 percent effort.

Tuesday: Rest Day

Wednesday: Active Rest/Skill Day

- Athletes may choose to do a workout here, but the intensity should be lower to allow for optimal recovery for the next Open workout.

CrossFit is at the core of all competitor programming. While some skills might be addressed on an individual basis, ultimately it is to better improve CrossFit performance—not performance in that modality. The efficacy of the weakness work is judged on the improvements in overall fitness.

The guidelines presented here are designed to help competitors structure their programs based on goals and capacity. It is important that the individual's desires and motivation are in line with his or her competitive goal, and it is partially the coach's responsibility to help guide the athlete to realistic goals with programs that reflect these factors.

WEIGHTLIFTING SKILLS SESSION

Effective weightlifting technique helps lift higher maximum loads, and it can reduce the total time to complete a certain task or workout. Effective technique is often context dependent—based on movement, load and repetition scheme—such that one might use different techniques for a one-repetition-maximum snatch versus 30 snatches for time. A competitive athlete needs to be adept in switching techniques. This section highlights different movement techniques and the rationale for using them.

OLYMPIC LIFTS

The height of the receiving position is dictated by the workout variables. The muscle clean/snatch is the optimal movement choice due to its speed per repetition (i.e., cycle time). It relies on the upper body, so it is useful only for moderate loads, and its use can generate significant fatigue. It is most optimal for low-weight/high-repetition workouts (such as Randy), as well as perhaps moderate-weight/low-repetition rounds. For consecutive repetitions, consider using a set-up position with higher hips to reduce the overall movement of the hips and legs in each repetition.

The power clean/snatch is the second most optimal receiving position relative to cycle time. It uses greater contribution from the lower body, so it allows for greater loads and creates less upper-body fatigue than the muscle snatch. Using the same set-up and receiving position and receiving the bar at the optimum height (i.e., as high as possible given the weight and total repetitions) reduces the time per repetition. Similar to the muscle snatch, a set-up position with higher hips can reduce unnecessary movement of the hips and legs.

Receiving the clean or snatch in a squat is least optimal due to the long cycle time, but it allows for the greatest load to be lifted. In competition, this variation should be reserved for events when it is required by standards or when the athlete's legs are needed to assist the upper-body pull. In high-repetition workouts, athletes can be more efficient by meeting the bar at the highest acceptable bottom position.

The bar path should be as vertical as possible in both the concentric and eccentric phases of the movement. Athletes should learn to brush the hips with the bar on the return and attempt to keep the bar over the shoelaces throughout the movement. Athletes can also cycle repetitions faster by actively pulling the bar down to the set-up position.

Dropping the bar between repetitions can be the most efficient way to complete a workout, especially at moderate-heavy weight for medium-high repetitions. While dropping the bar takes longer per repetition, it can keep the athlete's heart rate lower and reduce grip and muscle fatigue (by eliminating the eccentric phase of the lift). Therefore, an athlete might finish a set of repetitions more quickly than if he or she had used small touch-and-go sets that require more rest between sets. Dropping the bar can result in errant movement of the barbell, and athletes need to take this into account.

Athletes should use the hook grip to reduce the demand on the forearm muscles and put a greater reliance on the mechanical advantage created by the overlapping fingers. If an athlete finds the hook grip uncomfortable or unrealistic in the receiving position, it can be

released prior and regained on the return.

There are two common receiving positions when returning the bar to the hang: 1) higher on the thighs with a vertical torso; and 2) lower on the thighs with the shoulders in front of the hips and/or bar. Due to its reduced range of motion, the former is quicker. The latter, however, is stronger because of the greater range of motion available to develop acceleration, as well as a greater contribution from the back and hamstrings. This also means that the back and hamstrings are more likely to fatigue when the shoulders come forward of the bar.

OVERHEAD LIFTS

The two main overhead variations are the push press and push jerk. Strict presses and split jerks are overhead options that are used less frequently. The comparison between the push press and push jerk is similar to that of the muscle snatch and power snatch. Push-press cycle time is faster, but it requires more upper-body contribution and will be optimal for lesser loads. When push jerks are used, it is more ideal to keep the feet in the same position for set-up and reception.

When cycling push-press or push-jerk repetitions, athletes need to be mindful of returning the bar to an optimal drive position with reference to the torso. It is common for athletes to receive the bar at the bottom of the dip with the hip angle open and weight toward the toes (i.e., muted hip).

When the overhead lift is combined with a clean, it is imperative that the athlete start the jerk from the clean catch position to maximize efficiency. Standing up to finish the clean and then starting a subsequent dip and drive takes too much time, particularly at light-moderate loads. Returning the bar in ground-to-overhead movements can be difficult. Ideally, the athlete skips any pause at the shoulders and instead brushes the hips only during the return.

SQUATS

Whenever a front or overhead squat is required, the athlete should squat clean or snatch the first repetition to save time. However, athletes might have to use other techniques when the load is too heavy.

For higher-repetition back squats, athletes should experiment with high- and low-bar positions. A low-bar position typically allows for greater loads, but it may fatigue the posterior chain more quickly than the high-bar variation. Evaluation of the workout loads, repetition schemes and other movements in the workout will suggest the ideal bar placement.

DEADLIFTS

Athletes need to practice cycling repetitions at various loads while minimizing a rebound from the floor. Athlete's often receive "no-reps" in competitions as too much bounce is considered an advantage. At heavier loads, consider pacing that controls the descent to the knee and increases speed when lowering to the floor. This efficient technique reduces time under tension (and therefore fatigue) but allows the athlete to maintain control of the lift and meet generally accepted competition standards.

ODD OBJECTS

Strongman implements, dumbbells and kettlebells should be utilized throughout the year for variance, but barbells should be the most frequently used tool. During the Open and regionals, the majority of lifts are performed with barbells. For athletes with Games potential, odd objects should be programmed more frequently because they regularly appear at that competition.

PROGRAMMING WEIGHTLIFTING SKILLS

Weightlifting skills sessions can be programmed similar to gymnastics skills sessions. The session does not need to be to failure or fatigue. The primary focus for the athlete is fast and efficient technique, with loading less of a concern. Skills sessions should also have variance in the loading and repetition ranges, such that a mix of heavy and lighter loads are practiced for low-to-high repetitions. Incorporating weightlifting variations in conditioning workouts also helps athletes and coaches evaluate breakdowns in technique specifically due to fatigue and/or movement combinations.

Here are two example weightlifting skills sessions:

1. Every minute on the minute for 10 minutes (EMOM 10): 5 unbroken snatches at a moderate load, working on speed of movement and efficiency between repetitions. This pattern is not intended to be used with maximum weight.
2. EMOM 10: On the odd minutes, perform 6 power cleans; on the even minutes, perform 6 push jerks. Add 1 repetition each round, such that minutes 3 and 4 require 7 repetitions, minutes 5 and 6 require 8 repetitions, minutes 7 and 8 require 9 repetitions, and minutes 9 and 10 require 10 repetitions. Moderate load should be used such that failure does not occur.

MONITORING RECOVERY

Recovery techniques are not a primary focus for competitive athletes because it is the stimulus from training that produces the desired adaptations. No exceptional athletes are achieving remarkable fitness with ice baths, acupuncture, active-release therapies or massage alone. Athletes rarely reach the boundaries of their genetic potential when recovery is more of a concern than the intensity of the training itself. Competitive athletes, in particular, need to push themselves as hard as possible—without overdoing it. It can be difficult to determine volume and intensity based on "feel" alone. A daily practice of monitoring simple parameters can help athletes determine whether volume and intensity are driving progress or hindering it.

OVER-REACHING VERSUS OVER-TRAINING

Over-reaching occurs when a new stimulus is introduced (exercises, distance or intensity) and results in significant muscle damage, neuroendocrine-system stress, and potential immune-system inhibition. Over-reaching is often done intentionally in a program to achieve a new level of adaptation (supercompensation). The endocrine response from this type of training (e.g., adrenaline, nor-adrenaline, and cortisol) can drastically affect performance. Short-term reductions in performance capacity may require recovery ranging from several days to two weeks.

Over-training is the result of over-reaching for long periods of time. Over-training requires significant rest to allow recovery from physiologic stress; i.e. the training program must be halted. This condition occurs when an athlete ignores consistent and severe muscle soreness, as well as other indicators, for an extended period of time. Over-training results in decreased performance because of weakening of damaged muscles, negative effects on mood and immune-system inhibition that results in illness. Each negatively impacts fitness and the training program. Reductions in performance capacity may require recovery ranging from several weeks to months.

MONITORING RECOVERY

Athletes can use a series of markers that correlate with recovery to help inform training sessions. The data is best used when showing trends across multiple markers in combination with stagnant or declining performance. Particularly for highly competitive individuals, the markers can provide insight to athletes who would otherwise continue to train. It is important to note, however, that a single negative data point can occur for many reasons not necessarily indicative of under recovery.

The nine recovery markers below are a mix of qualitative and quantitative markers, which should be addressed on a daily basis upon waking. Consistency in the time of recording increases the utility of the data. Athletes should also accumulate a minimum of three weeks of data prior to making any training decisions based on the information. At minimum, three markers need to be trending negatively to raise concern.

1. Resting heart rate:
   An elevated resting heart rate can be a response to training stress in addition to other forms of distress that can negatively affect performance. An elevated pulse

may be a sign of sympathetic ("fight or flight") overtraining, whereas a decreased resting heart rate may indicate parasympathetic ("rest and digest") stress.

Resting heart rate can be measured by placing two fingers over the radial artery proximal to the wrist and counting the number of beats in one minute. For accuracy and consistency, measurement should be completed before rising from bed. Ideally, measurement occurs when the individual naturally wakes up—versus after waking from an alarm clock. A change of more than +/- 5 percent (after establishing baseline values in a three-week period) is considered a negative response and is associated with fatigue or stress common to over-reaching.

2. Body weight:
   A rapid decrease in body weight can negatively affect performance and cognitive functionality. Body-weight changes can result from loss of body fat, muscle mass and inadequate hydration or nutrition. Acute changes in body-weight are typically caused by inadequate hydration or nutrition.

   Weight should be assessed prior to eating, urinating or bowel movement. By monitoring weight regularly, an athlete has feedback on daily energy and hydration needs. An acute loss of body weight in excess of 2 percent is considered a negative response and can negatively impact recovery and performance.

   However, mild amounts of dehydration are not as concerning as we are led to believe, and many slightly dehydrated athletes perform at a high level. When dealing with hydration, athletes should drink to thirst and ensure they are not replacing too much fluid, which can put them at risk of exercise-associated hyponatremic encephalopathy. This condition is characterized by low blood-sodium levels and can cause death in extreme cases.

3. Sleep quantity:
   Although an optimal amount of sleep has not been established, eight hours a night is generally a prudent target. Sleep affects the endocrine system (growth hormone and testosterone production and release), immune system and recovery status (muscle remodeling), all of which can affect performance.

   A sleep schedule is a great way to ensure a consistent amount of rest. If the athlete sleeps too little at night, a midday nap can be added to the previous night's sleep total, but this practice should be avoided.

4. Sleep quality:
   The quality of an athlete's sleep is as important if not more important than sleep quantity. Deep sleep is advantageous because it allows the body and mind to reach a relaxed state where neuromuscular systems are able to recuperate at a faster rate. More oxygen, nutrients and growth hormone are delivered to muscles during deep sleep, allowing for better recovery.

   Sleep quality can be reported based on feeling: deep sleep/occasional tossing and turning/restlessness. Alternatively, several phone applications are available to quantify sleep quality based on user movement and noise.

5. Appetite:
   Perhaps surprisingly, appetite decreases with increased training volume or intensity. This can result in negative energy balance, decreased hydration status and decreased performance. Inadequate consumption of both macronutrients and micronutrients affects recovery, performance and immune-system status. Our nutritional prescription is paramount in accelerating recovery, chiefly due to the resources contained in whole-foods-based diet that achieves hormonal balance.

   Record the athlete's appetite (very hungry/normal hunger/not hungry) prior to the first meal of the day, but monitor changes throughout the day. This marker often correlates with body weight.

6. Muscle soreness:
   Muscle soreness is thought to be caused by microscopic tearing of muscle fibers during training. Typically, soreness occurs when an athlete trains with a new intensity, volume or movement, and it can usually be predicted based on the programming. Inadequate recovery or persistent and severe soreness can lead to over-reaching and eventually over-training or injury.

   The athlete should record no soreness/some soreness/severe soreness, so that training decisions can be made to continue the program, decrease volume or intensity, or put the program on hold.

7. Mood:
   Many athletes experience apathy, mood swings, depression or anxiety regarding training and competition, and these feelings may extend into their personal lives. These elements can result from increased training volume, which requires food, sleep and proper nutrition.

   The athlete should report good mood/normal mood/bad mood upon waking but also monitor changes throughout the day.

8. Immune status:
   Athletes training with intensity are more susceptible to illnesses. Symptoms such as headaches, nausea, gastrointestinal discomfort, coughing and sore throat are common to athletes and can be correlated to training stress and fatigue. When these conditions are ignored, training can exacerbate symptoms into full-blown illness, where training must be halted until symptoms subside.

9. Previous day's performance:
   Athletes should make progress with an effective training program. When an athlete reports that his previous day's performance is a personal record, the program is clearly on track. But when an athlete reports a normal training day or a poor performance, it may be indicative of decreased recovery status.

   Though all athletes have bad days, a persistent trend of poor performances on training days is a clear sign of over-reaching.

By tracking data across days, weeks and months, these markers can serve as a guide to decision making for programming. Some markers carry more weight than others, such as previous day's performance.

When making program decisions, use the data collectively with the following guidelines:

- Eight to nine positive responses, with up to two non-trending, negative responses (>80 percent positive): Green light to continue with the program or potentially add volume to the athlete's programming.
- Several non-trending negative responses (60-80 percent positive): Yellow light to proceed with caution, potentially lowering the volume and intensity of training or adding an unplanned rest day.
- Several negative trending responses (<50 percent positive): Red light; halt program temporarily and prioritize recovery strategies.

Using these measures as a predictive instrument for volume and intensity changes might help indicate recovery state and identify gaps in the program.

COMPETITOR NUTRITION

This course provides a systematic way of assessing, implementing and optimizing nutritional intake for athletes to maximize performance and body-composition goals.

The first step to optimize an athlete's nutrition is to address the quality of the foods eaten. After the 2011 CrossFit Games, the nutritional habits of 100 CrossFit Games athletes were polled. Almost 80 percent of the respondents followed Greg Glassman's whole-food prescription of: "Eat meats and veggies, nuts and seeds, some fruit, little starch, and no sugar."

This prescription is sequenced in the order of importance and prioritizes protein intake to support lean body mass and recovery, as well as vegetables to provide complex carbohydrates and micronutrients. Note quantifying terminology for the last three components: some fruit, little starch, and no sugar. By limiting the intake of foods with a greater carbohydrate load, athletes limit the potential to store excess body fat. Carbohydrates are needed for energy (particularly high intensity efforts), so these sources cannot and should not be eliminated.

Once the athlete routinely eats high-quality food, the athlete can add precision and accuracy to the regimen. This can be achieved by utilizing the Zone Diet block system of balancing macronutrients at levels that support activity but not excess body fat. Total caloric intake at every meal will consist of 40 percent carbohydrates, 30 percent protein, and 30 percent fat.

It is important to establish a baseline block prescription and goals with an athlete. Two variables are needed for the baseline prescription: lean body mass and the athlete's activity level. To assess lean body mass, the athlete must have body composition measured using methods such as anthropometric measurement, three- or seven-site skin-fold caliper measurements, hydrostatic tanks, or dual energy x-ray absorptiometry scan (DEXA-scan, the most costly but also the most accurate).

In block calculations, the activity level of a CrossFit athlete varies. It is 0.7 for an athlete performing one 60 to 90 minute session per day with a mostly inactive profession, and it is 1.0 for an athlete performing two 90-minute sessions with an active profession (trainer at a gym or construction worker). This activity level must be assessed throughout a training season; it will likely change, affecting an athlete's caloric needs.

With those variables, the following formula can be used:

(Lean body mass X activity factor)/7 = Zone Blocks

Where *lean body mass* is *total body mass* minus *body fat*, as assessed using the methods listed above.

This formula produces a total number of Zone blocks the athlete must eat each day. For reference, 1 block = 7 g of protein, 9 g of carbohydrates, and 1.5 g of fat (assuming your protein source contains fat). Total number of meals should range between four to six per day, occurring every two to four hours (minimum of one hour between meals).

An example of a 1-block meal is:

Protein: 1 whole egg, cooked (52 g)
Carbohydrate: ~1/3 banana (45 g)
Fat: ~3 almonds (3 g)

A Zone block chart is provided in the Zone Meal Plans **article** of the Level 1 Training Guide. A block chart by mass is provided at the end of this article.

Deviations From Baseline

When an athlete has been compliant with the baseline Zone block prescription for three to four weeks, he or she should re-assess performance, body composition, and individual goals. If the athlete is still progressing in all areas, no diet changes need to be made. However, the baseline might need modification in order to achieve better results.

Deviations are typically motivated by the following:

1. Goals of increasing body mass,
2. Goals of decreasing body fat,
3. Use of post-workout nutrition, and
4. Changes in training volume.

1) Increasing Body Mass

Most athletes lean out during the initial three to four week period following the baseline prescription. For some smaller athletes, this often conflicts with weight-gain goals. To deviate from the baseline prescription while utilizing Zone parameters to the greatest degree possible, the athlete can increase caloric intake to about 4,350 calories per day (44 complete blocks or 30 complete blocks with double fat blocks).

In cases where this intake still leaves an athlete short of the goal, the athlete can add 9 more fat blocks (about 250 calories) once he or she has reached a one-week weight-gain plateau. The athlete can continue adding fat in this manner until the body-mass goal is achieved.

Example prescription for increasing body mass:

- The body-mass gain prescription:
  - 30 protein blocks, 30 carbohydrate blocks and 60 fat blocks.
- After 1-week weight-gain plateau:
  - 30 protein blocks, 30 carbohydrate blocks and 69 fat blocks.
- After a second 1-week weight-gain plateau:
  - 30 protein blocks, 30 carbohydrate blocks and 78 fat blocks.
  - Etc.

Three things should be noted about mass gain. First, weight gain alone does not make an athlete stronger. Weight gain should be attempted only after maximizing strength at baseline body weight. Second, fat is used to increase calorie count because of its caloric density at 9 calories per gram, as opposed to 4 calories per gram of protein or carbohydrate. It is easier to consume more calories in the form of fat. Lastly, there is no healthy way to overfeed an organism long term.

2) Decreasing Body Fat

Most athletes lean out during the initial three to four weeks of a baseline Zone prescription . If decreasing body fat is the goal, this baseline prescription should be continued until a one-week body-fat-loss plateau has been reached. At this point, the athlete can deviate from baseline by substituting 1 carbohydrate block with 3 blocks of fat (about 36 calories). This change is an attempt to decrease the insulin secretion from carbohydrates in favor of the more hormonally neutral fat. Athletes can continue substituting fat for carbohydrates in this manner until body-fat goals are achieved.

Example prescription for decreasing body fat:

- Baseline prescription:
  - 15 protein blocks, 15 carbohydrate blocks, 15 fat blocks.
- After 1-week body-fat-loss plateau:
  - 15 protein blocks, 14 carbohydrate blocks, 18 fat blocks.
- After a second one-week body-fat-loss plateau:
  - 15 protein blocks, 13 carbohydrate blocks, 21 fat blocks.
  - Etc.

Two things should be noted about body-fat loss. First, performance goals can conflict with weight-loss goals. An athlete might see body-composition markers going in the right direction but training performance going in the wrong direction. Second, there is no healthy way to lose body fat quickly. Compliance and patience are key to success in the long run.

3) Using Post-Workout Nutrition

Exercise is a physiological stressor causing increased soreness, increased recovery demand, increased appetite, damage to muscle tissue and depletion of resources (glycogen, muscle protein structures). In remodeling, muscles adapt to physiological stressors, and the process requires raw materials—specifically protein and carbohydrates.

High-glycemic carbohydrates can be favorable in order to initiate a substantial insulin response, shuttling glucose and amino acids into muscle tissue. Carbohydrates that contain glucose are favorable over those that contain fructose, as glucose can be stored in the muscles as glycogen and fructose is often preferentially converted to fat in the liver. Higher glucose containing foods are generally starchy foods like grains and root vegetables (versus fruit).

In order to increase the efficiency of this post-workout meal, the athlete can choose to deviate from the baseline prescription and subtract all fat blocks from the meal and add in carbohydrate blocks. In order to maintain the necessary caloric intake, the athlete can add 1 carbohydrate block for every 3 fat blocks deleted from the meal.

Post-workout meal example:

Baseline prescription for 1 meal: 3 protein blocks, 3 carbohydrate blocks, 3 fat blocks.

Post-workout meal deviation: 3 protein blocks, 4 carbohydrate blocks, 0 fat blocks.

Fat slows the digestion of protein and carbohydrates, which is the rational for eliminating

it from post-workout meals. However, it also means the athlete will likely experience decreased satiety from this type of meal.

4) Changing Training Volume

The activity factor can be adjusted to reflect an increase in training volume, and athletes can determine their caloric/macronutrient needs without detrimental effects.

For example, an athlete is 190 lbs. (167 lbs. lean body mass/12% body fat), does one session/day with an inactive profession (0.7 activity factor), and is assigned 17 blocks. Once this athlete has been compliant for three to four weeks and has a positive body-composition and training performances, the athlete can be confident that 17 blocks/day is appropriate for one training session a day.

As the athlete adds training volume, the activity factor must increase. For the example athlete, adding a second session would increase the activity factor from 0.7 to 0.8, producing a need for 19 blocks. If the athlete completes 3 sessions/day, the activity factor would increase to 0.9, producing a need for 22 blocks.

Competition Example:

The block prescription used for increased training volume can be copied with relative certainty for competition days. For example, suppose the example athlete had two events in a one-day competition. This equates to 19 blocks.

Game-day nutrition may look like this:

10:00 a.m. —Event 1:

9-6-3 repetitions for time of:
Thrusters (165/115 lb.)
Muscle-ups

2:00 p.m. —Event 2:

As many repetitions as possible (AMRAP) in 12 minutes of:
3 hang power snatches (135/95 lb.)
2 rounds of:
3 pull-ups
6 push-ups
9 box jumps (20 in.)

8 a.m. breakfast (4 blocks):

3 eggs with 3.5 slices bacon, 1 pepper, 0.75 cups onion
1 banana
4 tablespoons avocado

10:15 a.m. post-workout (3 blocks):

1 scoop whey protein
1.25 cans coconut water
(carbohydrate substitutions for lack of fat in meal)

12:30 p.m. lunch (4 blocks):

4 ounces chicken breast

12 spears asparagus
3 cups strawberries
4 macadamia nuts

2:30 p.m. post-workout (3 blocks):
1 scoop whey protein
1.25 cans coconut water
(Carbohydrate substitutions for lack of fat in meal)

6 p.m. dinner (4 blocks):
4 ounces beef
12 spears asparagus,
1.5 cups blueberries
12 almonds

9:00 p.m. snack (1 block):
1 ounce salami
0.5 apple
1 teaspoon almond butter

The underlying methodology presented herein emphasizes accurate assessment of daily food intake to meet performance needs. Variations from a standard prescription can be made, all while tracking dietary intake and performance to determine the athlete's optimal nutrition. This measured approach will also help an athlete plan for nutrition on game day, and the plan should be tested well before the event for best success.

ZONE BLOCK CHART (BY MASS)

PROTEINS		
Food	Cooked (grams)	Uncooked (grams)
beef	26	34
beef, ground, 80% lean	27	41
calamari	39	45
Canadian bacon	25	35
catfish	38	46
cheese, cheddar	—	29
cheese, cottage	—	63
cheese, feta	—	49
cheese, ricotta	—	62
chicken, breast	23	33
clams	27	48
crabmeat	39	39
duck	30	38
egg substitute, liquid	—	70
egg, white	64	64
egg, whole	52	56
flounder/sole	46	56
ham	37	34
lamb, loin	24	34
lamb, ground	28	42
lobster	37	42
pork, loin chop	27	33
pork, ground	27	41
pork, bacon	20	56
protein powder, whey	12	—
salmon	28	34
sardines	28	—
scallops	34	58
shrimp	29	51
soy burgers	45	—
soy cheese	56	—

PROTEINS		
Food	Cooked (grams)	Uncooked (grams)
soy sausage, links	37	—
swordfish	30	36
tofu, firm	86	—
tofu, soft	107	—
tuna steak	24	29
tuna, canned in water	36	—
turkey, breast	23	30
turkey, ground	26	36
turkey, deli meat	32	—

FATS		
Food	Amount (grams)	Approx Tbsp.
NUTS & SEEDS		
almonds	3	—
almond butter	3	0.2
cashews	3	—
macadamia nuts	2	—
peanut butter	3	0.2
peanuts	3	—
sunflower seeds	3	—
walnuts	2	—
OTHER		
almond milk, unsweetened	1/2 cup	—
avocado	10	—
butter	2	—
coconut milk	7	—
coconut oil	2	—
cream cheese	5	—
cream, heavy	4	0.3
cream, light	8	0.5
half and half	13	0.9
lard	2	—
mayo, light	5	0.3
mayonnaise	2	0.2
olive oil	2	0.1
olives	14	—
sour cream	8	0.7
tahini	3	0.2
tartar sauce	9	0.6

Notes:

1) The amount for each item is to obtain 7 grams of protein, 9 grams of carbohydrate, or 1.5 grams of fat.
2) Rounded to nearest whole gram.
3) Data from **here** unless not available therein.
4) Fiber in carbohydrate sources is subtracted to determine a block.
5) Tbsp. = tablespoon.

VEGETABLES		
Food	Cooked (grams)	Uncooked (grams)
acorn squash	89	100
artichoke	270	177
arugula	—	439
asparagus	425	500
bean sprouts	265	217
beet green	351	1450
beets	112	135
black beans	60	19
bok choy	1155	761
broccoli	232	223
Brussels sprouts	200	174
butternut squash	123	93
cabbage	250	272
carrots	173	132
cauliflower	500	304
celery	375	657
chickpeas	45	18
collard greens	545	635
corn	48	54
cucumber	—	285
dill pickles	—	639
eggplant	144	313
fava beans	63	27
green beans	193	211
kale	247	175
kidney beans	55	26
leeks	137	73
lentils	74	17
lettuce, iceberg	—	508
lettuce, romaine	—	760
lima beans	65	21
mushrooms	291	399
Napa cabbage	405	300
okra	448	212

VEGETABLES		
Food	Cooked (grams)	Uncooked (grams)
onion	103	118
parsnips	67	68
peas	250	180
peppers, red	165	230
pinto beans	52	19
potato, white	48	68
radicchio	—	250
radishes	493	500
salsa	—	190
sauerkraut	650	—
snow peas	211	182
spaghetti squash	178	167
spinach	667	628
summer squash, all	309	400
sweet potato	52	53
Swiss chard	443	423
tomato	273	335
tomato sauce	235	—
turnip	295	195
watercress	—	1140
zucchini	536	428

FRUITS	
Food	Uncooked (grams)
apple	79
applesauce, unsweetened	89
apricots	99
banana	45
blackberries	210
blueberries	75
cantaloupe	125
cherries	65
cranberries, raw	117
dates	13
figs	55
grapefruit	140
grapes	53
guava	100
honeydew	110
kiwi	75
kumquat	96
mango	67
nectarine	102
orange	99
papaya	99
peach	112
pear	75
pineapple	77
plum	89
raisins	12
raspberries	167
strawberries	160
tangerine	78
watermelon	125

PROCESSED CARBOHYDRATES	
Food	Cooked (grams)
bagel	17
biscuit	19
bread	20
bread crumbs	20
cereal	14
chocolate bar	15
corn bread	14
cornstarch	10
croissant	21
crouton	13
donut	20
English muffin	21
flour	12
French fries	37
graham crackers	12
granola	20
grits	63
ice cream	39
melba toast	13
oatmeal	90
pancake	32
pasta, cooked	38
pita bread	17
popcorn	19
potato chips	18
pretzels	12
refried beans	90
rice	32
rice cake	12
roll (dinner)	18
roll (hamburger, hot dog)	18
saltine crackers	13
taco shell	16
tortilla (corn)	23
tortilla (flour)	20
tortilla chips	15
waffle	27

Notes:

1) The amount for each item is to obtain 7 grams of protein, 9 grams of carbohydrate, or 1.5 grams of fat.
2) Rounded to nearest whole gram.
3) Data from **here** unless not available therein.
4) Fiber in carbohydrate sources is subtracted to determine a block.
5) Tbsp. = tablespoon.

GOAL SETTING AND MINDSET

Goal setting and mindset are two important but sometimes underutilized aspects of optimizing performance.

GOAL SETTING

A goal is an explicit desired end state with the purpose of providing motivation, inspiration and direction. Setting goals is one of the first steps a competitor needs to do for any competitive season. These goals should be crafted with certain characteristics that optimize their effectiveness, described below.

Goals should be written expressing the desired adaptation (i.e., in the positive). It seems simple, but a goal must be what the athlete wants to achieve, not what he or she wants to avoid or stop doing.

Goals should be specific and concise in words and numbers, to include variables such as repetitions, techniques used and target completion dates.

Goals must be achievable, yet they must challenge the athlete every day. The athlete must have a realistic assessment of where he or she is in relationship to the goal. When a goal overreaches—or cannot be accomplished in a meaningful time—it lacks urgency. If a goal is set with too short a timeframe, it can cause unnecessary discouragement.

Goals are often set to express the desired end state for the competitive season (up to five separate season goals), but additional goals of shorter duration can continually challenge and motivate the athlete during the season. These shorter goals can be set for three-, six- and nine-month intervals to correspond with the suggested macrocycle of three mesocycles (see Competitor Programming article). More goals tend to overwhelm the athlete.

An example of a single goal with three benchmarks:

- I will link 15 butterfly kipping pull-ups in a single set by June 1.
- I will link 20 butterfly kipping pull-ups in a single set by Sept. 1.
- I will link 25 butterfly kipping pull-ups in a single set by Dec. 31.
- By linking 25 butterfly kipping pull-ups in a single set, I will have more speed in events containing pull-ups, which will improve my performance.

MINDSET

An athlete's mindset can propel him or her to new levels or work against the athlete by limiting potential. Thoughts and words can influence reality, such that athletes must respect the power their minds have over performance. Thoughts lead to actions and habits in daily life.

Developing a strong mindset is a skill that requires development, and daily practice can be used in both training sessions and competitions. When confronted with a negative stimulus such as a missed repetition, the anticipation of a tough training session or a poor performance, the athlete can interrupt the thought and replace the negative stimulus by utilizing visualization and positive-self-talk strategies. Visualization using positive memories, called anchor points, can bring forward positive, calming and motivating feelings.

The athlete can also use positive self-talk by developing a personal mantra that can be repeated, turning negative events into positive thoughts. These strategies can be utilized prior to, during and/or after the session or event.

Strategies to Prepare for Game Day

Controlling one's mindset, particularly for game day, can be challenging due to the added stress and potential expectations an athlete may have. Control over mindset is accomplished by creating a home base, bringing known and tested meals, and following a specific and known preparation routine. The more an athlete feels out of his or her element, the less likely he or she will be successful.

When a competition includes multiple events each day, creating a "home base" for athletes to relax can decrease the stress of being in a competition environment for long hours. A home base should be quiet, out of direct sunlight and reasonably free from distractions.

Consider bringing these items to a competition to create the home base:

- Sleeping pad or matting and a pillow.
- A tent of some type to provide shade.
- Mobility tools and warm-up/cool-down equipment.

In addition, the athlete should have a cooler that contains all the meals needed to fuel a successful competition. Ideally, these meals have been tested on training days with similar volume. Eating unfamiliar meals or not consuming enough fuel can cause gastrointestinal discomfort or lack of energy.

Having a preparation routine that is practiced on a daily basis prior to training or competition primes the body for intense energy output. It also allows time to assess the body's physical condition (aches and pains), and to practice visualization and positive self-talk prior to an event. This routine should be timed beforehand so an athlete can stay on schedule during warm-up at a competition.

Here is an example of a five-minute preparation **warm-up**. The movements include:

- 25 jumping jacks
- 25 karate-chop jumping jacks
- 10 Spiderman lunges per leg
- 10 lateral lunges per leg
- 10 windmills per side
- 10 wide-stance inchworms + push-up
- 10 arm circles in each direction
- 10 arm pretzel twists per side

A skill-specific warm-up for complex movements—such as sprinting, the Olympic lifts, or high-skill gymnastics movements—might require a movement-specific routine. These routines should be performed after the preparation warm-up, and they should also be practiced and timed so that the athlete can stay on schedule before an event.

An example of a skill-specific warm-up for the snatch is the Burgener **warm-up**. The movements include:

- 3-5 down-ups
- 3-5 elbows high and outsides
- 3-5 muscle snatches
- 3-5 snatch lands
- 3-5 snatch drops
- 3-5 hang power snatches
- Repeat 2-3 times as needed

Repeating specific preparation and warm-up routines also provides the athlete with greater continuity between training and competition.

Competitors should dedicate time to reviewing their season goals and practicing a strong mindset to best aid competitive performance.

PRACTICAL PROGRAMMING BREAKOUT

WORKOUT (WOD) TRAINING TEMPLATE

Strategy
• What is going to be the most difficult part of the workout? • What repetition schemes do you plan on using for each of the elements? • Establish positive self-talk prior to entering the workout. • Always be willing to throw the "plan" out and re-adjust as needed.
Warm-Up
• Develop a pre-workout routine: utilize methods to increase core temperature, move the body throughout a full range of motion through basic calisthenics and/or dynamic range of motion drills. If needed, spend additional time mobilizing joints for best performance in the workout or extra time on areas of the body that are individually problematic. • Skill work: specific warm-up for the workout or skill development on movements not involved in the workout.
Workout
• Attack • Evaluate
Post Workout
• Nutrition • Static stretching • Recovery options (high volume vs. heavy day)

PROGRAMMING

Workout Elements	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Session Goal							
Strategy							
Warm-Up							
Workout							
Post-Workout							

CrossFit TRAINING