



LEVEL 2 TRAINING GUIDE AND WORKBOOK

CrossFit
TRAINING

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PREPARATION FOR THE COURSE

A large focus of the CrossFit Level 2 Certificate Course is allowing participants time to practice and work on their coaching abilities **in real time**. The course includes sections called “Practical Exercises” and “Teach Backs,” where staff members lead participants in coaching drills and provide feedback on each person’s ability to coach others in CrossFit’s foundational movements.

The best preparation for this is coaching experience. Ideally, participants will have at least 50 hours of coaching experience prior to attending (approximately two classes a week for six months). This experience provides the best preparation for coaching in front of peers and receiving constructive feedback in real time. Participants are also encouraged to use resources in the [CrossFit Level 1 Training Guide](#). Specifically, see “Appendix: Movement Guide,” which includes information on the nine foundational movements, and print copies for this course. More importantly, study and practice the material therein so you can be prepared to effectively teach your peers. The following pages also contain summary sheets for the nine foundational movements to further help you prepare.

We also recommend that you take the [Online Scaling Course](#), [Online Lesson Planning Course](#), and [Online Spot the Flaw Course](#) prior to attending this course. These online courses will help you hone your ability to scale for any athlete, write effective lesson plans, and identify faults.

SUMMARY SHEET: SQUATS

AIR SQUAT

TEACHING

SETUP

- Shoulder-width stance
- Full extension at hips and knees

EXECUTION

- Hips descend back and down
- Lumbar curve maintained
- Knees in line with toes
- Hips descend lower than knees
- Heels down
- Complete at full hip and knee extension

SEEING

PRIMARY POINTS OF PERFORMANCE

- Lumbar curve maintained
- Weight on heels
- Move to a depth below parallel
- Initiate with the hips moving back
- Knees track in line with toes

CORRECTING

COMMON FAULTS

- Loss of lumbar curve in flexion
- Weight in, or shifting to, the toes
- Not going low enough
- Initiating with knees so weight is on the toes
- Knees caving inside the feet
- Immature squat

FRONT SQUAT

TEACHING

SETUP

SAME AS AIR SQUAT, PLUS:

- Hands just outside the shoulders
- Loose, fingertip grip on the bar
- Elbows high (upper arms parallel to the ground)

EXECUTION

SAME AS AIR SQUAT, PLUS:

- Maintain front-rack position
- Bar moves over the middle of the foot

SEEING

PRIMARY POINTS OF PERFORMANCE

SAME AS AIR SQUAT, PLUS:

- Front-rack position maintained
- Bar stays close to the frontal plane

CORRECTING

COMMON FAULTS

SAME AS AIR SQUAT, PLUS:

- Improper rack position (bar not in contact with torso)
- Elbows dropping during the squat (bar moves away from frontal plane)

OVERHEAD SQUAT

TEACHING

SETUP

SAME AS AIR SQUAT, PLUS:

- Wide grip on the bar (for a pass-through)
- Shoulders push up into the bar
- Armpits face forward

EXECUTION

SAME AS AIR SQUAT, PLUS:

- Maintain overhead position
- Bar moves over the middle of the foot

SEEING

PRIMARY POINTS OF PERFORMANCE

SAME AS AIR SQUAT, PLUS:

- Overhead position maintained
- Bar stays close to the frontal plane

CORRECTING

COMMON FAULTS

SAME AS AIR SQUAT, PLUS:

- Inactive overhead position (shoulders inactive, elbows bent)
- Bar moves forward of the frontal plane

SUMMARY SHEET: PRESSES

SHOULDER PRESS

TEACHING

SETUP

- Hip-width stance
- Full extension at hips and knees
- Elbows slightly in front of the bar
- Hands just outside the shoulders
- Full grip on the bar

EXECUTION

- Chin moves back
- Bar moves over the middle of the foot
- Spine neutral and legs extended
- Heels down
- Shoulders push up into the bar
- Complete at full arm extension

SEEING

PRIMARY POINTS OF PERFORMANCE

- Lumbar curve maintained
- Heels down
- Bar stays close to the frontal plane
- Move through the full range of motion
- Demonstrate active shoulders

CORRECTING

COMMON FAULTS

- Overextending the spine with the ribs sticking out
- Bar arcs out around the face
- Bar finishes forward of the frontal plane
- Elbows are bent or shoulders are not active at finish

PUSH PRESS

TEACHING

SETUP

SAME AS SHOULDER PRESS

EXECUTION (DIP, DRIVE, PRESS)

- Bar rests on torso
- Torso remains vertical as hips and knees flex in the dip
- Hips and legs extend, then arms press
- Heels remain down until the hips and knees extend
- Bar moves over the middle of the foot
- Complete at full hip, knee, and arm extension

SEEING

PRIMARY POINTS OF PERFORMANCE

SAME AS SHOULDER PRESS, PLUS:

- Move the torso in a straight line
- Extend the hips before the arms press
- Create a fast turnaround from down to up

CORRECTING

COMMON FAULTS

SAME AS SHOULDER PRESS, PLUS:

- Forward inclination of the chest
- Muted hip
- Arms press before the hip extends
- Pausing at the bottom of the dip

PROGRESSION (WITH PVC)

1. Dip and hold
2. Dip-drive, slow
3. Dip-drive, fast
4. Push press

Summary Sheet: Presses, continued

PUSH JERK

TEACHING

SETUP

SAME AS SHOULDER PRESS

EXECUTION (DIP, DRIVE, PRESS UNDER, STAND)

- Bar rests on torso
- Torso remains vertical as hips and knees flex in the dip
- Hips and knees extend rapidly, then arms press to drive under the bar
- Heels stay down until the hips and knees extend
- Bar moves over the middle of the foot
- Receive the bar in a partial overhead squat
- Complete at full hip, knee, and arm extension

SEEING

PRIMARY POINTS OF PERFORMANCE

SAME AS SHOULDER PRESS AND PUSH PRESS, PLUS:

- Reach full hip extension in the drive
- Receive the bar with locked-out arms
- Receive the bar in a sound partial squat

CORRECTING

COMMON FAULTS

SAME AS SHOULDER PRESS AND PUSH PRESS, PLUS:

- Lack of full hip extension in the drive
- Poor active overhead position when receiving
- Landing too wide
- Not standing up with the weight before re-racking it

PROGRESSION

(STEPS #1–3 NO PVC; STEP #4 WITH PVC)

1. Jump and land with hands at sides
2. Jump and land with hands at shoulders
3. Jump and extend the arms after the hips open
4. Push jerk

SUMMARY SHEET: DEADLIFTS

DEADLIFT

TEACHING

SETUP

Hip- to shoulder-width stance
Hands just outside hips with a full grip
Shoulders over or slightly in front of the bar
Bar in contact with the shins
Arms straight
Eyes on the horizon

EXECUTION

Lumbar curve maintained
Hips and shoulders rise at the same rate until the bar passes the knees
Hips then extend
Bar moves over the middle of the foot
Heels down
Complete at full hip and knee extension

SEEING

PRIMARY POINTS OF PERFORMANCE

Lumbar curve maintained
Weight on heels
Bar stays close to the frontal plane and body
Torso angle relatively constant during the initial pull
Demonstrate active shoulders

CORRECTING

COMMON FAULTS

Loss of lumbar curve in flexion
Weight in, or shifting to, the toes
Shoulders behind the bar in the setup
Hips do not move back to initiate the descent
Bar loses contact with the legs
Hips rise without the chest
Shoulders rise without the hips

SUMO DEADLIFT HIGH PULL

TEACHING

SETUP

Slightly wider than shoulder-width stance; knees in line with toes
Hands inside the legs with a full grip
Shoulders over or slightly in front of the bar
Bar in contact with the shins
Arms straight
Eyes on the horizon

EXECUTION (DEADLIFT, SHRUG, PULL)

Lumbar curve maintained
Hips and shoulders rise at the same rate until the bar passes the knees
Hips then extend rapidly
Heels down until hips and legs extend
Shoulders shrug, then the arms pull
Elbows move high and outside
Bar moves over the middle of the foot
Complete at full hip and knee extension with the bar pulled under the chin

SEEING

PRIMARY POINTS OF PERFORMANCE

SAME AS THE DEADLIFT, PLUS:

Hips extend before the arms pull
Hips extend rapidly

CORRECTING

COMMON FAULTS

SAME AS THE DEADLIFT, PLUS:

Shoulders shrug or arms bend before the hips extend
Elbows pull low and inside
Moving too slowly (i.e., segmenting the movement)
Incorrect descent (hips flex before the arms extend)
Shoulders roll forward during the pull

PROGRESSION (WITH PVC)

1. Sumo deadlift
2. Sumo deadlift-shrug, slow
3. Sumo deadlift-shrug, fast
4. Sumo deadlift high pull

Summary Sheet: Deadlifts, continued

MEDICINE-BALL CLEAN

TEACHING

SETUP

- Shoulder-width stance
- Ball between the feet with palms on the ball
- Knees in line with toes
- Shoulders over ball
- Arms straight
- Eyes on the horizon

EXECUTION (DEADLIFT, SHRUG, PULL UNDER, STAND)

- Lumbar curve maintained
- Hips extend rapidly
- Shoulders then shrug
- Heels down until the hips and knees extend
- Arms then pull under to the bottom of the squat
- Ball stays close to the body
- Complete at full hip and knee extension with the ball at the rack position

SEEING

PRIMARY POINTS OF PERFORMANCE

SAME AS THE DEADLIFT AND SUMO DEADLIFT HIGH PULL, PLUS:

- Reach full hip extension in the drive
- Receive the ball in a sound front squat

CORRECTING

COMMON FAULTS

SAME AS THE DEADLIFT AND SUMO DEADLIFT HIGH PULL, PLUS:

- Lack of full hip extension in the drive
- Curling the ball
- Collapsing in the receiving position
- Receiving too high (i.e., power clean then squat)
- No pull-under (e.g., tossing the ball up)
- Not standing up before lowering the weight

PROGRESSION (WITH MEDICINE BALL)

1. Deadlift
2. Deadlift-shrug, fast
3. Front squat
4. Pull-under
5. Medicine-ball clean

COURSE GOALS

The Level 2 Course is intended to improve participants' understanding and implementation of:

1. Essential mechanics of functional movement.
2. Fault identification and correction.
3. Essential qualities of an effective trainer.
4. Effective programming design and evaluation.
5. Class management strategies for effective group workouts.
6. Effective nutrition strategies for compliance and maintenance.

LEARNING OBJECTIVES

At the completion of the Level 2 Course, participants will be able to:

1. Identify and demonstrate the essential qualities of an effective trainer.
2. Identify and assess static and dynamic faults of functional movements.
3. Identify and describe common themes of functional movements.
4. Implement appropriate movement corrections using verbal, visual, and tactile cues.
5. Effectively communicate the points of performance for functional movements to individuals and groups.
6. Exhibit appropriate presence, attitude, and group management skills.
7. Design and assess the effectiveness of a program.
8. Assess an individual's current level of fitness and athletic capacity and apply appropriate scaling.
9. Understand and implement the key components of an effective class.
10. Identify and discuss effective nutrition strategies for education, implementation, compliance, and maintenance.

SCHEDULE

DAY 1

| | | | |
|-------|---|-------|--|
| 9:00 | – | 9:20 | Opening Remarks and Introductions |
| 9:20 | – | 10:00 | Methodology Lecture |
| 10:00 | – | 11:15 | Coaching Development |
| 11:15 | – | 12:00 | Methodology Lecture |
| 12:00 | – | 1:00 | Lunch |
| 1:00 | – | 2:20 | Coaching Development |
| 2:20 | – | 3:40 | Workout/Coaching Development |
| 3:40 | – | 5:00 | Coaching Development |
| 5:00 | – | 5:15 | Closing Remarks |

DAY 2

| | | | |
|-------|---|-------|--------------------------------------|
| 9:00 | – | 9:05 | Opening Remarks |
| 9:05 | – | 9:25 | Methodology Practical |
| 9:25 | – | 10:40 | Coaching Development |
| 10:40 | – | 11:40 | Methodology Lecture |
| 11:40 | – | 12:40 | Lunch |
| 12:40 | – | 2:05 | Coaching Development |
| 2:05 | – | 3:10 | Methodology Lecture |
| 3:10 | – | 3:50 | Methodology Lecture |
| 3:50 | – | 4:50 | Workout/Methodology Practical |
| 4:50 | – | 5:00 | Methodology Practical |
| 5:00 | – | 5:05 | Closing Remarks |

SCHEDULE WITH TRANSLATION

DAY 1

| | | | |
|-------|---|-------|--|
| 9:00 | – | 9:20 | Opening Remarks and Introductions |
| 9:20 | – | 10:05 | Methodology Lecture |
| 10:05 | – | 11:20 | Coaching Development |
| 11:20 | – | 12:10 | Methodology Lecture |
| 12:10 | – | 1:10 | Lunch |
| 1:10 | – | 2:30 | Coaching Development |
| 2:30 | – | 3:50 | Workout/Coaching Development |
| 3:50 | – | 5:15 | Coaching Development |
| 5:15 | – | 5:30 | Closing Remarks |

DAY 2

| | | | |
|-------|---|-------|--------------------------------------|
| 9:00 | – | 9:05 | Opening Remarks |
| 9:05 | – | 9:25 | Methodology Practical |
| 9:25 | – | 10:40 | Coaching Development |
| 10:40 | – | 11:45 | Methodology Lecture |
| 11:45 | – | 12:45 | Lunch |
| 12:45 | – | 2:05 | Coaching Development |
| 2:05 | – | 3:15 | Methodology Lecture |
| 3:15 | – | 4:00 | Methodology Lecture |
| 4:00 | – | 5:00 | Workout/Methodology Practical |
| 5:00 | – | 5:15 | Methodology Practical |
| 5:15 | – | 5:25 | Closing Remarks |

SEMINAR CONTENT OUTLINE

The Level 2 Course is a two-day course comprised of three segments:

- Methodology Lectures
- Coaching Development Practicals
- Workouts and Demonstrations

Details regarding these components and the total time of each are outlined below. The course is a two-day course (9 a.m. to approximately 5:15 p.m.) with a total number of 13.2 contact hours.

1. METHODOLOGY LECTURES

| COMPONENT | HOURS | PERCENT OF COURSE |
|--|------------------|-------------------|
| Course Overview and Introduction | 0.3 | 2% |
| Foundations of Effective Training <ul style="list-style-type: none"> • Six criteria for effective training development | 0.5 | 4% |
| Common Movement Themes for Functional Movements <ul style="list-style-type: none"> • Review themes common to most movements • Learn how to identify and assess these themes • Understand how the themes support safety and performance benefits | 0.7 | 6% |
| Class Structure and Lesson Planning <ul style="list-style-type: none"> • Identify components of an effective class • Plan for an effective class • Review best practices for execution of an effective class using a lesson plan | 0.7 | 6% |
| Program Design and Scaling <ul style="list-style-type: none"> • Analyze programming for effectiveness • Review how to effectively apply variance in CrossFit programming • Understand scaling considerations for a diverse population of clients | 1.0 | 7% |
| Nutrition <ul style="list-style-type: none"> • Identify appropriate strategies for compliance • Understand how to apply appropriate compliance strategies • Monitor maintenance of successful strategies | 1.0 | 7% |
| METHODOLOGY LECTURE TOTAL | 4.2 Hours | 32% |

Seminar Content Outline, continued

2. COACHING DEVELOPMENT PRACTICALS

| COMPONENT | HOURS | PERCENT OF COURSE |
|--|------------------|-------------------|
| Teaching and Seeing Practical <ul style="list-style-type: none"> Assess and apply effective teaching strategies Identify movement faults | 1.2 | 9% |
| Seeing and Correcting Practical <ul style="list-style-type: none"> Identify and assess movement faults Assess faults and apply effective verbal, visual, and tactile cues to improve movement | 1.2 | 9% |
| Teach Back: One-on-One Coaching Development <ul style="list-style-type: none"> Apply effective training criteria with one individual Receive assessment and feedback on coaching | 1.3 | 10% |
| Teach Back: Group Coaching Development <ul style="list-style-type: none"> Apply effective training criteria to a small group Receive assessment and feedback on coaching | 2.6 | 20% |
| COACHING DEVELOPMENT PRACTICALS TOTAL | 6.3 Hours | 48% |

3. WORKOUTS AND DEMONSTRATIONS

| COMPONENT | HOURS | PERCENT OF COURSE |
|--|------------------|-------------------|
| Workout—Day One <ul style="list-style-type: none"> Effectively coach other athletes under load Assess and apply scaling and threshold training | 1.2 | 9% |
| Workout—Day Two <ul style="list-style-type: none"> Participate in an example of an effective class Evaluate class components Discuss best practices for an effective class | 1.2 | 9% |
| Training Demonstration <ul style="list-style-type: none"> Observe demonstration of effective application of criteria for effective training | 0.3 | 2% |
| WORKOUTS AND DEMONSTRATIONS TOTAL | 2.7 Hours | 20% |

4. CONTENT TOTALS

| COMPONENT | HOURS | PERCENT OF COURSE |
|--|-------------------|-------------------|
| Methodology Lectures | 4.2 | 32% |
| Coaching Development Practicals | 6.3 | 48% |
| Workouts and Demonstrations | 2.7 | 20% |
| TOTAL CONTACT HOURS | 13.2 Hours | 100% |

LEARNING OBJECTIVES

At the completion of day one, participants will be able to:

1. Identify and demonstrate the essential qualities of an effective trainer.
2. Identify and assess static and dynamic faults of functional movements.
3. Identify and describe common themes of functional movements.
4. Implement appropriate movement corrections using verbal, visual, and tactile cues.
5. Effectively communicate the points of performance for functional movements to individuals and groups.

FOUNDATIONS OF EFFECTIVE TRAINING

Whereas the Level 1 Certificate Course provides an introduction to functional movements and CrossFit methodology, the Level 2 Course is focused on improving a trainer's ability to coach others.

A trainer's ability to coach others rests on capacity in six different areas:

- Teaching
- Seeing
- Correcting
- Group Management
- Presence and Attitude
- Demonstration

The depth and breadth of a trainer's capacity in each area affects not only whether clients become more fit but also the degree to which the clients become more fit. Effectiveness can be assessed by asking whether clients optimize work capacity across broad time and modal domains (i.e., whether a client becomes as fit and healthy as possible). A newer trainer may have only rudimentary capacity in each area and clients still will see results because of the inherent benefits of performing constantly varied functional movements at high intensity. An effective trainer, on the other hand, has the ability to safeguard health and improve performance for a client beyond what he or she could do alone.

Although these areas can be described and defined independently (below), there is a natural overlap among them in a real-time coaching environment. A deficiency in any one area can inhibit a trainer's success. Even a weakness in one area relative to the others blunts the trainer's overall reach. For example, a trainer with tremendous knowledge and technical skill (teaching, seeing, and correcting) will still have difficulty retaining members if there is little personal connection with them (presence and attitude).

Regardless of a trainer's current level of proficiency, a commitment to improving each area is the hallmark of a successful trainer. Similar to the athlete's path to refining and improving movement mechanics, a trainer must refine coaching skills across a career to become great. Doing so develops virtuosity in coaching.

TEACHING

The ability to effectively articulate and instruct the mechanics of each movement, including the ability to focus on major points of performance before more subtle or nuanced ones. It also includes the ability to change instruction based on the athlete's needs and capacity.

To teach functional movements, a trainer must first understand what defines proper mechanics and what may cause poor movement. A trainer must know ideal positions, but more frequently a trainer's job is to teach athletes how to improve poor positions and movement patterns.

Knowledge in fitness-related areas

Beyond movement mechanics, trainers can also instruct clients in other areas that may improve their fitness. Greater knowledge in any field that overlaps with fitness—such as anatomy and physiology, nutrition, or even expertise in

Foundations of Effective Training, continued

a certain sport—can aid a trainer’s teaching. The more athletically advanced the athlete, the greater the depth of knowledge needed for a trainer to produce additional fitness gains. Continued research, education, and practical experience over the course of a career develop a breadth of knowledge applicable to any athlete, from beginner to elite.

Teaching demands not only possessing knowledge but also the ability to impart it to others. Knowledge alone does not make one an effective teacher. Successful teaching hinges on a trainer’s ability to accurately convey as much of that knowledge as possible to others.

Effective communication

To convey knowledge effectively, a teacher must be able to change his or her communication style to meet the capacity of the student, regardless of his or her background, ability, and learning style. This is why trainers are best served by using different means of communication—visual and verbal teaching, for example—to aid learning. Implicit in the trainer-athlete dialogue is the trainer taking responsibility for when communication with the athlete breaks down. It is the trainer’s responsibility to guide and lead the athlete, and it is the athlete’s responsibility to be committed to the process. However, if the athlete is clearly frustrated with the instruction, the trainer must change strategies or communication style until the athlete succeeds.

A trainer can also assess the effectiveness of teaching and communication by determining whether the athlete meets performance expectations. If no one in a group moves to the level the trainer expects, he or she needs to reevaluate the instruction. It is often not the athlete’s fault. A good teacher can use effective communication to prevent a large percentage of problems from occurring. For example, it is often effective to break complex movements down into a progression or logical teaching steps that allow the athlete to practice pieces that naturally build on one another. A teacher who shows an athlete a barbell clean, describes it in its entirety, and then asks the class to replicate it can expect few (if any) to match the instruction. Conversely, using a progression—such as that demonstrated for the medicine-ball clean at the Level 1 Course—will get more athletes to demonstrate the gross mechanics quickly. These progressions can often help a trainer focus on seeing certain faults as well.

Teaching as much as is necessary often means the teacher must reduce and simplify his or her body of knowledge to the one or two most salient points at that moment for that particular athlete. With fast-paced human movement, change is often hampered by long and detailed explanations when simple, broad-brush instructions are more digestible. This does not mean a trainer’s knowledge of the system should be simple; it is the explanation that should be. A trainer can ask himself or herself, “What is the one thing this athlete needs right now?” The answer will change as progress is made.

SEEING

The ability to distinguish good from poor movement mechanics and identify both gross and subtle faults whether the athlete is in motion or static.

A trainer who can effectively assess the mechanical positions as sound or unsound throughout movement has capacity in seeing. Seeing is the necessary first step for a trainer to bring about change in a client’s mechanics, but it rests on one’s teaching capacity (knowledge). Trainers must first know positions of best mechanical leverage, as well as the effect of varying anthropometrics on these positions. If a trainer does not know what to look for, he or she will not see correctible issues.

Static faults

The trainer must also use visual-recognition skills throughout the repetition, whether the athlete is static or dynamic. Static positions are the points at which the athlete is not moving, even briefly. Static positions usually occur near the end ranges of motion—either in the starting, receiving, or finishing positions—or when there is a brief pause or decreased speed, often due to a change of direction. Static positions include the setup position for a deadlift or the bottom of a squat, for example. Correctly identifying faults is easier in static positions because these positions give trainers more time for assessment.

Dynamic faults

Dynamic positions find the athlete moving between the static positions, often at high speed. Examples of faults seen in dynamic movements include not reaching full hip extension in the drive phase of a clean, pressing early in a push press, or initiating the squat with the knees. These dynamic faults are more difficult to identify because of the decreased time for assessment. The trainer must also know when and where to see faults during the movement. For example, a trainer needs to see that the athlete has the weight on the heels during the drive phase of a push jerk, but the trainer is also evaluating the trunk-to-femur relationship for hip extension, the bar path relative to the frontal plane, and a whole host of other relationships. Generally, a profile view of the athlete (offset by about 45 degrees) is the most useful view to assess the athlete's mechanics, but trainers should not be limited to using this view only.

The difficulty in seeing dynamic faults increases as:

1. the athlete moves more quickly, and
2. the faults become more subtle.

Years of experience help a trainer effectively coach any level of athlete. New trainers may use a few methods to develop their ability to see faults, particularly dynamic faults. One method is to study film. Slow the movement down to a series of static frames. A trainer may choose to film his or her own athletes or simply watch footage available on the internet. Replaying the footage in real time after observing the movement in a static series can help bridge the gap between seeing static and dynamic positions. Another strategy for newer trainers is to methodically survey athletes for only one fault at a time. For example, when teaching athletes the push jerk, the trainer may choose to watch only for hip extension during the first several repetitions. Then, the trainer may choose to watch and see if the athletes drive through their heels. Over time, trainers can observe multiple faults simultaneously (e.g., lack of hip extension or not having the weight on the heels), but initially, trying to see everything often results in seeing nothing. Similarly, newer trainers generally find more success by watching one athlete at a time per repetition instead of scanning multiple athletes with every repetition.

CORRECTING

The ability to facilitate better mechanics for an athlete using visual, verbal, and/or tactile cues. This includes the ability to triage (prioritize) faults in order of importance, which requires an understanding of how multiple faults are related.

The ability of a trainer to facilitate improved mechanics is dependent on capacities in teaching and seeing. Teaching reflects a trainer's knowledge of proper mechanics; seeing reflects a trainer's ability to discern these positions in real time. If capacity is limited in either, it follows that the trainer's capacity in correcting will also be weak.

Correcting mechanics results in both increased performance gains and decreased risk of injury. A trainer can expect to correct an athlete's mechanics forever; mechanics can be infinitely refined to create ever more efficient positions

Foundations of Effective Training, continued

as the athlete progresses. CrossFit trainers should strive for excellent mechanics in their clients and avoid settling for “OK” movement. This means a trainer must be able to correct both gross and subtle deviations in all levels of athletes. They must set a high standard for good movement and be relentless in the constant pursuit of improvement.

Correcting hinges on the trainer’s ability to:

1. use successful cues,
2. know multiple corrections for each fault,
3. triage faulty movement, and
4. balance critique with praise.

Cues

Any cue that results in improved movement mechanics is successful and therefore a good cue. There are no specific formulas, formats, or rules to follow for cues, and their value is based on the result. A cue’s primary function is to help the athlete execute perfect mechanics, not to perfectly describe the mechanics of the movement. For example, one may say “weight in heels” to help a person shift weight back and better achieve pressure across the foot (versus on the toes). Generally, making cues short, specific, and actionable tends to result in a greater success rate. Short, specific, and actionable cues are useful because the trainer gives a single task for the athlete to complete. An example of this type of cue is, “Push your knees out.” It is short (four words), specific to a body part (knees), and also indicates action and/or direction (out). It is easy for the athlete to respond to a cue such as this, even when performing a complicated movement.

It is possible for a trainer to confuse cueing with fault identification. For example, pointing out the fault that is present—“Your knees are caving in”—does not tell the athlete how to fix it. An experienced athlete may be able to make the leap from hearing the identification of the fault to then fixing it, but this translation from fault identification to specific direction is ultimately the trainer’s responsibility.

Trainers may also rely on more technical language in their cues (i.e., “You are losing your midline”), which assumes the athlete has a significant amount of fitness-related knowledge. While such language may give the appearance of being more technical (and perhaps represents an attempt to sound more intelligent), it is at best a vague verbal cue. Cues should be kept to simple language that is easily understood by anyone. Non-specific language is also best avoided in cues. Something such as, “Get tight!” or “Chest!” can be meaningless to the athlete, especially in the absence of instruction on how to “get tight” or where and how to move the chest.

A basic three-step process for developing short, specific, and actionable cues is:

1. identify the fault,
2. identify what is out of place (be specific: name the body part), and
3. give direction to that body part.

As stated before, “Push your knees out” is a short, specific, and actionable cue.

However, even with short, specific, and actionable cues, there is no guarantee the athlete’s movement will improve. The trainer needs to use multiple cues until the fault is resolved. There are cases in which a cue that is effective for one athlete is ineffective for another, and in other cases, even a good cue may result in poor movement. “Get your

Foundations of Effective Training, continued

weight on your heels” is a short, specific, and actionable cue that often results in an athlete keeping his or her heels down. Nevertheless, some athletes interpret this cue to mean that the weight should be on their heels exclusively, and they fall backwards or lose their balance. That does not mean the cue was bad or the trainer was wrong; it means the trainer has to try an alternative cue.

A trainer should not be limited to a certain set of cues for a specific fault, and he or she should continue to use different cues until the movement improves. Over time, a trainer develops corrective strategies, building a bank of options for every fault. These corrective strategies should include verbal (i.e., speaking), visual (i.e., showing), and tactile (i.e., touching) cues, all of which may be employed to fix the same fault but may be interpreted differently among athletes. Verbal cues tell the athlete a specific instruction, visual cues create contrasting images between current and preferred positioning, and tactile cues use physical targets to achieve proper mechanics. The greater the number of strategies a trainer can employ for any fault, the more likely it is that he or she will be successful in correcting the fault.

Triaging faults

Determining which single fault to correct can be a challenge, as multiple faults often occur together. Ideally, every fault would be addressed simultaneously, but this is unrealistic in practice. The trainer is best served by triaging faults. The term “triaging” is most often used in medicine to assign urgency to those needing medical attention. Triaging when coaching movement means assigning urgency to the multiple faults present in order of the most to least important. Greater importance is assigned to faults that have the highest risk for injury (and, therefore, also the greatest potential to limit performance). In a loaded environment, there are many cases in which the fault to address first would be loss of a neutral spine, usually in flexion. However, a flexed lumbar curve at depth in an air squat is less concerning than that same position in a loaded back squat. This athlete needs to continue to air squat to full depth, fighting for a neutral midline, all while maintaining the range of motion required by life. It is precisely the practice of the movement, even with less-than-ideal mechanics, that will eventually allow him or her to reclaim positions that can be loaded. In this example, completing the full range of motion was given more priority than midline stabilization. The ordering is based on the severity of the deviation from the ideal and the athlete’s capacity relative to the task; there is no single ordering of faults that can be used across all athletes in all applications.

Whichever fault the trainer decides to fix first should become the trainer’s focus. He or she has to selectively ignore the other faults present. Once that fault is fixed or mitigated at least to the degree that it is no longer the most important, the trainer can move on to the next issue.

After choosing which fault to address, the trainer needs to know how the various faults are related. A trainer may cue a different body part than the one he or she is trying to fix due to the interrelatedness of movement mechanics. Suppose an athlete performs an air squat with the following faults: weight shifting forward, knees collapsing, and back rounding. The trainer needs to consider: Are the caving knees causing the back to round? Is the rounded back causing the weight to shift forward? Perhaps the trainer chooses to address the back position first but actually tells the athlete, “Push the knees out.” There are cases in which allowing more room for the pelvis helps create a neutral spine position.

Assess the cue’s effectiveness and provide feedback

After a trainer delivers a cue, he or she must stay with that athlete for at least another repetition to assess the result. Whatever the athlete’s response, the trainer needs to provide feedback. A trainer needs to let the athlete know if the movement was the same, better, or worse. If the movement improves, a trainer needs to acknowledge that,

Foundations of Effective Training, continued

perhaps with, “That’s better” or, “Good correction.” This helps the athlete develop kinesthetic awareness of proper positioning. In some cases, an athlete may improve movement but not to the desired degree. Encouraging these athletes simply to give more in that same direction is often a sound strategy (e.g., “That’s better, but even lower!”). If the movement has not changed, this could be addressed simply by saying, “Not there yet” or, “I’ll come back to you,” for example. An unsuccessful cue should not be repeated multiple times with a single athlete; instead, the trainer should find a new cue. If the movement changes for the worse, the trainer also needs to immediately recognize this and stop or reverse it (e.g., “Other way”).

Not staying to assess the effectiveness of a cue and provide the athlete with feedback is almost the same as not giving a cue at all. If a trainer tells an athlete to do something and walks away before seeing the result, he or she may miss it when a cue results in no change or even change for the worse. The athlete has no idea if his or her efforts have resulted in improvement. All feedback, positive and negative, is tied to the athlete developing better kinesthetic awareness. Precision of word choice is critical. The use of “good” or “better” needs to be reserved for actual sound or improved mechanics and not used as a filler.

Throughout the cueing process, a trainer must also be aware when praise for hard work (regardless of change) is necessary. There are cases where no change or only a very slight change occurs in a session. Celebrating the effort acknowledges the hard work put forth that day and helps a client remain willing to continue to work hard. A trainer just needs to be clear when the praise is for the effort rather than a movement that still needs improvement.

GROUP MANAGEMENT

The ability to organize and manage, both at a micro level (within each class) and at the macro level (the gym as a whole). This includes managing time well; organizing the space, equipment, and participants for optimal flow and experience; planning ahead; etc.

Group management is not just about organizing logistical considerations for a class so clients have enough space, time, and equipment to complete the workout. It is about optimally managing these variables to support the best possible instruction (see “Components of an Effective Class”). Poor planning of any aspect of a class—for example, the amount of time spent on certain parts, how the equipment is set up, and how much time is allotted to each participant—can detract from the quality of the experience.

Adhere to the schedule

At its most basic level, effective group management means adhering to posted schedules. Clients plan their schedules around these announced times, and it should not be assumed that they have more time or flexibility. Adhering to posted times means both starting and ending on time: Running over is as unacceptable as starting late. Ending late usually occurs when a trainer does not plan ahead and think through the entire class schedule. Adhering to the schedule also includes the schedule within each class. Following a simple template (such as introduction, warm-up, workout, and post-workout) every class helps ensure necessary time is devoted to each piece (see “Components of an Effective Class”). The trainer may also consider the experience level of the class to determine which pieces need more time or less time during instruction.

Space and equipment layout

Group management also includes variables such as space layout and equipment availability. The layout needs to account for buffer zones around any equipment in use and should also take into account when athletes have to move

Foundations of Effective Training, continued

to different areas of the gym during the workout. The class size often dictates which workouts are realistic given the equipment and space. Even in cases in which neither is limited, an effective trainer should have pre-determined alternatives for any class workout should a large number of participants show up unexpectedly.

Group management speaks to the trainer's ability to reduce the logistical setup and preparation time during a class to maximize the amount of teaching and movement time. This means the trainer plans ahead and perhaps prearranges a complicated workout with multiple pieces of equipment and/or weights. Spending several or more minutes sorting equipment takes away from a trainer's time to instruct, improve, and refine movement.

Plan how and what to teach

Time spent on instruction can also reduce the client's practice time. A trainer needs to plan how and what to teach to maximize the client's time moving. Allowing for enough practice time every class is necessary for both the trainer and client. Less practice time gives the trainer less time to observe and cue movement mechanics, as well as less time for a client to work on movement with improved form. Change in mechanics comes from continual cueing across many repetitions.

During every class, the trainer also needs to manage the attention given to each participant. Every student should feel that he or she received enough attention. While some clients need more time than others, even good movers with subtle inefficiencies need to be coached, pushed for higher speed and/or loads, or praised for sound performance. Attention still benefits them. To assist with each client getting enough individual attention, a helpful tool is to keep the group on the trainer's cadence for all repetitions during the warm-up or skill work. Controlling when the group moves ensures the same number of repetitions are completed by everyone. It also allows the trainer to systematically and selectively observe individuals and specific aspects of their movement.

The size of the class affects how much time a trainer can spend with each person, but the class size should not be beyond the trainer's capacity. The demands of large classes often turn trainers into crowd herders, timekeepers and cheerleaders who have little time to spend on cueing individual movement faults. Newer trainers (those with less than two years of experience) can rarely find success when stepping into classes of 10-plus participants. In his article "Scaling Professional Training," CrossFit Founder Greg Glassman explained that after years of one-on-one personal training produced groups of two, eventually groups of three, and so on, his classes continued to grow until growth resulted in "perceived reduction in attention" to each paying member.

Regardless of experience, trainers should make an honest assessment of the time and attention given to each client after each training session. Did he or she make an assessment of each athlete's weaknesses? Did he or she make real movement change that session? If the answer to either question is no, the session was likely too large for the trainer. The goal is to maximize a trainer's effectiveness and reach.

PRESENCE AND ATTITUDE

The ability to create a positive and engaging learning environment, showing empathy for athletes and creating rapport.

"Presence and attitude" refers to the trainer's ability to create a positive atmosphere and develop a rapport with each client. Although more subjective than the other five areas of effective training, developing a positive presence and attitude is equally if not more important.

Foundations of Effective Training, continued

Know your clients

An effective trainer recognizes that each person has different abilities, insecurities, needs, and goals; he or she also has the awareness and interpersonal skills to respond accordingly. The trainer recognizes that individuals respond differently to instruction and critique and makes it his or her responsibility to determine how best to relate to and motivate each individual regardless of background and ability.

A trainer must be aware of whether each client is interested in each class; a client's needs may change with the days and external life demands. The trainer should know what is happening with most of the group most of the time, and this goes beyond movement mechanics. This includes issues such as who is struggling that day due to external pressures or stress, who has high energy, who is aloof or annoyed, who is new to the gym, etc. All these factors may affect the degree to which the athletes can perform relative to their usual capacity. Effective trainers know these things because they routinely interact with their clients and are invested in their relationships with them.

A common trait of trainers with a positive presence and attitude is that they genuinely care about their clients' success. This care means more to clients than the trainer's knowledge. Many clients have little interest in the technical aspects of training. Their interests often lie in unrelated professions and hobbies, and they are at the gym to improve the quality of their lives. The mechanisms of their success in the gym are much less important to them than the results and success itself. In addition to seeing results, clients know if they feel welcomed and cared for, respected, inspired, and motivated. They can sense whether the trainer has their best interests at heart.

Be authentic

A positive presence and attitude cannot be faked; it comes from a sincere passion for service. It can take on many forms based on the trainer's personality and interpersonal skills. Trainers should not interpret this as being any single trait, such as loud, funny, or bubbly. Trainers are encouraged to be authentic. There is room for any personality type to succeed if a trainer couples genuine caring with awareness of his or her limitations and recognizes the effect he or she may have on clients. This may motivate a trainer to become a better version of himself or herself. A trainer may set personal goals to compensate for any perceived shortcomings. For example, a trainer who is perceived as reserved may make an effort to be at class early to welcome and greet each member.

Newer trainers especially may be shy or nervous in front of a group, and this may blunt their presence and attitude. Small mechanical changes, such as eye contact, open body language, and smiling, can go a long way toward putting the trainer's best foot forward. Trainers might try asking clients simple questions about well-being and then really listening and following up about their answers. These are basic interpersonal skills trainers can initially rely on until they become more comfortable and engaged with their clients.

DEMONSTRATION

The ability to provide athletes with an accurate visual example of the movement at hand. A trainer may do this using himself or herself as an example or by choosing another athlete to provide the example. This requires a strong awareness of one's own movement mechanics. It also includes the concept of leading by example; a trainer should follow his or her own advice and be an inspiration to clients.

Provide a visual aid

Demonstration is a powerful visual tool to aid a trainer's instruction. This does not necessarily mean a trainer must move perfectly; rather, a trainer must be able to use demonstration to enhance his or her coaching. This may be to

demonstrate the points of performance, show range-of-motion standards, or explain movement corrections.

Use of demonstration reflects the trainer's knowledge of sound movement: Each trainer should understand his or her own movement well enough to use it as a teaching tool. This requires a trainer to adjust demonstrations depending on the group and its needs. Just like teaching, demonstration may have to be made more simple and obvious than realistic and subtle to meet the needs of the trainees. In cases in which a trainer's mechanics are limited, using others for demonstration is perfectly acceptable. Trainers who have the capacity to discern good movement patterns quickly do not have a problem finding an effective substitute.

Demonstrate credibility

Demonstration also covers whether a trainer demonstrates to others that he or she ascribes to the program that is recommended and holds himself or herself to the same standards and values expected of clients. Demonstration more broadly speaks to the trainer's credibility. Leading by example has a large influence on the culture created at the trainer's gym. A trainer can ask: How do I get my clients to care about technique? To push themselves harder? To adhere to workout standards? To treat each other with respect? Many answers can be provided by examining a trainer's own attitude and actions. The trainer needs to work on improved technique, use high intensity, follow the same program, follow the range-of-motion standards, count repetitions correctly, support and encourage others, etc.

This means a trainer can utilize his or her own firsthand experiences with diet strategies, workout programs, competition scenarios, etc. to address clients' questions and help them reach their goals. Insight and advice are best delivered when they are the result of experience. By using firsthand experience, the trainer also serves as a source of motivation for others.

A trainer is in a position of leadership, and leading by example has a trickle-down effect to every part of a community. The trainer becomes the model or standard all members wish to emulate.

CONCLUSION

Teaching, seeing, correcting, group management, presence and attitude, and demonstration are the six areas trainers can use to evaluate and develop themselves or the trainers who work for them. An effective trainer must have capacity in each area, and a trainer's effectiveness is limited by capacity in each. A professional trainer continues to develop capacity in each area across his or her entire career. This is chasing virtuosity in coaching. "Doing the common uncommonly well" does not only apply to movement; it can apply to any particular skill. CrossFit trainers chase excellence in every aspect of their craft, always intending to better serve those who have entrusted their health to them.

PRACTICAL SESSIONS

Approximately half the course is spent in small groups working on coaching drills in real time. Although each session has a slightly different format and focus, the primary goal is to provide participants with tools to assess themselves, as well as strategies for determining where and how to improve.

Each practical provides participants with questions to help them organize their notes and critically evaluate their training. Feedback from the instructors should help participants answer these questions, but the intent is not for instructors to provide a comprehensive evaluation of all the listed areas. Participants should take some time after each practical to self-assess their coaching.

The instructors' feedback focuses on the major factor (or factors) currently limiting a participant's coaching as well as the facets of the participant's coaching that are the strongest. We recommend that participants write down the feedback from the instructor along with any helpful feedback given to or by other participants.

PRACTICAL EXERCISE 1—TEACHING AND SEEING MOVEMENT FAULTS

- The goal of this session is to practice the basic skills of teaching and seeing absent from the other demands of coaching (e.g., group management).
- These drills are meant to enhance coaching techniques for training others, but the drills are not effective as a stand-alone coaching style. Once proficiency with the drill is gained, the goal is to integrate that skill into a complete coaching method.

SAMPLE TEACHING PLAN

| Movement | Air Squat |
|------------------------|--|
| Points of Performance | <ul style="list-style-type: none"> • Maintain a neutral spine • Keep weight on the heels • Depth below parallel • Correct line of action (i.e. hips move back and down) • Knees track in line with the feet |
| Set-up | <ul style="list-style-type: none"> • Stance • Body position |
| Set-up Plan | <ul style="list-style-type: none"> • Stance: "Place your heels under your shoulders and slightly turn your toes out." (Demo) • Body Position: "When I say "set," squeeze your belly like you're bracing for a punch." (Demo) |
| Execution and POP Plan | <ul style="list-style-type: none"> • Execution: "When I say "down," push your butt back and down until your hip crease is below your knees." (Execution instructions cover line of action and depth points of performance.) (Demo) • Neutral Spine: "Keep your chest up and belly squeezed through the entire squat." (Demo) • Weight on Heels: "Keep your weight towards your heels." (Demo) • Knees Track Toes: "Throughout the squat, push your knees away from each other and positioned over the top of your foot." |

Practical Exercise 1—Teaching and Seeing Movement Faults, continued

SELF-ASSESSMENT

| Ability to teach: | Needs Improvement | Satisfactory |
|--|--------------------------|--------------------------|
| Information was clear, accurate, and relevant? | <input type="checkbox"/> | <input type="checkbox"/> |
| Progressions utilized were effective? | <input type="checkbox"/> | <input type="checkbox"/> |
| Which movement(s) did you feel you struggled with the most? | | |
| What were your greatest inhibitors to success? | | |
| Ability to see: | Needs Improvement | Satisfactory |
| Static faults (e.g., setup, finish) | <input type="checkbox"/> | <input type="checkbox"/> |
| Dynamic faults (e.g., hip extension, forward inclination) | <input type="checkbox"/> | <input type="checkbox"/> |
| Which static faults were you inconsistent in identifying? | | |
| Which dynamic faults were you inconsistent in identifying? | | |
| For which movement(s) did you feel you missed the most faults? | | |

COMMON MOVEMENT THEMES FOR FUNCTIONAL MOVEMENTS

INTRODUCTION

There are common movement themes displayed in all foundational movements, from the nine foundational movements in the Level 1 Course to others such as the snatch, kipping pull-up, and handstand push-up. These movement themes broadly categorize similar positions and movement patterns, whether the athlete is static (starting, receiving, or finishing positions) or dynamic (moving between static positions).

These themes are:

- midline stabilization,
- core-to-extremity movement,
- balance about the frontal plane,
- posterior-chain engagement,
- sound hip function,
- active shoulders,
- full range of motion about a joint, and
- effective stance and/or grip.

Understanding these themes and the contexts in which to apply them will give trainers the general principles for evaluating movement. There are positions or movement patterns that do not fit neatly into these categories, as well as movements that do not demonstrate all the themes. This list is not meant to be exhaustive. It is simply a classification tool that can be used to aid development of one's coaching skill set.

These themes are exemplified when an athlete performs a movement correctly (i.e., adhering to the points of performance). The movement themes increase the potential for improved performance and minimize the risk of injury. Sound mechanics aid performance and risk management by using positions with the best mechanical and muscular alignment, conferring safety, efficacy, and efficiency simultaneously.

MIDLINE STABILIZATION

A "midline" is a plane of bilateral symmetry, but it is used in CrossFit to specifically refer to the relationship of the spine (base of the head to the top of the hips) and pelvis during functional movement. The midline trisects the spine and bisects the pelvis when the two are in their neutral anatomical relationship. Stabilization means something has been made stable, or "static." Midline stabilization refers to the athlete's capacity to prevent movement from this neutral spinal position and is synonymous with core strength. Midline stabilization determines whether the athlete can maintain the natural S-curve of the spine to the pelvis when dynamic and/or loaded. Some lifting applications rely on a midline posture with some extension past neutral in both the lumbar and thoracic regions. Regardless, this posture is maintained throughout the movement.

Stabilization of the spine is largely accomplished by engaging the abdominals ("abs"), internal and external oblique muscles ("obliques"), and erector spinae ("spinal erectors" or simply "erectors"). Engaging the abs helps engage the spinal erectors and obliques; together, they create a belt of musculature around the vertebrae.

Common Movement Themes for Functional Movements, continued

Torso as a rigid, integrated structure

This neutral, static position maximizes performance because moving the torso as one rigid, integrated structure enables the transmission of force between the appendages and the object being lifted. In a push jerk, for example, the legs and hips extend force upward into the weight through the torso. A soft midline does not allow for the optimal transfer of force to the bar.

When maintaining a neutral spine, the orientation of the vertebrae results in favorable distribution of forces and reduces the risk for injury. Where possible, it is ideal to have the midline in a vertical orientation because of the optimal muscular and skeletal alignment for force distribution (e.g., in a squat). As the torso moves from a vertical orientation, as in the deadlift, the demand on the musculature to maintain a neutral spine increases. Forward movement of the torso, however, does not increase the risk of injury if midline stabilization is present. It is when midline stabilization is lost that the shear force experienced by the spine increases. The human spine is more susceptible to injury when exposed to shear (vs. compression) forces. The resulting shear force attempts to push one vertebra past another while muscles and ligaments resist this loss of positioning. If the muscles and ligaments are not strong enough, an injury to the spine may occur.

Deviations from neutral

Deviations from neutral may occur in flexion (bending forward from neutral) or extension (bending backward from neutral). Recall that a natural function of the abdominals is to flex the spine, so spinal flexion by itself is not necessarily problematic (e.g., getting out of bed) and is potentially beneficial to reduce the lever arm (e.g., gymnastics holds). Similarly, the erectors extend the spine. Extending past neutral is not inherently dangerous but can become so depending on degree of deviation and the load on the body.

The following hierarchy of spinal positioning is listed in order of increasing risk for injury:

- Safest: Midline stabilization in a neutral position.
- More risky: A non-neutral spine in a static position. Although less ideal than midline stabilization in a neutral position, static positions (flexed or extended) prevent movement of the individual spinal segments. This means no individual vertebra bears the majority of the lifting force.
- Most risky: Loss of a neutral spine during movement, specifically when starting from neutral and moving to significant spinal flexion. This is potentially the most injurious, as there is movement of the individual spinal segments and one or a few vertebra(e) bear the majority of the lifting force.

The most common injury from a loss of midline stabilization occurs when the lumbar spine (L1–L5) flexes under load, changing the normal concave curvature of the lower back to convex. Typically, flexion of the spine is seen with increased hip flexion or when the midline is resisting a load on the front side of the body, as in a deadlift.

Athletes may also deviate from neutral by overextending or hyperextending the spine, which means significantly bending backward from neutral into an injurious range of motion. There is a difference between the natural S-curve of the spine and an exaggerated extension of the spine. Placing athletes in an overextended position does not increase the benefits of a neutral spine and may place them at risk for injury.

Hyperextension can result in the same injuries as excessive flexion (i.e., disc herniation or damage to facet joints). Hyperextension generally occurs with more flexible athletes or occasionally with more advanced athletes. Over-

Common Movement Themes for Functional Movements, continued

extension or hyperextension often points to a lack of engagement of the abdominals and can generally be addressed by cueing an athlete to tighten the abs. It is most often seen when an athlete lifts overhead.

CORE-TO-EXTREMITY MOVEMENT

Core-to-extremity movements demonstrate a sequence of muscular contraction that begins with the large force-producing, low-velocity muscles of the core (abdominals and spinal erectors) and hips, and ends with the small force-producing, high-velocity muscles of the extremities (e.g., biceps, calves, wrist flexors). Core-to-extremity movement begins with establishing midline stabilization for effective force transfer—i.e., a base is created and force radiates from there. This muscular patterning teaches the athlete to fluidly transmit power from one area of the body to another. Core-to-extremity movement maximizes performance because it tasks the largest musculature to generate force first, allowing the greatest forces to develop. This sequence improves efficiency and allows the greatest amount of work to be accomplished.

Core-to-extremity movements are less risky than movements that violate this pattern because the largest muscles are tasked with generating the most force. Smaller muscle groups and associated tendons and ligaments are more susceptible to injury, such as tearing, when exposed to loading designed for larger movers.

Core-to-extremity movements are found everywhere, not just with movements that involve the arms and legs, so faults can show up everywhere. Even a shoulder press or a deadlift may not effectively demonstrate core-to-extremity movement absent a stable midline. For dynamic faults, core-to-extremity violations occur when there is incorrect timing and the arms move before the hips and legs have extended (i.e., pulling or pushing early).

BALANCE ABOUT THE FRONTAL PLANE

The frontal plane divides the athlete into anterior and posterior halves. It is the plane about which one is balanced, and it bisects the athlete at mid-foot. Referencing the athlete's movement (i.e., his or her line of action) and the object he or she is moving relative to the frontal plane can often determine the athlete's efficiency.

Significant deviations of the athlete and/or object forward of the frontal plane prevent successful task completion, especially as the loading increases. These deviations can also impair other points of performance (i.e., neutral spine, weight on the heels). Generally, moving an object along straight lines (i.e., in the frontal plane) can increase performance by increasing efficiency as the object follows the shortest distance between two points. Note, however, the athlete's movement accommodates the object and may or may not be characterized by straight lines. For example, in a movement such as the squat, an effective line of action is created when the hips sit back and down as the knees bend. In this manner, the athlete is best able to keep the weight on the heels, and when the squat is loaded, the bar travels along the shortest line. This movement also can reduce excessive force at the patella, which may occur if the knees translate excessively forward (i.e., such that the heels come up).

Balance about the frontal plane can also be referenced in a kipping pull-up, where the plane is formed along the line from the hands to the floor. The athlete is most efficient when the center of mass oscillates about this plane to maintain the most efficient timing of the swing. In the kipping pull-up, when the center of mass deviates from the frontal plane too much, the athlete loses timing and has to reset the swing.

A lack of balance about the frontal plane may increase the risk for injury because of increased potential for other movement errors. For example, if the chest drops in a front squat with the bar deviating forward of the frontal

Common Movement Themes for Functional Movements, continued

plane, it may also result in flexing of the spine. However, a violation of balance about the frontal plane by itself is not terribly risky.

POSTERIOR-CHAIN ENGAGEMENT

The posterior chain includes the group of muscles, tendons, and ligaments on the posterior (back) of the body, which contains the hamstrings (biceps femoris, semitendinosus, semimembranosus), gluteal muscles (“glutes”), and spinal erectors. “Engagement” means this musculature contributes to the movement. Posterior-chain engagement does not refer to using the posterior chain in an attempt to exclude the anterior chain. Ideally, there is a balance of pressure between the balls of the feet and the heels, with the line of action at the frontal plane. Posterior-chain engagement also enables the athlete to maintain optimal knee alignment with the foot.

Inclusion of this large set of musculature on the backside of the body maximizes performance because of the increased power generation, thereby resulting in faster speed to completion or increased load lifted. Keeping the heels rooted brings the load closer to the frontal plane, which helps the athlete stay balanced and drive the load up, not forward. This increases efficiency. Engagement of the spinal erectors is also essential for maintaining midline stabilization and providing the strongest base to transmit forces.

Finally, engagement of the posterior chain helps keep the knees in line with the toes, where there is the best mechanical position of leverage between the upper and lower leg. With posterior-chain engagement, greater musculature is recruited to move the load, and enough room is created for full range of motion in a squatting movement. When the knees collapse inward, the center of pressure shifts forward (given the angle at which the knees flex). This positioning is often a result of underdeveloped external rotators of the hip.

Posterior-chain engagement contributes to safety because it promotes midline stabilization and balance about the frontal plane. Also, keeping the knees in line with the toes reduces lateral and rotational forces at the knee joint. These forces are problematic for a hinge joint such as the knee, where associated tendons, ligaments, cartilage, and menisci could be damaged when poor mechanics are allowed to go unchanged over long periods of time. It is less likely that a single repetition causes significant damage to the joints, but thousands of repetitions performed over time can wear on the knees’ structural integrity.

Pressure in the feet

A lack of posterior-chain engagement results in the athlete (and/or object) shifting excessively forward of the frontal plane. A trainer can see this by observing the center of pressure in the feet in all movements, especially with any knee or hip flexion. This may or may not occur in conjunction with the heel coming off the floor. The heel can remain on the ground while the center of pressure shifts forward.

This may also indicate premature shifting of weight to the toes, especially during an explosive hip extension, which results in the hip extending forward rather than upward. If an athlete jumps forward during a lift, it may be an indication of a premature shift of weight to the toes. “Triple extension” is not a forced calf raise in conjunction with extension of the knees and hips; it is achieved when the heels leave the ground because of, and after, a violent extension, thereby creating extension of the hip, knee, and ankle joints. Analysis of elite lifters shows that the longer a lifter remains in contact with the ground during the second pull, the greater the acceleration on the bar. Greater surface area in contact with the ground enables a greater force to be transferred.

Common Movement Themes for Functional Movements, continued

Knee position

With regard to knee position, although there are two directions the knees can travel to come out of alignment with the feet (laterally or medially), the fault is usually seen when the knees collapse inward (medially). The degree of deviation in knee alignment generally increases with increased hip and knee flexion in a movement and/or wider stances. An athlete with a poor knee position in any movement often produces the error to some degree any time the knee flexes. For example, an athlete whose knees collapse in a squat is likely to have the knees collapse to a less obvious degree in running, box jumps, push presses, etc.

SOUND HIP FUNCTION

Sound hip function refers to the athlete's ability to flex and extend the hip to maximize its contribution to a movement. The hamstrings and glutes are powerful hip extensors. Powerful and complete hip extension is necessary for elite athletic capacity because:

1. it applies the most force on the object, and
2. it creates the most elevation on the object, giving the athlete the most time to accommodate or receive it.

There are no major safety issues with slow or incomplete hip extension.

Poor hip function is usually expressed in one of three ways:

1. muted hip,
2. lack of hip extension, and/or
3. slow hip extension.

A muted hip never closes/flexes (and therefore is a “permanently” open hip). If the hip never closes, the movement is predominantly driven by the quadriceps. The quadriceps extend the knee without contribution from the hamstrings and glutes. Lack of hip extension does not allow the power of the hamstrings and glutes to be fully expressed. This does not effectively put acceleration on the bar or object and therefore does not elevate it to any significant degree. Even small deviations from full hip extension result in reduced power transmission. The speed of hip extension plays a critical role in accelerating the object being lifted, particularly when the object must be elevated far beyond its starting point (e.g., from rack to overhead). In all cases, the power of the musculature of the hips is not optimally expressed.

ACTIVE SHOULDERS

An active shoulder provides the most stable position for the shoulder when working against a load. This means an active shoulder is present in the overhead lifts as well as the deadlift series, including the deadlift, sumo deadlift high pull, and medicine-ball clean. Outside the nine foundational movements, active shoulders are found in the kipping pull-up, ring dip, handstand push-up, row, and snatch, among other movements.

Active shoulders are about scapular position and stabilization and require different actions by the athlete, depending on the movement. In each movement, the athlete attempts to keep the shoulder in a relatively neutral, natural position, without yielding to a load. At the same time, he or she will create enough space between the anatomical structures of the shoulder so they may pass freely without impingement. Typically, this means an athlete demonstrates an active shoulder by applying force in the direction opposite the load. For example, in an overhead squat, the athlete pushes up on the barbell. In a push-up, the athlete pushes down into the ground. In a row, the athlete pulls

Common Movement Themes for Functional Movements, continued

back to prevent the rounding of the shoulders. There are also cases in which an active shoulder is not achieved by pushing into the load (e.g., bench press). In all cases, the retraction, elevation, etc. is not taken to the end range that results in a contrived position. For example, retraction in a deadlift is not full retraction that may result in a loss of midline stabilization or a position that would not be possible under any real load.

An active shoulder creates optimal skeletal alignment, which enables the most musculature of the torso (e.g., trapezius) to aid in the stability of the shoulder and potentiate the greatest force. An active shoulder also moves the acromion process out of the way of the humerus, reducing the chance for impingement of the biceps tendons and rotator-cuff muscles. The chances for impingement increase as the grip narrows. In an overhead squat, for example, a wider grip requires less elevation to create clearance space.

When an athlete loses an active shoulder, the direction the shoulders move (e.g., forward, down) depends on the movement. The coach needs to observe from where the force is being applied and determine if the shoulders are moving in that same direction (e.g., yielding).

FULL RANGE OF MOTION ABOUT A JOINT

Full range of motion about a joint describes the natural anatomical beginning and end positions of a movement. Full range of motion allows a greater complement of musculature to be used (e.g., reaching full depth in a squat, using active shoulders) and in some cases better mechanical advantage (e.g., bar resting on the body in the front rack). Joint safety is maximized by preserving the range of motion required by life while best distributing forces at any one joint or throughout a series of joints. Additionally, increasing the musculature and joints involved allows the athlete to develop the neuromuscular coordination that is universally found in compound movements and sport.

Toward the other extreme, hyperextension or artificially trying to create more range of motion past a joint's natural anatomical function can be detrimental to joint health; more is not always better.

Training to the full range of motion in functional movements best prepares an individual for any conceivable task. While life's tasks may not always require full range of motion, training to the limits of one's natural end range prevents deficiencies if and when the joints need to move the full range. Using full range of motion preserves joint health, flexibility, and strength, reducing the chance of injury and decrepitude later in life. If there is not a more pressing safety issue that needs to be fixed first, a trainer needs to preserve full range of motion above much else (e.g., adding load, increasing speed).

EFFECTIVE STANCE AND/OR GRIP

This refers to the foot and hand positions adopted during a movement, where the optimal stance and grip promote task accomplishment and the ability to display all the movement's points of performance.

There are two common stances in CrossFit. A narrower stance (hip width) is used in the deadlifts, presses, and the Olympic lifts. The hip-width stance promotes a more direct transfer of force through the heels/floor and into the object being moved. A wider stance (shoulder width) is used in squatting movements, allowing for greater depth and contribution of the posterior chain. Some force-transfer efficiency may be lost with the wider stance (relative to hip width), but function and range of motion are gained. It is possible to take a different stance to allow for different loading mechanics. For example, a wider stance is adopted in the sumo deadlift. This allows the torso to remain more upright, allowing the legs and hips to more readily assist the back during the lift.

Common Movement Themes for Functional Movements, continued

The grip is usually outside the shoulders or hips so as not to interfere with the object or other points of performance, but it may also be wider if the demands of the movement require it. For example, the grip in the deadlift should be wide enough so as not to interfere with the legs, but it is significantly wider in the snatch to reduce the overall distance the bar must travel.

In many real-life applications with odd objects, a wider stance or narrower grip may be used. It is critical for athletes to learn how to apply the other points of performance, regardless of the stance and grip used to accommodate an object. This is especially true of preparing an athlete for situations outside the gym, when a more convenient stance and grip are not always possible.

There are no major safety concerns from a lack of effective stance or grip except when other points of performance are adversely affected. The value of any stance and grip adjustment should be assessed based upon its effect on all the other points of performance in the movement.

ASSESSING SAFETY AND PERFORMANCE

Simply observing an athlete's position in a movement does not provide enough of a context to assess safety risk and performance benefit. Both are assessed in light of the individual's:

1. athletic capacity,
2. loading,
3. positioning, and
4. speed of execution.

A trainer cannot identify bad positions without this greater context. Decreased performance and increased injury are more likely as the athlete moves further from a sound position or as loads increase relative to the athlete's maximum. For example, picking up a grocery bag with a rounded back is a common occurrence and contains little safety risk for many CrossFit athletes. Nevertheless, this same positioning could be more problematic for a beginner deadlifting 135 lb. or an advanced competitive athlete deadlifting 500 lb.

In daily training, athletes are encouraged to exercise using the correct positions to develop strength and awareness. Using sound mechanics promotes greater potential for power development and decreases injury risk in the long term. Training in the best positions, regardless of the load present, develops a sound default motor pattern that better prepares athletes for loaded and high-intensity scenarios.

Because of the benefits to safety, efficacy, and efficiency, proper mechanics are a daily focus of CrossFit trainers. Working toward better movement is not only for beginners and is arguably more important as the athlete advances. The margin for error decreases as load and speed increase. Top competitors rely on efficiencies that can create seconds of gain. A trainer cannot settle for anything less than excellent mechanics. For example, an immature squat may be a safe position, but if the athlete can learn to lift the chest, every degree of elevation can increase the loads that can be lifted in a clean or snatch, for example. A trainer must challenge himself or herself to develop better athletes beyond their current capacity.

Common Movement Themes for Functional Movements, continued

CONCLUSION

These themes provide a template from which a trainer can evaluate all movement in order to maximize both safety and performance for his or her athletes. The ability to recognize and correct violations is essential for a trainer, regardless of whether the athlete's violation is major or minor.

Understanding these themes provides a template for evaluating other approaches to coaching a movement. These themes also can help a coach think critically about any methods before including them in instruction: If there is not a clearly demonstrable mechanism that creates a safer or more effective movement, it is usually an unnecessary distraction.

For example, suppose a coach considers a new starting posture for the snatch or clean. He or she wants to use a dynamic start such that the athlete moves through the setup without a pause before the first pull. If the athlete is able to achieve the common themes (e.g., midline stabilization, posterior-chain engagement, balance about the frontal plane) in a static start and there is no clear performance gain from a dynamic start (i.e., increased loads lifted), it becomes an unnecessary layer of complexity to add to the mechanics of the lift. Changes in movement mechanics should be made when there are obvious gains in performance or a decreased risk for injury.

PRACTICAL EXERCISE 2—SEEING AND CORRECTING MOVEMENT FAULTS

This builds on the skills developed during Practical Exercise 1.

First, we will practice the basic skill of fault identification. We will also address the skill set associated with prioritization, assessing movement faults in one specific athlete, and coaching while maintaining attention across a small group.

Additionally, this exercise allows you to discuss and practice three different cueing strategies (verbal, visual, and tactile cues) and to practice acknowledging whether improvement actually occurs after a cue is given.

The drills are not effective as a stand-alone coaching style. The goal is to integrate the skills developed here into a complete coaching method.

Practical Exercise 2—Seeing and Correcting Movement Faults, continued

SELF-ASSESSMENT

| Ability to identify: | Needs Improvement | Satisfactory |
|--|--------------------------|--------------------------|
| Static faults | <input type="checkbox"/> | <input type="checkbox"/> |
| Dynamic faults | <input type="checkbox"/> | <input type="checkbox"/> |
| Ability to: | Needs Improvement | Satisfactory |
| Prioritize faults | <input type="checkbox"/> | <input type="checkbox"/> |
| Make corrections | <input type="checkbox"/> | <input type="checkbox"/> |
| Acknowledge improvement | <input type="checkbox"/> | <input type="checkbox"/> |
| Which static faults were you inconsistent in identifying? | | |
| Which dynamic faults were you inconsistent in identifying? | | |
| Which movement(s) did you feel were the most difficult to correct? | | |
| Which cueing strategy did you find the most challenging (verbal, visual, tactile)? | | |
| Of the cues you learned, which did you find most effective? | | |
| What are your primary takeaways from this session? What could you do to improve? | | |

HEAVY DAYS

There is the tendency for new CrossFit athletes and trainers to avoid heavy days entirely or execute them incorrectly. However, CrossFit is a strength and conditioning program. While people sometimes characterize CrossFit by its programming of mixed-modal workouts for time (“met-cons”), this is a limited view. Days devoted to strength training are essential to CrossFit and are integral to CrossFit’s prescription of constantly varied workouts.

Heavy days are necessary to build top-end strength and power. Power output decreases with time, meaning that an athlete’s work capacity in very short time domains sets the theoretical limit for his or her entire curve (Figure 1). It is possible to have high levels of short-duration power and little power elsewhere (e.g., a powerlifter), but it is impossible to have low levels of short-duration power and higher levels of longer-duration power. Therefore, heavy days are essential to a general physical preparedness program and should be used at least once a week or once every two cycles (where a cycle is three on, one off).

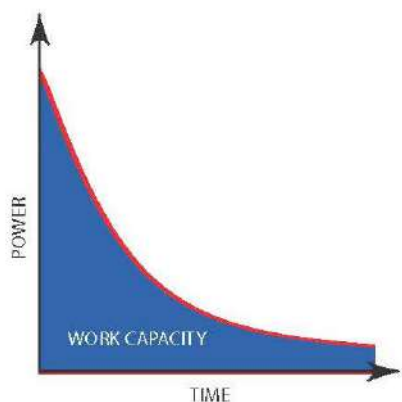


Figure 1. Generalized work-capacity curve.

Heavy days are not the only time athletes drive strength adaptations. Even within a metabolic-conditioning workout, depending on the task and the capacity of the athlete, any number of exercises may build strength. Push-ups for novices build pressing strength similar to a bench press, and attempting a 95-lb. thruster for a new CrossFit athlete builds squatting strength. As an athlete’s strength increases, push-ups and 95-lb. thrusters tend to favor other adaptations such as stamina, and greater loads are necessary to further increase top-end power.

Heavy days can be completed with most any weightlifting or gymnastics movement, such as weighted dips and pull-ups and lifting odd objects (e.g., sandbags, axles). More often than not, however, a barbell is best because it is impossible to match the barbell’s ease and range of loading with other equipment. Heavy days may also include all variations of standard barbell movements (e.g., hang, power, from a deficit, pulling from pins/bumpers).

Heavy Days, continued

Repetition schemes

The heavy-day workout consists of small sets, most often in the range of 1 to 5 repetitions, where the total volume of working repetitions is approximately 7 to 25. Repetitions significantly outside this range do not produce the desired response. If there are too few repetitions (e.g., one repetition of a near-maximum load), the athlete does not produce enough stress on the taxed muscles to drive a new adaptation. Conversely, too many repetitions (e.g., 30 or more repetitions of near-maximum load) produces too much stress for the athlete to recover from in a reasonable time period. The working sets generally occur at or above 80–85 percent of a 1-repetition-maximum load, and warm-up sets used to get to this loading do not count toward the total working repetitions. This is not an exact percentage, but a working set should be heavy enough to require concentrated effort. The working sets also do not produce a significant cardiorespiratory response.

Repetition schemes may vary. As a general guideline, the higher the repetitions in a set or across the entire session, the lower the loading. This tends to better develop muscular stamina and/or technique. The lower the repetitions, the higher the loading. This tends to better develop top-end strength. Both approaches should be used. Repetition patterns include standard schemes such as 7 x 1, 5 x 3, 5 x 5 (sets x reps); pyramid-like patterns of 1-2-3-2-1 (reps per set); descending/ascending schemes such as 5-4-3-2-1 (reps per set); no set specificity (e.g., work up to a max push press); and on-the-minute training (1, 2, or 3 repetitions on the minute, every minute for 10 minutes), among others. Failed attempts count toward working sets. However, the goal of a session should be to complete the majority of the lifts.

Heavy days are for everyone: the young, old, fit, and unfit. Using the concept of relative intensity, a trainer has each athlete lift a load that is relatively heavy for him or her. Even beginners should participate, although a trainer should be more cautious progressing a new athlete in load. Trainers can potentially give beginners more repetitions (either within each set or by increasing the total number of sets) to very gradually progress to a reasonably challenging working weight while instilling appropriate mechanics. Relatively new athletes often set a personal record every time they lift heavy. As the lifter becomes more experienced, sessions without a new personal record may occur. Setting a personal record is not necessary to reap the benefits of lifting heavy.

Minimizing risk

As risk increases with load, the trainer has several safety concerns to manage when leading a strength session. A heavy-day class best begins with a thorough warm-up to prepare the athletes for maximal loading (e.g., increase core temperature and improve range of motion). It also provides the trainer with an opportunity to correct and refine mechanics across warm-up sets of the movement to minimize risk. Finding the best way to complete warm-up sets usually becomes an intuitive process as athletes become more experienced with lifting heavy. However, most athletes in their first few years still need direction through this section. Common practice for warm-up sets is at least 3 to 5 warm-up sets, where the sets start with a lighter weight/higher repetition count and progress to heavier weight/lower repetition count. The rest periods in the warm-up sets do not need to be as long as during the working sets. Whatever the warm-up is, trainers cannot fatigue the athlete for the work sets. Instead, warm-up sets gradually prime the body for heavier loading while refining the mechanics of the lift.

The trainer must also teach each athlete how to bail and/or spot as necessary before any significant weight is attempted. It is easiest to have participants practice this with a PVC or dowel. A trainer cannot assume athletes will perform bailing or spotting techniques correctly without specific instructions. The gym floor also needs to be

Heavy Days, continued

arranged to ensure safe, walkable distance between working athletes, and the floor should be absent of extra equipment. Trainers may choose to have participants share racks, in part to reduce equipment and space needs. Sharing racks also allows athletes to help one another with loading, unloading, and spotting. It also allows for adequate rest time between sets so athletes fully recover. When using racks, additional instructions are needed to ensure that athletes keep enough distance between themselves and the racks when lifting. The trainer needs to clearly describe how the working sets should be approached to avoid confusion. For example, the workout may be 5 x 5 front squats. Does the trainer want the athletes to try to increase the load with every set? Does the trainer want the athletes to hold a certain percentage across all sets? Or does the trainer perhaps want the athletes to find a new 5-repetition maximum, meaning the exact number of working sets is less important (maybe it takes 4 sets, maybe 5 sets)? All these approaches have validity and potential benefits, but the trainer needs to indicate what the intent is on a particular day.

During the working sets, the trainer must appropriately apply the principles of threshold training just as he or she would in any other workout. Once an athlete's mechanics significantly deviate from the points of performance, the load needs to be reduced. This is especially true when multiple verbal and visual cues do not result in any improvement in mechanics. It is possible that the trainer can fix the mechanics at lighter loads and then allow the athlete to again increase the load gradually. Deviations from points of performance may also require the trainer to change the movement for a few repetitions before using the entire movement (e.g., using snatch pulls to correct an athlete who is pulling early in the full snatch). Once the workout is complete, the trainer should include equipment clean-up and workout logging as part of the cool-down period.

Cueing during a heavy lifting session needs to be very direct. The athlete's attention will be almost solely focused on the effort required to complete the lift. The trainer will have little time or opportunity to impact the quality of the movement during the set. Therefore, cues need to be short, easy to implement, and delivered with an intensity that matches the effort of the lift. If more technical consideration is needed, the time between sets can be a great opportunity to elaborate. However, upon returning to the next set, the athlete should have a very clear picture of what he or she needs to focus on. Giving your athlete more than one or two things to think about often results in no change at all.

CONCLUSION

Trainers need to regularly program strength days with their clients and ensure all participants achieve the desired stimulus during the training session. These sessions provide coaches and athletes with opportunities to improve mechanics, acquire new skills, and see progress in a modality that is vital to developing the fitness CrossFit seeks.

TEACH BACK 1-ONE-ON-ONE COACHING

The instructors only provide feedback on a couple areas, such that you should not expect to have a comprehensive evaluation of strengths and areas that need improvement for each section below. Spend some time reflecting on your own coaching and consider the feedback given to others to critically evaluate areas not specifically addressed by the instructors.

Movement Taught: _____

What did you do well in the following categories?

- Demonstration
- Teaching
- Seeing
- Correcting
- Group Management
- Presence and Attitude

Teach Back 1—One-On-One Coaching, continued

What do you need to work on in the following categories?

- Demonstration
- Teaching
- Seeing
- Correcting
- Group Management
- Presence and Attitude

What is it your goal to improve in the group coaching session tomorrow?

LEARNING OBJECTIVES

At the completion of day two, participants will be able to:

1. Effectively communicate the points of performance for functional movements to individuals and groups.
2. Exhibit appropriate presence, attitude, and group management skills.
3. Design and assess the effectiveness of a program.
4. Assess an individual's current level of fitness and athletic capacity, and apply appropriate scaling.
5. Understand and implement the key components of an effective class.
6. Identify and discuss effective nutrition strategies for education, implementation, compliance, and maintenance.

TEACH BACK 2-GROUP COACHING

The instructors only provide feedback on a couple areas, such that you should not expect to have a comprehensive evaluation of strengths and areas that need improvement for each section below. Especially on day two, the instructors are looking to provide feedback on a specific area that was a weakness on day one. Spend some time reflecting on your own coaching and consider the feedback given to others to critically evaluate areas not specifically addressed by the instructors.

Movement Taught: _____

What did you do well in the following categories?

- Demonstration
- Teaching
- Seeing
- Correcting
- Group Management
- Presence and Attitude

Teach Back 2—Group Coaching, continued

What did you need to work on in the following categories?

- Demonstration
- Teaching
- Seeing
- Correcting
- Group Management
- Presence and Attitude

Were you able to effectively apply feedback from yesterday in today's session?

What did you do differently?

NUTRITION

INTRODUCTION

How and what you eat are behaviors that can have a dramatic impact on health and performance. During the Level 1 nutrition lecture, participants were walked through the importance of eating quality foods, and there was discussion of a few common ways to quantify food intake. Eating meats, vegetables, nuts and seeds, some fruit, little starch, and no sugar in combination with weighing and measuring macronutrient quantities can have a profound effect on one's health and performance outcomes.

A tsunami of chronic disease has been sweeping across the world, and CrossFit affiliates are the lifeboats. Each gym has within its walls the necessary ingredients to make profound changes to one's health.

As a coach, knowing what to eat, how to eat, and why it is important is only half the battle. The real struggle is in implementing dietary changes and trying to create a high level of compliance.

Perhaps one of the most important aspects of behavior change is one's belief that he or she is capable of making a specific change. This is considered one's self-efficacy.

It is very important for coaches to know they have everything they need in the gym to increase an athlete's self-efficacy. Coaches should feel equipped to set up the perfect intervention to get athletes eating better for long periods of time, if not indefinitely.

It is up to the coach to help increase athletes' self-efficacy and encourage them to believe that changes are possible. Increases in self-efficacy are a result of:

- *Mastery experiences:* These are small achievable steps throughout the process. Success in these steps will increase self-belief (i.e., adding vegetables to each meal).
- *A coach's ability to adjust to different emotional and physiological states:* A coach must adjust to how others perceive change and deal with stress (i.e., be sensitive to the fact that Rebecca has always eaten this way, and she has three young children to consider).
- *Vicarious experiences:* Coaches should use the successes of others to convince athletes that they, too, can be successful (i.e., Joe started by cutting out low-quality food for a month. Then he would quantify only his breakfast. Eventually, he measured his lunch, and six months later, he has lost 40 lb.).
- *Verbal/social persuasion:* Athletes should receive verbal support from others, including from role models (the trainer) and/or in small groups (i.e., create an accountability buddy, send reminders, videos, articles containing any material that motivates the individual to stay the course).

These are four factors that affect self-efficacy (Bandura). These factors should be sought in combination with each other for best results.

When thinking about behavior change within the context of a gym environment, we can understand the stages of change as contemplation, action, and maintenance. These three stages apply most accurately to the gym environment and the relationship between coach and athlete.

Nutrition, continued

Contemplation: The athlete has a desire to make a change and recognizes that his or her behavior may be problematic.

Action: The behavior change has been initiated and healthier behaviors are being acquired.

Maintenance: There is sustained healthy behavior and the athlete has developed the skills to deal with relapse.

A key component to successfully changing behavior and progressing through each stage is self-efficacy. Does the athlete believe in his or her ability to change eating habits and to eat the optimal ratios and amounts?

CONTEMPLATION

A coach must first educate. Teaching the art of nutrition is no different than teaching functional movements. It still requires an in-depth knowledge of the material:

- What are quality foods? What are unhealthy foods? How do you replace the unhealthy foods with healthier choices?
- How do you quantify macronutrients, and what tools are needed to weigh and measure?
- Why is changing your diet important, and what are the expected outcomes?
- What skills do you need to make this change and maintain it?

Coaches then need to find the best way to communicate this information to their athletes. The explanation must be simple, actionable, and realistic. This starts the process of building the skill set and producing the incentives required to make meaningful changes to diet.

Successful gyms have accomplished this in a number of ways.

- Small Nutrition Talks
 - These talks are often provided during introductory sessions.
 - Each small talk builds on the one prior. Athletes continue to develop knowledge and enhance skills in small steps (mastery experiences).
 - Typically, food logs are used to determine necessary changes. This food log can easily be used in the latter stages of change.
 - Any errors in the food log should be identified, and there should be positive and actionable steps to fix them.
 - Athletes are provided with everything, from shopping lists to recipes.
 - This level of information is necessary to actually perform the new behavior. The assumption that building a shopping list is easy is one of the reasons many do not succeed. The coach must guide this process.
- Large Nutrition Lectures
 - Typically, these are lectures that cover everything from eating quality foods to using different ways to weigh and measure food.
 - The information is provided all at once to a large group of athletes, typically with a question and answer session at the end.
 - These tend to be used as an introduction to nutrition challenges.
 - The main points might be covered again in a small group format during the challenge.

It is important to understand that how someone perceives the journey will also have a profound impact on the results. Perception is reality. This is where the trainer must adjust to the emotional and physiological state of the athlete.

Nutrition, continued

- If an athlete is depressed, anxious, or scared about the behavior change, there will likely be a negative impact on the outcome. The barriers to undertaking the behavior change might seem more severe than they actually are.
- Obviously, not everyone reacts this way to negative stress. Some are very confident in their abilities. Maybe they have some past experience with being a high-level athlete, or they are very successful in other areas of their life. These experiences can be used as a way to sustain efforts necessary for optimal results.
- That being said, the majority of the people who are trying to progress from sickness to wellness will have some level of self-doubt, fear, or anxiety.

A good coach is sensitive to the state of the athlete and finds ways to relieve stress and make the experience positive. This becomes very important in group nutrition challenges. Remember, half the battle is instilling belief in the athletes that they can do it. Consider the following:

- Being part of a group can be extremely intimidating, especially if you are the least fit.
- Successful coaches key into this right away and find a mentor to work closely with this type of athlete. Mentors should be positive, relatable, and reliable.
- Sometimes, the coach becomes the mentor and makes himself or herself available for extra guidance and motivation.

ACTION

Once the athlete is ready to start, the coach needs to find ways to initiate change and keep it going. It is easy to complete a nutrition challenge and then fall back into old habits, eating the same way as before.

Vicarious experiences

One way a trainer can keep this behavior going is to provide vicarious experiences.

- Find members that have had long-term success and use their stories. These people are now role models and their journeys are powerful!
- If you don't have these people within your own gym, look for them in the community. There are countless examples of people who have found significant results with changes to diet and consistent CrossFit training.
- It is important that you use a variety of real-life success stories, and the closer to home, the better. Help your athletes find ways to relate to these role models and also use their success as motivation. "If she can do it, then so can I!" is the thought process we want to create and develop.
- This internalized connection allows athletes to understand that hard work is necessary to achieve results. At the same time, they will have developed the confidence and strength they need to continue to experience the benefits of this lifestyle change.

Success stories need to be shared regularly by any means possible. This could be on the website, social media platforms, or within and on the walls of the gym itself. The more exposure and opportunity to highlight the success of others, the better.

- Try to provide as much detail as you can.
 - What was the person's starting point?
 - Where did he or she struggle?
 - How did the person get through the tough times?
 - What is he or she doing to stay on target?

Nutrition, continued

These vicarious experiences are exactly the reason you, the coach, should be experimenting with eating quality foods and weighing and measuring. Knowing what it feels like and being able to relate to clients is important to being credible. You are the ultimate role model in this equation, and you are providing a level of observational learning.

If you are a gym owner, make sure your coaches buy into this mindset. Create a positive culture among your staff. Coaches are foot soldiers clients look up to for examples of normative behavior. Coaches need to demonstrate the lifestyle, show the right examples, and lead from the front.

If you are a coach and do not practice what you preach, you cannot expect your athletes to follow suit and be inspired. You need to be able to demonstrate all aspects of CrossFit, and nutrition is a major part of the program's success.

Mastery experiences

Scaling workouts is a major part of achieving success with the CrossFit program. If a workout is scaled appropriately, it will create a mastery experience for an athlete. A mastery experience is an accomplishment, and consistent accomplishments build confidence toward pursuing further goals. If you do not scale effectively for your athletes—if, for instance, the workout or movements are too difficult—they may become frustrated and unmotivated, and results will cease. The same is true for nutrition.

Some athletes might be ready to jump into a nutritional change with full commitment and without hesitation.

- For these athletes, mastery experiences might come in the form of biometric measurements or performance outputs.
- Creating checkpoints every month, with the right metrics, might be exactly what is needed to keep them pushing forward.
- Metrics might include circumference measurements, body-fat analysis, or even benchmark workout performance.

Others might need a simpler approach. If an athlete is overwhelmed by the idea of completely changing his or her food quality, weighing and measuring food, and starting a CrossFit program, it might make sense to walk the athlete through this transition one step at a time.

- Mastery experiences can come in the form of incremental changes to the diet and celebrations of small victories.
- The coach needs to provide actionable steps for the athlete to achieve his or her goals, and athletes need to believe that these steps are achievable.
- Providing achievable small steps can come in the form of simply helping an athlete create one healthy meal at a time. Satisfying this challenge will boost an athlete's confidence in his or her abilities and help in the pursuit of the next step.
- After athletes have shown they can successfully and consistently create a healthy meal, the coach should challenge them to create two. This is the journey.

There are successful gyms that start challenges with step-by-step elimination. For example, the first few days or weeks, all athletes eliminate soda and juices from their diets.

After that, all athletes eliminate certain categories of processed foods. This process continues until the group is eating only high-quality foods.

Nutrition, continued

The next step in the challenge is weighing and measuring. This might start with one meal and progress to the point where all meals and snacks are quantified. As each athlete progresses from one step to the next, he or she is checking a box, developing the higher level of confidence needed to take on the next challenge.

Verbal and social persuasion

Throughout each step of this behavior change (contemplation, action, and maintenance), coaches need to provide some level of verbal persuasion. The results of verbal persuasion can be rather impressive. Verbal persuasion can come from the coach or can take on the form of social persuasion, which simply refers to verbal cues from a group. The goal is to convince athletes they have the skills required to initiate and maintain the new behavior.

- Your athletes have to know you believe in their abilities.
- Verbal persuasion should drive athletes to action.
- The goal(s) you present should be attainable.
 - If the goal is too far-fetched, it can be more debilitating than useful.

Feedback is a type of verbal persuasion. When an athlete makes a mistake along the way, it is up to the coach to provide feedback that is constructive and motivating.

- What did the athlete do wrong, and how can we fix it? Make it simple and actionable.
- As long as the experience remains positive, the athlete will be willing to try and not fear making any further mistakes. Remember, mistakes are an inevitable consequence of growth and development.
- Diet is no different than the paths we take as athletes and coaches. Making an error and learning how to fix it is one of the best ways to improve and refine a skill. Knowing “why” will more effectively lead to understanding “how” something can be resolved.

A common mistake is a relapse to old eating habits; the athlete has an unplanned or multiple unplanned cheat meals. As a coach, try to figure out what triggered this and present some options on how to deal with this scenario in the future.

- Was it stress, or was the athlete in a social situation and didn’t want to look like an outcast?
 - There might be other, more productive ways to deal with stress.
 - Give the athlete ideas on how to make healthy choices with food and drinks while out socially.

Successful gyms utilize social persuasion in small groups. It works! For instance, some gyms create teams when starting a nutrition challenge. Each team designates a team leader who will influence the other members of the group. The team leader is now a role model, persuading and influencing others to either start or continue eating well while constantly reinforcing its advantages.

MAINTENANCE

Typically, in behavior change the final stage is termination. When it comes to nutrition, maintenance is more likely to be the end point. There will always be occasions that test will power, and it is naïve to think athletes will never make a mistake.

Coaches must supply athletes with the tools necessary to get back on track when they fall off the wagon.

Nutrition, continued

Social support is an important principle when in the maintenance phase. The relationships developed between athletes, their peers, and coaches are what keep people accountable. These relationships help reduce a client's stress or strengthen self-regulatory behavior. There are different types of social support.

Emotional support and esteem support

- This refers to actually caring about the success of athletes and continuously finding ways to celebrate their victories.
- Share in athletes' successes. This can be achieved by highlighting their stories on your website or social media platforms.
- Check in with athletes regularly after a nutrition challenge has been completed. This is where a lot of people fall off. Make sure they have the tools to stay on track.

Informational and instrumental support

- Continuously provide education and tools for continued progress.
- The education needs to match the skill set of the athlete.
- If the athlete has been on the same diet for a few months, know how to evaluate it.
- Help athletes understand whether their strategies are still effective or need to be modified to lead to further results.
 - Do they need to further reduce carbohydrate intake to achieve their health goals?
 - Do they need to eat more food for increases in performance?
 - Are they ready to experiment with intermittent fasting?
- Have a good understanding of more specialized diets and how/when to initiate them.
 - Know when it is acceptable for you, as a coach, to recommend a specialized protocol.
 - For instance, it is not acceptable to recommend that a Type 2 diabetic start the ketogenic diet without consulting their physician.
- Always make yourself available for questions, help, and diet modifications.

MOVING FORWARD

Remember, there is no single way to get athletes to initiate or comply with a change in nutrition, but there are principles of behavior change that you can apply to each and every athlete you encounter. Always ask yourself: Where are they on the continuum of contemplation-action-maintenance? And how can you best convince them that they have the ability to make or maintain positive change?

Your job as a trainer is to provide athletes with the information needed to live a healthier life and to help them create a belief within themselves that they can accomplish those changes.

On CrossFit.com, you will find a wealth of information regarding both the facts and fallacies associated with nutrition, as well as simple recipes for healthy eating. Gather as much of this information as you can and try your best to simplify it for those who need it most.

Utilize the tools around you. Each affiliate has the ability to increase an individual's self-efficacy and have a lasting impact. Create an encouraging and welcoming community within your gym and always make sure you practice what you preach. You are the ultimate leader in this equation. Your athletes will be looking to you for knowledge and to learn from your experiences.

Nutrition, continued

References:

PLEASE NOTE: These references have been used as source materials but explore topics beyond the behavior change constructs discussed in this article as relevant to a gym/affiliate setting.

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PROGRAM DESIGN AND SCALING

CrossFit is defined as “constantly varied functional movements executed at high intensity,” with the goal to develop fitness that prepares one optimally for any task imaginable. The programming material of the Level 1 Course outlines workout variables and basic considerations for structuring workouts. The programming material at this course builds on that foundation by focusing on long-term program design for individuals and groups.

Among the myriad variables to control when programming workouts, a trainer cannot lose sight of the small influence programming has among a host of other factors that determine a client’s success. Programming, whether “good” or “bad,” is secondary to effective coaching, appropriate scaling, using sound mechanics, and developing a group dynamic conducive to pushing oneself (i.e., highest intensity brought to the work). Even with less-than-optimal programming, a trainer who has a good eye for movement mechanics and develops a good rapport with his or her clients will help people improve their fitness for years. Functional movements performed at high intensity, regardless of how well they are combined and varied, are powerful enough to elicit dramatic changes in one’s health and performance, particularly for the unaccustomed. Therefore, trainers can spend more time focusing on their skill set and member rapport rather than striving beyond reason to create the “perfect” template and programming cycles.

ANALYZING PROGRAMMING FOR EFFECTIVENESS

Effective or “good” programming produces results, and the relative degree to which programming is effective is the degree to which it optimizes fitness. The standard by which to evaluate any programming is measurable improvement in performance markers. For a CrossFit athlete, results would include increased loads on heavy days, decreased times on task-priority workouts, and increased repetitions or rounds on time-priority workouts. An optimal program would see the maximum possible increases in any test of fitness.

Other measurable markers include health markers. Faster Fran times, more rounds of Cindy, and heavier 1-repetition-maximum clean and jerks are correlated with decreases in blood pressure, triglycerides, and resting heart rate. Additional results may be reported by clients, such as improved quality of life, improved confidence, increased energy, and mood alteration. Anecdotal improvements in quality of life are side benefits of CrossFit. While not measurable, they are valued by many clients over the metrics of improved workout statistics and health markers.

Ineffective programming does not produce results, or at least not to the same degree possible with effective programming. These suboptimal results could include decreased performance on benchmark workouts, merely modest improvements in performance markers, or even a higher rate of injury, which could be easily avoided by following other programming.

The key is that program effectiveness is based on results: real changes in measurable, observable, repeatable markers. Clients need to get results for the programming to be deemed effective.

Trainers programming for a group or an entire affiliate can simply use the same measurement applied across the entire gym population. A trainer can look for long-term trends and patterns in the group by assessing performance on select benchmarks. For example, a trainer may select specific benchmarks to follow: He or she may track clients’ 1-repetition-maximum snatch, 1-repetition-maximum back squat, Grace, Fran, Tabata squats, 1-mile run, JT, Fight Gone Bad, 5-km row, and Cindy as his or her fitness tests. An evaluation does not have to include these exact

workouts; any group of workouts the trainer considers a good representation of fitness can be used. As long as the majority of members are improving their scores on these days, the programming is effective. A trainer must remember that this is a long-term view, and he or she cannot expect everyone to set a personal record (PR) with every benchmark test due to variables beyond his or her control, such as mood, sleep, stress, the physiology of the athlete, and even the athlete's commitment to the program. Intermediate to advanced athletes, for example, cannot expect to set personal records every time they repeat a workout due to the decreased magnitude of adaptations that result from increased proficiency (i.e., the learning curve).

VARIANCE IN CROSSFIT PROGRAMMING

"Variance" refers to the intended variation of functional movements, loads, repetition schemes, and time durations within a single workout and across a series of workouts in order to best maximize one's fitness. Other factors (e.g., environment, gear) can be varied but are not the primary variables to consider. The variation of workout variables across months and years determines how well one is prepared for any conceivable test of fitness. A program with a narrow focus may show great results in one area but have little impact on another. For example, a powerlifting program may see increases in strength and power for certain lifts, but it might produce worse performance in longer-duration, higher-repetition scenarios or even decreased strength and power in certain other lifts, like the snatch.

In the name of variance, there are few absolutes for formulating the infinite combinations of workout variables. An error in programming variance is only problematic when the error becomes routine. Today's workout does not have a dramatic impact on one's fitness; it is the series of workouts that result in long-term change. Programming too many heavy days in a row, for example, develops a narrow capacity. Conversely, programming a few heavy days back-to-back on occasion may be an entirely appropriate or beneficial stimulus.

Long-term planning and routine assessment

Effectively combining workout variables over the long term requires intentional and careful planning. The programmer must be well versed in CrossFit methodology to understand similar and disparate stimuli, as well as which stimuli are the most potent. Programming requires reviewing what has been completed recently in an attempt to provide new variance. It must also allow for routine assessment to ensure progress is occurring.

To a lesser degree, the programmer must understand each athlete's current capacity and weaknesses. For any level of athlete, a well-varied program should cover many different aspects of fitness. As an athlete becomes more advanced (e.g., a CrossFit Games competitor), additional time may be needed to improve weaknesses in addition to regular CrossFit programming. Regardless, effective programming cannot be random. Although CrossFit programming appears random to some due to its non-linear and non-formulaic pattern, its variety is a result of a planned attempt to address all fitness tests. This does not happen by the luck of the draw.

CrossFit.com programming

CrossFit.com provides a great expression of variance for general physical preparedness. An athlete who can perform all main-site workouts as prescribed (Rx'd) has a robust fitness capacity. Across all the workouts on CrossFit.com, some very broad trends suggest some combinations are more useful than others to develop this level of fitness. CrossFit more frequently programs whole-body, natural, high-power movements in short, intense workouts because of their far-reaching effects on one's overall fitness. These principles are generally expressed in task-priority couplets and triplets of 15 minutes or less, which include full-body, high-power movements utilizing complementary functions (e.g., pulling vs. pressing). This simple, but highly effective—i.e., elegant—programming drives CrossFit's potency. A

programmer cannot be fooled into believing the simplicity of the movements and combinations equates to “simple” results. Complexity does not inherently produce greater efficiency or efficacy, and arguably it detracts from both.

Classic CrossFit benchmark workouts such as Fran, Helen, Diane, Elizabeth, and Fight Gone Bad are all excellent examples of these basic principles. Fran (21-15-9 repetitions of thrusters and pull-ups) is an elegant combination: two full-body movements, complementary in function (lower-body push and upper-body pull) to allow intensity to remain high while simultaneously expressing functions necessitated by life (squatting, putting an object overhead, pulling the body up).

CrossFit programming is best summarized in *World-Class Fitness in 100 Words*, by CrossFit Founder Coach Greg Glassman: “Practice and train major lifts: Deadlift, clean, squat, presses, C & J (clean and jerk), and snatch. Similarly, master the basics of gymnastics: pull-ups, dips, rope climb, push-ups, sit-ups, presses to handstand, pirouettes, flips, splits, and holds. Bike, run, swim, row, etc., hard and fast. Five or six days per week mix these elements in as many combinations and patterns as creativity will allow. Routine is the enemy. Keep workouts short and intense. Regularly learn and play new sports.”

Although many CrossFit workouts follow these trends, not all should. Less frequently, athletes need to be exposed to workouts that are more unorthodox. For example, there are times when workout variables that result in decreased power output are entirely beneficial for an individual. A load that may be too heavy for an athlete to move continuously in a workout is also a stimulus for greater strength. A high-repetition scheme that causes the athlete to stop multiple times in a single set is a stimulus for greater stamina. Even using lower-powered movements such as a Turkish get-up in a workout are useful occasionally for developing greater coordination, balance, and shoulder strength under cardiorespiratory stress. The bulk of workouts, however, should strive for simple, bold pairings.

OPTIMIZING CROSSFIT PROGRAMMING

Most every client can improve his or her fitness without individualized programming. Small adjustments in the context of regular CrossFit programming, such as weakness work and scaling workouts appropriately, can accelerate a client’s results within general group programming.

Working weaknesses

A weakness is a certain skill that is lacking relative to an athlete’s proficiency in other areas. By improving one’s capacity in these weak areas, the athlete’s overall fitness increases. Effective CrossFit programming by itself is aimed toward improving weaknesses. With well-varied, unbiased combinations of loads, time durations, movements, etc., clients inevitably see improvements in their fitness for years. Over the months and years, just performing the elements one struggles with will improve one’s proficiency in these movements.

An athlete may choose to do additional weakness work to accelerate progress and will likely find this also improves strengths. Working on weaknesses is also important for clients who have reached a plateau. Coach Glassman has asserted the following: “There is more traction, more advantage, more opportunity in pursuing that one thing that you don’t want to see come out (of the hopper) headlong than to put more time into that thing you’re already good at. That thing that you don’t want to see come out is a chink in your armor. And addressing it will make a difference for you in ways that you’ll never be able to predict.”

Program Design and Scaling, continued

It is unlikely that the programming needs to change drastically to address weaknesses, particularly for an affiliate or large group setting. Further, trying to tailor the program to every individual weakness is impossible. The best the trainer can do is to observe and respond to the general trends in the gym and provide well-varied programming consistently.

Constant assessment is needed to ensure that too much capacity is not lost in the strong areas. When assessment has shown that the weak areas are now at an acceptable level, the trainer should look to identify the next area of weakness and make small adjustments accordingly. A radical change in programming is likely to eliminate the benefits experienced elsewhere (e.g., programming becomes too skewed toward the new goal).

If the programming becomes too skewed toward working on specific elements, then it is biased. Biasing is programming certain elements more frequently regardless of current capacity in those areas. Biasing does not necessarily result in an increase in fitness; it results in an increase in a specific capacity. Biasing is not necessarily negative if it serves the athlete's preference or goal. It is only a problem when the athlete is seeking general fitness and continues to follow a biased program. Addressing weaknesses may eventually become a bias in the absence of assessment.

Weakness work can be easily included in the warm-up of the class, focusing on the technique of one of the more challenging movements. This gives clients extra practice time to improve a deficiency and potentially allows for a more "personalized" program. During warm-up and skill sessions, which are often heavily biased toward newer and less proficient athletes, an effective trainer needs to also offer challenging options for the advanced athletes.

For example, suppose a trainer led a warm-up that included a skill session on pistols. Although most of the athletes may be working on getting their first pistol, perhaps using a band or squatting to a box with a support, advanced athletes may be working on weighted pistols (e.g., with a bar in the overhead-squat position). There are examples of how to use warm-ups to implement weakness work in the "Example Warm-ups to Address Weaknesses" section of this training guide. With well-varied workouts, much of the warm-up can coincide with movement preparation for the workout to practice elements that are usually weak (e.g., handstand push-ups, muscle-ups, double-unders).

Regardless of the movements selected, trainers should be sure to avoid pre-fatiguing the client. The goal of the warm-up is not to make it another workout. An example of a poor choice of warm-up may be doing three rounds of 15 pull-ups, push-ups, sit-ups, squats, and hip extensions before the workout Cindy (as many repetitions as possible in 20 minutes of 5 pull-ups, 10 push-ups, and 15 air squats). Pre-fatigue is of particular concern when a trainer plans a longer skill session before the workout, such as handstand push-up skill work before the workout Diane (21-15-9 repetitions of deadlifts and handstand push-ups). Such skill work can be done, but the trainer must monitor the volume such that the athletes are not unduly fatigued. Each athlete has variable tolerance to pre-workout volume relative to that athlete's capacity. The tolerance builds over time, so the warm-up can eventually be more extensive without pre-fatiguing muscles.

Templates can be used for weakness work. They can help keep a coach or athlete committed to dedicating time to skill development. However, it is important for coaches and athletes to use their judgment to change or break from the template as necessary.

Scaling effectively

Scaling workouts appropriately for one's clients is an essential consideration to best increase their fitness. This is not

just a concept for beginner clients; an effective trainer progresses the most athletes toward completing workouts as prescribed across months and years.

To scale effectively, a trainer needs to review the original workout for its intended stimulus, including:

- movement functions,
- loading parameters,
- time frame, and
- volume of repetitions.

This does not have to be a formal process, but it helps identify appropriate scaling options.

Suppose an affiliate decided to post the workout Amanda (9-7-5 repetitions of muscle-ups and 135-lb. snatches) for its daily classes. This is a workout most members at most affiliates have to scale. The basic analysis of the workout variables shows:

1. a high-skill gymnastics movement that is an upper-body pull and push and a high-skill weightlifting movement that is predominantly a lower-body pull and squat,
2. the intended loading is moderate,
3. the intended time is short (approximately 5 minutes), and
4. the volume is low.

The goal for scaling this workout is to adhere to as many of these variables as possible in light of the individual's capacity. The resulting scaled workout still needs to provide each client with a significant challenge. There is no single strategy that works in every situation. Scaling is also a “moving target” as individual capacities change over time.

There are some populations for which a trainer can employ common scaling strategies:

1. beginners and/or deconditioned individuals,
2. intermediate athletes,
3. advanced athletes, and
4. injured athletes.

Scaling guidelines, and examples for the workout Amanda, are detailed below.

Beginners and/or deconditioned individuals are generally those athletes who have been doing CrossFit for six months or less. For beginner and/or deconditioned individuals, a trainer needs to be primarily concerned with adherence to the proper points of performance of the movements throughout the full range of motion. Increasing the difficulty (via movements or volume) and/or pushing for greater intensity (via speed or load) are secondary to developing movement proficiency and new skill development. This group may often include the elderly, where additional safety concerns may be necessary (e.g., keeping feet on the floor). Beginners need a lot of guidance: The trainer must be proactive about approaching them and modifying the workout.

Loads, distances, and repetitions are the primary variables to modify during scaling, particularly before changing the movement. If a movement is beyond the athlete's current abilities, a substitution should create a similar movement function and range of motion. In some cases, preserving function and range of motion can be done by using several movements to achieve a similar effect. Also, it is not “standard” to increase the volume of the substituted or “less

Program Design and Scaling, continued

challenging” movement. For example, it is not necessary to always make those substituting single-unders for double-unders complete two or three times the repetitions. This group often needs reduced volume, even with a substituted movement.

For the workout Amanda, scaling options for beginners/deconditioned individuals include:

- Squat snatch load. Reduce to whatever allows the athlete to best practice the movement with full range of motion. This may be a training bar, empty barbell, or even PVC pipe. If the athlete has to go very light to preserve movement mechanics, consider doubling the repetition scheme. This gives the athlete more practice repetitions, which is the primary concern for the inexperienced. It is also possible to reduce the range of motion in a loaded scenario if the mechanics cannot otherwise be preserved. Regardless of the scaling choice, the workout should provide some challenge across the repetitions.
- Muscle-up movement. Replace with a simple upper-body pull and push. Most likely, this will be jumping pull-ups or ring rows, and squat-assisted dips, bench dips, or push-ups. These options are mechanically simple relative to the muscle-up, so a trainer needs to pick an option that provides a challenge to the athlete’s upper-body strength across the total repetitions.

Although not an exact guideline, the term “intermediate athletes” generally describes those who have been doing CrossFit for six months to three years. An intermediate athlete is one who can perform some workouts as prescribed but still struggles with more complex movements or challenging repetition schemes and loads. Scaling the repetitions on some gymnastics movements and the loads on some weightlifting movements is the main priority. A trainer must be mindful that an intermediate athlete is best served by using different scaling options each time a particular movement or load appears in a workout. A trainer can create several different options for intermediate athletes, not only to avoid boredom, but also to help them continue to develop their fitness. Varying the manner in which a workout is scaled reduces the timeframe needed to acquire the desired adaptation.

With time, intermediate athletes should be able to adequately scale their own workouts. This comes with a better understanding of workout goals and their own strengths and weaknesses. Intermediate athletes may be incorrectly neglected at times because they require less guidance than the beginner. Nevertheless, the majority of one’s members will likely be intermediate athletes with a wide range of abilities. These athletes still need to be pushed to new levels as appropriate.

For the workout Amanda, scaling options for intermediate athletes include:

- Squat snatch load. Intermediate athletes often include individuals who should stay at the prescribed weight and potentially take longer to complete the workout. Although their power output may be lower than if the load was scaled, keeping the load as prescribed helps develop exactly the strength and stamina needed to perform the workout in a more competitive time. In cases where this load would not be completed in any realistic time frame (i.e., would take more than 20 minutes), reduce the load appropriately.
- Muscle-up movement. The scale is best when it is specific to the weakness, and it therefore does not take on one specific form. If they have significant upper-body capacity in pull-ups and dips, an effective scale would be to work a transition drill, as that is where their capacity is lacking (i.e., working the transition helps strengthen a greater range of motion at the shoulder). Conversely, an intermediate athlete who

struggles with pull-ups and dips may be better served using those movements in the workout to develop the pushing and pulling stamina and strength of the upper body. Depending on proficiency, perhaps the repetitions of pull-ups and dips should be increased. If there is an athlete who has muscle-ups but is not consistent with them or cannot perform a high volume, reducing the repetitions is a viable option to help train the skill in a mixed-modal environment (e.g., repetitions of 5-4-3).

Advanced-level athletes are those who can perform all workouts and movements as prescribed. Typically, these athletes either came to CrossFit after years of performing some functional movements at high intensities (e.g., collegiate gymnast) or they have been doing CrossFit consistently for years. There are times a trainer needs to scale this athlete due to sickness, injury, personal problems, or a recent string of difficult/demanding workouts. Occasionally suggesting a variation with lower loading and/or repetitions benefits the advanced athlete both physically and/or mentally.

There may be an occasion to “scale up” an individual if the athlete is not challenged by the repetition scheme or weight, or is in need of a different stimulus for skill development. The obvious options are to increase load or repetitions, choose different equipment (dumbbells vs. barbells), or make a movement more difficult (parallette vs. regular handstand push-ups). A trainer needs to be wary of this practice and should avoid consistently making workouts heavier and higher in volume to provide a “challenge.” More often than not, the advanced athlete needs to be coached to better movement mechanics and/or greater intensity before making a workout “harder.” An effective trainer needs to focus on fixing movement inefficiencies and pushing for faster speeds before increasing the weights and repetitions. These corrections translate to seconds of gain in performance.

Coaches need to be sure not to confuse advanced for elite, where elite is reserved for individuals actually going to the Games. Competitive programming is outside the scope of this course, as well as outside the scope of most affiliate needs. At a minimum, athletes should be considered advanced before more volume is needed.

Some potential scaling options for an advanced athlete in Amanda are listed below. There are infinite ways to tweak the workout based on needs and the relative strengths and weaknesses of the athlete. These would be good options particularly when an advanced athlete already has a competitive Amanda time.

- Snatch. The snatch may be made heavier, may become a power variation, may be replaced with heavy dumbbells, etc.
- Muscle-up. The muscle-ups may become bar muscle-ups, strict muscle-ups, weighted muscle-ups, muscle-ups to forward rolls, etc.

The fourth category of participants includes the injured athlete. These individuals should be encouraged to participate in the workout, as there is benefit to training even in their reduced capacity. There is a positive hormonal response from exercise, which can affect a multitude of factors, from body weight to recovery to mental state. Although the nature of injury determines what is possible, the goal is still the same: to replicate all workout variables as closely as possible.

Pain-free range of motion is the main guideline. Where the movement cannot be performed exactly, a trainer should find a substitute that best replicates the basic function and/or range of motion. However, any movement that still relies primarily on the injured joint/body part should be used cautiously, if at all. A trainer may need to get creative at times to help athletes avoid boredom and keep an injured athlete working for new skill acquisition.

Single-limb work can be utilized: Contrary to the belief that this results in a problematic muscular imbalance, exercising the non-injured side can reduce atrophy in the injured side. Dumbbells are a perfect tool for one-sided work, and the number of repetitions can increase in cases where the loading is limited. However, this should not be the only option for someone with an injured limb. If an exercise involves two movement functions, an athlete may still be able to perform one with both sides. For example, in a thruster, an athlete with an injured upper body might still be able to squat or front squat. If the athlete has an injured lower body, he or she might still be able to press or push press. If there are no reasonable options for an injured person to perform a similar movement, omit the movement or substitute something else. This should be the last option considered.

Using the workout Amanda as an example, scaling options for injured athletes would take on many different forms depending on the injury. Here are a couple of examples:

- Suppose the athlete's shoulder is injured such that he or she cannot support any load with one arm. Potentially, the snatch becomes a heavy dumbbell snatch on the good side, or it could become a 135-lb. back squat; the load could even be increased to be more challenging in the 9-7-5 repetition scheme. The muscle-up may become a single-arm ring row and push-up or dumbbell press.
- Suppose the athlete's knee is injured such that he or she has limited flexion. The snatch may become a snatch variation (power, muscle, hang) depending on the range of motion of the knee. The muscle-up would not have to be scaled.

When the injured side is cleared to be used again, the trainer must increase intensity very gradually, with a heavy emphasis on maintaining optimal mechanics to prevent additional injuries.

Implementing scaling in a class environment

After a trainer has analyzed the workout and knows what is likely to need scaling (especially movement substitutions), direction must be given to the entire class to help each individual to the appropriate modification. While this can be difficult in a busy class setting, a lot of scaling confusion can be prevented when the trainer introduces the workout to the class by indicating the intended stimulus or goal of the workout. Loading, repetition, time, and movement considerations can be discussed.

Presenting several scaling options at this time can help keep the class moving. Some gyms present set scaling options that keep large groups organized. This is fine, but a trainer must also recognize that the best choice for some athletes may be an entirely different option. An experienced trainer should have no problem creating unique scaling options as necessary without taking away from class instruction and group cohesion.

The trainer also needs to observe clients as they increase loads and practice the movements in preparation for the workout. An effective trainer can quickly see if the movement loading and repetition scheme chosen for the workout are appropriate by watching warm-up sets. There are times when scaling may have been assessed incorrectly and a trainer needs to scale after the workout has begun. If an athlete is struggling too early in the workout and will not achieve the desired outcome, the trainer needs to adjust one or more of the workout variables mid-workout (e.g., load, repetitions). This is mandatory if an athlete cannot maintain safe mechanics. In these instances, it is important that the trainer is firm with his or her decision. If he or she has built a good rapport with athletes, they should have no problem with such adjustments.

Sport-specific preparation

Many CrossFit trainers have some sport-specific athletes looking to incorporate CrossFit training into their regimen. While sport-specific athletes cannot use CrossFit as a substitute for their sport-specific practice, fixing deficiencies in their general physical preparedness has immediate benefit within their sport. These carry-over benefits may not have obvious mechanical or metabolic explanations. For specialists at the advanced tier of their sport, there is a greater margin to improve their performance by improving their general physical preparedness versus spending more time in sport-specific strength and conditioning training. Sport training and physiology are not so well understood that highly specialized strength and conditioning routines are optimally effective, and CrossFit brings a combination of adaptations that lead to improved performance.

A CrossFit trainer needs to remember that he or she coaches CrossFit and should not attempt to mimic the sport within CrossFit workouts. A CrossFit trainer is not the athlete's swim, soccer, or tennis coach and should not attempt to coach beyond his or her knowledge. Doing so results in a trainer giving poor CrossFit training and poor sport-specific training. The CrossFit trainer needs to program CrossFit for these sport-specific athletes, just as for their non-sport-specific clients. The sport practices and sport coaches will improve the specific skills needed on the field, in a match, etc.

CrossFit trainers need to be mindful of their athletes' competition seasons to be sure the volume of CrossFit is helping and not hurting an athlete's sport performance. CrossFit training is secondary to the sport training, particularly in season. There is often a natural trade-off in volume between CrossFit and the sport training depending on the time of year relative to the in-season period. This is to allow more time and energy for competition when seasonal demands are higher. This may not be necessary for all athletes in all sports. The general guideline is to add CrossFit volume cautiously while constantly assessing sport performance and being particularly cautious when an athlete is near in time to an important event.

PROGRAMMING CONSIDERATIONS: COMMON PITFALLS

If a programmer regularly assesses his or her athletes and observes the trends in data, he or she can quickly adjust ineffective programming. Conversely, CrossFit programmers who do not regularly assess data can fall prey to common faults, some of which are described below.

1. The first common error made by CrossFit programmers is a lack of regular assessment to determine effectiveness. Measurable results in performance markers are the guideposts for a programmer to determine whether the past programming was productive as well as what needs to be programmed next. Lack of assessment may occur from not repeating benchmark workouts and/or not recording results. Trainers need to encourage members to record results to assist with this effort. Clients generally like this record of progress, particularly after months and years of hard work.
2. Another error for CrossFit programmers occurs when variance is not applied correctly, and this is usually expressed in one of three ways: randomization of workout variables, biasing certain variables, or emphasizing non-essential elements. As mentioned above, optimal variance of workout variables requires intentional planning, not merely spinning the hopper and pulling out random tasks. A hopper may be used as a good test of fitness (i.e., is an athlete ready for anything?), but it is not a good method to prepare for everything. Reliance on the hopper would leave to chance the broad, general, and inclusive adaptations CrossFit is

trying to develop. Programming via a hopper may be fun once in a while and can be used occasionally in competitions, but it is not a method by which to program for the best results.

Biasing occurs when certain elements or combinations are repeated too often, with some elements avoided completely. There is nothing inherently bad about biasing as long as that is the intended goal. Biasing is a problem if the goal is to develop general physical preparedness.

Another misapplication of variance is emphasizing non-essential elements. This appears as an endless combination of workout variables, regardless of their utility or effect. For example, never repeating workouts, performing lots of accessory or skill movements in actual workouts (e.g., Sots presses, single-leg work, sport-specific drills), or focusing too much on environmental factors (e.g., working out with a gas mask or in the middle of the night) can be signs that variance is being misapplied. It can be easy for newer programmers to believe “complicated” and “unique” programming provides a superior stimulus because of the novelty.

3. A third common error in CrossFit programming is a lack of higher-skill development. This can occur when certain movements are avoided in workouts or when warm-ups are not used to address weaknesses. A current trend within the community is to avoid the more difficult gymnastics movements. CrossFit athletes are willing to tackle the technical weightlifting movements such as the snatch and clean and jerk but do not spend as much time developing the more technical counterparts in gymnastics, such as levers, planches, presses to handstands, or pirouettes.
4. CrossFit programmers may be tempted to use excessive volume. This occurs with more than one training session a day (i.e., double days). In some cases, athletes may even attempt more than two sessions. This pitfall affects those trying to emulate the volume sometimes used by CrossFit Games athletes. Games athletes’ training is not representative of what CrossFit programming should look like. Multiple sessions a day are not appropriate for 99 percent of CrossFit athletes (less than one percent of those who participate in the Open go to the Games). Even multiple workouts in one extended “session” should generally be avoided. Extra sessions and/or extra workouts may help performance in the short term but often lead to overtraining, higher risk of injury, and burnout in the long term. Double days help Games athletes prepare for high-volume competition and can help them get in more volume so they can advance certain skills relative to their competitors. Generally, however, there is actually a decrease in intensity across sessions. As Coach Glassman said, “Be impressed by intensity, not volume.” If a client is looking to be competitive, very gradually and cautiously increase volume. For example, start with additional skill sessions (e.g., double-under practice) in areas in which the athlete is not as proficient, not multiple workouts. Look at CrossFit.com and assess what the athlete cannot complete, then add “volume” by way of working on these skills. The volume should gradually increase over the long term.
5. Another trickle-down effect from the Games is the assumption that the “CrossFit standard” for a movement is what is performed at the CrossFit Games. Standards in competition are set for ease of judging and do not necessarily represent the best expression of the movement. They are used to establish the minimum requirements for a repetition, and an athlete is held to those standards to ensure the range of motion is the same across all competitors. Take, for example, hand-release push-ups: There is nothing better about them in terms of muscular development or mechanical advantage. They are used because they are easier

Program Design and Scaling, continued

to judge; a judge can easily ensure the chest and thighs make contact with the ground on every single repetition. Standards in competitions should not prevent an athlete from using (or a trainer from teaching) many different movement mechanics to develop a broad athletic capacity. There are different adaptations to all movements, and variations at the very least improve the overall coordination of an athlete who can accomplish a single task in multiple ways. CrossFit encourages athletes to learn all possible techniques and not a single “standard” (e.g., strict, chest-to-bar, kipping, and butterfly kipping pull-ups). This is another face of variance needed to develop the athletic capacity to accomplish tasks in multiple ways, and it is what will best prepare one for any test of fitness.

CONCLUSION

Effective programming occurs by applying basic tenets when selecting workout elements and combinations. Optimizing long-term program design is best guided by observing results (i.e., objective and measurable change in performance markers) and applying focused weakness work or appropriate scaling. The elements of the daily workouts are but one factor that affects how well an individual optimizes his or her fitness. Other factors, such as effective coaching and using intensity, need to be assessed to determine how best to make meaningful changes for improved fitness.

EXAMPLE WARM-UPS TO ADDRESS WEAKNESSES

- These are a few examples of warm-ups by modality (weightlifting, gymnastics, monostructural) and can be used to add skill work to a client's program.
- Warm-ups should not be thought of as a separate workout but rather an opportunity to touch on skills that may or may not be present during the day's main workout.
- The warm-ups below are progressive in nature, meaning they are performed for 2-3 rounds each, with each round getting slightly more complicated than the round before.
- Each movement is performed for 5-15 repetitions; the repetitions should be chosen so as to give enough time to practice the movement without fatiguing the individual for the workout.

WEIGHTLIFTING COMPLEXES (CHOOSE ONE)

Barbell Complex Warm-Up

- Round 1: Deadlift, hang power clean, front squat, press, thruster
- Round 2: Deadlift, hang power snatch, overhead squat, snatch

Dumbbell

(Can be performed with one or two dumbbell(s) at a time)

- Round 1: Deadlift, hang power clean, front squat, press, thruster
- Round 2: Deadlift, hang power snatch, overhead squat, snatch, Turkish get-up

Kettlebell

(Can be performed with one or both kettlebells or with hand-to-hand techniques)

- Swing, clean, clean and press, snatch, Turkish get-up

GYMNASTICS COMPLEX (CHOOSE ONE)

Rings

(Create a mini routine by going through the list. Omit the more difficult variations until skilled enough.)

- Tuck to inverted hang, then skin the cat
- Pike to inverted hang, then skin the cat
- Strict muscle-up to support to L-sit
- Shoulder stand back to L-support or straddle support
- Forward roll back to L-support
- Forward roll to hang
- Pike or tuck to inverted hang to back-lever attempt, pull back to inverted hang
- Front-lever attempt
- Ring swings
- Fly-away dismount (skin the cat and let go)

Example Warm-Ups to Address Weaknesses, continued

Parallettes

(Create a mini routine by going through the list. Omit the more difficult variations until skilled enough.)

- Push-up/dive bomber push-up
- Shoot-through to push-up to frog stand
- L-sit pass-through to tuck planche
- L-sit pass-through to shoulder stand
- Tuck up to handstand/press to handstand (from L or press from bottom of shoulder stand)
- Handstand pirouette walk

Basic Body Weight (BBW)

- Round 1: Squat, push-up, sit-up, pull-up (strict), hip extension
- Round 2: Lunge, dip (strict), V-up, kipping pull-up, back extension
- Round 3: Pistol, handstand push-up, toes-to-bar (straight leg and strict), muscle-up (strict), hip and back extension
- Round 4: Pose running drill

Below is an example programming template to help ensure variation and consistency using these warm-ups.

Example Warm-Up Programming Template

| | Day 1 | Day 2 | Day 3 | Day 4 | Day 5 | Day 6 | Day 7 |
|----------------|----------------|--------------|-------|-----------------|--------------------|-------|-------|
| Warm-Up | W (Barbell) | G (Rings) | BBW | W (Dumbbell) | G (Parallettes) | BBW | OFF |
| Workout | M | GW | MGW | G | WM | GWM | OFF |

PROGRAMMING ANALYSIS WORKSHEET

To help analyze programming, there is a simple “Programming Analysis Worksheet” on the following pages. The spreadsheet is a tool to help analyze themes, not a perfect system to write programming.

- The sheet has been divided such that different aspects of the workouts can be generally categorized.
- The categories are modality/load (mark all and as many times as represented), time, repetitions (total across workout), scheme (number of movements represented), priority, and movements.
 - Although reps are not typically counted for monostructural movements, below is a suggestion for estimating “reps” for running and rowing:
 - Low Rep: Less than 800 m total
 - Moderate Rep: 800–3,200 m total
 - High Rep: More than 3,200 m total

SAMPLE PROGRAM:

WOD 1

10-min. AMRAP:
10 BJ (30 in.)
20 GHD sit-ups

WOD 2

“Diane”
21-15-9:
Deadlifts (225 lb.)
HSPU

WOD 3

5 rounds for time:
250-m row
25 thrusters (45 lb.)
15 T2B

WOD 4

Behind-the-neck jerk
7 x 1

WOD 5

20-min. AMRAP:
2 rope climbs (15 ft.)
20 pistols, alternating
40 double-unders

WOD 6

Hang squat clean
5-5-3-3-3-1-1-1-1

WOD 7

For time:
150 squats
75 hip extensions
120 squats
60 hip extensions
90 squats
45 hip extensions

WOD 8

3 rounds for time:
1-mile run
50 pull-ups

WOD 9

10-min. AMRAP:
100-m overhead walking lunge (45-lb. plate)
30 GHD sit-ups

Notes:

1. Weight (in pounds/poods) or height (in inches) is listed in parentheses after a movement.
2. Weightlifting days follow the format sets x reps.
3. Abbreviations used: AMRAP (as many rounds as possible), BJ (box jump), C&J (clean & jerk), C2B (chest-to-bar pull-ups), DB (dumbbell), ft (feet), GHD (glute-ham developer), HSPU (handstand push-up), km (kilometer), KB (kettlebell), KBS (kettlebell swing), lb. (pound), m (meter), min (minute), OHS (overhead squat), pd (pood), RFT (rounds for time), SDHP (sumo deadlift high pull), sec (seconds), T2B (toes-to-bar), WB (wall ball).

PROGRAMMING ANALYSIS WORKSHEET

| Workout Descriptor | | WOD 1 | WOD 2 | WOD 3 | WOD 4 | WOD 5 | WOD 6 | WOD 7 | WOD 8 | WOD 9 | Totals |
|-------------------------------|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Modality/Load | Gymnastics | 1 1 | 1 | 1 | | 1 1 | | 1 1 | 1 | 1 | 10 |
| | Weightlifting - Light | | | 1 | | | | | | 1 | 2 |
| | Medium | | 1 | | | | | | | | 1 |
| | Heavy | | | | 1 | | 1 | | | | 2 |
| | Monostructural | | | 1 | | 1 | | | 1 | | 3 |
| Time | Heavy Day | | | | 1 | | 1 | | | | 2 |
| | < 5 min | | 1 | | | | | | | | 1 |
| | 5–10 min | 1 | | | | | | | | 1 | 2 |
| | 11–20 min | | | 1 | | 1 | | 1 | | | 3 |
| | > 20 min | | | | | | | | 1 | | 1 |
| Total Repetitions | Low (< 50 reps) | | | | 1 | | 1 | | | | 2 |
| | Medium (50–200 reps) | 1 | 1 | | | | | | | | 2 |
| | High (> 200 reps) | | | 1 | | 1 | | 1 | 1 | 1 | 5 |
| Scheme | Single | | | | 1 | | 1 | | | | 2 |
| | Couplet | 1 | 1 | | | | | 1 | 1 | 1 | 5 |
| | Triplet | | | 1 | | 1 | | | | | 2 |
| | ≥ 4 moves & chippers | | | | | | | | | | 0 |
| Priority | Task Priority | | 1 | 1 | | | | 1 | 1 | | 4 |
| | Time Priority | 1 | | | N/A | 1 | N/A | | | 1 | 3 |
| Movements - Gymnastics | Air Squat | | | | | | | 1 | | | 1 |
| | Box Jump | 1 | | | | | | | | | 1 |
| | Burpee | | | | | | | | | | 0 |
| | Dip | | | | | | | | | | 0 |
| | GHD Sit-up | 1 | | | | | | | | 1 | 2 |
| | Hip/Back Extension | | | | | | | 1 | | | 1 |
| | Handstand Push-up | | 1 | | | | | | | | 1 |
| | Knee-to-Elbow/Toe-to-Bar | | | 1 | | | | | | | 1 |
| | Muscle-up | | | | | | | | | | 0 |
| | Pull-up | | | | | | | | 1 | | 1 |
| | Push-up | | | | | | | | | | 0 |
| | Sit-up | | | | | | | | | | 0 |
| | Rope Climb | | | | | | | | | | 1 |
| | Pistol | | | | | | | | | | 1 |
| Movements - Weightlifting | Back Squat | | | | | | | | | | 0 |
| | Clean | | | | | | 1 | | | | 1 |
| | Deadlift | | 1 | | | | | | | | 1 |
| | Front Squat | | | | | | | | | | 0 |
| | Kettlebell Swing | | | | | | | | | | 0 |
| | Overhead Squat | | | | | | | | | | 0 |
| | Press | | | | | | | | | | 0 |
| | Push Jerk | | | | 1 | | | | | | 1 |
| | Push Press | | | | | | | | | | 0 |
| | Sumo Deadlift High Pull | | | | | | | | | | 0 |
| | Snatch | | | | | | | | | | 0 |
| | Thruster | | | 1 | | | | | | | 1 |
| | Wallball | | | | | | | | | | 0 |
| | Walking Lunge | | | | | | | | | 1 | 1 |
| | | | | | | | | | | | |
| Movements - Monostructural | Double Unders | | | | | 1 | | | | | 1 |
| | Rowing | | | 1 | | | | | | | 1 |
| | Running | | | | | | | | 1 | | 1 |

PROGRAMMING ANALYSIS WORKSHEET

| Workout Descriptor | | WOD 1 | WOD 2 | WOD 3 | WOD 4 | WOD 5 | WOD 6 | WOD 7 | WOD 8 | WOD 9 | Totals |
|-------------------------------|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Modality/Load | Gymnastics | | | | | | | | | | |
| | Weightlifting - Light | | | | | | | | | | |
| | Medium | | | | | | | | | | |
| | Heavy | | | | | | | | | | |
| | Monostructural | | | | | | | | | | |
| Time | Heavy Day | | | | | | | | | | |
| | < 5 min | | | | | | | | | | |
| | 5–10 min | | | | | | | | | | |
| | 11–20 min | | | | | | | | | | |
| | > 20 min | | | | | | | | | | |
| Total Repetitions | Low (< 50 reps) | | | | | | | | | | |
| | Medium (50–200 reps) | | | | | | | | | | |
| | High (>200 reps) | | | | | | | | | | |
| Scheme | Single | | | | | | | | | | |
| | Couplet | | | | | | | | | | |
| | Triplet | | | | | | | | | | |
| | ≥ 4 moves and chippers | | | | | | | | | | |
| Priority | Task Priority | | | | | | | | | | |
| | Time Priority | | | | | | | | | | |
| Movements - Gymnastics | Air Squat | | | | | | | | | | |
| | Box Jump | | | | | | | | | | |
| | Burpee | | | | | | | | | | |
| | Dip | | | | | | | | | | |
| | GHD Sit-Up | | | | | | | | | | |
| | Hip/Back Extension | | | | | | | | | | |
| | Handstand Push-Up | | | | | | | | | | |
| | Knees-to-Elbows/Toes-to-Bar | | | | | | | | | | |
| | Muscle-Up | | | | | | | | | | |
| | Pull-Up | | | | | | | | | | |
| | Push-Up | | | | | | | | | | |
| | Sit-Up | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Movements - Weightlifting | Back Squat | | | | | | | | | | |
| | Clean | | | | | | | | | | |
| | Deadlift | | | | | | | | | | |
| | Front Squat | | | | | | | | | | |
| | Kettlebell Swing | | | | | | | | | | |
| | Overhead Squat | | | | | | | | | | |
| | Press | | | | | | | | | | |
| | Push Jerk | | | | | | | | | | |
| | Push Press | | | | | | | | | | |
| | Sumo Deadlift High Pull | | | | | | | | | | |
| | Snatch | | | | | | | | | | |
| | Thruster | | | | | | | | | | |
| | Wall Ball | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Movements - Monostructural | Double-Unders | | | | | | | | | | |
| | Rowing | | | | | | | | | | |
| | Running | | | | | | | | | | |

PROGRAMMING ANALYSIS WORKSHEET

| Workout Descriptor | | WOD 1 | WOD 2 | WOD 3 | WOD 4 | WOD 5 | WOD 6 | WOD 7 | WOD 8 | WOD 9 | Totals |
|-------------------------------|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Modality/Load | Gymnastics | | | | | | | | | | |
| | Weightlifting - Light | | | | | | | | | | |
| | Medium | | | | | | | | | | |
| | Heavy | | | | | | | | | | |
| | Monostructural | | | | | | | | | | |
| Time | Heavy Day | | | | | | | | | | |
| | < 5 min | | | | | | | | | | |
| | 5–10 min | | | | | | | | | | |
| | 11–20 min | | | | | | | | | | |
| | > 20 min | | | | | | | | | | |
| Total Repetitions | Low (< 50 reps) | | | | | | | | | | |
| | Medium (50–200 reps) | | | | | | | | | | |
| | High (>200 reps) | | | | | | | | | | |
| Scheme | Single | | | | | | | | | | |
| | Couplet | | | | | | | | | | |
| | Triplet | | | | | | | | | | |
| | ≥ 4 moves and chippers | | | | | | | | | | |
| Priority | Task Priority | | | | | | | | | | |
| | Time Priority | | | | | | | | | | |
| Movements - Gymnastics | Air Squat | | | | | | | | | | |
| | Box Jump | | | | | | | | | | |
| | Burpee | | | | | | | | | | |
| | Dip | | | | | | | | | | |
| | GHD Sit-Up | | | | | | | | | | |
| | Hip/Back Extension | | | | | | | | | | |
| | Handstand Push-Up | | | | | | | | | | |
| | Knees-to-Elbows/Toes-to-Bar | | | | | | | | | | |
| | Muscle-Up | | | | | | | | | | |
| | Pull-Up | | | | | | | | | | |
| | Push-Up | | | | | | | | | | |
| | Sit-Up | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Movements - Weightlifting | Back Squat | | | | | | | | | | |
| | Clean | | | | | | | | | | |
| | Deadlift | | | | | | | | | | |
| | Front Squat | | | | | | | | | | |
| | Kettlebell Swing | | | | | | | | | | |
| | Overhead Squat | | | | | | | | | | |
| | Press | | | | | | | | | | |
| | Push Jerk | | | | | | | | | | |
| | Push Press | | | | | | | | | | |
| | Sumo Deadlift High Pull | | | | | | | | | | |
| | Snatch | | | | | | | | | | |
| | Thruster | | | | | | | | | | |
| | Wall Ball | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Movements - Monostructural | Double-Unders | | | | | | | | | | |
| | Rowing | | | | | | | | | | |
| | Running | | | | | | | | | | |

CLASS STRUCTURE AND LESSON PLANNING

During the Level 2 Course, participants are led through a mock class from start to finish. It is meant to serve as a basic class template for CrossFit affiliates. Although each example class at the Level 2 course is different—from instructors to warm-up drills to workouts—universally, there are themes that represent effective coaching practices.

Being a trainer is not about showing up, quickly writing a last-minute workout at the whiteboard, and turning on the music. Real training is about improving each client's fitness (and by association quality of life) in small, incremental steps in a motivating and positive way. Besides having the presence, attitude, and demonstration skills to develop a positive rapport with one's clients (see "Foundations of Effective Training"), a large part of improving client fitness is having a plan, both on a day-to-day and long-term basis. This section discusses the basic but necessary components a trainer needs to run a single class.

To effectively manage time, trainers need to have a lesson plan. A single class can be outlined as a four-part lesson plan consisting of:

- Introduction
- Warm-Up
- Workout
- Post-Workout

The total time of the workout helps set the allotted time for the warm-up and cool-down sections. A longer workout means sacrificing time in either or both. Most affiliates run hour-long classes, and this is the length used in the Level 2 example class.

Logistical considerations affect an appropriate workout to select, as well as the time allotted to each component of the class. Factors include gear availability, class size, gym space (for equipment and athlete layout), and the experience level of the class. A trainer needs to consider various alternatives because additional modifications may be necessary on the fly, depending on the experience level of the clients and how many show up. For example, if the affiliate has limited floor space, it will not take many participants to make it cramped. For safety considerations, a trainer needs to ensure there are walkable areas between all moving athletes and their equipment. Dumbbells are a phenomenal tool for athletes; they are great space savers, as well as substitutes for barbells in many scenarios. Trainers may also use sandbags, the outdoors, staggered heats, etc. Trainers are limited only by their knowledge and creativity.

Introduction

The introduction, although the shortest element of a class, is of great importance. During the introduction (commonly referred to as the time "at the whiteboard"), the coach will brief the workout, set expectations by explaining the intended stimulus, offer several scaling options, and take any questions. Generally, the introduction will take between two and four minutes, depending on the complexity of the workout and the number of participants taking class. Having more participants increases the likelihood of questions. The introduction should serve to clear up any confusion about the workout while also reducing pre-workout anxiety.

Class Structure and Lesson Planning, continued

Warm-up

The purpose of the warm-up is to do just that: warm the body in preparation for intense activity. Warm-ups often consist of two parts: a general warm-up and a specific warm-up. The main goal of a general warm-up is to stimulate the body's physiological functions—i.e., increase core temperature and blood flow to the muscles, prime the cardiorespiratory system, increase mobility, and move joints through a full range of motion. General warm-ups usually include calisthenic-type movements or movements that involve dynamic ranges of motion.

The primary goals of a specific warm-up are to build, practice, and refine proper mechanics for the movements that will be used in the workout, and to prepare mentally and physically for the challenge. Specific warm-ups present an opportunity for movement assessment and appropriate scaling. However, potentially different ranges of motion and/or variations may be used (e.g., power vs. squat variations, medicine balls vs. barbells) where necessary.

Movements that are not part of the workout may also be used in the warm-up, as the warm-up element also provides an opportunity to improve deficiencies in any movements (i.e., practicing handstands even though handstands may not be in the workout). Typically, these options are reserved for shorter, lower-skill workouts that do not require a significant amount of time to prepare for (i.e., rowing 1,000 meters for time or running a timed mile). The “Program Design and Scaling” article discusses how to use this time as focused weakness work.

There are benefits to both the athlete and coach in the warm-up period. The warm-up helps athletes best prepare to handle the demands of the workout and improve upon deficiencies, whether they are subtle mechanical inefficiencies in more experienced athletes or larger faults in movements with which athletes have little experience. The warm-up also provides the trainer with an opportunity to assess the athletic capacity of an individual relative to the intended stimulus. Following the assessment/practice period, it is time for the trainer to assign scaling options. Although the trainer should have some ideas before starting a class, it isn't until after actually assessing athletes' needs that a trainer can choose the most effective option(s). As discussed in the “Program Design and Scaling” article, scaling should progress with the athletes, and they should be constantly challenged (i.e., they should not just perform the same scale every time a movement, rep range, or prescribed load is outside their current capacity). Beyond assessment and scaling, the warm-up is also the time for the coach to mentally prepare the athletes and oversee any remaining workout logistics (e.g., equipment distribution, equipment layout, heats, safety checks).

A pre-workout break is not one of the main elements of a lesson plan, but it is needed and useful for a coach. The pre-workout break includes safety and equipment checks, room layout, workout flow, additional scaling, questions from the athletes, a bathroom opportunity, and of course, the workout re-brief.

The workout re-brief is there to remind the athletes what the workout is (order of movements, repetition scheme, and rounds or time) and the range-of-motion standards that are required. A coach needs to clearly demonstrate and emphasize the range of motion and mechanics for every movement before every single workout. This makes it easier to hold athletes to these standards during the workout and cultivate a culture of virtuosity in one's gym.

We must remember, especially for newer athletes, workout abbreviations and acronyms on the whiteboard are not self-evident. A coach may choose to discuss scaling options with the entire class at this time or even review the intended stimulus of the workout. This could potentially include describing the targeted time domain, loading, or skill acquisition. For example, the workout Elizabeth (21-15-9 repetitions of cleans at 135 lb. and ring dips) is a relatively short workout (about 5 min.), with moderate loading. Novice CrossFit athletes likely have to reduce the load for the

Class Structure and Lesson Planning, continued

clean to their level of moderate loading (e.g., 95 lb.), and they might have to address the dips' load (e.g., band, bench) or volume (e.g., 12-9-6) to best match the original workout intent. See the "Program Design and Scaling" article for more information about preserving the intended stimulus.

Whether in the pre-workout brief or the specific warm-up, time should be allotted for athletes to practice the exact standards to be used in the workout. If the movement is loaded, additional time is needed for athletes to work up to an appropriate load under the discretion of the trainer.

Workout

Once the workout begins, the demands on a coach's abilities increase. Coaching is not about repetition counting, cheering, or selecting music. It is about appropriately applying threshold training, which means pushing an athlete's intensity while maintaining sound mechanics. This balance is what helps minimize the risk for injury but also keeps the intensity high to drive progress. Deviations in mechanics are inevitable as athletes try to move fast to complete the workout. A coach must attend to each client, using as many different cueing strategies as possible or needed, and offering encouragement and reinforcement of sound mechanics throughout the workout. A coach may find that he or she actually has to slow an athlete down and/or lower the load, as well as potentially stop them, if there is no improvement in mechanics across multiple repetitions. Movement change is not reserved only for the warm-up. It must continue throughout the workout. A coach is expected to make athletes better during the workout.

There are benefits to both the athlete and the coach during the workout. The athlete will receive increased fitness adaptations from appropriately increasing speed and load. In addition, he or she should be receiving feedback from the coach on how to improve and refine movement. The coach benefits in this scenario by learning and developing seeing and correcting skills in a faster, more dynamic, and less-controlled environment. The ability to deliver actionable and effective cues for better movement improves with experience while coaching under high intensity. It is a practical, real-time learning opportunity that is focused on effective coaching strategies related to both the athlete's mechanics and motivation.

Post-workout

The main purpose of the post-workout element is to cool down the athletes and program items that will aid in recovery, regaining mental acuity, slowing heart rates and breathing, and facilitating full range of motion about the joints (i.e., regaining homeostasis). The coach may also have some secondary goals for this period, such as additional skill work, fitness challenges, education for the athlete, and preparation of the space for the next class. Regardless, a well-conducted post-workout session must include a proper cool-down that leaves clients prepared for the rest of their day, capable and eager to return and full of appreciation for their accomplishments.

Some examples of possible cool-down elements are described below. Generally, the cool-down should begin by just allowing the athletes to recover for a few minutes. While the athletes are warm and pliable, the cool-down is an excellent time to stretch or foam roll, especially the areas that were taxed heavily. This can aid recovery, reducing soreness while potentially helping athletes to gain new range of motion. A coach may leave this as an open period, allowing members to choose which drills are best for them. A coach-led session, however, ensures everyone has direction, attention, motivation, and a sense of togetherness.

A trainer may choose to include skill work at the end of a workout. This can include a review of the movements used, especially to correct errors that may have presented themselves during the workout. Using reduced speed and

Class Structure and Lesson Planning, continued

load, the trainer can reinforce sound movement mechanics before the athlete leaves. If a trainer filmed an athlete's movement during the workout, this period can include video playback to review his or her technique. It is also possible to work on a totally unrelated skill. While practice is more difficult after a workout due to fatigue, this is precisely why attempting new skills here can be beneficial (heightened neurological adaptations due to muscular fatigue).

A post-workout may include a finisher—an impromptu fitness test such as a maximum set of pull-ups, handstand walking, or rope climbs—anything. It can be part of an ongoing record or a competition, and it can be used as a motivational event or a chance to reinforce the unknown and unknowable nature of life's challenges. For example, finishers may be grouped into teams or partners, or the challenge may be structured so one or two athletes compete at a time and the rest of the class can cheer. As in a warm-up, a coach needs to be mindful that finishers do not become a second workout, nor do they have to be part of every class.

A coach can use the post-workout period to ensure athletes are recording their workouts. Especially on benchmark days (including strength days), the coach should encourage members to write down their times, repetitions, loads, and scaling or modifications. The coach should also be able to tell the members the last date the workout was completed for comparison.

Finally, a coach can use this time as an educational opportunity to talk about nutrition, programming, scaling, “What Is Fitness?” or “What is CrossFit?” etc., all with the intention of creating smarter athletes.

The post-workout/cool-down period gives the coach time to survey athletes and look for mental faculties and visible signs of injury or physical distress. A coach needs to pay attention to verbal and nonverbal cues that an athlete may be under duress. This is also a time for the coach to engage in conversation with athletes by offering encouragement and feedback on performance and asking about their physical responses to the workout. Such conversations provide valuable information about the coach's or facility's programming. These small connections also lay the groundwork for building a strong community and meaningful relationships with one's members. The post-workout period is an often overlooked or rushed section of class, but it is valuable time, and a coach should use it wisely.

To be effective in each class, not only does a coach have to have capacity in all six areas discussed in the “Foundations of Effective Training” article, but one must also have a plan. This plan covers all aspects of the class to best improve one's athletes with each training session while keeping them safe and excited to return for the next day. After each session, an informal review and critique of one's own class performance can help the coach better prepare for subsequent sessions. Self-awareness and critique are critical to development.

Example lesson plans and scaling options for two workouts are presented on the following pages.

SAMPLE COACHING EVALUATION SHEET

| | | | |
|--|--|--------------------------|--------------------------|
| <div>0 MIN</div> <div>↑</div> <div>↓</div> <div>60 MIN</div> | TEACHING OVERALL | Needs Improvement (X) | Effective (✓) |
| | Info. Correct/Complete • Demonstration | <input type="checkbox"/> | <input type="checkbox"/> |
| | Organized/Succinct/Clear • Progression | <input type="checkbox"/> | <input type="checkbox"/> |
| | SEEING OVERALL | Needs Improvement (X) | Effective (✓) |
| | • Enough time to see reps • Ackn. good movement | | |
| | Static | <input type="checkbox"/> | <input type="checkbox"/> |
| | Dynamic | <input type="checkbox"/> | <input type="checkbox"/> |
| | CORRECTING OVERALL | Needs Improvement (X) | Effective (✓) |
| | Static | <input type="checkbox"/> | <input type="checkbox"/> |
| | • Enough time to see reps • Cues that work | | |
| | Dynamic | <input type="checkbox"/> | <input type="checkbox"/> |
| | • Enough time to see reps • Cues that work | | |
| | Prioritized/Communication | <input type="checkbox"/> | <input type="checkbox"/> |
| | • Triage • Follows up/Cues that are lasting • Relentless | | |
| | CLASS MANAGEMENT | Needs Improvement (X) | Effective (✓) |
| | Pacing/Command | <input type="checkbox"/> | <input type="checkbox"/> |
| | • Time allotment • Attention to all | | |
| | Organization | <input type="checkbox"/> | <input type="checkbox"/> |
| | • Layout • Safety | | |
| | PRESENCE AND ATTITUDE | Needs Improvement (X) | Effective (✓) |
| | Engagement/Rapport | <input type="checkbox"/> | <input type="checkbox"/> |
| | Empathy/Respect | <input type="checkbox"/> | <input type="checkbox"/> |
| | APPLICATION | Needs Improvement (X) | Effective (✓) |
| | • Optimizes SEE • Develops virtuosity | | |
| | Threshold Training | <input type="checkbox"/> | <input type="checkbox"/> |
| | Appropriate Scaling | <input type="checkbox"/> | <input type="checkbox"/> |
| | Appropriate Warm-Up/Cool-Down | <input type="checkbox"/> | <input type="checkbox"/> |

EXAMPLE LESSON PLANS

LESSON PLAN: CLEAN AND JERK

WORKOUT

Clean and Jerk

3-3-3-3-3

Score: maximum load for a set of 3 reps

INTENDED STIMULUS

This workout is a single-modality weightlifting heavy day. Today, the sets are ascending (i.e., athletes add weight after every set). At 3 reps per set, the workout has a bias toward strength-stamina versus maximum power.

The goal is to lift the maximum load possible for 3 reps while maintaining sound technique. Adequate rest (i.e., 3-5 minutes) must be taken between these sets to maximize loading.

BREAKDOWN

- The goal is to develop strength, although at 3 reps per set, the loads will not be close to 1-repetition maximums.
- Athletes will be limited by their weaker lift. Some athletes might focus more on technique for one half of the lift and more on strength for the other.
- Athletes are expected to add load after each successful 3-rep set in an attempt to set a new 3-rep maximum.
- New personal records should be attempted in the third or fourth set.
- Scaling options are modulated by load.
- Coaches should ask if any athletes are injured.
- Coaches should demonstrate the movement, including movement standards.
- The load is reduced when 3 reps are not achieved or form degrades significantly.
- Coaches should explain that the score is the maximum load for a set of 3 reps.
- Suggested rest periods: 3–5 minutes between working sets.

Example Lesson Plans, continued

Coaches: All parts of the class are coach led. Demonstrate each new piece before athletes perform it. Cue athletes to achieve better positions throughout each section.

:00--:03

WHITEBOARD (3 MINUTES)

- Explain the workout, intended stimulus and breakdown (above).

:03--:08

GENERAL WARM-UP (5 MINUTES)

Assess for overall mobility: wrist, shoulder, hip, knee, and ankle range of motion.

- 100 double-unders (or 25 attempts if necessary).
- Inchworm-push-up-squats.
 - Inchworm: Athletes begin standing with straight legs, then reach down to the toes and walk the hands out to a push-up position.
 - Push-ups: Athletes perform 5 reps (from knees if necessary).
 - Squats: From the push-up position, athletes jump their feet outside their hands and then back to the plank position 5 times. On the last rep, they perform 5 squats.
 - Repeat for 5 total cycles.

:08--:28

CLEAN AND JERK—SPECIFIC WARM-UP (20 MINUTES)

Assess movement to determine proper workout loading.

CLEAN

- 5 front squats with empty barbell
 - Look for: depth below parallel
- 5 hang cleans with empty barbell
 - Look for: sound front-rack position
- 5 deadlift-shrugs with empty barbell
 - Look for: timing of shrug after hip extension
- 5 cleans with empty barbell
 - Look for: full hip extension

JERK (SPLIT)

- 5 jumps to the receiving position with hands at side
 - Teach: recovery from the split position
- 5 jumps to the receiving position with hands at side
 - Teach: the feet stay at least at hip width in landing position
- 5 jumps to the receiving position with hands punching overhead
 - Look for: timing of punch after hip extension
- 5 jerks with the empty barbell
 - Look for: vertical torso in dip-drive phase

Example Lesson Plans, continued

CLEAN AND JERK

- 5 clean and jerks with pause after standing up from clean
 - Teach: reset of hands and feet
- 5 clean and jerks on athletes' own cadence
 - Look for: hip extension in both clean and jerk
- Instruct the athletes to warm up to their first working set (about 80 percent of current max).
 - They should get in groups and share one barbell with two to three people of similar strength
 - They perform 3-4 sets of 3 reps per set, increasing the load after each
- Safety check: Ensure athletes have enough room to drop the barbell with a clear working space, and ensure they use collars with every lift

:28-:31

BREAK AND LOGISTICS (3 MINUTES)

- Bathroom break
- Remind athletes that coaches will be cueing during lifts.
- Continue to review scaling options with each athlete.
- Safety check: Ensure adequate room around work areas for dropping barbells.
- Rebrief workout, flow, and safety considerations.

:31-:53

WORKOUT: START WORKOUT AT :31 (22 MINUTES)

Cue athletes to achieve better positions while maintaining technique. Reduce load when needed.

- Ensure athletes load and unload barbells safely.
- Ensure collars are used with every lift.
- Ensure unused plates are far enough away from the working area and will not create a hazard when a barbell is dropped.
- Make suggestions for loading based on technique displayed.

:53-:60

COOL-DOWN (7 MINUTES)

- Clean up equipment.
- Hip-flexor stretch (1 minute each leg)
- Collect scores, celebrate new personal records, and exchange high-fives!

Example Lesson Plans, continued

WOD SCALE: CLEAN AND JERK

WORKOUT

Clean and jerk

3-3-3-3-3

Score: maximum load for a set of 3 reps

SCALING THIS WOD

This workout is a single-modality weightlifting heavy day. Today, the sets are ascending (i.e., athletes add weight after every set). At 3 reps per set, the workout has a bias toward strength-stamina versus maximum power.

BEGINNER / INTERMEDIATE

Regardless of experience, all athletes should find a heavy set of 3 relative to their capacity. For this workout, it is acceptable for beginner or intermediate athletes to complete more than 5 working sets if they have not yet established a 3-repetition maximum. True beginners may also complete 5 reps per set to practice mechanics. Coaches need to ensure, however, that the overall volume remains appropriate and athletes work on strength (not cardiovascular stamina) relative to their capacity.

Generally, use the full clean (from the floor) instead of a clean with partial range of motion (e.g., a hang clean) to develop proficiency in these complex movements. Hang clean variations may be used for those with severe limitations pulling from the floor.

Example Lesson Plans, continued

LESSON PLAN: MARY

WORKOUT

Complete as many rounds as possible in 20 minutes of:

5 handstand push-ups

10 pistols (alternating)

15 pull-ups

Score: completed rounds and reps

INTENDED STIMULUS

This workout is a classic benchmark that allows coaches and athletes to assess progress. Mary is a triplet of push-squat-pull gymnastics movements, and elite athletes can achieve more than 15 rounds. Many athletes are slowed, however, by the two more challenging gymnastics elements: handstand push-ups and pistols.

This workout taxes athletes metabolically and technically: The complementary push-squat-pull movement patterns allow the athlete to keep moving, while the accumulated fatigue increases the difficulty of the handstand push-ups and especially the pistols.

BREAKDOWN

- The metabolic challenge from the combined movements needs to be considered; the loading and reps should be well within the athlete's capacity when considered independently.
- The scaling options reduce the volume and load on all three movements.
- Coaches should demonstrate each movement, including movement standards.
- Coaches should explain that the score is completed rounds and reps.
- Coaches should ask if any athletes are injured.
- Athletes should aim to complete at least 8 rounds. The approximate (maximum) estimates of each component throughout the workout are: 30 seconds for the handstand push-ups, 1 minute for the pistols, and 1 minute for the pull-ups.
- For more elite athletes, the limiting factor is often grip fatigue, resulting from the accumulated volume of pull-ups.

Example Lesson Plans, continued

Coaches: All parts of the class are coach led. Demonstrate each new piece before athletes perform it. Cue athletes to achieve better positions throughout each section.

:00-:03

WHITEBOARD (3 MINUTES)

- Coaches explain the workout, intended stimulus, and breakdown (above).

:03-:08

GENERAL WARM-UP (5 MINUTES)

- 3 rounds of:
 - 30-m bear crawl
 - 9 air squats (every round, athletes narrow stance)
 - 3 pike push-ups (every round, athletes pike hips higher)
 - 3 strict pull-ups (banded, if necessary)

:08-:16

HANDSTAND PUSH-UP SPECIFIC WARM-UP (8 MINUTES)

Have athletes who need to scale work from a piked position off a box. The more perpendicular the torso is to the ground and the farther the hands are from the box, the greater the difficulty.

- 30-sec. handstand hold
 - Look for: open shoulder position at top
- 3 negative handstand push-ups
 - Look for: tripod position of head and hands at bottom
- 3 strict handstand push-ups
 - Look for: neutral spine
- 3 kipping handstand push-ups (scale: repeat 3 strict reps)
 - Look for: timing of press with regard to the kip

:16-:23

PISTOL SPECIFIC WARM UP (7 MINUTES)

Have athletes who need to scale squat on one leg to a box. The box's height should allow the athlete to lower and stand with control (no momentum). Athletes who are proficient with pistols can use a PVC pipe or light training bar overhead to increase difficulty.

- 12 narrow-stance squats
 - Teach: Athletes can bring the feet in as tolerated while keeping the heels on the ground and using full range of motion
- 12 pistols, right
 - Allow athletes to change box height as necessary through reps
 - Look for: heel down through full range of motion
- 12 pistols, left
 - Allow athletes to change box height as necessary through reps
 - Look for: heel down through full range of motion

Example Lesson Plans, continued

:23-:27

PULL-UP SPECIFIC WARM-UP (4 MINUTES)

- 20-sec. hang with wide grip
 - Look for: neutral spine in hang
- 20-sec. hang with narrow grip
 - Look for: neutral spine in hang
- 12 kipping swings
- 12 pull-ups (banded, if necessary)

:27-:30

BREAK AND LOGISTICS (3 MINUTES)

- Bathroom break
- Remind athletes that additional scaling may occur during the workout.
- Review scaling options with each athlete.
- Safety check: Ensure there is enough space for athletes to move between stations. Ensure boxes are not underneath athletes during pull-ups.
- Rebrief workout, flow, and safety considerations.

:30-:50

WORKOUT: START AT :30 (20 MINUTES)

Cue athletes to achieve better positions while maintaining technique. Scale the workout further as needed.

- The focus is largely on maintaining the full range of motion in all movements regardless of the scaling option.
 - Handstand push-up: shoulders open at top and elbows locked out
 - Pistol: crease of hips below top of knee on working side for those not scaling the range of motion
 - For those using boxes, especially above parallel, ensure control through each rep.
 - Pull-up: chin clearly over bar at top, elbows locked out at bottom

:50-:60

COOL-DOWN (10 MINUTES)

- Clean up equipment as necessary.
- Slow 400-m jog
- Accumulate 1 minute hanging from pull-up bar (feet on ground if necessary).
- Collect scores, celebrate new personal records, and exchange high fives!

Example Lesson Plans, continued

WOD SCALE: MARY

WORKOUT

Mary

Complete as many rounds as possible in 20 minutes of:

5 handstand push-ups

10 pistols (alternating)

15 pull-ups

Score: completed rounds and reps

SCALING THIS WOD

This workout is a classic benchmark that allows coaches and athletes to assess progress. Mary is a triplet of push-squat-pull gymnastics movements, and coaches should expect athletes to complete 8 or more rounds.

One, two, or all workout elements may be modified in volume or load. Coaches are encouraged to use their judgment for finding a challenging but manageable substitution for athletes.

BEGINNER

Complete as many rounds as possible in 20 minutes of:

10-sec. handstand hold

10 pistols (alternating) to a box

10 strict pull-ups, banded

- The handstand push-ups have been modified to a handstand hold at the wall. This will develop some upper-body strength and expose the individual to the inverted position.
- The pistols are assisted with a box.
 - Choose a box height that allows for control (no momentum) throughout the movement.
 - This modification might result in a shortened range of motion, which is acceptable if the athlete is at the limits of strength.
- The pull-ups are reduced to 10 reps and substituted with banded strict pull-ups. Band strength should allow at least a few rounds to be completed without a break.

INTERMEDIATE

Complete as many rounds as possible in 20 minutes of:

5 handstand push-ups, piked from a box

10 pistols (alternating), banded

10 pull-ups

- The handstand push-ups have been modified to piked reps from a box. The athlete should find a pike position that allows 5 “perfect” reps (range of motion and positioning) before the workout begins.
 - Moving the hands farther from the box increases difficulty.
 - Making the torso closer to perpendicular to the ground increases difficulty.
- The pistols are assisted with a band. In a squat rack from a rig, place a horizontal band in place of a barbell at the J-cups. The athlete performs pistols with the band beneath the hips.
 - Start with the band at approximately hip height. Reducing the height of the J-cups (and the band) increases difficulty.
 - Reducing the band thickness increases difficulty.
- The pull-ups are reduced to 10 reps. Intermediate athletes can often perform pull-ups, but the accumulated volume of 15 reps per set will often be too much to keep the athlete moving.
 - Ideally, the pull-up sets are broken only once per round.

WHERE DO I GO FROM HERE?

The Level 2 Course is an intermediate course that develops a trainer's coaching skill set. Trainers should leave with individualized feedback that can be immediately applied to improving their clients' fitness and experience. They should also leave with a heightened awareness of how and where to develop themselves in the long term.

After the course, trainers need to continue to hone their craft by coaching others. It is the real-time practical experience that provides the best learning environment. Trainers should enroll in other courses, study anything that overlaps with fitness, and invest in their clients. CrossFit offers a variety of [online courses](#) and [continuing education courses](#). Periodically, trainers should revisit this course material and film themselves coaching to reassess their strengths and areas that need improvement.

Upon completion of the in-person course and online assessment, which is completed afterward (see the [Level 2 Participant Handbook](#) for details), each trainer earns the designation of CrossFit Level 2 Trainer (CF-L2), which can be used on a resume or in a personal biography. The CF-L2 designation and the Level 2 Trainer Certificate are valid for five years from the date of course completion. To maintain the credential, trainers have to retake the two-day course and meet current Level 2 certificate requirements or pursue higher-level credentials.

CrossFit's two certifications, the [Certified CrossFit Level 3 Trainer \(CF-L3\)](#) and [Certified CrossFit Level 4 Coach \(CF-L4\)](#), are for the experienced CrossFit trainer. These credentials do not have a course component. They are an assessment for a pass or fail result only. They are an avenue for CrossFit trainers to demonstrate a high level of competency and distinguish themselves in the CrossFit community.

The Level 3 application requirements include completion of the Level 1 and Level 2 courses and a minimum of 750 hours of CrossFit coaching experience. The Level 4 can be attempted after earning the Level 3 and is a performance-based assessment of one's group coaching. It is for the most experienced CrossFit coaches who have been coaching for several years in a group setting. More information about the certifications can be found on our [website](#) and in this [FAQ](#).