Introduction: Objectives and Expected Outcomes

Upon successfully completing this course, class participants will know the fundamental elements of sound weightlifting technique and how to:

- Emphasize safety in lifting throughout the coaching process;
- Teach and perform the snatch, clean and jerk, power snatch, power clean, power jerk, variations of the squat, snatch and clean pulls, and overhead pressing variations;
- Evaluate and correct movement deficiencies;
- Develop basic training programs for beginner and intermediate athletes;
- Apply basic biomechanical, physiological and psychological concepts that apply to learn weightlifting;
- Understand and explain the basic rules of Weightlifting;
- Explain the rationale and basic methods for incorporating weightlifting movements in sports performance training programs.

A Preview of the Approach Used in This Course

During this course, we will be explaining and demonstrating what you need to do to learn and teach the Weightlifting events, the appropriate sequence of teaching the various skill “progressions,” and what kinds of training programs new and intermediate level athletes should follow. You will also learn some of the whys of weightlifting, along with the biomechanical, physiological and psychological underpinnings of weightlifting technique and training. In most cases, as we present the basic exercises and progressions that are used to teach weightlifting, we will use the following format:

<table>
<thead>
<tr>
<th>Format of Presentation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secure the appropriate equipment to perform the progression and be sure that you know how to use it safely and effectively;</td>
</tr>
<tr>
<td>Assess the athlete’s ability to perform that progression and learn how to help that athlete achieve readiness, if he/she is not yet ready to perform the progression;</td>
</tr>
<tr>
<td>Demonstrate and explain the progression and its purpose, and discuss appropriate safety considerations;</td>
</tr>
<tr>
<td>Assess the athlete’s performance of the progression;</td>
</tr>
<tr>
<td>Make any appropriate corrections in the athlete’s movement patterns, amount being lifted, focus or equipment, to facilitate proper learning of the progression.</td>
</tr>
</tbody>
</table>

Once the above steps have been completed (in day one of the live course), you will be expected to replicate this process as you become the (supervised) instructor on day two. This approach will help you learn how to train a new athlete with safety and effectiveness, to assure the opportunity for long term high performance on the part of that athlete, by avoiding the main impediments to high performance, such as learning faulty technique and overstressing the bodies of beginning athletes. We urge you to carefully follow all the instructions provided in this course as you train your athletes. Experienced coaches understand when it is appropriate to modify or even skip a step, but new coaches are encouraged to follow every step until they are well skilled in applying the material they have learned in the course, and have observed athlete reactions to the progressions and programs recommended.

Assessing Your Grasp of the Course Material

Your grasp of the material presented in the course will be assessed through a practical exam and a written one. Those who take the two day course will be assessed by their instructors during or near the end of the course on their understanding and application of the progressions. The instructor will observe as you perform the progressions and as you “teach” others to do so. That exam will have a mixture of assessment tools i.e., multiple choice questions and fill-ins. Students will be graded on the practical and written exams and must demonstrate proficiency in both in order to satisfy the course requirements and be certified as a USA Weightlifting and Sports Performance Coach.
An Introduction to the Sport of Weightlifting

Weightlifters are amongst the strongest, fastest, flexible and most powerful athletes in the world. These athletes obtained these traits because of two primary reasons. First, weightlifting techniques require flexibility and speed. Second, coaches have created mental and physical training methods that have enabled them to develop strength and power.

Weightlifting is objective, measurable, and reliable. An athlete stands on his or her own two feet and lifts a barbell from the ground overhead. Equipment is standardized worldwide and meticulously measured and weighed. Lifts are judged by impartial referees who apply standardized rules known to all.

A Word About USA Weightlifting

The USA Weightlifting is recognized by the United States Olympic Committee (USOC) and the International Weightlifting Federation (IWF) as the sole governing body for the sport of weightlifting in the United States. As such it conducts all National Championships in Weightlifting and prepares the teams to represent the USA in major international competitions such as the Olympic Games and World Championships. The mission of USA Weightlifting is to enable United States athletes to achieve sustained, competitive excellence in Olympic competition and to promote and grow the sport of weightlifting in the United States. We welcome the opportunity to introduce you to the process of coaching weightlifting, whether the athletes you coach wish to compete in weightlifting competitions or to improve their sports performance.

An Introduction to Weightlifting

Most of the world’s top weightlifters were not born strong. They earned their strength and power through hard and intelligent training, often increasing their performances two to five fold, or more, from where they began. The practice of Weightlifting trains the bodies and minds of its athletes. Weightlifting is the only event in the Olympic Games that was specifically designed to test strength and power. The sport was included in the first modern Olympic Games in 1896.

There are local, national, and international competitions in Weightlifting which are generally conducted with eight bodyweight categories for male athletes and seven bodyweight categories for women. This provides competitive opportunities for athletes of every size. Weightlifting is conducted in age categories beginning with athletes under the age of 13 and continuing up to athletes in their 80s and beyond. It is therefore possible for one to engage in Weightlifting competitions across one’s entire lifetime. No one ever “sits on the bench” in Weightlifting because everyone entered in a competition has the opportunity to perform and participate equally in practices.

There is no more fundamental element of fitness than strength, in terms of its ability to prepare people for all of the challenges of life. The sport of Weightlifting represents a treasure chest of strengths and values just waiting to be unlocked by those who participate in it. Top level athletes in the USA are drug tested perhaps more than any other athletes today. Athletes quickly learn that there is no place for those who take drugs in USA Weightlifting. Weightlifters are special in their support of other lifters. All lifters, no matter how much they may lift,
are respected by others for the effort they put forth to develop their strength, power, and technique. Regardless of who comes home with a trophy or medal, all can "win" as they demonstrate increased strength, skill, and fitness.

The Unmatched Benefits of Weightlifting Training for Weightlifting and Sports Performance

The kind of training performed by weightlifters not only improves their strength, power and skill enormously, but it has unmatched benefits in terms of helping athletes in other sports to develop strength and power – qualities that can be used with great benefit on their respective fields of play. Regardless of the benefits of the Weightlifting movements, every benefit can be equally detrimental when not performed correctly or under the supervision of a qualified coach. The benefits of the weightlifting movements are as follows:

**Ground Based and Functional:** Weightlifting is ground based and involves the kind of lifting, throwing, jumping and striking motions that characterize most sports, from baseball to the martial arts. Weightlifters learn to generate force while standing on their feet, largely by driving upwards against the ground. The weightlifting movements and the ground based motions it incorporates not only contributes too, but are the foundation of power generation in the vast majority of sports.

**Multiple Joint Actions:** The weightlifting movements require the body to innervate muscles spanning over several joints in a specific order. Weightlifting movements trigger the filing of muscles from the largest to the smallest which mimics the demands of other sports such as a pitcher throwing a ball or a golfer swinging a club.

**Develops the “Core” and Kinesthetic Awareness Simultaneously:** The sport of weightlifting develops a sense of proprioception or kinesthetic awareness, which is an understanding of where an athlete’s body and the barbell are in space. The gains in proprioception due to weightlifting have a profound effect when transferred into other sports leading to greater balance and force production.

**Generates Both Hypertrophy and Neural Adaptations:** The progressive resistance applied by weightlifters generates an increase in muscle fiber diameter known as hypertrophy. Unlike bodybuilding movements and repetition patterns which can develop hypertrophy that outpaces improvements in muscular function. Strength improves not only as a result of hypertrophy, but also from neural adaptations such as improved inter and intramuscular coordination, motor unit recruitment, and firing rate.

Power is a measure of the rate at which work is performed, for instance, the ability to rapidly move one’s body or an external object. The following figures are based on the work of biomechanics expert Dr. John Garhammer who has extensively studied the power outputs generated in various weightlifting exercises.

The numbers shown on the chart “Absolute Power” demonstrate that the highest power outputs are generated in the second pull of the snatch and clean, and the drive in the jerk all of which created a power “spike” generated by

<table>
<thead>
<tr>
<th>Exercise</th>
<th>100kg Male</th>
<th>75kg Female</th>
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<tbody>
<tr>
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<tr>
<td>Back Squat</td>
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<tr>
<td>Deadlift</td>
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<tr>
<td>Snatch*</td>
<td>2000</td>
<td>1750</td>
</tr>
<tr>
<td>2nd Pull**</td>
<td>5500</td>
<td>2900</td>
</tr>
<tr>
<td>Clean*</td>
<td>2950</td>
<td>1750</td>
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<tr>
<td>2nd Pull**</td>
<td>5500</td>
<td>2650</td>
</tr>
<tr>
<td>Jerk</td>
<td>5400</td>
<td>2600</td>
</tr>
</tbody>
</table>

*Total Pull: Lift-off until maximal vertical velocity
**2nd Pull: Transition until maximal vertical barbell velocity
applying force from the “power position” (a term which will be explained later in this manual).

**Enhances Flexibility:** Age old myths about being “muscle bound” notwithstanding, weight training performed through a full range of motion, such as those performed during the execution of weightlifting movements, actually increase flexibility. In fact, weightlifters are among the most flexible athletes in all of sport, clearly demonstrating unusual flexibility in their ankles, hips, spine, wrists, and shoulders.

**Improved Ability to Promote Force Attenuation:** Weightlifting does not only involve lifting and throwing heavy weights, but it involves “catching” them overhead or on one’s shoulders. Consequently, weightlifters develop the skill and physical conditioning to receive external objects such as heavy weights and bring them under control safely and efficiently.
Safety in Weightlifting

Expected Outcomes:

1. Explain the importance of:
   a. Safe and Effective Platforms
   b. Proper Dress
   c. Use of Weightlifting Shoes
   d. Etiquette in the Training Area
2. Understand How to Teach Athletes to Miss Correctly
3. Understand the Importance of a Risk Management Plan and How to Design and Implement One

Weightlifting is among the safest of all strenuous sports (see table below), which is especially true if it is performed correctly with proper supervision, sound technique, and athlete appropriate weights. Under such conditions, the occurrence of serious injury is rare. The injuries that do occur tend to be a result of improper supervision, faulty technique, or overuse which stems from undertaking a training program that is too strenuous for the work capacity of a particular athlete and/or a particular stage in his or her training. Through the teaching of proper technique, programming, equipment use and maintenance, the limited risk of injury will be minimal.

Assuring the health and safety of athletes is one of USA Weightlifting’s most fundamental and important values.

<table>
<thead>
<tr>
<th>Sport</th>
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<th>Sport</th>
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<td>Weightlifting (UK)</td>
<td>0.0017</td>
<td>Weight Training (UK)</td>
<td>0.0035</td>
</tr>
</tbody>
</table>


**Using A Standard Squat Rack**

Since Weightlifting takes place in an open area it is recommended that squat racks are mobile. A squat rack can also be used for overhead squats, back squats, presses and jerks. The instructions provided apply to a standard rack. Any instructions provided by the manufacturer of the rack should be followed if the racks differ from what is presented here.

The first step in using a squat rack is to adjust it to the appropriate height for the athlete. Squat racks are typically comprised of two sets of vertical metal tubes. Each set has one tube that fits inside the other. The inner
tube generally has a series of equally spaced vertical holes. The larger, outer tube has one or two sets of holes. In order to lock the fork, a pin is inserted through the set of holes in the outer tube and the inner tube when the holes are aligned. This is done on each side of the rack before the bar is placed on the rack. Never try to adjust the height of a rack when it is supporting a loaded barbell.

The correct height for the fork is one that requires the athlete to bend the legs only a few inches in order to get under the bar, but it also enables the bar to clear the front fork by an inch or two when the athlete stands up with the legs straight. The lifter faces the rack to remove the bar after placing the shoulders under the bar, the torso is in a vertical position, and the feet are under the hips and shoulders. The athlete then backs out of the rack by extending the legs and stepping back one or two steps, until their feet are in line.

At the conclusion of the squat, the lifter walks forward into the rack with the torso held upright. The lifter should never lean forward to replace the bar in the rack. Rather the lifter should step slowly toward the rack with the torso held vertically, until the bar gently touches the rear forks of the rack. The lifter then bends their legs until the bar contacts the bottom of the fork solidly. Then they may move out from under the bar. It is not necessary to look at the forks when the lifter is replacing the bar in the rack as this generally results in the lifter turning their head or twisting their body to contact the fork on the side being focused on. Then, when the lifter looks at the fork on the other side, the bar may move away from the rack on the opposite side. Looking straight ahead and being guided to the rack by peripheral vision and gentle contact with the rear forks is a much safer and more effective strategy. The lifter should be careful not to push on the rear of the forks forcibly as this could tip the rack backward.

**Teaching Athletes How to “Miss” Correctly**

The ability to miss a lift safely is a prerequisite to safe practice. Misses are unavoidable, thus the ability to miss safely must be learned. Athletes should learn to miss with a PVC pipe or dowel to avoid any possible injuries while learning to miss.

**How to Miss a Front Squat or Clean**

*If the lifter loses his balance in a clean or front squat and cannot stand up from the low position, or the bar starts to fall off the lifter’s shoulders, the lifter pushes the bar forward with the hands and moves the body back, so that the bar falls in front of the lifter.*

**How to Miss an Overhead Squat or Snatch**

One of the keys to safely missing an overhead squat correctly, as well as actual snatch, is to lock the elbows solidly once the bar is overhead and to maintain that lock at all times. Doing this assures the barbell will be well away from the head and torso of a lifter, even if it cannot be secured overhead. *If the bar is being lost toward the front of the lifter, and the lifter maintains the arms in a fully locked position, push the bar even further forward and pull the knees back and/or jump back. If the bar is being lost rearward, the lifter pushes back on fully locked arms and jumps forward out of the path of the falling bar.*

**How to Miss a Jerk Safely**

The first principle of missing a jerk safely is to always lock the elbows solidly when the bar is put overhead. *The proper way to miss a lift in front of the lifter is to push the bar forward and pull the front foot back out from under the falling bar. If the bar is being lost backwards, the lifter pushes back on fully locked arms, opens*
the hands to permit the arms to be pulled forward and away from the bar and pulls the back leg forward out of the falling path of the bar.

Dropping the Barbell in a Controlled Manner

At the end of a successful lift, the bar should always be dropped in front of the lifter in a controlled manner and never propelled downward by the lifter. Before dropping the bar, the lifter must assure that the legs are out of the way. Athletes should also be sure to release the hands from the bar well before the barbell hits the platform (at least when the bar reaches waist height), and no body part should be above the bar when this happens. Bumper plates can cause a barbell to bounce upward quite forcefully when it first hits the platform, and the lifter does not want to be the recipient of any of that force.

Equipment

Weightlifting equipment has a significant lifespan, but all such equipment must be used correctly and maintained. Therefore, regular inspections of the structural integrity of equipment must be carried out. If any equipment begins to lose its functionality, it must be repaired or replaced promptly.

Platforms

The practice of weightlifting requires very limited equipment and space, and the cost of such equipment, which lasts for a very long time, is reasonable. The basic training space is typically referred to as a training “platform.” In the USA, this is typically a surface that is 8’x8’. It is generally made out of wood and stands 1.5” to 3” high. It must be completely flat, level and have a non-slippery surface, but should allow for the foot to slide during the jerk and provides solid footing when the feet are placed in their final position for catching the bar. The center of the platform is where the lifter stands.

Nothing should ever be on the platform except the lifter and the barbell (i.e., no plates, no racks, no blocks), unless such equipment is being used for the exercise currently being performed, and never people. These rules must be strictly enforced by the coach for the safety of the athletes. One or more of these items on the platform can cause an athlete to trip, be struck by a ricocheting barbell, be caught between the barbell and the object. The ceiling in the room that houses the platform should have significant clearance with a weight overhead. Platforms should have at least a 24” perimeter on all sides between the platform and walls, weight racks, and other platforms. The front and rear areas of this 24” perimeter afford some space for the barbell to land when a lifter cannot control a lift at the edge of the platform.

Lifters should be taught that if, during the execution of a lift, they ever begin to approach the end of the platform, or an object like a rack, it is better to drop the lift than to risk a collision with the rack. Many newer platforms are level with the floor, rather than raised, to minimize the risk of stepping off the platform.

Barbells

The bar should be straight, with sleeves on both ends, and should turn freely no matter how heavy the weight being lifted may be, which allows for the athlete to easily turn over the hands from the pulling to catching position in the snatch and clean.

The diameter of the plates has been designed to position the bar at a height that makes it relatively easy for a lifter to
assume a proper starting position and to keep the bar clear of the lifter in the unlikely event the lifter cannot drop the bar clear of the body when a lift is missed.

Barbells should always be evenly loaded. It is the responsibility of the athlete to assure that the barbell has been loaded correctly. A misload can occur, even at the highest levels of competition, and the athlete and coach should notice the mistake before the lift is attempted.

**The Training Room and Other Equipment**

The training area should be temperature controlled. It should be cleaned regularly and plates replaced on racks or other designated storage areas. “Chalk” or magnesium carbonate is an important training provision, which is used to maintain a firm grip on the bar by creating a thin coating on the hands before attempting heavy snatches and cleans. It can also be applied to the shoulders before performing heavy jerks in order to help keep the bar from sliding on the shoulders. Rosin is also often used for the feet when athletes are lifting on a hard wooden surface to assure that the athlete’s foot will not slide once it contacts the platform.

**Organize and Teach the Athletes and Observers**

- When you are training groups of athletes larger than 4 or 6, it is best to divide the athletes into groups of 3 to 5 per platform. The lifter who is about to lift can focus solely on lifting while the others load the bar for that lifter, observe, and cheer the lifter on.
- **Lifters not lifting at any particular point in time should learn never to walk in front of an athlete who is lifting.**
- **There should be no idle chatter, music, or other distracting noise.**
- **Earphones should be discouraged while lifting as they could distract a lifter, prevent the lifter from hearing instructions from the coach and being aware of their surroundings.**
- **When there is more than one platform, the coach should move from platform to platform during the workout so that each group gets attention multiple times during the training session.**
- **It is important for the coach to maintain awareness of what is going on at all other platforms, so that if something unsafe or inappropriate develops, he/she can address whatever is occurring immediately.**
- **Observers should remain quiet, unless they are cheering the lifter on.**

**Footwear**

Weightlifting shoes are an important piece of equipment that every lifter should own. Weightlifting shoes are enclosed, reasonably lightweight, have a raised heel, and are nonslip. New lifters can use other athletic footwear, but never sandals. Lifting shoes provide a firm footing and help the lifter to assume a full squat position comfortably. The lifter should not let the heels wear significantly or permit the soles to become slick. Shoelaces should be kept in good repair. Check them carefully before any competition because a break in a lace prior to a heavy lift can be a real problem. They should fit the foot relatively closely without feeling tight or pinching. The toes should not contact the front of the shoe when the feet are flat.
Straps

USA Weightlifting discourages the use of straps for the weightlifting movements as the athlete may incur serious injury to the wrist, elbow or shoulder as the bar enters into the receiving position. Straps are used by many lifters, particularly for performing pulls. They can help to reduce the stress on the skin of the palms and fingers as these areas may become irritated by frequent training. However, lifters must be careful not to become overly reliant on the use of straps to support the grip. Straps are not permitted in competitions and lifters must be able to lift maximum weights without their use.

Straps must never be wrapped around the bar more than once. This helps to assure that they can be released quickly in the event of a missed lift by opening the hand. It is strongly recommended that straps are not used in the clean, in case the athlete catches the clean with low elbows. In such a case, getting rid of the bar when it has been secured with straps can be difficult. Use of straps on snatches is less problematic and more common.

Clothing

It is important for lifters to wear appropriate clothing in training. It is suggested that lifters wear full-length sweatpants or tights in training to keep the legs warm and to reduce the likelihood of skin abrasions from the contact of the barbell against the shins and thighs. Stretchable, form-fitting clothing that is not restricting (e.g., no jeans) and is important, so that the lifter can move freely.

Hand Care

The most common hand care issue is calluses. Calluses will build up on the hands, most typically on the palms near the bases of the fingers. If the calluses become too thick, they will catch on the bar and may be torn loose from the underlying skin. While such an injury is not serious in nature, it is quite painful. It is appropriate for lifters to reduce the thickness of calluses by using a pumice stone, to pare down the calluses. Use of non-greasy skin lotion after a shower can also help keep the skin on the hands in good shape.

First Aid Equipment and an Evacuation Plan

Every training facility must maintain a first aid kit with such items as band aids, soap, and antiseptics. A qualified individual who is competent in CPR and AED is recommended. Perhaps the most important safety precaution for any training facility is having an evacuation plan, so that anyone who falls ill or becomes injured can receive trained medical attention as rapidly as possible.

Risk Management

FACILITY AND EMERGENCY PLANNING

Accidents rarely “just happen,” and most can be prevented. According to the National Safety Council, 85 percent of all accidents are preventable; accidents that might have occurred are prevented or reduced by those who develop and execute risk management plans and loss control programs.

WHY HAVE A PLAN? Accidental injuries can be season ending or even life threatening in sports and may result in expensive litigation. With a risk management plan and dedicated time to review the plan, you will be taking a proactive approach to managing accidents.
Risk Management gives the impression that:

- We are knowledgeable professionals
- We are concerned for your safety
- We will do what is necessary to provide a safe environment

A risk management plan is also extremely important in the event of legal action. A written and practiced program shows intent, and serves as a deterrent to legal action, but also acts as evidence of responsible care.

Other benefits include:

- Increased safety for all participants
- Reduced losses to USA Weightlifting
- Increased appeal of weightlifting to potential participants
- Easier monitoring of claims, losses and insurance coverage

**WHO IS RESPONSIBLE FOR THE PLAN?** Risk management does not follow the old adage, “Everyone’s responsibility is no one’s responsibility.” In risk management, everyone in the organization needs to be involved. No program of this nature can be successful without the complete cooperation and understanding of all members.

**DEVELOPING THE PLAN.** A risk management plan and program should contain procedures in prevention, safety inspections, safety meetings, proper care of the victim and supervision of the facility. Every type of emergency that could occur should be considered when planning for emergencies. A detailed plan should be put in writing and thoroughly reviewed and practiced by all members involved.

The following points should be considered when developing a plan:

**Safety Rules and Regulations:** You can assist in the safe operation of the program by establishing and adhering to rules and regulations. Facility and USA Weightlifting policies are designed to minimize the risk of injury.

Assemble all the safety rules and regulations pertaining to the facility and USA Weightlifting. Review all rules and regulations and the procedures used to enforce them. Post and/or publish appropriate rules and procedures, e.g., warm-up area etiquette, training etiquette, gym rules. Review the facility’s signage, including directional and warning, to see if it is adequate and meets current regulations.

**Supervision:** Supervision provides the highest level of prevention, using only qualified coaches and volunteers ensures the best standard of care possible. Coaches and referees should be active in enforcing rules and regulations, such as the warm-up procedures. A Club Safety Coordinator can act as liaison between the club and facility manager in developing such plans. Continual communication between individuals will instill a quality program. Lifters should not be permitted to use equipment without proper supervision. If the coach is late for practice, the lifters should wait patiently before starting.

**Training:** USA Weightlifting requires that coaches who run clubs, attend a certification course and pass a background check. It is also highly recommended that coaches be First Aid and CPR certified.

**Safety Inspections:** The first step toward actively preventing injuries is to recognize potential hazards. This requires a systematic and routine method of inspecting the weightlifting facility. First determine what is to be inspected and
how often. Then develop a series of checklists and establish a method of reporting faulty equipment or facility
dangers. Follow up on its repair or replacement and be sure to remove or rope off any faulty equipment or dangerous
areas.

Emergency Procedures: It is important to construct a general plan that will help you handle emergencies. The key
components of the plan will include:

Communication System: How will you get the attention of others during an emergency? Where is the phone
located? What numbers do you call?

Rescue Equipment: Is rescue equipment easily accessible? Does everyone know how to use it? Is it adequate to
meet the needs for the event being held?

Accessibility of the Facility: Plan how the rescue personnel can enter the facility most quickly. If it is via a locked
gate, who has the keys? Work with your local rescue personnel to do a dry run.

Emergency Support Personnel: Who is expected to respond to an emergency? Have they been trained in CPR and
First Aid? Accident prevention begins with managing risks and implementing the written programs at your facility.
Develop a procedure for handling different types of emergencies and adapt it to all settings.

Incident Reporting: USA Weightlifting requires that claims be made by filling out Sport Accident Claim Form located
at usaweightlifting.org
Safety Action Plan Examples

Emergency Incident

Assess the scene

Safe
Deal with Problem/Concern
Call 911 if Necessary

Not Safe
Call 911

Fill Out Appropriate Reports
Staff Briefing
Safety Action Plan Examples

911 Call Example

The following is a sample of the message that is hung beside each emergency phone. This sign provides directions to the appropriate emergency entrances. It also allows untrained persons provide the appropriate information to the 911 operator.

This Phone is

FOR EMERGENCY USE ONLY

1. DIAL “911”

2. Read the following message:

“AN EMERGENCY EXISTS AT THE SAMPLE GYM, INSERT ADDRESS. PLEASE COME AT ONCE TO THE GYMS (Insert location of gym’s most easily accessible door). IF POSSIBLE, SOMEONE WILL MEET YOU THERE AND DIRECT YOU TO THE INJURED PARTY.”

“THERE HAS APPARENTLY BEEN A ____INJURY.”

3. REMAIN ON THE PHONE WITH THE DISPATCHER UNTIL EMERGENCY PERSONNEL ARRIVE ON THE SCENE.

DO NOT HANG UP
Safety Action Plan Examples

Facility Emergency

Assessment

Is it life threatening? If so, clear the building!

Call 911 (If appropriate)

Direct Patrons to Safety

Fill Out appropriate reports

Staff Briefing
Effective Coaching

USA Weightlifting has a goal of developing competent, confident and effective coaches. For a coach to be successful the skillset must be applied in three areas: training, competition and evaluation.

First – Do No Harm

Much like a physician, the coach’s first commandment is to do no harm. The coach is there to guide the athlete through their athletic career. Every athlete and coach wants to win, but not at the expense of an athlete’s health. Proper training should not only lead to improved performance, but should keep the athlete safe and healthy. In an effort to develop champion lifters, some coaches are tempted to push new athletes and thus may endanger their health.

One of the most common causes for lack of progress among lifters is injuries. Weightlifting is not inherently dangerous, but athletes who fail to progress gradually, do not take the time or effort to learn proper technique, and/or who overtrain their bodies consistently are subject to injuries that can both threaten an athlete’s health and hamper progress significantly.

Although there is some truth to the old adage “no pain, no gain,” it is often molded into the idea that enduring “pain” is ok. Experienced athletes are able to distinguish pain from discomfort from training, whereas new lifters may not understand the difference. Coaches should never have athletes push through the “pain.” It is the job of both the coach and athlete to discern the difference. It is important that athletes know that training is not without discomfort, but pain must not be ignored.

Beginners and intermediate athletes may experience muscle soreness and mild joint discomfort as their bodies adapt to their training. However, this should be an occasional occurrence and not a chronic situation. If pain is significant or lasts more than a workout or two, it is a signal to the coach that the athlete is progressing too rapidly for his/her own body and/or that technique is faulty. In such a case, it is important to identify the cause of the discomfort and eliminate the trigger; at least until the discomfort has subsided.

The Stages of Motor Learning and Consistency

The learning of a new skill is often described as a three step process: cognitive, associative, and autonomous. Understanding what occurs during each stage of motor learning will allow coaches to make informed decisions regarding training at each stage and allow for proper acquisition of skill.
Cognitive Stage

Initially, the performer needs to understand the objective of the exercise. The beginner attempts to form a mental plan or scheme of performance that will govern his actions. During this stage, the performer is concerned with the organization of, which movements to make rather than how to make them. Errors, which are frequent, tend to be large. Once the beginner is able to reproduce the movement in considerable fashion, he may move to the associative stage of skill acquisition.

As an example, learning the power clean from mid-thigh, the beginner is initially unsure whether he should reverse curl the bar or swing it up. Gradually, he develops the feel of the movement and forms a mental picture of the whole sequence of movements. Eventually, the movement pattern develops and the athlete becomes familiar with the movement.

Associative Stage

This is a refinement stage; the athlete understands the core element of the skill and now the emphasis is on making the movement more efficient and smooth. The athlete now recognizes errors in performance without direction from the coach. The errors are no longer major. The performer slowly learns to utilize proprioceptive information (kinesthetic awareness) rather than visual and verbal information. The athlete is able to control longer sequences of movements. The plan or scheme of movement formed in the earlier stage is now becoming more exact. The coach watches closely for the precise demands of the skill.

During the associative stage, the coach increasingly focuses attention upon the refinements that make up the basic form of the skill. Practice will develop a far more flowing movement with the lifter being able to make more and more minor adjustments as the skill becomes more autonomous. The coach is continually emphasizing and using reinforcing cues for more efficient performance.

Using the power clean from mid-thigh as an example, the performer can now begin to feel the movement of the barbell and can refine movements like keeping the elbows rotated out, allowing the bar to brush the thigh, shrugging up at the finish of the pull, etc. The athlete may be in this stage for a longer period.

Autonomous Stage

This is the skill acquisition stage of the advanced performer. The movements that make up the motor responses have become more automatic. Now, athletes can concentrate on using them to accomplish the whole task. As an example, athletes can work on the gradation of the effort of the power clean. They can focus on getting the barbell moving and overcoming its inertia, feeling the shoulders in front of the bar and forcing themselves to put all-out effort into the drive phase.

In much the same way that the type of skill influences the method of coaching, so does the stage through which the performer is progressing. During the cognitive stage, it is useful for the coach to present the skill in such a way that the beginner may view correct patterns of movement. Repeated viewing of the skill helps the beginner to formulate the movement in the mind’s eye. It shows the proper performance. Practice should concentrate on the basic aspects of the task and instruction should be verbal and visual. During this stage, the coach will direct attention to essential cues to ensure the athlete learns the core element of the skill. The coach will also give more verbal feedback and encouragement.
In the autonomous stage, performance is increasingly independent of continual attention. However, the coach has to be observant of faults or deterioration of parts of the movement as the skill develops. A word of caution regarding this phase; lifters who have progressed to the autonomous stage using an incorrect movement pattern can cause future problems for the coach. At this point, major flaws in movement patterns are very difficult to correct. This is why it is important to spend time with beginners in the cognitive and associative stages to develop sound, efficient movement patterns.

Again, using the power clean from mid-thigh as the example, the coach will either demonstrate the skill correctly or use a video, and show how the skill approximates a jumping action and that the movement stems from leg and hip extension rather than arm action. The coach’s primary goal is to get the lifter to extend the body violently and receive the bar at the chest in the correct receiving position.

Progressing Gradually and Appropriately

An aspect of coaching is creating an environment in which athletes can gain confidence. This is done by introducing athletes to exercises that present a challenge, but are appropriate at that athlete’s current level. An example would be the top/down progressions, which require less complex skills than the actual lifts, yet present a significant challenge. As the athlete masters each movement, further complexity is introduced. By progressing in a step by step fashion, the athlete always has an opportunity for success.

Keep Your Instructions Simple and Succinct, and Prioritize Them Carefully

Coaches need to be aware of not only what they say, but how their athletes perceive the information being presented. Therefore it is important to make sure that coaches are not overloading their athletes with inconsistent jargon or overly technical explanations. As the old adage states, don’t paralyze your athletes by analysis.
In addition to keeping instructions simple and clear, it is important for the coach to prioritize instruction. Changing movement patterns is a challenge and requires conscious thought. Focusing on a single error, rather than many, helps the athlete to understand the correct movement patterns. Coaches need to avoid the urge to give multiple corrections at once.

**Corrections that affect safety are the most critical.** In the case of such an error, either correct it quickly or change the exercise so that the error will no longer endanger the athlete. For example, if an athlete is not locking the elbows when a snatch is overhead in a squat position, the problem needs to be corrected immediately, or the athlete needs to perform power snatches until the lockout problem can be corrected with stretching, overhead squats and perhaps repositioning the elbows.

**Second, concentrate on the most fundamental errors**, i.e., those that cause one or more additional errors. An example is an athlete with a rounded back is very inconsistent in the pull and the bar does not stay close to the body. In such a case, it is likely that correcting the rounded back will serve not only to protect the athlete’s back from injury, but may redirect the bar closer to the body. *Only after the safety and fundamental errors have been corrected should the coach’s focus be turned to correcting other errors.*

**Positive Coaching**

While the instinct of many coaches may be to focus solely on error detection and correction, when that is all that is conveyed to athletes, they can begin to feel the coach is negative. This can affect the mood of some athletes quite adversely. In addition, the focus on what went wrong is hard for some athletes to deal with, because they begin to focus on what they should not do as opposed to what they should. *Therefore, it is generally suggested that coaches focus on what they want their athletes to do, rather than what not to do.*

**An example would be that instead of telling an athlete, “Don’t throw your head.” The coach would instead say, “Keep your head still.” The second statement is positive and corrective in nature which tells the athlete what to do.**

**The Importance of Knowledge of Results (Feedback)**

One of the keys to mastering a skill is to receive feedback that is clear and, if possible, conveyed in a measurable way. Repeating a movement over and over has little value unless one understands the result of the effort. Feedback should be immediate and positive.

The importance of feedback pertains to strength and power improvements as well. If you cannot measure results, you will not know if you are improving.

**Follow the Planned Program**

It is important for athletes to follow the planned program. However, following the plan does not mean slavishly carrying out every set of every exercise planned if there is good reason to modify the plan. In extreme cases of
apparent fatigue, or where pains persist or worsen, the workout should be terminated. It is important to note that programs are nearly a template and must be become a living document to fit the needs of the athletes.

The workout plan should not be deviated from just because the athlete sees other athletes doing something different or just because the athlete “feels like” doing something different. The development of weightlifting ability is a process that occurs over many training sessions and requires patience. Therefore, consistent application of the plan is important for long term development.
Assessing Readiness to Lift

Expected Outcomes:

1. List, Explain and Instruct the 4 Assessment Exercises that Evaluate an Athlete’s Readiness to Begin Training
   a. Front Squat
   b. Overhead Squat
   c. Snatch Grip Deadlift
   d. Military Press

Introduction

As a coach, it is your responsibility to ensure the safety of your athletes. This begins by evaluating whether or not the lifter is prepared mentally, physically and emotionally to begin the training program. Evaluations can take place through numerous methods of surveying and observations. This chapter aims to briefly overview several different types of evaluations that are readily available.

Intake Forms

When a new athlete steps foot into the gym for the first time, it is important that they are provided with a packet that includes the following:

- Release of Liability
- Informed Consent
- Past Medical History (Could be a PAR-Q or other similar form)
- Doctor’s Release (If Certain Medical Condition is of Concern)

A copy of the 2014 PAR-Q+ has been made available at the end of this chapter courtesy of the PAR-Q+ Collaboration.

These forms not only protect the athlete, but also protect you as a coach from possible litigation. The legal system requires that professionals act within the standard duty of care for their profession. Act of commission (performing acts that cause harm), or acts of omission (failing to act), is considered negligent behavior and can lead to civil and even criminal cases. Having forms on file for each athlete gives proof that the coach has followed the standard of care and has done their due diligence.

The information in this chapter is not all inclusive and is not meant to be considered legal guidance or protect against litigation or prosecution. Coaches may choose to seek legal assistance in preparing these documents.
Initial Meeting and Consultation

Following the completion of the aforementioned forms, the athlete and coach should meet to discuss the athlete’s goals, expectations and past training/injury history. If the athlete is under the age of 18, a parent should be present during this meeting. The meeting should discuss the details of the program and what the athlete should expect as well as the possible injuries and safety considerations in the sport of weightlifting. The informed consent, if provided, should be read to the athlete and the coach should allow the athlete to ask questions.

This meeting also serves to judge whether an athlete is mentally and emotionally prepared for the training. Especially with juniors and youth athletes, the athletes must understand the expectations of them during training and the rules and etiquette required in the weight room. Coaches may choose to put this into a code of conduct document that the athlete must sign.

Physical Assessment

The sport of weightlifting requires that athletes have a certain level of prerequisite balance, stamina, flexibility and strength. It is important to note that not all athletes can begin the weightlifting progressions from day one. An assessment should be done by the coach to grasp a general idea of what the athlete’s current ability level is.

If an athlete does not meet the prerequisite standards laid out in this chapter, it does not mean that the athlete will not be able to perform the weightlifting movements; rather it just means that some additional work must be done prior to starting the program.

In this chapter we present 4 assessments with clear guidelines of how the assessment should be given and things to look for when evaluating the movements. The assessments should be performed unbiasedly and be given a true and accurate evaluation. Athletes should not be waived because, “It wasn’t that bad” or it was “good enough.”

Assessment 1: Overhead Squat

Purpose: To ensure that the athlete has the prerequisite flexibility of the shoulders, torso and hips to maintain the overhead squat position that is used in the snatch progressions

Prior to Performing the Overhead Squat the Athlete is instructed to:

1. Grasp a Barbell, PVC Pipe or Dowel directly over their head with a predetermined snatch grip.
2. Stand tall with the feet shoulder width apart and toes pointing straight forward or slightly turned out.
3. While maintaining the position of the bar and the chest up, descend into a deep squat position.
4. Hold the position at the bottom for one second and then return to the starting position.

Before Performing the Overhead Squat the Coach should ask the Athlete if he/she has any Questions.

Ideal Movement

1. Knees remain aligned over the toes
2. Torso is held vertical
3. Back is not rounded
4. Barbell, Pipe or Dowel remains directly above or slightly behind the head
5. Athlete is able to reach the bottom of the squat position

**Unideal Movement**

1. Heels do not remain flat on the floor
2. Knees collapse inwards (Valgus Collapse) or Outward (Varus)
3. Torso is leaning excessively forward.
4. Barbell, Pipe or Dowel is forward of the head.
5. Back is rounded
6. **Athlete Has Pain**

**Assessment 2: Front Squat**

**Purpose:** To ensure that the athlete has the prerequisite flexibility of the shoulders, wrists, torso and hips to maintain the correct “racked” position that is used in the clean progressions.

**Prior to Performing the Front Squat the Athlete is instructed to:**

1. Place a Barbell, PVC Pipe or Dowel on the shoulders with the bar resting on the palms of the hands and the fingers encircling the bar.
2. Stand tall with the feet shoulder width apart and toes pointing straight forward or slightly turned out.
3. While maintaining the position of the bar and the chest up, descend into a deep squat position.
4. Hold the position at the bottom for one second and then return to the starting position.

**Before Performing the Front Squat the Coach should ask the Athlete if he/she has any Questions.**

**Ideal Movement**

1. Knees remain aligned over the toes
2. Torso is held vertical
3. Back is not rounded
4. Barbell, Pipe or Dowel remains on the shoulders
5. Elbows remain high and at the same level as the shoulders
6. Athlete is able to reach the bottom of the squat position

**Unideal Movement**

1. Heels do not remain flat on the floor
2. Knees collapse inwards (Valgus Collapse) or Outward (Varus)
3. Torso is leaning excessively forward.
4. Elbows drop from original position.
5. Back is rounded
6. **Athlete Has Pain**

**Assessment 3: Snatch Deadlift**

**Purpose:** To ensure that the athlete has the prerequisite flexibility required to assume the correct starting position, grip and pull required for the snatch.
Prior to Performing the Snatch Deadlift the Athlete is instructed to:

1. Place a Barbell, PVC Pipe or Dowel on blocks to replicate the same height of the bumper plates.
2. Instruct the athlete to grip the Barbell, PVC Pipe or Dowel with the same grip as the Overhead Squat.
3. Instruct the athlete to stand up with the bar.
4. Explain the correct starting position of the snatch

Before Performing the Snatch Deadlift the Coach should ask the Athlete if he/she has any Questions.

Ideal Starting Position

1. Shoulders remain directly over or slightly forward of the bar
2. Lower back is arched and torso remains upright
3. Hips should start slightly above the knees

Ideal Movement

1. Hips and knees extend at the same rate
2. Barbell stays behind its original vertical line
3. Torso remains upright and unrounded

Unideal Movement

1. Heels do not remain flat on the floor
2. Knees collapse inwards (Valgus Collapse) or Outward (Varus)
3. Torso is leaning excessively forward.
4. Arms bend when pulling the barbell
5. Back is rounded
6. Shoulders are behind the bar
7. Athlete Has Pain

Assessment 4: Military Press

Purpose: To ensure that the athlete has the prerequisite flexibility required to assume the correct overhead position and movement pattern of the jerk.

Prior to Performing the Military Press the Athlete is instructed to:

1. Place a Barbell, PVC Pipe or Dowel on the shoulders with the bar resting on the palms of the hands and the fingers encircling the bar.
2. Press the barbell straight overhead to a finishing position where the barbell is directly over the head.
3. Lower the bar in a controlled manner back to the original position.

Before Performing the Military Press the Coach should ask the Athlete if he/she has any Questions.
**Ideal Movement**

1. Bar should move in a straight line to its finished position
2. Bar should finish directly above or slightly behind the athlete’s head
3. Elbows should lock out at the same time

**Unideal Movement**

1. Heels do not remain flat on the floor
2. Torso is leaning excessively forward.
3. Arms extend at differing speeds
4. Bar travels forward of the original vertical line
5. Bar finishes in front of the athletes head.
6. **Athlete Has Pain**
The health benefits of regular physical activity are clear; more people should engage in physical activity every day of the week. Participating in physical activity is very safe for MOST people. This questionnaire will tell you whether it is necessary for you to seek further advice from your doctor OR a qualified exercise professional before becoming more physically active.

**GENERAL HEALTH QUESTIONS**

<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
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<tbody>
<tr>
<td>1) Has your doctor ever said that you have a heart condition OR high blood pressure?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Do you feel pain in your chest at rest, during your daily activities of living, OR when you do physical activity?</td>
<td></td>
<td></td>
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<tr>
<td>3) Do you lose balance because of dizziness OR have you lost consciousness in the last 12 months? Please answer NO if your dizziness was associated with over breathing (including during vigorous exercise).</td>
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<tr>
<td>4) Have you ever been diagnosed with another chronic medical condition (other than heart disease or high blood pressure)? PLEASE LIST CONDITION(S) HERE:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Are you currently taking prescribed medications for a chronic medical condition? PLEASE LIST CONDITION(S) AND MEDICATIONS HERE:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6) Do you currently have (or have had within the past 12 months) a bone, joint, or soft tissue (muscle, ligament, or tendon) problem that could be made worse by becoming more physically active? Please answer NO if you had a problem in the past, but it <em>does not limit your current ability</em> to be physically active. PLEASE LIST CONDITION(S) HERE:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7) Has your doctor ever said that you should only do medically supervised physical activity?</td>
<td></td>
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</tbody>
</table>

- ✔ If you answered NO to all of the questions above, you are cleared for physical activity. Go to Page 4 to sign the PARTICIPANT DECLARATION. **You do not need to complete Pages 2 and 3.**
  - Start becoming much more physically active – start slowly and build up gradually.
  - Follow International Physical Activity Guidelines for your age (www.who.int/dietphysicalactivity/en/).
  - You may take part in a health and fitness appraisal.
  - If you are over the age of 45 yr and NOT accustomed to regular vigorous to maximal effort exercise, consult a qualified exercise professional before engaging in this intensity of exercise.
  - If you have any further questions, contact a qualified exercise professional.

- ☠️ If you answered YES to one or more of the questions above, COMPLETE PAGES 2 AND 3.

- **Delay becoming more active if:**
  - ✔️ You have a temporary illness such as a cold or fever; it is best to wait until you feel better.
  - ✔️ You are pregnant - talk to your health care practitioner, your physician, a qualified exercise professional, and/or complete the ePARmed-X+ at [www.eparmedx.com](http://www.eparmedx.com) before becoming more physically active.
  - ✔️ Your health changes - answer the questions on Pages 2 and 3 of this document and/or talk to your doctor or a qualified exercise professional before continuing with any physical activity program.
2014 PAR-Q+
FOLLOW-UP QUESTIONS ABOUT YOUR MEDICAL CONDITION(S)

1. Do you have Arthritis, Osteoporosis, or Back Problems?
If the above condition(s) is/are present, answer questions 1a-1c
If NO go to question 2
1a. Do you have difficulty controlling your condition with medications or other physician-prescribed therapies? (Answer NO if you are not currently taking medications or other treatments)
   YES □ NO □
1b. Do you have joint problems causing pain, a recent fracture or fracture caused by osteoporosis or cancer, displaced vertebra (e.g., spondylolisthesis), and/or spondyloysis/pars defect (a crack in the bony ring on the back of the spinal column)?
   YES □ NO □
1c. Have you had steroid injections or taken steroid tablets regularly for more than 3 months?
   YES □ NO □

2. Do you have Cancer of any kind?
If the above condition(s) is/are present, answer questions 2a-2b
If NO go to question 3
2a. Does your cancer diagnosis include any of the following types: lung/bronchogenic, multiple myeloma (cancer of plasma cells), head, and neck?
   YES □ NO □
2b. Are you currently receiving cancer therapy (such as chemotherapy or radiotherapy)?
   YES □ NO □

3. Do you have a Heart or Cardiovascular Condition? This includes Coronary Artery Disease, Heart Failure, Diagnosed Abnormality of Heart Rhythm
If the above condition(s) is/are present, answer questions 3a-3d
If NO go to question 4
3a. Do you have difficulty controlling your condition with medications or other physician-prescribed therapies? (Answer NO if you are not currently taking medications or other treatments)
   YES □ NO □
3b. Do you have an irregular heart beat that requires medical management? (e.g., atrial fibrillation, premature ventricular contraction)
   YES □ NO □
3c. Do you have chronic heart failure?
   YES □ NO □
3d. Do you have diagnosed coronary artery (cardiovascular) disease and have not participated in regular physical activity in the last 2 months?
   YES □ NO □

4. Do you have High Blood Pressure?
If the above condition(s) is/are present, answer questions 4a-4b
If NO go to question 5
4a. Do you have difficulty controlling your condition with medications or other physician-prescribed therapies? (Answer NO if you are not currently taking medications or other treatments)
   YES □ NO □
4b. Do you have a resting blood pressure equal to or greater than 160/90 mmHg with or without medication? (Answer YES if you do not know your resting blood pressure)
   YES □ NO □

5. Do you have any Metabolic Conditions? This includes Type 1 Diabetes, Type 2 Diabetes, Pre-Diabetes
If the above condition(s) is/are present, answer questions 5a-5e
If NO go to question 6
5a. Do you often have difficulty controlling your blood sugar levels with foods, medications, or other physician-prescribed therapies?
   YES □ NO □
5b. Do you often suffer from signs and symptoms of low blood sugar (hypoglycemia) following exercise and/or during activities of daily living? Signs of hypoglycemia may include shakiness, nervousness, unusual irritability, abnormal sweating, dizziness or light-headedness, mental confusion, difficulty speaking, weakness, or sleepiness.
   YES □ NO □
5c. Do you have any signs or symptoms of diabetes complications such as heart or vascular disease and/or complications affecting your eyes, kidneys, OR the sensation in your toes and feet?
   YES □ NO □
5d. Do you have other metabolic conditions (such as current pregnancy-related diabetes, chronic kidney disease, or liver problems)?
   YES □ NO □
5e. Are you planning to engage in what for you is unusually high (or vigorous) intensity exercise in the near future?
   YES □ NO □
6. Do you have any Mental Health Problems or Learning Difficulties? This includes Alzheimer’s, Dementia, Depression, Anxiety Disorder, Eating Disorder, Psychotic Disorder, Intellectual Disability, Down Syndrome
   If the above condition(s) is/are present, answer questions 6a-6b
   If NO go to question 7

   6a. Do you have difficulty controlling your condition with medications or other physician-prescribed therapies?  YES ☐ NO ☐

   6b. Do you ALSO have back problems affecting nerves or muscles?  YES ☐ NO ☐

7. Do you have a Respiratory Disease? This includes Chronic Obstructive Pulmonary Disease, Asthma, Pulmonary High Blood Pressure
   If the above condition(s) is/are present, answer questions 7a-7d
   If NO go to question 8

   7a. Do you have difficulty controlling your condition with medications or other physician-prescribed therapies?
      (Answer NO if you are not currently taking medications or other treatments)  YES ☐ NO ☐

   7b. Has your doctor ever said your blood oxygen level is low at rest or during exercise and/or that you require supplemental oxygen therapy?  YES ☐ NO ☐

   7c. If asthmatic, do you currently have symptoms of chest tightness, wheezing, laboured breathing, consistent cough (more than 2 days/week), or have you used your rescue medication more than twice in the last week?  YES ☐ NO ☐

   7d. Has your doctor ever said you have high blood pressure in the blood vessels of your lungs?  YES ☐ NO ☐

8. Do you have a Spinal Cord Injury? This includes Tetraplegia and Paraplegia
   If the above condition(s) is/are present, answer questions 8a-8c
   If NO go to question 9

   8a. Do you have difficulty controlling your condition with medications or other physician-prescribed therapies?  YES ☐ NO ☐

   8b. Do you commonly exhibit low resting blood pressure significant enough to cause dizziness, light-headedness, and/or fainting?  YES ☐ NO ☐

   8c. Has your physician indicated that you exhibit sudden bouts of high blood pressure (known as Autonomic Dysreflexia)?  YES ☐ NO ☐

9. Have you had a Stroke? This includes Transient Ischemic Attack (TIA) or Cerebrovascular Event
   If the above condition(s) is/are present, answer questions 9a-9c
   If NO go to question 10

   9a. Do you have difficulty controlling your condition with medications or other physician-prescribed therapies?  YES ☐ NO ☐

   9b. Do you have any impairment in walking or mobility?  YES ☐ NO ☐

   9c. Have you experienced a stroke or impairment in nerves or muscles in the past 6 months?  YES ☐ NO ☐

10. Do you have any other medical condition not listed above or do you have two or more medical conditions?
    If you have other medical conditions, answer questions 10a-10c
    If NO read the Page 4 recommendations

   10a. Have you experienced a blackout, fainted, or lost consciousness as a result of a head injury within the last 12 months OR have you had a diagnosed concussion within the last 12 months?  YES ☐ NO ☐

   10b. Do you have a medical condition that is not listed (such as epilepsy, neurological conditions, kidney problems)?  YES ☐ NO ☐

   10c. Do you currently live with two or more medical conditions?  YES ☐ NO ☐

PLEASE LIST YOUR MEDICAL CONDITION(S)
AND ANY RELATED MEDICATIONS HERE:

GO to Page 4 for recommendations about your current medical condition(s) and sign the PARTICIPANT DECLARATION.
2014 PAR-Q+

If you answered NO to all of the follow-up questions about your medical condition, you are ready to become more physically active - sign the PARTICIPANT DECLARATION below:

- It is advised that you consult a qualified exercise professional to help you develop a safe and effective physical activity plan to meet your health needs.
- You are encouraged to start slowly and build up gradually - 20 to 60 minutes of low to moderate intensity exercise, 3-5 days per week including aerobic and muscle strengthening exercises.
- As you progress, you should aim to accumulate 150 minutes or more of moderate intensity physical activity per week.
- If you are over the age of 45 yr and NOT accustomed to regular vigorous to maximal effort exercise, consult a qualified exercise professional before engaging in this intensity of exercise.

If you answered YES to one or more of the follow-up questions about your medical condition:

You should seek further information before becoming more physically active or engaging in a fitness appraisal. You should complete the specially designed online screening and exercise recommendations program - the ePARmed-X+ at www.eparmedx.com and/or visit a qualified exercise professional to work through the ePARmed-X+ and for further information.

Delay becoming more active if:

- You have a temporary illness such as a cold or fever; it is best to wait until you feel better.
- You are pregnant - talk to your health care practitioner, your physician, a qualified exercise professional, and/or complete the ePARmed-X+ at www.eparmedx.com before becoming more physically active.
- Your health changes - talk to your doctor or qualified exercise professional before continuing with any physical activity program.

You are encouraged to photocopy the PAR-Q+. You must use the entire questionnaire and NO changes are permitted.

The authors, the PAR-Q+ Collaboration, partner organizations, and their agents assume no liability for persons who undertake physical activity and/or make use of the PAR-Q+ or ePARmed-X+. If in doubt after completing the questionnaire, consult your doctor prior to physical activity.

PARTICIPANT DECLARATION

All persons who have completed the PAR-Q+ please read and sign the declaration below.

If you are less than the legal age required for consent or require the assent of a care provider, your parent, guardian or care provider must also sign this form.

I, the undersigned, have read, understood to my full satisfaction and completed this questionnaire. I acknowledge that this physical activity clearance is valid for a maximum of 12 months from the date it is completed and becomes invalid if my condition changes. I also acknowledge that a Trustee (such as my employer, community/fitness centre, health care provider, or care provider) may request a copy of this form for their records. In these instances, the Trustee will be required to adhere to local, national, and international guidelines regarding the storage of personal health information ensuring that the Trustee maintains the privacy of the information and does not misuse or wrongly disclose such information.

NAME ____________________________ DATE ____________________________

SIGNATURE ____________________________ WITNESS ____________________________

FOR MORE INFORMATION, PLEASE CONTACT

www.eparmedx.com
Email: eparmedx@gmail.com

The PAR-Q+ was created using the evidence-based AGREE process (1) by the PAR-Q+ Collaboration chaired by Dr. Darren E.R. Warburton with Dr. Norman Gledhill, Dr. Veronica Jamnik, and Dr. Donald C. McIntosh (2). Production of this document has been made possible through financial contributions from the Public Health Agency of Canada and the BC Ministry of Health Services. The views expressed herein do not necessarily represent the views of the Public Health Agency of Canada or the BC Ministry of Health Services.

Citation: For PAR-Q+ Collaboration, Warburton DE, Janjic V, Bredin SS, and Gledhill NR on behalf of the PAR-Q+ Collaboration. The Physical Activity Readiness Questionnaire for Everyone (PAR-Q+) and Electronic Physical Activity Readiness Medical Examination (ePARmed-X+); Health, Fitness Journal of Canada 4:3-15, 2011.

Key References


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Flexibility Training

Expected Outcomes:

1. Identify and Explain the Accepted Manners of Stretching
2. List and Explain the 5 Specific Weightlifting Stretches
   a. Squat Stretch
   b. Elbow Stretch
   c. Bar Mobility Rotations
   d. Clean and Snatch Deadlift
   e. Jerk Stretch

Flexibility training is one of the key elements of any training program. It is rare that a beginner is sufficiently flexible in every area of their body needed to execute all Weightlifting and related exercises. Those who logged a perfect score in the flexibility assessments presented in the prior chapter won’t really need to do the exercises presented in this section of the manual.

Common Fallacies Regarding Strength Training and Flexibility

There are a number of common myths relating to strength training and flexibility. There is no evidence that strength training reduces flexibility, particularly when full range of motion exercises, such as full squats, are done. In fact, there is substantial evidence that full range of motion strength training improves flexibility.

There is also no evidence that flexibility training has any negative effect on strength, unless such training is conducted immediately before maximal weights are lifted. There is evidence that static stretching can reduce the strength and power of muscular contraction for at least several minutes following such exercise. That is why stretching immediately prior to heavy lifting is not advised and flexibility training aimed at increasing one’s range of motion is always placed at the end of the workout. Finally, there is no evidence that increases in muscular size will decrease flexibility and cause the athlete to be “muscle-bound.”

Some Basic Facts About Flexibility and Training Through Stretching

Strength training causes an increase in strength over time due to adaptation to the training stimuli. Flexibility training, should be conducted by consistently working to gradually increase one’s range of motion.

The structure of one’s bones and joints and the limited ability to alter the flexibility of tendons and ligaments places inherent limits on flexibility. These elements of the human body working together gives us an innate ability to control movement, stabilize the body, and prevent injury. For instance, an athlete becomes capable of assuming a correct low squat position by learning to maintain the appropriate tension in the torso, remain erect, arch the lower back arched, and relax the muscles of the legs and hips, so that a full squat position can be attained.
Muscles can be trained to increase their range of motion. This occurs as a result of changes in the muscles themselves and changes in the coordinative patterns of muscle tension.

When training for increased flexibility, it is strongly advised that:

1) Only muscles that have been warmed up through a general or specific warm-up be stretched;

2) gradual increases in range of motion are achieved during stretching and no sudden moves into full range of motion are attempted;

3) only the current range of motion is sought during warming up and no effort is made to improve the current range of motion;

4) flexibility exercises cease as the specific warm-up progresses, and they are not resumed until skill building, power and strength training have been completed;

5) **flexibility training to increase an athlete’s range of motion should be performed immediately after strength training has been completed, while the muscles are still warm.**

Remember that the goal of training for increased range of motion is to allow the athlete to comfortably and more rapidly assume the correct starting and receiving positions during the competition lifts and related exercises. Progress toward this goal is tested by repeating the assessments described in the prior section of this manual. Only when an athlete has achieved the desired positions in all four assessments can unrestricted training on all lifts be commenced.

**Maintenance of Flexibility**

Those athletes who have had significant difficulty with one or more of the assessments, or have had to train for the flexibility needed to reach the desired position, will need to continue to practice the flexibility exercises that were used to attain the desired level of flexibility. Failure to perform maintenance work will often result in the athlete regressing in terms of flexibility. Typically only one to two sets of stretching exercises performed two to three times per week are needed to maintain one’s level of flexibility.

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**Methods of Stretching**

As will be explained further in this manual, there are two fundamental purposes for stretching. One is to help an athlete achieve his/her current range of motion while the other is to increase range of motion. Exercises for the former objective are performed during the warm-up. Exercises for the latter purpose are performed after all resistance training exercises have been completed. There are many recognized forms of stretching, that can be broken down into several categories listed below:

**Static**

Static stretching is an effective and popular technique for improving range of motion at slow speeds. It involves slowly moving into a position nearing maximum range of motion and holding that position for ten to thirty seconds. This stretch may be repeated after a brief period of rest. Static stretching is most useful for increasing one’s ability to
achieve improved range of motion through a slow movement or to achieve a static position (such as the start position in the snatch), but the carry over to the dynamic movements of most sports, including Weightlifting, is somewhat limited.

**Ballistic/Dynamic**

Ballistic stretching involves moving a limb or body part such as the torso through a range of motion that is assisted by momentum achieved by bouncing or swinging. An example would be leg swings where the athlete progressively swings the leg higher and higher.

However, there are concerns that this form of stretching can result in injury, either through micro trauma, or through one catastrophic event, although evidence of this is limited in athletes who have warmed up thoroughly before stretching to extreme ranges of motion. The downside is achieving a full range of motion only for an instant is not optimal to achieve an increased range of motion. It has also been argued that rapid stretching activates a “stretch reflex,” a neuromuscular response to a rapid stretch that causes an increase in muscle tension which actually limits one’s range of motion. Ballistic stretching is not widely practiced by weightlifters.

**Passive vs. Active Stretching**

In passive stretching, the athlete’s body is moved through a range of motion by a live, mechanical, or robotic stretching partner. Greater ranges of motion can generally be achieved passively than by a person stretching unassisted. Passive stretching presents the risk of overstretching by the partner, and there may be limited carryover from the ranges of motion that can be achieved using this method, relative to what can be achieved unassisted.

In active stretching the athlete completes the entire stretch with no assistance. Active stretching can be either static or ballistic, but the term generally refers to a static stretch. This method is considered safe and effective for achieving current range of motion and can be used for improving one’s range of motion.

In passive-active stretching, a partner assists the athlete in achieving a given range of motion and then the athlete attempts to hold the position reached for several seconds. A greater range of motion can be achieved through this method than when the athlete acts alone, but the carry-over to athletic situations may be limited.

**Active Isolated Stretching (AIS)**

This form of stretching, argues that if a strenuous stretch is held for more than a couple of seconds, a stretch reflex actually begins to resist the stretch that activated it. Therefore, the recommendation is that once a fully stretched and increased range of motion position is achieved, it is held for only two seconds, followed by a return to the pre-stretched position. After one second, the stretched position is assumed again. Rather than achieving a stretched position and holding it for an extended period, as would be done in a traditional static stretch, increased range of motion is sought during a set of perhaps 10 repetitions, with each rep consisting of moving into the fully stretched position from a non-stretched starting position, holding it for two seconds, and then returning to the start position.

AIS stretching, is often performed with assistance from a partner or other device that the athlete uses to achieve a greater range of motion than would be possible by a pure active stretch.

Many athletes have found the AIS approach to stretching to be more comfortable and effective than static stretching, and it is the one recommended for performing the squat and snatch stretches described later in this manual.
Proprioceptive Neuromuscular Facilitation (PNF)

This method of stretching involves movement into maximal range of motion, or as close as possible. Once the muscle has reached full range of motion the muscles is then contracted for several seconds against an opposing force. Following the contraction, an effort is made to achieve a greater range of motion then originally with the help of a partner. This process continues several times per set. Regardless of the mechanisms that may be at work in such a stretch, it is possible for most athletes to attain a greater range of motion during a set of PNF exercises then most other ways. This is the method recommended in this manual for performing the elbow stretch.

Summing Up The Flexibility Training Process

Stretching practiced to increase one’s range of motion will produce results over time. Such stretches, regardless of the method, should be practiced only at the end of the workout while the athlete is still warm. Such training can be very strenuous and many athletes will find that they are most effectively employed several times a week, rather than daily. This is in contrast to stretching to maintain one’s range of motion and can be performed daily following the appropriate warm-up. We have presented many approaches to stretching and different athletes will respond in different ways to these approaches. In the end, the method that helps the athlete to progress, without causing discomfort that continues after the stretch, is what is being sought.

Weightlifters Need Sport Specific Flexibility Training

Weightlifters need flexibility in specific areas of their bodies in order to perform the competitive lifts correctly. It is not unusual to see beginning lifters that demonstrate an advanced ability in classic flexibility tests and exercises, who are completely unable to assume the positions required of the accomplished lifter. Therefore, those who do not already possess the requisite flexibility to perform the snatch and clean and jerk must practice stretching exercises that are specifically designed to help athletes meet the specific flexibility requirements of lifting.

The following exercises have been found to assist the lifter in achieving the type of sport specific flexibility that is required for successful Weightlifting performances. There are many other useful flexibility exercises may well be required for those who attempt to master styles other than the clean, snatch, and jerk, but such exercises are beyond the scope of this manual.

Squat Stretch In Rack

The lifter uses a standard “power rack” or “power cage” to set a bar in an immovable position just high enough for the lifter to assume a full front squat position under it. The bar is loaded approximately to the lifter’s bodyweight and is placed against the rear upright of the rack at the appropriate height. The lifter faces the front of the rack (so that the uprights supporting the bar and the lifter are behind the bar). The lifter grasps the bar with a shoulders width (clean width) grip. The feet are positioned as they would be for a front squat but with the middle (instep) of the feet is positioned directly under the bar. The lifter descends into the full squat position while holding onto the bar. The torso is set in an upright position, so the hips are directly under the bar, being sure to maintain the arch in the lower back. Now the legs are relaxed and the shins tilt forward so that the knees travel directly forward of, and in line with (side to side), the toes.
At this point the lifter uses the arms to push up against the bar, driving the hips down into a full front squat position while maintaining the back arch. It often helps if the lifter imagines that he has a partner, rather than his arms, pushing him into the deep squat position. The lifter must not push up with the legs, but rather push himself down, using the bar, by pushing up against it with his/her arms.

What the lifter is doing with this exercise is learning to relax the legs while keeping the back arched, the torso rigid and upright. In the beginning, the lifter may have trouble keeping the torso upright and the back arched, but with practice he will be able to do this successfully. The lifter may need a ½” to 2” board under his heels to assume a correct position, at least initially (this board is discussed more fully in the next section of this manual).

The lifter holds the low position for two to three seconds; then, leaving the feet in place and the hands on the bar, stands up behind the bar and relaxes for a second. Again he descends back under the bar to repeat the stretch. This can be repeated for 8 to 10 repetitions. On each succeeding repetition, the lifter tries to push himself down a little lower into the squat position; however, he must never push herself so low that he loses the arch in his lower back.

A snatch position variation of this exercise can be done with the bar set at a height just below the lockout position of the low squat position of the snatch. In this stretch the lifter pushes up on the bar to lock the arms and simultaneously drives the body down into a lower squat position.

The “Board” – A Temporary Solution for Lifters Who Lack Leg/Hip Flexibility

If an athlete has insufficient flexibility in the legs, ankles, and hips to perform a correct back squat, overhead squat, or front squat, this problem can often be remedied on a temporary basis by placing a board under the heels of the athlete. This is particularly helpful for athletes who do not have weightlifting shoes. Weightlifting shoes typically have a significant heel built into them, whereas many other kinds of athletic shoes do not. The board described below can make up for this initially, while the lifter is learning to squat correctly, but it should never be used for performing any form of snatch, clean, or jerk, as there is foot movement during such lifts and a lifter could trip on a block.

For some lifters this block may need to be as much as an inch and a half high which is the height of the standard 2”x4” placed flat. For others, a strip of ¾” plywood laid flat will suffice. The majority of athletes will be able to assume a reasonably correct squat position with a raised heel of this type. The raised heel will enable the athlete to do some squats (front, overhead, and back) while working to improve squatting flexibility, so that eventually only the standard height heel in a weightlifting shoe (typically about 1”) will be necessary.

One word of caution is appropriate here. If a new lifter has been performing squats with a lower or no heel (e.g., powerlifting squats with the bar low on the back), such a lifter should get used to squatting in a more upright position with an empty bar for a while by using the block, even if a much heavier weight is possible. This is because the knees need time to get accustomed to
squatting with a higher heel and with the torso in a more upright position. In the meantime, the lifter can maintain leg strength squatting in his customary style and substitute the new style as he becomes comfortable with squatting with heavier weights in the new style and with an elevated heel (this while the lifter is working to improve flexibility, so that a heel of approximately an inch is all that is needed to assume a correct position).

Eventually, as the lifter practices the squat and does the squat stretching exercise described in the flexibility exercise section of this manual, a lower and lower board will be needed until eventually no board, but only a lifting shoe with an elevated heel, will be required in order to maintain a good position. In rare cases, a lifter will not be able to develop the requisite flexibility to squat properly. In such a case, the lifter may wish to have an additional heel added to the lifting shoe. Initially, heels of varying height can be placed on the inside of the shoe to determine the correct height, before the athlete adds a permanent heel on the outside of the shoe. In rare cases, the “split” style, which is beyond the scope of this manual, may need to be used instead of the squat style.

**Elbow Stretch**

For this exercise, the lifter uses essentially the same equipment as was used for the squat stretch. However, for this exercise a partner is required. The lifter begins the exercise by assuming a low front squat position with the bar resting on the shoulders, or as close as possible, and the full hand around the bar (i.e., not with the bar resting on the finger tips). The partner grasps the elbows of the lifter and pulls them gradually upward until they will go no further. The athlete being stretched will generally feel some mild to moderate discomfort at this point, generally in the wrists, but sometimes in the elbows and shoulders. The lifter being stretched may also feel as though he/she is choking slightly. If so, the lifter should endeavor to set the bar a little further forward on the shoulders, so that it is not pressing against the neck so much.

Now the lifter pulls the elbows down against the hands of the partner while the partner resists, so the lifter is isometrically pulling the elbows downward against an unmoving resistance from the partner. After about 3 to 6 seconds of such a pull-down effort, the lifter completely relaxes the rear deltoids (shoulders), the upper back muscles, the arms and wrists, and any other muscles that have been pulling the elbow and arm downward.

He/she will find that these muscles have now further relaxed because they have been fatigued, and this will permit the elbows to be lifted higher by the partner than before. Again, the partner gently pulls the elbows up to the point where mild discomfort is felt. This position is held for about 3 seconds. Then the lifter repeats the downward pull against the partner’s unmoving hands with the elbows at this new and higher position. This process can be repeated several times, each time with the elbows ending up in a significantly higher position than could be achieved on prior repetitions.

We have seen very stiff, 350 pound lifters with huge arms use this exercise to enable them to rack the barbell comfortably on their shoulders with the elbows well up (which is a prerequisite for safe squat cleaning) and with the fingers wrapping fully around the bar.
This is perhaps the most unpleasant stretch the athlete will ever do, but it is also one of the most effective. It is a must for lifters who are not able to rack the bar on the shoulders correctly when they begin to learn the lifts. A lifter should not even attempt a power clean or front squat, let alone a squat clean, before you can rack the bar comfortably.

GLBMR- Bar Mobility Rotations

For lifters who are having trouble holding a bar or stick overhead in the overhead squat bottom position, one of the most effective remedies is an exercise referred to as Bar Mobility Rotations.

The exercise is best performed by grasping a broomstick with both hands and a wide grip, perhaps, even wider than the grip that was used in testing overhead squats. The stick should then be placed overhead with the arms fully locked at the elbows. Now the lifter rotates the stick back to the position shown in the last of the four photos, or at least with the hands below the shoulders. Throughout this stretch the arms are fully extended with the elbows locked. The motion is then reversed to return the stick to the start position. This entire movement is then repeated 8–12 times. Most lifters will find that as they do this, their shoulders rotate such that the crook of the elbow faces forward. This is perfectly normal and desirable.

Progression in this exercise starts with a grip the lifter can comfortably use to achieve a full rotation from in front of the head to behind and back to the front with the elbows held strictly locked. Lifters will find that the wider the grip, the easier it will be to perform this motion.

The grip is gradually narrowed on each rep, until a grip width is reached where the lifter finds it challenging, but possible, to keep the elbows locked throughout the rotation. A record is made of that grip width and the lifter strives, over time, to narrow the grip that can be used while still maintaining the elbows locked.

Most lifters will find that once such a rotation has been mastered, holding a bar overhead in the squat snatch position will begin to feel comfortable and controlled, especially if the crooks of the elbows are turned forward with the wrists back, which is the alternative arm position discussed earlier in this manual.

Clean or Snatch Deadlift Stretch

When a lifter has difficulty assuming the correct position at the start of the clean or snatch from the floor, this stretch will be indispensable. Ideally, the lifter performs the exercise with full diameter (45 cm.) plates (even if a lighter than competition bar and plates must be used). The correct weight is one that pulls the lifter gently downward, assisting with the stretch yet is light enough so the lifter does not become tired after doing a few reps.

The lifter begins by holding a barbell in the completed deadlift position. If the lifter passed the clean deadlift flexibility test described earlier, the exercise is done with the snatch grip, but if even the clean deadlift position could not be achieved initially, the clean grip is used. The lifter then lowers the barbell as low as possible while maintaining the arch in the lower back and a flat upper back (i.e., not hunched or rounded). If the lifter is unable to go all of the way to the floor while maintaining the correct posture, the goal is to lower the barbell progressively closer to the platform, while maintaining the correct posture. The lifter will find it easier to do this if the leg muscles, particularly the adductors on the insides of the thighs, are relatively relaxed. Eventually, the lifter should be able to stand on a low
(e.g., 1") mat or large plate and reach the floor with an arched back using a snatch grip. However, a clean grip is first employed if that has been a problem from the beginning.

While performing this exercise, it is very important for the lifter to have feedback from the coach or other onlooker who knows what to look for (to determine whether or not the correct posture is being maintained). It is common for new lifters to think they are maintaining the correct torso position when they are not.

To provide direct and real time feedback regarding the back arch, you can use two mirrors. One is positioned in front of the lifter and the other at an angle to the side. Correct mirror positioning will enable the lifter to look forward into the mirror in front and see whether his/her posture is being maintained. This is important because you do not want the lifter to be looking into a single mirror positioned at the side to see whether he/she is in a correct position; the very act of turning the head to the side can cause a poor position or even result in an injury to the back or neck as the spine twists.

A more technologically advanced approach is to place a video camera on the side of the lifter and a monitor in front of the lifter, so that he/she can see the position of the spine in real time.

This exercise can be done using the AIS stretching technique previously discussed by lowering the bar to the lowest position possible while maintaining a correct posture, then returning to the standing position and repeating for 5-10 repetitions.

Jerk Stretch

Lifters who have difficulty with positioning the bar correctly over the shoulders in the military press assessment will benefit from a special jerk or shoulder stretching exercise. The object is to make the lifter feel comfortable with the bar overhead in the correct position and with the elbows fully locked.

The stretch is typically done using a power rack or cage. The bar is positioned at a height where the lifter is in a partial squat or split jerk position, or slightly lower, with the arms locked. The lifter raises the bar just enough to clear the pins (use the spotter pins in a cage rack). While holding the bar overhead, the lifter tries to ease the bar back to a correct position while keeping the elbows fully locked. This is generally best accomplished by endeavoring to turn the crooks or inside of the elbows toward the front while relaxing the shoulders and pulling inward on the shoulder blades.

Over time, the lifter should be able to hold a barbell loaded with a lightweight overhead with the elbows fully straight and the bar slightly behind the middle of the shoulder joint without feeling undue pulling on the shoulders. Such a lifter is then ready to begin learning the power and full split jerk.
The Bar on the Knees Stretch

Many lifters find that this exercise helps them to stretch their ankles, so that a correct squat position can be assumed. The lifter assumes the position shown and pushes forward and downward on the bar, to push the knees forward and downward. This can be done several times.

Many lifters also find some more generic stretching exercises than the weightlifting oriented ones already shown. Some perform these after a light warmup if they feel a particular area needs to be stretched, but more often they are done at the close of the workout as part of their “cool down.” Some examples of such exercises are shown in the illustrations below.

Drawings Courtesy of Bruce Walsh
Weightlifting Technique

Expected Outcomes:

1. Explain the Key Positions for the Snatch and Clean
2. Recognize the Factors that Influence Proper Barbell Trajectory during the Pull Phase
3. Understand the Technique that Allows for an Effective Descent Under the Barbell
4. Explain the Recommended Way to Complete a Snatch and Clean
5. Be Able to Explain the Proper Phases and Actions of the Jerk

Proper Weightlifting Technique is Safe & Effective

The sport of Weightlifting has one primary objective, which is to lift the maximum amount of weight overhead. In order to do so one must bear in mind some basic principles that apply to the snatch, the clean, and the jerk.

The most efficient way to lift weight overhead, involves a four step process:

1) Position the barbell where the athlete can generate the greatest force. This position is referred to as the “power position”, where the bar is in contact with the body, the legs are partially bent, and the torso is essentially upright.

2) After maintaining this position the athlete must generate maximal force at the highest possible speed when the barbell has reached the power position, by using the legs and hips, to lift or “throw” the barbell upward.

3) The athlete must catch the barbell effectively overhead or on the shoulders, then rapidly brake the barbell’s downward progress.

4) Finally, the athlete must “recover” by standing up to the finished, erect position.

The Necessity of Teaching Proper Technique

Proper technical habits learned by athletes early on will tend to carryover throughout their careers. Unfortunately, poor habits learned early are very difficult to correct later. It is essential that the coach helps beginners focus on learning sound technique from their first moment in the gym. Top athletes develop their technique through relentless efforts over a period of many years. In order for this to happen, a devotion to perfecting technique must be developed early on in an athlete’s career.

Technique should be the focal point of all training plans. Proper technique is not only efficient and safe; it is the foundation of training for the rest of the athlete’s career. Once learned, habits are hard to get rid of. Following the guidelines set forth in this manual can help to create confident athletes that experience continued success.

Proper Breathing

While weightlifting is an anaerobic activity (can be done without oxygen), weightlifters do pay some attention to proper breathing during their lifting. The basic reasons are that breathing is needed to supply the oxygen that
helps replenish the energy the body uses when it performs an anaerobic activity, and proper breathing can help the lifter attain and maintain the correct lifting posture when the lungs have been inflated. Therefore, before the lifters begins any lift, he/she inflates the lungs and assumes the correct posture.

Only Two Grips Are Acceptable— Standard and Hook Grips

There are only two grips that should be taught to new lifters: the standard or “opposing” grip and the “hook” grip. In the standard or “opposing” grip, the palms are pointing back. The thumb wraps around the bar from back to front and the other four fingers are wrapped around the bar from front to back. This grip can be used for all weight lifting exercises that involve gripping the bar, particularly all forms of pressing, jerking, and squatting.

The strongest possible grip for lifting a barbell from the floor is known as the “hook” grip. The hook grip is secured by hooking the thumb around the bar, then wrapping the first two fingers over the thumb, the remaining fingers wrapping around the bar. Lifters may experience discomfort in the thumb when they begin to use this grip.

The Universal Posture of Weightlifting

Lifters maintain a posture with these important characteristics:

1) The chest is inflated and “up” and shoulders are back as if the athlete is standing at attention; thus minimizing the natural curvature of the upper back (the upper back is never rounded or hunched);

2) the lower back is arched in the same way as it is when a person is standing at attention so that the natural curvature in the lower back is always maintained (never exaggerated nor diminished);

3) the head is vertical or looking slightly up, and the eyes are looking straight ahead or slightly upward.

This is the universal posture of weightlifting whether you are taking the bar from the floor, performing a squat, or holding a weight overhead. Maintaining this posture at all times helps to protect the back from overstress and helps to assure that the force delivered by the legs and hips during the lifting process is transmitted directly to the barbell.

Selecting the Correct Snatch Grip Width

Prior to learning the first progression, the athlete must find the proper snatch grip width. Many guides to grip width exist, but a simple and accurate method is to have the lifter, standing in the universal weightlifting posture with the bar hanging and contacting the front of the thighs, move the hands in or out, equally on both sides, until the bar is at the height of the juncture of the hip joint and thighs. When the lifter bends the knees into the power position and the torso remains upright, the bar should lie across the tops of the thighs. That is the correct default snatch grip.

Once this position is found, the lifter should make a mental note of where it is, so that the lifter can
replicate that grip width consistently going forward. Another test is to lift the bar overhead with the grip just identified. When the arms are locked overhead, the bar should clear the head by several inches. If the bar does clear the head adequately, retain the grip identified. If it does not, bring the grip in by the same amount on both sides until the bar clears the head by several inches and use that grip as the default.

It should be noted that the wider the grip, the smaller the distance the lifter has to pull the bar from the power position to the overhead position. But a wider grip makes it more challenging for the lifter to assume a correct position from the floor and places more stress on the wrists, shoulders, and elbow joints. In view of all of these factors, the grip width may need to be adjusted later on.

**Vertical and Horizontal Body Motions in Weightlifting**

It is a generally sound principle of weightlifting technique that the bar and body be moved primarily in a vertical manner throughout the lift and an effort is made to minimize horizontal motion as much as possible.

Weightlifting is a vertical sport. We lift weights up and we drop the body down. Jumping forward or back, banging the bar forward with the thighs or hips, and splitting forward or back are to be avoided.

In the coming sections of this manual we will be discussing moving into the receiving positions of the jerk, clean, and snatch. One important piece of advice is connecting with the athlete’s movement under the bar is to “drop the hips.” Many lifters, consciously or unconsciously, think of dropping the head or torso when moving under the bar, this often results in the lifter tilting the torso forward and driving the hips back, which are two incorrect movements. Instead, the lifter should be thinking of dropping the hips, essentially the center of the body, straight down as quickly as possible when he/she is moving under the bar. This will generally result in a correct and efficient descent whether in the snatch, clean, or jerk.

**A Few Words on the Biomechanics and the Basics of Proper Technique**

Here are the basic principles of proper technique:

1) Segments of the body that transmit power generated by the muscles of the legs and hips to the barbell during the drive phase of the lifts must be rigid (e.g., the torso) or fully lengthened (e.g. the arms). Bent arms or a rounded back during the drive phase are inefficient and unsafe.

2) The center of the body and bar must be kept within the outer edges of the athlete’s feet.

3) Every action causes and equal and opposite reaction, so if the lifter throws the head and shoulders back at the top of the pull it will drive another part of the body, such as the hips forward, creating unwanted horizontal motion of the body and/or barbell.

4) The greater the horizontal distance of a barbell from a joint that is supporting it, the more effort the muscles around that joint have to exert to control the barbell (e.g. it is much easier to hold a barbell directly above the shoulder joints than it is to hold the bar when it is forward of or behind the shoulders).

5) Force should be applied to the barbell sequentially, from the center of the body outward (e.g. during the pull, from the legs and hips outward to the trapezius muscles and arms – the latter as the lifter begins to descend under the barbell to catch it).
6) Any time during a lift when the bar is unsupported must be minimized (e.g., time between the drive in the pull and receiving and exerting upward force on the bar again, whether the bar is caught overhead in the snatch, or on the shoulders in the clean, must be minimized).

In order to better understand the “what” and “why” of the technique teaching methods you will be learning in this course, it is helpful to begin with studying what elite athletes actually do when they execute the snatch, the clean and the jerk. Such study is assisted by examining these lifts as they progress, step by step, through a series of sequence photos, and then observing as the lifts are performed at competition speed in the accompanying video or live.

The Start Position: The two athletes shown prepare to lift the bar from the platform in the snatch and clean with the following similarities in their positions (which are somewhat different because of the differences in the width of the grip for the snatch and clean):

1) Feet are positioned approximately at hip width and the bar is placed directly above the base of the toes; the toes are turned out slightly, so that they are wider than the heels.

2) Shoulders are directly over the bar or slightly forward of it (never behind) and the shoulders and knees are above the hips.

3) Shins are leaning forward and are very close to the bar.

4) Arms are straight with the insides of the elbows facing the torso.

It can be seen that in the snatch, as compared with the clean, the torso is inclined forward from an upright position to a greater extent, the legs are bent to a greater extent and the hips are lower because the wider grip in the snatch brings the shoulders closer to the bar than they are in the clean.

The Barbell at Knee Level: When lifting the barbell from the floor to knee level, it is lifted smoothly from the floor with the:

1) Shoulders and hips rising together. The lift is done solely by the legs (the angle of the torso relative to the floor remains the same).

2) Shins move to a completely upright or vertical position. The balance shifts toward the middle of the foot or beginning of the heel; the feet remain flat on the floor.

3) The bar travels slightly backward toward the lifter so that it is over the instep as it reaches the height of the knees, causing the
shoulders, to now be positioned in front of the bar more so than at the start;

4) Arms remain straight.

It should be noted that lifters should move their body around the bar, rather than the bar around the body.

**The Power Position:** As the bar passes the knees the:

1) The torso moves rapidly to a near upright or upright position while the hips extend and the bar makes contact with the thighs.

2) Legs remain;

3) The bar and balance is over the middle of the foot, with the feet flat on the floor.

4) The muscles of the arms remain straight, until the athlete has achieved the “power position.”

**The Extension of the Body:** Once the bar reaches the power position, the lifter extends upward to generate the highest levels of power that occurs during the lift:

1) The arms remain straight.

2) The torso remains upright or may lean slightly back as the hips travel upward.

3) The legs drive the body and the bar upward. The feet move outward slightly after the effort is applied to the bar as the lifter repositions the feet to receive the bar on the shoulders or overhead.

**The Beginning of the Rapid Descent Under the Barbell:** After having reached the fully upright position, the athlete bends the legs to move under the bar. To facilitate this, the trapezius muscles are shrugging the shoulders upward and the arms are beginning to bend in order to pull the lifter downward under the bar. Catching the Bar in the Receiving Position: The lifter descends underneath the bar by dropping the hips and pulling himself under the bar, followed by pushing upward against the bar to lock the bar at arms length in the snatch, and turning the elbows around the bar to rack the bar on the shoulders in the clean with the elbows at the level of the shoulders.
Lowering the Body Into the Full Squat Position and Braking the Downward Motion of the Barbell: The lifter has descended into the low squat position:

1) Keep the elbows up in the clean or hold the arms locked in the snatch;
2) Absorb the downward pressure from the bar with the legs to stop the downward motion of the bar.

The Finished Position: Here the lifter stands up to the fully erect position with bar overhead by:

1) Straightening the legs while keeping the arms in a locked position overhead (in the snatch) or remaining upright and keeping the elbows up (in the clean), while standing to a fully erect position from the low squat. At the end of the recovery to the standing position in the clean.

2) The lifter brings the torso, the bar, and the feet in line and becomes motionless to await a signal to put the bar down (in the snatch), or begin the jerk (after the clean has been completed).
The Jerk

Having analyzed the actions of the lifter and movement of the bar during the snatch and clean, we will perform a similar analysis of the jerk. The jerk may appear to be very different from the snatch and clean, but in reality and of necessity, a number of the same motions and principles employed in the snatch and the clean apply to the execution of the jerk as well.

Jerk Start Position

After the clean the lifter assumes the starting position for the jerk where the:

1) Bar rests primarily on the shoulders above the clavicles (collar bones) and in the palms of the hands, which are facing upward.

2) Arms are relaxed and fully bent with the elbows held at shoulder height or below,

3) Lungs are inflated to lift the chest with the torso rigid,

4) Balance is toward the lifter's heels.

Jerk Dip

Once the correct starting position has been assumed and the lifter has been motionless:

1) Knees move forward and down directly over the toes, while the hips move straight down under the bar,

2) Trunk is held rigid and erect with the lifter's balance continuing to be toward the heels;

3) Bending of the legs proceeds at a moderate pace neither rapidly nor slowly until the bar has travelled downward by approximately 8 to 12% of the height of the lifter;

4) Downward motion stops crisply with the bar remaining firmly in contact with the shoulders and the lifter is in the “power position.”

Jerk Drive

From the power position the:

1) Lifter drives upward against the bar by pushing against the floor and extending the legs;

2) Balance shifts toward the middle of the feet, and the legs are extended (the bar is in contact with the shoulders throughout this driving process, which ends as soon as the legs have fully extended).

3) At this point the lifter begins to immediately move under the bar. There is no hesitation in the legs extended position but rather the lifter moves instantaneously downward under the bar as soon as the legs have reached their extended position.

Jerk Split & Catch

1) Arms push up against the bar driving the lifter downward under the bar while locking the elbows

2) Hips move directly under the bar while the torso remains vertical;
3) Shin of the front leg is vertical and the foot is flat while the back foot contacts the platform with the toes and ball of the foot. The heel of the back foot is raised.

Jerk Recovery – Standing Up from the Split Position

Once the lifter has stopped the downward movement of the bar in the full split position the:

1) Barbell, shoulders, and hips are maintained in vertical alignment while the lifter extends the front leg partially and then brings the front foot backward one step;

2) The back foot is brought forward one step to meet the front foot

3) Elbows remain rigidly locked throughout this recovery process;

4) Lifter becomes motionless and waits for the referees’ signal that the lift has been completed.

The recovery is taught throughout all stages of the progression to reinforce and instill proper habits. Recovering is done by taking one step backward with front foot and then taking a step forward with the back foot. It is important that the athlete step the front foot back first in order to maintain balance and proper alignment of the hips and shoulders.
Weightlifting Progressions

Expected Outcomes:

1. Explain, Demonstrate, Instruct and Correct the 5 Stage Teaching Progressions of the
   a. Snatch
   b. Clean
   c. Jerk
2. Demonstrate the Proper Technique of the “Hook” Grip

Learning the Basic Weightlifting Exercises

USA Weightlifting proposes that the teaching progressions of the Weightlifting movements be presented in the *Top/Down Part/Whole Progressions*. The rationale for this approach is based upon the idea that when the athlete is exposed to partial movements rather than full movements the learning curve is enhanced.

The final benefit of this approach is the remediation of a skill is built into the progressions. If an athlete is having difficulty with a particular movement they can return to the previous movement for remediation and then progress forward once the skill set has been improved. The table below lists the primary learning progressions of the Snatch, Clean and Jerk.

<table>
<thead>
<tr>
<th>LIFT BEING LEARNED</th>
<th>1st Stage</th>
<th>2nd Stage</th>
<th>3rd Stage</th>
<th>4th Stage</th>
<th>5th Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snatch</td>
<td>Power Snatch from Power Position</td>
<td>Power Snatch from Mid-knee</td>
<td>Power Snatch from Floor</td>
<td>Power Movement Plus Overhead Squat</td>
<td>Transition to Snatch from Floor</td>
</tr>
<tr>
<td>Clean</td>
<td>Power Clean from Power Position</td>
<td>Power Clean from Mid-knee</td>
<td>Power Clean from Floor</td>
<td>Power Movement Plus Front Squat</td>
<td>Transition to Clean from Floor</td>
</tr>
<tr>
<td>Jerk</td>
<td>Press</td>
<td>Push Press</td>
<td>Power Jerk</td>
<td>Footwork Drills</td>
<td>Transition to Split Jerk</td>
</tr>
</tbody>
</table>

Expected Outcomes:
1. Explain, Demonstrate, Instruct and Correct the 5 Stage Teaching Progressions of the
   a. Snatch
   b. Clean
   c. Jerk
2. Demonstrate the Proper Technique of the “Hook” Grip
## Power Position

<table>
<thead>
<tr>
<th>Power Snatch</th>
<th>Power Clean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upper Body</strong></td>
<td><strong>Upper Body</strong></td>
</tr>
<tr>
<td>• Snatch Grip</td>
<td>• Clean Grip</td>
</tr>
<tr>
<td>• Arms Straight</td>
<td>• Arms Straight</td>
</tr>
<tr>
<td>• Torso Erect</td>
<td>• Torso Erect</td>
</tr>
<tr>
<td><strong>Lower Body</strong></td>
<td><strong>Lower Body</strong></td>
</tr>
<tr>
<td>• Feet Hip Width Apart</td>
<td>• Feet Hip Width Apart</td>
</tr>
<tr>
<td>• Knees Straight</td>
<td>• Knees Straight</td>
</tr>
<tr>
<td><strong>Movement</strong></td>
<td><strong>Movement</strong></td>
</tr>
<tr>
<td>• Athlete Bends Knees Into Power Position</td>
<td>• Athlete Bends Knees Into Power Position</td>
</tr>
<tr>
<td>• Drives Upward</td>
<td>• Drives Upward</td>
</tr>
<tr>
<td>• Feet Move From Pulling Position to Receiving Position</td>
<td>• Feet Move From Pulling Position to Receiving Position</td>
</tr>
<tr>
<td>• Receives the Bar Above 90 Degrees at the Knee</td>
<td>• Receives the Bar Above 90 Degrees at the Knee</td>
</tr>
<tr>
<td>• Head Remains Still</td>
<td>• Head Remains Still</td>
</tr>
<tr>
<td>• Athlete Only Bends Arms to Pull Under the Bar</td>
<td>• Athlete Only Bends Arms to Pull Under the Bar</td>
</tr>
<tr>
<td><strong>Finish Position</strong></td>
<td><strong>Finish Position</strong></td>
</tr>
<tr>
<td>• Athlete Turns the Wrists Over</td>
<td>• Athlete Turns the Wrists Over With Elbows High</td>
</tr>
<tr>
<td>• Stands Up and Pushes Against the Bar to Finish With the Weight Overhead</td>
<td>• Stands Up With the Bar in a Racked Position</td>
</tr>
<tr>
<td>• Elbows Locked</td>
<td></td>
</tr>
</tbody>
</table>

## Mid-Knee Position

<table>
<thead>
<tr>
<th>Power Snatch</th>
<th>Power Clean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upper Body</strong></td>
<td><strong>Upper Body</strong></td>
</tr>
<tr>
<td>• Snatch Grip</td>
<td>• Clean Grip</td>
</tr>
<tr>
<td>• Arms Straight</td>
<td>• Arms Straight</td>
</tr>
<tr>
<td>• Torso Erect</td>
<td>• Torso Erect</td>
</tr>
<tr>
<td><strong>Lower Body</strong></td>
<td><strong>Lower Body</strong></td>
</tr>
<tr>
<td>• Feet Hip Width Apart</td>
<td>• Feet Hip Width Apart</td>
</tr>
<tr>
<td>• Knees Straight</td>
<td>• Knees Straight</td>
</tr>
<tr>
<td><strong>Movement</strong></td>
<td><strong>Movement</strong></td>
</tr>
<tr>
<td>• Athlete Eccentrically Slides the Bar Down the Thighs to the Mid-Knee Height</td>
<td>• Athlete Eccentrically Slides the Bar Down the Thighs to the Mid-Knee Height</td>
</tr>
<tr>
<td>• Shoulders are Forward of the Bar</td>
<td>• Shoulders are Forward of the Bar</td>
</tr>
<tr>
<td>• Athlete Drives the Torso Erect Back to the Power Position</td>
<td>• Athlete Drives the Torso Erect Back to the Power Position</td>
</tr>
<tr>
<td>• Feet Move From Pulling Position to Receiving Position</td>
<td>• Feet Move From Pulling Position to Receiving Position</td>
</tr>
<tr>
<td>• Receives the Bar Above 90 Degrees at the Knee</td>
<td>• Receives the Bar Above 90 Degrees at the Knee</td>
</tr>
<tr>
<td>• Head Remains Still</td>
<td>• Head Remains Still</td>
</tr>
<tr>
<td>• Athlete Only Bends Arms to Pull Under the Bar</td>
<td>• Athlete Only Bends Arms to Pull Under the Bar</td>
</tr>
<tr>
<td><strong>Finish Position</strong></td>
<td><strong>Finish Position</strong></td>
</tr>
<tr>
<td>• Athlete Turns the Wrists Over</td>
<td>• Athlete Turns the Wrists Over With Elbows High</td>
</tr>
<tr>
<td>• Stands Up and Pushes Against the Bar to Finish With the Weight Overhead</td>
<td>• Stands Up With the Bar in a Racked Position</td>
</tr>
<tr>
<td>• Elbows Locked</td>
<td></td>
</tr>
</tbody>
</table>
From the Floor

<table>
<thead>
<tr>
<th></th>
<th>Power Snatch</th>
<th>Power Clean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Start Position:</strong></td>
<td>Athlete Assumes the Proper Start Position as Described in Chapter 6</td>
<td></td>
</tr>
<tr>
<td><strong>Movement:</strong></td>
<td>Athlete Completes Movement as Described in Chapter 6</td>
<td></td>
</tr>
</tbody>
</table>

| Finish Position | Athlete Turns the Wrists Over  
|                | • Athlete Turns the Wrists Over  
|                | • Stands Up and Pushes Against the Bar to Finish With the Weight Overhead  
|                | • Elbows Locked                                                                | Athlete Turns the Wrists Over With Elbows High  
|                | • Stands Up With the Bar in a Racked Position                                   |

Common Errors In Power Movements

| Balancing and Positioning | **Cause:** Weight shifts forward or backward too early.  
|                          | Athlete cannot hold body levers correctly.  
|                          | Results in adverse horizontal displacement of the bar.  
|                          | Consequently the lifter must travel forward or backwards to receive the bar.  
|                          | **Correction:** The first pull cannot be any faster that the athlete's ability to maintain body levers and a balanced pull. |

| Back Whip and Hip Thrust | **Cause:** The athlete fails to keep the torso upright during the pull.  
|                         | The athlete leans backwards so far that the hip thrusts forward and bangs the bar away from the athlete’s body.  
|                         | This results in a loss of acceleration forcing the athlete into a poor receiving position or the barbell being lost behind.  
|                         | **Correction:** Athlete must keep the head still, the torso erect and the barbell in contact with the body. These actions will minimize horizontal displacement which allows for a greater acceleration on the barbell. |

| Bending the Arms While Pulling the Bar | **Cause:** Athlete becomes anxious and begins to pull the barbell up instead of themselves under the bar.  
|                                        | **Correction:** Remind athlete to keep arms locked and that they only to bend to pull them under the bar, never the barbell up. |

| Poor Catch Position | **Cause:** Caused by an imbalance or loss of balance from the pull to receiving phase, which is usually caused by an excessive backward motion of the head.  
|                     | The barbell moves significantly away from the athlete.  
|                     | **Correction:** Athlete must keep the head still and the torso erect. The feet must move efficiently from the drive to the land so the athlete can push up against the barbell. |

| Poor Rack Position | **Cause:** Grip may be to narrow or wide to allow for proper rotation of the elbows.  
|                   | Athlete fails to keep torso erect allowing for horizontal displacement and excessive receiving force.  
|                   | Athlete may lack proper shoulder, elbow or wrist flexibility.  
|                   | **Correction:** Athlete performs exercises to improve grip and increase flexibility. |
Jerk Progressions

The Jerk Progressions begins with the press followed by the push press which is the press with a dip and drive. The third progression is the power jerk. The lifter begins the power jerk with the bar held on the chest and shoulders similar to the front squat. From this position, the legs are bent smoothly. When the athlete has lowered the bar slightly, the downward “dip” ceases crisply and the lifter drives the bar upward with the legs. As soon as this impulse is delivered to the bar, the lifter descends and the arms push upward against the bar, driving the body downward under the bar and locking the arms out rapidly.

While learning the footwork drills the athlete can become comfortable with driving the bar over head by practicing power jerks. These drills teach correct positioning and balance for receiving the bar. The footwork drills contains four stages.

- **Split without Dip**
  - **Purpose:** To ensure that the athlete is driving from the dip in a balanced position and not traveling forward in the split.
  - The athlete begins by standing with their hands on their hips and feet in the proper position. From this position, the lifter bends the knees slightly and pauses. The lifter then jumps into the split position. The coach should ensure the lifter is properly balanced with weight distributed evenly.

- **Split with Dip**
  - **Purpose:** To ensure that the athlete can mimic the dip, drive and receiving position.
  - The athlete begins by standing with their hands on their hips and feet in the proper position. From this position, the lifter dips and drives into the split position. The coach should ensure the lifter is properly balanced with weight distributed evenly.

- **Split without Dip with Stick Overhead**
  - **Purpose:** To teach the correct torso position and bar placement overhead.
  - The athlete begins by standing with the bar overhead. From this position, the lifter bends the knees slightly and pauses. The lifter then jumps into the split position. The coach should ensure the lifter is properly balanced with weight distributed evenly and the bar properly placed overhead.

- **Split with Dip with Stick Overhead**
  - **Purpose:** To teach the correct torso position and bar placement overhead.
  - The athlete begins by standing with the bar overhead. From this position, the lifter dips then drives into the split position. The coach should ensure the lifter is properly balanced with weight distributed evenly and the bar properly placed overhead.

Transitioning From the Footwork and Power Jerk Practice to the Split Jerk

Once the lifter has mastered the footwork and has learned to drive the bar up with the legs, the lifter is ready to begin practicing the complete split jerk. Coaches may have the lifter begin a set with one or two reps of the footwork exercise and then have the lifter attempt a split jerk for three reps.

Once the athlete is performing the jerk correctly, the initial footwork can be eliminated from the set and the athlete can practice the jerk.
Supplementary Exercises

Expected Outcomes:
1. Explain and Instruct the Following Exercises:
   a. Back Squat
   b. Lift-offs
   c. Pulls
   d. Snatch Balance
   e. Presses

Some of the most common additional exercises that are used for conditioning and teaching weightlifting technique are explained in the text that follows. The use of these exercises is part of the judgment process that the coach employees in individualizing programs for each athlete.

Please note that although the 3 stage progressions are discussed in this manual, there are many variations of the progressions that are taught in the Advanced Weightlifting and Sport Performance Course.

Lift-Offs as a Means to Improve the Floor to Knee Phase of the Pull

When a lifter is having difficulty lifting the bar from the floor to the knee properly, practicing lift offs can be helpful. The lifter begins the lift with the barbell on the floor and the bar directly over the base of the toes, with the shoulders directly above, or slightly forward, of the bar. Next have the lifter practice lifting the bar exclusively with the legs, so that when the bar reaches the level of the knees it has travelled back toward the lifter’s shins, which are now upright (instead of leaning forward as they were at the start). At this point the bar should be over the lifter’s instep and the shoulders should be forward of the bar.

It is often very helpful when performing this exercise to ask the lifter to pause briefly with the bar at mid-knee height to ensure that the correct position at mid-knee has been assumed.

If the lifter cannot maintain the correct torso position with a snatch grip, he may be able to do it with a clean grip. In such a case, the lift-off should be performed in that manner until the athlete has developed sufficient flexibility to perform the snatch grip version of this exercise.

Snatch and Clean Pulls

Snatch and clean pulls are replications of the snatch and clean because the lifter pulls the bar up from the platform, or various positions in the progression. Athletes practice these exercises to build
strength and power as well as learn technique in the pull. Pulls place less stress on the nervous system and joints than the full versions of the lifts.

Pulls themselves, may be used as part of the progressions. Once the lifter is performing pulls in the same way that she would be performing the pulling phase of snatches or cleans, and overhead and front squats are mastered, the coach can have the lifters combine the pull with an immediate catching of the bar in the squat position.

**Back Squat**

*The squat, or back squat, builds strength in the legs and hips. However, the back squat is not as “specific” as the front squat or overhead squat in terms of carryover to the snatch and clean. The back squat proceeds in the same way as the front squat, except that the bar is placed on the tops of shoulders behind the neck, and is supported by the trapezius muscles, as well as the shoulders. It is recommended that the athlete points the elbows down so the torso is held as upright as possible as the lifter descends into the bottom position. Then the lifter, maintaining the torso in an upright position, returns to a standing position.*

**Snatch Balance**

The snatch balance begins with the lifter taking the barbell from a squat rack with the bar positioned behind the neck in a snatch grip, on the shoulders and trapezius muscles. As with all other exercises already described, it is generally best for beginners to start with a stick or a bar of appropriate weight and gradually increase weight when the lighter weights have been mastered.

Athletes must learn to move under a snatch very rapidly. Speed must be taught and snatch balances can be helpful in teaching this.

To perform the exercise, the lifter dips and drives the bar up. At the same time, the lifter descends rapidly into a full squat position to catch the bar overhead with locked arms. The goal is to perform the drop into the squat at the same speed that will be used in the snatch itself. Because the bar is being driven up with the legs, instead of being pulled up as it would be in the snatch, the lifter has little horizontal motion to contend with when trying to balance the bar in the receiving position.

**Press Behind Neck (PBN) – Clean and Snatch Grip**

Presses develop balance and awareness of placement of weight. Teaching the press from behind the neck first, is beneficial because the bar path is almost directly vertical from the shoulders to a position above the shoulders when the bar is locked out at arm’s length overhead.

The exercise begins with the bar on the shoulders behind the neck. The bar is then pushed overhead to full arm’s length, with the bar positioned directly above or slightly to the rear of the shoulder joint. Then, after a brief pause, it is lowered slowly to the shoulders to perform further repetitions and finish the set. The exercise proceeds in the same way whether the lifter is using the clean or snatch grip. In both version of the exercise, the torso remains upright and the legs remain locked throughout the
exercise. Some lifters bend the legs slightly as the bar is returned to the shoulders after the press to absorb the downward force of the bar as it is lowered. The legs should not be used in conjunction with the upward pressing of the arms to drive the bar overhead. The exercise begins with the chest inflated and a partial or full breath having been taken. The lifter exhales during the press or after it is finished.

Press in Snatch

The athlete assumes a full, low back squat position with the bar held in a snatch grip. Now the lifter performs a press behind the neck while in the squat position. This exercise will improve a lifter’s balance in the squat position and the ability to press out on the bar in that position. Typically, only the empty bar or very light weights are used in this exercise.

Press in Split Position

In this exercise the bar is taken from a rack and the lifter moves the legs into the split position used for the jerk. While balancing in that position, the lifter presses the bar up to arm’s length while remaining in the split. This teaches balance in the split position and light weights should be used in this exercise.

Power Jerk Behind Neck and Jerk Behind Neck

Some athletes who experience difficulty in executing the power jerk and jerk may find it useful to do some practice in the power jerk or jerk behind the neck. The chief advantage of this exercise is to teach and allow the lifter to become more comfortable ending the jerk with the bar above or slightly behind the shoulders.

These exercises are essentially identical to the standard versions of them except that the bar begins resting behind the neck, on the tops of the shoulders and trapezius muscles. From there the dip and drive are the same as for the regular power jerk and jerk with the athlete catching the bar overhead, with the elbows fully locked, and the bar over the shoulder joints or just behind. The major difference is that the chin is not tucked in and the head pulled back before the drive begins, as the bar does not have to clear the chin but rather the back of the head.
Designing Training Programs

Expected Outcomes:

1. List the 8 Areas of Effective Programming and Training
   a. Clear Objectives
   b. Warm-up
   c. Technique Progressions
   d. Training Adaptations and Undulating Format
   e. Reordering Exercises
   f. Distribution of Practice
   g. Order of Exercises and Rationale
2. Give Examples of Training Programs for Both
   a. Beginning Athletes
   b. Intermediate Athletes

In this section of the manual, we will explain how to structure daily, weekly, and monthly training sessions. Then we will look at a more detailed way to structure a training session, both in terms of content and the sequencing of the exercises that are included within that training session. The objective of this chapter is to equip coaches with the information necessary to create training programs that address the four objectives listed in the chart on the left.

### Objectives of Training Programs

|                |
|----------------|---|
| ↑ Performance  |   |
| ↑ Work Capacity|   |
| ↓ Injury       |   |
| Refine Technique|   |

The Order of Exercise Categories in a Given Training Session:

Training programs are broken down into individual days. Each day should follow a distinct order of exercises to maximize the benefits of each training days. As was mentioned earlier in this manual, athletes begin with a warm-up that is designed to raise the body temperature and reach levels of mobility that are currently within the athlete’s capabilities. The warm-up period is not aimed at improving mobility beyond its current ranges. The warmup will include a general warmup followed by sport specific movements.

Technique building exercises generally consist of the lifts or progressions. Performing these exercises immediately after the warm-up assures that the athlete will address the mental and physical challenge of developing technical proficiency when they are “fresh.”

The third category is strength and power building exercises. The most common example would be front and back squats, which are used by more advanced athletes to develop leg strength and by beginners to develop strength, coordination, and balance in a low squat position. Clean and snatch pulls might also be performed
during this part of the workout to improve the strength and power of the pulling muscles. Pressing exercises may also be carried out during this particular strength development portion of the training session and can be particularly useful for athletes who have no experience with lifting weights overhead.

Finally, once the technique and strength building exercises have been completed, the athlete aims to improve mobility to the point where the athlete is able to perform lifts correctly with no restrictions. It is typical for beginners to require more time in this phase of the training than more advanced lifters.

**Exercise Variance and Balance**

Athletes and coaches often fall into the trap of practicing technique on a certain exercise and becoming so immersed in the process of teaching and learning that exercise that they lose sight of how many lifts they have performed, or how long they have practiced. They also tend to practice what they find most interesting and what they are having success with. So it is not unusual for a new athlete who is being taught how to snatch to come in and spend an hour doing snatches and then be too tired to do much of anything else.

Therefore, the training session must be carried out in such a way that ample time is devoted to each item or area that needs to be trained. So if an athlete will train for an hour, perhaps 15 or 20 minutes should be devoted to snatching and somewhat shorter time periods to cleaning and jerking, the athlete may move to strength training such as squatting and pressing followed by mobility exercises.

**Progressive Overload**

If performance is not improving, there are generally two possible causes: you are overtraining or undertraining. Overtraining means that the overall volume and/or intensity of your training is too great for the athlete’s body to recuperate from it. Undertraining means that your training is insufficient to stimulate improvement. Factors may include too little sleep, other training, nutrition and muscular imbalance.

In contrast, when the body is presented with a higher than customary level of stimulus or stress it will generally adapt to the demands presented. This is generally done by increasing weight (intensity), and/or sets and reps (volume). Both volume and intensity can be increased together, but coaches must be careful not to overstress the body. Increasing only one of these factors helps to assure that such overstress will not occur. But failing to increase either variable assures that no progress will be made.
Relationship between Variables

<table>
<thead>
<tr>
<th>Reps</th>
<th>Sets</th>
<th>Load</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Times an Exercise is Performed in a Set</td>
<td>A Group or Multiple Groups of One or More Repetitions</td>
<td>Total Amount of Weight Being Lifted</td>
</tr>
</tbody>
</table>

Repetitions and Sets are dependent upon intensity and lift being performed.

- **INTENSITY**
- **SKILL REQUIRED**
- **MULTIPLE JOINT MOVEMENTS**
- **SKILL REQUIRED**

### Example Snatch Progression:

30/3, 40/3, 50/3, 60/3, *(70/3)*

* Signifies the target set

### Suggested Load/Rep Relationship

<table>
<thead>
<tr>
<th></th>
<th>70-80 %</th>
<th>80-90 %</th>
<th>90+ %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weightlifting Movements</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Strength/Power Movements</td>
<td>5</td>
<td>3</td>
<td>1-2</td>
</tr>
</tbody>
</table>

It is suggested that any weightlifting movement be restricted to no more than 30 total reps (to maintain technique and power production) and no more than 40 total repetitions are recommended for strength and power movements. Traditionally all exercises are performed for 3-5 warm up sets and 3-5 target sets.

The exception to this is a compound exercise such as the clean and jerk. Because both the clean and jerk constitute multiple movements, the athlete is better served by counting cleans and jerks separately toward the rep guideline, so that if a set of 6 reps is called for, the athlete does perhaps 3 cleans and 3 jerks for a total of 6 lifts per set.

In a similar way, combination movements such as 2 snatch pulls+2 power snatches+2 overhead squats would result in a total volume of 6 reps per set.

**Exercises, Volume, and Intensity – The Three Workout Descriptions**

When training first begins and focus is on the skill sets to be learned an approach that may be used is called the light, medium, and heavy system. It consists of one training day per week, or one week having a ‘light’ training load followed by one medium workout or week, and, finally, one heavy workout or heavy week. The light workout utilizes
weights that allow the athlete enough resistance that they can ‘feel’ the weight as the move but does not jeopardize technique. The medium workout would have a slight increase to the weight as the athlete gains both improved skill and increased confidence. Finally a heavy workout would happen after enough training has occurred that the athlete may make an attempt at a 3 repetition relative ‘max. If the lifter is training Monday, Wednesday, and Friday, the medium workout might be on Monday the light workout on Wednesday and the heavy workout on Friday. If applying the model to weeks it could be: Week One would be Light, Week Two, medium, Week Three, light and Week 4, Heavy. It is generally accepted, at least for beginner and intermediate lifters, that the medium, light, and heavy training is effective. This program should be shifted into a periodized program explained later after a one rep max can be determined approximately 3 to 6 months from starting. Examples of Light, Medium and Heavy Training may be found at the online website in the Chapter 9 folder along with examples of a Basic Periodization Program.

<table>
<thead>
<tr>
<th>Monday</th>
<th>Wednesday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium</td>
<td>Light</td>
<td>Heavy</td>
</tr>
</tbody>
</table>

The Importance of Recording the Plan and the Results

The coach will examine the number of repetitions performed in a week or month as a gauge of the overall volume of training performed by the athlete. The coach will also look at the intensity of lifts performed, generally as a percentage of the lifter’s maximum in that lift. So the coach might total the number of lifts with 90% weights that were done in a given month and the number of lifts done with 100% weights. In addition to considering the total number of lifts in each exercise, the coach will look at all lifts combined and evaluate the total training volume. If performance is not improving at a rate acceptable to the athlete and coach, steps may be taken to change one or more of the variables.

While long term multi-month or even multi-year training plans can be and are constructed, the process of training an athlete effectively consists of testing multiple hypothesis (elements of the training plan), then observing and analyzing the results. If the results are completed in accordance with the plan, training in accordance with the plan can continue. If results were better than expected, that is even more reason to continue with the plan. But when negative deviations from plan are observed over time, some analysis is appropriate. If the planned for weights and exercises were not completed, what is the reason? The reason may be because of increasing training volume to soon, not allowing enough rest, or poor technique. If technique is the problem the coach must consider what must be done to improve the athlete’s technique in the deficient areas, and special drills or mental focus may be added to the workout to correct the perceived deficiencies.

None of this can occur effectively unless the athlete is keeping careful records of the training session. This should be done in a diary which lists each workout, the date and time and the exercises performed with the weights actually lifted.
Training Programs For Beginners and Intermediate Lifters

The training programs used by beginners, intermediate, and advanced athletes are quite different. The beginner focuses almost exclusively on learning fundamental technical skills, building a base level of fitness, and improving flexibility as needed. Intermediate athletes focus on developing more refined skills, individualizing their technique, improving weak points, and increasing strength and power. Advanced athletes, assuming they have done the hard work of developing sound technical skills, devote their time to reinforcing the skills already learned and making their execution more consistent, to perhaps making some minor refinements in technique centered around improving efficiency. Another major focus for such athletes is building strength and power. The training of advanced athletes is beyond the scope of this manual, so we will focus primarily on the training programs of beginners, with some attention given to the training of intermediate level athletes.

Week to Week Variations in Training

Once a lifter has been training for at least several months, perhaps longer, and has mastered the basic technique of the competition lifts and related exercises, the coach may introduce the lifter to the concept of programs which loading varies across weeks, in addition to variation within training sessions. For instance, an athlete may train heavy in several workouts per week for two or three weeks in succession, then have a lighter week which allows for recuperation.

Example of a Weightlifter’s First Week of Training

Because of differences in the experience, existing skills, conditioning, health, and mobility, no two lifters will begin to train in the same way. However, clear guidance can be provided regarding the process that should take place during training. The mock workout described below provides a model for the coach working with a beginning lifter who is young and reasonably fit. In the example given, the snatch is being taught first.

<table>
<thead>
<tr>
<th>Suggested 1st Week of Training</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st Workout - Monday</strong></td>
</tr>
<tr>
<td>Warmup and Assessments</td>
</tr>
<tr>
<td>☐ Flexibility Assessments</td>
</tr>
<tr>
<td>☐ Health History</td>
</tr>
<tr>
<td>If assessments prove athlete is ready to commence lifting proceed:</td>
</tr>
</tbody>
</table>

Snatch Pull from Power Position

*If Correct:*
- ☐ Progress to Power Snatches from Power Position

*If Incorrect:*

Snatch Pull from Power Position (1 set)
- Power Snatches from Power Position (5 sets/5 reps)

Snatch Pull from Power Position for 2 reps/Power Snatch from Power Position for 3 reps

*If Correct*
- Attempt Power Snatch from Mid-Knee

*If Incorrect*
- Continue the Exercise Above
A stick, PVC pipe or light bar is used during the first week for working the skill focused exercises such as the progressions and overhead squats. In the footwork, the hands are on the hips, so no weight is used. The weight used in the lift-offs will depend on the preconditioning of the athletes. An athlete, who has been lifting weights from the floor such as when performing deadlifts, should be able to start with perhaps half of what they have been deadlifting, as long as correct positions and movement are maintained. If the athlete has to exert any real effort to complete the lift-off, it is too heavy. For those with no experience with weights, the stick or a very light bar may be enough, but it must be placed at the correct height for the starting position by using blocks or the like to position the bar at the same height it would reach if it were supported by the large diameter (45 cm) plates.

In an exercise like a squat or front squat, a stick or bar is often sufficient for the first week, especially if that person has never done squats. But for the athlete who has been doing correct squats, he/she can continue as he/she has been. The exception is the athlete who has been squatting only to a parallel position, or has been performing a powerlifting style squat, with the bar low on the back and the torso leaning forward. In such a case, the athlete can continue with the present method of squatting at the very beginning of training, while practicing a full and upright squat with a stick or bar. Then, as weight is added in the new squat style, the amount of training on the old style is gradually reduced, so that after several weeks, or several months if need be, the new style completely replaces the old.

It is unnecessary and generally counterproductive for most new athletes to train more than three times a week. The body needs time to adjust to training. A three day per week program generally provides appropriate training and rest. Training fewer than three times a week will tend to compromise progress in training, as learning a skill effectively requires regular practice. Some progress can be made training twice a week, but relatively no skill building will occur if the lifter practices only once per week.

<table>
<thead>
<tr>
<th>Exercise</th>
<th>Sets/Reps</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue with Snatch Pulls for 3-5 sets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Footwork Drill with Hands on Hips</td>
<td>3-5 sets/5 reps</td>
<td></td>
</tr>
<tr>
<td>Overhead Squat with Stick</td>
<td>3 sets/5 reps</td>
<td></td>
</tr>
<tr>
<td>Learn How To Miss a Snatch</td>
<td>3 sets/5 reps</td>
<td></td>
</tr>
<tr>
<td>Military Press (1 set/5 reps)</td>
<td>Footwork for Jerk and Correct Recovery (3-5 Sets/5 Reps (each leg))</td>
<td></td>
</tr>
<tr>
<td>Flexibility Exercises</td>
<td>Front Squat (2 sets/5 reps) &amp; Miss Practice</td>
<td></td>
</tr>
<tr>
<td>Abdominal Exercises</td>
<td>Optional: Snatch or Clean Lift Off to Knee</td>
<td>Snatch Lift-off to Knee (2 sets)</td>
</tr>
<tr>
<td></td>
<td>Flexibility Exercises &amp; Cool Down</td>
<td>Military Press (2 sets)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stretches/ Jumps/ Abdominals</td>
</tr>
</tbody>
</table>
If a lifter misses a week of training, it will take approximately one week of training to get back to the level of performance prior to the one week break. In fact, the general rule of thumb for those who stop training is that for every week off you need a week to get back into shape. So if a lifter stops lifting for six weeks, he/she can expect to start training all over and take six weeks of gradual progression to return to the prior level of skill and conditioning, starting with light weights and fewer sets, progressing gradually up to the prior training level.

A number of adjustments to the above model workout are frequently called for because of individual differences among beginners. As was noted earlier, week one could just as easily have been begun with power cleans instead of power snatches, if the athlete showed sufficient flexibility to rack the bar correctly in the clean during the assessments. Similarly, the lift-offs and front squats are adjusted or eliminated if the athlete does not have the prerequisite flexibility.

**Week Two and Beyond**

Begin by assessing the results of week one. If the lifter has grasped the power snatch from the power position, it would be appropriate to begin to do more and more practice from mid-knee. In later weeks, for the athlete who has been performing snatch grip lift-offs successfully, you may want to have the athlete begin to advance forward in the progressions. If that seems to work well, the lifter may begin a gradual process of doing more power snatches from the floor and fewer from the power position and knee until, after a few weeks, most are done from the floor. If the lifter seems to regress at some point, some lifts from the power position and/or knees are always acceptable in order to remind the lifter of correct movements.

Once the lifter is performing the power snatch consistently and correctly, and has become comfortable with the overhead squat, the transition from the power snatch to the snatch can gradually be made. This transition generally only takes a couple of workouts or weeks, if the athlete has been doing proper power snatches and overhead squats. After a reasonable snatch is being performed consistently, the power snatch practice can be abandoned, or at least greatly reduced, in favor of a snatch practice. For the lifter, who has trouble moving into the squat position quickly, the snatch balance and its variations can be very useful while the athlete continues to transition to the squat snatch, until better positioning, speed, and coordination in the squat snatch is achieved.

A similar process should take place in the clean, but learning the front squat comfortably, correctly, and consistently generally happens more quickly than does such learning in the overhead squat. So even if the athlete began by learning the power snatch and overhead squat, and only added power cleans after a week or two, the transition to the clean may well happen sooner than the transition to the snatch.

In the jerk, the lifter should be progressing the footwork practice from the jump into the split with hands on hips, to dropping into the split with hands on hips. When that is mastered (usually in 2-3 weeks) then to dropping into the split with a stick or bar held overhead is practiced. In the meantime, some practice on power jerking can be helpful. Once the lifter is performing a drop into the split with a stick overhead and the power jerk correctly, a quick transition into the complete jerk can take place. This typically occurs in one workout, if the lifter has truly mastered the footwork exercise with the stick held overhead. However, the athlete should continue with footwork practice as a warm up for the jerk for some time, so that the correct footwork is reinforced, even as jerking takes place. Once the jerk is being done reasonably well, power jerking should

Generally, the lifter should focus separately on the clean and the jerk during the early learning stages. Once each of these lifts have been well learned separately, it is a simple matter to combine the clean and the jerk, and this can
generally be done in a single workout if the jerking and cleaning skills are reasonably stable. Separate cleaning and jerking should slowly be phased out in favor of performing the clean and jerk over a period of months, although these exercises should continue to be practiced separately at least once a week. However, if one or other of these lifts lags behind, it may well be appropriate to continue to perform the clean and jerk separately and begin each workout with the weaker of the two lifts until the lift that is lagging begins to catch up to the leading one.

Considering all of the above factors, it is important for the coach to review the progress of beginners at least weekly and then to modify the program appropriately with the general objectives over the long term.

**Example of a Weightlifter’s Fourth Week of Training**

By now the training has become a little more well-rounded because the snatch and the clean exercises are both being performed in each workout and split jerk practice has commenced, assuming the progressions have gone well. It is likely by this time that most of any flexibility problems have been at least partially addressed. Naturally, if that is not the case, the program presented below would not be appropriate.

<table>
<thead>
<tr>
<th>Monday</th>
<th>Wednesday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warmup and Progressive Movements toward the Athlete’s Current Level of Flexibility</td>
<td>Power Snatch from Power Position (2 reps) followed by Power Snatch from Mid-knee (3 reps) <strong>If Correct</strong> □ Progress to 2 reps Mid-knee and 3 reps from Floor</td>
<td>Power Snatch from Floor Transitioning to Snatch (5 sets/5 reps)</td>
</tr>
<tr>
<td>Power Snatch from Power Position (2 reps) followed by Power Snatch from Mid-knee (3 reps) <strong>If Correct</strong> □ Progress to 2 reps Mid-knee and 3 reps from Floor</td>
<td>Power Clean from Power Position (2 reps) followed by Power Clean from Mid-knee (3 reps) <strong>If Correct</strong> □ Progress to 2 reps Mid-knee and 3 reps from Floor</td>
<td>Power Snatch from Floor Transitioning to Snatch (5 sets/5 reps)</td>
</tr>
<tr>
<td>Jerk Footwork with Stick Overhead <strong>If Correct</strong> □ Progress to full jerk</td>
<td>Footwork to Warmup then Jerks (5 sets/5 reps)</td>
<td>Footwork to Warmup then Jerks (5 sets/5 reps)</td>
</tr>
<tr>
<td>Overhead Squat (4 sets/5 reps)</td>
<td>Power Snatch with Overhead Squat (5 sets/5 reps)</td>
<td>Classical Clean (5 sets/5 reps)</td>
</tr>
<tr>
<td>Military Press (2 set/5 reps)</td>
<td>Overhead Squat (3 sets/5 reps)</td>
<td>Overhead Squat (4 sets/5 reps)</td>
</tr>
<tr>
<td></td>
<td>Front Squat (3 sets/5 reps)</td>
<td>Front Squat (3 sets/5 reps)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Military Press (2 set/5 reps)</td>
</tr>
</tbody>
</table>

**Weights Lifted During Early Training**

If movements are beginning to show some consistency and the athlete is experiencing no discomfort, weight can be gradually added. But the coach must be ever vigilant to assure that the weight the athlete is lifting is not causing technical mistakes or significant misses. New lifters will often lose their balance even with a stick, because the positions they are hitting are unfamiliar, but if the lifter is using a certain weight (even if it is light) and missing seems to be caused by the athlete’s putting real effort into the lifting the weight, the weight must be reduced until proper movement patterns are once again restored.
This approach needs to be followed even with intermediate lifters. If technique was correct up to a certain weight, then an increase resulted in a technique break-down, the weight should be reduced until proper technique is restored once again. However, if the breakdown seems to be related to fatigue instead of overloading (i.e., the athlete is not able to replicate the correct pattern that was achieved on earlier sets even when the weight has been reduced), then the exercise should be discontinued and the athlete should move on to the next stage in the workout. In movements that involve limited skill, such as the squat, the resistance used for higher sets should be high enough for the last repetition in the set to be challenging but not in jeopardy of being missed. Only after the athlete has been training for several months is it appropriate to begin to test an athlete to ascertain the area of his/her true maximum, or something approaching it.

There will be a stage where further technical progress can only be made when the lifter practices with relatively heavier weights. For instance, the split second timing required to bring a truly maximum weight under control can only be learned by practicing with weights that require such timing. But that is not the case for beginning or intermediate lifters, who should be focused far more on correct movements overall than split second timing.

**Within Week Variations in Loading**

The term “loading” refers to the quality and quantity of lifts an athlete performs in his/her training in a given period of time. A common measure of the quality of the loading is “intensity”, which is typically measured by the amount of weight lifted (absolute intensity) or by the amount lifted in relation to the athlete’s maximum for that or similar lifts, usually expressed as a percentage (relative intensity). So an athlete whose best snatch is 100 kg and who is lifting 90kg for two reps in the snatch would have an absolute intensity of 90 kg but a relative intensity of 90%.

**Longer Term Training Plans and Their Exercise Content**

Many coaches like to plan general approaches to training for periods ranging from months to years. Naturally, these programs need to be modified as results unfold, but the long term plan creates a clear picture of what the athlete’s developmental goals are.

The most common long term training plan is known as “periodization.” Under periodization, training volume and intensity is varied through such manipulations as changing exercises, weights, repetitions, and sets in a cyclical fashion that progress in a largely preplanned manner over time. More and less stressful training sessions and weeks are alternated in some fashion to produce or generate a training stimulus, while at the same time avoiding overtraining. Many believe this type of training to be the most result producing and progressive.

For example, a relatively short term plan for 4 weeks of training is embedded in a plan that is 12 weeks long. The plan assumes that athletes have reached the point where their maximums for a single repetition have been measured and the workout plan expresses the highest training intensity during these weeks in terms of percentages of the aforementioned maximums as follows on the chart to the left. In these respective weeks, the athlete might perform 2 to 3 reps in exercises requiring significant technique such as snatches and cleans, but 4 to 6 reps in strength related exercises.
Note the cyclical and undulating variation of intensity of the training period. A lighter week is followed by a heavier week in weeks one and two. Then a lighter week is carried out in week three although it is heavier than what was done in week one. Finally, week four is the highest intensity week yet. Also, note that while the maximum percentage is 80%, that is 80% of that lifter’s maximum for a single lift. However, such a weight is being lifted for 2-5 reps. That means the effort required on the last rep in the set will be significantly greater than the effort to lift 80% of the lifter’s maximum for a single lift because of the fatigue that builds up as the lifter performs the earlier reps in the set.

There might then be a second four week cycle structured as follows:

In this second four week cycle, the repetitions performed in the skill related exercises might be 3 reps in the lighter sets and 1 to 2 reps in the heavier sets of each workout and week, while in the strength related movements the reps might have been reduced to 3 to 4. Weeks five and six are similar to weeks three and four, but weeks seven and eight bring the intensity of training up to a higher level than during the earliest weeks in the 12 week cycle, one that approaches the lifter’s maximum ability.

There might then be a third four week cycle structured as follows:

In the third four week cycle, the repetitions performed in the skill related exercises might be 1 to 2; while in the strength related movements, the reps might have been reduced to 2 to 3. Week nine might be viewed as a week where stimulus is presented by neither a high volume nor high intensity such as performing four sets of two reps with the highest weight of the day. In week 10, both the volume and intensity might be higher with the athlete performing five sets of three reps. Then the athlete might reduce both the volume and intensity in week 11 by performing three sets of singles with the top weight. Finally, in the maximum week, the athlete might do two to three singles with the top weight. So the volume from week to week might vary by 20% along with the changes in intensity. This process alternates loading with unloading which is one of the most effective ways to assure long term progress.

In another variation, across a twelve week cycle, the intensity is gradually and generally increased while the volume moves in the opposite direction, as follows:
## Workout Structure at Six to Twelve Months

<table>
<thead>
<tr>
<th>Monday</th>
<th>Wednesday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Warmup and Progressive Movements toward the Athlete’s Current Level of Flexibility</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Snatch from Power Position, Mid-Knee and Floor (1 rep ea. position/ 7 sets)</td>
<td>Jerk from Rack (5 sets/ 3 reps)</td>
<td>Clean and Jerk (8 sets/ 2 Cleans &amp; 1 Jerk)</td>
</tr>
<tr>
<td>Jerk from Rack (6 sets/ 2 reps)</td>
<td>Power Clean from Power Position, Mid-Knee and Floor (1 rep ea. position/ 7 sets)</td>
<td>Snatch (6 sets/ 2 reps)</td>
</tr>
<tr>
<td>Cleans from floor (5 sets/ 3 reps)</td>
<td>Snatch from floor (5 sets/ 3 reps)</td>
<td>Press in Snatch Position (4 sets/ 3 reps)</td>
</tr>
<tr>
<td>Front Squat (5 sets/5 reps)</td>
<td>Press in Split Position (3 sets/ 3 reps)</td>
<td>Front Squat (5 sets/3 reps)</td>
</tr>
<tr>
<td>Military Press (3 set/3 reps)</td>
<td>Squat (3 sets/3 reps)</td>
<td>Flexibility Exercises &amp; Cool Down</td>
</tr>
</tbody>
</table>

### Flexibility/ Abdominal Exercises & Cool Down

Abdominal Exercises

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This is a very simple illustration of the long term programming that many coaches use. It should be noted that often, during periods when volume is high, the variety of exercises performed is greater. In contrast, toward the latter part of the series of weeks or months in a training period, when intensity grows and volume declines, exercises tend to be more competition related (more snatches and C&J’s and fewer supplementary exercises).

The above program would generate medium to higher volume and might be used toward the earlier and middle stages of the 12 week cycle. As the end of the cycle approached, the presses in the split and snatch positions might be dropped and the snatch and cleans in three positions might be replaced by pure snatches from the floor. The higher volume and variety period is often referred to as the “preparatory” period and the latter, higher intensity, lower volume, and lower variety period is often referred to as the “competition” period and a completion would typically occur at the end of the 12 week cycle.

However, the coach should remember that the true goal of training, especially at the beginner and intermediate level, is to provide a training stimulus that improves the athlete’s skill and strength. The programs listed in this course are merely an introduction to Program Design. A more in-depth study is provided in the Level 2 Advanced Weightlifting Course.

### Some Examples of Modified Programs for Sports Conditioning

It is well known that the Weightlifting movements can help to increase power, speed, and proprioception in athletes of all sports. The introduction of these movements should be done similar to that of a beginner program and will not stray too far from the principles outlined previously. It is however important to note the limitations of Weightlifting for Sports Conditioning. Coaches must keep in mind that stress is cumulative and therefore there is a combined training stimuli of both strength work and sport specific work. Secondly, athletes are under time constraints. These athletes will not be able to strength train twice a day due to other training and school obligations.

Training for sport conditioning share common objectives to that of a weightlifting plan in that they aim to develop power and strength and decrease injury, but have the added objective of addressing sport specific demands. Due to
time constrains and preventing possible overtraining, programs should be limited in the amount of exercises and include one weightlifting progression. An example of a modified program is below:

<table>
<thead>
<tr>
<th></th>
<th>Monday</th>
<th>Wednesday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snatch Progression</td>
<td>Jerk Progression</td>
<td>Clean Progression</td>
<td></td>
</tr>
<tr>
<td>Squat</td>
<td>Press</td>
<td>Squat</td>
<td></td>
</tr>
<tr>
<td>Sport Specific Strength Work</td>
<td>Sport Specific Strength Work</td>
<td>Sport Specific Strength Work</td>
<td></td>
</tr>
<tr>
<td>Remedial Exercises</td>
<td>Remedial Exercises</td>
<td>Remedial Exercises</td>
<td></td>
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</tbody>
</table>

**Sport Specific Strength Work:** exercises that replicate the motion(s) used in the sport or are tested by authorities in the sport such as the bench press in a football “combine”

**Remedial Exercises:** which are exercises to protect or recondition areas that have been injured or are subject to injury
American Development Model

**Expected Outcomes:**

1. Understand the Play, Love, Excel philosophy
2. Explain the differences in training and competition at the various stages in development
3. The most important thing is for kids to have FUN
4. Explain the importance of multisport participation

The ADM utilizes long-term athlete development principles as its framework. LTAD principles can be used as a basis on which to make our existing systems and structures more consistent. Developed by internationally renowned coach educator Istvan Balyi, and adapted to fit the scope of American sports culture, it was quickly integrated by USA Hockey to fit their sport specific needs. USA Swimming and USA Tennis quickly followed suit. The principles of LTAD are rooted in successful programs throughout the world. USA Weightlifting in its quest to continue to grow the sport of weightlifting can also, greatly, benefit from the principles of both LTAD and the ADM.

This is a great opportunity to change the way we go about developing weightlifting potential. One of the first things that USA Hockey did when beginning this project was to look closely at the statistics related to player development and the amount of time the athlete spent in skill development in both a practice and games. When viewed from the perspective of how kids learn the number of repetitions of specific skills and situations that occur in practice versus a game, they quickly learned where players have a chance to develop the most: Practice.

**USA Hockey:**

Hockey came to the realization that they needed to change the culture of youth hockey. In the development process, USA Hockey spent a full year just talking about the ADM to their youth coaches. What they came up with was the *Play, Love, Excel Program.*

“So a model was created that valued practices and proper training above all else. This isn’t to say that the ADM is about taking the fun out of hockey, quite the contrary. Practices can and should be fun, especially if the kids are all playing together and having a blast with a game that they love. The more they play it, the better chance that they’ll love it. And when you combine a passion for the game with increased puck time, kids will start to excel at it. Play, love, excel. That’s the ADM.”

As research was conducted in developing the ADM, it became apparent that critical areas in our system were neglecting kids at a very early age. As children mature, they each progress through the same development stages. And certain aspects of these stages must be addressed at the appropriate points along the development curve in order for our children to reach their genetic potential. Maximum development occurs through age-appropriate structure and content. Without developing skills and certain physical and mental attributes at the appropriate time, the long-term prospects of becoming a truly elite player diminish each day.
Playing is where young athletes learn that weightlifting is, in its simplest form, fun. If you can mix in age-appropriate training and practice with skills and athleticism introduction, kids will have even more fun. To keep it fun, there should be a low priority placed on winning and losing and a high priority placed on just learning the skills and enjoying the activity.

Once a young athlete learns the how of weightlifting and begins to develop skills and athleticism, weightlifting may start to take priority among other activities. Skills become more refined, their physical and mental makeup is stronger and the friendships they developed early on continue to grow. The sport becomes more important and weightlifting in general becomes a bigger part of their life.

Now that they play and love weightlifting, a higher premium is placed on excelling at it. Tougher competition and more of a focus on mastering skills play an increased role in their development. Weightlifting as a sport starts to take a larger priority over other activities. But, above all, it’s still fun and the friendships that were forged at the beginning now grow into a support system for the adventure that lies ahead.

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**Keys to the American Development Model**

- **"It's not Sport, It's Culture!"**
- Work Together to Drive This Model
- Some Things are Transitory
  - Mental Development
  - Emotional Development
  - **Fundamental Skills**
- Age Appropriate Development Shows Results
- Do Not Get Overly Organized

**What is the 10 Year- 10,000 Hour Rule**

The book "Outliers" by Malcolm Gladwell, discusses the 10,000 hour theory. The 10,000 hour rule is a theory that has been debated and studied in the context of numerous sports and activities. The theory of the 10 year-10,000 hour rule, explains that someone must spend 10,000 hours practicing to become a master of their art whether that be business, arts or sports. This theory comes out to an average of 3 hours per day for a ten year span.

In the context of the modern day sports culture, most see this as an easy theory to accomplish; my kids will just be thrown into more practices and will specialize in just one sport. However, the theory is not that simple in understanding and definitely not easy for coaches to implement. Every sport has a unique set of skills required that lead to differing muscular and nervous system developments. These skill sets serve not only to the sport that the athlete primarily plays, but are transferrable to most if not all sports.
Therefore, participating in multiple sports is not a hindrance, but rather a benefit. Multisport participation leads to well-rounded athletes who also reduce their chance of burnout and injury. Furthermore, playing multiple sports does not decrease that athletes chance to achieve excellence in their primary sport. In a study conducted by the USOC, “The Path to Excellence: A View on the Athletic Development of U.S. Olympians Who Competed from 2000-2012,” the USOC conducted surveys to determine factors that determine an athlete’s success (coaches, parents, friends, financial support, motives, etc.). The study concluded that 70.53% of Olympians considered themselves to be multisport athletes, and Olympians played on average three sports per year until the age of 14 and 2.2 sports per year from the age of 15-18.

Therefore, the idea of the 10 year-10,000 hour theory is not that sport specification is necessary, but to the contrary. Kids should have fun and try many different sports. Below is a list of key points that researchers have determined were critical to an athlete’s success in the developmental process:

- **Early Participation, but Late Specialization**
- **As Many Activities as Possible**
- **The Only Way to get 10,000 Hours is to do Other Sports**
- **Quality of Training not Just Quantity**
- **67% of the Time Should Just be Vigorous Activity**
- **Be Patient, Don’t Rush Development**
- **Find Time to Just Play**

**USA Weightlifting’s Approach to Long Term Athlete Development:**

USA Weightlifting has based its Long Term Athlete Development Model on the work done by Istvan Balyi and adopted by the US Olympic Committee. The model presented here follows the development of youth athletes through 8 stages: Active Start, FUNdamentals, Learn to Train, Train to Train, Train to Compete, Learn to Compete, Compete to Win and Weightlifting for Life.

The stages presented here are progressive in nature and give competition and training recommendations for the development of athletes for long term competition. It is important to note that the developmental age of youth can be substantially different than chronicle age. It is thus up to the coaches and parents of your athletes to adapt this model to each individual athlete. Moreover, training age (the amount of
experience the athlete has training in the sport) plays a huge role on the ability of the body to adapt to the stress of training at different loads and volume.

Despite the adaptability of youth and the big jumps in performance new lifter may see, it is important for coaches to understand the limitations of youth in sport. Just because youth may appear to be more like adults does not mean they can or should be trained in the same manner.

The following pages give suggested training plans and training objectives for each of the aforementioned stages.
Objectives:

- Increase coordination, social skills, motor skills, and imagination.
- Exercise builds strong bones and muscles and improves/maintains flexibility.
- Exercise may help to create proper sleep habits and promote a health weight.
- Instill correct postural habits.
- Create enjoyment through exercise and play.

Training:

- Kids should be engaged in both structured and unstructured activities.
- Structured activities should range from 30-60 minutes per day.
- Allow kids to just have fun (Unstructured Play).
- Sedentary time should be kept to a minimum.
- Activities should vary and include a variety of different movement patterns.
Objectives:

- FUNdamental sport movements are developed.
- Introduction of structured sport.
- Creating an environment where kids have FUN and have the opportunity to experience self-improvement is critical to the longevity of those kids in sport.
- Continue to improve motor skills as well as strength and endurance through nervous system development.
- Fundamental weightlifting movements may be taught such as squats or presses, but should not be done as a means to improve strength.

Training:

- Kids should participate in daily unstructured activities.
- Structured activities should include multiple sports and should range from 30-60 minutes per day.
- Allow kids to just have fun (Unstructured Play).
- Sedentary time should be kept to a minimum.
Objectives:

- Weightlifting movements can be taught with an emphasis on proper technique
- Choose loads where the athlete can succeed rather than attempting near max lifts.
- During this age period, children are highly receptive to skill and technique training.
- Focus should still be on creating a well-rounded athlete (endurance and anaerobic training, strength, flexibility, power, agility and coordination).
- Set standards and expectations regarding behavior, fair play and etiquette.

Training:

- Encourage participation in multiple sports and activities.
- Weightlifting training should be introduced approximately 2 times per week for 45 minutes to 1 hour.
- Other sporting activities should take place the other 3-5 days.
- Total Weightlifting Training Volume 100-150 hours per year.
Objectives:

- Athletes will most likely experience “growth spurts” which will change the biomechanics of their technique, coaches must work to adapt to the growing body.
- Focus should begin to shift to the nuances of the lifts (starting position, posture, receiving the bar) rather than the gross movement patterns.
- Assistance exercises should gradually be added to the program.
- Be concerned with creating a well-rounded athlete.

Training:

- Encourage participation in multiple sports and activities.
- Weightlifting training should include 3-4 workouts per week ranging from 1-1.5 hours.
- Total Weightlifting Training Volume 300-400 hours per year.

Competition:

- Competition should be introduced at this stage with an emphasis on competition procedures.
- Coaches should choose weights which set their lifter up for success.
- Lifters at this stage should compete 1-2 times per year
- National Youth Championships
Train to Compete
Males (Ages 16-18)
Females (Ages 15-18)

Objectives:
- Athletes may decide that Weightlifting is their preferred sport and the sport in which they would like to “specialize” in.
- Continued development of the whole body with strength, speed and flexibility is a must.
- More periodized training takes place.
- Athletes must become aware of the critical elements of training and competing: peaking, nutrition, muscle recovery, health habits, etc.

Training:
- Athlete begins to specialize in weightlifting, but may still cross train via other sports.
- Weightlifting training should include 4 workouts per week ranging from 1-2 hours.
- Total Weightlifting Training Volume 400-500 hours per year.
- Focus of training revolves around peaking for competition.
- Training programs should be progressive in nature to help lifters adapt to the increasing work capacity.

Competition:
- Coaches should choose competitions that fit into the overall goals of the athletes.
- Focus should be on peaking for main competitions.
- Lifters at this stage should compete 4-5 times per year.
- National Youth and National Junior Championships.
Objectives:

- Athletes become more aware of the importance of their training and competition habits.
- Performance optimization becomes critical and athlete may begin to seek help from other providers such as massage therapists, physiotherapists or nutritionists.
- Continued refinement of technique is crucial.
- Regular competition and training camps should be scheduled.

Training:

- Weightlifting training should include 4-5 workouts per week ranging from 1-2hrs.
- Total Weightlifting Training Volume 500-600hrs per year.
- Focus of training revolves around peaking for competition.
- Training programs should be progressive in nature to help lifters adapt to the increasing work capacity.

Competition:

- Focus should be on peaking for main competitions.
- Lifters at this stage should compete 5-6 times per year.
- National Junior Championships, American Open, Nationals Championship, National University Championships.
- Possible introduction to International Competition.
Objectives:

- Athletes have fully developed in terms of their mental, physical and emotional capabilities.
- Mastery of technique and developing individual style is the main focus of technical development.
- Athletes should have a support team in place to help guide them to treat/prevent injuries.
- Rest and recovery becomes of high importance as volume and intensity increases.

Training:

- Weightlifting training may include 6-7 workouts per week sometimes twice per day.
- Total weightlifting training volume 600-900 hours per year.
- Training programs should be progressive in nature and include adequate rest.

Competition:

- Focus should be on peaking for main competitions.
- Lifters at this stage should compete 3-5 times per year.
- American Open, National University and National Championships.
- International Competition.
**Competition Breakdown**

USA Weightlifting holds 5 National Events per year: National Youth Championships, National Juniors Championships, National University Championships, American Open and National Championships. Coaches should choose competitions that meet the mental, emotional and physical maturity of the athlete as well as the feasibility the athlete has of traveling to such meets.

The chart on the left has recommended competitions for each stage of development. These recommendations are based on the qualification requirements (i.e. National Youth is for athletes 17 and under) as well as the maturity of the athlete. On occasion, a Youth's total may be high enough to compete at Juniors or a Junior’s total high enough to compete at Nationals. This decision should be made by the coach and parents as to whether or not the athlete is truly ready to compete on the larger stage.

Coaches should work to set goals at the beginning of the season with each athlete and set up their training based on those goals. If hitting a qualification total and competing in one of the National Championships is a goal of the athlete, the coach should periodize their training around hitting the qualification total or Nationals.

Although the temptation to “Go Big or Go Home” may be lingering, it is important that athletes (especially young athletes) have success in competition. Coaches should therefore stress the importance of personal records rather than looking at results solely based on overall placement.

It is important to remember that competition should be FUN. If an athlete has a bad experience in a competition and feels discouraged, it may hinder their progression or cause that athlete to no longer want to compete. Therefore, just because an athlete is capable of competing does not mean that he/she should. Only coaches that have worked with their athletes day after day can accurately make that call!
Suggested Training Plan

The following plans are meant to be guidelines for training programs at each stage of development. Coaches should take and mold these plans to fit the needs of their athletes.

Learn to Train (2 times per week, 45 minutes-1 hour)

Goals of Training Session:

- Instill proper warm-up and cool down habits
- Teach the FUNdamentals of the Weightlifting Movements
- Introduce FUNdamental training movements such as pulls, squats and presses

Key Components:

- Keep the load light
- Vary the exercises to keep it “fresh”
- Keep each component of the practice short to keep the attention of your athletes
- Encourage multisport participation
- Allow the Kids to Have Fun

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<tr>
<th>Day 1</th>
<th>Cumulative Time</th>
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**Train to Train (3 times per week, 1-1.5 hours)**

Goals of Training Session:

- Stress the importance of key elements of training and recovery
- Ensure gym rules and etiquette are being followed
- Implement a plan to give corrections and assess each training session

Key Components:

- Keep the load light
- Introduce new exercises
- Praise the athletes and review the things that went right!
- Encourage multisport participation
- Allow the Kids to Have Fun

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**Train to Compete (3-4 times per week, 1-1.5 hours)**

Goals of Training Session:

- Increase Work Capacity
- Improve/ Refine Technique
- Preparation for Competition

Key Components:

- Periodization begins
- Focus shifts toward Competition Lifts rather than Power Movements
- Encourage multisport participation

During the Train to Compete stage, coaches should employ a basic 3 day per week periodized model. Examples of these can be found on the website and in the program design chapter.
Learn to Compete (4-5 times per week, 1-2 hours)

During the Learn to Compete stage athletes have developed the ability to sustain workouts and training periods with increased work capacity. At this stage, it is not possible to increase to a periodized plan for 4 days per week which can found on the website as well as in the program design chapter.

Compete to Win (6-8 times per week, 2 hours)

During the Compete to Win stage, athletes have had enough background in the sport to begin to train consistently more like an elite athlete. Workouts may extend in length, volume and intensity. It is not uncommon for elite lifter to train twice a day, multiple times per week. Coaches that train athletes at this level should seek education and training beyond the scope of this manual, such as taking the Advanced Course.

Weightlifting for Life (3 times per week, 1-2 hours)

Weightlifting can become a sport that is participated in for the rest of an athlete’s life. Athletes can enter this stage at any age and obtain the benefits of the sport. Not all athletes have a will to compete, rather some participate for comradery, joy, and health. It is important that when athletes come into the gym for the first time, their goals are evaluated and a plan is built around them. Similarly when an athlete retires from competition, coaches should encourage the athlete to stay involved in the sport whether that be in a coaching position, referee position, or as a masters athlete.

Examples of training programs for Masters Lifters can be found on the website courtesy of Jami Willette-Brown.