Weight Room Psychology: Selected Psychological Aspects of Physical Strength and Conditioning, Part 2

Jean Barrett Holloway, MA, CSCS
UCLA Extension, Certificated Program in Fitness Instruction
Los Angeles, California

EDITOR’S NOTE. THIS IS THE second of a two-part series on sport psychology in the weight room. The first part, Concepts and Theories, was published in Vol. 16(6) and focused on self-expectation and self-regulation theories.

Part 2
Practical Application of Theories

Orientation and Follow-up Sessions

Taking time for an orientation session when the athlete first begins strength and conditioning can serve many purposes. If the group using the weight room is small, a new individual may be introduced, tested for ability level, and drawn into the group informally.

In the U.S., however, performance oriented weight rooms tend to be located in educational institutions and have a heavy use pattern. Often a group of new athletes or a class of weight trainers will be oriented together. Whatever the size of the new group, the first meeting sets the tone for how everything is done in the weight room and for how things are talked about; that is, are they talked about at all, just enough, or will they have to be repeated endlessly?

The first three steps in the development of self-regulation—problem identification, commitment, and execution—can be addressed immediately and openly in an orientation session. The process of needs assessment (physical and mental), of setting measurable goals that motivate the athlete, and of commitment to execution can begin at once. The weight room is a place where weaknesses are identified and worked on in order to improve performance; therefore the people using the room have a common purpose, whatever their individual ability levels or sports might be.

As an introduction to goal-setting, athletes can take a minute in the orientation session to write down one or two major physical weaknesses or performance problems they would like to improve; for example, “In situation X, I want to be more . . . .” “I want to be able to . . . .”

Some individuals can be asked to share examples with the group, and the orientation leader can guide the discussion toward helping the athlete learn to work with the coach to set specific and measurable goals that relate to performance. Weight training exercises lend themselves to this and can be stated as the outcome expectation of training behavior, for example, “I want a 5-RM power clean of 50 kg in 2 months of training.” “At the end of the training year, I want to be able to back squat 1-1/2 times my body weight for a 1-RM.”

Typical exercises the athlete will be asked to learn and perform can be mentioned during the session and perhaps illustrated, always in the context of how they improve performance. Let athletes know what you think a good level of performance is for a given exercise. The best results achieved on selected exercises
can be displayed in the weight room on a sport-by-sport basis; they may serve as goals for some people.

Research shows that goal-setting clearly facilitates performance in industrial and organizational settings, but results in sports and exercise settings have been equivocal because of methodological difficulties. For example, control group subjects tend to spontaneously create goals for themselves, and a goal to perform a near-maximal or extremely fatiguing physical feat outside the context of long-term training and competition may not be motivating to a nonathlete (29).

Weinberg (29) recommends that new goal research incorporate how elite athletes and coaches use goals to prepare for competition. He summarizes a recent survey of college athletes which showed that improving performance and winning were their No. 1 and No. 2 goals, and that they saw the purpose of setting goals as providing direction and focus.

Even though goal research is ongoing, we can nonetheless present some general useful information as discussed in a review by Gould (6). The most effective goals are specific and measurable. They are used for both short-range and long-range time periods and for both practice and competition. The most effective goals are not easy to achieve, yet are realistic. They are related to sports performance behavior rather than to outcomes such as winning or beating somebody else. They are stated in a positive way to be achieved during a given time period. And they are written down and periodically evaluated by athlete and coach.

Having the athlete keep a written training log of workouts and goals or keeping a file the athlete can easily access in the weight room is vital for his or her execution of self-regulated behavior. It allows athlete and coach to monitor and evaluate training against the training goals. It allows the athlete's outcome expectations for training to become more accurate and helps keep his or her self-efficacy consistent with true ability.

Good progress reinforces the athlete's belief that this behavior is worthwhile. Lack of progress due to causes within his or her control, such as missed training sessions or poor eating or sleeping habits, can demonstrate the negative consequences of the lack of self-regulation and encourage the athlete to do what it takes to achieve productive workouts. This purpose of the training log or training file should be explained in the orientation session.

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A newcomers' tour of the strength and conditioning area might be given at this time in the orientation session. The equipment and locations where athletes will perform their exercises can be pointed out. Safety rules and behavioral ground rules can be introduced as the tour progresses. This should be followed up with a written handout of the major ground rules of behavior and safety in the weight room, as well as the consequences if rules are broken.

For less mature athletes, or where weight room manners have been a problem in the past, athletes can be asked to sign a behavioral contract stating that they understand the rules and accept the consequences of breaking them. These contracts should be retained by the coach, consistently enforced, and renewed each season. A list of the rules of conduct can also be displayed in the weight room.

Next in the orientation, the athletes can be asked to write down any obstacles (e.g., time problems, lack of social support, fears of body changes or injury) that could prevent them from committing to improve on the performance problem they have identified for themselves. For athletes who harbor low self-expectations or serious doubts or fears about their conditioning program, the early identification of these attitudes as obstacles to good progress is a crucial first step to changing them. If problematic influences on self-expectation and motivation are not recognized, the athlete's commitment to the work of a strength and conditioning program will be compromised.

For example, novice female weight trainers may be fearful of what intensive weight training will do to their physique and sense of femininity, or the technical sport coach may have doubts about the use of weights or certain exercises. A meeting should be held for discussing attitudes, feelings, and the enculturation process that produced such doubts. During this meeting, current knowledge of the effects of strength training on women can be brought out (10, 17). Remember, Bandura's theory states that behavior is strongly influenced by motivation, the belief that doing this behavior (or not doing it) will be worthwhile.

This is the time to identify role
models for the novice women—other women and female coaches who have gone through this experience and are glad they took the risk to try something new. Let the novices know they will not be ridiculed for having doubts and that they will be supported as much as possible in the development of self-confidence about their strength and conditioning program, precisely because of how influential their beliefs are on what they actually achieve.

A similar orientation approach can be taken with a group of athletes who have traditionally avoided weight training for fear of becoming slow or inflexible in their own sport. Upon joining a team, individual athletes will usually be pulled along into the team method without much formality. But getting a group or a team to try a new way requires a more organized approach. Letting the group know the agenda for the meeting in advance and setting a time limit on the discussion can prevent it from turning into an unfocused complaint session.

In an uncritical way, encourage the athletes to state their doubts. Acknowledge each doubt, perhaps by repeating it or listing it on a chalkboard. People feel less need to repeat themselves if they believe they were heard the first time. Discuss how these doubts were learned and what kind of evidence it would take to disprove them.

Then, share your knowledge with the athletes about specificity of exercise and how different styles of weight training can produce different effects in the body. Explain how your specific program has been designed to support the skills they need in their sport. Bring in role models who have gone through the physical and emotional changes brought about by your program.

Encourage the athletes to decide how to evaluate progress or the lack of it in their sport skills. and, within a reasonable time frame, to monitor specific sport skills side by side with specific weight room exercises (e.g., ease of jumping in track and field, a vertical jump measure, and a power clean measure). Ask the athletes to give your way an honest try. Promise and then deliver a follow-up session later to discuss changes. Keep the tone geared toward the positive goal of improving performance.

Taking the time to talk to and orient athletes at the beginning of their weight room experience can save much time later, because the athlete is much more apt to function efficiently and independently in the weight room, requiring less nagging and disciplining to get the workout done properly and on time. Once athletes are involved in acting on their commitments to change problems, effective follow-up sessions can often consist of informal, short check-ins with the athlete's training log.

■ Effective Teaching

An important body of research supports the influence of neural factors in strength and power output (2, 20); the influence of learned, evolving self-expectations on strength tasks was established earlier in this article. For a given individual with his or her inherited pluses and minuses already in place, the expression of physical strength is most accurately viewed as a learned skill.

Indeed, the entire rationale for having a strength and conditioning program rests on the ability to transfer the skills learned from one task to another, from the weight room to the playing field, in accordance with the principle of specificity of exercise (for discussions of transfer of learning, see 3, 4, 19, 21, 30). Strength and conditioning specialists should understand this as the basis for what they teach. They should inform their athletes about transfer of learning as they coach them because it will help athletes process and remember skills better (3). For example, the torso stability and hip and leg thrust learned from squatting transfers to stability needs and hip and leg actions in sport positions as varied as the catcher's squat in baseball or the crouch in downhill skiing.

We will briefly take up some points about the retention and transfer of motor skills (taken from 3) as they relate to the strength and conditioning specialist.

Variety of experience: People who have a background of different movement skills (running, jumping, throwing, catching, striking, and torso stabilizing) seem to be potentiated to learn a new sport skill. Those who do not have a good motor skills background may need to do extra low-level running and jumping and develop strength and confidence in simpler movements such as
presses and squats before attempting advanced lifting movements.

**Initial learning:** The degree of expertise attained in the initial learning of a skill is very influential, both on how well that skill is retained and on the degree of transfer of learning to a similar skill. For an optimal transfer of skills to his or her sport, the athlete must practice proper technique in the exercises of the strength and conditioning program and learn them well at the beginning.

**Deep processing to remember better:** The more meaning one attaches to the information being learned, the more deeply that information is processed and the better it is remembered. Explain the principles underlying the sport movements you teach; add a verbal label or visual or kinesthetic image to certain skills. For example, emphasis on complete and quick hip extension in the snatch or clean pull can be labeled a “hip pop.”

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**Competing responses:** Relearning a skill that was incorrectly learned at first is difficult because the athlete’s attention is distracted. That is, both the old and new ways compete for attention, which is limited in all of us. Unlearning bad habits requires patient demonstration, followed immediately by practice by the learner.

**Practice schedules with breaks:** Too much drill or practice on a new skill at one time is counterproductive to learning. This is especially true for complex, fatigu-  

ing, strength-dependent barbell exercises such as the snatch or clean and jerk. Break up the practice with other activities, observation, or rest periods. Sets and reps on new exercises should be low (e.g., hang snatch pull, 4 sets × 3 reps, and observing others making their attempts in between sets).

**Part to whole transfer:** As much as possible, motor skills need to be practiced as a whole and not divided into parts for practice. A complex skill, however, may have to be broken down into parts at first by an individual before the whole can be assimilated. If this is done, the parts should always be practiced in relation to the whole task, with the goal of having the whole task feel like a single unit to the athlete.

**Primacy and recency in remembering:** When a series of things is being presented, the first thing and the most recent thing are more apt to be remembered well. Therefore, when complex exercises such as snatches or cleans need to be broken down into steps and taught as parts of a whole, teach the finishing catch of the movement first (overhead squat for snatch, front squat for cleans). The next steps in learning will be movements added to get the athlete to the now familiar, well-remembered catching place in a top-down approach (25).

**Building Self-Efficacy**

Good teaching techniques will also support the development of high self-efficacy about the exercises in the strength and conditioning program. As noted earlier, the most potent source of self-expectations comes from accomplishment. This means that new, difficult, or frightening exercises may need to be taught in steps the athlete can master with con- dence before moving to the next step. The steps should move logically from the simple to the complex, from the easy to the difficult, and always with the step related to the whole movement.

Next, technique at lighter weights must be mastered before truly challenging weights are attempted. The athlete must be given time to learn. Some individuals may learn and conceptualize rapidly, but others may proceed slowly. Both athlete and coach need to adjust their goals and expectations to this fact by using an individualized approach. The penalty for rushing the athlete is poor technique and low self-effi- cacy about lifting, which means the athlete will be performing far below potential.

The coach who is overburdened with time demands should not overlook the importance of role modeling in the weight room. Athletes and assistants will emulate the behavior of the coach and will tend to regulate their behavior if the coach does so (15).

A coach cannot be everywhere at once but can still provide participant modeling in the weight room during the important initial phases of learning. Novices can be grouped together and coached by the most expert coach. Remember, self-efficacy about a task is improved by watching a similar person (same sex, same build, same background) struggle and succeed at the task; the watcher then tries and succeeds as well. Lifters in intermediate stages of
learning can be paired to train regularly with more knowledgeable role model athletes, as long as the goals for that workout are clearly understood by all.

**Psychological Climate of the Weight Room**

The many details that contribute to the atmosphere of the strength and conditioning area can help or hinder the development of self-regulating behavior in athletes. We will briefly discuss four of them: (a) coaches' expectations, (b) providing vicarious and verbal support for athletes' self-efficacy expectations, (c) providing support for the emotional arousal and focus of attention needed in serious lifting, and (d) deciding whether to seek professional psychological support.

All of the psychological tools available cannot be discussed here at length, but readers who want more information on a certain technique are encouraged to read the reviews referenced in this article and to get hands-on experience in mental imagery, relaxation, and the like by taking classes in psychology, sport psychology, yoga, dance, or acting.

**Coaches’ Expectations**

A coach’s expectations about the abilities of an athlete can affect that athlete’s performance; this has been reviewed by Horn (11). Strength and conditioning specialists may form expectations, for example, about how well the athlete will learn to perform exercises in a technically correct manner, how much resistance will be used, how many repetitions will be completed, and how much supervision the athlete will need. These expectations are part of coaching and are derived from personal and performance cues. However, if the expectations are too low and the coach is rigid in his or her opinions, problems can occur.

There is a noticeable difference between how coaches treat athletes for whom they have high hopes versus those they expect little of. A coach who believes an athlete has little ability to learn a skill may lower the performance standard or curtail his or her attention as a coach and cut short the practice time of the very person who needs them the most to improve. This coach may praise the athlete for merely performing simple skills and give little corrective instruction about how to improve.

When an athlete believes the coach has low expectations, this can negatively affect the athlete’s self-expectations (“I can’t do this”), leading her to conform to and reinforce the coach’s original expectation of poor performance (“I was right; she can’t do it”). To avoid this self-fulfilling prophecy, coaches should do the following:

- Base early expectations about athletes as much as possible on performance information.
- Allow for reassessment and revision of early expectations to keep them realistic.
- Individually design workouts to improve skills.
- Provide all levels of athletes with corrective instruction.
- Evaluate and reinforce all athletes on the basis of skill improvement, not just absolute performance achievement (11).

These strategies should help athletes form realistic personal outcome expectations and high self-efficacy expectations about their individual goals.

**Vicarious Experiences and Verbal Persuasion**

Before discussing vicarious experiences and interventions coaches and athletes may use to improve performance, let us note the findings of a critical review by the National Research Council on sport psychology’s attempts to optimize individual performance (16).

The overall effect of a given single cognitive-behavioral technique is small to moderate, but the effect can be enhanced if several techniques are combined over many sessions. Techniques are more effective with athletes who get anxious and focus poorly before competition as opposed to those who are already stalwart. Techniques are more effective when a person administers them directly (rather than indirectly, by audiotape for example). Finally, for closed skills such as weight training, an individualized pre-performance ritual made up of multiple techniques can help performance. The Council speculates (16, p. 232) on how such rituals work:

Preperformance strategies and expectancies may control the path of cognitive events such that subjects rehearse overlearned motor sequences, channeling their attention and energies into an on-target, challenged approach to the task at hand, which, in turn, may interfere with off-target, unfocused-aroused perceptions of threat that inevitably lead to choking under pressure.

**Observing Role Models.** As mentioned earlier, vicarious experiences about workouts can be a source of self-confidence for the athlete, and the atmosphere in the weight room can permit these nonperformance, but still helpful,
experiences. If an athlete has difficulty with a certain movement or with heavy weights, watching role models perform, live or on TV, can be helpful. If an athlete has trouble mastering power cleans, for example, the coach may have him or her observe someone else performing a good set of clean pulls while the coach comments about what is being done correctly.

The athlete may watch an instructional videotape on cleans or attend a weightlifting competition and discuss it later. Those who lack confidence can benefit from watching themselves perform well on videotape, but confidence may be undermined if they see themselves performing badly over and over, and they may despair about ever getting things right. Experienced, confident athletes can benefit from a review of errors, but the accent should be on the positive in the early stages of learning (1).

Imagery. In the U.S. almost all elite athletes use some kind of imagery technique and believe it is an effective help to performance (28). As with goal research, there is not enough evidence to verify the effectiveness of imagery for sports performance, although there is some evidence that mental practice helps in learning and performing cognitive tasks and laboratory motor skills tasks. Previous research designs have been criticized and new mental practice models rooted in cognitive science have been called for (28).

Athletes and championship games will not wait on science, however. The use of mental practice, mental imagery (27), or self-hypnosis (26) may also provide a vicarious source of self-efficacy expectations. In general, these techniques involve a mental run-through of the skill being attempted, imagining the sights, sounds, smells, and internal kinesthetic feelings and emotions that go with successful performance. These techniques can be an adjunct to learning or competition and can be used at home in a relaxed setting or just before the real performance.

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These techniques may not be needed for learning basic weight training exercises but they may be quite helpful in learning to snatch, clean and jerk, perform a 1-RM, or compete in a meet. Mental imagery can also be used to support transfer of learning from the weight room to sport performance: the athlete can remind himself or herself between sets just what performance skill the present exercise is intended to help (e.g., “Push jerks help my spike”).

The Athlete’s Self-Talk. Self-talk by the athlete and verbal persuasion by the people surrounding him or her is another source for self-efficacy expectations in the weight room. Self-talk should be positive. If negative, blaming thoughts about performance occur (e.g., “I have stupid, gumby legs and I can’t squat”), they need to be stopped and changed into positive, constructive, self-supportive thoughts (e.g., “I can fight to keep my chest up when I squat”).

The coach can help athletes notice the frequency of self put-downs and their bad effect on performance, and encourage athletes to talk patiently and positively to themselves (1). To increase a sense of self-control, coaches should encourage athletes to attribute their successes and failures to sources they can control (effort, improved training) and not to uncontrollable sources (luck, the environment) (1). This means that failure to reach a realistic goal can be reversed with more effort or smarter training, things the athlete can do something about. This also means that success in reaching a goal is due to the athlete’s work; the sense of accomplishment is the reward for it all and the reinforcement to continue training.

Verbal Persuasion by the Coach. A coach’s verbal persuasion is important for maintaining the athlete’s self-confidence and reinforcing correct behavior. When coaches talk to athletes who are starting to learn a new skill, they should continuously praise efforts made in the direction of correct behavior. Then, as the athlete’s skill develops, praise for correct performance should still be given but not all of the time. Research indicates that coaches should move from giving continuous to partial reinforcement in order to elicit the best performance from athletes (23).

People who are learning new skills can make many mistakes at once, and to avoid unduly confusing and frustrating the athlete, the coach will need to concentrate on fixing one or two basic problems at a time. When the athlete makes a mistake, the coach should point it out and explain how to correct that specific behavior as soon as it occurs. For example, instead of commenting “You keep jumping backward in
the clean!" try an instruction to fix the problem: "Press the floor down with the balls of your feet and you’ll stay over the bar."

Coaches, assistants, and fellow athletes need to give sports performance cues in can-do language that avoids mention of unwanted or feared possibilities. Ridiculing an athlete who is trying hard to learn, or allowing others to do so, is counterproductive to good performance because it can crush self-efficacy expectations.

Finally, expressions of disapproval and punishment for rule infractions may at times be necessary, but using exercise itself as a punishment can lead to overtraining and teach the athlete to hate what should be eagerly sought as the key to performance improvement. Being in the weight room environment, performing the workout, and receiving instruction are all things the athlete should want. If contract agreements about behavior are broken and punishment is needed, depriving the athlete of these things should be the ultimate penalty.

**Emotional Arousal**

The degree of emotional arousal can be a source of self-efficacy expectations for the athlete. If the athlete interprets an increase in heart rate, fast breathing, shaky hands, and other physiological changes to mean he or she is nervous, this can cause self-efficacy expectations about performance to sink. The coach can help him or her reinterpret these signs of arousal as a level of excitement whose energy is needed and which can be channeled into good performance.

Focus of emotional arousal is needed in order to lift heavy weights safely. Each person has an ideal performance state that is probably learnable (16) and probably involves optimal control of physiological and emotional arousal through preperformance mental preparation routines that train concentration and relax unproductive tensions (7, 8, 18, 22).

The coach should establish the training etiquette of the weight room to support this individual preparation and should control how many distractions to serious lifting will be permitted. The coach’s expectations about visitors and socializing, music, sharing platforms and equipment, clean-up, and the like should be explained early to all who use the room. Athletes who can regulate their behavior in these matters will find the weight room a rewarding place to do meaningful and satisfying work on performance.

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Platform etiquette gives a good example of the courtesy and respect for fellow lifters that is required to support their focus of attention. When lifting platforms are used, lifters should help training partners load the bar, get on the platform only to lift or load, and then get off at once. Walking in front of another lifter so as to break the focus of his or her concentration is rude and counterproductive to performance. As a way of further controlling distractions, competitive Olympic-style weightlifters often prefer no music and no mirrors when they train, and they stop talking altogether when a teammate is attempting a challenging weight.

**Professional Psychological Support**

Worth considering as part of the psychological climate of the weight room is a “psych center,” a table or a bulletin board reserved for informational handouts and materials on psychological skills to provide ongoing, positive support to athletes and technical coaches. It can include information about telephone hotline numbers and local counseling and support groups.

Because of their frequent contact with athletes, strength and conditioning specialists may be among the first to notice when an athlete is struggling with potentially serious personal difficulties, eating disorders, or drug problems. Real trouble may be prevented or reduced if that athlete can be steered toward professional psychological help.

The pressure of preparing for competition can be considerable, especially if the athlete is having difficulty coping with the distractions and demands of life apart from athletics. Although most coaches are aware there may be times in the training cycle when athletes become fatigued, bored, irritable, or anxious, these symptoms of incipient overtraining usually subside with the variety provided by such things as a time-out period, an extra day or two of rest, or a shift into a different phase of training (for reviews of physical and psychological signs of overtraining, see 9, 24).

Sport psychologist Keith Henschel cautions that when an athlete is consistently experiencing many of the psychological characteristics of overtraining at a high
level (e.g., poor concentration, lack of motivation, anxiety, irritability, low self-confidence, indifference), it is time to refer him or her to professional psychological help (9). Exceptionally successful athletes do not typically exhibit such symptoms; rather, they tend to be highly motivated, confident, highly focused, and not overly anxious (12, 13, 14).

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Help should also be provided to athletes who exhibit the physical and/or psychological characteristics of an eating disorder, for example, being too underweight for good performance, sudden weight loss, fluctuating body weight, loss of menstrual periods, excessive dieting, excessive eating without weight gain, feeling fat at a normal body weight, or excessive exercise beyond the prescribed training program (for a complete list and recommended interventions, see 5). An athlete who exhibits signs of trouble should be approached privately, with some sensitivity and with assurances of keeping the discussion confidential.

The goal should be to protect the health of the athlete and, if possible, to keep the athlete in training and part of the team. Stress to the athlete that seeking help for the problem offers an opportunity to improve athletic performance. Have on hand the telephone number or business card of a qualified counselor or psychologist, if possible a sport psychologist. The U.S. Olympic Committee’s Sport Psychology Committee in Colorado Springs may be able to recommend such a person.

Summary

There are undoubtedly many combinations of management details that can successfully support productive training, but the effective implementation of the strength and conditioning program should be based on knowledge of a variety of psychological tools and the theories underlying their use.

The research that tests Bandura’s theory indicates that outcome expectations and self-efficacy expectations are key influences on behavior. High or low self-efficacy about a task derives from performance accomplishments, vicarious experiences, verbal persuasion, and emotional arousal.

Kirschenbaum’s model of how an athlete becomes self-regulating in sports performance begins with the athlete’s identification of a problem, commitment to change, the self-monitoring and goal setting used to execute the change, management of the environment surrounding the athlete, and finally the athlete’s generalization of self-regulation from the specific problem to other areas of his or her life.

Strength and conditioning specialists can help athletes become self-regulating through the use of orientation and follow-up sessions to support the identification of problems and the commitment and means to change them. Effective teaching techniques use knowledge of how skills transfer from the weight room to the playing field; they foster the development of high self-efficacy expectations about training sessions and thus help create a positive environment for the athlete.

Recognition of the importance of the athlete’s self-expectations and the coach’s expectations paves the way for the use of a variety of methods in order to develop athletes who are accurate in their self-assessment and confident of their ability to perform and benefit from well-designed weight training programs. The strength and conditioning specialist should be alert to signs of psychological trouble or eating disorders in athletes and suggest professional help in those cases. Overall, the psychological climate of the weight room should mesh with the background and culture of the people who train there and be flexible to suit their needs and capacities.

References


Jean Barrett Holloway is an instructor and advisory board member for UCLA Extension's Certificate Program in Fitness Instruction. She holds a master's in developmental kinesiology from USC and has published research exploring the relationship of physical strength to self-esteem. Jean received the NSCA President's Award in 1988. She has also competed, coached, and officiated in Olympic-style weightlifting.