

Proper Lifting Technique

Observing the participants engaged in exercise in any fitness facility across America identifies that there is a general lack of understanding related to proper exercise technique. When it comes to training technique only two choices exist: 1) correct biomechanical form or 2) incorrect biomechanical form. Therefore, any deviation from that which would be identified as correct would in essence be considered improper execution (or just plain wrong). Interestingly, due to the movement capabilities of the human body it is plausible to “exercise” and not accurately perform any actual exercise when scrutinized for form and technique. This explains in part why there are so many variations in the way exercise is performed in fitness facilities, and possibly why many enthusiasts perceive themselves as having a high fitness IQ when much of what they do is incorrect. The most common errors include incomplete range of motion (ROM) (the half of a half squat), use of momentum (the barbell swing curl), incorrect body position during the exercise (knee crosses the toe lunge) and excess movement in non-motion segments (the hip extended side raise). Many of these errors stem from two issues, (1) no one ever taught the participant how to exercise properly, so their education stems from copying someone else’s bad form or (2) the weight is too heavy for the exerciser. It is fascinating that people often prefer to exercise incorrectly (so as to move more weight) than correctly with the potential to obtain better results. Is it a matter of ego, or the assumption that heavier loads provide better results?

Regardless of the reason a given person lifts with poor form, it is important to understand why the issue is so relevant. Certainly injury prevention should jump right out as an immediate answer, but many people exercise incorrectly for years without a weight lifting injury. Obviously, training incorrectly increases acute risks - but it is actually more detrimental from a chronic response. Upper and lower cross syndrome, lateral deviations and other postural changes over time associated with muscle imbalance cause abnormal body ailments that limit mobility and function. As a person ages, these situations worsen and can be more debilitating than an acute weight room injury. Recognizing that poor form is more dangerous is a difficult sell to regular gym participants; most people will continue to practice their current techniques in lieu of lowering the weight even if told it could cause harm. A more sellable rationale is that exercise performed with correct technique, suggesting proper biomechanics through a full ROM, increases local muscle activation and total fiber recruitment. This means if an exercise is performed correctly with proper loading it will provide significantly more adaptation benefits compared to a heavier exercise performed with incomplete ROM or technique flaws.

One way to promote improvements in technique is to use unilateral (single-sided) exercises. Unilateral-based training is strongly recommended as an adjunct to bilateral exercises. Unilateral actions provide significant advantages at the cost of total loading. The first benefit is unilateral work provides for loading across a greater range of movement – for

instance a dumbbell single arm row will allow for a greater degree of humeral hyperextension when compared to a barbell bent-over row. Likewise, a Bulgarian squat will provide significantly greater knee and hip flexion with a neutral pelvis than can usually be attained during a back squat. Electromyographical evidence suggests that not only will improvements in exercise ROM increase total recruitment but also enhanced localized activation – so the targeted muscle obtains the appropriate stress.

If bilateral exercises are used, the activity should be properly stabilized and performed through the fullest attainable ROM. The ROM component is a key element to maximizing the amount of muscle tissue employed. The lat pull-down and pull-up exercises are very good examples in support of this rationale. Many exercisers extend the hip during lat pull-downs, thereby exchanging activation and recruitment of the proper musculature for momentum-derived increases in weight. This represents an incorrect movement of the stability segments during an exercise as mentioned previously. The pull-up is normally more associated with the incomplete ROM (the half rep) issue, as exercisers rely heavily on the biceps and never fully adduct the humerus (or extend the arm); which coincidentally is the purpose of the exercise.

In many cases both problems (momentum and ROM) occur simultaneously. The bicep swing curl is easily observable on a daily basis. The bicep curl should reflect elbow flexion, not shoulder flexion; this suggests the elbow should function as a stabilized hinge with no change in the glenohumeral joint angle. Most exercisers

use shoulder flexion with arm flexion which represents a double negative. First, the stability segment is compromised, and secondly the ROM is minimized. Interestingly, the eccentric portion of “trying to slowdown” the exaggerated load is what actually provides a major portion of the hypertrophic response. If the exerciser lowered the resistance and performed the exercise correctly, he or she would have better results.

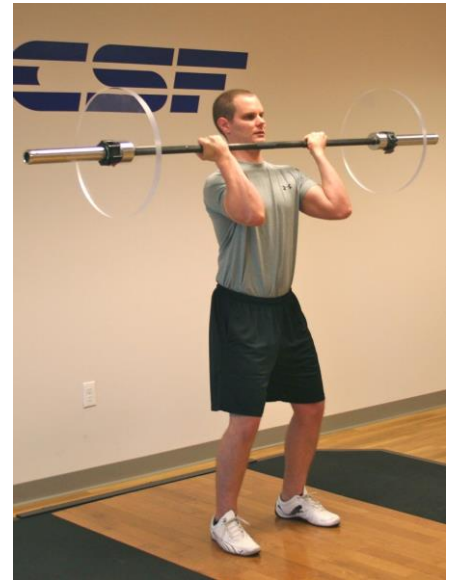
When deciding on an exercise routine the first step should always be to create a needs analysis. From there the specific exercises or exercise variations can be applied to best meet the client’s goals. A person who cannot engage traditional exercises properly should be instructed on how to modify the activity to make it more effective and reduce the risk for movement errors. The important part is the instruction of the activity; exercise professionals must make the movement execution detail-oriented. For some reason when left to its own accord the body does not innately perform proper biomechanics. This is painfully evident when watching novice exercisers function in fitness settings, and identifies the clear role a personal trainer serves in the environment. Each action should be taught and reinforced until it is done properly... every time. Anything not performed correctly after all - is incorrect.



Arm Curl Start



Arm Curl Finish - Correct



Arm Curl Finish – Incorrect



Correct Squat Bottom Position



Incorrect Squat Bottom Position



Side Raise Start - Correct



Side Raise Finish - Correct



Side Raise Start - Incorrect



Side Raise Finish - Incorrect

Proper Lifting Technique CEU Quiz

1. All of the following lifting technique errors are very common among novice exercisers, except:
 - a. Using an incomplete range of motion
 - b. Using momentum to lift heavier weight
 - c. Performing repetitions too slowly
 - d. Allowing movement in body segments that should remain stabilized
2. *True or False?* Many lifting technique errors stem from copying another exerciser's poor form or using excessive weight the lifter cannot properly handle.
 - a. True
 - b. False
3. Which of the following statements associated with the risk for injury during improper lifting technique is correct?
 - a. Improper lifting technique can increase the risk for acute injuries
 - b. Improper lifting technique can increase the risk for chronic injuries
 - c. Improper lifting technique can cause abnormal postural changes over time
 - d. All of the above are correct
4. When an exercise is performed correctly with proper biomechanics through a full range of motion, there is an increase in local _____.
 - a. Instability
 - b. Muscle activation
 - c. Endocrine release
 - d. Lactate accumulation
5. Which of the following is recommended for promoting direct improvements in technique and local muscle recruitment?
 - a. Bilateral exercises
 - b. Ballistic exercises
 - c. Unilateral exercises
 - d. Isometric exercises

6. Which of the following exercises would allow for the greatest range of motion at the shoulder joint when performed with proper form?
- Barbell bent-over row
 - Cable lat pull-down
 - Dumbbell single-arm row
 - Pull-up
7. Which of the following describe an issue associated with performance of a “bicep swing curl”?
- The shoulder takes over for a portion of the load
 - The hips are utilized to create assistive momentum to the movement
 - The range of motion of work performed by the biceps is minimized
 - All of the above
8. True or False? Swinging the weight during a biceps curl can reduce the potential for hypertrophy because the controlled eccentric portion of the lift is a major contributor to this adaptation.
- True
 - False
9. Electromyographical evidence suggests that improvements in _____ during a given lift increase total fiber recruitment within the muscles engaged.
- Contraction velocity
 - Force output
 - Range of motion
 - Isokinetic gain
10. Unilateral exercises provide significant functional advantages at the cost of total _____.
- Loading
 - Intensity
 - Time under tension
 - None of the above are correct