PHASE 2: MOVEMENT TRAINING

ACE
AMERICAN COUNCIL ON EXERCISE

The ability to perform movements with skill and efficiency is essential for health, fitness, and performance. Movement efficiency not only helps reduce the physiological burden of performing activities of daily living, job tasks, and sports skills, but also reduces one's likelihood for certain types of musculoskeletal injuries.

Consequently, in order to help establish a client's best opportunity for long-term success, it is crucial that appropriate movement patterns are developed and reinforced on a consistent basis within the context of each training session. This text presents strategies for improving movement proficiency in the five basic movement patterns outlined in the ACE Integrated Fitness Training® (ACE IFT®) Model. Additionally, several strategies for increasing the complexity of these movements are discussed.

The Five Basic Movement Patterns

The ACE IFT Model identifies five basic movement patterns: bending and lifting movements (e.g., squatting); single-leg movements (e.g., single-leg stance and lunging); pushing movements (e.g., primarily in the vertical or horizontal planes); pulling movements (e.g., primarily in the vertical or horizontal planes); and rotational (spiral) movements. In many cases, when performing these movements for the first time, individuals will demonstrate faulty movement patterns. During phase 2 (movement) training, the fitness professional must critically analyze potential reasons for these issues and attempt to educate the individual on how to perform these movements correctly.

Creating a Rubric for Movement

To judge movement efficiency, we must have an appropriate reference for comparison. Creating a basic evaluation system is extremely helpful and will allow the professional to streamline this process. A rubric is a tool commonly used in academic settings to delineate the specific criteria for grading or scoring academic papers, projects, or tests. Rubrics help ensure consistency when rating these works, and help individuals better understand exactly what is expected of them to perform at an acceptable level. Rubrics can be used by the fitness professional to ensure that all aspects of a specific movement are being performed correctly, as well as serving as an ongoing assessment tool to measure progress. For clients, this tool can provide a basic checklist to help guide and evaluate their own movements. Subsequently, these documents may also serve as an educational tool to not just "train," but actually "teach" clients what efficient movement should look like.

Tables 1 through 5 provide several examples of movement rubrics for exercises that target the five basic movement patterns that are central to phase 2 of the ACE IFT Model (movement training). These rubrics emphasize the correct execution of these movements, rather than the potential movement compensations or imbalances.

TABLE 1: MOVEMENT RUBRIC FOR THE BEND-AND-LIFT PATTERN

Body Region	Optimal Movement Pattern	Achieved	Feedback
Feet/ankle	Feet flat and stable	Yes/No	
	Heels in contact with ground	Yes/No	
Knees	Aligned with the hips and the feet	Yes/No	
	Directly over, or just behind, the toes	Yes/No	
Hips	Flexed and horizontally aligned	Yes/No	
Torso	Tibia and torso are parallel to one another	Yes/No	
	Lumbar spine remains neutral	Yes/No	
	Torso remains centered over base of support	Yes/No	
Head	Neutral	Yes/No	

Sources: American Council on Exercise (2014). *ACE Personal Trainer Manual.* San Diego: American Council on Exercise; Kritz, M., Cronin, J., & Hume, P. (2009a). The bodyweight squat: A movement screen for the squat pattern. *Strength & Conditioning Journal,* 31, 76–85.

TABLE 2: MOVEMENT RUBRIC FOR THE LUNGE			
Body Region	**Optimal Movement Pattern**	**Achieved**	**Feedback**
Feet/ankle	Front foot flat and stable	Yes/No	
	Back foot on the ball of the foot with the toes flexed	Yes/No	
Knees	Aligned with the hip and the feet	Yes/No	
	Front knee directly over the lead ankle	Yes/No	
Hips	Flexed and horizontally aligned	Yes/No	
Torso	Vertical with the shoulders directly above the hips	Yes/No	
	Lumbar spine remains neutral	Yes/No	
	Torso remains centered over base of support	Yes/No	
Head	Neutral	Yes/No	

Sources: American Council on Exercise (2014). *ACE Personal Trainer Manual.* Kritz, M., Cronin, J., & Hume, P. (2009b). Using the body weight forward lunge to screen an athlete's lunge pattern. *Strength & Conditioning Journal,* 31, 15–24.

TABLE 3: MOVEMENT RUBRIC FOR A VERTICAL PUSHING MOVEMENT FROM THE UNIVERSAL ATHLETIC POSITION			
Body Region	**Optimal Movement Pattern**	**Achieved**	**Feedback**
Feet/ankle	Feet flat and stable	Yes/No	
	Heels in contact with ground	Yes/No	
Knees	Aligned with the hips and the feet	Yes/No	
	Directly over, or just behind, the balls of the feet	Yes/No	
Hips	Slightly flexed and horizontally aligned	Yes/No	
Torso	Vertical	Yes/No	
	Lumbar spine remains neutral	Yes/No	
	Torso remains centered over base of support	Yes/No	
Head	Neutral	Yes/No	
Shoulders	Level/horizontally aligned	Yes/No	
Arms	Extended fully overhead, palms facing forward, with the upper arms aligned with the ears	Yes/No	

Source: Earle, R.W. & Baechle, T.R. (2008). Resistance training and spotting techniques. In: Baechle, T.R. & Earle, R.W. (Eds). *Essentials of Strength Training and Conditioning* (3rd ed.). Champaign, Ill.: Human Kinetics.

TABLE 4: MOVEMENT RUBRIC FOR A HORIZONTAL PUSHING MOVEMENT FROM THE PRONE POSITION (E.G., PUSH-UP)

Body Region	Optimal Movement Pattern	Achieved	Feedback
Feet/ankle	Aligned with the knees and dorsiflexed throughout duration of exercise	Yes/No	
Knees	Aligned with the hips and the feet throughout duration of exercise	Yes/No	
Hips	Horizontally aligned with one another throughout duration of exercise	Yes/No	
	Aligned with the ankles, knees, and shoulders throughout duration of exercise	Yes/No	
Torso	Neutral and aligned with the hips throughout duration of exercise	Yes/No	
	Torso remains centered over base of support throughout duration of exercise	Yes/No	
	Lumbar spine is neutral throughout duration of exercise	Yes/No	
Head	Neutral throughout duration of exercise	Yes/No	
Shoulders	Level/horizontally aligned throughout duration of exercise	Yes/No	
	Held back and down away from the ears		
Scapula	Neutral, with fluid controlled movement against the rib cage throughout duration of exercise	Yes/No	
Arms	Extended with the palms directly under the shoulders and arms tucked to the sides on upward phase of moment (starting position)	Yes/No	
	Arms flexed so that upper arms are parallel, or slightly below parallel to the ground with the elbows tucked to the sides (down position)	Yes/No	

Sources: American Council on Exercise (2014). *ACE Personal Trainer Manual.* San Diego: American Council on Exercise; Kritz, M., Cronin, J., & Hume, P. (2010). Screening the upper-body push and pull patterns using bodyweight exercises. *Strength & Conditioning Journal, 22*, 72–82.

TABLE 5: MOVEMENT RUBRIC FOR BODY-WEIGHT BENT-OVER ROW PATTERN

Body Region	Optimal Movement Pattern	Achieved	Feedback
Feet/ankle	Feet flat and stable	Yes/No	
	Heels in contact with ground	Yes/No	
Knees	Aligned with the hips and the feet	Yes/No	
	Directly over, or just behind, the balls of the feet	Yes/No	
Hips	Flexed and horizontally aligned	Yes/No	
Torso	Parallel to the ground/flat back position	Yes/No	
	Lumbar spine neutral	Yes/No	
	Torso remains centered over base of support	Yes/No	
Head	Neutral	Yes/No	
Shoulders	Level/horizontally aligned	Yes/No	
	Held down and back from the ears	Yes/No	
Scapula	Retracted and depressed	Yes/No	
Arms	Hanging toward the ground with the elbows fully extended, hands pronated, with the upper arms aligned with the shoulders (starting position)	Yes/No	
	Elbow tucked to the sides during pull	Yes/No	

Sources: American Council on Exercise (2014). *ACE Personal Trainer Manual.* San Diego: American Council on Exercise; Kritz, M., Cronin, J., & Hume, P. (2010). Screening the upper-body push and pull patterns using bodyweight exercises. *Strength & Conditioning Journal, 22*, 72–82; Earle, R.W. & Baechle, T.R. (2008). Resistance training and spotting techniques. In: Baechle, T.R. & Earle, R.W. (Eds). *Essentials of Strength Training and Conditioning* (3rd ed.). Champaign, Ill.: Human Kinetics.

While important for the fitness professional to understand, focusing on the compensations and imbalances causes one to think more about the problem than the solution. Thus, using positive wording within the context of the movement rubric helps direct the individual's attention to what actions should be focused on to correct the poor movement pattern, rather than the movement the fitness professional would like to him or her to avoid.

Each rubric has columns for the body region to assess, the optimal movement pattern for that region, and a delineation of whether this movement was achieved, as well as a feedback column in which the professional can list specific teaching cues and key points to focus on should improvement be required. Remember, these cues should focus on the desired movement outcome. For instance, if the feet are pronating, the fitness professional should emphasize keeping the weight evenly distributed over the feet and keeping the knees aligned with the hips and feet. The professional should not say, "Don't turn the feet inward," as this emphasizes the incorrect movement pattern and may unintentionally direct the client's focus to this movement rather than the desired pattern. Note that this rubric also utilizes a bottom-up approach by looking at each subsequent joint in the kinetic chain. This can help the fitness professional zero in on problem areas and assist in determining the most effective training strategy to solve a compensatory movement pattern. Furthermore, this technique also tends to appeal to both kinesthetic learners and those individuals who tend to learn best by having information displayed to them in words.

Utilizing Technology in Conjunction with Movement Rubrics

In recent years, with the availability and accessibility of several new sports video analysis applications (apps) available for both tablet and cell phone use, movement assessment has become significantly easier. Many of these applications are free or can be purchased for a nominal fee online. These apps allow the fitness professional and client to instantly review video in real time and slow motion. Additionally, several marking tools are available within these apps that allow for quick and easy biomechanical breakdown of movements. Not only does this provide an excellent tool for assessing and reassessing movement over time, but it also can be used to provide instant feedback to clients who tend to be more visual learners.

Summary

Developing appropriate movement patterns is essential for improving fitness and performance, enhancing movement efficiency, and reducing the risk of potential chronic and acute injuries. Creating a movement rubric can not only aid the fitness professional in assessing a client's movement skills, but also be used as a teaching tool for clients to better understand what movements are required to execute a task effectively. Furthermore, the integration of new technologies can also be employed to better appeal to specific learning styles, improve body awareness, and provide an easily accessible reference for future improvement.

References

American Council on Exercise (2014). *ACE Personal Trainer Manual.* San Diego: American Council on Exercise.

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