The certified personal trainer (CPT), as defined by the National Strength and Conditioning Association (NSCA), is an individual who assesses, motivates, and educates clients regarding their health/fitness needs (1). The CPT uses an individualized approach, designs safe and effective exercise programs, responds appropriately in emergency situations, and refers clients to other healthcare professionals when necessary (1). A CPT may also provide general nutritional advice and facilitate healthy behavior changes. Among the many aspects of the CPT’s duties, facilitating behavior change may perhaps be the most crucial element in promoting overall client success. Long-term client progress is dependent on a variety of factors, but healthy behavior change provides the foundation upon which success is realized.

In order to facilitate healthy behavior change, models and theories are often used as guiding frameworks from which to develop an evidence-based intervention. There are a variety of such models to choose from when attempting to change a client’s behavior, and some models might be better suited for certain behaviors. The most common behaviors that CPTs will be working with include diet and exercise. This article will deal specifically with exercise-related change.

Many different theories and models have been successfully used to facilitate exercise behavior change, including the transtheoretical model (TTM), social cognitive theory (SCT), and social ecological model (4). The SCT model identifies a variety of factors that influence behaviors, with self-efficacy being the key concept characterizing this theory (4). The social ecological model describes the many different variables that influence behavior, ranging from the intrapersonal level to the public policy level (4). The TTM, on the other hand, proposes stages of change that individuals progress through as behaviors are modified (4). While all three of these models and theories have been successfully utilized within exercise interventions, the purpose of this brief review will be to discuss the application of the TTM and its constructs in modifying exercise behavior in the personal training setting. The TTM was chosen for this review as it is a well-established model for facilitating exercise behavior change (4). Therefore, a summary of the model and its application to personal training can be useful for the fitness professional.

THE TRANSTHEORETICAL MODEL

The TTM was introduced in the early 1980s and has been applied to many health behaviors since its conception (6). The model was originally applied to smoking cessation, but its application has expanded to address many other health behaviors, including exercise. As stated previously, this model proposes stages of change that individuals progress through as they attempt to change a specific behavior (4). However, these stages are only one construct within the model. Other constructs included within the TTM include processes of change, decisional balance, and self-efficacy (2). All of the constructs that characterize the TTM have been applied to exercise behavior (6). This review will focus mainly on the “stages of change” model and how it relates to exercise behavior. The other constructs and their application to exercise behavior will be discussed briefly.
STAGES OF CHANGE

The five stages of change model include: (a) precontemplation, (b) contemplation, (c) preparation, (d) action, and (e) maintenance (4). Table 1 outlines the different stages of change and their associated behaviors (see Table 1). When applying this model to exercise, each stage is characterized by a unique readiness to engage in exercise behavior. As individuals progress from precontemplation onwards, their readiness and willingness to engage in exercise increases (4,5,6). This can be seen in a review of the literature as conducted by Spencer et al., in which they found that exercise stage-matched interventions resulted in participants moving to a higher stage of change and typically an improvement in fitness level (6). This review also demonstrated positive correlations between a variety of predictors of exercise behavior (e.g., self-efficacy, stress level, social support, dietary habits, and attitude towards exercise) and stage of change, suggesting that as individuals progress through the stages of change, the likelihood of engaging in exercise increases alongside an increase in positive predictors of exercise (6). Other studies have also concluded that the TTM is efficacious in improving exercise behaviors and progressing individuals through the stages of change (3,5,8).

OTHER CONSTRUCTS

The TTM also includes processes of change, decisional balance, and self-efficacy within its conceptual framework (2). There are 10 processes of change, including both cognitive and behavioral processes (2). Decisional balance is simply defined as the weighing of the pros and cons to making a behavior change. Self-efficacy is characterized by the confidence an individual has in his/her ability to engage in a specific behavior (2). Table 2 provides a general description of each of these constructs (see Table 2).

Implementing a TTM-based exercise prescription has been shown to result in improvements in the other constructs that were mentioned above (4,5). The use of the TTM appears to improve an individual’s exercise-related behavioral strategies, cognitive processes, decisional balance (i.e., weighing the pros and cons of becoming more physically active), and self-efficacy (4,5). Improvements in these components of the TTM may result in increases in exercise adherence, changes in exercise-related processes (i.e., cognitive and behavioral processes of change related to exercise), and/or forward progression through each stage of change (4,5).

APPLICATIONS OF THE TRANSTHEORETICAL MODEL

The TTM has been successfully applied in the modification of exercise behaviors in a variety of populations and settings (3,4,5,6,8). This is important as the CPT will potentially work with a variety of individuals, each with unique characteristics and backgrounds. While different behavior change theories and models can be utilized when prescribing an exercise program to a client, the TTM can provide an individualized and effective framework from which to attempt to modify exercise behavior.

IDENTIFYING A CLIENT’S STAGE OF CHANGE

When using the TTM to develop a specific behavioral approach, it is important to identify the client’s stage of change. This can be accomplished during the initial consultation and interview process (see Table 3). Many of the questions in Table 3 will be answered without the CPT even having to ask them. For example, if the CPT is meeting a new client for the first time, it can be assumed that this client is in at least the contemplation or preparation stage since they have made an attempt to seek help (i.e., hiring a trainer to develop an individualized program) and is more likely to see the benefits of making a change. If, when talking to the client during the interview process, the CPT finds out that the client has been consistently exercising for the past year at a level that meets the recommended physical activity guidelines (i.e., 150 min per week of moderate-intensity activity and two sessions per week of resistance exercises), this individual would be in the action stage (7). As can be seen from these examples, some of the information that is needed to assess a client’s stage of change accurately can simply be obtained through the normal interview process. However, if all the information needed is not obtained, the questions in Table 3 can be useful in identifying a client’s stage of change (see Table 3).

After identifying a client’s stage of change, a specific and targeted behavioral approach can be utilized when prescribing an exercise program. Ideally, this approach will promote progression through the stages of change so that the likelihood of the client’s long-term exercise adherence is increased. Table 4 outlines the different stages of change as they relate to exercise behavior, provides examples of what client behaviors and attitudes might look like for each stage, and lists specific behavioral approaches that can be taken for each of the individual stages (see Table 4).

While it is beyond the scope of this article to provide a comprehensive discussion of the other constructs within the TTM (i.e., processes of change, decisional balance, and self-efficacy), the importance of these constructs and their application should not be overlooked by the CPT. These constructs may be appropriately used based on the client’s stage of change. More specifically, the processes of change targeted through individualized exercise programming depends on the client’s readiness for change (2). The cognitive processes of change are often targeted for those in the precontemplation, contemplation, and preparation stages of change (2). Individuals in these stages often need encouragement regarding the perceived benefits of exercise as well as an evaluation of their lifestyle with and without regular exercise. This may be best accomplished through an intervention targeting the cognitive processes of change. The behavioral processes of change are often the focus for clients that are in the action and maintenance stages, as these processes focus on specific client rewards for achievement of goals, social support for behavior maintenance, and altering the individual’s environment so that it better promotes the intended behavior (2).

As individuals progress through the stages of change (e.g., from precontemplation to maintenance), the pros of engaging in exercise typically increase while the cons decrease (2). Also it is often assumed that once an individual is successfully engaging in the intended behavior (i.e., in the action stage) that the pros of engaging in that behavior outweigh the cons (2). Self-efficacy typically increases naturally as an individual progresses through the stages (2). While continually targeting both decisional balance and self-efficacy is important throughout all stages of change, an increased focus on these constructs in earlier stages of change (i.e., precontemplation, contemplation, and preparation) may be necessary. Individuals in these early stages may have cons that outweigh the pros and low exercise-related self-efficacy.
TRANSTHEORETICAL MODEL—APPLICATIONS TO PERSONAL Training

CONCLUSION
The CPT, being in a prime position to encourage healthy behavior change with clients, can benefit from utilizing the TTM in their practice. The use of the TTM helps in providing an individualized exercise prescription for each client while promoting long-term success and exercise adherence. The first step for the CPT would be to determine a client’s stage of change. Once the stage of change is established, an individualized approach to exercise is made through a targeted focus on the other constructs within the TTM. While there are a variety of behavior change theories and models to choose from when developing a targeted behavioral approach for a client, the TTM provides a relatively simple and easy to follow model from which to apply this approach.

REFERENCES

ABOUT THE AUTHOR
Ryan Eckert is currently working on his Master's degree in Exercise and Wellness at Arizona State University. He holds a Bachelor’s degree in Exercise and Wellness from Arizona State University and is a Certified Strength and Conditioning Specialist® (CSCS®) as well as a National Strength and Conditioning Association (NSCA) Certified Personal Trainer® (NSCA-CPT®) through the NSCA. He is working as a Graduate Research Assistant at Arizona State University and as a personal trainer for Core Concepts Personal Training in Phoenix, AZ. Eckert has over four years of experience in personal training, working with athletes and the general population.

TABLE 1. TRANSTHEORETICAL MODEL – STAGES OF CHANGE (4,6)

<table>
<thead>
<tr>
<th>STAGE OF CHANGE</th>
<th>STAGE CHARACTERIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precontemplation</td>
<td>Individual(s) not intending to take action within the next 6 months; either uninterested in making behavior change or lacks knowledge of the benefits of making behavior change</td>
</tr>
<tr>
<td>Contemplation</td>
<td>Individual(s) intending to make behavior change within the next 6 months; may be becoming more aware of the benefits of the specific change; the costs associated with the change may still outweigh the benefits</td>
</tr>
<tr>
<td>Preparation</td>
<td>Individual(s) planning on making behavior change within the next 30 days (1 month); may have a plan for making the change, but might also be seeking help or assistance</td>
</tr>
<tr>
<td>Action</td>
<td>Individual(s) have made the behavior change within the past 6 months; working towards making the behavior change to become a habit</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Individual(s) have successfully maintained behavior change for more than 6 months; working to avoid relapse</td>
</tr>
</tbody>
</table>
### TABLE 2. ADDITIONAL TRANSTHEORETICAL MODEL CONSTRUCTS (2)

<table>
<thead>
<tr>
<th>CONSTRUCT</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processes of Change (Cognitive)</strong></td>
<td></td>
</tr>
<tr>
<td>Consciousness raising</td>
<td>Increasing awareness about the causes, consequences, and cures/treatments for a problem behavior (e.g., sedentary lifestyle)</td>
</tr>
<tr>
<td>Dramatic relief</td>
<td>Increasing positive or negative emotions in order to motivate action (e.g., personal testimonials)</td>
</tr>
<tr>
<td>Self-reevaluation</td>
<td>Assessment of one’s image with and without the problem behavior (e.g., sedentary lifestyle)</td>
</tr>
<tr>
<td>Environmental reevaluation</td>
<td>Assessment of how the problem behavior affects one’s social environment (e.g., friends, family, peers, co-workers, etc.)</td>
</tr>
<tr>
<td>Self-liberation</td>
<td>The belief that one can take action and make a positive change in their behavior; also includes the commitment to the belief that one can make a change</td>
</tr>
<tr>
<td><strong>Processes of Change (Behavioral)</strong></td>
<td></td>
</tr>
<tr>
<td>Helping relationships</td>
<td>Social support that promotes healthy behavior change</td>
</tr>
<tr>
<td>Social liberation</td>
<td>Increase in healthy opportunities within one’s social environment (e.g., presence of a personal trainer or presence of a workout partner)</td>
</tr>
<tr>
<td>Stimulus control</td>
<td>Removing cues for unhealthy habits and adding prompts that promote healthy behavior change (e.g., leaving gym bag by the front door)</td>
</tr>
<tr>
<td>Counterconditioning</td>
<td>Substituting healthy behaviors for unhealthy, counterproductive behaviors (e.g., replacing 1 hour of television viewing time with walking)</td>
</tr>
<tr>
<td>Reinforcement management</td>
<td>Rewarding oneself for the attainment of small goals that promote healthy behavior change (e.g., incentives)</td>
</tr>
<tr>
<td><strong>Decisional Balance</strong></td>
<td></td>
</tr>
<tr>
<td>Pros</td>
<td>Benefits of making change or taking action</td>
</tr>
<tr>
<td>Cons</td>
<td>Negatives of making change or taking action</td>
</tr>
<tr>
<td><strong>Self-Efficacy</strong></td>
<td></td>
</tr>
<tr>
<td>Confidence</td>
<td>Confidence that one can successfully engage in healthy behavior change</td>
</tr>
<tr>
<td>Temptation</td>
<td>Temptation to return to old, unproductive habits or behaviors</td>
</tr>
</tbody>
</table>

### TABLE 3. QUESTIONS TO DETERMINE A CLIENT’S STAGE OF CHANGE (3)

1. Are you currently physically active (i.e., accumulating 150 minutes or more of moderate-intensity activity or 75 minutes or more of vigorous-intensity activity each week)? If yes, in action or maintenance stage and go to question 2; if no, go to question 3.

2. Have you been regularly physically active for at least the past 6 months? If yes, in maintenance stage and stop questions; if no, go to question 3.

3. Are you doing any physical activity? If yes, in action stage and stop questions; if no, go to question 4.

4. Have you made any actions and/or concrete plans to increase your physical activity (e.g., gym membership, purchase exercise equipment, hire a personal trainer)? If yes, in preparation stage and stop questions; if no, go to question 5.

5. Do you plan on becoming more physically active within the next 6 months? If yes, in contemplation stage; if no, in precontemplation stage.
### TABLE 4. APPLYING THE TRANSTHEORETICAL MODEL TO EXERCISE ADHERENCE

<table>
<thead>
<tr>
<th>STAGE OF CHANGE</th>
<th>TYPICAL CLIENT BEHAVIORS/ATTITUDES</th>
<th>SPECIFIC BEHAVIORAL APPROACH</th>
</tr>
</thead>
</table>
| **Precontemplation** | - inactive and not planning on increasing activity  
- may be uninformed about benefits of physical activity and the deleterious effects of a sedentary lifestyle  
- may have made several failed attempts in the past and are discouraged to begin exercising again  
- may have low exercise-related self-esteem and/or self-confidence | - educate on health benefits of living physically active lifestyle  
- educate on negative consequences of sedentary lifestyle  
- provide motivation to consider increasing physical activity level through positive encouragement  
- discuss the pros and cons of starting a regular exercise program |
| **Contemplation**   | - inactive, but intending on increasing their activity within 6 months  
- may be becoming more aware of benefits of increasing physical activity  
- costs of increasing activity may still outweigh the benefits | - continue to educate about health benefits of physical activity and health consequences of being sedentary  
- begin discussing resources that are available to help in increasing exercise levels |
| **Preparation**     | - inactive, but intending on increasing physical activity within the next month (30 days)  
- may have a specific plan in place  
- may be seeking resources for assistance (i.e., hiring a personal trainer)  
- may waiver in their exercise-related self-esteem and/or self-confidence | - provide individualized exercise prescription that works with client’s lifestyle and goals  
- discuss potential barriers to engaging in regular physical activity  
- promote increases in self-esteem and confidence through support and positive encouragement |
| **Action**          | - active, but for less than 6 months  
- may be struggling to make physical activity a habit  
- goal achievement may increase exercise-related self-esteem and/or self-confidence | - monitor on a regular basis in order to assess progress  
- discuss barriers as they arise and develop a plan to overcome them  
- modify exercise prescription as needed to accommodate changes in lifestyle and/or goals  
- provide positive reinforcement by celebrating achievement of goals |
| **Maintenance**     | - active, and have maintained a physically active lifestyle for at least 6 months  
- maintaining activity level may be easier for client once in this stage  
- exercise-related self-esteem and/or self-confidence may increase with successful maintenance of physical activity level | - educate on skills needed for long-term maintenance of physical activity  
- monitor on a less regular basis in order to monitor progress  
- develop plan to overcome new barriers as they arise  
- allow more autonomy and responsibility for physical activity over time |
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