

13

Program Design Concepts



OBJECTIVES

After completing this chapter, you will be able to:

- Define and describe the acute training variables within the Optimum Performance Training (OPT™) model.
- Describe the phases within the OPT™ model.
- Design programs for each phase of training.

KEY TERMS

Acute variables
Annual plan
Exercise selection
Monthly plan
Program design

Repetition
Repetition tempo
Rest interval
Set
Training duration

Training frequency
Training intensity
Training plan
Weekly plan

Program Design

INTRODUCTION TO PROGRAM DESIGN

Traditionally, most training programs are based on the experiences of the health and fitness professional (whether he or she is a bodybuilder, group exercise instructor, power lifter, Olympic lifter, or an athlete). This has led to many scientifically unsupported training programs that have created confusion for health and fitness professionals. Indeed, science has been slow to validate anecdotal evidence that still continues to be used in the fitness world.^{1,2}

To be safe, effective, and productive, all health and fitness professionals must be competent at designing resistance-training programs for a variety of clients. This entails the proper utilization of acute variables (repetitions, sets, and so forth) and exercises in a structured, progressive manner. For many health and fitness professionals, this can become a daunting task, causing them to ask, "How many exercises should I use? How many sets and repetitions should I use? How many days per week should my client train?" When using a structured, scientifically based program design model, answers to these questions become very simple.

WHAT IS PROGRAM DESIGN?

Program design: A purposeful system or plan put together to help an individual achieve a specific goal.

Program design simply means creating a purposeful system or plan to achieve a specific goal. The key words here are "purposeful system." The purpose of a training program is to provide a path for the client to achieve his or her goal. Providing a path requires the health and fitness professional to have a comprehensive understanding of a few key concepts:

Acute Variables

- What are they?
- How do they affect the desired adaptation?
- How do they affect the overall training program?

The OPT™ Model (Planned Fitness Training—Periodization)

- How and why must the physiologic, physical, and performance adaptations of stabilization, strength, and power take place in a planned, progressive manner to establish the proper foundation for each subsequent adaptation?

The Five Phases of Training in the OPT™ Model

- How do these phases promote specific adaptations?
- What are the acute variables for each of the phases?

Application

- Selecting the right exercises.
- Selecting the right acute variables.
- Applying both in a systematic manner to different populations with different goals.

IS THERE AN EASIER WAY?

Taking the Guesswork Out

If a health and fitness professional has a proven system that he or she can follow, the needed information can simply be plugged in, without the worry of using the correct formula for success. This is exactly what the OPT™ model provides (Figure 13-1).



Figure 13.1 The OPT™ model.

NASM designed the OPT™ model as a planned, systematic, periodized training program. It was established to concurrently improve all functional abilities, such as flexibility, core stabilization, balance, power, strength, and cardiorespiratory endurance. The OPT™ program has been extremely successful in helping all populations to reduce body fat, increase lean muscle mass and strength, and improve performance and overall health.

The remaining modules of this chapter will detail acute variables of planned fitness training (or periodization) as it relates to the OPT™ model, the five phases of the OPT™ model, and how to apply the OPT™ program design model to various goals.

SUMMARY

Health and fitness professionals must be competent at designing training programs for a variety of clients, using acute variables and exercises in a structured, progressive manner. A structured, scientifically based program design model makes this easy. The Optimum Performance Training (OPT™) model provides the health and fitness professional with a proven system in which a client's information can simply be plugged in. Program design is creating a purposeful system or plan to achieve a specific goal. To do so, the health and fitness professional must understand acute variables, the OPT™ model, and its phases, as well as how to apply it all.

Acute Variables of Training

Acute variables: Important components that specify how each exercise is to be performed.

Acute variables are the most fundamental components of designing a training program. They determine the amount of stress placed on the body and, ultimately, what adaptations the body will incur.

The body will specifically adapt to the demands placed on it (known also as the principle of specificity). The acute variables dictate these demands.

Table 13.1

Program Design Continuum

Adaptation	Reps	Sets	Intensity	Rest Period
Power	1–10	3–6	30–45% of one rep max or $\leq 10\%$ of body weight	3–5 min
Strength	1–12	3–6	70–100%	45 s–5 min
Stabilization	12–25	2–3	50–70%	0 s–1.5 min

The OPT™ model takes the guesswork out of program design and allows for a planned, systematic progression by preassigning specific acute variables for each of the five phases of training to elicit the desired adaptation.^{3–11} Collectively, the acute variables are the foundation of program design and fall within the program design continuum seen in Table 13-1.

As discussed in Chapter 12—Resistance Training, the stabilization adaptation includes both endurance and stability, the strength adaptation includes strength endurance, hypertrophy, and maximal strength, and the power adaptation includes power (rate of force production).

To ensure proper development and progression of an integrated training program, the health and fitness professional must understand the acute training variables, which are shown in Figure 13-2. Each of the acute variables will be explained in this module as they relate to the OPT™ model.

REPETITIONS

Repetition (or “rep”): One complete movement of a single exercise.

A **repetition** is one complete movement of a particular exercise. Most repetitions will involve the three muscle actions, concentric, isometric, and eccentric (not necessarily in that order).

These muscle actions can be seen in the example of a biceps curl. A single repetition includes raising the dumbbell up against the direction of resistance (a concentric contraction), pausing for any specified amount of time (an isometric contraction), and then lowering the dumbbell with the direction of resistance back to its starting position (an eccentric contraction).

Another example of this can be seen when performing a squat. Starting from a standing position, one repetition includes lowering the body (with the direction of resistance) toward the ground (eccentric), pausing for any specified amount of time (isometric), and then raising back up (against the direction of resistance) to the starting position (concentric).

Repetitions are simply a means to count the number of movements performed in a given amount of time. They can therefore be a means to count the time the muscles are under tension (*time under tension*).

Each phase of training in the OPT™ model has specific goals and therefore requires a specific number of repetitions to achieve these goals. The number of repetitions performed in a given set is dependent on the client’s work capacity, intensity of the exercise, and the specific phase of training.

- Repetitions
- Sets
- Training intensity
- Repetition tempo
- Training volume
- Rest interval
- Training frequency
- Training duration
- Exercise selection

Figure 13.2 Acute variables of training.

Table 13.2**Repetition Continuum**

Training Adaptation	Repetition Range
Power	1–10
Strength	1–12
Stabilization	12–25

The health and fitness professional must keep in mind that all acute variables are interdependent. This means that the specific use of one will affect the others. For example, the more intense the exercise or heavier the load, the fewer the number of repetitions that the individual can perform.^{11–17}

Research demonstrates that training in a specific repetition range yields specific adaptations.^{11–15,17,18} Therefore, depending on the goal of the individual and the phase of training, it is possible to define a specific repetition range (Table 13-2).

- Power adaptations require 1 to 10 repetitions at 30 to 45% of the one-repetition maximum (1RM), or approximately 10% of body weight.
- If maximal strength adaptations are desired, the repetition range is one to five at 85 to 100% of the 1RM.
- Hypertrophy is best achieved using 8 to 12 repetitions at 70 to 85% of the 1RM.
- Endurance is best achieved by performing 12 to 25 repetitions at 50 to 70% of the 1RM.^{11–17}

The OPT™ model uses the specified repetition continuum to provide the desired adaptations in a systematic manner. The beginning phases consist of higher repetition schemes necessary to build proper connective tissue strength, stability, and endurance. This is especially important for the beginning client. However, a common mistake of many advanced clients is to not use a planned training program that provides periods of low-repetition training alternated with periods of high-repetition training. Higher intensities of training (lower repetitions) can only be sustained for a short period without running the risk of overtraining.^{19,20} Using the OPT™ model enables the health and fitness professional to use a systematic training approach to prevent overtraining and yield specific results by using planned intervals of training.²¹

SETS

Set: A group of consecutive repetitions.

A **set** is a group of consecutive repetitions.^{14,16,17,22} The quantities of the other acute variables (i.e., repetitions, training intensity, number of exercises, training level, and recoverability) determine the number of sets an individual performs.^{14,16,17,23}

There is an inverse relationship between sets, repetitions, and intensity. The individual usually performs fewer sets when performing higher repetitions at a lower intensity (endurance and hypertrophy adaptations) and more sets when performing lower repetitions at a higher intensity (strength and power adaptations), as seen in Table 13-3.^{11,13,22}

- For power adaptations, three to six sets of between 1 and 10 repetitions at an intensity of 30 to 45% of 1RM or approximately 10% of body weight are recommended.
- For maximal strength adaptation, four to six sets of between one and five repetitions at an intensity of 85 to 100% of 1RM are recommended.

Table 13.3

Set Continuum

Training Adaptation	Set Range
Power	3–6
Strength	2–6
Stabilization	1–3

- Hypertrophy adaptations require three to four sets of 8 to 12 repetitions at 70 to 85% of 1RM intensity level.
- Endurance is best developed with one to three sets of 12 to 25 repetitions at 50 to 70% of 1RM intensity.^{11,13,16,17,22}

It has been suggested that, to prevent overtraining, 24 to 36 total sets should be performed in a given workout (24 total sets for low volume or up to 36 total sets for high volume).¹⁵ For the beginning client, this number may be as low as 5 to 12 total sets (one set of 5 to 12 exercises).

As a training program advances and the desired adaptations change from stabilization and endurance to hypertrophy or maximal strength, the number of sets capable of being performed will also change.

When training for strength adaptations, the number of sets performed needs to increase to place enough stress on the tissues to provoke the desired changes.^{11,12,15} As shown in Table 13-4, a beginning client may perform one to two exercises per body part for two to three sets per exercise, whereas an advanced client may perform three to four exercises per body part for three to five sets per exercise. This manipulation will have a large impact on the total training volume and must be planned (periodized) with phases that include a higher and lower number of sets over the course of the training program. Also, using the numbers in Table 13-4 in conjunction with the total number of sets per workout discussed above (24 to 36 sets), it is clear that the intermediate and advanced client may only train two to three body parts per workout, owing to the total volume of training in a given workout and time constraints.

TRAINING INTENSITY

Training intensity: An individual's level of effort, compared with their maximal effort, which is usually expressed as a percentage.

Training intensity is one of the most important acute variables to consider when designing an integrated training program.^{11,13,16,17,22} **Training intensity** is defined as an individual's level of effort compared with their maximum effort.^{11,13}

The specific training phase and an individual's training goal will determine the number of sets and repetitions for an exercise. Intensity is then determined by the number of sets and repetitions to be performed, which is based on the individual's specific training goals (Table 13-5).

Table 13.4

Set Manipulations per Body Part

Client Level	Exercises per Body Part	Sets Each Exercise	Total Sets per Body Part
Beginning	1–2	2–3	2–6
Intermediate	2–3	3–4	6–12
Advanced	3–4	3–5	9–20

Table 13.5**Intensity Continuum**

Training Adaptation	Intensity Range
Power	30–45% of 1RM or approximately 10% of body weight
Strength	70–100% of 1RM
Stabilization	40–70% of 1RM

1RM, one repetition maximum.

- Power (high velocity) adaptations are best attained with 30 to 45% of 1RM when using conventional weight training, or approximately 10% of body weight when using medicine balls.
- Maximum strength adaptations require training with 85 to 100% of 1RM.
- Hypertrophy is best achieved by training with 70 to 85% of 1RM.
- Endurance is best developed with a training intensity of 40 to 70% of 1RM.^{8,14,22–33}

Training intensity can also be derived from the percent of maximal oxygen consumption, as in the case of cardiorespiratory training programs.^{34,35}

Training in an unstable environment, as seen in the stabilization phases of the OPT™ model, can also increase the training intensity because it requires more motor unit recruitment. This leads to more energy expenditure per exercise,^{36–39} which allows for optimum development of neuromuscular efficiency. Changing other acute training variables such as rest periods and tempo also changes the training intensity. In short, intensity is a function of more than just external resistance. An integrated training program must focus on a holistic approach to force continued adaptations.^{32,40}

REPETITION TEMPO

Repetition tempo: The speed with which each repetition is performed.

Repetition tempo refers to the speed with which each repetition is performed. This is an important variable that can be manipulated to achieve specific training objectives such as power, hypertrophy, stability, and endurance.^{11,13,16,17,41–47}

Movements also occur at different velocities. Therefore, to get the appropriate results from training, the health and fitness professional must select the appropriate speed of movement for the exercise, based on the repetition tempo spectrum (Table 13-6).⁴⁷

Table 13.6**Repetition Tempo Spectrum**

Training Adaptation	Repetition Tempo (Eccentric/Isometric/Concentric)
Power	Explosive (x/x/x)
Strength	Moderate (2/0/2)
Stabilization	Slow (4/2/1)

x/x/x, As fast as possible.

The amount of time that a muscle is under tension yields a specific result (*time under tension*). For example, the optimum tempo for hypertrophy is approximately 20 to 70 seconds per set (8 to 10 repetitions in a range between 4/2/1 and 2/0/2 tempos).⁴⁸ The optimum tempo for power is as fast as the individual can move.^{41–44,47} Therefore, based on the client's specific goals, the health and fitness professional must use the entire repetition tempo spectrum to achieve the desired results.^{11,15–17,42,43}

The OPT™ model places a major emphasis on the repetition tempo spectrum as it has a significant impact on the functional outcome of the stressed tissues. By emphasizing eccentric and isometric muscle actions at slower velocities during the initial stabilization phases of training, more demand is placed on the connective tissue (as well as the stabilizing muscles) and better prepares the nervous system for functional movements. This is important for building the appropriate structural and functional foundation for more specific forms of strength and power training that will follow.

REST INTERVAL

Rest interval: The time taken to recuperate between sets.

The **rest interval** is the time taken to recuperate between sets or exercises and has a dramatic effect on the outcome of the training program.^{11,16,17,22,33,47} Each exercise that is performed requires energy. The primary type of energy used during training depends on the training phase, intensity, and goal (Table 13-7).^{13,14}

Power and maximal strength adaptations may require up to 5 minutes of rest between sets and exercises, depending on the client's level of fitness. Hypertrophy adaptations are maximized by decreasing the rest interval to 45 to 90 seconds between sets and exercises, but are dependent on the load being used. Stability and endurance adaptations should involve 30 to 90 seconds of rest.

Dynamic resistance training, as well as isometric training, can significantly reduce adenosine triphosphate (ATP) and creatine phosphate (CP) supplies.^{49,50} The ability to replenish these supplies is crucial for optimal performance and the desired adaptation. By adjusting the rest interval, energy supplies can be regained according to the goal of the training program. Rest intervals of:⁵¹

- 20 to 30 seconds will allow approximately 50% recovery of ATP and CP.
- 40 seconds will allow approximately 75% recovery of ATP and CP.
- 60 seconds will allow approximately 85 to 90% recovery of ATP and CP.
- 3 minutes will allow approximately 100% recovery of ATP and CP.

The rest interval between sets determines to what extent the energy resources are replenished before the next set.^{13,14,47} The shorter the rest interval, the less ATP and CP will be replenished and consequently less energy will be available for the next set.¹¹ In the beginner client, this can result in fatigue, which can lead to decreased neuromuscular control, force production, and stabilization by decreasing motor unit recruitment.^{52,53} Therefore, inadequate rest intervals can decrease performance and could lead to excessive compensation and even injury. As the

Table 13.7

Rest Interval Continuum

Training Adaptation	Rest Interval	Energy Source
Power	3–5 min	ATP-CP
Strength	45 s–5 min	ATP-CP and glycolysis
Stabilization	0 s–1.5 min	Oxidative and glycolysis

ATP, adenosine triphosphate; CP, creatine phosphate.

- Training experience
- Training intensity
- Tolerance of short rest periods
- Muscle mass
- General fitness level
- Training goals
- Nutritional status
- Recoverability

Figure 13.3 Factors for appropriate rest intervals.

client advances, this can be used as a means to increase the intensity of the workout and promote better adaptations especially for stability, endurance, and hypertrophy.

Conversely, if rest periods are too long between sets or exercises, the potential effects include decreased neuromuscular activity and decreased body temperature. If the beginner client is then asked to perform an intense bout of exercise, this could entail a potential increased risk of injury. For the advanced client, this may be necessary if heavy weight is being used repetitively. The goal of the training program should establish the appropriate rest periods.^{11,14,15} There are several factors to consider when prescribing appropriate rest intervals (Figure 13-3).^{11,13,15}

Individuals who are beginning an integrated training program may respond better to longer rest periods (60 to 90 seconds) until they adjust to the demands of their program. This also helps to ensure proper neuromuscular efficiency. By decreasing the amount of fatigue experienced by the client, that individual will be able to recruit the appropriate motor units and perform each exercise with greater precision. Individuals who are at advanced levels of training and have larger muscle mass or higher fitness levels may respond better to shorter rest periods, but it is still dependent on the phase of training and the goal.

TRAINING VOLUME

Training volume: Amount of physical training performed within a specified period.

Training volume is the total amount of work performed within a specified time.^{13,16,17,23,34} It is extremely important to plan and control training volume to prevent overtraining, as all training is cumulative.¹⁹⁻²¹ Training volume varies among individuals and is based on:

- Training phase
- Goals
- Age
- Work capacity
- Recoverability
- Nutritional status
- Injury history

For an individual to achieve optimum results from an integrated training program, the program must provide them with the appropriate planned training volume for extended periods (Table 13-8).²¹

One of the most important training concepts to remember is that volume is always inversely related to intensity. In other words, you cannot safely perform high volumes of high-intensity exercises for any extended length of time.^{13,14,23,24} For example, when working with loads exceeding 90% of an individual's maximum, one rarely exceeds a workout volume of 20 repetitions (four sets of three to five repetitions) per exercise. However, when working with loads of 60% of maximum, the trainee can easily perform a workout volume of 36 to 60 repetitions per exercise

Table 13.8

Volume Continuum

Training Adaptation	Total Volume of Reps per Exercise (Sets × Repetitions)
Power	6–30
Strength	8–36
Stabilization	36–75

(three sets of 12 to 20 repetitions). The exception here is the beginning client who may only perform 12 to 20 total repetitions per exercise (one set of each exercise).

The training phase and the training goal dictate the repetitions, sets, intensity, rest, and tempo, and these combined dictate the volume.^{11,13–17,21,22,23} Research demonstrates that higher volume training (three to four sets of 9 to 20 repetitions) produces cellular adaptations shown (Table 13-9).^{54–59} Conversely, high-intensity training with low training volumes (four to six sets of one to five repetitions) produces greater neurologic adaptations (Table 13-9).^{11,13,15–17,32}

TRAINING FREQUENCY

Training frequency: The number of training sessions performed during a specified period (usually 1 week).

Training frequency refers to the number of training sessions that are performed during a given period (usually 1 week). There is considerable debate concerning the adequate number of training sessions per body part per week necessary for optimum results.^{13,14,17,22} The number of training sessions per week per body part is determined by many factors, including training goals, age, general health, work capacity, nutritional status, recoverability, lifestyle, and other stressors.^{16,17}

For example, a first-time client may begin by training his or her entire body two times a week.^{11,13,14,60} However, an experienced bodybuilder with the specific goal of hypertrophy may have a training cycle in which he or she trains with a split routine of six sessions per week, training each body part two times per week with a larger volume per session.

The specific training goal dictates the program design. Research on training frequency indicates that the optimum training frequency for improvements in strength is three to five times per week. There is no significant difference noted between three days and five days.^{11,13,16,17,60} Other research indicates that training at least one to two times per week is sufficient to maintain the physical, physiologic, and performance improvements that were achieved during other phases of training.^{11,13,16,17,60}

Table 13.9

Training Volume Adaptations

High Volume (Low Intensity)	Low Volume (High Intensity)
Increased muscle cross-sectional area	Increased neuromuscular efficiency
Improved blood lipid serum profile	Increased rate of force production
Improved lean body mass	Increased motor unit recruitment
Decreased body fat	Increased rate coding
Increased metabolic rate	Increased motor unit synchronization

Table 13.10**Durations for a General Fitness Program**

Sets	3
Reps	12
Tempo	4/2/1
Rest interval	30 s between sets
Number of exercises	7
Total duration	25–40 min of workout (excluding warm-up and cool-down)

Training duration: The timeframe of a workout (including warm-up and cool-down) or the length of time spent in one phase of training.

TRAINING DURATION

Training duration has two prominent meanings:

1. The timeframe from the start of the workout to the finish of the workout, not including the warm-up or cool-down.
2. The length of time (number of weeks) spent in one phase (or period) of training.

The training duration for a workout is a function of the number of repetitions, number of sets, number of exercises, and the length of the rest intervals (Table 13-10).

Training programs that exceed 60 to 90 minutes (excluding warm-up and cool-down) are associated with rapidly declining energy levels.^{11,18,22,61,62} This causes alterations in hormonal and immune system responses that can have a negative effect on a training program.^{18,47,61,62}

The training duration for a phase of training is dictated by the client's level of physical ability, goal, and compliance to the program. Typically, a phase of training will last between 4 and 8 weeks as this is the amount of time it generally takes for the body to adapt to a given stimulus.^{63–73}

EXERCISE SELECTION

Exercise selection: The process of choosing appropriate exercises for a client's program.

Exercise selection is the process of choosing exercises for program design that allow for the optimal achievement of the desired adaptation. It has a tremendous impact on the outcome of the training program.^{13,16,17,22,33,47}

The kinetic chain is a highly adaptable organism and readily adjusts to the imposed demands of training (principle of specificity). Therefore, exercises should be specific to the training goals and based on the principles of the exercise selection continuum (Table 13-11).^{13,16,17,22,33,47}

In the OPT™ model, exercises from all components (core, balance, reactive, and resistance training) are categorized by the adaptation for which they are primarily

Table 13.11**The Exercise Selection Continuum**

Training Adaptation	Training Level	Exercise Selection
Power	Power level	Total body; multijoint (explosive)
Strength	Strength level	Total body; multijoint or single joint
Stabilization	Stabilization level	Total body; multijoint or single joint; controlled unstable

Table 13.12

Exercise Selection—Examples

Level	Total Body	Multijoint	Single Joint
Power	Squat jump	Two-arm medicine ball chest pass Medicine ball pullover Medicine ball oblique throw	N/A
Strength	Squat to two-arm dumbbell press	Bench press Seated row machine Shoulder press machine Squat	Standing two-arm dumbbell curl
Stabilization	Step-up, balance to overhead press	Ball dumbbell chest press Ball dumbbell row Standing overhead press	Single-leg dumbbell curl

used. For example, exercises that are used in phase 1 of the OPT™ model (stabilization) are termed *stabilization level* exercises because they are used and progressed for the stabilization adaptation. Similarly, the exercises used in phases 2 to 4 are termed *strength level* exercises, and exercises used in phase 5 are termed *power level* exercises (Table 13-11).

Exercises can be broken down simplistically into three different types on the basis of the number of joints used, movements performed, and adaptation desired (Table 13-12):⁴⁷

1. Total body: These exercises include multiple joint movements such as a squat, biceps curl, to a shoulder press (squat, curl, and press).
2. Multijoint: These exercises use the involvement of two or three joints.
3. Single joint: These exercises focus on isolating one major muscle group or joint.

The OPT™ model enables the health and fitness professional to effectively select the appropriate exercise for each client. Completing a fitness assessment and reviewing the specific training goals will allow the health and fitness professional to implement these exercises into a properly planned, integrated training program.

For example, to develop optimum stability, traditional exercises can be *progressed* to a more-unstable environment, such as standing up (two-leg, staggered-stance, single-leg) or from a stable environment to an unstable environment (stability ball). Research has shown that exercises performed in unstable environments produce superior results for the goal of stabilization and training the core stabilizing muscles.^{65,66,67} Stabilization exercise examples include:

- Crunch on a stability ball
- Cobra on a stability ball
- Chest press on a stability ball
- Cable rows on one leg
- Shoulder press or lateral raise on a stability ball
- Step-up to balance

To develop optimum strength, the use of total body and multijoint exercises has been shown most beneficial.^{10,17} Strength exercise examples include:

- Bench press (barbell or dumbbell)
- Row (machine or free weight; seated or bent over)
- Shoulder press (barbell, dumbbell, machine, seated or standing)
- Squat

Table 13.13**The Progression Continuum**

Stabilization Continuum	Lower Body	Upper Body
Floor	Two-leg Staggered-stance	Two-arm Alternating arms
Sport beam	Single-leg	Single-arm
Half foam roll Airex pad Dyna Disc 3D-board		

To develop optimum power, explosive medicine ball and body weight exercises can be performed during functional movement patterns.^{13,16,17,22,33,47} Power exercise examples include:

- Overhead medicine ball throw
- Medicine ball chest pass
- Medicine ball soccer throw
- Squat jump
- Tuck jump
- Box jump

All exercises, once selected, can be progressed or regressed in a systematic fashion by following the progression continuum (Table 13-13).

SUMMARY

Designing the appropriate program for a client is the primary function of the health and fitness professional. Programs should be individualized to meet the needs and goals of each client. Therefore, it is important that a scientifically based, systematic, and progressive model is used. The OPT™ model provides the health and fitness professional with all the necessary tools to properly use acute variables (repetitions, sets, and so forth), scientific concepts, and exercises to design programs.

Acute variables determine the amount of stress placed on the body and, ultimately, what adaptation the body will incur. The acute variables to consider when designing a program are as follows:

- Repetitions: The more intense the exercise, the fewer the number of repetitions that the individual should perform.
- Sets: The individual usually performs fewer sets when performing higher repetitions at a lower intensity (endurance and hypertrophy adaptations) and more sets when performing lower repetitions at a higher intensity (strength and power adaptations). Twenty-four to 36 total sets should be performed in a given workout.
- Training intensity: This should be determined after sets and reps. Altering other variables (such as environment stability, rest periods, and tempo) changes the training intensity.
- Repetition tempo: Different times under tension yield specific results. By emphasizing eccentric and isometric muscle actions at slower velocities, more demand is placed on the connective tissue.
- Rest interval: This has a dramatic effect on the outcome of the training program. By adjusting the rest interval, energy supplies can be regained

according to the goal of the training program. The shorter the rest interval, the less ATP and CP will be replenished, and consequently less energy will be available for the next set. To avoid making rests too long or short, consider the following factors: training experience, training intensity, tolerance to short rest periods, muscle mass, general fitness level, training goals, nutritional status, and recoverability.

- Training volume: Plan and control training volume to prevent overtraining. Volume is always inversely related to intensity.
- Training frequency: Optimum training frequency for improvements in strength is three to five times per week. Training at least one to two times per week is sufficient to maintain improvements achieved during other phases of training.
- Training duration: Programs should not exceed 90 minutes. Typically, a phase of training will last between 4 and 8 weeks.
- Exercise selection: Exercises should be specific to the training goals and based on the principles of the exercise selection continuum.

Periodization and the OPT™ Model (Planned Fitness Training)

Understanding the need for program design and the purpose of acute variable manipulation is important fundamental information for all health and fitness professionals. Applying this knowledge will determine the success of a health and fitness professional. A system is required to properly organize this base level of information.

The science behind the OPT™ model of program design lies in the concept of periodization. As discussed in Chapter 12 (resistance training), periodization is a systematic approach to program design that uses the general adaptation syndrome and principle of specificity to vary the amount and type of stress placed on the body to produce adaptation and prevent injury. Periodization (or planned fitness training) varies the focus of a training program at regularly planned periods of time (weeks, months, and so forth) to produce optimal adaptation. It involves two primary objectives:

1. Dividing the training program into distinct periods (or phases) of training.
2. Training different forms of strength in each period (or phase) to control the volume of training and to prevent injury.^{11-14,74,75}

TRAINING PLANS

Training plan: The specific outline, created by a fitness professional to meet a client's goals, that details the form of training, length of time, future changes, and specific exercises to be performed.

Annual plan: Generalized training plan that spans 1 year to show when the client will progress between phases.

To accomplish these objectives, a client's training program should be organized into a training plan that involves long-term and short-term planning. A **training plan** is a specific plan that a health and fitness professional uses to meet the client's goal. It will determine the forms of training to be used, how long it will take, how often it will change, and what specific exercises will be performed. The long-term plan of a training plan in the OPT™ model is known as an *annual plan* whereas the short-term plans are termed *monthly and weekly plans*. By providing a training plan, the client will be able to see the future achievement of his or her goal in a timely, organized fashion.

An **annual plan** organizes the training program for a 1-year period (Figure 13-4). The annual plan allows the health and fitness professional to provide the client with a blueprint (or map) that specifically shows how the OPT™ training program will progress for the long term, from month-to-month, to meet the desired goal.

	PHASE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Stabilization	1												
Strength	2												
	3												
	4												
Power	5												
Cardio													

Figure 13.4 Annual plan.

This gives the client a clear representation of how the health and fitness professional plans to get the client to his or her goal and how long it will take to get there.

In Figure 13-4, the column on the far left represents the period or main strength adaptation. The second column shows the specific phases of the OPT™ model that make up each specific adaptation of training.

Each month within the annual plan is further broken down into periods of training called **monthly plans** (Figure 13-5). The monthly plan details the specific days of each workout, showing the client exactly what phase of the OPT™ model (type of training) will be required each day of the week as well as when the reassessment will occur. The monthly plan also shows the client the necessary cardio and flexibility requirements.

Each monthly plan will also illustrate one's **weekly plans**, which are the specific workouts that the client will do for that week (Figure 13-5). The weekly plan gives the client a picture of exactly what phases will be used in his or her workout for that period.

Much of the literature regarding periodization refers to dividing the training program into specific cycles termed macro-, meso-, and microcycles (Figure 13-6). For ease of understanding, a *macrocycle* is the largest cycle and, typically, covers a year-long period of training (or annual plan). The macrocycle is divided into *mesocycles*, which are typically 1 to 3 months in length (or monthly plans). Each mesocycle in turn is divided into *microcycles*, which are usually a week in length (or weekly plans).^{48,76}

Periodization has been shown to be an effective form of program design for many fitness-related goals, and yet, to date, it is not a common practice among fitness professionals.^{48,77-79} It provides for the repeated use of different forms of training at specific times in an annual training program to elicit different adaptations in the body (stabilization, strength, and power). By intentionally cycling through different periods (or phases) of training, the acute variables are manipulated to adjust the volume of training. By controlling the volume of training as a function of time in any given program, periodization allows for maximal levels of adaptation, while minimizing overtraining. This is a primary benefit of periodization, because overtraining will lead to fatigue and eventual injury.^{48,74,77,78,80}

Monthly plan: Generalized training plan that spans 1 month and shows which phases will be required each day of each week.

Weekly plan: Training plan of specific workouts that spans 1 week, to show which exercises are required each day of the week.

Week	1							2							3							4						
Day	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
Phase 1																												
Phase 2																												
Phase 3																												
Phase 4																												
Phase 5																												
Cardio																												
Flexibility																												
Re-assess																												

Figure 13.5 The monthly or weekly plan.

Annual Plan = Macrocycle
 Monthly Plan = Mesocycle
 Weekly Plan = Microcycle

Figure 13.6 Periodization cycles.



Stretch Your Knowledge

What is the Evidence to Support the use of Planned, Periodized, Integrated Training Programs?

- Making gradual increases in volume and decreases in intensity was the most effective program for increasing muscular endurance (Rhea et al., 2003).¹
- A 9-month periodized resistance-training program was superior for enhancing strength and motor performance in collegiate women tennis players (Kraemer et al., 2003).²
- Making program alterations on a daily basis was more effective in eliciting strength gains than doing so every 4 weeks (Rhea et al., 2002).³
- Planned, integrated strength-training programs led to superior physical, physiologic, and performance improvements compared with nonperiodized training programs (Kraemer and Ratamess, 2000).⁴
- Planned variations in an integrated training program are essential because they enable continuous adaptations to occur during a training period and prevent injury (Tan, 1999).⁵

1. Rhea MR, Phillips WT, Burkett LN, Stone WJ, Ball SD, Avlar BA, Thomas AB. A comparison of linear and daily undulating periodized programs with equated volume and intensity for local muscular endurance. *J Strength Cond Res* 2003;17(1):82–87.
2. Kraemer, WJ, Hakkinen K, Triplett-McBride NT, Fry AC, Koziris LP, Ratamess NA, Bauer E, Volek JS, McConnell T, Newton RU, Girton SE, Cummings D, Hauth J, Pullo F, Lynch JM, Mazetti SA, Knuttgen HG. Physiological changes with periodized resistance training in women tennis players. *Med Sci Sports Exerc* 2003;35(1):157–168.
3. Rhea MR, Phillips WT, Burkett LN, Stone WJ, Ball SD. A comparison of daily and undulating periodized programs with equated volume and intensity for strength. *J Strength Cond Res* 2002;16(2):250–255.
4. Kraemer WJ, Ratamess NA. Physiology of resistance training. *Ortho Phys Ther Clin North Am* 2000;9(4):467–513.
5. Tan B. Manipulating resistance training program variables to optimize maximum strength in men: a review. *J Strength Cond Res* 1999;13(3):289–304.

SUMMARY

Planned fitness training (or periodization) shifts the focus of a training program at regularly planned intervals of time to vary stress placed on the body to produce adaptation and prevent injury.

A training plan clarifies what forms of training will be used, how long it will take, how often it will change, and what specific exercises will be performed. An annual plan organizes the training program for a 1-year period to show when the client is in which phase. The annual plan is further broken down into periods of training called monthly plans, which detail the specific days of each workout, showing the client exactly what type of training will be required each day of the month. Weekly plans are the specific workouts and exercises that the client will do for that week.

The OPT™ Model

The different periods (or phases) of training seen in a traditional periodization model include a preparatory period (termed *anatomic adaptation*), a hypertrophy period, a maximum strength period, and a power period.

In the OPT™ model, these are simplified into stabilization (anatomic adaptation), strength (strength endurance, hypertrophy, and maximum strength), and power. The OPT™ model seen in a phase-specific model of training includes five different phases of training. These phases systematically progress all clients through the three main adaptations of stabilization, strength, and power (Figures 13-1 and 13-7).

Think of the OPT™ model as a staircase, guiding a client to different adaptations. This journey will involve going up and down the stairs, stopping at different steps, and moving to various heights, depending on the client's goals, needs, and abilities. This module will detail the various phases of training in the OPT™ model.

STABILIZATION

The first level of training in the OPT™ model focuses on the main adaptation of stabilization (or anatomic adaptation) and is designed to prepare the body for the demands of higher levels of training that may follow. This period is crucial for all beginners. It is also necessary to cycle back through after periods of strength and power training to maintain a high degree of core and joint stability. In addition, it allows the body to rest from more-intense bouts of training. The focus of stabilization training includes:^{74,76}

- Correcting muscle imbalances
- Improving stabilization of the core musculature
- Preventing tissue overload by preparing muscles, tendons, ligaments, and joints for the upcoming imposed demands of training
- Improving overall cardiorespiratory and neuromuscular condition
- Establishing proper movement patterns or exercise technique

The above goals are accomplished through low-intensity, high-repetition training programs, emphasizing core and joint stabilization (as opposed to increasing the strength of the arms and legs). This will incorporate exercises that progressively challenge the body's stability requirements (or proprioception), as opposed to how much weight is being used.^{74,76}

Therefore, the primary means of progressing (or increasing the intensity of training) in this period is by increasing the proprioceptive demands of the exercises. This form of training has been shown to be extremely effective for increasing neuromuscular efficiency in the healthy,⁸⁰ elderly,⁸¹ and unhealthy populations.⁸²⁻⁸⁵ Another important component of stabilization training is that it may help to ensure

Period of training (main adaptation)	Specific adaptation	Phases used	Method of progression
Stabilization	• Endurance • Stability	1	Proprioception (controlled instability)
Strength	• Strength endurance • Hypertrophy • Maximal strength	2, 3, and 4	Volume Load
Power	• Power	5	Speed Load

Figure 13.7 Summary chart for the OPT™ system.

activity-specific strength adaptations (such as standing on one leg to kick a ball, climbing up stairs, or simply walking).⁸⁶

The stabilization period of training in the OPT™ model consists of one phase of training: stabilization endurance (Figures 13-1 and 13-7).

Stabilization Endurance Training (Phase 1)

Stabilization endurance should be used for beginning clients who may possess muscle imbalances, lack postural control, and stability (Table 13-14). Although this phase is the first phase of training in the OPT™ model, it will also be important to cycle back through this phase of training between periods of higher-intensity training seen in phases 2 through 5. This will allow for proper recovery and maintenance of high levels of stability that will ensure optimal strength and power adaptations. This phase of training focuses on:

- Increasing stability
- Increasing muscular endurance
- Increasing neuromuscular efficiency of the core musculature
- Improving intermuscular and intramuscular coordination

The primary focus when progressing in this phase is on increasing the proprioception (controlled instability) of the exercises, rather than just the load.

Acute variables can be progressed if the client is starting in the stabilization endurance phase, with minimal to no training background, and is also fairly conditioned, with no major muscle imbalances (Table 13-15). The health and fitness professional will want to increase repetitions and challenge proprioception to establish the necessary levels of endurance in core muscles. The intensity of the weight will remain low, to allow the client to focus on proprioception.

A client in this category will generally stay in this phase of training for a 4-week duration. This will prepare the client for the demands of the strength endurance phase (phase 2). This progression is beneficial for any client, but especially for those with the goal of body fat reduction or general fitness.

Table 13.14

Phase 1: Stabilization Endurance Acute Variables

Stabilization Endurance

	Reps	Sets	Tempo	% Intensity	Rest Interval	Frequency	Duration	Exercise Selection
Flexibility	1	1-3	30-s hold	n/a	n/a			SMR and static
Core	12-20	1-4	slow 4/2/1	n/a	0-90 s	2-4 times/ week	4-6 weeks	1-4 stabilization level
Balance	12-20 6-10 (SL)	1-3	slow 4/2/1	n/a	0-90 s	2-4 times/ week	4-6 weeks	1-4 stabilization level
Reactive	5-8	1-3	3-5 s hold	n/a	0-90 s	2-4 times/ week	4-6 weeks	0-2 stabilization level
Resistance	12-20	1-3	4-2-1	60-70%	0-90 s	2-4 times/ week	4-6 weeks	1-2 stabilization progression
Comments:								

SL, single leg; SMR, self myofascial release; n/a, not applicable.

Table 13.15

**Phase 1: Stabilization Endurance
Progressions for Beginning Clients**

Weekly Progression		Week 1	Week 2	Week 3	Week 4
Core	<i>Sets</i>	1	2	2	3
	<i>Reps</i>	12	15	20	20
Balance	<i>Sets</i>	1	2	2	3
	<i>Reps</i>	12	15	20	20
Reactive	<i>Sets</i>	1	2	2	2
	<i>Reps</i>	5	5	6	8
Resistance	<i>Sets</i>	1	2	2	3
	<i>Reps</i>	12	15	20	20
	<i>Intensity</i>	60%	60%	60%	60%

Acute variables can be progressed if the client is fairly conditioned and has a good level of training background (Table 13-16). The health and fitness professional should slowly progress by increasing intensity and decreasing the repetitions to establish the necessary levels of endurance and strength in stabilizing muscles.

This progression is beneficial for the client who has the goal of increasing lean body mass and general performance. A client in this category will generally stay in this phase of training for a 4-week duration.

Table 13.16

**Phase 1: Stabilization Endurance
Progressions for Clients Who Are Fairly Conditioned With Good
Training Background**

Weekly Progression		Week 1	Week 2	Week 3	Week 4
Core	<i>Sets</i>	1	2	3	3
	<i>Reps</i>	20	20	15	15
Balance	<i>Sets</i>	1	2	3	3
	<i>Reps</i>	20	20	15	15
Reactive	<i>Sets</i>	1	2	3	3
	<i>Reps</i>	6	6	6	8
Resistance	<i>Sets</i>	1-2	2	3	3
	<i>Reps</i>	20	15	15	12
	<i>Intensity</i>	60%	65%	65%	70%



OPT For Fitness

Name: John Smith	Month: 1
Date: 8/10/06	Week: 1
Professional: Scott Lucett	Day: 1 of 12

Program Goal
PHASE 1: STAB. ENDURANCE
Total Body

STEP 1		
A. Foam Roll		
Foam Roll	Sets	Duration
Calves	1	30 sec
IT Band	1	30 sec
Latissimus Dorsi	1	30 sec
B. Stretch		
Static Stretching	Sets	Duration
Gastrocnemius	1	30 sec
Kneeling Hip Flexor Stretch	1	30 sec
Latissimus Dorsi Ball Stretch	1	30 sec
C. Cardiovascular		
Treadmill	1	5 min

STEP 2				
A. Core				
Exercise	Sets	Reps	Tempo	Rest
Supine Marching	2	15	Slow	0
Floor Bridge	2	15	Slow	0
B. Balance				
Exercise	Sets	Reps	Tempo	Rest
Single-leg Balance	2	x	Slow	0
C. Reactive				
Exercise	Sets	Reps	Tempo	Rest
Squat Jump w/Stabilization	2	5	Slow	60 sec

Resistance Training Program							
STEP 3	Body Part	Exercise	Sets	Reps	Intensity	Tempo	Rest
	Total Body	Ball Squat Curl to Press	2	15	60%	Slow	0
	Chest	Push Up	2	15	60%	Slow	0
	Back	Standing Cable Row	2	15	60%	Slow	0
	Shoulder	Single-leg Scaaption	2	15	60%	Slow	0
	Biceps	<i>Optional</i>					
	Triceps	<i>Optional</i>					
	Legs	Step Up to Balance	2	15	60%	Slow	60 sec

Cool-Down	
STEP 4	Repeat Steps 1A and/or 1B

Example Phase 1 Program

STRENGTH

The second level of training in the OPT™ model focuses on the main adaptation of strength, which includes strength endurance, hypertrophy, and maximal strength. It is designed to maintain stability while increasing the amount of stress placed on the body for increased muscle size and strength. This period of training is a necessary progression from stabilization for anyone who desires to increase caloric expenditure, muscle size, muscle strength, and bone mineral density. The focus of the strength period of training is to:

- Increase the ability of the core musculature to stabilize the pelvis and spine under heavier loads, through more-complete ranges of motion
- Increase the load-bearing capabilities of muscles, tendons, ligaments, and joints
- Increase the volume of training with more reps, sets, and intensity
- Increase metabolic demand by taxing the ATP and CP and glycolysis energy systems to induce cellular changes in muscle (weight loss or hypertrophy)
- Increase motor unit recruitment, frequency of motor unit recruitment, and motor unit synchronization (maximal strength)

The strength period of training in the OPT™ model consists of three phases: phase 2, strength endurance; phase 3, hypertrophy; and phase 4, maximal strength (Figures 13-1 and 13-7).

Strength Endurance Training (Phase 2)

Strength endurance is a hybrid form of training that promotes increased stabilization endurance, hypertrophy, and strength. This form of training entails the use of superset techniques in which a more-stable exercise (such as a bench press) is immediately followed with a stabilization exercise with similar biomechanical motions (such as a standing cable chest press). Thus, for every set of an exercise or body part performed according to the acute variables, there are actually two exercises or two sets being performed. High amounts of volume can be generated in this phase of training (Table 13-17).

Acute variables can be progressed if a client with the goal of general fitness or body fat reduction has properly progressed through phase 1 of the OPT™ model (Table 13-18). Because the goal does not require hypertrophy, sets, repetition, and intensity ranges will remain moderate.

Table 13.17

Phase 2: Strength Endurance Acute Variables

Strength Endurance

	Reps	Sets	Tempo	% Intensity	Rest Interval	Frequency	Duration	Exercise Selection
Flexibility	5–10	1–2	2–4 s hold	n/a	n/a	3–7 times/week	4–6 weeks	SMR and active
Core	8–12	2–3	3-2-1-1/1/1 medium	n/a	0–60	2–4 times/week	4–6 weeks	1–3 strength
Balance	8–12	2–3	3-2-1-1/1/1 medium	n/a	0–60	2–4 times/week	4–6 weeks	1–3 strength
Reactive	8–10	2–3	Repeating medium	n/a	0–60	2–4 times/week	4–6 weeks	1–3 strength
Resistance	8–12	2–4	(Str) 1-1-1 (Stab) 3-2-1	70–80%	0–60	2–4 times/week	4–6 weeks	1 strength superset 1 stabilization
Comments:	Each resistance-training exercise is a superset of a strength level exercise immediately followed by a stabilization level exercise.							

SMR, self myofascial release; n/a, not applicable.

Table 13.18

Phase 2: Strength Endurance
Progressions for Clients With Goals of Body Fat Reduction or
General Fitness

Weekly Progression

		Week 1	Week 2	Week 3	Week 4
Core	<i>Sets</i>	2	2	2	2
	<i>Reps</i>	12	12	12	12
Balance	<i>Sets</i>	2	2	2	2
	<i>Reps</i>	12	12	12	12
Reactive	<i>Sets</i>	2	2	2	2
	<i>Reps</i>	8	8	8	8
Resistance	<i>Sets</i>	2	2	2	2
	<i>Reps</i>	12 strength 12 stabilization	12 strength 12 stabilization	10 strength 10 stabilization	10 strength 10 stabilization
	<i>Intensity</i>	70%	70%	75%	75%

Acute variables can be progressed if a client with the goal of increasing lean body mass and general performance has properly progressed through phase 1 of the OPT™ model (Table 13-19). Because the goal of this phase of training is strength and hypertrophy, the health and fitness professional will want to increase intensity and decrease the repetitions to establish the necessary levels of strength. A client in this category will generally stay in this phase of training for a 4-week duration.

Table 13.19

Phase 2: Strength Endurance
Progressions for Clients With Goals of Increased Lean Body Mass
or General Performance

Weekly Progression

		Week 1	Week 2	Week 3	Week 4
Core	<i>Sets</i>	2	2	3	3
	<i>Reps</i>	12	12	10	8
Balance	<i>Sets</i>	2	2	3	3
	<i>Reps</i>	12	12	10	8
Reactive	<i>Sets</i>	2	3	3	3
	<i>Reps</i>	8	8	10	10
Resistance	<i>Sets</i>	2	3	3	4
	<i>Reps</i>	12 strength 12 stabilization	10 strength 10 stabilization	8 strength 8 stabilization	8 strength 8 stabilization
	<i>Intensity</i>	70%	75%	80%	80%



OPT For Fitness

Name: John Smith	Month: 2
Date:	Week: 1
Professional: Scott Lucett	Day: 1 of 12

Program Goal
PHASE 2: STRENGTH ENDURANCE
Total Body

STEP 1		
A. Foam Roll		
Foam Roll	Sets	Duration
Calves	1	30 sec
IT Band	1	30 sec
Latissimus Dorsi	1	30 sec
B. Stretch		
Active Stretching	Sets	Duration
Active Gastrocnemius Stretch	1	5 reps
Active Kneeling Hip Flexor Stretch	1	5 reps
Active Latissimus Dorsi Ball Stretch	1	5 reps
C. Cardiovascular		
Treadmill	1	5 min

STEP 2				
A. Core				
Exercise	Sets	Reps	Tempo	Rest
Ball Crunch	2	10	Medium	0
Reverse Crunch	2	10	Medium	0
B. Balance				
Exercise	Sets	Reps	Tempo	Rest
Single-leg Squat	2	10	Medium	60 sec
C. Reactive				
Exercise	Sets	Reps	Tempo	Rest
Squat Jump	2	10	Medium	60 sec

Resistance Training Program							
STEP 3	Body Part	Exercise	Sets	Reps	Intensity	Tempo	Rest
		Total Body	<i>Optional</i>				
	Chest	1. Bench Press 2. Push Up	2	12	75%	Medium Slow	0 60 sec
	Back	1. Seated Cable Row 2. Ball Dumbbell Row	2	12	75%	Medium Slow	0 60 sec
	Shoulder	1. Shoulder Press Machine 2. Single-leg Scaption	2	12	75%	Medium Slow	0 60 sec
	Biceps	<i>Optional</i>					
	Triceps	<i>Optional</i>					
	Legs	1. Barbell Squat 2. Step Up to Balance	2	12	75%	Medium Slow	0 60 sec

STEP 4		Cool-Down
		Repeat Steps 1A/or 1B, but use static stretches

NOTE: Resistance training portion can be split into a 2-, 3-, or 4-day workout routine - Ex. 3-day routine: day 1 (chest/back), day 2 (shoulders and legs), day 3 (biceps and triceps)

Example Phase 2 Program

Hypertrophy Training (Phase 3)

Hypertrophy training is specific for the adaptation of maximal muscle growth, focusing on high levels of volume with minimal rest periods to force cellular changes that result in an overall increase in muscle size (Table 13-20).

Acute variables can be progressed if a client with the goal of increasing lean body mass and general performance has properly progressed through phases 1 and

Table 13.20

Phase 3: Hypertrophy Acute Variables

Hypertrophy								
	Reps	Sets	Tempo	% Intensity	Rest Interval	Frequency	Duration	Exercise Selection
Flexibility	5-10	1-2	2-4 s hold	n/a	n/a	3-7 times/week	4 weeks	SMR and active
Core	8-12	2-3	3-2-1-1/1/1 medium	n/a	0-60 s	3-6 times/week	4 weeks	0-4 strength
Balance	8-12	2-3	3-2-1-1/1/1 medium	n/a	0-60 s	3-6 times/week	4 weeks	0-4 strength
Reactive	8-10	2-3	Repeating	n/a	0-60 s	3-6 times/week	4 weeks	0-4 strength
Resistance	6-12	3-5	2-0-2	75-85%	0-60 s	3-6 times/week	4 weeks	2-4 strength level exercises/body part
Comments:	Total of 24-36 sets per workout Light day = 20-24 total sets Moderate day = 24-30 total sets Heavy day = 30-36 total sets							

2 of the OPT™ model (Table 13-21). Because the goal of this phase of training is primarily hypertrophy, the health and fitness professional will want to increase intensity and volume.

A client in this category will generally stay in this phase of training for a 4-week duration, before cycling back through phase 1 or 2 or progressing on to phase 4 or 5.

Table 13.21

Phase 3: Hypertrophy Progressions for Clients With Goals of Increased Lean Body Mass or General Performance

Weekly Progression					
		Week 1	Week 2	Week 3	Week 4
Core	Sets	2	2	3	3
	Reps	12	12	10	8
Balance	Sets	2	2	3	3
	Reps	12	12	10	8
Reactive	Sets	2	3	3	3
	Reps	8	8	10	10
Resistance	Sets	3	3	4	5
	Reps	12	10	8	6
	Intensity	75%	80%	80%	85%



OPT For Fitness

Name: John Smith	Month: 3
Date:	Week: 1
Professional: Scott Lucett	Day: 1

Program Goal
PHASE 3: HYPERTROPHY
Total Body

STEP 1		
A. Foam Roll		
Foam Roll	Sets	Duration
Calves	1	30 sec
IT Band	1	30 sec
Latissimus Dorsi	1	30 sec
B. Stretch		
Active Stretching	Sets	Duration
Active Gastrocnemius Stretch	1	5 reps
Active Kneeling Hip Flexor Stretch	1	5 reps
Active Latissimus Dorsi Ball Stretch	1	5 reps
C. Cardiovascular		
Treadmill	1	5 min

STEP 2				
A. Core				
Exercise	Sets	Reps	Tempo	Rest
Ball Crunch	2	12	Medium	0
Back Extension	2	12	Medium	0
B. Balance				
Exercise	Sets	Reps	Tempo	Rest
Single-leg Squat Touchdown	2	12	Medium	60 sec
C. Reactive				
Exercise	Sets	Reps	Tempo	Rest
<i>Optional</i>				

Resistance Training Program							
STEP 3	Body Part Exercise		Sets	Reps	Intensity	Tempo	Rest
		Total Body	<i>Optional</i>				
	Chest	Flat Dumbbell Chest Press	3	10	80%	Medium	60 sec
	Back	Lat Pulldown	3	10	80%	Medium	60 sec
	Shoulder	Shoulder Press Machine	3	10	80%	Medium	60 sec
	Biceps	Standing Two-arm Dumbbell Curl	3	10	80%	Medium	60 sec
	Triceps	Cable Pressdown	3	10	80%	Medium	60 sec
	Legs	Leg Press	3	10	80%	Medium	60 sec

STEP 4		Cool-Down
		Repeat Steps 1A/or 1B, but use static stretches

NOTE: Resistance training portion can be split into a 2-, 3-, or 4-day workout routine - Ex. 3-day routine: day 1 (chest/back), day 2 (shoulders and legs), day 3 (biceps and triceps)

Example Phase 3 Program

Maximal Strength Training (Phase 4)

The maximal strength training phase focuses on increasing the load placed upon the tissues of the body (Table 13-22). Maximal intensity improves:

- Recruitment of more motor units
- Rate of force production
- Motor unit synchronization

Table 13.22

Phase 4: Maximal Strength Training Acute Variables

Maximal Strength Training

	Reps	Sets	Tempo	% Intensity	Rest Interval	Frequency	Duration	Exercise Selection
Flexibility	5-10	1-2	2-4 s hold	n/a	n/a	3-7 times/week	4 weeks	SMR and active
Core	8-12	2-4	1-1-1 medium	n/a	0-60 s	2-4 times/week	4 weeks	0-3 strength
Balance	8-12	2-3	1-1-1 medium	n/a	0-60 s	2-4 times/week	4 weeks	0-3 strength
Reactive	8-10	2-3	Repeating medium	n/a	0-60 s	2-4 times/week	4 weeks	0-3 strength
Resistance	1-5	4-6	1-1-1	85-100%	3-5 min	2-4 times/week	4 weeks	1-3 strength
Comments:								

SMR, self myofascial release; n/a, not applicable.

Maximal strength training has also been shown to help increase the benefits of forms of power training used in phase 6.⁶⁰

Acute variables can be progressed if the client with the goal of increasing lean body mass and general performance has properly progressed through phases 1 and 2 (and possibly phase 3; Table 13-23). Because the goal of this phase of training is primarily maximal strength, the health and fitness professional will want to increase intensity.

A client in this category will generally stay in this phase of training for a 4-week duration before cycling back through phase 1 or 2 or progressing on to phase 5.

Table 13.23

Phase 4: Maximal Strength Training (MST) Progressions for Clients With Goals of Increased Lean Body Mass or General Performance

Weekly Progression

		Week 1	Week 2	Week 3	Week 4
Core	<i>Sets</i>	2	2	3	3
	<i>Reps</i>	12	12	10	8
Balance	<i>Sets</i>	2	2	3	3
	<i>Reps</i>	12	12	10	8
Reactive	<i>Sets</i>	2	3	3	3
	<i>Reps</i>	8	8	10	10
Resistance	<i>Sets</i>	4	5	5	6
	<i>Reps</i>	5	5	4	3
	<i>Intensity</i>	85%	85%	89%	93%



OPT For Fitness

Name: John Smith	Month: 1
Date:	Week: 1
Professional: Scott Lucett	Day: 1 of 12

Program Goal
PHASE 4: MAX STRENGTH
Total Body

STEP 1		
A. Foam Roll		
Foam Roll	Sets	Duration
Calves	1	30 sec
IT-Band	1	30 sec
Latissimus Dorsi	1	30 sec
B. Stretch		
Active Stretching	Sets	Duration
Active Gastrocnemius Stretch	1	5 reps
Active Kneeling Hip Flexor Stretch	1	5 reps
Active Latissimus Dorsi Ball Stretch	1	5 reps
C. Cardiovascular		
Treadmill	1	5 min

STEP 2				
A. Core				
Exercise	Sets	Reps	Tempo	Rest
Cable Rotations	3	8	Medium	0
Back Extension	3	8	Medium	60 sec
B. Balance				
Exercise	Sets	Reps	Tempo	Rest
<i>Optional</i>				
C. Reactive				
Exercise	Sets	Reps	Tempo	Rest
<i>Optional</i>				

Resistance Training Program							
STEP 3	Body Part	Exercise	Sets	Reps	Intensity	Tempo	Rest
	Total Body	Barbell Clean	3	5	85%	Medium	3 min
	Chest	Bench Press	3	5	85%	Medium	3 min
	Back	Lat Pulldown	3	5	85%	Medium	3 min
	Shoulder	Seated Dumbbell Shoulder Press	3	5	85%	Medium	3 min
	Biceps	<i>Optional</i>					
	Triceps	<i>Optional</i>					
	Legs	Barbell Squat	3	5	85%	Medium	3 min

Cool-Down	
STEP 4	Repeat Steps 1A and/or 1B, but use static stretches

NOTE: Resistance training portion can be split into a 2-, 3-, or 4-day workout routine - Ex. 3-day routine: day 1 (chest/back), day 2 (shoulders and legs), day 3 (biceps and triceps)

Example Phase 4 Program

POWER

The third level of training is power and is designed to increase the rate of force production (or speed of muscle contraction). This form of training uses the adaptations of stabilization and strength acquired in the previous phases of training and applies them with more realistic speeds and forces that the body will encounter in everyday life and in sports.

Power training is usually not common practice in the fitness environment, but has a very viable and purposeful place in a properly planned training program.

Power is simply defined as force multiplied by velocity ($P = F \times V$).⁶⁰ Therefore, any increase in either force or velocity will produce an increase in power. This is accomplished by either increasing the load (or force) as in progressive strength training or increasing the speed with which you move a load (or velocity). The combined effect is a better rate of force production in daily activities and sporting events.⁶⁰

To develop optimum levels of power, it has been shown that individuals must train both with heavy loads (85 to 100%) and light loads (30 to 45%) at high speeds.^{8,25,26,29,31,63} The focus of power training is to increase the rate of force production by increasing the number of motor units activated, the synchrony between them, and the speed at which they are excited.^{63,87,88}

The power level of training in the OPT™ model consists of one phase of training: phase 5: power (Figures 13-1 and 13-7).

Power Training (Phase 5)

The power training phase focuses on both high force and velocity to increase power (Table 13-24). This is accomplished by combining a strength exercise with a power exercise for each body part (such as performing a barbell bench press superset with a medicine ball chest pass).

Don't let the intensities confuse you. The 85 to 100% refers to the intensity for traditional strength training exercises. It increases power by increasing the *force* side of the power equation (force multiplied by velocity).

The 30 to 45% intensity, on the other hand, is used for "speed" exercises such as speed squats in which the squats are performed as fast as possible with a low load.⁹³ The approximately 10% intensity is used for medicine ball training that will require the throwing or release of a medicine ball. These last two forms of training affect the *velocity* side of the power equation (force multiplied by velocity).

By using heavy weight with explosive movement and low resistance with a high velocity, you can produce high power outputs.^{12,89-92}

Table 13.24

Phase 5: Power Acute Variables

Power								
	Reps	Sets	Tempo	% Intensity	Rest Int.	Frequency	Duration	Exercise Selection
Flexibility	10–15	1–2	Controlled	n/a	n/a	3–7 times/ week	4 weeks	SMR and dynamic 3–5 exercises
Core	8–12	2–3	fast as can be controlled	n/a	0–60 s	2–4 times/ week	4 weeks	0–2 power level
Balance	8–12	2–3	controlled	n/a	0–60 s	2–4 times/ week	4 weeks	0–2 power level
Reactive	8–12	2–3	X-X-X as fast as possible	n/a	0–60 s	2–4 times/ week	4 weeks	0–2 power level
Resistance	1–5 (S) 8–10 (P)	3–5	1-1-1 (S) X-X-X (P)	85–100% (S) up to 10% BW or 30–45% 1RM (P)	1–2 min b/w pairs 3–5 min b/w circuits	2–4 times/ week	4 weeks	1 strength superset 1 power
Comments:								

BW, body weight; 1RM, 1 repetition maximum; X-X-X, as fast as can be controlled; SMR, self myofascial release; n/a, not applicable.

Table 13.25

**Phase 5: Power
Progressions for Clients With Goals of Increased Lean Body Mass
or General Performance**

Weekly Progression		Week 1	Week 2	Week 3	Week 4
Core	<i>Sets</i>	2	2	3	3
	<i>Reps</i>	12	12	10	8
Balance	<i>Sets</i>	2	2	3	3
	<i>Reps</i>	12	12	10	8
Reactive	<i>Sets</i>	2	3	3	3
	<i>Reps</i>	8	8	10	10
Resistance	<i>Sets</i>	3	4	4	5
	<i>Reps</i>	5 strength 10 power	4 strength 10 power	4 strength 8 power	3 strength 8 power
	<i>Intensity</i>	Strength 85% Power 2% BW	Strength 89% Power 3% BW	Strength 89% Power 4% BW	Strength 93% Power 4% BW
Comments:					

BW, body weight; *IRM*, 1 repetition maximum.

Acute variables can be progressed if the client with the goal of increasing general performance has properly progressed through the rest of the OPT™ model (Table 13-25). Because the goal of this phase of training is primarily power, the health and fitness professional will want to progress by increasing intensity and velocity.

A client in this category will generally stay in this phase of training for a 4-week duration before cycling back through phase 1 or 2.

SUMMARY

The different levels of training seen in a traditional periodization model include anatomic adaptation, hypertrophy, maximum strength, and power. In the OPT™ model, these are simplified into stabilization, strength, and power. These are further broken down into five different phases of training.

The first level, stabilization, is crucial for all beginners as it is designed to prepare the body for the demands of higher levels of training. For advanced clients, this level allows for rest from more-intense bouts of training. It involves low-intensity, high-repetition training, emphasizing core and joint stabilization (as opposed to increasing the strength of the arms and legs). Exercises progressively challenge proprioception.

The stabilization level of consists of one phase of training: phase 1, stabilization endurance. This phase focuses on increasing core stability and endurance of all major muscles. It also optimizes the amount of continuous blood flow in the muscles during exercise to reduce tissue adhesions. The phase usually lasts 4 weeks.

The second level, strength, is designed to increase strength endurance, muscle size, and strength. The strength period of training in the OPT™ model consists of three phases: phase 2, strength endurance; phase 3, hypertrophy; and phase 4, maximal strength. Phase 2 uses superset techniques with high volume, for about 4 weeks. Phase 3 stresses maximal hypertrophy, focusing on high levels of volume



OPT For Fitness

Name: John Smith	Month: 2
Date:	Week: 1
Professional: Scott Lucett	Day: 1 of 12

Program Goal
PHASE 5: POWER
Total Body

STEP 1		
A. Foam Roll		
Foam Roll	Sets	Duration
Calves	1	30 sec
Adductors	1	30 sec
Latissimus Dorsi	1	30 sec
B. Stretch		
Dynamic Stretching	Sets	Duration
Tube Walking	1	10 reps
Multiplanar Lunges	1	10 reps
C. Cardiovascular		
Treadmill	1	5 min

STEP 2				
A. Core				
Exercise	Sets	Reps	Tempo	Rest
Rotation Chest Pass	3	8	Fast	0 sec
Ball MB Pullover Throw	3	8	Fast	0 sec
B. Balance				
Exercise	Sets	Reps	Tempo	Rest
Single-leg Hop w/Stabilization	3	8	Fast	60 sec
C. Reactive				
Exercise	Sets	Reps	Tempo	Rest
<i>Optional</i>				

STEP 3 Resistance Training Program						
Body Part	Exercise	Sets	Reps	Intensity	Tempo	Rest
Total Body	<i>Optional</i>					
Chest	1. Bench Press	3	10	85%	Fast	0
	2. Medicine Ball Chest Pass					
Back	1. Seated Row	3	10	85%	Fast	0
	2. Woodchop Throw					
Shoulder	2. Shoulder Press Machine	3	10	85%	Fast	0
	2. Medicine Ball Scoop Toss					
Biceps	<i>Optional</i>					
Triceps	<i>Optional</i>					
Legs	2. Barbell Squat	3	10	85%	Fast	0
	2. Ice Skater					

STEP 4 Cool-Down	
	Repeat Steps 1A/ and/or 1B, but use static stretches

Example Phase 5 Program

with minimal rest periods, for about 4 weeks. Phase 4 focuses on increasing the load placed on the tissues of the body, for about 4 weeks.

The third level of training, power, is designed to increase the rate of force production. To develop optimum levels of power, it has been shown that individuals must train both with heavy and light loads at high speeds. The power level consists of one phase of training: phase 5, power. This phase focuses on both high force and velocity to increase power and lasts about 4 weeks.

Applying the OPT™ Model

The concepts of program design, periodization, and the OPT™ model have all been described. Program design was defined as creating a purposeful system or plan to achieve a goal. Periodization is the scientific basis that allows health and fitness professionals to strategically plan, design programs, and achieve goals, without the risk of placing improper stresses on the body.

The OPT™ model is a proven, easy-to-use system of periodization that can be used to create programs for clients with various goals. Although the understanding of these concepts is paramount, what matters most is the ability to apply the information in multiple situations to a variety of clients. This module will demonstrate how to specifically apply the OPT™ model to goals. These include body fat reduction, increase in lean body mass, and enhanced general performance.

APPLYING THE MODEL FOR THE GOAL OF BODY FAT REDUCTION

The goal of reducing body fat requires clients to follow the simple principle of burning more calories than they consume (see Chapter 15, Nutrition). The best way to increase the calories burned is to move more. Weight training provides an extremely potent means to burn calories when it is combined with cardiorespiratory training. It also provides the added benefit of increased muscle strength.⁹³⁻⁹⁶

The following program is a general representation of how the OPT™ model is used for clients with the goal of body fat reduction. Figure 13-8 shows the annual plan. Because the goal is not for hypertrophy or to gain maximal strength and power, the client only needs to be cycled through the first two phases of the OPT™ model. The client will start in January in phase 1, to ensure proper muscle balance and endurance of the stabilization muscles. He or she will remain there for approximately 4 weeks before moving on to phase 2.

The remainder of the annual plan shows the client cycling back and forth between phases 1 and 2 (Figure 13-8). Phase 2 will promote times of greater metabolic demand and more volume for increased caloric expenditure. Phase 1 will allow the client proper recovery time before entering back into phase 2. Cardiorespiratory training can be performed each month. During phase 1, the client may be inclined to do more cardiorespiratory work (in conjunction with weight training) to sustain good caloric expenditure without the higher intensity of weight training seen in phase 2. This will also provide proper periodization of the client's cardiorespiratory training.

Figure 13-9 illustrates the monthly plan for January. This plan demonstrates a 3-day-per-week workout plan, with scheduled workouts on Mondays, Wednesdays, and Fridays. This monthly plan can easily be performed twice a week. The client

	PHASE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Stabilization	1	X		X		X		X		X		X	
Strength	2		X		X		X		X		X		X
	3												
	4												
Power	5												
Cardio		X	X	X	X	X	X	X	X	X	X	X	X

Figure 13.8 Annual plan for the goal of body fat reduction.

Week	1							2							3							4						
Day	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
Phase 1	X		X	X				X	X	X					X	X	X					X	X	X				
Phase 2																												
Phase 3																												
Phase 4																												
Phase 5																												
Cardio	X		X	X				X	X	X					X	X	X					X	X	X				
Flexibility	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Figure 13.9 Monthly plan for the goal of body fat reduction, January—phase 1: stabilization endurance.

can perform flexibility exercises every day of the week, if desired. Cardio can be done on the workout days (or any other day during the week, depending on the client’s schedule).

Figure 13-10 illustrates the monthly plan for February. As with the previous month, this plan demonstrates a 3-day-per-week workout plan with scheduled workouts on Mondays, Wednesdays, and Fridays. Again, this monthly plan could easily be performed twice a week. The client can perform flexibility exercises every day of the week, if desired. Cardio can be done on the workout days (or any other day during the week depending on the client’s schedule).

Week	1							2							3							4						
Day	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
Phase 1																												
Phase 2	X		X	X				X	X	X					X	X	X					X	X	X				
Phase 3																												
Phase 4																												
Phase 5																												
Cardio	X		X	X				X	X	X					X	X	X					X	X	X				
Flexibility	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Figure 13.10 Monthly plan for the goal of body fat reduction, February —phase 2: strength endurance.

APPLYING THE MODEL FOR THE GOAL OF INCREASING LEAN BODY MASS

The goal of increasing lean body mass (or hypertrophy) requires the client to increase caloric intake to exceed the amount that is burned to put weight on. The training will need to be progressed to higher volumes (more sets, reps, and intensity) to force muscles to increase their cellular makeup and produce increased size.

The following program is a general representation of how the OPT™ model is used for clients with the goal of increased lean body mass. With the goal of hypertrophy the client can be cycled through the first four phases of the OPT™ model, depending on the needs and wants of the client.

Figure 13-11 shows the annual plan. The client will start January in phase 1 to ensure proper muscle balance and endurance of the stabilization muscles. He or she will remain there for approximately 4 weeks before moving into phase 2. Phase 1 is vital for this client, as it will prepare the connective tissues and muscles for the high demands of training required for this goal. Without proper preparation, injury will be eminent.

	PHASE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Stabilization	1	X						X					
Strength	2		X		X				X				X
	3			X		X				X		X	
	4						X				X		
Power	5												
Cardio													

Figure 13.11 Annual plan for the goal of muscle gain.

The remainder of the annual plan shows the client cycling through phases 2 through 4. Phase 2 will promote greater strength endurance and more volume to prepare the client for the greater demands of phases 3 and 4.

Phase 3 is specific for maximal hypertrophy and will place larger volumes of stress through the body to force cellular changes that result in muscle hypertrophy. Phase 4 is used to increase the strength capacity to allow the client to train with heavier weights in the future. This will equate to higher volumes of training and greater hypertrophy.

Returning to phase 1 will allow the client proper recovery time before entering back into phases 2 through 4. Cardiorespiratory training can be performed each month to ensure the cardiorespiratory system is efficient and promoting optimal tissue recovery.

Figure 13-12 illustrates the monthly plan for January. This plan demonstrates a 3-day-per-week workout plan, with scheduled workouts on Mondays, Wednesdays, and Fridays. The client can perform flexibility exercises every day of the week, if desired. Cardio can be done on the workout days (or any other day during the week, depending on the client’s schedule).

Figure 13-13 illustrates the monthly plan for February. As with the previous month, this plan demonstrates a 3-day-per-week workout plan, with scheduled

Week	1							2							3							4						
Day	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
Phase 1	X		X		X			X		X		X			X		X		X			X		X		X		
Phase 2																												
Phase 3																												
Phase 4																												
Phase 5																												
Cardio	X		X		X			X		X		X			X		X		X			X		X		X		
Flexibility	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Figure 13.12 Monthly plan for the goal of muscle gain, January—phase 1: stabilization endurance.

Week	1							2							3							4						
Day	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
Phase 1																												
Phase 2	X		X		X			X		X		X			X		X		X			X		X		X		
Phase 3																												
Phase 4																												
Phase 5																												
Cardio	X		X		X			X		X		X			X		X		X			X		X		X		
Flexibility	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Figure 13.13 Monthly plan for the goal of muscle gain, February—phase 2: strength endurance.

Week	1							2							3							4						
Day	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
Phase 1																												
Phase 2																												
Phase 3	X	X		X	X			X	X		X	X			X	X		X	X			X	X		X	X		
Phase 4																												
Phase 5																												
Cardio																												
Flexibility	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Figure 13.14 Monthly plan for the goal of muscle gain, March—phase 3: hypertrophy.

workouts on Mondays, Wednesdays, and Fridays. This monthly plan could easily be performed four times per week, with a split routine for the body parts. The client can perform flexibility exercises every day of the week, if desired. In this phase of training, the workouts require more time and energy, so cardio can be done on the days opposite the workout days. This does not mean, however, that the client should not also do cardio on workout days.

Figure 13-14 illustrates the monthly plan for March. This plan demonstrates a 4-day-per-week workout plan (split routine) with scheduled workouts on Mondays, Tuesdays, Thursdays, and Fridays. The client can perform flexibility exercises every day of the week, if desired.

Figure 13-15 illustrates the monthly plan for June when the individual will introduce phase 4 into his routine. This plan demonstrates a 4-day-per-week workout plan (split routine) with scheduled workouts on Mondays, Tuesdays, Thursdays, and Fridays. The client can perform flexibility exercises every day of the week, if desired.

Week	1							2							3							4						
Day	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
Phase 1																												
Phase 2																												
Phase 3																												
Phase 4	X	X		X	X			X	X		X	X			X	X		X	X			X	X		X	X		
Phase 5																												
Cardio																												
Flexibility	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Figure 13.15 Monthly plan for the goal of muscle gain, June—phase 4: maximal strength

APPLYING THE MODEL FOR THE GOAL OF IMPROVING GENERAL PERFORMANCE

The goal of improving general performance requires the client to increase overall proprioception, strength, and power output (or rate of force production). The training will need to be progressed from stabilization through power phases of training and use the entire OPT™ model.

The following program is a general representation of how the OPT™ model is used for clients with the goal of improving general performance. The client can be cycled through the entire OPT™ model, depending on the needs and wants of the client. However, for the typical client, phases 1, 2, 4, and 5 will be the most important.

	PHASE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Stabilization	1	X		X		X		X		X		X	
Strength	2		X	X	X	X	X	X	X	X	X	X	X
	3												
	4												
Power	5			X	X	X	X	X	X	X	X	X	X
Cardio		X	X	X	X	X	X	X	X	X	X	X	X

Figure 13.16 Annual plan for the goal of general performance.

Because phase 3 is dedicated to maximal hypertrophy, it will not be necessary for the goal of general performance. Phase 4 can be used in moderation to help increase the initial strength levels required to optimize the adaptation in phase 5, if necessary.

Figure 13-16 shows the annual plan. The client will start January in phase 1 to ensure proper muscle balance and endurance of the stabilization muscles. He or she will remain there for approximately 4 weeks before moving on to phase 2. Phase 1 is vital for this client, as it will prepare the connective tissues and muscles for the high demands of training required for this goal. Without proper preparation, injury will be eminent for the athletic client.

The remainder of the annual plan shows the client cycling through phases 1, 2, and 5. Phase 2 will promote greater overall strength and more volume to prepare the client for the greater demands of phase 5. As previously mentioned, phase 4 can be used to increase the strength capacity of the client, but is not vitally necessary for general performance.

From March on, phases 1 or 2 and 5 are used in the same month or week. This is a hybrid form of periodization known as *undulating periodization*. Undulating periodization allows the client to train at various intensities during the course of a week, eliciting multiple adaptations once a certain level of fitness is achieved.^{65,77} In this program, stabilization (phase 1), strength (phase 2), and power (phase 5) are all being trained together. Cardiorespiratory training can be performed each month to ensure the cardiorespiratory system is efficient and promoting optimal tissue recoverability.

Figure 13-17 illustrates the monthly plan for January. This plan demonstrates a 3-day-per-week workout plan with scheduled workouts on Mondays, Wednesdays, and Fridays. The client can perform flexibility exercises every day of the week, if desired. Cardio can be done on the workout days (or any other day during the week, depending on the client's schedule).

Week	1							2							3							4						
	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
Phase 1	X		X		X			X		X		X			X		X		X			X		X		X		
Phase 2																												
Phase 3																												
Phase 4																												
Phase 5																												
Cardio	X		X		X			X		X		X			X		X		X			X		X		X		
Flexibility	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Figure 13.17 Monthly plan for the goal of general performance, January—phase 1: stabilization endurance.

Week	1							2							3							4						
Day	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
Phase 1																												
Phase 2	X		X		X			X		X		X			X		X		X			X		X		X		
Phase 3																												
Phase 4																												
Phase 5																												
Cardio	X		X		X			X		X		X			X		X		X			X		X		X		
Flexibility	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Figure 13.18 Monthly plan for the goal of general performance, February—phase 2: strength endurance.

Figure 13-18 illustrates the monthly plan for February. As with the previous month, this plan demonstrates a 3-day-per-week workout plan with scheduled workouts on Mondays, Wednesdays, and Fridays. This monthly plan could easily be four times a week, with a split routine for the body parts. The client can perform flexibility exercises every day of the week, if desired. Cardio can be done on the workout days (or any other day during the week, depending on the client's schedule).

Figure 13-19 illustrates the monthly plan for March. As with the previous month, this plan demonstrates a 3-day-per-week workout plan with scheduled workouts on Mondays, Wednesdays, and Fridays. In this month, however, phases 1, 2, and 5 are all used in the same week. This helps to introduce power training at a slower, more moderate pace, with low weekly volumes, while ensuring optimal levels of stabilization and strength necessary to increase power. The client can perform flexibility exercises every day of the week, if desired.

Week	1							2							3							4						
Day	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
Phase 1			X							X							X							X				
Phase 2	X							X						X						X								
Phase 3																												
Phase 4																												
Phase 5					X							X						X						X				
Cardio	X		X		X			X		X		X		X		X		X		X		X		X				
Flexibility	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		

Figure 13.19 Monthly plan for the goal of general performance, March—hybrid phases 1, 2, and 5.


FILLING IN THE TEMPLATE

Now that all the necessary components of the OPT™ template have been discussed, the resistance-training section of the template can be completed. The beauty of the OPT™ system is that it eliminates the guesswork. When filling in the resistance-training portion of the OPT™ template, just simply choose which phase of training the client will work on. In this manner, all of the major acute variables are already predetermined. Therefore, *sets*, *reps*, *intensity*, *tempo*, and *rest interval* are already given.

In the *exercises* box, simply choose an exercise that fits the desired body part as well as the guidelines of the specific phase of training. For example, phase 2, strength endurance, consists of a strength exercise, followed by a stabilization exercise. Thus, in the *chest* section, a bench press followed by a stability ball push-up would be appropriate exercise selections.

Using information from Chapter 12 (resistance training), the health and fitness professional can choose a particular system of training (such as using a circuit-training or vertical-loading method) to increase the intensity of the workout. If the client works out 2 to 6 days a week, a split routine may be used with varying body parts. Essentially, the possibilities are endless and only limited by creativity. The most important thing, however, is to follow the physiologic guidelines of the OPT™ model. After becoming more familiar with the system and the information, begin to experiment and try new approaches.

Figure 13-20 shows example program templates for the goals of body fat reduction, lean body mass gain and general performance.



OPT For Fitness

Name: John Smith	Month: 1
Date: 08/10/06	Week: 1
Professional: Scott Lucett	Day: 1 of 12

Program Goal:
PHASE 1: FAT LOSS

STEP 1			
A. Foam Roll			
Foam Roll	Sets	Duration	
Calves	1	30 sec	
IT Band	1	30 sec	
Adductors	1	30 sec	
B. Stretch			
Static Stretching	Sets	Duration	
Calves	1	30 sec	
Hip Flexors	1	30 sec	
Adductors	1	30 sec	
C. Cardiovascular			
Treadmill	1	5 min	

STEP 2				
A. Core				
Exercise	Sets	Reps	Tempo	Rest
Floor Bridge	2	15	Slow	0
Floor Prone Cobra	2	15	Slow	0
B. Balance				
Exercise	Sets	Reps	Tempo	Rest
Single-leg Balance Reach	2	15	Slow	0
C. Reactive				
Exercise	Sets	Reps	Tempo	Rest
Squat Jump w/ Stabilization	2	8	Controlled	60 sec

STEP 3 Resistance Training Program							
STEP 3	Body Part Exercise		Sets	Reps	Intensity	Tempo	Rest
		Total Body	Ball Squat, Curl to Press	2	15	60%	Slow
	Chest	Ball Dumbbell Chest Press	2	15	60%	Slow	0
	Back	Standing Cable Row	2	15	60%	Slow	0
	Shoulder	Single-leg Dumbbell Scaption	2	15	60%	Slow	0
	Biceps	<i>Optional</i>					
	Triceps	<i>Optional</i>					
	Legs	Step Up to Balance	2	15	60%	Slow	60 sec

STEP 4 Cool Down	
STEP 4	Repeat Steps 1A and/or 1B

Figure 13.20 Filled out strength-training section of the template. (continued)



OPT For Fitness

Name: John Smith	Month: 2
Date: 08/10/06	Week: 1
Professional: Scott Lucett	Day: 1 of 12

Program Goal:
PHASE 2: FAT LOSS

STEP 1		
A. Foam Roll		
Foam Roll	Sets	Duration
Calves	1	30 sec
IT Band	1	30 sec
Latissimus Dorsi	1	30 sec
B. Stretch		
Active Stretching	Sets	Duration
Active Gastrocnemius Stretch	1	5 reps
Active Kneeling Hip Flexors Stretch	1	5 reps
Active Latissimus Dorsi Stretch	1	5 reps
C. Cardiovascular		
Treadmill	1	5 min

STEP 2				
A. Core				
Exercise	Sets	Reps	Tempo	Rest
Ball Crunch	2	12	Medium	0
Back Extension	2	12	Medium	0
B. Balance				
Exercise	Sets	Reps	Tempo	Rest
Single-leg Squat	2	12	Medium	0
C. Reactive				
Exercise	Sets	Reps	Tempo	Rest
Squat Jump	2	8	Medium	60 sec

Resistance Training Program							
STEP 3	Body Part	Exercise	Sets	Reps	Intensity	Tempo	Rest
		Total Body	<i>Optional</i>				
	Chest	1. Bench Press 2. Push Up	2	12	75%	Medium Slow	0 0
	Back	1. Lat Pulldown 2. Ball Dumbbell Row	2	12	75%	Medium Slow	0 0
	Shoulder	1. Shoulder Press Machine 2. Single-leg Scaption	2	12	75%	Medium Slow	0 0
	Biceps	<i>Optional</i>					
	Triceps	<i>Optional</i>					
	Legs	1. Leg Press 2. Step up to Balance	2	12	75%	Medium Slow	0 60 sec

STEP 4		Cool Down
		Repeat Steps 1A and/or 1B, but use static stretches

Figure 13.20 (continued).



OPT For Fitness

Name: John Smith	Month: 1
Date: 08/10/06	Week: 1
Professional: Scott Lucett	Day: 1 of 12

Program Goal:
PHASE 1: LEAN BODY MASS GAIN

STEP 1		
A. Foam Roll		
Foam Roll	Sets	Duration
Calves	1	30 sec
IT-Band	1	30 sec
Latissimus Dorsi	1	30 sec
B. Stretch		
Static Stretching	Sets	Duration
Gastrocnemius Stretch	1	30 sec
Kneeling Hip Flexor Stretch	1	30 sec
Latissimus Dorsi Ball Stretch	1	30 sec
C. Cardiovascular		
Treadmill	1	5 min

STEP 2				
A. Core				
Exercise	Sets	Reps	Tempo	Rest
Prone Iso Abs	2	15	Slow	0
Floor Bridges	2	15	Slow	0
B. Balance				
Exercise	Sets	Reps	Tempo	Rest
Single-leg Balance Reach	2	15	Slow	60 sec
C. Reactive				
Exercise	Sets	Reps	Tempo	Rest
<i>optional</i>				

Resistance Training Program							
STEP 3	Body Part	Exercise	Sets	Reps	Intensity	Tempo	Rest
	Total Body	<i>Optional</i>					
	Chest	Ball Dumbbell Chest Press	2	15	65%	Slow	0
	Back	Standing Cable Row	2	15	65%	Slow	0
	Shoulder	Single-leg Scaption	2	15	65%	Slow	0
	Biceps	Single-leg Barbell Curl	2	15	65%	Slow	0
	Triceps	Supine Ball Dumbbell Extensions	2	15	65%	Slow	0
	Legs	Ball Squat	2	15	65%	Slow	90 sec

Cool Down	
STEP 4	Repeat Steps 1A and/or 1B

Figure 13.20 (continued).



OPT For Fitness

Name: John Smith	Month: 2
Date: 08/10/06	Week: 1
Professional: Scott Lucett	Day: 1 of 12

Program Goal:
PHASE 2: LEAN BODY MASS GAIN

STEP 1		
A. Foam Roll		
Foam Roll	Sets	Duration
Calves	1	30 sec
IT Band	1	30 sec
Latissimus Dorsi	1	30 sec
B. Stretch		
Active Stretching	Sets	Duration
Active Gastrocnemius Stretch	1	5 reps
Active Kneeling Hip Flexors Stretch	1	5 reps
Active Latissimus Dorsi Ball Stretch	1	5 reps
C. Cardiovascular		
Treadmill	1	5 min

STEP 2				
A. Core				
Exercise	Sets	Reps	Tempo	Rest
Ball Crunch	2	12	Medium	0
Back Extension	2	12	Medium	0
B. Balance				
Exercise	Sets	Reps	Tempo	Rest
Single-leg Squat	2	12	Medium	0
C. Reactive				
Exercise	Sets	Reps	Tempo	Rest
Squat Jump	2	8	Medium	60 sec

Resistance Training Program							
STEP 3	Body Part	Exercise	Sets	Reps	Intensity	Tempo	Rest
		Total Body	<i>Optional</i>				
	Chest	1. Flat Dumbbell Chest Press 2. Ball Dumbbell Chest Press	2	10	80%	Medium Slow	0 60 sec
	Back	1. Seated Cable Row 2. Ball Dumbbell Row	2	10	80%	Medium Slow	0 60 sec
	Shoulder	1. Seated Dumbbell Shoulder Press 2. Single-leg Dumbbell Scaption	2	10	80%	Medium Slow	0 60 sec
	Biceps	1. Bicep Curl Machine 2. Single-leg Dumbbell Curl	2	10	80%	Medium Slow	0 60 sec
	Triceps	1. Cable Pushdown 2. Prone Ball Dumbbell Tricep Extensions	2	10	80%	Medium Slow	0 60 sec
	Legs	1. Leg Press 2. Ball Squat	2	10	80%	Medium Slow	0 60 sec

STEP 4		Cool Down
		Repeat Steps 1A and/or 1B, but use static stretches

NOTE: Resistance training portion can be split into a 2-, 3-, or 4-day workout routine - Ex. 3-day routine: day 1 (chest/back), day 2 (shoulders and legs), day 3 (biceps and triceps)

Figure 13.20 (continued).



OPT For Fitness

Name: John Smith	Month: 3
Date: 08/10/06	Week: 1
Professional: Scott Lucett	Day: 1 of 12

Program Goal:
PHASE 3: LEAN BODY MASS GAIN
Chest, Shoulders, and Triceps

STEP 1			
A. Foam Roll			
Foam Roll	Sets	Duration	
Calves	1	30 sec	
IT Band	1	30 sec	
Latissimus Dorsi	1	30 sec	
B. Stretch			
Active Stretching	Sets	Duration	
Active Gastrocnemius Stretch	1	5 reps	
Active Kneeling Hip Flexors Stretch	1	5 reps	
Active Latissimus Dorsi Ball Stretch	1	5 reps	
C. Cardiovascular			
Treadmill		5 min	

STEP 2				
A. Core				
Exercise	Sets	Reps	Tempo	Rest
Ball Crunch	2	12	Medium	0
Back Extension	2	12	Medium	60 sec
B. Balance				
Exercise	Sets	Reps	Tempo	Rest
<i>Optional</i>				
C. Reactive				
Exercise	Sets	Reps	Tempo	Rest
<i>Optional</i>				

STEP 3	Resistance Training Program					
	Body Part Exercise	Sets	Reps	Intensity	Tempo	Rest
	Total Body	<i>Optional</i>				
	Chest	1. Barbell Bench Press	3	8	85%	Medium 60 sec
		2. Flat Dumbbell Chest Press	3	8	85%	Medium 60 sec
	Back					
	Shoulder	1. Seated Dumbbell Shoulder Press	3	8	85%	Medium 60 sec
		2. Shoulder Press Machine	3	8	85%	Medium 60 sec
	Biceps					
	Triceps	1. Cable Pushdown	3	8	85%	Medium 60 sec
		2. Supine Bench Barbell Tricep Extension	3	8	85%	Medium 60 sec
	Legs					

STEP 4	Cool Down	
		Repeat Steps 1A and/or 1B, but use static stretches

Figure 13.20 (continued).



OPT For Fitness

Name: John Smith	Month: 3
Date: 08/10/06	Week: 1
Professional: Scott Lucett	Day: 2 of 12

Program Goal:
PHASE 3: LEAN BODY MASS GAIN
Back, Biceps, and Legs

STEP 1		
A. Foam Roll		
Foam Roll	Sets	Duration
Calves	1	30 sec
IT Band	1	30 sec
Latissimus Dorsi	1	30 sec
B. Stretch		
Active Stretching	Sets	Duration
Active Gastrocnemius Stretch	1	5 reps
Active Kneeling Hip Flexors Stretch	1	5 reps
Active Latissimus Dorsi Ball Stretch	1	5 reps
C. Cardiovascular		
Treadmill		5 min

STEP 2				
A. Core				
Exercise	Sets	Reps	Tempo	Rest
Reverse Crunch	2	12	Medium	0
Back Extension	2	12	Medium	60 sec
B. Balance				
Exercise	Sets	Reps	Tempo	Rest
<i>Optional</i>				
C. Reactive				
Exercise	Sets	Reps	Tempo	Rest
<i>Optional</i>				

Resistance Training Program							
STEP 3	Body Part	Exercise	Sets	Reps	Intensity	Tempo	Rest
	Total Body	<i>Optional</i>					
	Chest						
	Back	1. Lat Pulldown	3	8	85%	Medium	60 sec
		2. Seated Cable Row	3	8	85%	Medium	60 sec
	Shoulder						
	Biceps	1. Seated Dumbbell Curls	3	8	85%	Medium	60 sec
		2. Bicep Curl Machine	3	8	85%	Medium	60 sec
	Triceps						
	Legs	1. Barbell Squat	3	8	85%	Medium	60 sec
		2. Leg Press	3	8	85%	Medium	60 sec

Cool Down	
STEP 4	Repeat Steps 1A and/or 1B, but use static stretches

Figure 13.20 (continued).



OPT For Performance

Name: John Smith	Month: 1
Date: 08/10/06	Week: 1
Professional: Scott Lucett	Day: 1 of 12

Program Goal:
PHASE 1: GENERAL PERFORMANCE

STEP 1		
A. Foam Roll		
Foam Roll	Sets	Duration
Calves	1	30 sec
IT Band	1	30 sec
Latissimus Dorsi	1	30 sec
B. Stretch		
Static Stretching	Sets	Duration
Gastrocnemius Stretch	1	30 sec
Kneeling Hip Flexors Stretch	1	30 sec
Latissimus Dorsi Ball Stretch	1	30 sec
C. Dynamic Warm Up		
Tube Walking	1	10 reps
Prisoner Squat	1	10 reps

STEP 2				
A. Core				
Exercise	Sets	Reps	Tempo	Rest
Floor Bridge	2	15	Slow	0
Prone Iso Abs	2	15	Slow	0
B. Balance				
Exercise	Sets	Reps	Tempo	Rest
Single-leg Balance Reach	2	15	Slow	0
C. Reactive				
Box Jump w/ Stabilization	2	8	Controlled	60 sec

STEP 3	Speed/Agility/Quickness		
	Exercise	Sets	Rest
	Speed Ladder (1 in's, 2 in's, side shuffle, ali shuffle)	2	60 sec
Box Drill	2	60 sec	

STEP 4	Resistance Training Program						
	Body Part	Exercise	Sets	Reps	Intensity	Tempo	Rest
	Total Body	<i>Optional</i>					
	Chest	Ball Dumbbell Chest Press	2	15	60%	Slow	0
	Back	Standing Cable Row	2	15	60%	Slow	0
	Shoulders	Single-leg Scaption	2	15	60%	Slow	0
	Biceps	<i>Optional</i>					
	Triceps	<i>Optional</i>					
Legs	Step-up to balance	2	15	60%	Slow	90 sec	

STEP 5	Cool Down	
	Repeat Steps 1A and/or 1B	



OPT For Performance

Name: John Smith	Month: 2
Date: 08/10/06	Week: 1
Professional: Scott Lucett	Day: 1 of 12

Program Goal:
PHASE 2: GENERAL PERFORMANCE

STEP 1		
A. Foam Roll		
Foam Roll	Sets	Duration
Calves	1	30 sec
IT Band	1	30 sec
Latissimus Dorsi	1	30 sec
B. Stretch		
Active Stretching	Sets	Duration
Active Gastrocnemius Stretch	1	5 reps
Active Kneeling Hip Flexors Stretch	1	5 reps
Active Latissimus Dorsi Ball Stretch	1	5 reps
C. Dynamic Warm Up		
Tube Walking	1	10 reps
Prisoner Squat	1	10 reps

STEP 2				
A. Core				
Exercise	Sets	Reps	Tempo	Rest
Ball Crunch	2	10	Medium	0
Back Extension	2	10	Medium	0
B. Balance				
Exercise	Sets	Reps	Tempo	Rest
Step-up to Balance	2	10	Medium	0
C. Reactive				
Squat Jump	2	10	Medium	60 sec

STEP 3	Speed/Agility/Quickness		
	Exercise	Sets	Rest
	Speed Ladder (1 in's, 2 in's, side shuffle, ali shuffle, zig zag, in-in-out-out) T- Drill	2 2	60 sec 60 sec

STEP 4	Resistance Training Program						
	Body Part	Exercise	Sets	Reps	Intensity	Tempo	Rest
	Total Body	<i>Optional</i>					
	Chest	1. Flat Dumbbell Chest Press 2. Push up	2	10	75%	Medium Slow	0 60 sec
	Back	1. Lat Pulldown 2. Ball Dumbbell Row	2	10	75%	Medium Slow	0 60 sec
	Shoulders	1. Seated Dumbbell Shoulder Press 2. Single-leg Scaption	2	10	75%	Medium Slow	0 60 sec
	Biceps	<i>Optional</i>					
	Triceps	<i>Optional</i>					
	Legs	1. Leg Press 2. Step up to Balance	2	10	75%	Medium Slow	0 60 sec

STEP 5	Cool Down	
	Repeat Steps 1A and/or 1B, but using static stretches	



OPT For Performance

Name: John Smith	Month: 3
Date: 08/10/06	Week: 1
Professional: Scott Lucett	Day: 1 of 12

Program Goal:
PHASE 5: GENERAL PERFORMANCE

STEP 1		
A. Foam Roll		
Foam Roll	Sets	Duration
Calves	1	30 sec
IT Band	1	30 sec
Latissimus Dorsi	1	30 sec
B. Stretch		
Dynamic Stretching	Sets	Duration
See Dynamic Warm Up		
C. Dynamic Warm Up		
Tube Walking	1	10 reps
Prisoner Squat	1	10 reps
Multiplanar Lunges	1	10 reps

STEP 2				
A. Core				
Exercise	Sets	Reps	Tempo	Rest
Ball MB Pullover Throw	2	12	Fast	0
Rotation Chest Pass	2	12	Fast	0
B. Balance				
Exercise	Sets	Reps	Tempo	Rest
Multiplanar Hop w/Stabilization	2	10	Controlled	60 sec
C. Reactive				
Optional				

STEP 3	Speed/Agility/Quickness			
	Exercise	Sets	Reps	Rest
	Speed Ladder (1 in's, 2 in's, side shuffle, ali shuffle, zig zag, in-in-out-out)	2		60 sec
5-10-5 Drill	2		60 sec	

STEP 4	Resistance Training Program						
	Body Part	Exercise	Sets	Reps	Intensity	Tempo	Rest
	Total Body	<i>Optional</i>					
	Chest	1. Bench Press		5	85%		0
		2. Medicine Ball Chest Pass	2	10	5% of BW	Fast	2 min
	Back	1. Lat Pulldown		5	85%		0
		2. Woodchop Throw	2	10	5% of BW	Fast	2 min
	Shoulders	1. Shoulder Press Machine		5	85%		0
		2. Single-leg Scaption	2	10	5% of BW	Fast	2 min
	Biceps	<i>Optional</i>					
	Triceps	<i>Optional</i>					
		1. Squat		5	85%		0
		2. Single Leg Power Step Ups	2	10	5% of BW	Fast	2 min

STEP 5	Cool Down	
		Repeat Steps 1A and/or 1B, but using static stretches

SUMMARY

The OPT™ model is a planned fitness-training system that can be used to create programs for clients with various goals. Health and fitness professionals must be able to apply the information in multiple situations to a variety of clients. The OPT™ model can be used to reduce body fat, increase lean body mass, and improve general performance.

To reduce body fat, clients must burn more calories than they consume by moving more with resistance and cardiorespiratory training. The client will work in phase 1 for 4 weeks, to ensure proper muscle balance and endurance of the sta-

bilization muscles. The remainder of the annual plan shows the client cycling back and forth between phases 1 and 2 (metabolic demand and more volume for increased caloric expenditure).

To increase lean body mass, clients must consume more calories than are burned by working with higher volumes to increase muscle size. The client will work in phase 1 for 4 weeks, to ensure proper muscle balance and endurance of the stabilization muscles. The remainder of the annual plan shows the client cycling through phase 1 (recovery time), phase 2 (greater strength endurance and more volume), phase 3 (larger volumes of stress for hypertrophy), and phase 4 (increased strength capacity with even higher volumes of training and more hypertrophy). Cardiorespiratory training can be performed each month to ensure the cardiorespiratory system is efficient and promoting optimal tissue recoverability.

To improve general performance, clients must increase overall proprioception, strength, and rate of force production. The training will use the entire OPT™ model, although for the typical client, phases 1, 2, and 5 will be the most important. The client will work in phase 1 for 4 weeks, to ensure proper muscle balance and endurance of the stabilization muscles. The remainder of the annual plan shows the client cycling through phases 1, 2 (greater overall strength and more volume), and 5. After the first 4 months, undulating periodization is used, and stabilization (phase 1), strength (phase 2), and power (phase 5) are used in the same month and week. Cardiorespiratory training can be performed each month as well.

Review Questions

- 1 *The OPT™ model has been extremely successful in helping all populations to reduce body fat, increase lean muscle mass and strength, improve performance, and improve overall health.*
 - a. True
 - b. False
- 2 *A typical client with the goal of improving general performance should specifically be cycled through which phases?*
- 3 *Beginning clients should perform lower repetition schemes.*
 - a. True
 - b. False
- 4 *How long does it take for the body to replenish 100% of its ATP and creatine phosphate (CP) supplies?*
 - a. 20 seconds
 - b. 40 seconds
 - c. 60 seconds
 - d. 3 minutes
- 5 *Training volume is always inversely related to intensity.*
 - a. True
 - b. False

6 Which phase(s) of training uses superset techniques?*a. Phase 1: stabilization endurance**b. Phase 2: strength endurance**c. Phase 3: hypertrophy**d. Phase 4: maximal strength**e. Phase 5: power***REFERENCES**

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