The CFES Personal Trainer Course Resource Manual

- Lifestyle Behavioural Changes
- Disease Prevention and Health Promotion
CFES Personal Trainer Course
Resource Manual (1ST EDITION) ©
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The purpose of this manual and program is to educate. The enclosed materials have been well reviewed and every effort has been made to make this program as accurate as possible. This program is not a substitute for professional, medical, athletic or recreational counselling. Please consult the appropriate health and wellness professional for guidance. Thank you.

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Chapter 1

Introduction to Personal Training

In this chapter you will learn about:

- The Personal Training Industry
- Qualities and Skills of Successful Trainers
- Career Paths for Personal Trainers
- Scope of Practice for Personal Trainers
- Code of Ethics for Personal Trainers
- Networking with Community and Professional Resources
- Professional Registration and Continuing Education
Introduction to Personal Training

Achievement begins with vision. At some point in your life, you envisioned yourself as a Personal Trainer. What brought you to this point? Perhaps your own passion for training, or a significant accomplishment in your own health and fitness, or perhaps you simply have a keen interest in helping others achieve their goals. Regardless of your reasons, you probably have an appreciation for the challenges one can face in striving to make a change in lifestyle and hopefully you also have a sense of what it takes to be successful.

Personal Trainers can't be all things to all people, but they certainly in a privileged position to effect incredible change in their client's physical health and level of fitness, which often ends up affecting their mental, social and emotional health as well!

It is our hope that we can provide you with the tools and the inspiration to make you the best you can be in this very important and exciting position! This chapter will provide an overview of the profession of personal training and outline the skills, knowledge, abilities and equipment needed for success.

The Personal Training Industry

Western society has become increasingly aware of the benefits of active living, physical fitness and self-directed health. For some people, being active is easy, but even fitness enthusiasts and higher level athletes need coaches and trainers to create the right programs and provide the support to keep them on track and achieving their goals.

For some people, being active is a struggle. This may be due to a health condition, chronic injury or disability. Sometimes it's due to a lack of interest or motivation to exercise. Sometimes the motivation is there, but hectic lifestyle, work and family responsibilities make it difficult to find the time for exercise. These people may need more support, encouragement and guidance to start and continue a regular fitness program.

Obviously, each trainer will have different skills, abilities and interests which will make them better suited for certain types of clients. It is very important for trainers to understand their own strengths and weaknesses and to target their services accordingly.

It is also important for trainers to understand the specific reasons people have for hiring a Personal Trainer. Often the motivation is a desire to experience specific results such as weight loss, weight gain, increased muscle tone, or better cardiovascular fitness. Sometimes there's a more general desire to feel better, take
charge of one’s life, reduce the effects of aging, or prevent the onset of disease. Regardless of the reason, it is important for trainers to understand the motivation and then design the best possible program to create a successful result.

It is clear that there are opportunities out there for Personal Trainers and fitness professionals to play an active role in the health and fitness industry, where the focus is disease prevention and health promotion. It is also clear that today’s top trainers must have a broad skill set to meet the needs of a wide spectrum of clients.

Qualities and Skills of Successful Trainers

So what kinds of qualities and skills are involved in this type of work? To be successful, today’s trainers must be knowledgeable, experienced, creative, adaptable, highly organized, professional, and have exceptional interpersonal skills.

We could perhaps categorize these skills as:
- Business and Professionalism
- Appraisal and Assessment
- Exercise Prescription and Program Design
- Instruction and Communication

It is important for trainers to be well-educated and capable in all areas, for maximum success.

If we were to describe the most ideal personal qualities of an ideal trainer, we may use terms like:
Stationary Bikes, Spin Bikes, Climbing Machines, Rowing Machines, and Nordic Trainers.

**Non-Mechanized Cardio Equipment**
Steps, Skipping Ropes, Slide Trainers, Slide Discs, Ramps.

**Resistance Equipment**
Olympic Plate – Loaded Equipment, Dumbbells, Barbells, Medicine Balls, Cable and Pulleys, Electronically Programmable and Hydraulic Equipment, Manual Resistance Equipment (such as dip bars and chin up bars) and Accessories (such as straps, ropes, bars, grips, blocks, pads, etc), Resistance Tubing, Bands.

**Stability Equipment**

**Note:** These pieces of equipment are not intended to be used with beginner or intermediate clients. In addition, they should not be used with overweight or elderly clients, especially at the beginning of an exercise program. Stability equipment should be reserved for the advanced client, after they have acquired a certain level of skill that allows them to execute the exercise safely.

**Business Equipment**
Trainers also need to have standards business tools, like a computer, business cards, screening documents, goal setting questionnaires, client contracts, program worksheets, client handouts, client database, appointment booking and communication methods, tracking and planning tools.

So trainers need a variety of skills and an ability to work with a wide range of equipment. They also need to understand the limitations of their training knowledge and expertise, also known as their Scope of Practice.
The CFES Personal Trainer is an entry level certification. Poor lifestyle is a major mitigating factor for the development of chronic diseases. The focus of this level of certification is to assist apparently healthy clients to set goals to improve their lifestyle behaviours around food and physical activity. It is not aimed at performance related fitness but at preventative techniques that will help clients to safely and effectively make changes to their lifestyle.

The scope of practice of the CFES Personal Trainer should fit logically within the existing Canadian and International fitness certification models. For example, introductory and advanced certifications are currently provided by the Canadian Society of Exercise Physiology (CSEP) in Canada and the American College of Sports Medicine (ACSM) in the United States to engage candidates who have formal academic training (from an accredited college or university) in the exercise sciences. Both these organizations are not-for-profit and generate the scientific research that provides practitioners with safe and effective evidence-based practices.

The CFES Personal Trainer designation provides recognition for individuals who have successfully completed the CFES Personal Trainer coursework and practicum. The program teaches these candidates how to assist clients with making positive lifestyle changes by assessing health-related fitness levels and providing sound, evidence-based advice on both physical activities and healthy eating habits.

**Scope of Practice of the CFES Personal Trainer**

The CFES Personal Trainer certification is meant to provide individuals with no formal academic training in the exercise sciences with the competencies necessary to enable them to provide safe and effective advice to apparently healthy clients.

- The CFES Personal Trainer certification is focused on providing candidates with the competencies necessary to assist apparently healthy clients to make positive behavioural changes to their lifestyle that effect health-related fitness and nutrition.
- The CFES Personal Trainer may only use the tools and techniques identified within CFES Personal Trainer manual to assess health-related fitness levels and eating behaviours among clients in order to provide advice on how to change to their lifestyle behaviours (health-related physical activity and...
eating habits) in order to prevent the chronic diseases associated with an unhealthy lifestyle.

- The CFES Personal Trainer may not provide information to clients to assist them with the treatment or management of any existing chronic disease. These clients should be referred to individuals with advanced knowledge, training and specialized certifications offered by not-for-profit, scientifically based organizations, such as CSEP in Canada and ACSM in the United States.

- The CFES Personal Trainer may only administer the appraisal protocols and prescribe physical activity or healthy eating goals using information contained within the CFES Personal Trainer manual. Client requests for advanced nutritional information should be referred to a Registered Dietician.

- The CFES Personal Trainer may only engage clients who have been appropriately screened (using the PAR-Q) and are determined to be apparently healthy. Those clients who answer YES to any questions on the PAR-Q must be cleared by a qualified health professional (e.g. medical doctor) for unrestricted physical activity using the PAR Med-X screening tool.

- The CFES Personal Trainer may not administer appraisals or prescriptions that require clients to perform maximal exercise or to engage clients who wish to improve performance related physical activity or nutrition intake to enhance performance.

- The CFES Personal Trainer must not at any time use an electrocardiogram during assessment or programming.

- The CFES Personal Trainer must follow the CFES Standards and Code of Ethics at all times.

Note: Upon completion of this course and during your personal trainer career you are likely going to learn additional knowledge or competencies either obtained through an accredited and approved health organization or at a recognized fitness conference. Caution should be exercised regarding these additional competencies, especially when they fall outside the scope of practice of the CFES Personal Trainer. Potential problems arise if and when a certified individual receives these extra competencies and then proceeds to work with a population outside their scope of practice. Doing this nullifies their insurance should something untoward happen. In other words, if a trainer practices puts their additional knowledge into practice with a client, they do so without the protection of the insurance coverage offered at this certification level because they are beyond their scope of practice.
The CFES
Personal Trainer Course

Chapter 2

Enhancing the Success of the Client

In this chapter you will learn about:

- Dimensions of Health and Wellness
- The Benefits of Regular Physical Fitness
- Promoting Healthy Lifestyle – Behavioral Changes
- Exercise Motivation
- Participant-Centred Leadership
- Daily Goal and Action Plan for Fitness
Fundamentals of Health and Conditioning

Dimensions of Health and Wellness

Human health is affected not only by eating right and exercising. Humans are multi-dimensional beings, meaning, our health can be affected by a number of different factors. For example, studies show that people who are isolated have a higher risk of health problems than people who have strong social and interpersonal connections. Being connected to family, friends, organizations, groups, or communities can positively affect our health. We will refer to this and other important health indicators as dimensions of health.

Dimensions of Health

Physical
The physical dimension includes the physical structure and how well the main systems are functioning. Physical fitness is comprised of the five health-related components of fitness (cardiorespiratory fitness, muscular strength, endurance, flexibility and body composition) and is clearly affected (positively or negatively) by level of activity, diet and rest.

Emotional
The emotional dimension involves an awareness of how we feel — about situations, issues, people, places and even ourselves. The way we respond to life experiences, plays a huge part in how we either cope with or suffer from life events. Being emotionally fit, therefore, requires self-awareness, self-acceptance and a resistance to being controlled by one’s emotions.

Spiritual
The spiritual dimension involves our sense of connection with ourselves and our life purpose. It can also be our sense of connection with a higher power. Being spiritually fit involves self-
All these myths need to be dispelled through accurate information, appropriate training programs and instruction, safe skill development, and success in activity. This should be experienced at an early age to inspire healthy, active living throughout the lifespan; however, it is never too late to get started! Studies show that sedentary men who become physically active in their 40’s to 60’s cut their risk of death from cardiovascular disease by 45 percent compared to those who remain inactive. 4

It is helpful for personal trainers to understand these common barriers and to take the necessary steps to ensure their clients are successful in achieving a consistent, active lifestyle.

Promoting Healthy Lifestyle – Behavioral Changes

Personal trainers are in a position to help people develop healthier lifestyle habits and skills. This involves reviewing the individual’s current habits and identifying changes to make, then supporting these changes with the right kinds of self-management practices.

Healthy Lifestyle Habits
Each individual, no matter what age or stage, is capable of learning and practicing healthy habits which would include:

• Managing daily stress
• Communicating assertively
• Setting goals
• Learning about how the body functions

Promoting Lifestyle Change

It is difficult, however, for people to make significant changes to their lifestyle. Change requires the desire to change, the inspiration to take the initial steps and support from others and the envi...
Chapter 3

Anatomy of the Skeletal System: Bones, Articulations, and Connective Tissue

In this chapter you will learn about:

- Joints or Articulations
  - Types of Joints
  - Anatomical Planes of Movement
  - Connective Tissue: Tendons and Ligaments
  - The Axial Skeleton
    - Vertebral Body
    - Cervical Spine
    - Thoracic Spine
    - Lumbar Spine
    - Sacrum and Coccyx
    - Thorax
  - The Appendicular Skeleton
    - Shoulder Girdle
    - Glenohumeral Joint (shoulder)
    - Elbow Joint
    - Wrist Joint
    - Coxal Bones, Pelvic Girdle, and Pelvis
    - Coxal Joint (hip)
    - Genual Joint (knee)
    - Subtalar Joint (ankle)
From your previous fitness knowledge and weight training background, you should be confident in your understanding of skeletal anatomy, joints and joint movements, muscular anatomy, muscle structure and function, muscle fibre types and exercise physiology. This chapter will review those concepts and provide additional information to ensure your understanding of how the body works and its ability to adapt to training.
Movement of the Glenohumeral (shoulder) Joint

- Flexion, extension and hyperextension in the sagittal plane;
- Abduction and adduction in the frontal plane;
- Transverse or horizontal abduction and adduction in the transverse plane;
- Medial and lateral rotation in the transverse plane
- Circumduction in all planes.

A: Clavicle
B: Scapula
C: Humerus
D: Ulna
E: Radius

Flexion
Extension
Hyperextension
Abduction/Adduction
Circumduction
Medial/Lateral rotation (internal/external)
Posterior View
Top View
Lateral View
Chapter 4
Anatomy and Physiology of the Muscles

In this chapter you will learn about:

- Muscle Physiology
- The Nervous System and Skeletal Muscle
- Types of Muscle Fibers
- Muscles of the Axial Skeleton
- Muscles of the Appendicular Skeleton – The Upper Extremities
- Muscles of the Appendicular Skeleton – The Lower Extremities
Muscle Physiology

The Structure and Organization of Skeletal Muscle

The structure of muscle fibers (or muscle cells) and the connection between the muscle and the nerves can be analyzed by looking at the muscle as a whole and then breaking it down into its’ smaller components or layers. Each layer of muscle tissue is surrounded by a wrapping of connective tissue, or fascia, much like a wrapping of cellophane. These many layers of fascia come together at the ends of the muscle and extend beyond to form the tendon sheaths, or tendons (A on previous page), which attach the muscle to the periosteum of bone.

The main bulk of the muscle is called the muscle belly (C) and it is wrapped in connective tissue called the epimysium (B). Within the muscle belly are smaller bundles of muscle fibers, called fasciculi (D), and these are wrapped in the perimysium. The individual muscle fibers or muscle cells (E) are no larger than strands of hair and are surrounded by the endomysium and sarcolemma. The muscle fiber is a cylindrical cell that varies in length from a few millimetres in the eye, up to approximately 30 centimetres in the sartorius muscle.

Each muscle fiber is made up of smaller myofibrils (F), which extend the entire length of the fiber. Myofibrils contain the contractile components of the muscle, the myosin (G) and actin (H) protein filaments or myofilaments. Actin is thin and light in color while myosin is thick and dark. They interlink repeatedly along the myofibril, giving the muscle a striated look. Each actin filament contains a Z-disc, (dense connective tissue regions shaped like pancakes) which divide the myofibril into compartments known as sarcomeres (the area between two Z-discs).

It is within the sarcomeres that the contraction or shortening occurs, so the sarcomere is known as the functional and main contractile unit of the muscle fiber.
The PNS (Peripheral Nervous System)
The Peripheral Nervous System is outside of the brain and spinal cord and includes nerves and ganglia (a group of nerve cells). The PNS is divided into three nervous systems: (i) SNS (Somatic — involved with skeletal muscle); (ii) ANS (Autonomic) and ENS (Enteric intestinal).

How it Works
We think to do something via our five senses, our feelings and kinesthetic sense (e.g. pick something up, sit down, cook a meal, run for your life or kick that soccer ball). The brain receives our messages and promptly delivers them to the appropriate set of nerves through electrical impulses. These impulse messages move along an axon inside a neuron traveling from the brain or spinal cord to a group of skeletal muscles or elsewhere in the body. The impulses reach their destinations and stimulate the area. They spread out across the area they are servicing creating cellular electrical, chemical reactions that stimulate the area to respond appropriately to the initial stimulus (e.g. the skeletal muscle will contract or relax, the eye will blink).

Motor Unit
The motor unit is the basic functional unit of the skeletal muscle. It consists of a motor nerve and the group of muscle fibers it stimulates. Motor units can have from 3 to 3,000 muscle fibers. In the gastrocnemius, there are 580 motor units and 1,030,000 fibers! The connection point between the motor nerve and the individual muscle fiber is called the neuromuscular junction.

All or None Principle
In response to nerve stimulation, a muscle fiber will contract to its maximal potential (under existing conditions) or not at all. When a motor unit is stimulated, all the muscle fibers within that unit will contract.

Muscle Fiber Recruitment
When more muscle power is needed to carry out a task (e.g. lift a heavy weight), the body can recruit more motor units and/or increase the frequency of nervous stimulation to the existing units
The Deltoid Group

The Deltoid Group has fibers running in three different directions and three names according to location (anterior, middle, and posterior). The anterior and posterior deltoid muscles act as stabilizers and synergist muscles during shoulder abduction.

When performing a lateral raise, it is important to hold the shoulder joint in neutral or in slight external rotation. This is because abduction of the shoulder joint in an internally rotated posture increases the risk of damage to the rotator cuff musculature, largely due to impingement of the rotator cuff muscles between the acromion and the greater tubercle of the Humerus. Therefore, the trainer should typically recommend that during a lateral raise, the client hold the weight with the thumbs towards the ceiling or with palms up.

Although strengthening of the Latissimus Dorsi is important, the personal trainer must keep in mind the insertion of the Latissimus Dorsi and how tightness in the muscle affects standing and sitting posture. The muscle belly actually travels under the humerus and inserts onto the upper, anterior part of the Humerus. It is because of this attachment, that the Latissimus Dorsi causes medial rotation of the Humerus.

The Latissimus Dorsi is often grouped as a back muscle and strengthening of the back muscles is thought to improve posture. The opposite is true for the lats because without proper flexibility, there is an exaggeration of rounded shoulders and kyphosis of the spine. A layman’s term used for this posture is gorilla stance because often people that overly train the lats will present with medially rotated humerus’ and pronated palms resulting in their thumbs pointing to their thighs when their arms are hanging at their sides in a resting position.
Chapter 5
Biomechanics and Applied Kinesiology

In this chapter you will learn about:

- Basic Biomechanics
- Types of Muscle Contractions
- Advanced Movement Analysis
- Human Movement Terminology
- Back Squat
  - The Technique
  - Basic Movement Analysis
  - Applied Kinesiology
- Wide Grip Bench Press
  - The Technique
  - Basic Movement Analysis
  - Applied Kinesiology
- Wide and Narrow Grip Pull-up or Assisted Pull-up
  - The Technique
  - Basic Movement Analysis
  - Applied Kinesiology
- Breathing – The Valsalva Maneuver
- Weight Lifting Belts
Biomechanics and Applied Kinesiology

In order for the Personal Trainer to appropriately prescribe exercises, they must have a clear understanding of movement mechanics in sport, exercise and active daily living tasks. In this section we will look at biomechanics. Biomechanics is the science of how to put everything we learned in the previous chapters together to create movement. The knowledge of biomechanics is paramount because it enhances the trainer’s ability to effectively choose exercises that are tailored to the client’s goals but also exercises that minimize the risk of injury. Applied kinesiology is simply the science of human movement.

Basic Biomechanics

There are certain biomechanical principles that govern human movement. Knowledge of these principles can be helpful when learning new skills, teaching new skills, analyzing movement or improving efficiency in movement.

If we understand the biomechanics of the exercise we can:
better choose the most suitable starting posture and starting position for the exercise,
appropriately choose the most suitable starting posture and starting position for the exercise,
choose the appropriate speed of movement,
correctly position the joints in order to isolate specific muscles,
apply the correct line of pull to appropriately overload the muscle, and
modify the leverage to improve muscular force.

Length-Tension Relationship

The amount of force a muscle can produce depends on the length of the Sarcomere within the muscle before the contraction begins. A muscle produces its greatest force when it is in the mid range of its Sarcomere length. It is weakest at both the inner and outer ranges of the length of the Sarcomere.

The length-tension relationship demonstrates that a muscle generates maximal force when it begins its contraction at 1.2 times its resting length.

A = shortened muscle, less force.
B & C = mid-length muscle, greatest force.
D = overstretched muscle, less force.

Length of Contractile Units

Tension

A

B

C

D

Sample Pages PDF Extract
This is not the complete chapter
In Summary:
Lever = Bones
Fulcrum = Axis of Rotation = Joint
\( F_M \) = Muscular Force = the muscle contraction
\( F_R \) = Resistive Force = body weight, load
\( M_M \) = Moment Arm of the Muscular Force
\( M_R \) = Moment Arm of the Resistive Force

In general, if a force acting on the lever is great enough to offset the weight (or resistance), then the lever will move. In a lever system there is a balance. To move this lever there must be enough force at one end to offset the resistance or weight at the other end. If the moment arm of the resistance is longer than the moment arm of the applied force or muscular effort, then more force will be required to move the lever. In other words, the further away the resistance is from the fulcrum, the more force required to move the lever.

Mechanical advantage refers to the ratio of the output force to the applied force or the ratio of the length of the moment arm of the resistive force or load (\( M_R \)) to the length of the moment arm of the applied force or muscular effort (\( M_M \)). A mechanical advantage of greater than 1.0 means that the force exerted on the load by the lever is greater than the applied force. A mechanical advantage of less than 1.0 means that the force exerted on the load by the lever is smaller than the force applied to the lever.

First Class Levers
In a first class lever the joint (fulcrum) lies between the muscle (the applied or muscle force) and the load (the resistive force). The body has few first class levers.

An example of a first Class Lever in the human body involves extension of the neck:
The fulcrum — top of the cervical vertebrae
The resistance — the weight of the skull
The muscle force — the cervical extensors

With prolonged reading of a book, the chin pokes forward and drops toward the chest. The load or the weight of the skull increases significantly and the muscular force or effort to hold that posture increases substantially. Usually the muscle is not able to counteract the load; therefore may people experience discomfort and tightness in
Movement Analysis

As discussed, muscles have the ability to receive and respond to input from the nervous system. The response of a muscle is either to contract or relax. From a functional perspective, it is important for the trainer to understand that most of the muscles of the trunk and extremities have anatomically opposite muscles. Anatomically, the muscles are arranged in opposing pairs.

### Major Muscle Pairs

<table>
<thead>
<tr>
<th>Joint Area</th>
<th>Flexors</th>
<th>Extensors</th>
<th>Abductors</th>
<th>Adductors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical Spine and Skull</td>
<td>Sternocleidomastoid</td>
<td>Upper Erector Spinae Splenius</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vertebral Column: cervical, thoracic, and lumbar spine</td>
<td>Rectus Abdominis *Obliques</td>
<td>Erector Spinae</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glenohumeral Joint [shoulder]</td>
<td>Pectoralis Major Anterior Deltoid</td>
<td>Latissimus Dorsi Posterior Deltoid</td>
<td>Medial Deltoid</td>
<td>Latissimus Dorsi Pectoralis Major</td>
</tr>
<tr>
<td>Humeroulnar Joint and Radialhumeral joint [elbow]</td>
<td>Biceps Brachii Brachialis Brachioradialis</td>
<td>Triceps Brachii</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coxal Joint [hip]</td>
<td>Iliopsoas Sartorius *Rectus Femoris</td>
<td>Gluteus Maximus *Hamstrings Tensor Fasciae Latae Gluteus Minimus Gluteus Medius</td>
<td>Adductors (5 muscles)</td>
<td></td>
</tr>
<tr>
<td>Genual Joint [knee]</td>
<td>Hamstrings *Gastrocnemius</td>
<td>Quadriceps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtalar Joint and other Joints between the Tarsal bones of the foot [ankle]</td>
<td>Tibialis Anterior (Dorsi flexion)</td>
<td>Gastrocnemius and Soleus (Plantar flexion)</td>
<td>Peroneals (Eversion)</td>
<td>Tibialis Anterior Tibialis Posterior (Inversion)</td>
</tr>
</tbody>
</table>

*These muscles are assisting.*
Movement Analysis of the Back Squat

Analyzing the Movement as a Whole

The Back Squat – The Technique

Using a squat rack or Smith machine, the bar should rest on the shoulder blades, off the notch of the neck. Grasp the bar with your palms facing forward about 10-15 cm outside of your shoulders. Stand with a neutral spine and feet shoulder-width apart with your toes pointed out at approximately 30 degrees. Slowly start the descent with the hips back, keeping the weight centered over the heels or mid foot. Lower the body to approximately 90 degrees of knee flexion. Pause, and then slowly return to the starting point.

Some training points to emphasize:

- Do not allow the Scapulae to protract
- Rest the barbell on the upper back, not on the cervical spine, especially C7
- Avoid the use of a block or board under the heels
- Maintain a neutral spine throughout the exercise
- Try to keep the head looking straight ahead, not tilted up to the ceiling
- Avoid any excessive forward lean of the trunk during the descent
- Knees should track over the second to toe during the descent
- Only move the hips lower when training for more advanced sport
- Do not lock the knees at the top of the movement
- Adequate flexibility of the shoulder into lateral rotation is required to be able to firmly hold the bar in place
- Trainers should watch for lateral deviation of the hips
- Trainers should watch for pronation of the ankles
Chapter 6

Muscle Balance, Posture and Spinal Stability

In this chapter you will learn about:

- The Importance of Muscle Balance
- The Structures that Make Up the Core
- The Role of Core Muscles
- Designing Core Stability Exercise Programs
The Importance of Muscle Balance

Optimal functioning of the human body depends on the relationship between muscular strength, muscular flexibility, and neural excitation of the muscles. A muscle must be two things: flexible enough to allow for normal range of motion and strong enough to provide adequate joint stability.

Muscle balance should exist across the joint between prime movers and antagonist muscles, between synergist muscles that are working together to produce a movement, and between prime movers and stabilizers. Muscle imbalance exists when the relationship between muscular strength, muscular flexibility, and neural excitation of the muscles is not balanced. Therefore, one muscle is weaker or less flexible.

Muscle imbalance is typically described as feelings of fatigue, reports of discomfort, or noticeable and reported tightness. Muscle imbalance typically presents as faulty movement patterns, improper posture, isolated weakness, inflexibility, increased joint load, or improper recruitment or lacking the ability to recruit specific muscles.

How Muscle Balance Relates to Posture

The key to proper posture and structural balance is the equal pull of the opposing muscles over a joint. It is safe to assume that inflexible muscles are typically strong, therefore holding the opposing muscle in a lengthened position. On the contrary, it is assumed that muscles that are excessively flexible are typically weak.

Causes of Muscle Imbalance

Constant Workload
Stabilizer muscles are responsible for stabilizing or holding the joint in a static position. These muscles are typically slow twitch, inflexible, and held in one position for extended periods of time. Stabilizers present as tight and inflexible when overused (e.g. a joint posture is held for an extended period of time).

Insufficient Activation
With reduced activation or usage of the stability or postural muscles, the muscles become weak with neuromuscular inefficiency (e.g. inability to properly engage the transverse abdominals).

Tight Muscles lead to Muscle Imbalance
The tight muscle will overpower the lengthened, passive opposing muscle group compromising joint stability.

Weak Muscles lead to Muscle Imbalance
The strong muscle will overpower the weak opposing muscle
Functions of the Core Muscles

As previously mentioned, the core muscles play a vital role in maintaining alignment and stability of the spine, pelvis, and shoulder girdle; in other words, posture. Acting as a natural girdle, a strong core will help protect the back while lifting; it supports and helps control movements of the extremities, and aids in maintaining dynamic balance in activities of daily living and sport.

There is a clear relationship between core muscle activity and movement of the extremities. Current evidence suggests that decreased core stability may not only predispose one to injuries of the low back and pelvis area, but also to the hips, knees, ankles, and even shoulders. Specific and appropriate core training may reduce the risk and incidence of these injuries.

These deep stabilizing muscles also play a crucial proprioceptive role in the communication with the central nervous system and brain. The strengthening of these functional muscle groups (the core) leads to a more sophisticated neuromuscular system and improved spinal stability.

We must not neglect the role these muscles play in sport and fitness performance. A strong and stable core not only protects one from injuries, but contributes to virtually every movement and movement in sport from throwing a baseball to defending in basketball to paddling a kayak. The core is where the movements begin; with improved strength these stabilizers power and control of movement improve.

A strong core has been shown to:
- Improve posture
- Reduce chronic back pain
- Improve coordination
- Enhance injury prevention (helping to protect vulnerable joints and muscles)
- Enhance physical functioning in daily living
- Enhance sport performance

As a result, the development and maintenance of core stability is of great interest to personal trainers. Growing popularity and proven results have vaulted core strengthening exercises into all types of training programs from preventative health to elite athletic development.
Core Strengthening Programs

The essence of core stability training is activation of the small muscles of the trunk that are best suited to stabilize the spine. Because most activities of daily living require only modest levels of activation of these muscles, core stability training often focuses simply on fostering awareness of their activity. Common training for this purpose includes gently drawing in the abdomen without altering normal breathing.

After learning basic core stability techniques from a qualified instructor, equipment such as medicine balls, foam rollers, cuff weights and balance boards allow people to independently reproduce and progress these exercises. Activities such as martial arts, ballet, Pilates and certain forms of yoga can also help build core strength and stability. The final step in core stability training is integrating the use of the core muscles into daily tasks and sport-specific activities. People who display appropriate activation of core musculature, good global core strength and an ability to incorporate the action of these muscles into activities specific to their functional goals possess the critical components to stabilize the core.

The main concepts of core strengthening programs involve using multiple muscles in a coordinated movement. Rather than isolating a specific joint as in most weight lifting, stability exercises focus on working the deep muscles of the entire torso at once.
Moving the Lower Extremities: One leg raise, alternate leg raises or alternate arm and leg raises

Note: This exercise is considered to be the most advanced of all of the table top positions. The trainer must ensure that the client has properly progressed to this level of balance, stability, or core strength.

Starting Position:
• Feet are hip width apart and lower legs and thighs run parallel to one another
• Keep the ASIS level and equal distance to the floor
• Activate the TrA
• Retract and depress the shoulder blades and remain open through the chest
• Looking down at the floor, the neck is aligned with the rest of the spine

Working Phase: (inhale and exhale normally)
• Engage the muscles along the spine and the gluteus maximus
• Slowly lift the leg away from the floor and do not go past parallel with the floor
• The pelvis moves level, and the ASIS remain equal distance to the floor
• The spine remains in neutral and the leg remains strong
• The movement is derived from extension at the hip combined with extension of the knee, not extension of the spine
• The leg is held at the top of the movement for two to three seconds before slowly lowering to the floor
• Keep the core engaged and the pelvis in neutral
• Take care not to arch through the spine or tilt the pelvis

Common errors in exercise form and technique for Prone Erector Spinae Exercises include:
Chapter 7

Reducing the Incident and Likelihood of Injury

In this chapter you will learn about:

- Health Screening and Scope of Practice
- The Occurrence of an Acute Injury
- Causes and Mechanisms of Injury
  - Overtraining
  - High Expectations and Unrealistic Goals
  - Predisposing Factors
  - Poor Training Habits
  - Poor Exercise Technique
    - Breathing
    - Postural Positioning
    - Speed of Motion
    - Range of Motion
    - Resistance
  - Poor Choice of Exercise – contraindicated and high risk exercises
- The Personal Trainer’s Role as a Spotter
  - Exercises where a Load is on the Back or Front of the Shoulders
  - Supine exercises where the Load is held above the Face, Neck or Chest
  - Exercises where the Load is held Overhead
  - Power Exercises
- Faulty Program Design
- Common Injuries associated with Exercise
  - Iliotibial Band (ITB) Syndrome or Runner’s Knee
  - Tibial Stress Syndrome (Shin Splints)
  - Achilles Tendinitis
  - Plantar Fasciitis
  - Blisters
- Prevention of Common Overuse Injuries associated with the Introduction of Running
Reducing the Incidence and Likelihood of Injury

At all times, the Personal Trainer must do due diligence to keep the client safe and free of injury. This includes proper health screening, proper program design, adequate instruction and supervision, choosing appropriate exercises, and understanding the potential risks that may be associated with regular physical activity should the program guidelines not be adhered to.

Health Screening and Scope of Practice

The Personal Trainer must understand the scope of practice regarding injuries. There are chronic or overuse injuries that last for greater than six months and acute injuries that may be the result of changes in types or intensity of activity, over-training, or unsafe exercise techniques. Our scope of practice only permits us to work with apparently healthy adults without injury.

A Personal Trainer is able to work with someone who has filled out a Physical Activity Readiness Questionnaire (PAR-Q) and has not answered ‘yes’ to any of the questions. Obviously, a person that is injured, recovering from injury, or lives with a chronic injury is very likely to answer ‘yes’ to at least one question on the PAR-Q.

If an individual answers ‘yes’ to any of the questions, that individual must be sent to their physician with a PARmed-X. If the PARmed-X is returned to the Personal Trainer with the recommendation of unrestricted physical activity, then the trainer is able to work with the individual.

However if the physician has outlined any physical restrictions, the individual must be referred to the appropriate health professional or therapist (e.g. kinesiologist). The Personal Trainer is not permitted to work with individuals that have any physical restrictions, as this is outside of their scope of practice.

The Personal Trainer must always health screen individuals prior to working with them. However even while working with a client, the Personal Trainer should be screening them prior to every session. This can be accomplished by asking the client if there are any changes since the last visit. It is recommended that the
## Signs and Symptoms of Exercise Intolerance

<table>
<thead>
<tr>
<th>Sign or Symptom</th>
<th>Visual Cues (What might the trainer see?)</th>
<th>Verbal Cues (What might the client say?)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Body Discomfort — heart issues</td>
<td>Rubbing or holding the body part, disorientation, discoloration in face, contorted face</td>
<td>Describe chest, arm, jaw, teeth, ear, or back discomfort. Describe an aching, burning, tightness, or sensation of fullness in the upper body</td>
</tr>
<tr>
<td>Excessive fatigue</td>
<td>Poor posture, disorientation, lack of focus, inattention</td>
<td>Reports excessively high RPE, reports excessive fatigue, reports not being able to do the intensity</td>
</tr>
<tr>
<td>Profuse sweating</td>
<td>Sweating more than typical, Laboured breathing</td>
<td>Reports excessively high RPE, reports excessive fatigue, reports not being able to do the intensity</td>
</tr>
<tr>
<td>Absence of sweating when they should be</td>
<td>Hot red or flushed dry skin (may be accompanied with rapid pulse, difficulty breathing, strange behaviour, confusion, agitation, disorientation)</td>
<td>Complain of difficulty with breathing, ask to slow down or discontinue, need a cool down</td>
</tr>
<tr>
<td>Pallor</td>
<td>Lack of colour in the skin (may be accompanied with sudden weakness, sweatiness, and confusion)</td>
<td>They complain of shortness of breath, fearful of continuing, want to stop</td>
</tr>
<tr>
<td>Cyanosis</td>
<td>A bluish discoloration of the skin, notice difficulty breathing, weak pulse</td>
<td>Complain of shortness of breath, numbness or tingling in extremities, chest pain, headache</td>
</tr>
<tr>
<td>Dizziness or light-headedness</td>
<td>Confusion, stumbling, poor posture, disorientation, lack of focus, inattention</td>
<td>They ask to sit down, ask to remove themselves and go for a slow walk, ask to stop, they report that they do not feel like themselves, reporting that they feel like they are going to faint</td>
</tr>
<tr>
<td>Confusion</td>
<td>The client present with clear or orderly thought. Odd or uncharacteristic behaviour</td>
<td>Ask to sit down, ask to remove themselves and go for a slow walk, ask to stop, they report that they do not feel like themselves</td>
</tr>
<tr>
<td>Fainting</td>
<td>Acting overly anxious, generalized weakness, paleness, excessive sweating, rapid heartbeat and rapid breathing</td>
<td>Report the following: feeling incredibly dizzy, a dimming of vision or brownout; buzzing or ringing in one or both ears; feeling excessively hot, light headedness, feeling nauseous</td>
</tr>
<tr>
<td>Dyspnoea</td>
<td>Shortness of breath, may appear anxious</td>
<td>Report the sensation of difficult or uncomfortable breathing</td>
</tr>
<tr>
<td>Nausea or vomiting</td>
<td>The client may excuse themselves quickly to the washroom (diarrhea, vomiting); Profuse sweating</td>
<td>Report not feeling well, they ask to sit or lie down, ask to remove themselves and go for a slow walk, they ask to stop</td>
</tr>
<tr>
<td></td>
<td>Stop the exercise completely</td>
<td></td>
</tr>
</tbody>
</table>
Causes and Mechanisms of Injury

There are numerous reasons why injuries occur: overuse (too much), lack of progression (too much, too soon), unrealistic goals, predisposing factors, and poor training techniques to name a few. Understanding these causes can help prevent an injury before it happens.

Overtraining

Overtraining is a condition that results from insufficient recuperation time in the training program. The more intense the training, the more rest required. Although progressive overload is important to accomplish goals, at time, more is not better and progression is not recommended.

With overtraining, the body is unable to adapt to the amount of stress or stimulus placed on the body and the result is a decrease in performance. Typically, prior to this decrease, there is a plateau in performance.

Overtraining may result from lack of planning regarding progressions and workload and/or compulsive behavior. Regardless of the cause, overtraining or excessive training increases the probability of injury. Therefore it is very important for the Personal Trainer to be able to recognize the symptoms of overtraining.

Symptoms of Overtraining:

- Decreased performance
- Altered blood pressure and altered resting heart rate
- Decreased maximal oxygen uptake
- Increased submaximal exercise heart rate
- Reduced appetite
- Disruption in sleep patterns
- Decreased muscle glycogen
- General fatigue, and fatigue during workouts
- Increased DOMS and muscle soreness
- Decreased percentage of body fat
- Altered mood state (difficulty concentrating, restlessness, irritability, anxiety, depression)
- Susceptibility to illness, colds, etc.

When overtraining is suspected, the immediate response should be more rest to allow the body time to recover. Adequate nutrition, hydration and extra sleep can contribute to recovery. When training resumes, it should be at a reduced intensity and the individual should be monitored closely. The Personal Trainer should be diligent in tracking both subjective and objective information from the client. The bottom line is that in order to avoid overtraining, the Personal Trainer must ensure steady, proper progression and adequate rest.
### Change the Exercise

#### Hurdler’s Stretch
*Intended Purpose:* Stretch hamstrings
*Reason that it is considered High Risk:* The position of the right hip and knee increases the stress on the medial ligaments of the right knee.
*Alternative:* Modified Hurdler’s Stretch

#### Standing Hamstring Stretch – Nose to Knee
*Intended Purpose:* Stretch hamstrings
*Reason that it is considered High Risk:* Poor alignment in upper spine and neck. Position of stretch may be excessive for some individuals, increasing the risk of strain to the hamstring muscles and tendons.
*Alternative:* Supine Hamstring stretch or Modified Hurdler’s stretch

#### Plow
*Intended Purpose:* Stretch hamstrings, gluteus maximus and low back extensors
*Reason that it is considered High Risk:* Excessive force on the upper spine and neck due to the degree of flexion and the weight of the lower body.
*Alternative:* Cat Stretch

#### Full Back Bend
*Intended Purpose:* Stretch abdominals and front torso
*Reason that it is considered High Risk:* Neck and Spine are extremely hyperextended, increasing the risk of compression or impingement in the low back.
*Alternative:* Sphinx

#### Full Forward Bend
*Intended Purpose:* Stretch hamstrings
*Reason that it is considered High Risk:* Extreme position of stretch for some individuals which could stress the low back or strain the hamstrings.
*Alternative:* Supine Hamstring stretch or Modified Hurdler’s stretch
Chapter 8

Fitness Assessment Protocols and Practical Skills

In this chapter you will learn about:

- The Role of Fitness Assessment
- Health Screening
- Body Composition
- Measuring Resulting Cardiovascular Fitness
- Postural Analysis
- Measuring Submaximal Cardiovascular Fitness
- Measuring Lower and Upper Body Flexibility
- Measuring Lower and Upper Body Strength and Endurance
- Post Assessment Consultation
Fitness Assessment Protocols and Practical Skills

The health-related fitness assessment is essential and necessary prior to designing a safe, effective and enjoyable program that will get your clients the results they expect. This is important, as a client who is achieving their goals is more likely to continue than one who is not.

A health-related fitness assessment can be very informative and educational for both the client and the trainer, as it provides an objective measure of their current state of fitness. Various tests and measures assist in the identification of areas of strength and weakness, which can help focus the training program and determine the exercise prescription that will most benefit the client.

Health-related fitness assessments also establish baseline, midpoint, and post-program measures that help the trainer determine the success or effectiveness of the program. This may motivate the client because observing gradual positive changes over time increases adherence.

Reasons for Performing Health-Related Fitness Assessments:

- To educate the trainer and client about their current health and fitness status relative to health-related standards and norms
- To gather data for all fitness components to assist in program design
- Establishing a baseline fitness level to be used for comparison in future re-tests to assess level of progress and motivate the client
- Using information gathered to establish appropriate and attainable fitness goals

Prior to a fitness assessment, the client must be medically cleared with the recommendation of unrestricted physical activity. Once it is clear that there are no contraindications to exercise, then the personal trainer can proceed with their own extensive history taking and informed consent procedures.

History-taking Interview

The pre-exercise and pre-assessment history taking must include information about the client’s past and current information. Although the client has been medically cleared, it is still incumbent upon the trainer to ask all of the appropriate questions to gain a full picture of the client’s current and past level of health. Components of the history-taking interview should include topics like the following:
similar device. If the client does not have access to a heart rate monitor, exercise heart rate is measured at the radial site (the wrist). See above for instructions to give the client.

Due to the constant movement during exercise, it is difficult to get an accurate measurement. In addition, if someone stops moving completely their heart rate may drop significantly. Therefore, better results for manual palpation of heart rate during exercise is during exercises with less overall body movement (cycling) or having the client march on the spot.

**Resting Heart Rate**

Resting Heart Rate is a measure of the heart rate at rest. It is best taken upon waking, while lying in bed. Normal Heart Rate is also a measure of the heart rate at rest. It is taken while sitting or standing still.

**Equipment Needed:** Heart rate monitor, or by manually palpating the radial artery. NOTE: It is advised that personal trainers do not manually palpate the carotid artery, as this is invasive for many clients. However, it may be necessary to take a carotid pulse to measure heart rate if the radial pulse is not palpable (e.g. obese clients).

**Protocol for Manual Heart Rate Monitoring:**

1. Determine the location of the radial pulse
2. Place the tips of the index and middle fingers over the artery. It should be noted that the thumb is never used to take a radial pulse due to artifact.
3. Gently apply pressure and count the number of beats for 15 seconds and multiply by 4, or for greater accuracy take heart rate for 30 seconds and multiply by 2, to determine the total number of beats per minute.
4. If you start the stopwatch simultaneously with the first pulse beat, count the first beat as ‘zero’.
5. If the stopwatch is running, count the first beat as ‘one’.

**Recovery Heart Rate**

Recovery Heart Rate reflects how quickly the heart returns to a normal resting rate, following exercise. Higher levels of cardio-respiratory fitness are indicated by faster recovery heart rates. The importance of taking recovery heart rate is to measure fitness level and to make sure the client has safely returned to below 100 bpm before leaving the assessment or moving onto the next test.

**Equipment Needed:** Heart rate monitor, or by manually palpating the radial artery.
and muscle weakness present in postural dysfunction. When this is observed, specific exercises to address this postural dysfunction can be added to the program.

**Body Composition**

It is well documented that excess body fat, specifically at the abdomen, strongly correlate with chronic disease such as diabetes, hypertension, CVD, high cholesterol, and stroke. Body composition is a measure of the amount of lean mass compared to fat mass in the body. It is often expressed as a percentage of fat. Tests such as Hydrostatic Weighing (underwater weighing) require specialized equipment and advanced training. There are several field tests and assessment tools that are simple and cost-effective, yet accurate. These tests can be performed by any CFES personal trainer.

**Girth Measurements**

Girth measurements are circumference measures at standard anatomical sites around the body. These numbers can be used to establish baseline measures and then adaptations following training. In addition, the pattern of body fat distribution is an important predictor of chronic disease. For example, research shows that waist circumference and BMI give the greatest scientific predictor of health risk. In addition, the sagittal abdominal diameter is an excellent indirect measure of visceral fat and is more strongly related to risk factors for CVD and metabolic diseases.

The accuracy of girth measurements can be within 2.5 per cent to four per cent of the actual body composition if the subject has similar characteristics to the original validation population and the girth measurements are precise.

**Equipment needed:** Gulick tape measure (cloth tape measure with a spring loaded handle) or a flexible, yet inelastic tape measure.

**Protocols:**

All measurements should be taken on the right side of the body. Stand to the side of the client when measuring (not in front or directly behind).

- When taking girth measurements the
Interpretation of BMI for Children and Teens (2–19 years)

For children and teens, the interpretation of BMI is both age- and sex-specific. This calculator provides BMI and the corresponding BMI-for-age percentile on a BMI-for-age growth chart. This method of determining BMI takes into account age and sex. Age and sex are considered for children and teens for two reasons: the amount of body fat changes with age and the amount of body fat differs between girls and boys.

The WHO BMI-for-age growth charts for girls and boys take into account these differences and allows for the translation of a BMI number into a percentile for a child’s or teen’s sex and age.

Step 1: Calculate BMI

\[
\text{BMI} = \frac{\text{Weight (kilograms)}}{\text{Height (cms)} \times \text{Height (cms)}} \times 10,000
\]

Step 2: Use the WHO Growth Charts for Canada for Boys or Girls to determine which Percentile range they are in based on Age and BMI

WHO GROWTH CHARTS FOR CANADA

2 TO 19 YEARS: BOYS

Body mass index-for-age percentiles

![WHO BMI-for-age growth chart for boys](image)
Submaximal Tests of Cardiorespiratory Fitness

There are two types of tests that can be performed to measure aerobic capacity, maximal and submaximal. During maximal aerobic testing the subject reaches a state of true VO₂ max, or absolute exhaustion. These tests, therefore, pose a higher risk for clients and MUST only be performed by a Kinesiologist who is a Certified Exercise Physiologist.

Personal Trainers may perform submaximal testing, in which the subject reaches a state whereby VO₂ max can be predicted based on the fact that there is a linear relationship between heart rate and workload, as long as there are no medications (over the counter especially) to alter this relationship. If medication is used the results of the test are invalid.

Submaximal tests are considered safe for apparently healthy clients who have undergone appropriate health screening. The client must not answer ‘yes’ to any of the questions on the PAR-Q or the PARmed-X must have a recommendation of ‘unrestricted physical activity’.

There are several simple assessment tests that estimate a client’s maximal oxygen consumption and these tests are between ±15 percent error at best given accurate protocol and heart rate measures.

The 1.6 km Walk Test

This is a simple test for the unfit client. Stand only and walk at a comfortable pace providing they have the ability to walk the duration of the test. An estimation of maximal aerobic capacity is based on the amount of time it takes to walk 1.6 kilometers or one mile. Heart
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Chapter 9
Cardiovascular Training Program Design

In this chapter you will learn about:

- Cardiovascular Training Goals
- Energy Production in Cells
- Aerobic Capacity
- Training Principles
- Frequency
- Exercise Choice
  - Improvement Programs and Maintenance Programs
- Intensity
  - Target Heart Rate: Age predicted HR, Heart Rate Reserve
  - Rate of Perceived Exertion
  - METs
- Duration
- Progressions
- Variations
  - Continuous Training, Pace and Tempo,
  - Interval, Fartlek, Circuit, Composite Training
  - Combining Resistance and CV Goals
Cardiovascular (CV) Training Program Design

Effective training programs must be well rounded to include all of the essential components of fitness including cardiovascular fitness. Once the initial consultation and fitness assessment have been completed, the Personal Trainer will have a clear understanding of the fitness of the heart, blood vessels, and lungs.

The Canadian Health Measures Survey (CHMS) was launched in 2007. They collected information relevant to the health of Canadians by means of direct physical measurements of cardiovascular fitness. Aerobic fitness was assessed using the Canadian Aerobic Fitness Test. By calculating the predicted maximal aerobic power, an estimate of the maximum volume of oxygen an individual will intake per minute of exercise relative to their body weight was determined.

In January 2010, they released a report called the Fitness of Canadian Adults: Results from the 2007-2009 Canadian Health Measures Survey. Some of the findings related to cardiovascular fitness for the 2007 to 2009 period indicated that approximately 27 per cent of men and 22 per cent of women had an excellent or very good health benefits level, based on their aerobic fitness levels, 32 per cent of Canadian men and women aged 15 to 69 were categorized as having a good health benefit level, based on their aerobic fitness ratings, and 33 per cent of men and 47 per cent of women had a fair and needs improvement health benefits level, based on their aerobic fitness levels. Among adults, decreases in fitness levels between 1981 and 2009 were particularly pronounced for young adults aged 20 to 39 years \(^1\). Given these statistics, there is no question that cardiovascular (CV) training is an important part of a training program.

There are many things to consider when designing a cardiovascular training program. These include the client’s current level of fitness, their fitness goals, and their exercise history. In addition, the trainer needs to look at the frequency of the CV workout, what modality they will use, the duration of the session, the target training zone the client will work in, how many rest days between sessions, and the client’s personal preference. Then the trainer will need to decide whether the client will complete the CV work out on their own or whether the session will be overseen by the trainer.
Goals Relating to Cardiovascular Training Programs

Cardiovascular training is essential for many clients, specifically where the goal is fat loss or enhancing the client’s VO₂ max or aerobic capacity. The increase in aerobic capacity may be needed to accomplish or compete in various endeavors (a 10 km race, a marathon, a cycling tour, etc.) or to simply be able to walk up a flight of stairs or walk to the grocery store.

Energy Production in Cells
The ability to sustain a cardiovascular training program or any work output for that matter, requires energy. The body is continually breaking down the chemical bonds in carbohydrates, fats, and protein in order to release energy (catabolic). The body also builds molecules using that energy (eg. building protein from amino acids). This is called anabolic. The human body is constantly
The energy that the body uses is called ATP or adenosine triphosphate. Without a constant supply of ATP, the body would not be able to perform physical work. In addition, muscular activity or growth is not possible. Therefore, when designing exercise programs, Personal Trainers must understand how exercise affects the levels of ATP, how the body uses ATP, and how the body resynthesizes ATP.

ATP is the energy molecule (like the gas in your car). A limited amount of ATP is stored in the muscles, but muscles require a constant supply of ATP for muscular contractions. Therefore, the muscle cells must continually produce more ATP to replenish and continually provide the system with ATP.

ATP is produced via three different pathways of chemical reactions. The three energy systems are: the aerobic system, the anaerobic system, and the ATP-CP system.

**ATP-CP System (Anaerobic)**
- 90% Heart Rate
- Does not produce Lactic acid
- 0-1 min (usually only 30 secs) uses phosphagens and stored ATP

**Lactic System (Anaerobic)**
- Cells in the heart, brain and other organs have little or no anaerobic capability and must constantly receive a supply of oxygen.
- Skeletal muscles have a significant anaerobic capability
- First few minutes of activity uses anaerobic system (readily available). Once oxygen supply meets demand (aerobic).

**Endurance (Aerobic)**
- This system "trains" the body to use all systems.
- Prepares the body for fatigue resistance.
- Uses oxygen, glycogen & fatty acid oxidation.
- Athletes spend about 75% of training in this area. The more trained a person is, the longer they are able to work in this system.
- For fat loss the first few minutes will burn carbs and then system will start to burn fatty acids. Low end interval training shouldn’t go above 75% MHR or anaerobic systems will kick in.
- Heart Rate – 60-80% (60-70/75% better)

New person stays in this zone for the first 6 weeks
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Chapter 10

Resistance Training Program Design

In this chapter you will learn about:

- Training Principles
- Resistance Training and Metabolism
- Establishing Goals
- Frequency
  - Split Programs
  - Light, Medium, and Heavy Days
- Exercise Choice
  - Functional Training
  - The Six Components of Sport
  - Plyometric Exercises
  - Frequency of Training Sessions
  - Upper Body Plyometrics
  - Speed Training
  - Agility Training
  - Coordination and Reaction Time Training
- Sequencing of Exercises
- Intensity: Load, Repetitions, Sets
- Rest
- Variations
- Progressions
Chapter 10 Resistance Training Program Design

As a Personal Trainer you must be able to design safe and effective programs. It all starts with the initial consultation and fitness assessment. The initial consultation should give you and your client a clear understanding of the primary resistance-training goal. The fitness assessment will give you clues as to how experienced your client is with movement and body technique, as well as a baseline of strength and endurance.

There are many things to consider when designing a resistance training program; the frequency of the workout, how many times per week they will train each muscle group, what exercises, the sequence of the exercises, the duration of the session, how much weight to lift, how many repetitions, how many sets, how much rest between exercises, and how many rest days between sessions. Then you will need to decide when your client will work out on their own, if at all, and how many sessions they will train with you.

It is your job to make sure that your client is safely and effectively progressing and overloading the muscles, while minimizing overtraining. Therefore it is key that the personal trainer builds a program that follows the training principles.
Table 10-2

<table>
<thead>
<tr>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
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<tbody>
<tr>
<td>Rest</td>
<td>Day 1</td>
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Exercise Choice

Which exercises the personal trainer chooses depends on a number of factors including the skill level of the client, the availability of the equipment, the client's preference, how much time they have per session, and the training goal.

First and foremost, the personal trainer should always apply the principle of specificity. In other words, the chosen exercises need to address the client's goal. The trainer then needs to consider the duration of the session, taking into consideration the number of exercises, the complexity of the exercises, and whether set up time is required, and most importantly, the client needs to be able to execute the exercises properly.

As mentioned above, exercise selection for the beginner includes one exercise for each major muscle group. As the beginner progresses, the number of exercises per major muscle group can be increased. See *CFES Personal Trainer’s On the Floor Resources* for the explanation of various resistance-training exercises, including the movement descriptions, specific safety tips, and variations or modifications.

For the client that falls outside of the healthy beginner adult client, the resistance training program needs to be specifically designed to meet their needs. If the client has been consistently training for several months or they are considered to be an intermediate
The Six Components of Sport

It is outside of a personal trainer’s scope of practice to work with professional athletes or carded amateur athletes. However, the personal trainer should understand the six components of sport, as they may be teaching bootcamp or their client may play recreational sport and wish to improve in that area. Therefore, a basic understanding of the six components of sport or skill-related fitness, as well as the different training methods to achieve improvements is important.

Alike functional training, this type of training should be introduced after the client has established a good foundation of muscular endurance with static exercises, demonstrates proper body mechanics, and is ready for a change in their program. This type of training is more advanced and is not to be used with beginners.

Recreational Sport and Skill-Related Fitness

Recreational sport requires a different combination of physical attributes, some of which are considered health-related and others which are skill-related components of fitness. Health-related components include cardiorespiratory fitness, muscular strength, muscular endurance, flexibility, and body composition.

The skill-related components of fitness include:

- Power
- Speed
- Agility
- Balance
- Coordination
- Reaction

With the addition of skill-related components such as speed, power, and balance, the risk for injury may increase. This is especially true if the client is progressed too quickly or does not have the appropriate and sufficient basic level of endurance, strength, balance, and skill prior to engaging in this type of training.

Power — Power is a combination of force (muscular strength) and speed. Muscular power relates to the ability to generate an increased amount of muscular force very quickly. Training with the goal of muscular power will improve one’s ability to accelerate and decelerate quickly, to change directions quickly, to sprint, and/or to jump.

Speed — Speed relates to how quickly the body can achieve certain movements or tasks.

Agility — Agility is the ability to accurately change and control
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Chapter 11
Flexibility Training Program Design

In this chapter you will learn about:

- Benefits of Flexibility Training
- Factors that affect Flexibility
- The Physiology of Stretching
  - Elastic and Plastic Properties
  - Proprioceptors
  - Muscle Spindles
  - Golgi Tendon Organs
- Types of Flexibility Training
  - Ballistic Stretching
  - Dynamic Stretching
  - Static Stretching
  - Static Active Stretching
  - Trainer Assisted Stretching
- Program Design
- Flexibility for Postural Dysfunction
The personal trainer needs to recognize the value in flexibility training as an important component of conditioning. Like all of the other components of training, the type of flexibility training must be specific to the goals of the client. Flexibility has been defined as the range of motion about a joint and its surrounding muscles during a passive movement. With proper flexibility, the joint is able to move freely through the full range of motion (ROM).

Benefits of Flexibility Training

The personal trainer may include a specific flexibility component for many reasons. The most common reason is to aid in the warm-up via dynamic stretches or to aid in the cool-down and lengthening of the muscles post workout. Some clients will require a more focused flexibility component that goes beyond simply stretching out each muscle worked that session. Increased flexibility might be required because there are movement skills that need to be enhanced in their sport or they present with postural dysfunction related to tight musculature.

Achieving optimum flexibility in a joint increases the coordination and efficiency of a movement. Although it is not true for a high level athlete, improving flexibility appears to improve neuromuscular coordination, physical efficiency and the ability to perform various movement patterns and skills, especially those movements that require an elevated level of flexibility.

Flexibility training also appears to be important in injury prevention. It is widely accepted that tight musculature increases the risk of injury (e.g. tight Hamstrings can increase the risk of low back pain). Properly designed flexibility programs can be very effective in preparing your client for their workout, to decrease the potential risk of injury and to increase the chance of being injury free. Static stretching are more beneficial in improving the length in the muscles, therefore it is recommended that Personal Trainers take the time to play an active and hands-on role in their client's stretching routine. This section will take the trainer through beyond simply prescribing static stretches based on the muscles worked that session.
Trainer Assisted Stretching

T
rainer assisted stretching is different from PNF stretching, as there is no contract, hold, relax. The stretches completed are static stretches and the trainer is providing gentle overpressure to assist in eliciting increased lengthening throughout the muscle. In addition, the client is instructed to attempt to completely relax and let the trainer do the work (e.g. lifting the weight of a limb).

Providing trainer assisted stretching to your client is a great way to personalize your training session. An assisted stretching period at the end of your sessions is an effective way to help your clients wind down after a workout, giving you time to discuss the workout and build rapport. Unfortunately, due to limited time that a trainer has with someone, the client is typically left to his or her own devices during the warm-up, cool-down and stretch.

Offering some hands-on flexibility work with your client is invaluable, as it enhances the cool down, it improves flexibility, and assisted stretching allows the trainer to get some tactile feedback on the state of the clients’ flexibility. After a possibly gruelling workout, your client deserves some down time and the chance to relax. The assisted stretching allows them to completely relax because the trainer is doing virtually all of the work.

The principles of stretching still apply to assisted stretching. The stretching should never be taken to the point of pain, therefore constant discussion and interaction must take place between the trainer and client. The trainer’s intention is to take the weight of the limb so that the client does not have to use their strength to resist gravity. The next step is to apply gentle overpressure in the line of the stretch.

The biomechanics of the assisted stretches are exactly the same as the static stretches that the client completes without assistance. Please refer to CFES Personal Trainer’s On the Floor Resources for descriptions of all of the stretches.

Pectoralis Major Trainer Assisted Stretch

Have the client sit on the floor on in a chair and place their hands on the back of their head with their elbows flaring wide. Stand behind the chair and gently pull the elbows back toward you until a stretch is felt in the pecs. Hold for 30 seconds.
Flexibility Program Design

Increased flexibility might be required because there are movement skills that need to be enhanced in the client’s sport or daily living tasks, the client presents with postural dysfunction related to tight musculature, decreased flexibility was noticed during the muscle tightness testing, or the client is ramping up the intensity of their training.

Summary

The personal trainer must understand how to effectively design an efficient stretching program. The appropriate frequency, duration, and intensity is critical. However the most important consideration is the type of stretching that you teach your client and whether you play an active role in that portion of their workout.
Chapter 12

Understanding Chronic Diseases

In this chapter you will learn about:

- Chronic Diseases Attributed to the Lack of Daily Physical Activity
- Obesity
- Cardiovascular Disease
- Hypertension
- Diabetes Mellitus
- Osteoporosis
- Osteoarthritis
- High Cholesterol
Understanding Chronic Diseases Attributed to the Lack of Daily Physical Activity

It is very important that Personal Trainers understand chronic disease, specifically chronic disease, how it is affecting the population, and the role that we play as Personal Trainers.

Chronic disease has been attributed to hypokinesis or the lack of adequate physical activity within a person’s lifestyle. Such diseases may include obesity, high blood pressure, high cholesterol, osteoporosis, osteoarthritis, low back pain, and adult onset or Type II diabetes mellitus.

It makes perfect sense that chronic disease is of particular interest to Personal Trainers, however we must remember our role and our scope of practice. The role of the trainer is disease prevention and health promotion. A Personal Trainer is not a physician, a therapist, or a kinesiologist. Our scope of practice allows us to work with the apparently healthy population.

A Personal Trainer is able to work with medically cleared apparently healthy individuals. The next chapter will discuss this process at length. The bottom line is that CFES Personal Trainers work with individuals without any restriction to become physically active. In the case that there are physical restrictions, the personal trainer must refer the individual to a more qualified exercise professional, like a kinesiologist who is a certified exercise physiologist.

Therefore, a Personal Trainer’s role is to understand chronic disease, prevent the onset of disease, and to promote the health of the individual. We do not diagnose disease or the risk of disease and we do not treat disease. Our role is in the prevention of disease through exercise and healthy lifestyle.

Chronic Disease

Although we do not work with individuals that have chronic disease, we must understand the disease process, the prevalence of chronic disease in our society, and the trends of the disease. If we understand what the risk factors are, what causes the disease, and how to avoid the onset of the disease, then we can better understand our role in disease prevention and health promotion.
Moderate risk clients are defined as having no signs or symptoms of disease, no diagnosis of disease, and two or more risk factors as outlined above. According to the ACSM, the risk of an acute cardiac event is low to moderate and an exercise prescription can be pursued if the PARmed-X is returned outlining the recommendation of unrestricted physical activity.

It is outside of the Personal Trainer’s scope of practice to work with high risk clients, those diagnosed with CVD or other heart or blood disease, and those taking medication to treat such disease.

### Hypertension

The Canadian Health Measures Survey (CHMS) was launched in 2007. The survey used a mobile examination centre that visited 15 sites Canada wide. Trained health professionals directly measured blood pressure for all respondents, 3,514 of whom were aged 20 to 79, between March 2007 and February 2009. Persons whose systolic blood pressure was 140 millimetres of mercury (mmHg) or higher, or diastolic pressure was 90 mmHg or higher, or who reported they had used medication for high blood pressure in the past month were classified as having hypertension. It should be noted that CSEP defines hypertension as a reading at or above 144/94 mmHg.

In February 2010, the CHMS released a report called the Canadian Health Measures Survey: Blood pressure in adults. Results indicated that five million Canadian adults or 19 per cent of the population have high blood pressure. Another 20 per cent of Canadian adults have pre-hypertension, meaning that their blood pressure is between 120/80 mmHg and 139/89 mmHg. Therefore, technically, the individual does not have ‘hypertension’ now, however they are likely to develop it in the future, unless they adopt a healthy lifestyle.

### The Prevalence of Hypertension in Adults

The prevalence of hypertension was 19 per cent for men and women, although the males were less likely to be aware of their condition. The prevalence of hypertension increased dramatically with age. While only two per cent of adults ages 20 – 39 years had hypertension, 53 per cent of adults ages 60 –
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Chapter 13

Health Screening and Program Design Within the Scope of Practice

In this chapter you will learn about:
- Apparently Healthy Adults
  - Promotion of Healthy Joints
  - Clients that are Obese Class 1 or Overweight
  - Clients that have Identified Risk Factors for CVD
  - Clients that have Identified Risk Factors for Elevated Blood Pressure
  - Clients with Well Managed Diabetes
  - Menopausal and Post-menopausal Clients where the Primary Goal is Bone Maintenance
  - Clients with Arthritis
  - Apparently Healthy Mature or Older Adults
  - Apparently Healthy Youth Aged at least 15 Years Old
  - Pregnant Women
Health Screening and Program Design Within the Scope of Practice

Most of the adult population presents with issues that make them less than perfect. It could be argued that much of the population is at risk of disease because of the level of inactivity and overeating in this country. Our job as Personal trainers is to be diligent in obtaining medical clearance to exercise without restriction. We must take thorough histories and learn as much as we possibly can about the individual prior to fitness assessment and program design.

We need to possess the confidence to obtain medical clearance when we are unsure. This is especially true when the PAR-Q clears someone to become active, however we come across red flags during our history taking.

Remember that prior to every session we need to be asking the client if anything has changed physically since the last session. This could include injuries, discomfort, medication use, cold or flu, or anything out of the ordinary.

REMEMBER: The PAR-Q is valid only if the trainer asks the client at each session if the PAR-Q has changed. For instance, your client had chest pains the week prior but is better now. The trainer fails to ask the client if their PAR-Q has changed. Unfortunately, the client has a cardiac event during the training session. The trainer may be seen as negligent because they had not specifically asked if there had been any changes to the client’s PAR-Q. This is the case with prescription medication, over-the-counter medication, and supplements. It is common, that a client will start to take medication or supplements without informing their trainer. Therefore, it is prudent that the trainer question the client about changes to their PAR-Q every session.

The PAR-Q is only valid for one year. Therefore, regardless of whether there are changes, each client must fill out a new PAR-Q once a year. Any changes should be documented and the client should be asked to fill out another PAR-Q.

What Type of Client Should the Personal Trainer Expect to See?

It is very typical that the Personal Trainer will see clients that have elevated BMIs, are sedentary, have poor eating habits, and have family history of disease. There are common conditions that present in adults that lead a sedentary, unhealthy lifestyle. With medical clearance it is assumed that the individual is apparently healthy, however, based on their lifestyle choices and their
Personal Trainer Protocol of Health Screening

Prior to training a client, the client must fill out a PAR-Q, an activity readiness form. If the client answers 'yes' to any of the questions, they are immediately sent to their physician with a PARmed-X.

Within our scope of practice, the Personal Trainer can work with the client if and when the client (a) returns with the PARmed-X outlining the recommendation of unrestricted physical activity or (b) the physician has provided a script indicating that the individual may proceed with exercise without restriction.

When proceeding with a client after they have received clearance from their physician, it is advisable to progress the client slowly and very gradually build their tolerance to exercise. This type of client may likely possess some risk factors for disease (e.g. increased BMI, increased obesity, sedentary lifestyle, poor nutrition, etc.), however, they have not yet developed or been diagnosed with disease.

If the PARmed-X is returned with ANY physical restrictions, the individual must be referred to the appropriate health professional or therapist (e.g. kinesiologist). The Personal Trainer is not permitted to solely work with individuals that have physical restrictions, as this is outside of their scope of practice.

There are, however, situations that a Personal Trainer might act as an assistant to the therapist or health professional. In these situations, there must be written documentation between the therapist and Personal Trainer outlining the following:

• The therapist is solely responsible for all exercise prescription and progressions
• The Personal Trainer is only a monitor of the exercise, the client’s body mechanics, etc.
• The client must follow up with the therapist on a regular basis
• There must be ongoing communication between the trainer and the therapist
• Should there be any change, whether as reported by the client or observed by the Personal Trainer, training should cease, and the client must immediately follow up with the therapist

The ACSM provides additional guidelines for obtaining medical clearance prior to commencing an exercise program. As discussed above, if the individual is not cleared for exercise via the PAR-Q, they require medical clearance. At times, the PAR-Q may not indicate the need for medical clearance, however through initial discussion and history taking, the trainer comes across other red flags. The ACSM indicates that should the trainer come across any of the following, that medical clearance is required.
• Two or more CVD risk factors (as discussed in the previous chapter);
• Resting HR greater than 100 bpm (for all fitness levels) or below 60 bpm (for a sedentary, unfit person);
• Males over 45 years or females over 55 if they wish to start a vigorous exercise program (greater than 60 per cent HRR or 77 per cent MHR);
• Respiratory or Metabolic disorder;
• Musculoskeletal system disorder;
• Recently undergone orthopedic surgery;
• Other conditions; Hernia, Pre/post-natal, Chronic illness or infection;
• Taking prescription medications that may effect exercise.

The Personal Trainer’s role is in the prevention of disease through exercise and healthy lifestyle. This chapter will outline specific guidelines for frequency, intensity, time, and type of exercise for apparently healthy adults. The following guidelines only. The Personal Trainer will need to use their professional judgment regarding where within the range to start the individual. Remember, it is always recommended to start with conservative workload, with focus on education, postural body mechanics, and pacing. Progression should be slow and gradual depending on the client’s response to the initial workload.

Program Design for the Apparently Healthy Adult

The ACSM recommends the F.I.T.T guidelines for the apparently healthy adult.

Cardiovascular Program

Frequency:
Moderate intensity exercise at least five days per week;
OR vigorous intensity exercise at least three days per week;
OR a combination of three to five days per week of moderate and vigorous intensity exercise.

Intensity:
Combination of moderate intensity (40 per cent to less than 60 per cent HRR) and vigorous intensity (greater than 60 per cent HRR)

Time:
At least 30 minutes of moderate intensity exercise to a total of 150 minutes;
OR at least 20 – 25 minutes of vigorous intensity exercise to a total of 75 minutes;
OR at least 20 – 30 minutes of moderate and vigorous exercise.

If the client is unable to manage 20 or 30 minutes continuously, it is recommended that they complete intermittent sessions of at least 10 minutes to the sum of 20 or 30 minutes.
Chapter 14

Healthy Eating Habits

In this chapter you will learn about:

❖ Be aware of the CFES personal trainer’s scope of practice relating to nutrition and know when to refer to a Registered Dietician

❖ Understand the changes in food and fluid replacements due to exercise

❖ Educate the client regarding the Canada Food Guide, appropriate food choice, and serving size

❖ Advise clients on weight loss and weight gain strategies
There is a large amount of nutrition information available, some is well-researched, documented and studied, while some has much less scientific support and only seems convincing because of good advertising and positive case examples. For many who are less versed in the area of nutrition, and even less so in sports nutrition, it is difficult to decipher whether the information is valuable and based on current research.

This chapter will provide general guidelines for nutrition based on the most recent and available research. It is recommended that personal trainers working with their clients follow up with a Registered Dietitian, to help them apply these general guidelines specifically to their client’s and individual goals.

There is a definite relationship between our lifestyle choices and our health. We have a certain amount of control over our health; including choosing healthy or unhealthy foods, exercising regularly or not, smoking or not, wearing seat belts or not, and so on. We do not, however, have control over genetics and for some health conditions, the genetic factor is very strong. Nutrition can play a large role in obtaining optimal health and performance and preventing disease but only within our genetic limitations blueprint. Personal trainers, working alongside other health professionals, have an opportunity to greatly influence healthy lifestyles for each client they work with in order to enhance their quality of life.

**Everyday Nutrition: Foods and Fluid**

Having healthy food choices and putting them all together into a healthy eating plan as part of the training program takes organizing, planning, education, time commitment and motivation. Without attention to nutritional intake, the time and effort put into a training program will not progress to the next level of the exercise goal.

For everyday nutrition there are a number of guidelines to consider:
- Eating Well with Canada’s Food Guide;
- Enjoying a variety of foods;
- Choosing plant based fats and oils in appropriate amounts;
- Increasing carbohydrate-rich foods at meals and snacks;
- Looking after fluid intake, before, during and after workouts;
- Having adequate protein intake to complement training;
- Maintaining energy balance;
- Using alcohol sensibly; moderation is key;
- Enhancing your immune function.
Table 14.4

Pre-Event Carbohydrate Rich Foods
(Approximately 50 grams CHO)

- Cheerios®, low fat milk, blueberries
- White toast, low fibre muffins or scones with jam
- Rice Pudding with fruit cocktail
- Spaghetti, with tomato-based sauce
- Cereal bar + fruit
- Banana and honey sandwich (on white)
- Fresh fruit + low fat yogurt
- Smoothie made with low fat milk/yogurt + fruit

Food and Fluids After Long Duration and/or Vigorous Exercise

Effective glycogen repletion is best accomplished immediately after exercise when the body is stimulated to store and can only begin after substantial amounts of carbohydrate have been consumed. Thus if the recovery snack is delayed it will take a much longer time to fully refuel and recover from the workout/competition. Starting to refuel within the first 30 minutes after training.

Besides eating plenty of carbohydrate rich foods, adding protein to the mix helps with muscle repair, resynthesis, and to meet the increased requirement of protein for clients.

The Australia Institute of Sport (AIS) recommends one gram CHO/kg immediately and then repeat every hour till normal meals are back on schedule. Sports Dietitians of Australia (SDA) recommend one to two grams CHO/kg in the first two hours post recovery, starting within the 30-minute window of opportunity. (Refer to Table 14.9. Carbohydrate and Protein Rich Snack List)

Fluid replacement should be enough to replace weight lost during...
Supplements

It is important for the personal trainer to have an understanding of supplements, the myths and science regarding, and the role that they play in exercise and performance. Under no circumstances is it within the personal trainer’s scope of practice to recommend or prescribe supplementation. Should the issue arise when training a client, referral to an allied health professional, such as a Registered Dietitian is recommended.

Are supplements necessary? There are so many to choose from! What works and what doesn’t??!! The supplements specifically designed for sports, such as gels, bars, drinks and liquid meal replacements and vitamin/mineral supplements, etc. can be useful and practical. Some have been developed for different types of sports. The challenge for the client is to know if they really should use a supplement; how to choose the right supplements; and how use them safely to their advantage.

There are hundreds of supplements, herbs, and natural products claiming multiple benefits for the client, such as increased muscle mass, stamina, endurance or weight loss. The concern is that the majority of these claims are not substantiated with research. Most are supported only by testimonial or anecdotal reports.

Another concern, especially for competitive clients, is that some supplements may contain banned substances. Since not all supplements fall within food regulation guidelines, often ingredients are not listed on packages, or the listed ingredients are not actually in the products, or they are present but in amounts too small to have any benefit.

Many herbs and other products have not had enough quality research to understand the long term effects on a client or their performance. The Health Canada website contains information pages on many herbs, their claims, uses and risks, contraindications and research.

There are, however, a few ergogenic (performance enhancing) supplements worth noting:

Creatine: has been used and studied extensively for a number of years. It is a muscle fuel and can be likened to carbo loading. Creatine supplementation can increase muscle stores of this fuel and is used by some clients in high intensity, short duration sports. There are two protocols for creatine loading:
- Rapid Loading: 20-25 g, in split doses for five days, or
- Slow Loading: three g for 28 days

If an client decides to use creatine, it should be under the supervision of a Sports Medicine Doctor and Registered Dietitian. There
Chapter 15

Setting Up Your Personal Trainer Business

In this chapter you will learn about:

1. What to Consider Before You Set Out on the Entrepreneurial Path
2. The Implications and Responsibilities of Operating Your Own Business
3. Business Planning
4. Types of Business Entities and Corporate Identity
5. Business Practices
6. Marketing and Sales
7. Risk Management and Liability
8. Role of the Personal Trainer
### Personal Trainer Business Practices

Starting up and managing a personal trainer business is no different than establishing any other successful venture. Research, planning, organizational, marketing and communications skills, as well as discipline and hard work are all required. This chapter will help you prepare the groundwork to set up a successful personal trainer business.

### Assess Your Readiness

Before you begin it is critical to do some self-evaluation to assess why you want to start your own personal trainer business and examine the advantages and disadvantages of working for yourself.

In self-analysis you must take account your own personal strengths and weaknesses? Do you have the confidence, discipline and motivation needed to stay the course? What technical skills, qualifications and special knowledge do you have that can build your business?

The obvious benefits of self-employment include: doing what you really want to do; being your own boss; trying out your own ideas; setting your own work hours and fee structure and working with the types of clients you really want to work with. All this and the seemingly unlimited potential you feel for creating your own destiny, or building your own company or business, really fuels the spirit. But with each benefit there are other realities to consider – ones that affect the bottom line and ultimate long-term viability of your personal trainer business.

It is important to recognize that while you are self-employed, each client is really your employer. And with a group of employers comes multiple demands and expectations of your service. How you treat each client will determine whether or not you get repeat business (client retention) or attract new clientele. And while you may want to try out your own ideas and set your work hours and client fees, ultimately it is the client who decides when they want your services, how much they want to pay and what expectations they have of a personal trainer.

Patience, maturity and business acumen (and how fast you can learn all of these) play a key role in how you will handle the challenges you face in everyday business. You must be willing and prepared to take full responsibility for your actions and decisions. You must also be willing ask others to help you in your efforts to build your business. It is critically important to continue learning about your business and your specific market; to seek out mentors and to network with others in the fitness industry.
Risk Management and Liability Insurance

“An Ounce of Prevention is Worth a Pound of Cure”

Risk management is described as: “minimizing the risks of potential legal liability”. This includes the strategies put into place to decrease and control the risk of injury from training participation, and, therefore, the risk of liability exposure.

One of the most important responsibilities you have as a personal trainer and a professional in the fitness industry is to ensure your clients are physically capable of exercising without any risk to their health and that they have a safe workout every time they train.

This involves pre-screening your clients, having liability insurance and planning programs based on your knowledge of the following: participant’s health status and fitness level, proper exercise technique, training intensity and progression, exercise modification and contraindications, prevention of injuries, equipment and facility safety. Your clients entrust their bodies to you, and it is incumbent upon you to respect and fulfill that trust by putting their safety as your foremost concern.

Every one of your clients should be pre-screened for health and medical concerns prior to their first training session — usually accomplished with a simple questionnaire such as the Canadian Society of Exercise Physiology (CSEP) Physical Activity Readiness Questionnaire, or PAR-Q form. Copies of the PAR-Q can be obtained from CSEP.

If a client answers yes to one or more of the questions on the PAR-Q, they must be referred to their physician with a PAR-m-X. The physician must indicate that the client is capable of unrestricted physical activity. If there are any limitations or restrictions outlined by the physician or health care professional, it is not within the personal trainer’s scope of practice to solely work with them.

There are, however, situations that a personal trainer might act as an ‘assistant’ to the therapist or health professional. In these situations, there must be written documentation between the therapist and personal trainer outlining the following:
• The therapist is solely responsible for all exercise prescription and progressions
• The personal trainer is only a monitor of the exercise, the client’s body mechanics, etc.
Role of the Personal Trainer

A personal trainer is a leader, role model, teacher and supporter. The primary role of a personal trainer is to provide safe, effective fitness programs for a variety of clients. This involves assessing the needs of the individuals, planning the appropriate program, working with the client on this program, providing corrective feedback, instruction, encouragement and support, evaluating the program’s effectiveness and making adaptations as necessary.

To handle health-related questions or goals, personal trainer needs to stay abreast of current information and they need to understand the limits of their knowledge and be able to refer clients to appropriate health-care providers.

Personal trainers also need to be able to work with a variety of individuals and this requires on-going education and a safe, professional approach.

Another important role is the ability to instruct new skills to clients. This requires an ability to perform (or have someone else perform) the skills, provide clear instruction and description of the skills, and provide specific, informative feedback to the client learning those skills. For many, these instructional skills take a great deal of practice and preparation.

Personal trainers who wish to be respected and successful in their field should always work within their scope of practice and adhere to a basic code of ethics including:

• provide safe and effective exercise instruction;
• provide equal and fair treatment to all clients;
• understand the current research and latest techniques in exercise;
• be knowledgeable in the prevention and management of injuries and first aid emergencies;
• uphold and enhance public appreciation and trust for the fitness industry;
• maintain the confidentiality of all client information;
• refer clients to more qualified fitness, medical or health professionals when appropriate.

Striving for excellence as a personal trainer requires a high level of self-awareness, a willingness to prepare and practice skills, and an ability to deliver the type of personal training program that is of value to the client. Personal trainers who accept these roles and responsibilities, including regular study, careful preparation, development of excellent instructional skills and a professional approach to their work, will no doubt be successful. Helping people improve their health, achieve their fitness goals, or even just get started, is a great challenge, and a great reward!