



SIS40215 : Certificate IV in Fitness

Notebook

SISFFIT021

Instruct Personal Training Programs





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Initial Consultation

During this initial contact the Personal Trainer should be making an evaluation as to whether they are the best professional to assist the client in achieving their goals. In some instances it will be wise for you to involve other health care professionals in the overall program to assist the client in achieving their goals.

Once the client has had questions answered, you as the trainer need to commence pre-exercise screening with the client. Client screening is a critical step in the process of engaging a client in an exercise program and serves five key purposes:

- Ensures it is safe and appropriate for the client to begin testing and exercise programming
- Identifies medical conditions
- Identifies contraindicated activities
- Helps to fulfill legal and insurance requirements
- Provides a valuable opportunity for the instructor to further develop a meaningful relationship with a new client

Pre-exercise screening should be designed to collect relevant health-related information which may be used to assist in developing an individualised exercise program. There are a number of pre-exercise forms used to collect information, however remember that suitable pre-exercise screening forms must cover a minimum of five distinct areas:

- **Background information:** Questions in this section are used to identify clients.
- **Known Diseases:** These are medical conditions the client is aware of
- **Signs and Symptoms:** Signs are things the fitness instructor or client can see such as swelling of the ankles. Symptoms these are things the client will report for example pain in the chest.
- **Family History:** This section will include cardiac risk factors such as high cholesterol and information asking about relatives conditions.
- **Exercise Intentions:** This section should investigate how active the client currently is and how they intend to exercise. Clients who are sedentary and wish to exercise at high intensity are generally at greater risk of those who are already active.



What information do we need to collect from a client?

- Age
- Family history
- Gender
- Current medical conditions
- Diseases
- Injuries – past or present
- Signs and symptoms
- Medications
- Surgery
- Exercise intentions

From this we can identify whether or not the client requires a medical clearance before programming. In general, a pre-exercises form should contain the following information:

- Name, age and gender of client – male over 45, woman over 55?
- Questions on family history – does/did anyone in the family under the age of 60 suffer from heart attack, stroke, raised cholesterol or sudden death?
- Current/recent medical history – medications, post natal, hospital, pregnancy, infectious disease?
- Previous/current medical history – including hypertension, metabolic disease, heart problems (other than coronary heart disease), glandular or rheumatic fever, ulcer or hernia etc.

Should the client answer yes to two or more of the above conditions, a medical clearance should be obtained from their regular general practitioner.

There are many differing pre-exercise screening forms and software applications available and it is up to the fitness instructor which pre-exercise screening system they choose to adopt. Sports Medicine Australia and the Australian Association for Exercise and Sports Science have adopted guidelines which follow closely the American College of Sports Medicine (Norton et al. 1998).

The chance of death or severe injury resulting from participation in a correctly designed fitness program is remote, it must be remembered these screening systems significantly reduce the chance of injury or death from participation in a physical fitness program and as such are particularly important. No area on the pre-exercise screening form should be treated as insignificant as the fitness instructor will often be the health professional responsible for detecting an existing underlying condition and referring the client on appropriately.



Once the client has completed the pre-exercise screening a judgment will need to be made as to the readiness of the client for participation in subsequent fitness testing and involvement in the exercise program. This is a particularly important step as a mistake here may expose the client to increased health risks from participation in physical activity which, in extreme cases, may result in death. The fitness instructor must make a decision whether to begin testing and programming or whether to send the client to a doctor for a medical clearance.

Guidelines that must be followed:

After pre-exercise screening the client should be classified into one of three categories which will determine the course of action taken by the fitness instructor.

1. Apparently healthy (low risk): Men < 45 and women <55. Clients who are asymptomatic and have no more than one risk factor. These clients are ready to begin exercise testing and programming immediately.
2. Increased risk: Men ≥ 45 and women ≥ 55 or those that have two or more risk factors. These clients will require a medical clearance prior to testing and programming.
3. Known disease: Clients with one or more signs or symptoms or known cardiovascular, pulmonary or metabolic disease. These clients will require medical clearance prior to testing and programming. It is also likely they will require a fitness instructor who has specialist knowledge.

Based on this information you, as the fitness instructor, can now make an informed recommendation regarding the need for medical clearance. However, if for any reason you are unsure as to the client's readiness it is recommended that advice and clearance be sought from a doctor.

If the client requires a medical clearance you will need to have an appropriate referral letter at hand. This letter should be addressed to the client's doctor, explain the process that you are undertaking, list the areas of concern and request the doctor provide clearance or guidelines for participation in testing and exercise programming. Due to the well documented benefits of regular physical activity it is rare that a client will be instructed not to become involved in physical activity. However, the doctor may impose certain limitations for exercise testing and programming. These limitations should be clearly understood and strictly adhered to. If you, as a fitness instructor are not confident that you can provide adequate duty of care to a client, you should refer on to a more highly qualified or experienced fitness instructor.



At the time of client induction you may choose to gather information about the client's lifestyle. This information should be recorded in the client file and kept separately from pre-exercise screening information. This information is then used to develop an appropriate individualised exercise program that will fit into the client's daily requirements. You may ask questions about occupation, preferred exercise times, preferred modes of activity and goals. In some instances you may require the new client to sign a waiver or release indemnifying the fitness instructor and fitness facility from legal action brought about by the client. It is recommended that you give a brief introduction about the document and then allow the client time to completely read it and ask questions regarding its content before signing and witnessing the document.

Additionally, an informed consent may be used to explain the benefits and risks of being involved in the fitness program as well as informing the client of their rights and responsibilities. The client's signature is required on the form, indicating they have read and understand the information they have been given. Finally, the fitness instructor will usually be required to sign and date the form in the capacity of a witness.

Due to the variations in informed consent, releases and waiver commonly used in the fitness industry, it is strongly recommended that you understand what they cover, what they contain and the legal implications of the specific waiver used.

After the relevant paperwork has been completed it may be appropriate to take the client on a guided tour of the fitness facility. This will expose the client to the environment they will be using over a short period of time with a fitness instructor they know and trust, thereby making them feel more comfortable in the new environment. This will further assist in building rapport with the client and allow you to inform the client of any general requirements or occupational health and safety guidelines in particular areas of the facility. At this point clients may also be informed of dress and other regulations such as hours of operation, lockers and hygiene. During this walk-through the client may have many questions and you should be prepared to answer fully and confidently.

Uses of various information collection forms:

FORM	PURPOSE
Pre-exercise Screening Form	Gathers medical information. Used to assess health and readiness to participate in testing and programming
Release or Waiver	Used to assist in the prevention of legal action initiated by the client in the event of negligence
Informed consent	Used to inform the client of their rights and responsibilities of being involved in exercise testing and programming



At the conclusion of the client interview you should ensure the client understands the next step. This may be obtaining a medical clearance before returning at a prearranged date and time or simply returning ready for exercise testing or programming on an agreed date and time. In any case the details of the client's next appointment for fitness testing should be completed or confirmed. It is good practice to give the client information to take away which may include your name and contact number, the date and time of the next appointment, documentation and/or equipment the client will need to bring to the next meeting, and clear guidelines regarding eating, smoking and medication prior to fitness testing.

Fitness Testing

After the initial consultation a fitness evaluation should be completed. This evaluation should be no more than 60 minutes in duration and as a minimum should cover the five health-related components of fitness. The major purpose of any testing is to obtain an objective evaluation of the client's current status and to monitor subsequent development. Testing should be built into the training program with the second series of tests taking place four to six weeks after involvement in the exercise program has begun. Each test should be described fully to the client before it is conducted and tests chosen should give the fitness instructor and client a general idea of the client's health. Test results:

- Give the client and fitness instructor an accurate picture of health-related fitness, exposing areas that require improvement
- Give the fitness instructor an idea of appropriate starting intensities for subsequent programming
- Serve as a baseline for setting goals and allow the fitness instructor to take the most appropriate course of action to achieve selected goals
- Allows, in some instances, comparison to normative population-specific data
- May be used as a motivational tool as the client is provide with an incentive to improve their score
- Assist in placing clients in appropriate training groups

Assessment of health-related components of fitness

Standard Measurements: all clients should have standard measurements taken at the pre-exercise stage. Standard measurements are often used when calculating results for the five health-related components of fitness. Standard measurements include height, body mass, resting heart rate and resting blood pressure.

Cardio-respiratory endurance: Assesses the ability of the heart and lungs to take in and deliver an adequate supply of oxygen to exercising muscles. Cardio-respiratory endurance is

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improved primarily through aerobic exercise. Generally speaking, if cardio-respiratory endurance is poor, other components of fitness suffer.

Muscular Strength: The amount of force a muscle can generate over a given range of motion. One repetition maximum (1RM) is the maximal amount of force that can be generated in one maximal contraction.

Muscular Endurance: The ability of a muscle or group of muscles to sustain repeated contractions. This is commonly measured by counting the number of repetitions over a period of time or by having the client maintain a static position while time is recorded.

Flexibility: The range of motion (ROM) that a joint or joints can move through. This component is particularly important for posture, joint stability, coordination and balance. Flexibility is often limited by tight muscles and tendons surrounding a joint and by stiff ligaments connecting the bones that make up a joint.

Body Composition: Measures the individual components that combine to make up the human body. Body composition refers to the amount of water, muscle, fat, tissue and bone in the body. In the long term, exercise instructors and clients will often be concerned with the amount of fat and muscular tissue within the body. Excess body fat is a growing problem in Australian society and is associated with many lifestyle diseases.

In some circumstances other specific tests may be administered. The choice of tests will depend on a number of factors including:

- Equipment available to the fitness instructor
- Fitness instructor proficiency in administering specific tests
- Time available
- Client comfort
- Client health and medical clearance

Each fitness instructor will have a preference for administering a particular test; however you should have a toolbox containing a number of tests available to suit client and other requirements.

When selecting tests, stick to well-researched and commonly-used tests until you gain extensive experience and understanding in fitness testing and fitness testing protocols. Before you administer fitness tests you should consider the following questions:

Is the test valid?

An appropriate fitness test should measure what it claims to measure. That is, the test should be relevant and well-founded. A test that claims to evaluate cardio-respiratory endurance should be of adequate duration to test the capacity of the aerobic energy pathways. Generally speaking, this will require a protocol which lasts over five minutes and

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requires the client to exercise continually using large muscle groups. Therefore, it is important to stick to accepted tests where legitimacy has been tested and proven.

Is the test reliable?

When a test is reliable a fitness instructor should be able to obtain the same result for the test on two separate trials or occasions. That is, the test should be consistent. For a test to be reliable you need to be trained and competent in administering the test – for example, correct use of a skinfold caliper must be mastered if consistency in the measurement of skinfold thickness is to be achieved.

Are there quality control processes in place?

All testing results are greatly affected by the conditions under which they were obtained. Therefore, the competent fitness instructor will control as many factors as much as possible. Quality control when performing testing in the fitness facility is far easier to control than when field testing. Quality control procedures should involve calibration of equipment and control of the testing environment and clients before, during and after testing. Part of this quality control process involves ensuring the client receives the same warm-up and order of tests on subsequent testing occasions.

Warm Up

A **warm-up** is usually performed before participating in technical sports or exercising. A warm-up generally consists of a gradual increase in intensity in physical activity (pulse raiser), a joint mobility exercise, stretching and a sport related activity.

Cool Down

Cooling down, also called **warming down**, is an easy exercise that will allow the body to gradually transition from an exertional state to a resting or near-resting state. Depending on the intensity of the exercise, cooling down can involve a slow jog or walk, or with lower intensities, stretching can be used. Cooling down allows the heart rate to return to its resting rate.

Stretching

Stretching increases flexibility and movement in our muscles. Stretching is generally performed as a part of a warm up and/or cool down. During a warm up stretching can help and increase blood flow to the muscles preparing them for the exercise that is about to follow. This form of stretching is often referred to as dynamic stretching. After physical exertion our muscles are tight and hard. Using static stretching as part of your cool down, your muscles will be stretched back to their relaxed state. Stretching is a great way to prevent injury and promote recovery from exercise and physical activity.

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Push, Pull, Legs Principle

The push, pull, legs principle is exercise prescription that uses all main muscle groups. It consists of a pushing movement (i.e. chest, shoulders and triceps) a pulling movement (i.e. Back, biceps and shoulders) and leg exercise (i.e. squats). The push, pull, legs principle can also be used when creating split routines as it will allow for recovery between sessions.

Hints for building better Trainer- Client relationships

- 1** Establishing a relationship with your client- give frequent encouragement. It is often annoying to clients to say something in between every repetition but encouragement at least once or twice per set is recommended.
- 2** Dealing with fearful clients- let clients know you “are with them” and “you got them”. Many clients feel reassured that they will not get hurt when performing.
- 3** Dealing with frustrated and frustrating\ clients- Preach to them patience and tell them about other clients in their same shoes who eventually overcame the difficulty or plateau.
- 4** Establishing self-efficacy- let the client know they are doing well and are very capable of making/reaching their intended goals.
- 5** Establishing social support- give a client a call outside of their appointment time and let them know they did well and if they have any questions at that time you are there for them.
- 6** Making the client feel your worth and their own- Let your client know what kind of changes they have made with you and how much better they look since training with you. The sentence, “I bet you feel better too, huh?” Or “Has anyone told you how great you look?”
- 7** Avoiding overtraining and burnout- give your highly consistent clients short breaks and be sure to take one yourself or apathy, lack of effort, and emotional exhaustion will set in.
- 8** Be very, very careful not to overstep client and trainer boundaries by making any sexual comments or innuendoes- even if it is okay with the client. Professionalism does not have to be stern or dull. It does mean that you are always keeping your position as a teacher, consultant and supporting friend. Engaging in any social relationships outside of your practice is obviously at the discretion of the trainer but it is not recommended by GFI.

As a **successful personal training business** owner, you find out pretty quick that **fitness marketing**, converting leads, getting great client results AND having time to work on building your business is one tough gig.

But it doesn't have to be hard, it doesn't have to be a stress and it doesn't have to be confusing. Your personal training business should be a fun, exciting and rewarding experience that provides you with the career and lifestyle you deserve.

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Start small and grow big

Lots of trainers have grand plans and grand dream and that's OK. What is not OK is when your grand plan (for example: opening a PT studio) puts you \$200k debt before you even have a client. I know because seven years ago I made this mistake; over time it has proven to be a great business but was the one business of mine with the highest expenses and lowest profit margin.

Your biggest asset is a loyal client base not a flash studio or a large collection of new vibrating equipment. Get good at building your client asset base and then you can do whatever the hell you like.

Pick your targets carefully

Many of my coaching clients come to me ready to start their business but not knowing who they are aiming their business at. "People trying to get fit and lose weight..." is the common response. Well that pretty much sums up the entire population....

You **MUST** identify specifically who you are aiming your business towards before you start your service. For example, training mums for weight loss or young guys for advanced fitness is definitely going to impact on what type of service you offer and the type and avenues of marketing that you use.

Get really good at one thing, don't try to be a jack of all trades

The other thing that happens to new business owners when they start out (yes, I'm again speaking from experience here) is that they try to really good at all aspects of the personal training industry straight away. I am talking big picture here, not the little day-to-day running of your business but the development of multiple streams of income.

In my experience, it pays to get **REALLY** good at one thing (in my case it was mobile training) and then make sure that you have the ability to teach others to be **REALLY** good at your thing (creating leverage through your systems). When you have achieved that, then you can expand your horizons and start developing your multiple streams of income (groups, corporate training programs, online training, info products, boot camps, trainer education etc). Just taking on one thing at a time makes life much more approachable when you are starting out. Ahhh, we can all relax again.



Get really good at marketing

No matter how much you hate marketing and sales you cannot avoid the cold hard fact that you need to convince people that your business is the solution to their problem. Now many trainers have it in their heads that they are not good sales people or marketers but these skills are simply that, just skills like any other that can be learnt. Just like riding a bike or learning a language.

So accept the fact that you will need to understand the psychology of marketing and sales. Read books, go to workshops, get online and follow blogs (you are already on your way if you are ready this), just do what you have to do to become educated in the ways of the PT marketer.

Give away free training

So as you develop your ninja skills in personal training sales and marketing, the best thing to do in the meantime is to offer free training to your potential clients. If you are not yet completely confident that your words can convince people that you have what they need, simply let your actions speak for themselves.

Get them sweating, get them laughing, get them boxing, jumping, running, pushing, pulling. Let them feel what it is like to have someone push them past what they are used to. Once most people experience that, the sale becomes a walk in the park so the free session should become your best friend as you start your business (and their free).

38 tips to run a SUPER fitness business.

- 1) Have passion (boring but crucial).
- 2) Spend your regular TV time working on your business.
- 3) Get sorted with Facebook – consistent connection is king.
- 4) Don't bring your bad work-day home with you, separate the two.
- 5) Forget about money and focus on people.
- 6) Get really good and what you do because sucking never got anyone anywhere.
- 7) Man up and look after yourself – your superhero status will wear off very quickly.



8) Surround yourself with other people going through the same thing you are (your own little support team).

9) Educate yourself.

10) Educate your clients.

11) If you have a bad feeling about something there is probably a good reason (your gut is nearly always right).

12) Take time to get to know people, I mean really take some time – it is always worth it.

13) Give alot of your stuff out before you ask for anything in return.

14) Procrastination is an excuse – look into it and find out why you are not succeeding.

15) Clients know if you don't care, so either really care or become a brickie.

16) Don't plan, just do – planning is just structured procrastination.

17) Not taking time off is for losers – go see your friends and family, step away from your business and freshen up.

18) Everything is always going to be OK – stressing about stuff is unproductive.

19) Embrace imperfections and get more done.

20) Don't care about your competition – let them care about you.

21) Learn how to market properly as it is the secret to the universe.

22) Learn how people's minds think as it is the secret to marketing (that's a nice small one for you).

23) Be aware that people judge you on first impression: make it a good impression.

24) ALWAYS get your money upfront (otherwise you are going to get slammed with cancellation fees).

25) Always be early – it reduces your stress levels.

26) Bad days come and go, ride the bumps – move on.



- 27) Clients sometimes leave and it's not always your fault – accept it.
- 28) Clients sometimes get poor results and it's not always your fault – accept it.
- 29) Reward your clients loud and often.
- 30) Document what you do so others can do it for you (systems also increase your business sale price)
- 31) Good intentions are never enough; action speaks.
- 32) Saying sorry without the BUT is really important.
- 33) Laughing out loud at least once a day is essential (too many serious pills are dangerous for your health).
- 34) Get a mentor to help you get started
- 35) Outsource the jobs you can (books, tax, etc).
- 36) Service a specific market, be yourself and go deep into the niche.
- 37) Celebrate your achievements, no matter how big or small.
- 38) BE YOURSELF – there is only one of you (so the competition is relatively small)

So there you have it, 38 ways to rock as a business owner and have a good time in the process.

Training

There are many different types of training, that you may wish to consider for your clients sessions, here we will go through a few common types:

- Aerobic training- exercise during which the muscle cells receive enough oxygen to continue at a steady state, for example:
 - running, walking, cycling, swimming
- Continuous training - long, slow distance, lasting a minimum of 20 minutes at the required intensity
- Interval training – intervals of work followed by intervals of rest and recovery
- Tabata training- A Tabata workout is an interval training cycle of 20 seconds of maximum intensity exercise, followed by 10 seconds of rest, repeated without pause 8 times for a total of four minutes. (Credit for this simple and powerful training method belongs to its namesake, Dr. Izumi Tabata and a team of researchers from the

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National Institute of Fitness and Sports in Tokyo, Japan. Their groundbreaking 1996 study, published in the journal *Medicine and Science in Sports & Exercise*, provided documented evidence concerning the dramatic physiological benefits of high-intensity intermittent training. After just 6 weeks of testing, Dr. Tabata noted a 28% increase in anaerobic capacity in his subjects, along with a 14% increase in their ability to consume oxygen (V02Max). These results were witnessed in already physically fit athletes. The conclusion was that just four minutes of Tabata interval training could do more to boost aerobic and anaerobic capacity than an hour of endurance exercise).

- Fartlek training – speed play, working both the aerobic and anaerobic systems, a variation of continuous training that changes the required intensity through out the session
- Cross training – combining multiple modes of training within one training program, on different days
- Anaerobic training- exercise during which energy needed is provided without the utilization of inspired oxygen, for example:
 - Weightlifting, sprinting
 - High intensity
 - Short interval training

For the more advanced clients, or those with sport specific goals, there are a range of different training styles that are adapted to each individual sport, that attempt to incorporate all the necessary elements of force, speed, duration and range of motion.

These are:

- strength exercises to overcome resistance activity
- speed exercises to overcome quickness and high frequency activity
- endurance exercises to overcome long distance, high repetition or long duration activity
- flexibility exercises to overcome maximum range of motion activity
- and exercises with complex movements to overcome activities with a high level of co-ordination

Strength, speed and endurance are the important abilities for successful performance. There will normally be a “dominant” ability, which is the one that requires a higher contribution for the specific sport. Most sports in fact require 2 dominant abilities.

- Combining strength and endurance provides ‘muscular endurance’- the ability to perform many reps under a given resistance for a prolonged period of time
- Combining strength and speed provides ‘power’- the ability to perform an explosive movement in the shortest possible time
- Combining endurance and speed provides ‘speed-endurance’
- ‘agility’ comes from combining speed, coordination, flexibility and power
- Combining agility and flexibility provides ‘mobility’- the ability to cover a playing area quickly with good timing and coordination

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Training sessions

As a Personal Trainer, you need to plan ahead when preparing to train clients. The last thing your clients want is to be paying you a lot of money for them to be bored! You need to learn the tools to create sessions that are fun and effective for a variety of clients, with various skills and fitness levels, and of course, with differing goals.

Training clients in a gym or studio will be where most of the training sessions will usually take place, however having the ability and skill to conduct a session in an outdoor environment, may be the difference your client needs to increase their motivation. Many of your clients may well be stuck indoors in an office all day and so miss out on the benefits of training outdoors, sun, fresh air, grass!

TRAINING OUTDOORS '*Fate shines upon the well prepared*'

- Ensure the outdoor area (park, reserve etc) is safe, that there are no council restrictions on using the area, that your insurance enables you to train outdoors, and that you are prepared with a first aid kit and mobile phone for emergencies. Adequate water is also an important factor to consider.
- Incorporate boxing cardio sessions as a warm up/entire session
- Choose landmarks to create circuits/goals to sprint between, creating drills etc
- Incorporate strength training exercises without equipment such as pushups off a bench, bench dips, pull ups from a fence, squats, utilize the children's playground equipment etc
- Incorporate games such as football, cricket, basketball etc if you know they are interested in a particular sport
- Another thing to consider with long term clients that are able to continue training with you over long periods, is to make sure that you are obviously trying to include new exercises and techniques to keep them interested.





Another simple way of introducing new techniques is to include new equipment to the sessions. There is a huge selection of equipment out, other than just resistance training machines, barbells and dumbbells that can be used in a session.

For example:

- Olympic rings
- Skipping ropes
- Swiss balls/fit balls
- Truck tyres
- Medicine balls
- Resistance bands/tubes
- Push up handles
- Ab benches
- Kettlebells
- Bosu (balancing boards)
- Boxing equipment
- Running ladders



Most Personal Trainers will be registered with their national body such as Fitness Australia, in order to gain insurance to work with clients. For example, Fitness Australia requires that you complete 18 CEC (continuing education credits) in every 2 year period in which you are registered with them. These CEC points can be gained via short courses, subscribing to magazines, attending seminars/lectures, all actions that show you are continually trying to increase your knowledge and update any skills you have, or learn new ones! This offers you the perfect chance to increase your range of skills and learn new techniques that you can pass on to your clients. An increasing amount of Training Organisations provide short 1-2 day courses, in many areas, such as boxing for fitness, nutrition workshops, and medicine ball techniques to name a few.



Eg. CIRCUIT EXERCISES

- Squats/ jump squats/ squat presses
- Lunges/ walking lunges
- Step ups
- Frog jumps/ star jumps
- Skipping
- High knee runs
- Shuttle runs/sprints/ obstacle runs
- Beach/ grass sprints
- Pushups/ clap pushups
- Focus pad punching and kicking
- Utilize park equipment, when using outdoor areas to train clients:
 - Pull ups
 - Dips
 - Rows
 - Squats
 - Step ups

Personal Training

A personal trainer is an exercise professional with the knowledge and experience to offer advice and guidance in the areas of exercise and fitness. These professionals can assist you by designing a safe and effective exercise program to help you reach personal goals. A personal trainer can assist with weight loss, exercise performance and improved wellness.



Benefits

A personal trainer has the necessary knowledge of physiology and movement to design safe and effective exercises for their clients. Their expertise allows them to determine what type of exercise routine is best for you based on your goals whether they involve losing weight, gaining strength or improving your time for a 5K race. It is likely you will see great improvements in your fitness and performance by consulting with a personal trainer for exercise guidance.

Types

Many personal trainers work with a variety of clients and are experienced in offering advice and guidance for achieving a broad range of goals. These trainers can be helpful for those hoping to improve overall health or lose weight. In addition, some trainers have chosen to become more specialized. They may work specifically with runners or athletes to aid them in improving times, endurance and strength. These trainers are helpful if you have sport specific goals you are trying to achieve.

Features

A good personal trainer is knowledgeable in the field. She should have a personal training certification from a reputable organization. It is even more beneficial to choose a trainer who has a degree in an exercise- or physiology-related field. In addition, trainers have motivating personalities and provide you with a positive attitude that can help you to improve your self-esteem and your outlook on fitness and exercise.

Expert Insight

Safe exercise is essential for reducing the risk of injury and providing desired results. The ideal personal trainer is one with a degree in an exercise field. In addition, a personal training certification from a well-known organization is a necessity. This ensures that the individual is keeping up with current trends and changes in exercise-related research. For someone without a degree in the field, the certification shows he has a basic understanding of exercise physiology.



Planning and use of fitness equipment

Cardiovascular, or cardio, exercise helps to increase heart health and burn fat by raising the heart rate. Cardio exercise equipment includes stationary bikes, treadmills, elliptical trainers, and stair climbers. Most exercise equipment of this type at a typical gym includes a display screen which tracks your heart rate and provides options for customizing your workout. Other information about your workout, such as the amount of miles (or kilometers) you have traveled and your total calories burned, may also be displayed. Regularly varying the type of cardio machine you use will help you to exercise more effectively.

Exercise equipment for strength training is more varied. Free weights, weight machines, and balancing or resistance equipment can all be used for strength training. Weight training helps to build muscular strength and helps to maintain the results of cardio exercise.

Free weights come in many different shapes, sizes, and weights. Round weights may be used on their own or placed on the end of barbells. Small handheld barbells and medicine balls are other options. Many people prefer free weights to weight machines because you must use muscles throughout your entire body to maintain balance as you lift them. However, weight machines are safer and easier to use than free weights and may allow you to lift greater amounts.

Weight machines have a stack of incremental weights attached to a pulley which you can lift by pulling or pushing other parts of the machine. This type of exercise equipment is more user-friendly than free weights, as there is often a clear illustration of correct use posted on each machine. You can use a pin to select the amount of weight you want to lift and adjust the machine to accommodate your body type.

Some strength training exercise equipment does not include weights, but allows you to use your body weight for resistance. Chin up bars, which work the biceps and triceps, and crunch machines, which work the abdominals, are examples of this type of exercise equipment.

Resistance and balance exercise equipment can also be effective for strength training. This type of exercise equipment can be used on its own or in combination with free weights. Doing crunches on an inflatable exercise ball or lunges on an inflatable pad work muscles all over your body by forcing you to keep your balance as you complete strength building exercises. Resistance equipment such as elastic bands can build muscular strength without the use of weights.

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Weights Training Systems

Free Weights- Constant Resistance

Exercises which use a constant resistance, for example, bench press with a barbell, are called isotonic exercises (being same load throughout the movement). The weight stays the same, but the tension in the muscle changes due to the continually changing angles of muscular attachment.

It is important that the concept of strength curves is introduced here so that you can relate it to the way in which muscles are stressed.

Ideally, muscular contraction should be made against a maximum resistance at each point in the movement of the exercise. A muscle has different levels of strength at different points of its contraction. It is usually able to develop the greatest amount of tension, force, at about its resting length. In the biceps muscle for example, this is about 1000 at the elbow. As the arm straightens the maximal strength decreases, as it does if the muscle contracts even further.

The reasons for these strength curves is partly due to the mechanical structure of the muscles attachment to the bones and partly due to the structure of the actual contractile proteins (actin and myosin) within the muscle fibres. Each individual muscle has a unique strength curve.

Pinloaded Systems- Variable Resistance

These are usually machines or devices which provide variable resistances by cams and lever arms which attempt to match the shapes of typical human strength curves throughout specified ranges of movements. That is, the resistance is automatically increased at those points where the muscles are strongest and is decreased where the muscles are weakest.



Two types of variable resistance machines are Nautilus and Universal but there are numerous others on the market.

In reality, no variable resistance machine can match the exact shapes of the resistance and strength curves throughout a given motion in all subjects. To do this, each person would need a personal cam fitted to the machine for each individual muscle group.

Pulley Systems

Some machines are designed using pulleys to provide a mechanical advantage for lifting.

Accommodating Resistance- Isokinetic

Isokinetic means same motion.

An accommodating-resistance or isokinetic device is one that provides a resistance force which varies automatically in order to be continuously equal and opposite to any applied muscular force. As a result, movement velocity is held constant at a pre-set value throughout the range of movement. This type of equipment is rarely found in fitness centres, but may be present in rehab settings or sporting clubs. Cybex and Kincom are examples of isokinetic equipment.

Many authors report that strength gains tend to be limited to performance velocities that are equal to or slower than the velocity used in training. Strength training at fast velocities definitely improves motor performances which are conducted at high velocity and low velocity whereas training at slow velocity has very little carry over to high velocity.

Semi-Accommodating Resistance

This is not true accommodating resistance as a stronger person can increase movement speed.

Hydraulic resistance equipment with cylinders full of air or fluid are used.

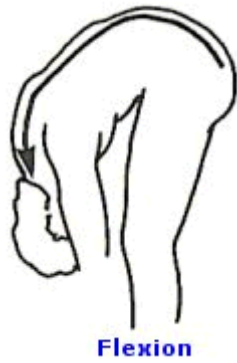
As a personal trainer, you must be able to develop a floor plan for a gymnasium, using all available equipment, or having the knowledge to know which equipment is necessary to purchase.

You must ensure you comply with the manufacturers, and Australian standards for the use of electrical equipment, more information can be found in Cert III Fitness- OHS module. (SRFFIT006C).

Joint Actions

Spinal Column

The vertebral column has the following normal ranges of movement: Flexion, Extension, Lateral Flexion and Rotation.



Shoulder Girdle

The shoulder girdle has the following normal ranges of movement: Elevation, Depression, Adduction and Abduction.



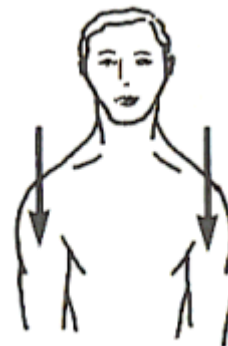
Abduction



Adduction



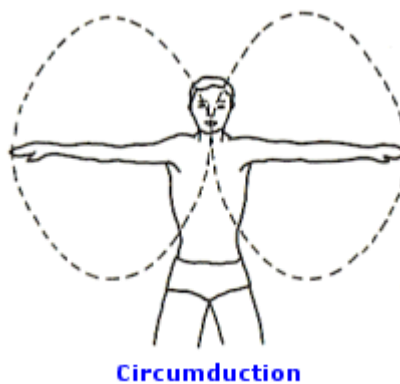
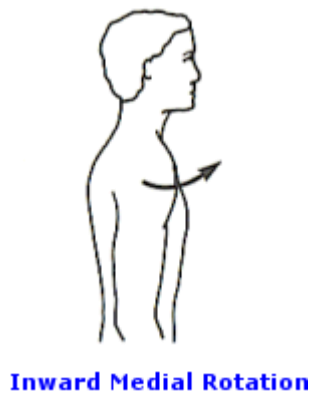
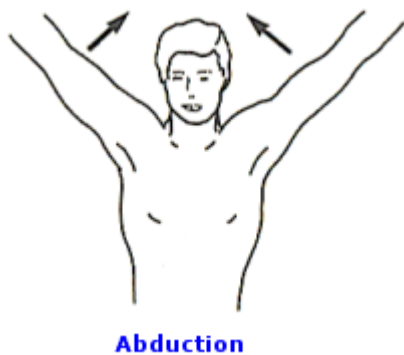
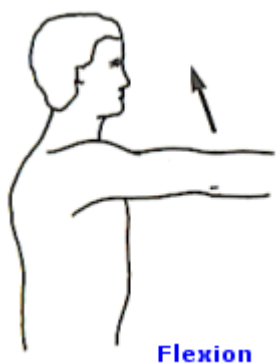
Elevation



Depression

Shoulder Joint

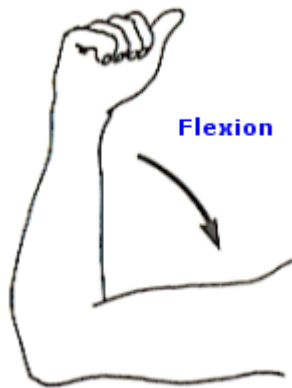
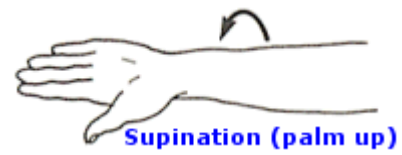
The shoulder joint has the following normal ranges of movement: Flexion, Extension, Adduction, Abduction and Medial Rotation.





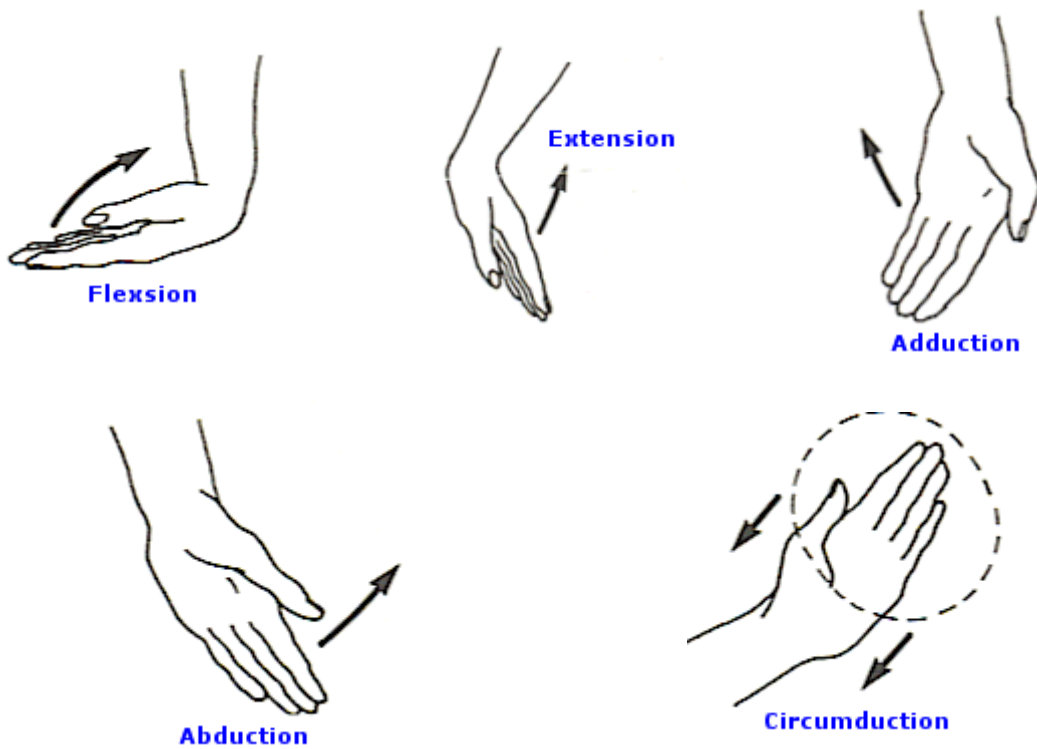
Elbow Joint

The elbow joint has the following normal ranges of movement: Flexion, Extension, Pronation and Supination.



Wrist Joint

The wrist joint has the following normal ranges of movement: Flexion, Extension, Adduction, Abduction and Circumduction.



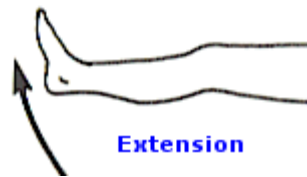
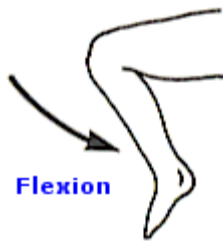
Hip Joint

The hip joint has the following normal ranges of movement: Flexion, Extension, Adduction, Abduction, Medial Rotation and Lateral Rotation.



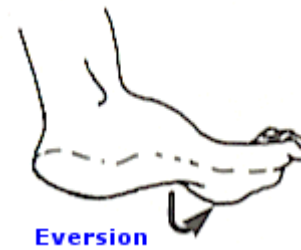
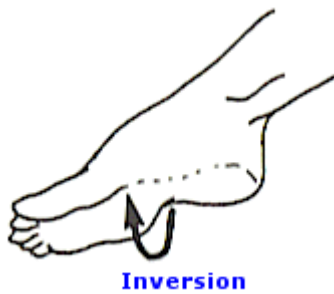
Knee Joint

The knee joint has the following normal ranges of movement: Flexion and Extension



Ankle Joint

The ankle joint has the following normal ranges of movement: Plantar Flexion, Dorsi Flexion, Inversion and Eversion.







DIRECTION:

- **Superior** – above, towards the head
Eg. Eyes superior to the nose
- **Inferior** – below, towards the feet
Eg. Hand inferior to the shoulder
- **Anterior** – towards the front of the body
Eg. Sternum anterior to the heart
- **Posterior** – towards the back of the body
Eg. Spine is posterior to the stomach
- **Medial** – towards the midline of the body
Eg. Nose in medial to the ears
- **Lateral** – towards the side of the body, away from the midline
Eg. Eyes are lateral to the nose
- **Proximal** – towards or nearest the trunk, towards the attachment point of the limb
Refer to limbs only

Eg. Shoulder is proximal to the elbow
- **Distal** – away from or farthest from the trunk
Refer to limbs only

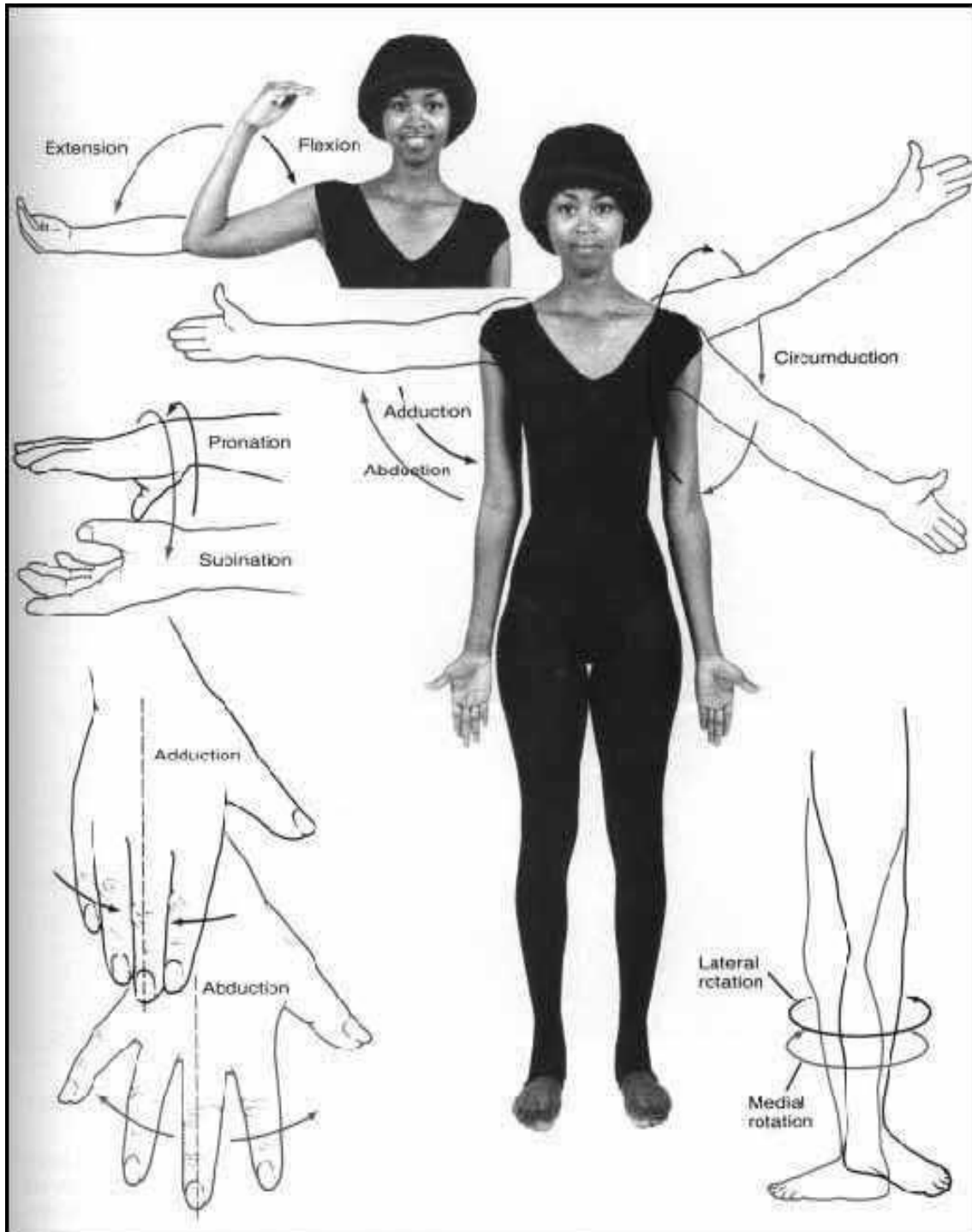
Eg. Elbows are distal to the shoulders
- **Superficial** – closer to the body's surface
Eg. Skin is superficial to the organs
- **Deep** – further in from the body's surface, towards the inside of the body
Eg. Muscles are deep to the skin



MOVEMENT:

- **Flexion** – decreases the angle at a joint (bring body part in towards the centre of the body)
- **Extension** – increases the angle at a joint (bring body part away from centre of the body)
- **Abduction** - movement away from the midline of the body (eg. moving leg out to the side)
- **Adduction** – movement towards the midline of the body (eg. The leg that is out to the side of the body being brought back to the midline)
- **Lateral/external rotation** – to rotate a limb outwards
- **Medial/internal rotation** – to rotate a limb inwards
- **Circumduction** – a movement in a circular direction, allows a joint to perform movement through all possible axes, combining flexion, abduction, extension and adduction.
- **Protraction** – to bring a body part forwards or to protrude a body part such as the mandible or scapula
- **Retraction** – to bring a body part backwards or to retract a body part such as the mandible or scapula
- **Elevation** – to lift a body part
- **Depression** – to lower a body part
- **Supination** – from the anatomical position, turning the palm anterior/inwards
- **Pronation** – from the anatomical position, turning the palm posterior/outwards
- **Inversion** – rolling of the ankle outwards so the sole is facing towards the midline
- **Eversion** – rolling of the ankle inwards so the sole is facing outwards or away from the midline
- **Dorsiflexion** – where the foot is bent upwards from the ankle (eg. Toes pointing upwards)

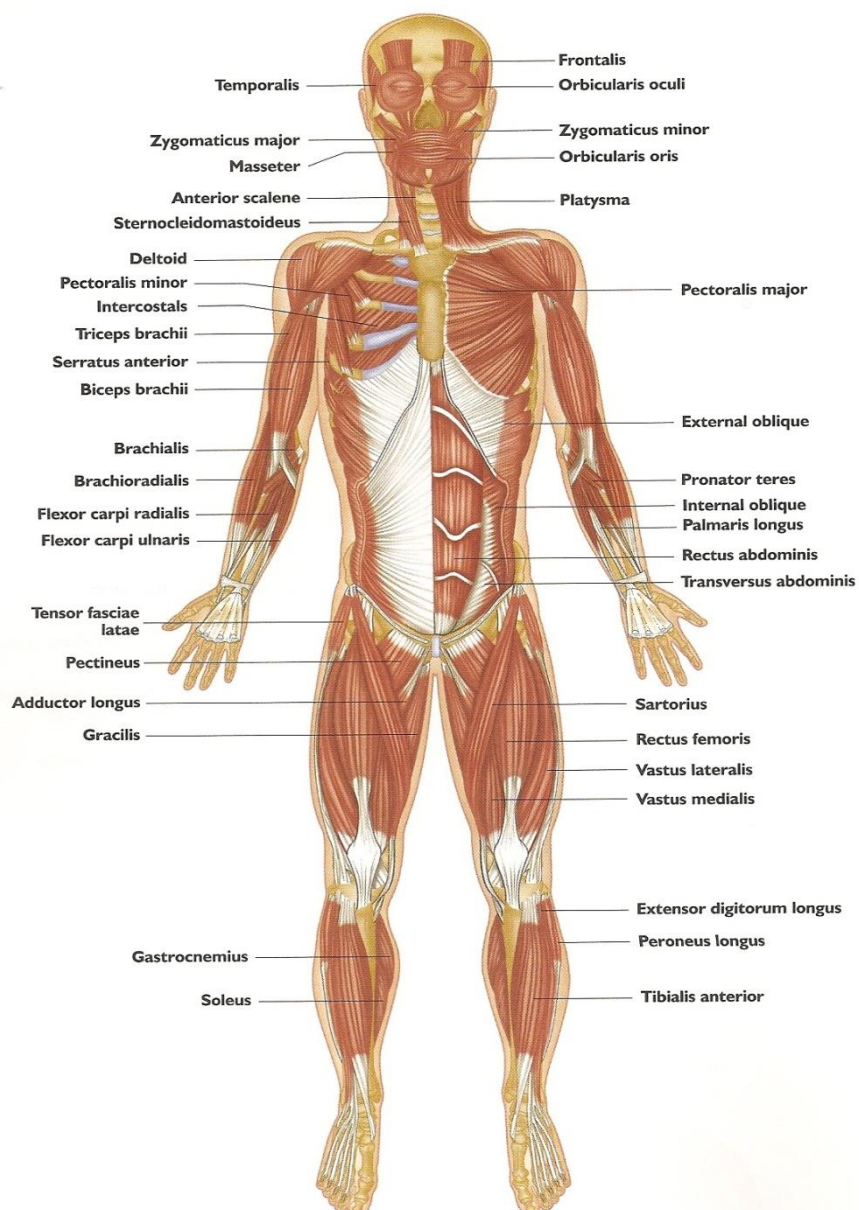
- **Plantar flexion** - where the foot is bent downwards from the ankle (eg. Toes pointing downwards)



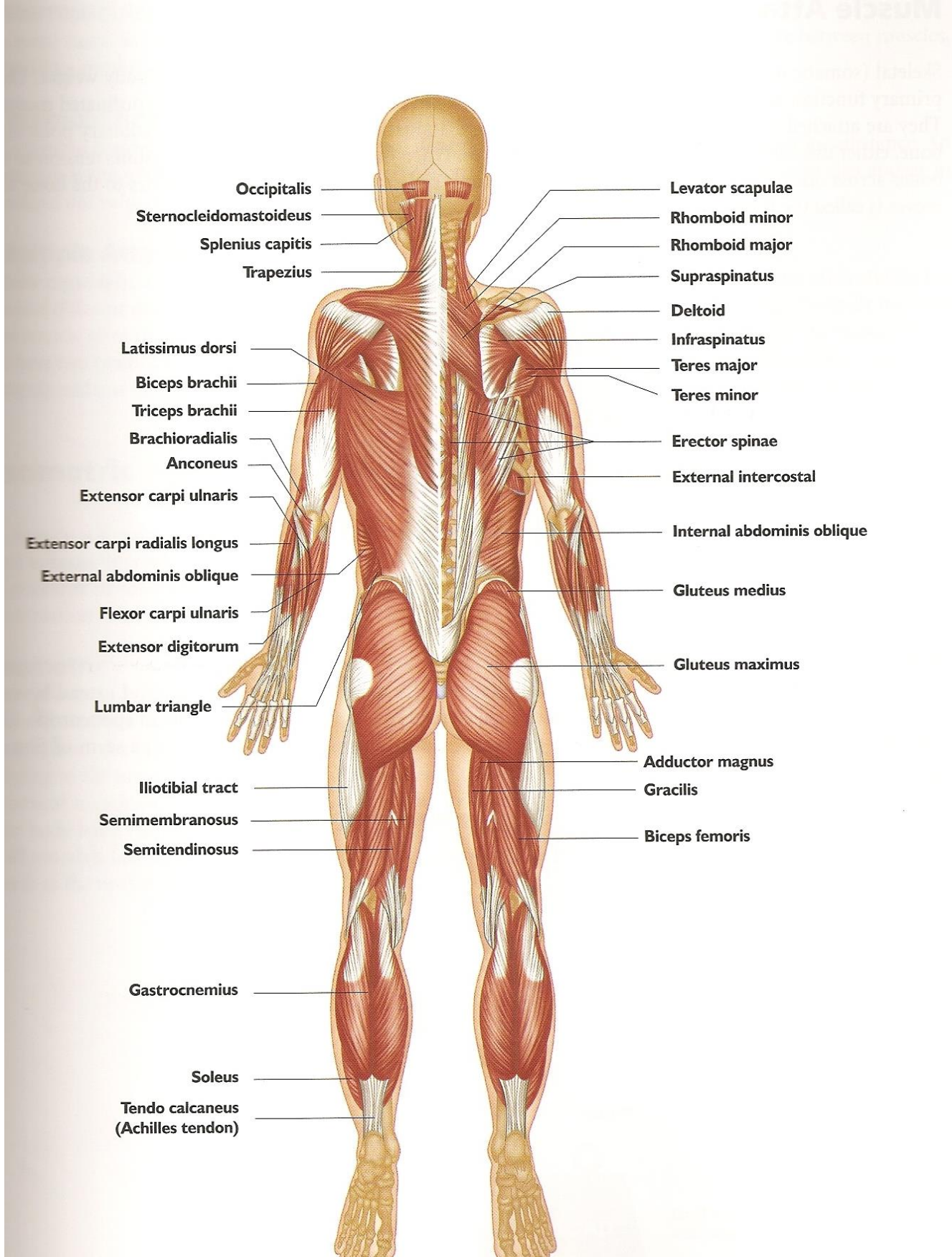
THE MUSCULAR SYSTEM

The muscular system consists of approximately 640 skeletal muscles.

- skeletal muscle produces movement for exercise, help with maintaining posture and stabilising joints so that exercises can be performed correctly
- muscular system also responsible for permitting the essential body functions (heart, breathing, digestion)
- approximately 40% of body mass is made up of muscle tissue
- there are 3 different types of muscle: smooth muscle, cardiac muscles and skeletal muscle



Ref:





Skeletal System

The Skeletal System

This system is made up of bones and joints

There are 206 bones and more than 200 joints in the normal adult skeleton

Let's start by looking at the functions and structure of the skeletal system, then focus on the composition and types of bone, the role of cartilage and joints and the movements associated.

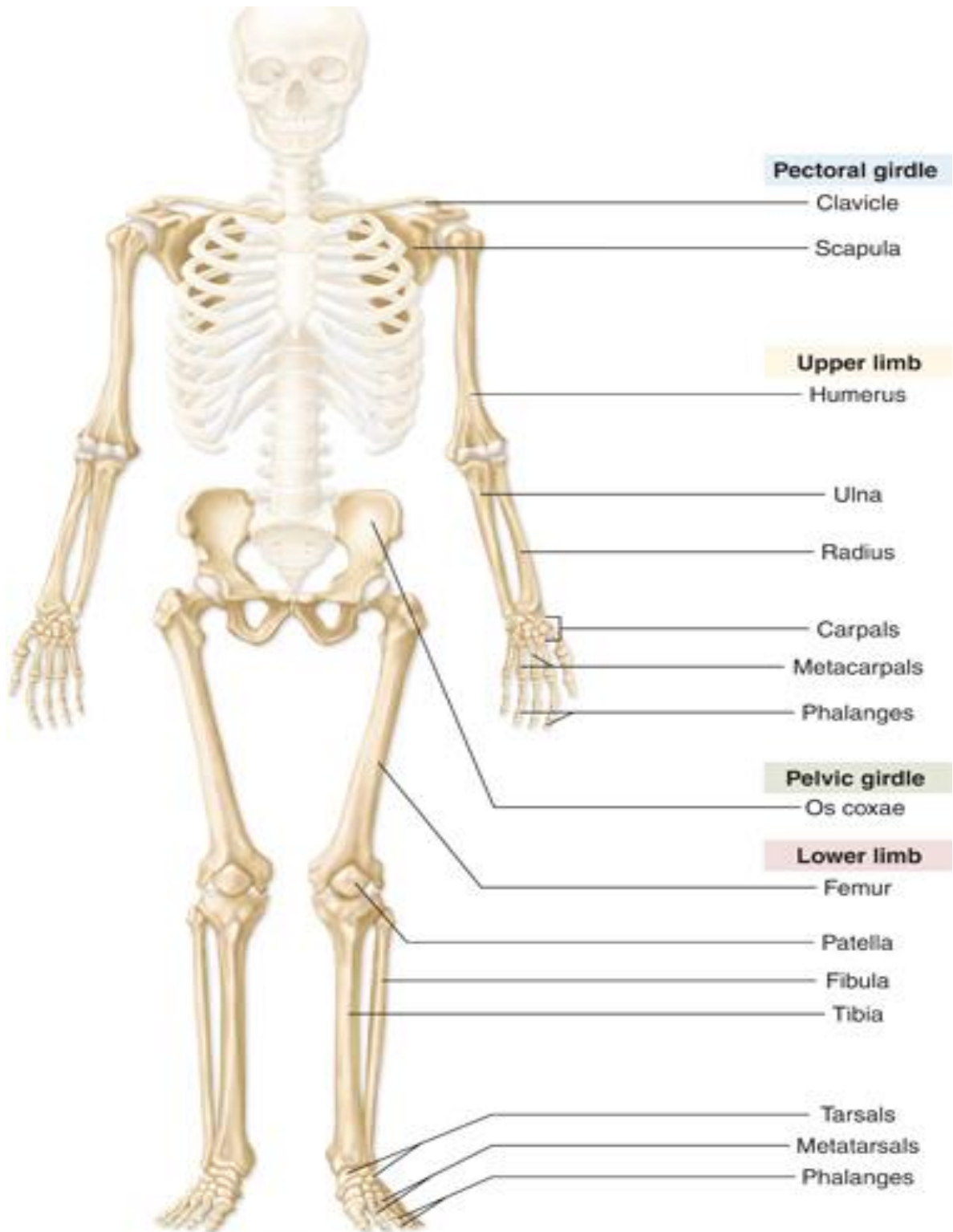
Functions:

A collection of different shaped bones that join together to give humans their shape. 2 bones join together to create a joint.

The major functions of the skeleton are:

- **SUPPORT** provides a framework for the body
Supports soft tissue

Provides a point of attachment for muscle
- **PROTECTION** protects internal organs from injury
Eg. Vertebrae protect the spinal cord, skull protects the brain,
pelvis protects the internal organs
- **MOVEMENT** bones serve as levers to which muscles are attached
- **STORAGE** bones store several minerals
Eg, calcium, phosphorous, and small amounts of
magnesium, sodium and chlorine
- **HAEMOPOIESIS** blood cell formation, red marrow in certain bones is able to
produce blood cells, predominantly in the marrow of long bones



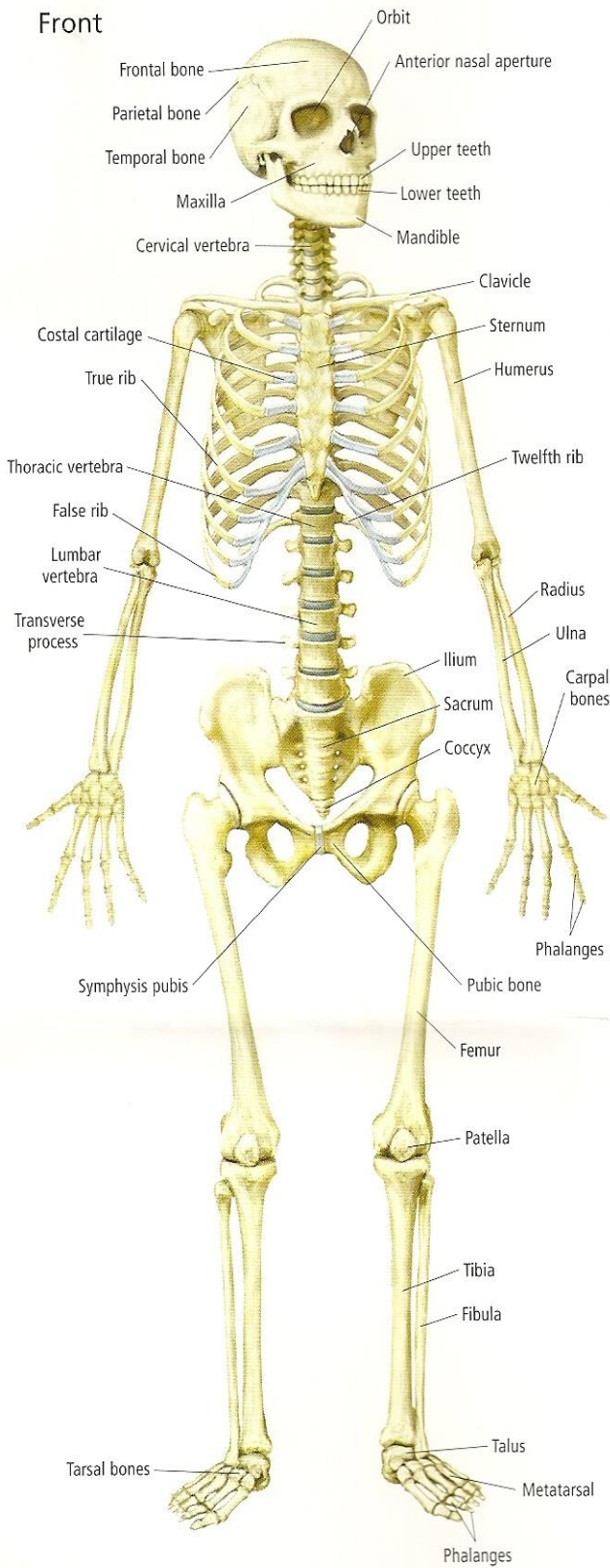
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