



torq®

RESISTANCE TRAINING



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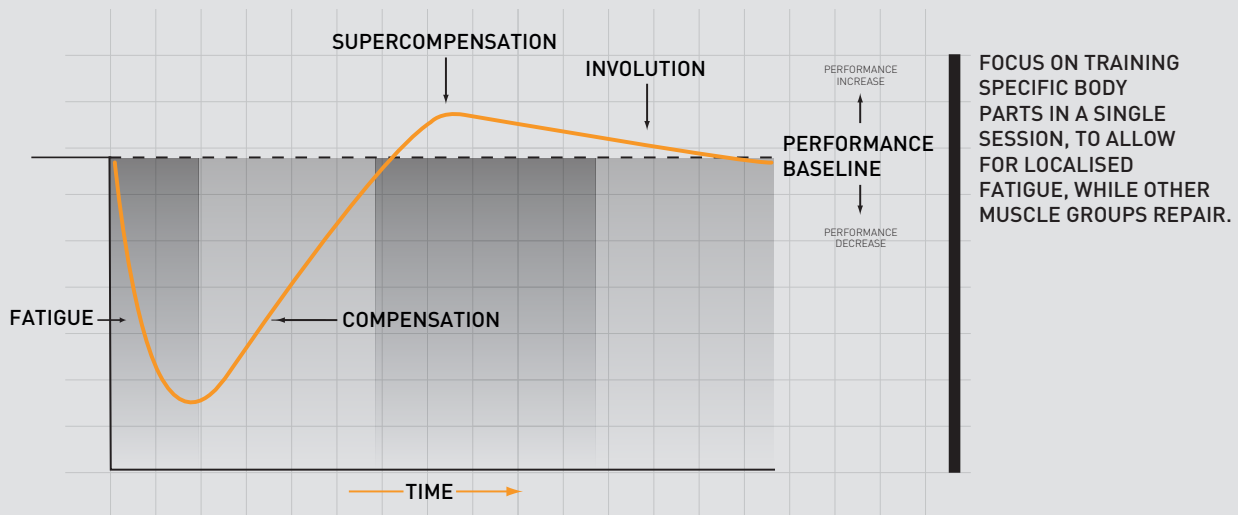


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TRAINING THEORY MODEL



The training theory model highlights the importance of generating fatigue with exercise, pushing the body away from its comfort zone in order to become fitter and stronger.

Once fatigued, allowing for planned recovery will provide the tools and materials required for exercise improvement, otherwise known as exercise adaptation.

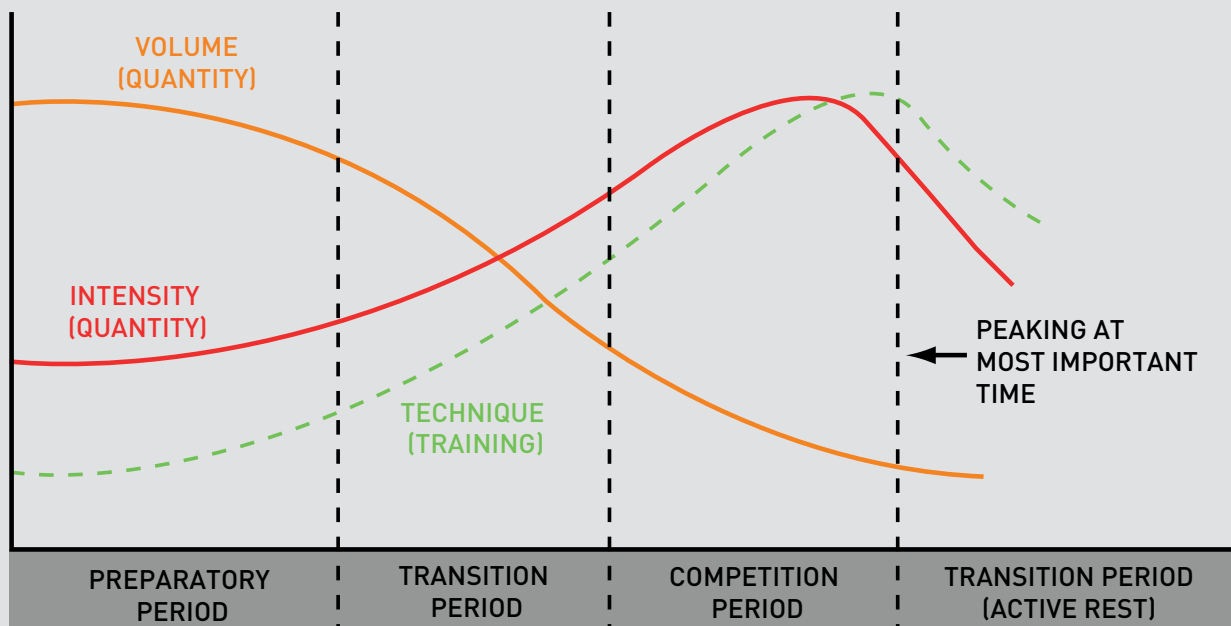
This spike above the initial performance baseline will only last for a short period of time. It is at this point, the training theory cycle must start again. The spike above

performance baseline can also represent "freshness".

If you are aiming to peak for an event, the event must be scheduled so that you arrive at this point within a training cycle.

The point of which the body is at its fittest and most fresh.

ATHLETIC PERIODISATION



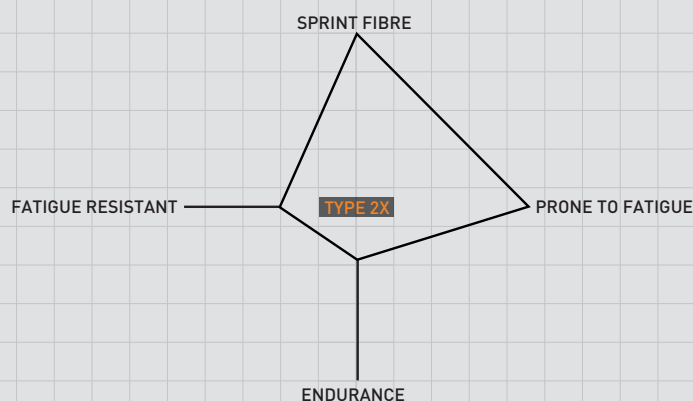
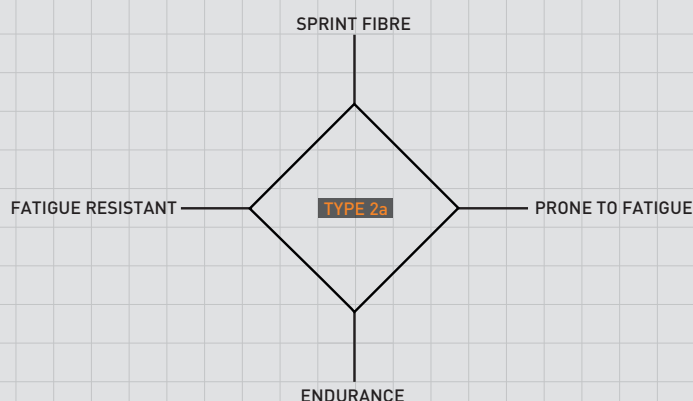
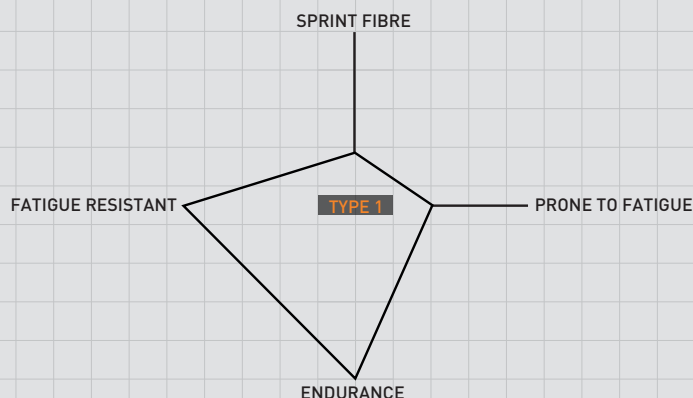
Monitoring training load is an important part of the training puzzle. Ensuring enough fatigue is generated to require a physical change, but also ensuring recovery isn't neglected.

The above graph provides a general overview for intensity (how hard a session is), volume (how much work is completed during a session) along with technique periodisation. When intensity is high, volume should be low and vice versa. There are only a number of periods during a training cycle when both, intensity and volume should be high, and this is when significant recovery is planned. Development of form and technique should be a focus of every session.

TYPES OF MUSCLE FIBRE

The human body has 3 different types of muscle fibres. These fibres are called Type 1, Type 2a and Type 2x. Each muscle fibre has a slightly different function allowing us to perform different types of movement tasks.

For example, Type 1 muscle fibres are categorised as endurance fibres, only allowing for light to moderate muscle contraction but exceptionally resistant to fatigue. These fibres would be used to walk, jog, or cycle. Type 2x are commonly categorised as strength fibres and would be used to lift a heavy weight or complete a 100m sprint.



TYPE 1

Constructed for Endurance Exercise, where fatigue resistance is paramount, but power production is low.

TYPE 2A

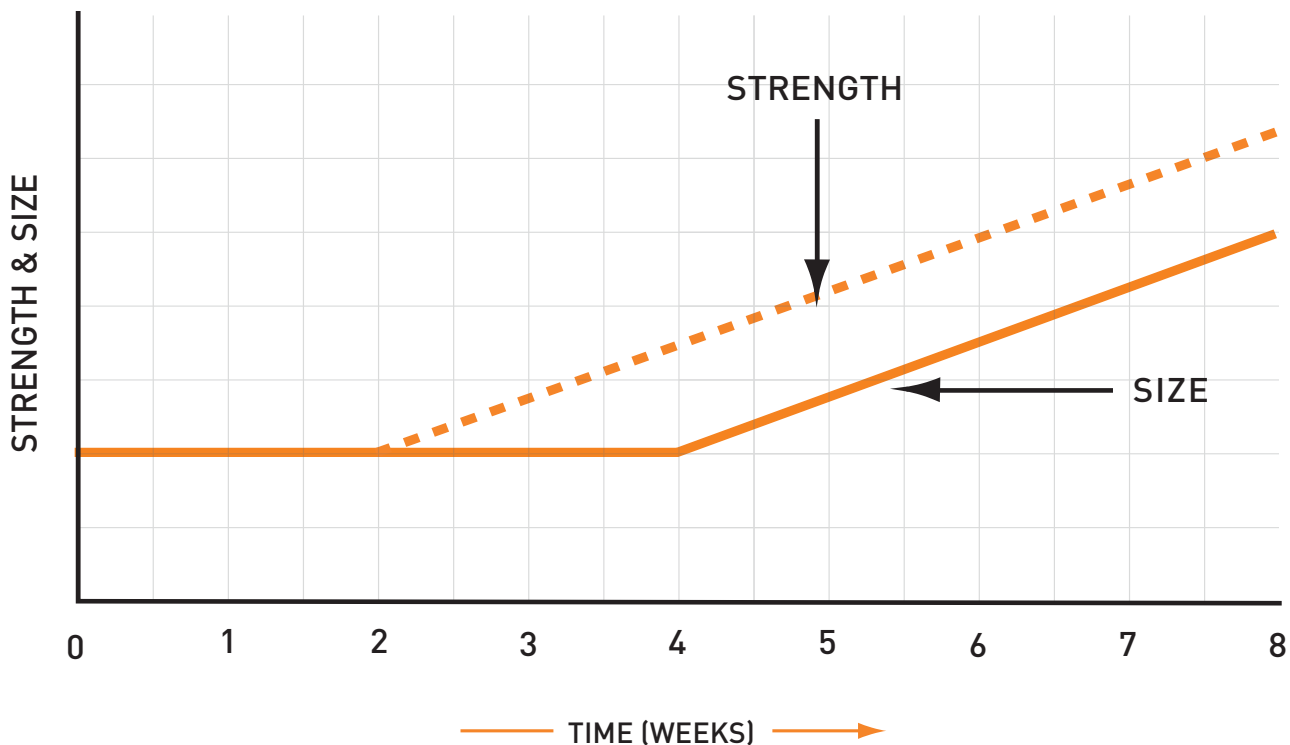
A good all rounder. Used for generous amounts of strength, speed and power over a moderate exercise duration.

TYPE 2X

Built for explosive strength and power over a very short duration, such as 100m sprint.

STRENGTH & SIZE ADAPTATIONS

At the commencement of a strength training programme, it is likely that an athlete will see improvements in strength within 2 – 3 weeks of training. At this point, there is no structural change to the muscle.



The strength increases are derived from improved “motor neuron transmission”, which simply means, messages from the brain to the muscle to contract have become more effective. Now, the muscle can fire to its full potential and lift a greater weight.

Once this phase has adapted to its full potential, the next phase occurs at 4 – 6 weeks, when muscle fibres increase in size. If there are more muscle fibres to contract, a greater weight can be moved.

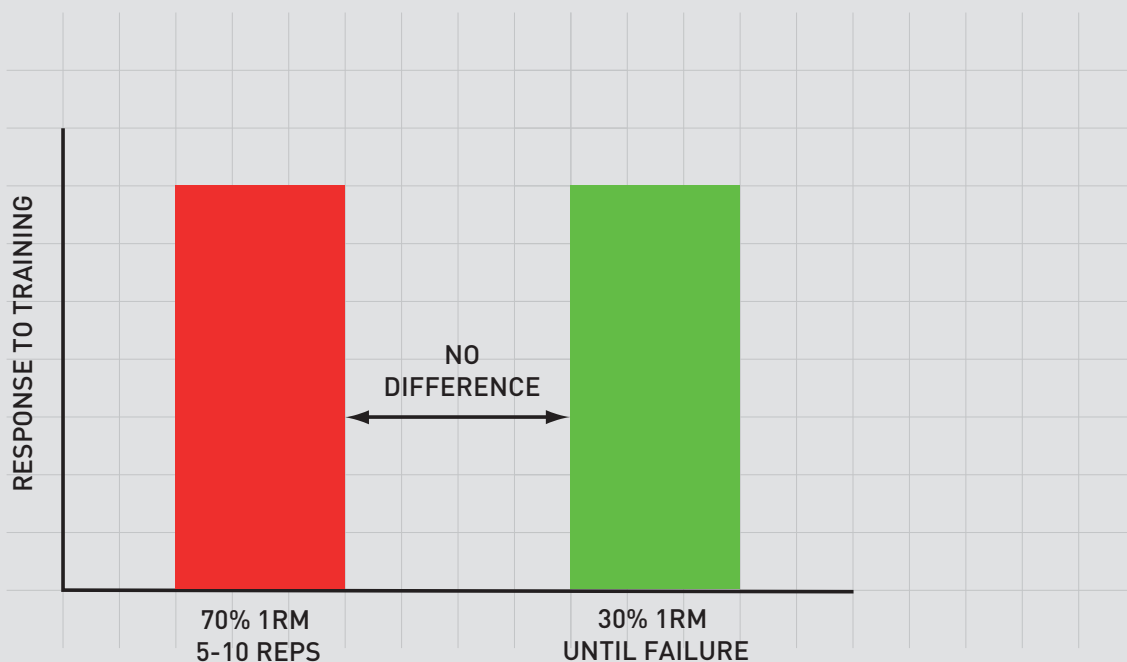
EFFECT OF WEIGHT ON RESISTANCE TRAINING

Over the last decade of research, investigators have tried to establish what weight (heavy or light) is best to increase muscle size and strength.

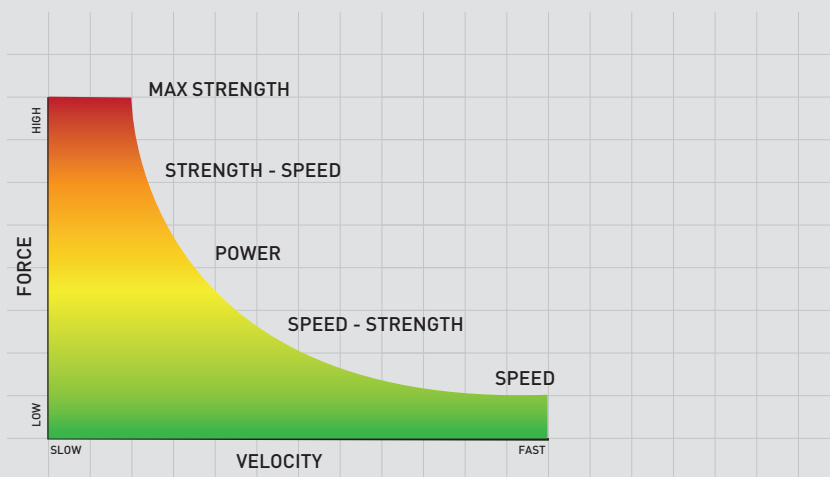
Historically, lifting heavy has always been the “go to” for strength and size adaptations.

However, recently, the emergence of lifting light weights to failure has proven to generate the same training responses to lifting heavy.

This provides practical rationale for individuals who may struggle with lifting heavy objects due to age, injury or illness.



SPORT SPECIFIC TRAINING – SURF THE CURVE



Before a training programme is planned, it is important that you understand the specific requirements of that sport by completing a “needs analysis”.

Once you understand the needs of the sport, you must then “Surf the Curve” to identify the style of training you must focus on to maximise your training time.

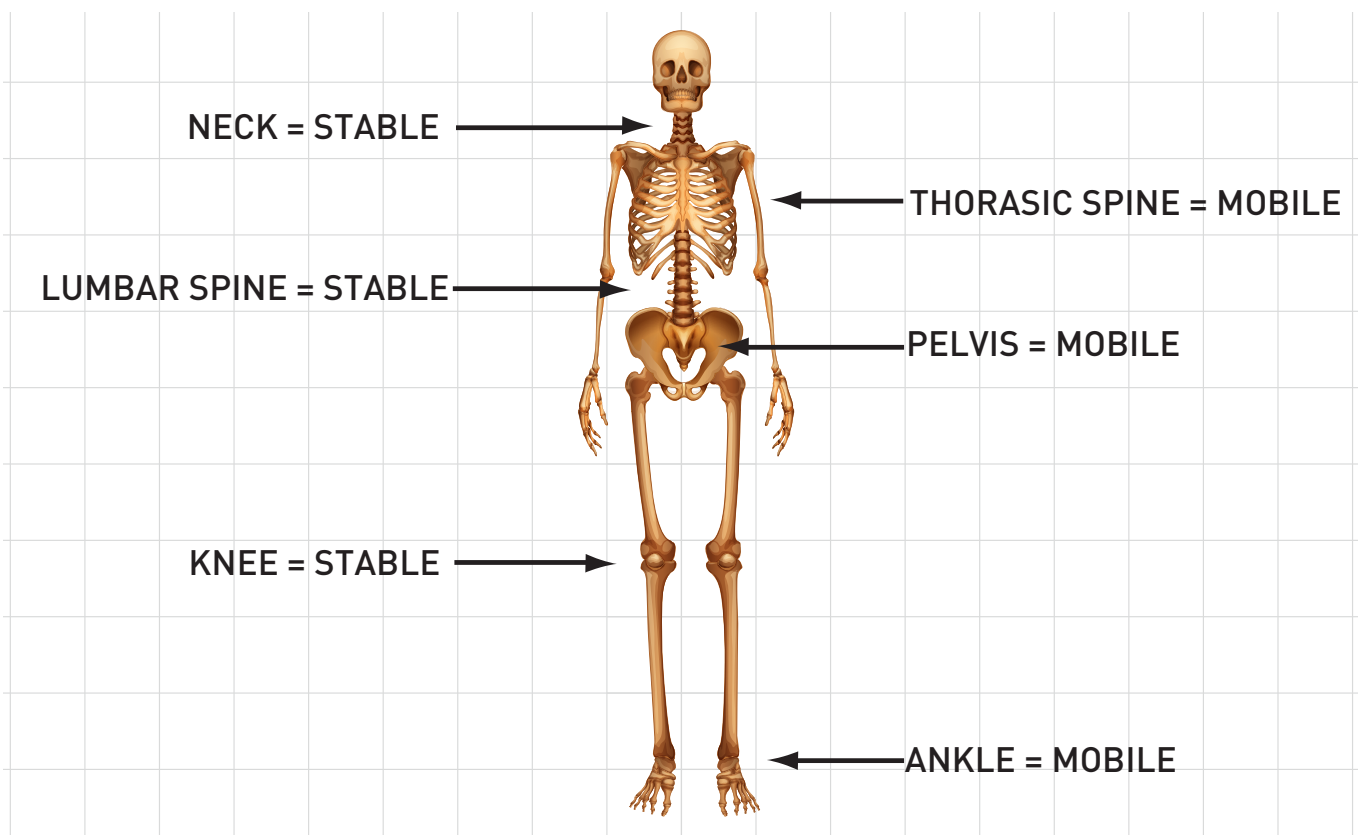
SPORT SPECIFIC TRAINING – SURF THE CURVE EXERCISE EXAMPLES

Below, you will find a number of training exercises you may wish to add to a training programme focusing on areas of the discipline curve.

Max Strength	Heavy Squat, Dead Lift, Heavy Bench, Heavy Rows
Strength - Speed	Weighted Plyojumps, Weighted Box Jumps, Weighted Chin-ups, Olympic Lifts
Power	Weighted Sprints (10m), Squat Jump, Explosive Rows, Pull-ups
Speed - Strength	Sprints, Accel - Decel, Box Jumps, Hop Jumps
Speed	Ladder Drills, Reaction Drills, Hurdle Jumps, Step Jumps

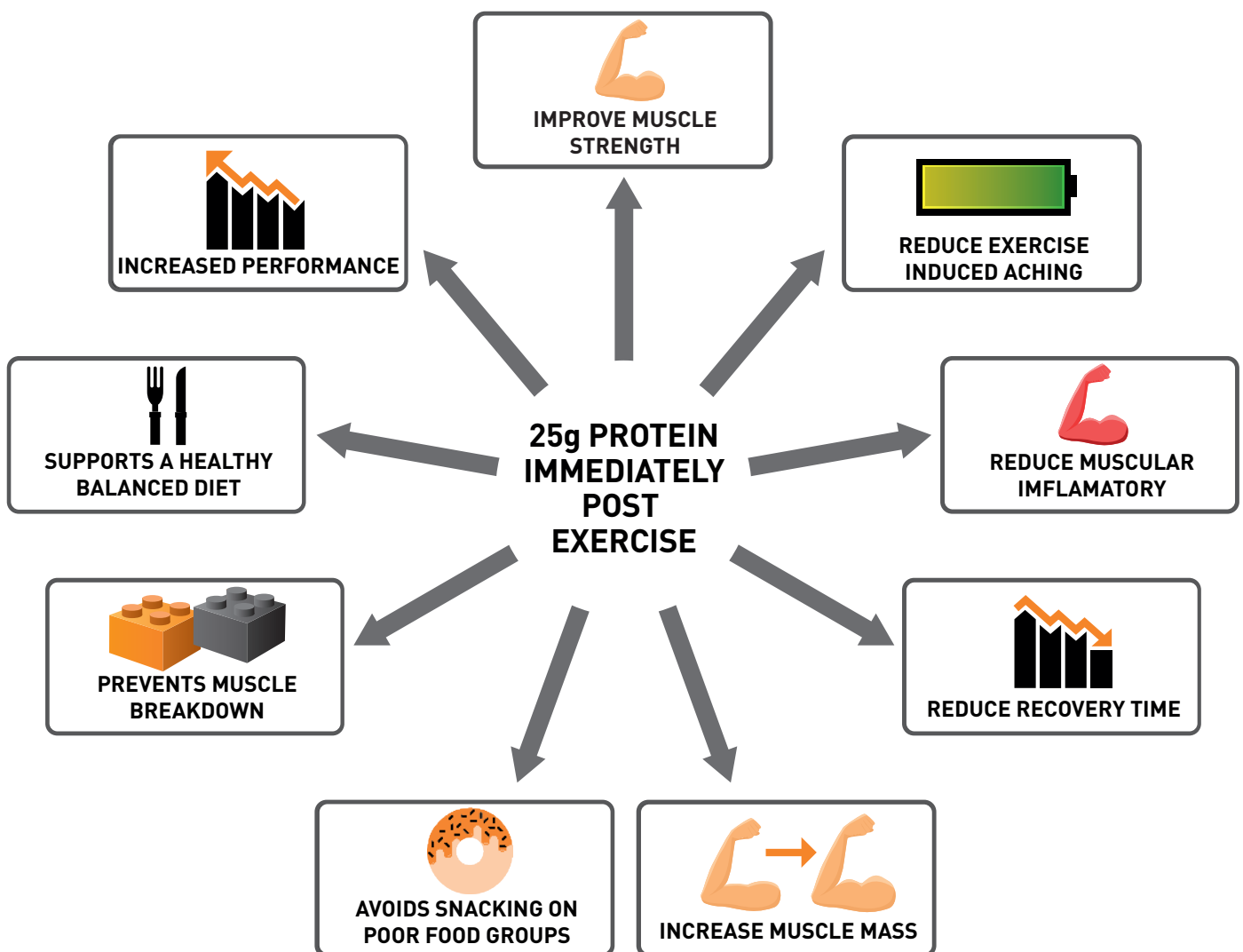
INJURY PREVENTION — STABILITY AND MOBILITY

When you perform different exercises in the gym, it is important to understand the preferred movement patterns of the human body, allowing an individual to maintain form but also prevent injury during the exercise.



The above diagram explains the “kinetic chain” and how specific body sections should be trained to increase the functionality of their intended use.

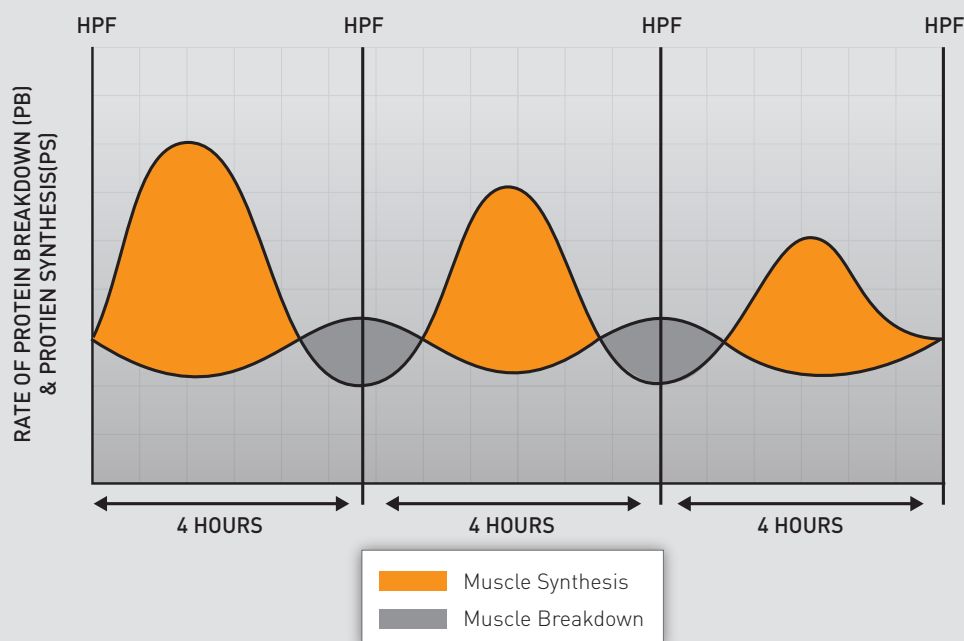
NUTRITIONAL CONSIDERATIONS — IMPORTANCE OF PROTEIN



See above for an insightful overview of the importance of protein ingestion immediately post exercise.

NUTRITIONAL CONSIDERATION – PROTEIN FEEDING

As with any athletic diet, all macronutrients are important to health and performance. Unlike endurance sports where carbohydrate is an essential nutrient for performance, in size and strength related sports, protein becomes the major nutrient responsible for muscular strength and growth adaptations.



Consuming protein after exercise is enough to stimulate the production of new muscular hardware. This stimulation will last around 3 hours before production slows and muscle breakdown takes over. The breakdown of muscular protein is counterintuitive to the end goal and therefore, at 3 – 4 hours, another protein feed of 20 – 25g should be consumed to ensure muscle protein production remains positive.

Meat Based		Vegetarian		Vegan
Steak	Lean bacon	Eggs	Nuts	Lentils
Turkey		Milk	Oats	Soya
Chicken		Whey		Oats
Tuna		Tofu		Beans
Salmon		Lentils		Tofu
Liver		Beans		Nuts