

# FUNCTIONAL TRAINING ENHANCED PERFORMANCE OR CIRCUS ACTS?

FUNCTIONAL TRAINER

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*Functional training* has become a buzz-word and programming trend in the health and fitness industries over the past few years. In gyms, personal training studios and physiotherapy clinics throughout the country all manner of exercises are believed to have incredible athletic, therapeutic and performance enhancing benefits, simply because they are taught under the banner of "*functional training*".

*Functional* is defined as "*having a practical application or serving a useful purpose*".

Using this definition, it would be unlikely that any physical performance professional would train a client or an athlete by implementing "non-functional" methods (ie: exercises that serve no useful purpose). Unfortunately, non-functional training may occur more often than expected. On one hand there are many fitness trainers (overly concerned with creativity) prescribing exercises that are too challenging or complex (particularly those performed on unnecessarily unstable surfaces) which appear to be more like circus acts than mimicking activities of daily living or sports performance. On the other hand there are many therapists (overly concerned with pathology) prescribing low level, single-plane dominant, isolation exercises at ineffectively low loads.



Clearly an effective model, or some structured guidelines, for developing and implementing *practical and useful functional training* is of value to both physical performance professionals and their clients.

## Functional Training Definition

*Functional training is any training modality that serves the purpose for which is it was intended. It is any training aimed at improving functional capacity - the ability to perform daily physical tasks, occupational or sports specific tasks, simple and/or complex motor activities with ease, efficiency, strength and control. Typically, a functional training program will demonstrate a comprehensive approach to conditioning or rehabilitation that addresses all the performance components necessary to achieve success in any target activity.*

Such training is commonly, but not limited to, multi-joint, multi-plane, multi-tempo exercises with moderate to high neurological demand, requiring coordinated dynamic peripheral control and core stability. Training often mimics common movement patterns or sporting activities, often using body weight or external loads as resistance whilst respecting the kinetic link principle.

Training may occasionally be performed on unstable or imbalanced environments thereby stimulating righting and balance reactions and developing proprioceptive awareness.

## Dynamic Stability Training

Force transfer between upper and lower limbs must occur through a controlled core with adequate dynamic stability. Remember that core stability is not about maximal stability and definitely not about rigidity, but more-so about **optimal motion control** at each spinal segment provided by the co-ordination of muscular, ligamentous and osseous structures. The amount of dynamic control required in any sporting activity is determined by variability and unpredictability of the activity.

Dynamic stability is provided by an ever-changing balance of core control muscles (both local and global systems). Note that the relative contributions of each of the core stabilizers are restricted to a transient instant of time - continually changing throughout any sporting movement, responding to changes in weight bearing surfaces, altered load, acceleration/deceleration, and changes in direction of movement. Peripheral joint stability, such as gleno-humeral stability, is an equally important component of dynamic stability for the athlete. Dynamic stability always infers a strong element of active sub-system control (and neural sub-system control). Neuromuscular active stabilisation of a joint or region which optimizes joint positions for developing maximum strength, maximum power and ensuring coordinated smooth motion whilst minimizing loading of passive structures and minimizing excessive loading of articular surfaces.

## Stabilisation Limited Training

Stabilisation limited training is a strength and conditioning method that trains prime movers only to the extent that the stabilising structures will provide sufficient support. This usually takes place in standing to involve and engage the entire kinetic chain – “toes to finger tips” training. For example chest press exercises are only trained in standing using cables for resistance and demanding active lower limb, lumbopelvic and scapulo-thoracic stabilisation, in preference to a classic bench press action in which the stability of the body is provided passively by the support of the bench.



*In stabilization-limited training the prime movers are only trained to the extent that the stabilizing structures will provide sufficient support.*

*eg: replace the bench press with the anterior press with cables*



## Coordination and the Kinetic Link Principle

Try jumping with no upper body or arm movement or throwing like a 3 year old.

What constitutes “cheating” during a biceps curl or shoulder press?

The body is programmed to use the Kinetic Link Principle. A series of interrelated links or a series of sequentially activated body segments – from toes to finger tips. Movement at one segment affects adjacent segments in a positive manner – generation of greater force, greater speed or a more biomechanically advantageous body position. Commonly proximal to distal sequencing promotes proximal stability for distal mobility. Rotational forces through the trunk may also aid distal strength and power generation. For example in throwing: the hip and trunk accelerate the entire system and sequentially transfer momentum to the next distal segment, along the upper limb to accelerate the hand for ball release.

## Training Movements not Muscles

A popular adage in motor control theory and functional training is that “the body and brain knows movement not muscles” and therefore in advanced rehabilitation and sports conditioning we should focus on training movement patterns not muscle groups. It is useful to explore and implement a movement pattern focus in our exercise descriptions.

One such approach is the **Health Adventure Functional Training System®** outlined below.

## Upper Body Focused Movement Patterns

The movement pattern describes the dominant direction and action of the concentric contraction. The majority of sporting movements of the upper limb are Open Kinetic Chain.

The 8 primary upper body movement patterns are:

Superior Push

Inferior Pull

Anterior Push

Posterior Pull

Inferior Push

Superior Pull

Opening Arc

Closing Arc



Each of these 8 patterns can be performed symmetrically (double arm) or asymmetrically (single arm, alternate arms or reciprocal arm pattern)

Asymmetrical patterns have a strong effect on encouraging outer unit core activation.

## Lower Body Focused Movement Patterns

The movement pattern describes the dominant direction and/or the action of the lower limb with reference to the base of support. The majority of sporting movements of the lower limb are Closed Kinetic Chain.

The 6 primary lower body movement patterns are:

Parallel Squat

Anterior-Posterior Lunge

Split Squat

Lateral Lunge

Single Leg Squat

Weight-Shifting Squat



## Full Body Integrated Movement Patterns

The Health Adventure Functional Training System also defines integrated movement patterns (**hybrids**), which combine upper and lower body patterns in smooth and coordinated actions, which respect the kinetic link principle. By closely observing full-body integrated movements, one can assess where the mechanics of an action may be breaking down, or recognise the weakest link in the kinetic chain.

*For example* – Poor lumbo-pelvic control in a lateral lunge motion may reduce upper limb transverse loading strength and control in a laterally directed football tackle.



### Wayne Rodgers



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He has been a sports physiotherapist for several national and international sports teams including the Australian Netball team and the Australian Commonwealth Games team. Currently based on the Sunshine Coast, he also runs a fitness coaching and personal training business.

Wayne has a special interest in strength & conditioning plus assessment and rehabilitation of the shoulder region. Wayne runs functional strength and sports conditioning courses for personal trainers and physiotherapists from his rooms in Sunshine Beach (Noosa) and around the country.

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