

Strength & Conditioning Parameters

Loading Continuum

Motor Control

Maximal Strength

Work Capacity

Max Strength

Motor Control

Physiological Goal	Correct inhibited muscle or dysfunctional movement pattern
Intensity	Low <30% RM or MVC – Low to moderate load to perform well
Volume (Rest)	<ul style="list-style-type: none"> ➤ 3 – 5 sets x 20 reps (< 60 seconds) ➤ 3 – 5 sets x 30 – 60 seconds if isometrics
Frequency	3 – 7 x per week (2 x daily if practical)
Fatigue	Not necessary BUT should get an active muscle sensation
Gains	Improvement in movement only
Neural Adaptation	<ul style="list-style-type: none"> ➤ Acute potentiation of Type I ➤ Coordination of joint increases ➤ Reflexive low force change ➤ Reversal of pain inhibition ➤ Atrophy (if enough volume)
Muscle Adaptation	<ul style="list-style-type: none"> ➤ Low force level control ➤ Slow twitch stiffness ➤ Slow twitch hypertrophy if high volume ➤ Increased length if through full AROM
Typical Exercise	<ul style="list-style-type: none"> ➤ Pilates ➤ Drills ➤ Movement pattern exercises

Maximum Strength

Physiological Goal	Performance enhancement – general physical capacity
Intensity	>80% RM or MVC – explosive intention – trying to accelerate the load applied
Volume (Rest)	<ul style="list-style-type: none"> ➤ 3 – 6 sets x 5 reps ➤ 3 – 5 sets x 5 reps x 5 second holds if isometric (2 – 3 minutes rest)
Frequency	1 – 3 x per week
Fatigue	
Gains	Strength
Neural Adaptation	<ul style="list-style-type: none"> ➤ Increased muscle unit activation ➤ Reduced spinal inhibition mechanisms
Muscle Adaptation	<ul style="list-style-type: none"> ➤ Fast twitch hypertrophy Iix – IIa in a few weeks ➤ Reversal of detraining ➤ Tendon hypertrophy of 5% at each end ➤ Increase in passive stiffness & stress strain capabilities
Typical Exercise	<ul style="list-style-type: none"> ➤ Barbell squat > body weight on bar ➤ Step up 0.5 x body weight ➤ Leg press > 2 x body weight DL & 1 – 1.5 x SL

Power

Physiological Goal	Performance enhancement – conversion of specific strength
Intensity	Maximal power or acceleration for target load or movement
Volume (Rest)	<ul style="list-style-type: none"> ➤ 3 – 6 sets x 2 – 3 reps for weights ➤ 3 – 6 sets x 5 – 10 reps for jumps or throws
Frequency	
Fatigue	No fatigue
Gains	Power
Neural Adaptation	<ul style="list-style-type: none"> ➤ Increased muscle unit activation & intermuscular coordination ➤ Reduced inhibition on ground contact
Muscle Adaptation	<ul style="list-style-type: none"> ➤ Fast twitch hypertrophy ➤ Some tendon hypertrophy & increased passive stiffness if high volume ➤ Power work may maintain tendon adaptation
Typical Exercise	<ul style="list-style-type: none"> ➤ Multi-joint explosive lifts ➤ Jumps ➤ Plyometrics ➤ Throws

Work Capacity

Physiological Goal	<ul style="list-style-type: none"> ➤ Strength endurance ➤ Hypertrophy ➤ General strength – promotes muscle balance
Intensity	60 – 80% RM of MVC
Volume (Rest)	<ul style="list-style-type: none"> ➤ 3 – 5 sets x 5 – 12 reps for weights ➤ 3 – 5 sets x 30 – 60 seconds for isometrics (1 – 2 minutes rest)
Frequency	2 – 3 x per week
Fatigue	Necessary
Gains	<ul style="list-style-type: none"> ➤ Strength endurance ➤ Hypertrophy ➤ General strength – promotes muscle balance
Neural Adaptation	None
Muscle Adaptation	<ul style="list-style-type: none"> ➤ Whole muscle hypertrophy ➤ 5% increase in tendon hypertrophy at each end
Typical Exercise	<ul style="list-style-type: none"> ➤ Any exercise that you can load ➤ Stabilise adjacent joints ➤ Work muscle through length ➤ e.g. Nordic Curl