

Figure 3: Summary of training variables for the three energy systems from Levels 1, 2 and 3 Theory

CHARACTERISTICS OF THE THREE ENERGY SYSTEMS

TIME TO:	ANAEROBIC		AEROBIC
	ALACTIC	LACTIC	
PEAK POWER	< 1 sec.	20 sec.	2–3 min.
MAINTAIN PEAK POWER	10 sec.	20 sec.	3 min.
CAPACITY (ENDURANCE)	6–30 sec.	1–2 min.	several hours
FULL RECOVERY	3 min.	1–2 hours	24–48 hours
½ RECOVERY	20–30 sec.	15–20 min.	5–6 hours

PRESCRIBING ANAEROBIC LACTIC TRAINING

PRESCRIPTION FACTOR	PEAK POWER	MAINTAIN PEAK POWER	CAPACITY
EXERCISE PHASE (secs.)	20–30	30–60	60–90
PAUSE PHASE (secs.)	120–150	150–360	240–270
E:P RATIO	1:6 — 1:5	1:5 or 1:6	1:4 or 1:3
INTENSITY (% max. effort)	85–90	85–90	80–85
REPETITIONS (no.)	6–9	3–6	2–3
SET VOLUME (secs.) MAXIMUM	3	3	3
SETS (no.)	4–6	4–6	2–3
REST BETWEEN SETS (min.)	10–15	10–15	15–20
PROG. RANGE FOR WORKOUT VOL (min.)	3–12	3–12	4–9
TOTAL WORKOUT TIME – APPROX. (min.)	55–75	60–75	24–40
FREQUENCY	3–4 sessions per week		
TIME TO MAJOR GAINS	<ul style="list-style-type: none"> ● 8–12 weeks ● Harder to gain than anaerobic alactic 		
MAINTENANCE	<ul style="list-style-type: none"> ● 2–3 sessions per week ● If no training: easier to lose than anaerobic alactic but easier to maintain than aerobic system 		
NOTE RE: YOUTHS	Not a mature system prior to puberty and hard to make major gains		

PRESCRIBING AEROBIC TRAINING

PRESCRIPTION FACTOR	CONTINUOUS	INTERVAL	
		LOW POWER	HIGH POWER
EXERCISE TIME(E)	> 30 min	> 2 min	< 1 min
PAUSE TIME (P)	—	= Exercise Time	= Exercise Time
E:P RATIO	—	1:1 or 2:1	1:1 or 1:2
INTENSITY	70%–85% max VO ₂	85%–100% max VO ₂	90%–100% max VO ₂
FREQUENCY	3–4 sessions per week		
DESCRIPTION		Low Power Output long duration–low intensity	High Power Output short duration–high intensity
TIME TO MAJOR GAINS	<ul style="list-style-type: none"> ● Max VO₂ can be initially improved approx. 20% in 2–3 months ● After 2–3 months, only can achieve another 5%–10% ● Peripheral component shows maximum increases in first 6 months, then rate of improvement slows 		
MAINTENANCE	<ul style="list-style-type: none"> ● 2–3 sessions per week ● If no training: gains are lost at about the same rate as they were gained 		

PRESCRIBING ANAEROBIC ALACTIC TRAINING

PRESCRIPTION FACTOR	PEAK POWER	MAINTAIN PEAK POWER	CAPACITY
EXERCISE PHASE (secs.)	1–5	5–15	15–30
PAUSE PHASE (secs.)	2–10	25–90	90–180
E:P RATIO	1:2	1:5 or 1:6	1:6
INTENSITY (% max. effort)	95–100	90–100	85–90
REPETITIONS (no.)	1–7	5–6	2–4
SET VOLUME (secs.) MAXIMUM	60	60	60
SETS (no.)	2–4	5–6	2–4
REST BETWEEN SETS (min.)	5–10	5–10	10–15
PROG. RANGE FOR WORKOUT VOL (min.)	0–1½	1–8	1–8
TOTAL WORKOUT TIME – APPROX. (min.)	25	35–60	35–45
FREQUENCY	5–6 sessions per week		
TIME TO MAJOR GAINS	6–12 weeks		
MAINTENANCE	<ul style="list-style-type: none"> ● 2–3 sessions per week ● If no training: maintains better than aerobic system 		