

Training Workshop
13th January 2021
Brian Corbett

Winter Training Workshop

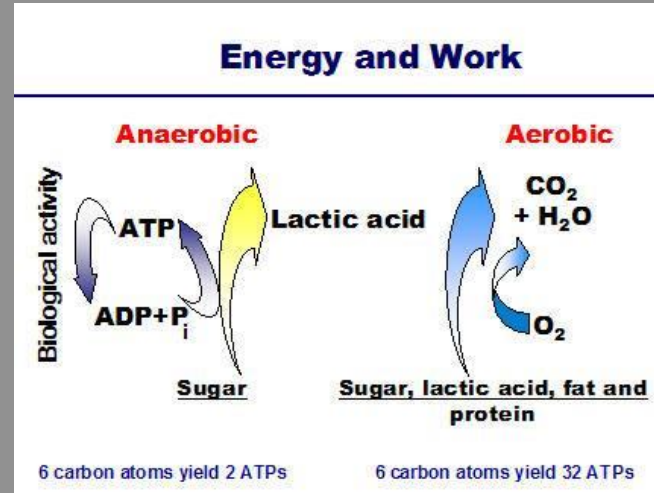
Workshop Objectives

- Review physiology & training intensities
- Translate principles into practical plans
- Consider practicalities
- Open discussion, Q&A

Energy systems

Anaerobic System

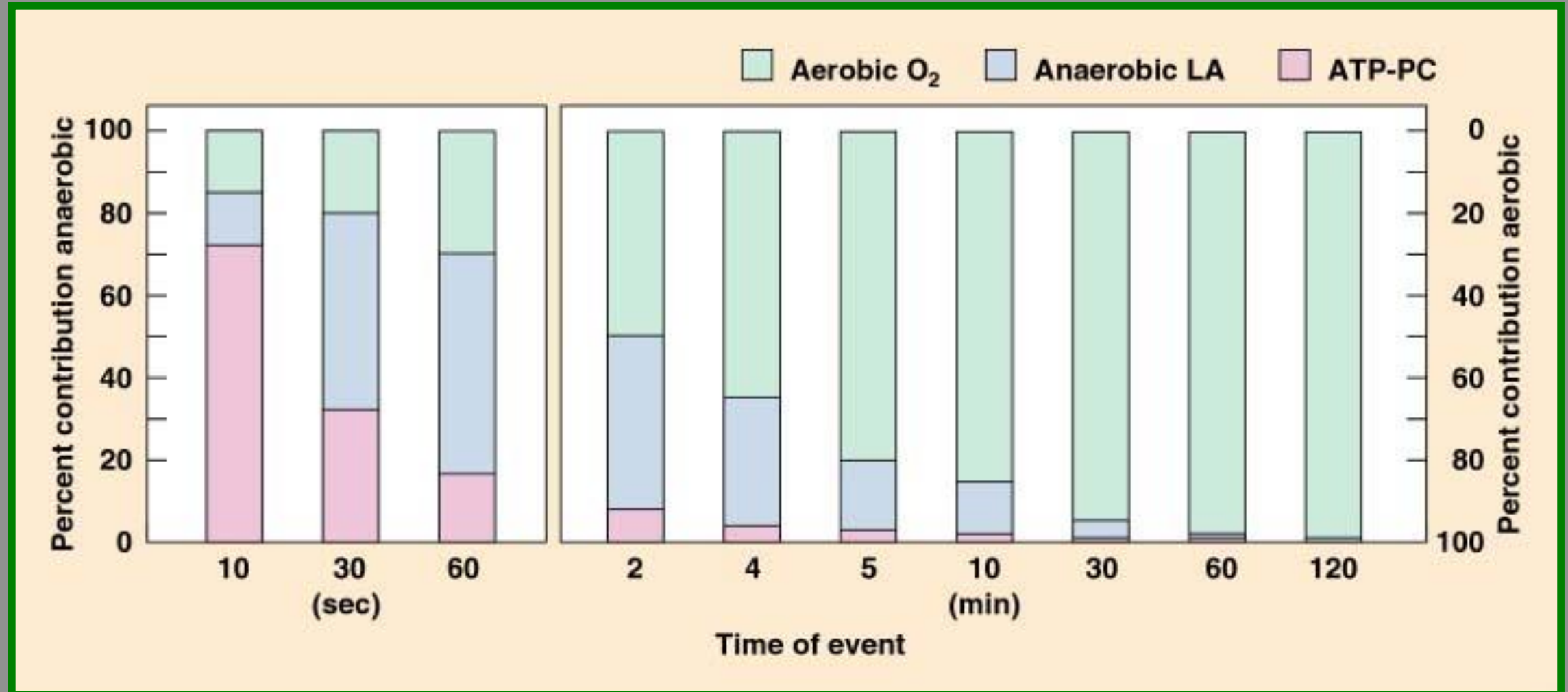
- Two modes:
 - **Phosphagen** system, uses ATP & PCr
 - Significant in short & intense exercise (6 secs)
 - **Anaerobic Lactate** System, Breaks down glycogen stored in muscle- glycolysis
- Approx 30secs
- Lactic acid is a bi-product
- Important at exercise onset or for sprint finish



Aerobic System

- Takes place in mitochondria of muscle fibre
- Uses O₂ to break down "Utilise" Carbohydrate & Fat
- Very Efficient; predominant in long duration exercise

Energy System Contribution



Cardiovascular changes with endurance training

- Trainability; The delivery of oxygen to the working muscles is a major limiting factor in exercise
- With endurance training there is;



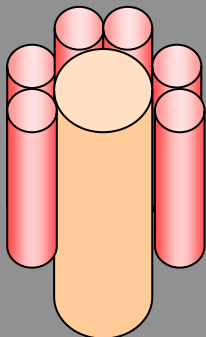
- **Heart;**

- Increase in left ventricle chamber size
- A larger proportion of cardiac output goes to muscles



- **Blood;**

- Increase in plasma volume early in training
- Some increase in red blood cell mass

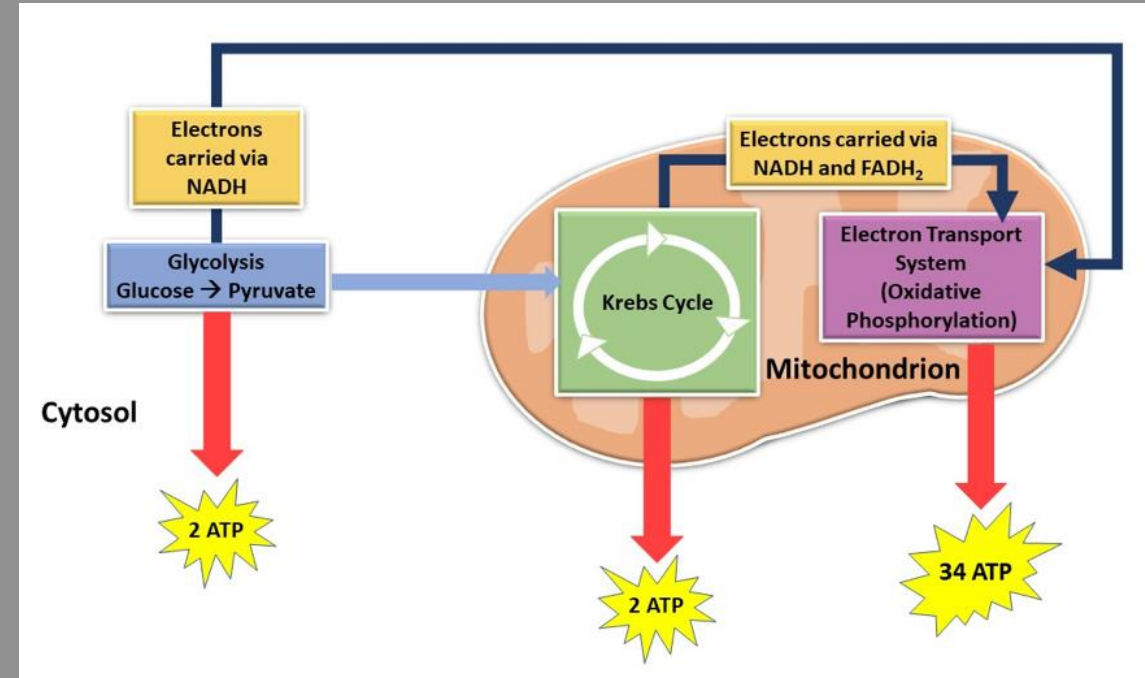


- **Capillaries;**

- Greater density in muscle

Effects of aerobic training

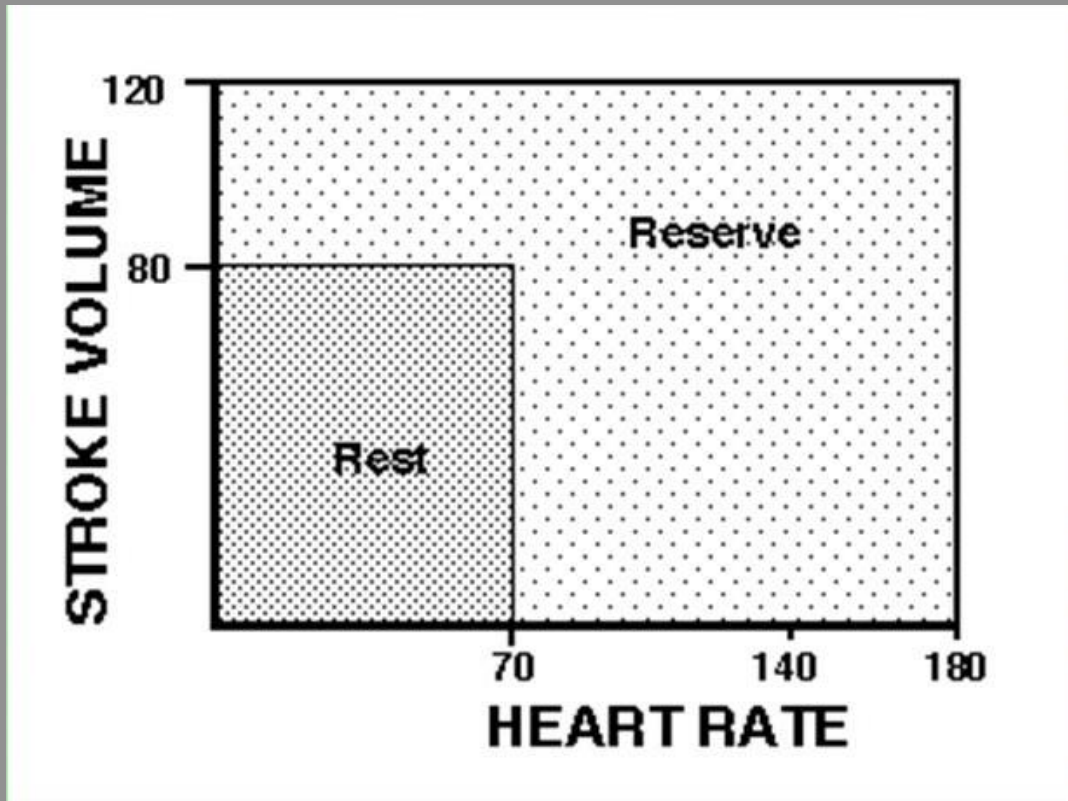
- More and larger mitochondria
- Mitochondria more effective at producing ATP aerobically
- Up to 87% increase in myoglobin capacity within the muscle
- Increased capacity within the muscle to mobilise and burn fat
- Greater capacity to burn carbohydrate



BR Training Matrix

TRAINING ZONE		% HEART RATE RESERVE	BLOOD LACTATE (mmol/l)	STROKE RATE	% ARA GOLD TIME	SAMPLE SESSION
CODE	NAME					
UT3	Fuel Utilisation Training	<59%	<1.0	<18	<70	>120' Low intensity
UT2	Basic Oxygen Utilisation Training	59-67%	<2.0	17-18	70-76	70-100' Low intensity
UT1	Oxygen Utilisation Training	67-75%	2.0 - 4.0	19-23	77-82	2-3x20-30' 4-8x8-10'
AT	Anaerobic Threshold Training	75-85%	~4.0	24-28	82-86	2-4 x 8-10' 1-2 x 15-20' 1 x 30'
TR	Oxygen Transport Training	85-100%	~4.0 - 8.0	28-36	87-95	3-6 x 3-5'
AC	Anaerobic Capacity Training		~8.0 +	>36	>95	4-8x250m 2-4x500m 1-2x1000m
AP	Anaerobic Power Training			>26	>95	10-20x10-15 power strokes

Heart Rate & Intensity



- Resting Heart Rate (RHR)
- Maximum Heart Rate (MHR)
- Heart Rate Reserve (HRR)

60% of HRR = 66 BPM

$((180 - 70) * 60\%) + 70 = 136$ BPM

(but 60% of MHR = 108 BPM)

Periodisation

Phase	Phase Duration	UT	AT	TR	AC/AP	Total
General Prep	12	5.8	1.6	0	2.1	9.5
Specific Prep	12	6.25	2.9	0.4	1.6	11.15
Pre Comp.	12	7.9	2.1	1.25	1.7	12.95
Competition	8	4.4	2.5	3.75	1.25	11.9
Transition	8	-	-	-	-	-

Periodisation – Prep Phase

Phase	Phase Duration	UT	AT	TR	AC/AP	Total
General Prep	12	5.8	1.6	0	2.1	9.5 hours
General Prep		3.0	0.75	0	1.0	4.75 hours
Specific Prep	12	6.25	2.9	0.4	1.6	11.15 hours
Specific Prep		3.0	1.5	0.25	0.75	5.5 hours

Practicalities – low intensity options

- Sculling – specificity + technical
- Ergs – specificity + some technical
- Running/cycling/cardio circuits – cardio but lack of specificity
- Weights – low load/multiple reps, limited rest periods – specificity but lacks cardio
- Yoga/pilates etc – flexibility & core strength, but lacks cardio and specificity

