

SAMPLE CPET REPORT for Perioperative Review

CPET DATA		Test 1	Test 2	Comment
Demographics	Age			
	Height			
	Weight			
	BMI			
	BSA			
Work Rate	Ramp Protocol			
	Watts at AT			
	Watts at Peak			
	% Predicted Watts			
	RER at AT			
	RER at Peak			
	Borg score at AT			
	Borg score at Peak			
O2 utilisation	AT ml/min			
	AT ml/min/kg			
	AT Not Achieved			
peak VO2 ml/min	peak VO2 ml/min			
	peak VO2 ml/min/kg			
	peak VO2 ml/min/BSA			
VO2 as % predicted				
Cardiovascular Response	ECG			
	On betablockers y/n			
	HR at rest			
	HR at AT			
	HR at Peak			
	% Age predicted HR at peak			
	HR increase rest-> peak >40			
	HR at 1 min recovery			
	HR at 3 mins recovery			
	HRR1> 12 beats			
	BP at Rest			
	BP at Peak			
	O2 pulse			
	O2 pulse as % preidcted			
	Ventilatory Response	VE/VCO2 at AT		
PETCO2 at AT				
PETCO2 at Peak				
FEV1				
FEV1/FVC				
DLCO				
MVV				
Peak VE				
Breathing Reserve				

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Diagnosis:

Surgical Procedure:
 Date of Surgery:
 Neoadjuvant Therapy:

PMH:

Smoking history:
 Medications:
 Bloods:

CPET Summary

On a _____ Watt protocol this was a maximal / submaximal test evidenced by RER of _____, BORG score of _____/ 20 and peak load of _____ Watts (_____% predicted).

The patient terminated the test due to *fatigue / SOB / pain / anxiety*.

Peak VO2 indexed to weight falls was _____ ml/min/kg ; Weber Class A / B / C / D.

- Peak VO2 indexed to BSA is <600 / > 600 and < 800 / > 800 ml/min/m2.
- Overall oxygen utility was _____% of that predicted.

AT was / was not achieved at _____ ml/min/kg.

This places patient at *low / medium / high* risk of perioperative complications at their current functional status.

ECG was *NSR / AF* throughout and a peak HR of _____ was reached (_____% peak predicted).

This *was / was not* a rise of > 25bpm from a resting HR of _____, indicating a *good / low / poor* chronotropic response. After 1 minute recovery the heart rate *had / had not* fallen by 12 beats (HRR1) indicating an *adequate / impaired* parasympathetic recovery.

Betablockers / Antihypertensives *are / are not* taken. BP response to exercise was *normal / hypertensive / hypotensive* with a starting BP of _____ and peak SBP of _____.

There was [*no*] evidence of cardiac limitation. O2 pulse profile was *normal / flatten / declined* indicating a *good / normal / poor* response in cardiac output in the setting of increasing exercise.

There was [*no*] evidence of ventilatory inefficiency with a VE/VCO2 at AT in Ventilatory Class *I / II / III / IV* and DLCO _____ % predicted. [*No*] mechanical limitation was seen, breathing reserve at peak was _____% (normal 10-30%).

References

Primary CPX Variables		
\dot{V}_E/\dot{V}_{CO_2} Slope	Peak $\dot{V}_{O_2}^*$	\dot{V}_{O_2} at VT
Ventilatory class I \dot{V}_E/\dot{V}_{CO_2} slope <30.0	Weber class A Peak \dot{V}_{O_2} >20.0 mL O ₂ ·kg ⁻¹ ·min ⁻¹	≥11.0 mL O ₂ ·kg ⁻¹ ·min ⁻¹
Ventilatory class II \dot{V}_E/\dot{V}_{CO_2} slope 30.0–35.9	Weber class B Peak \dot{V}_{O_2} =16.0–20.0 mL O ₂ ·kg ⁻¹ ·min ⁻¹	
Ventilatory class III \dot{V}_E/\dot{V}_{CO_2} slope 36.0–44.9	Weber class C Peak \dot{V}_{O_2} =10.0–15.9 mL O ₂ ·kg ⁻¹ ·min ⁻¹	<11.0 mL O ₂ ·kg ⁻¹ ·min ⁻¹
Ventilatory class IV \dot{V}_E/\dot{V}_{CO_2} slope ≥45.0	Weber class D Peak \dot{V}_{O_2} <10.0 mL O ₂ ·kg ⁻¹ ·min ⁻¹	

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Normal V/Q indicated by

VE/VCO ₂ is <35 @ AT	VE/VCO ₂ slope <30	PETCO ₂ >35 mmHg @ AT
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Abnormality in these parameters will indicate V/Q mismatching.

Consider COPD, hyperventilation, LV failure, pulmonary hypertension, pulmonary embolism.

Normal chronotropic response

From rest to AT <25 bpm	From rest to peak < 40 bpm	At 1 min recovery < 12bpm decline from peak (HRR1)
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A Chronotropic response less than the above is indicative of increased postoperative morbidity and mortality.

Hightower et al. BJA 2010

ARISCAT Score

Patient Age	≤50 = 0	51 - 80 = 3	>80 = 16
Preoperative SpO ₂	≥96% = 0	91-95% = 8	≤90% = 24
Duration of surgery	<2 hrs = 0	2-3 hrs = 16	>3 hrs = 23
Preoperative anaemia (Hb ≤10 g/dL)	No = 0	Yes = 11	
Surgical incision	Upper abdominal = 15	Intrathoracic = 24	
Emergency procedure	<2 hrs = 0	No = 0	
Emergency procedure Respiratory infection in past month: Either upper or lower (URI, bronchitis, pneumonia), with fever and antibiotic treatment	No = 0	Yes = 17	
TOTAL SCORE FROM ABOVE			
ARISCAT Score Risk Group Risk of in-hospital postoperative pulmonary complications	<26 Low = 1.6%	26 - 44 Intermediate = 13.3%	>44 High = 42.1%

Surgical References:

Peak VO₂/BSA and risk of postoperative complication rates following **esophagectomy**

>800 mL/min/m ²	600 – 800 mL/min/m ²	<600 mL/min/m ²
LOW RISK	MODERATE RISK	HIGH RISK

[Nagamatsu et al – J Thorac Cardiovasc Surg, 121: 1064-8](#)

PMCC colorectal data: Peak VO₂/BSA associated morbidity & mortality

>710 mLs/m ² /min	Peak VO ₂ of <710
LOW RISK	HIGH RISK