

# Fit to graduate? A feasibility study.



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## Introduction

- The role of a paramedic is recognised to be physically demanding.
- There is a high incidence of work-related injury.
- Musculoskeletal injuries are associated with the manual handling demands placed on paramedics, with injury risk increasing as the weight of the patient being lifted increases.
- Ambulance services are currently implementing projects aimed at managing work-related mental health issues and maintaining physical health for paramedics.
- There is a paucity of literature regarding specific physical fitness requirements for paramedics to perform essential daily tasks of the role.

## Definitions

Scan the QR code for definitions and abbreviations:



## Aims

1. To assess the feasibility of using the OPPAT™ as an occupational task simulation test and as a benchmark for student paramedic preparation, within the Australian context.
2. To compare this to the feasibility of using the New South Wales Ambulance test or generic predictive tests to assess the physical readiness of paramedics or students to undertake paramedic tasks.

## Methods

In this observational study design, the OPPAT™, NSWAT, 3MST<sub>20</sub>, and GS tests were replicated in accordance with test guidelines.

A purposive sample of undergraduate paramedicine students (n = 12) enrolled in a three-year undergraduate paramedicine degree consented to participate.

The protocol was registered with the Open Science Framework (OSF; <https://doi.org/10.17605/OSF.IO/QTKPM>).

The study was approved by the Charles Sturt University Human Research Ethics Committee (protocol number H23601).

This poster focusses on two outcome measures employed to assess the feasibility of each test;

1. Participant characteristics and performance on the physical fitness tests, and
2. Practicalities of the tests for use in the Australian paramedicine context.

## Results

Table 1. Participant characteristics

Characteristic	Min	Median	Max
Age (years)	19	21.5	31
Weight (Kg)	55.8	92	174
Height (cm)	162.5	176.3	196.5
Body Mass Index (kg/m <sup>2</sup> )	19.5	27.9	54.9
Resting Heart Rate (bpm)	51	82.5	111
Resting Systolic Blood Pressure (mmHg)	108	128.5	154
Resting Diastolic Blood Pressure (mmHg)	64	76.5	100
Resting Breathing Rate (bpm)	10	14	24
Age-Predicted Max. HR (bpm)	186.3	193	194.7
VO <sub>2max</sub> prediction (mL/kg/min)	31.8	40.2	49.8

Table 2. Participant test completion

Testing status	n	%
Ineligible	2	16.7
NSWAT Attempted	10	83.3
NSWAT Completed (Satisfactory)	8	66.7
GS Test Attempted	10	83.3
GS Test Completed	10	83.3
3MST <sub>20</sub> Attempted	10	83.3
3MST <sub>20</sub> Completed (Satisfactory)	10	83.3
OPPAT™ Attempted	6	50
OPPAT™ Completed (Satisfactory)	2	16.7

Table 3. Summary heart rate (HR), breathing rate (BR), activity and work intensity scores for participants who attempted each test

Tests	Measure	Mean	SD	Av. Min.	Av. Max.
Reference	Age-predicted max. HR	191.7	2.9		
3MST <sub>20</sub> (n=10)	HR (bpm)	105.7	24.6	82.7	128.7
	BR (bpm)	19.8	12.6	9.9	32.7
	Activity (mg)	230	30	60	400
	% of Max. HR	60	13		
GS test (n=10)	HR (bpm)	90.6	14.2	70	113.4
	BR (bpm)	14.6	7.1	9	21.6
	Activity (mg)	20	10	0	320
	% of Max. HR	47	7		
NSWAT (n=10)	HR (bpm)	106	17.2	68.8	133.6
	BR (bpm)	16.5	5.2	6.4	40.9
	Activity (mg)	60	10	0	540
	% of Max. HR	51	10		
OPPAT™ (n=6)	HR (bpm)	130.2	27	89.7	161.7
	BR (bpm)	22.5	8.9	8.7	46.5
	Activity (mg)	180	80	0	660
	% of Max. HR	68	14		

## Discussion

- The OPPAT™ was perceived by the participants and paramedic members of the research team to be the most physically demanding and most representative of the essential demands of the paramedic role.
- Only 50% of student participants were sufficiently physically healthy and strong to meet pre-test safety screening requirements implemented in the current study for the OPPAT™, and even fewer completed it to a satisfactory standard, when assessed against standard test pass criteria.
- While the NSWAT, 3MST<sub>20</sub> and GS tests were relatively quick and easy to administer, the OPPAT™ required more resources in terms of equipment, personnel and time.
- The implementation of the OPPAT™, both in university contexts and in Australian ambulance services, is perceived as feasible if steps are taken to ensure it is implemented in a graduated fashion, as a learning tool within university curricula, and efficiently sequenced in both contexts.
- The research team recognised a need to ensure the OPPAT™ was adapted, where needed, to reflect loads routinely lifted and equipment typically used by Australian paramedics.

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## References

