

# Comparison of Body Composition among Malaysian National Paralympic Athletes before and after the Lockdown of COVID-19

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## INTRODUCTION

Home quarantine has resulted in lifestyle changes including restricted physical activity, poor nutritional intake and others, leading to body composition changes (Chen et al., 2020).

Unfavourable body composition changes can impact athletes' physical fitness and sports performance (Bosquet et al., 2013).

## OBJECTIVES

1. To compare the body composition before & after Lockdown due to COVID-19 in Malaysian Paralympic athletes.
2. To compare the body composition between wheelchair (WC) & non- wheelchair (NWC) athletes.

## METHODOLOGY

Pre-lockdown

June 2019 – March 2020

June – August 2020

Post- lockdown

Sports

Para- athletes  
(n=40)

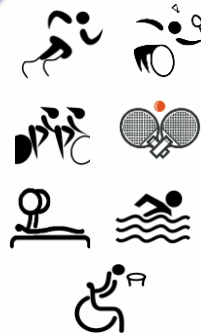
Method

n=29

n=11

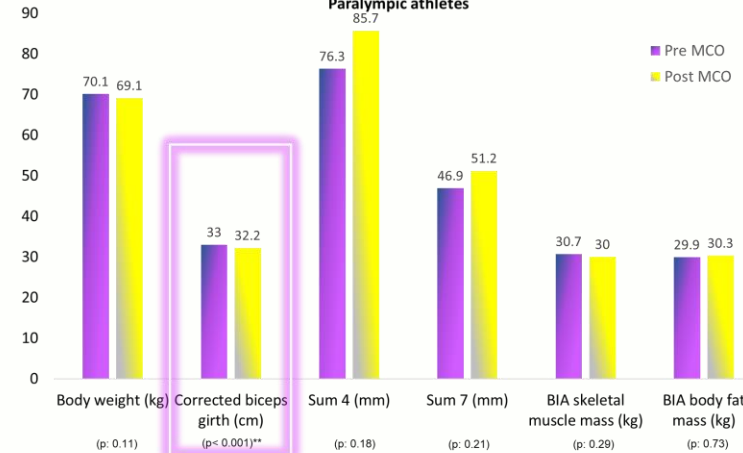
Wheelchair  
(WC) (n=20)

Non- wheelchair  
(NWC) (n=20)



## RESULTS

Pre- and Post- Lockdown Body Composition Comparison for Malaysian National Paralympic athletes



Body composition	Pre-Lockdown	Post-Lockdown	P- value	Pre-Lockdown	Post-Lockdown	P- value
	WC			NWC		
Body weight (kg)	73.1±18.7	72.6±17.8	0.59	66.3 (59.5 to 74.6)	64.7 (58.4 to 69.9)	0.24
Lean body mass (kg)	-	-	-	58.5±7.9	56.8±6.9	<0.001**
Corrected bicep girth (cm)	35.4±4.1	34.4±3.8	0.09	31.6±2.9	30.9±3.2	<0.05*
Sum 4/ 7 (mm)	75.3±47.3	85.7±44.2	0.18	54.2±24.4	56.3±25.6	0.56
Skinfold fat mass (kg)	-	-	-	6.3±2.9	6.5±2.9	0.74
BIA Skeletal muscle mass (kg)	30.9±11.8	30.5±10.5	0.59	29.7±2.7	27.9±3.3	0.14
BIA Body fat mass (kg)	29.1±19.9	28.8±18.5	0.82	33.8±13.1	36.7±12.5	0.09

## DISCUSSION

1. **Body weight has reduced** in overall by non- fat mass reduction instead of fat mass.
2. **Significant loss of lean body mass and the muscle size (corrected biceps girth) in NWC athletes** were due to the reduction in training intensity & increased in physical inactivity resulting muscle atrophy to occur (Narici et al., 2020).
3. **Non-significant loss of muscle size (corrected biceps girth) in WC athletes** due to higher demands on upper extremities (Pentland & Twomey, 1994), as they mainly manoeuvre using upper body for activity of daily living (ADL) besides performance training..

## CONCLUSION

1. Overall, Paralympic athletes experienced weight loss with significant reduction of corrected biceps girth and non-significant increase for fat mass.
2. There are significant differences found in lean body and size of muscle (corrected biceps girth) in NWC but not in WC athletes.
3. Post lockdown interventions are indispensable to achieve pre-lockdown state of body composition.

## REFERENCES

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