

## BACKGROUND

- ❖ Anthracyclines are a common chemotherapy agent for pediatric cancers
- ❖ Many of these patients are at risk for anthracycline cardiomyopathy
- ❖ Conventional measures of LV function (EF) by echocardiography (echo) may be insufficient to detect mild anthracycline cardiomyopathy in pediatric patients

## STUDY AIMS

- ❖ To characterize exercise capacity in anthracycline-recipients
- ❖ To identify echo and MRI parameters associated with reduced exercise capacity in anthracycline-recipients

## METHODS

- ❖ Retrospective chart review
- ❖ Patients who received anthracyclines and underwent cardiopulmonary exercise testing (CPET)
- ❖ Echo, MRI and CPET data reviewed

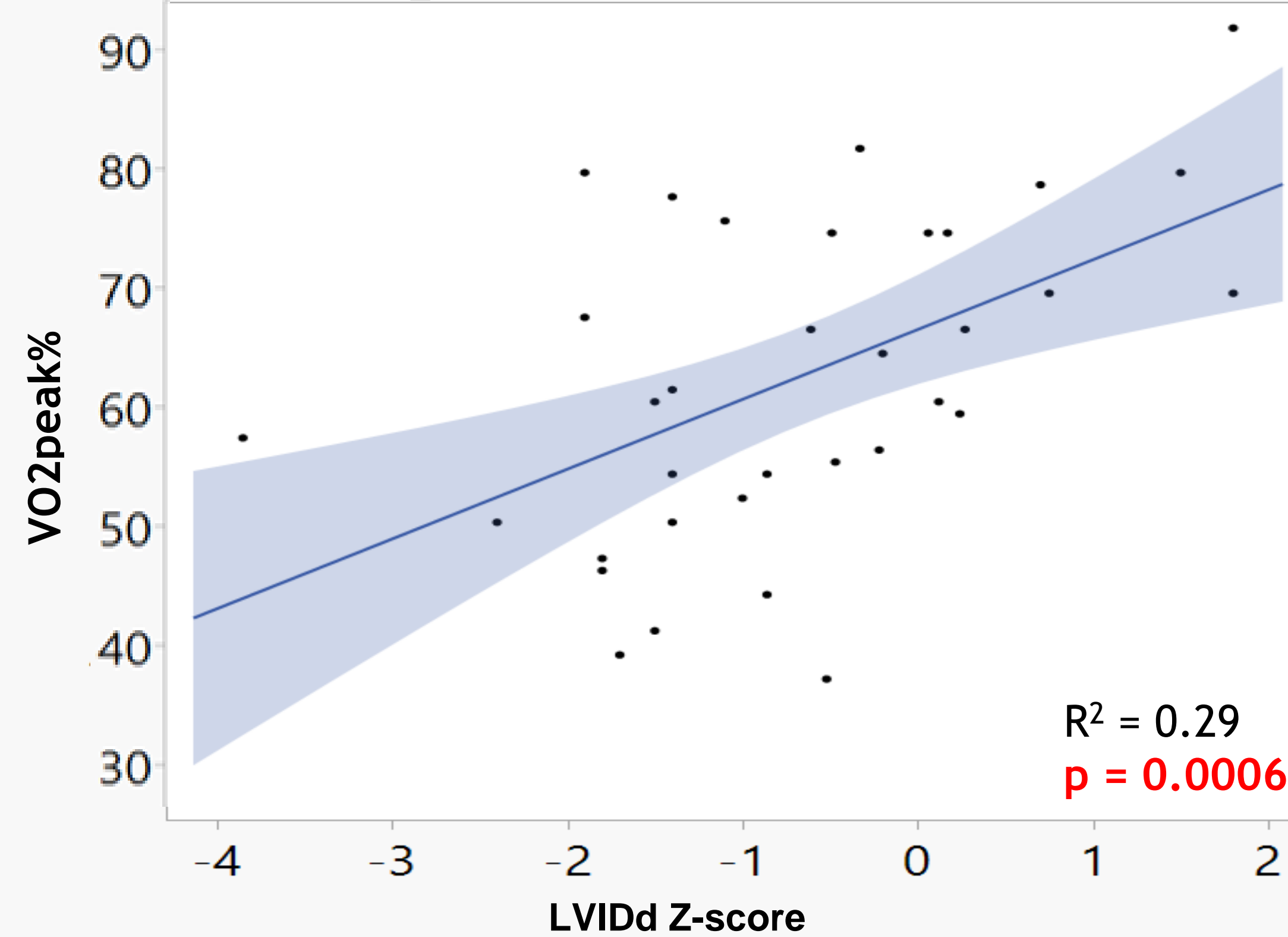
## PATIENTS (n=35)

Age (years)	17 ±3.2
BMI	24 ±1.1
Time from anthracyclines (years)	8.5 ±1
Mean anthracycline dose (mg/m <sup>2</sup> )	320 ±22
VO <sub>2</sub> peak (%)	64.9 ±12.3
O <sub>2</sub> pulse (%)	82.8 ±2.7
VE/VCO <sub>2</sub>	28.8 ±0.5
EF (%) (echo)	58 ± 0.1
LVIDd Z-score (echo)	-0.62 ±0.2
EF (%) (MRI)	59.1 ±1.5
LVEDV Z-score (MRI)	-2.2 ±0.3

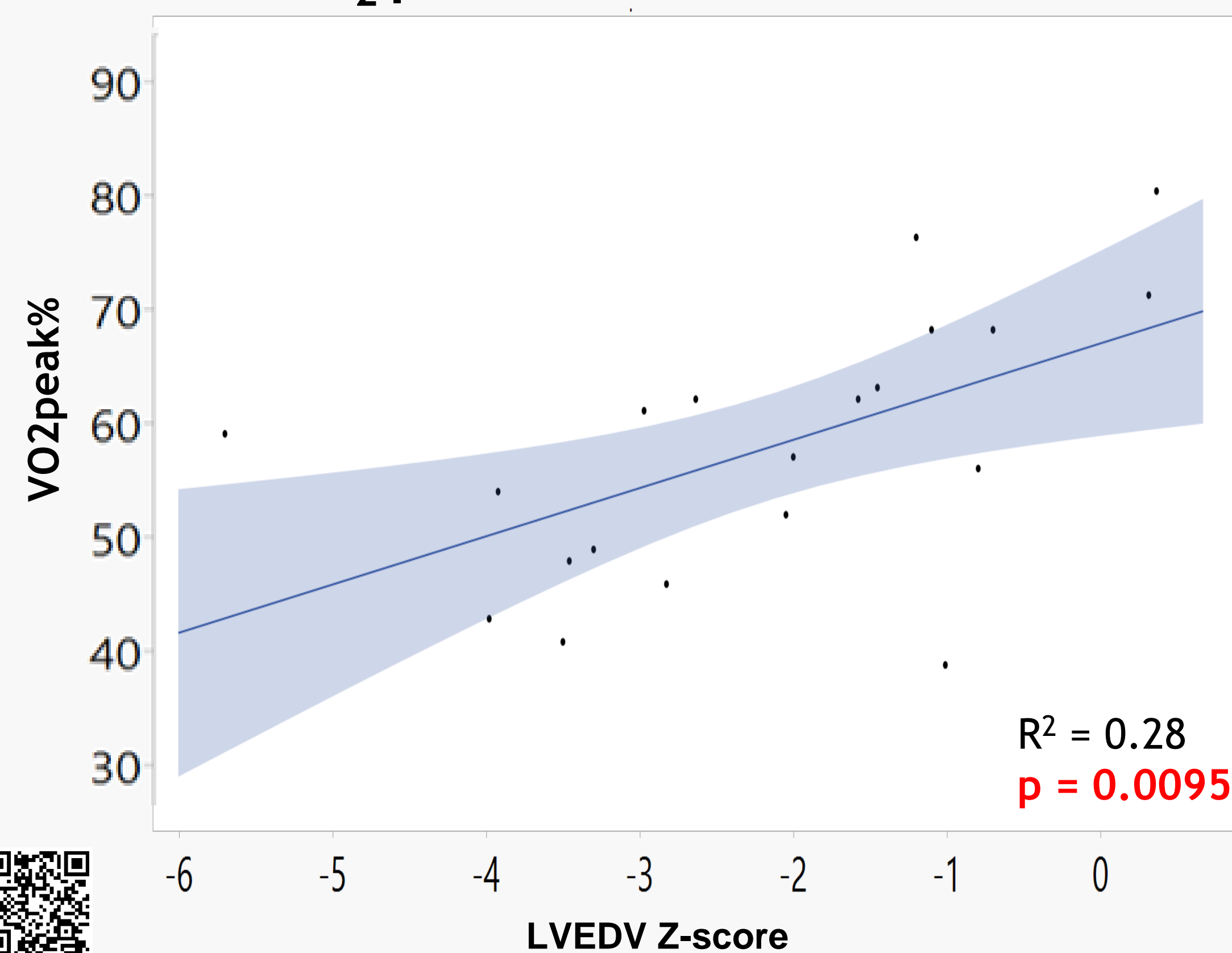
## DISCUSSION

- ❖ Despite having normal EF at baseline, most patients had reduced exercise capacity
- ❖ LV dimension (LVIDd) by echo and LV volume by MRI (LVEDV) may serve as sensitive markers of functional limitation in patients with anthracycline exposure

## VO<sub>2</sub> peak% vs. LVIDd Z-score



## VO<sub>2</sub> peak% vs. LVEDV Z-score



## CLINICAL APPLICATION

- ❖ LV size correlated with exercise capacity, and could be more sensitive in detecting mild anthracycline cardiomyopathy than conventional function measurements by echo
- ❖ CPET performance correlates with subtle cardiac changes in anthracycline-recipients, even in those with normal EF at baseline

## Demographic/Oncologic predictors of VO<sub>2</sub> peak%

Predictors	Adjusted R <sup>2</sup>	p-value
Age	-0.02	0.66
BMI	0.17	<b>0.0077</b>
Dexrazoxane use	0.05	0.13
Total anthracycline dose	-0.02	0.6
Cancer diagnosis	0.16	0.67
Time from exposure	-0.04	0.9

## Echo/MRI predictors of VO<sub>2</sub> peak%

Parameter	Adjusted R <sup>2</sup>	p-value
LVIDd Z-score (echo)	0.29	<b>0.0006</b>
EF (%) (echo)	-0.03	0.9
LVEDV Z-score (MRI)	0.27	<b>0.0095</b>
LV Mass Z-score (MRI)	0.03	0.3
EF (%) (MRI)	-0.04	0.7

## Multivariate predictors of VO<sub>2</sub> peak%

Echo findings	Parameter Estimate	p-value
LVIDd Z-score	7.0	<b>0.00003</b>
BMI	-1.1	<b>0.00043</b>

## REFERENCES

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## DISCLOSURE INFORMATION

- ❖ The authors have no disclosures