

**INCREASE MALNUTRITION AWARENESS:
CHALLENGE FOR THE FUTURE**

**CONGRESSO
NAZIONALE**

**“Muscle quality and postoperative outcomes
in patients undergoing cardiac surgery”**

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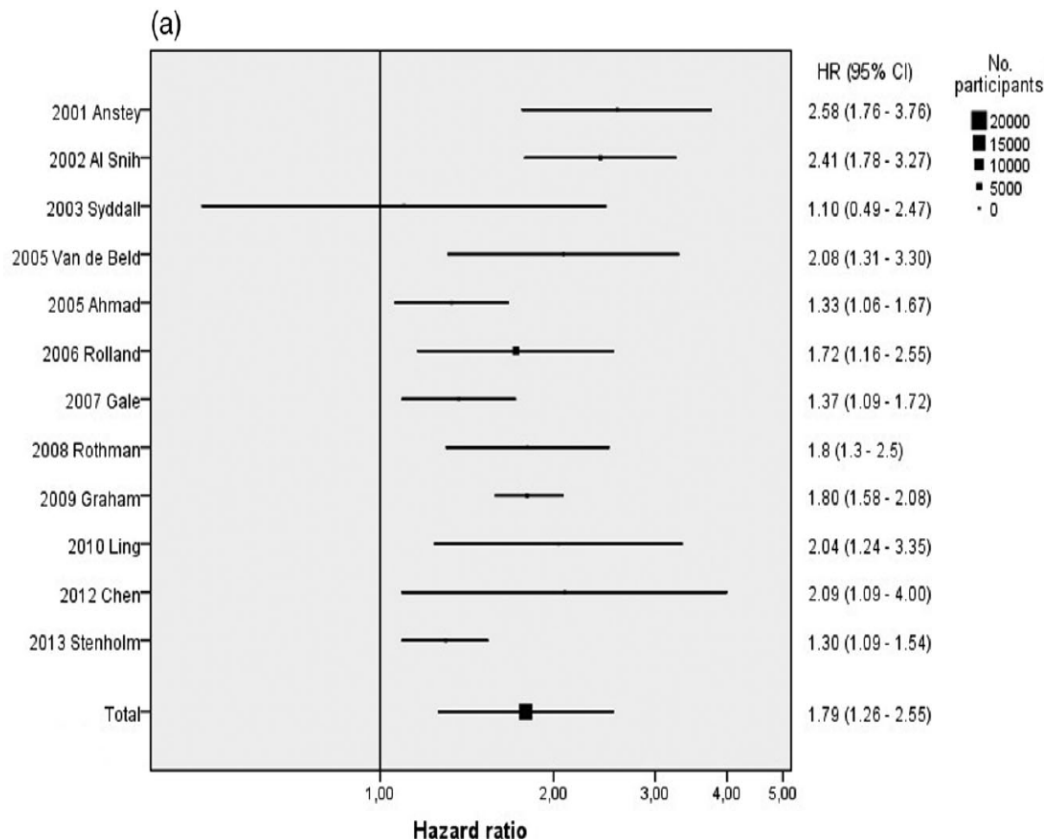
Sapienza University, Rome, Italy.



Rationale

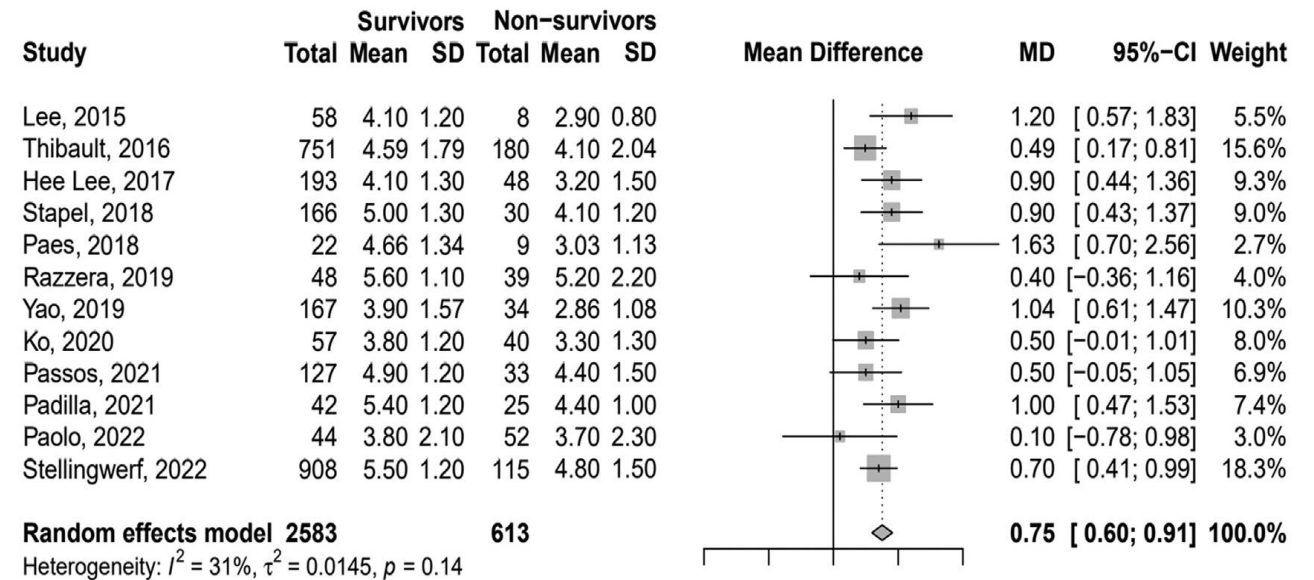
Handgrip strength

Prognostic value of handgrip strength



- Validity of handgrip strength and phase angle as outcome predictors has been widely investigated in cancer patients and in several clinical settings.

Phase Angle



Lima J, et al. Clin Nutr. 2022;41(12):2801-2816.

Rijk JM, et al. Geriatr Gerontol Int. 2016;16(1):5-20.

Ringaitiene D, et al. Clin Nutr. 2016;35(6):1328-1332.

Objectives

- The prognostic ability of handgrip strength and phase angle in cardiac surgery patients has been poorly explored to date.
- The aim of our study was to examine the relationship between muscle quality (as strength generated per unit of muscle mass) and phase angle with different perioperative and postoperative outcomes in patients undergoing cardiac surgery.

Methods

Participants were enrolled among subjects admitted at the Cardiac Surgery Unit, “Umberto I” Hospital, Sapienza University, Rome, Italy, for **either valve replacement or coronary artery bypass grafting**.

- Patients aged between **18 and 85** years were included.
- **Body composition** was assessed by bioimpedance analysis (BIA_ACC, Biotekna, Venice, Italy).
- **Phase angle** (50 kHz) was considered.
- **The handgrip strength test (HGST)** was performed.
- Handgrip strength was normalized to fat-free mass (FFM) as an indicator of **muscle quality**.
- The nutritional screening tool “Malnutrition Universal Screening Tool -**MUST**” was used.
- The length of stay (**LOS**), LOS in the intensive care unit (**LOS-ICU**), and the length of **cardiac rehabilitation** were considered as postoperative outcomes, and **hyperglycemia and hemoglobin levels** as perioperative outcomes.

Exclusion criteria

- pacemaker carriers
- BMI > 45 Kg/m²
- active cancer



Barbat-Artigas S, et al. J Am Med Dir Assoc. 2014 Apr;15(4):303.e13-20.

de van der Schueren MAE, Clin Nutr. 2022 Oct;41(10):2163-2168.

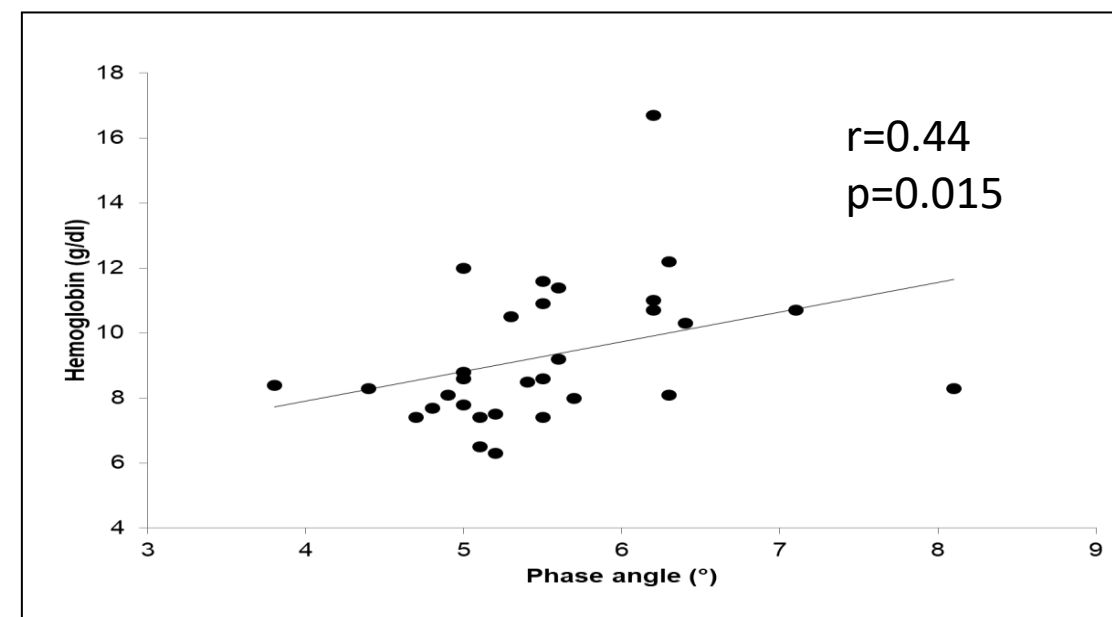
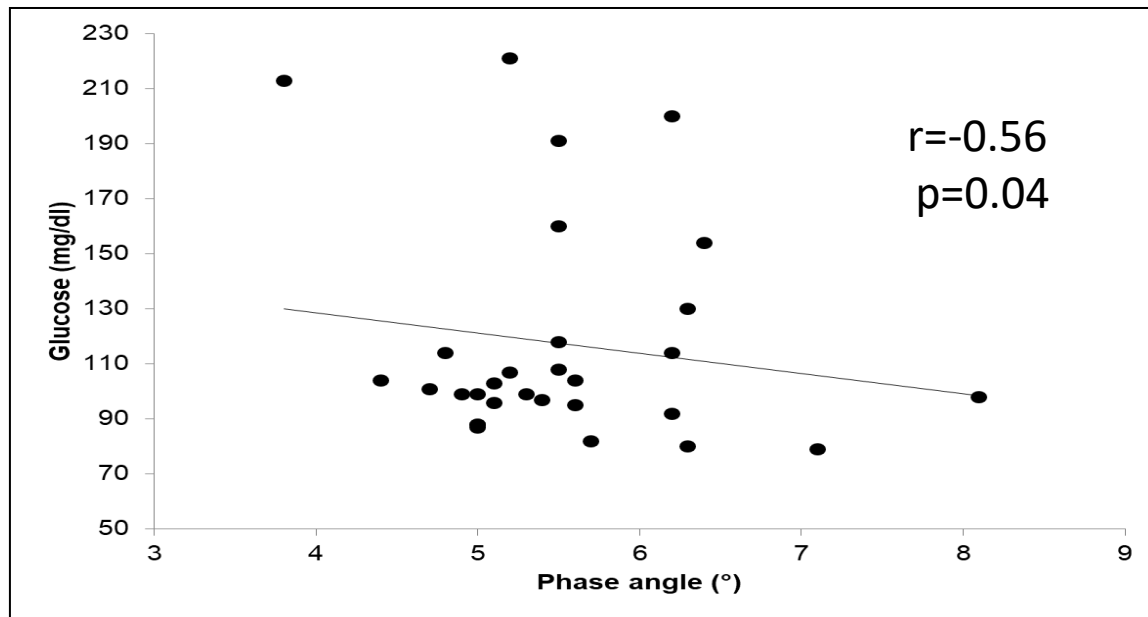
Results

- 35 participants were included (age: 66.7 ± 9.6 years, BMI: 27.1 ± 4.9 kg/m²).
- Based on the MUST score, **only 3%** of study participants were at **medium nutritional risk**, whereas the majority of patients (97%) were at low risk.

	Low Muscle Quality	High Muscle Quality	p
M/F (n)	(6/11)	(13/5)	0.08
Age(years)	71±6	61±9	0.03
BMI (kg/m ²)	25.9±4.8	29.1±5.2	NS
FFM (kg)	43.6±6.1	50.6±7.2	0.01
Body fat(kg)	38.5±4.4	37.9±8.5	NS
HSGT (kg)	19.2±5.1	34.3±4.9	<0.001
HSGT/FFM	0.45±0.13	0.68±0.11	<0.001

Low muscle quality group vs. High muscle quality group based on muscle quality median values.

Results: perioperative and postoperative outcomes



Relationships between Muscle Quality and Length of Stay

	r	p
Length of Stay –LOS (days)	- 0.41	0.04
Cardiac Rehabilitation LOS (days)	- 0.48	0.03
ICU-LOS (days)	-0.18	ns

Conclusions



- Phase angle was significantly related with perioperative outcomes.
- Muscle quality exhibited significant correlations with relevant postoperative outcomes.
- Handgrip strength and phase angle should be included as preoperative evaluation in the cardiac surgery setting.
- Further studies are needed to clarify their long-term prognostic performance.

Acknowledgements

Cardiac Surgery team

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Thank you
for your attention



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