

Will Exercise Prescription via Metabolic Equivalents Improve Six-Minute Walk Distance of Patients Undergoing Cardiac Rehabilitation?

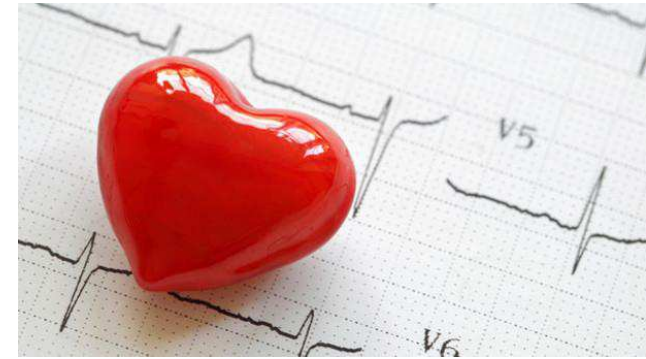
Presented by Qamaruzaman Bin Syed Gani

Research

Clinical Care

Education

Benefits of Cardiac Rehabilitation

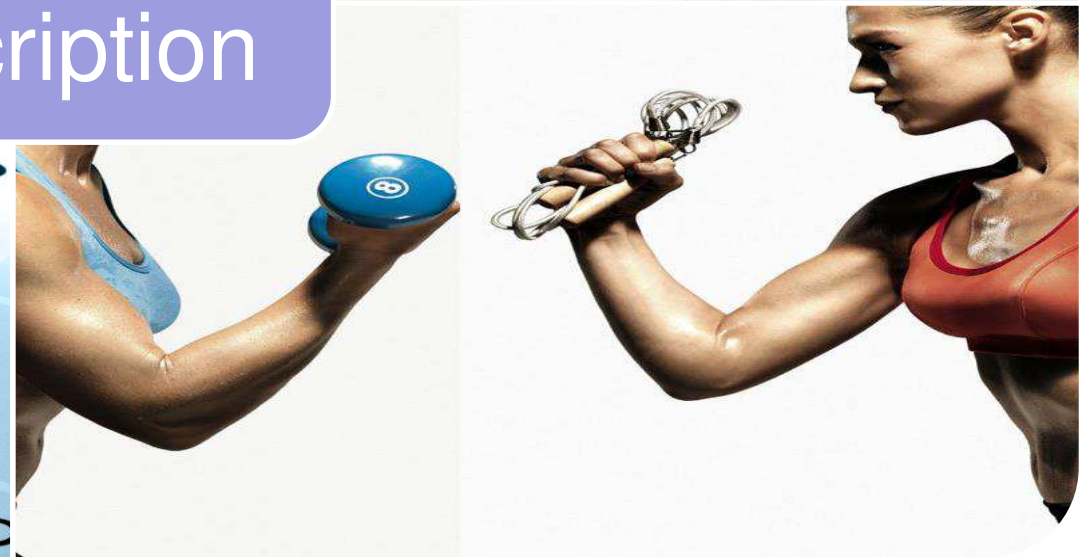


Frequency

Intensity



Exercise Prescription



Time

Type

Intensity

Intensity	%HRR	%HR _{max}	RPE (6 – 20 scale)	METs
Light	30 – 39	57 – 63	9 – 11	2.0 – 2.9
Moderate	40 – 59	64 – 75	12 – 13	3.0 – 5.9
Vigorous	60 – 89	76 – 95	14 – 17	6.0 – 8.7

Participants/Methods

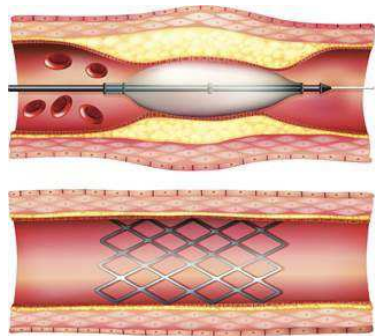
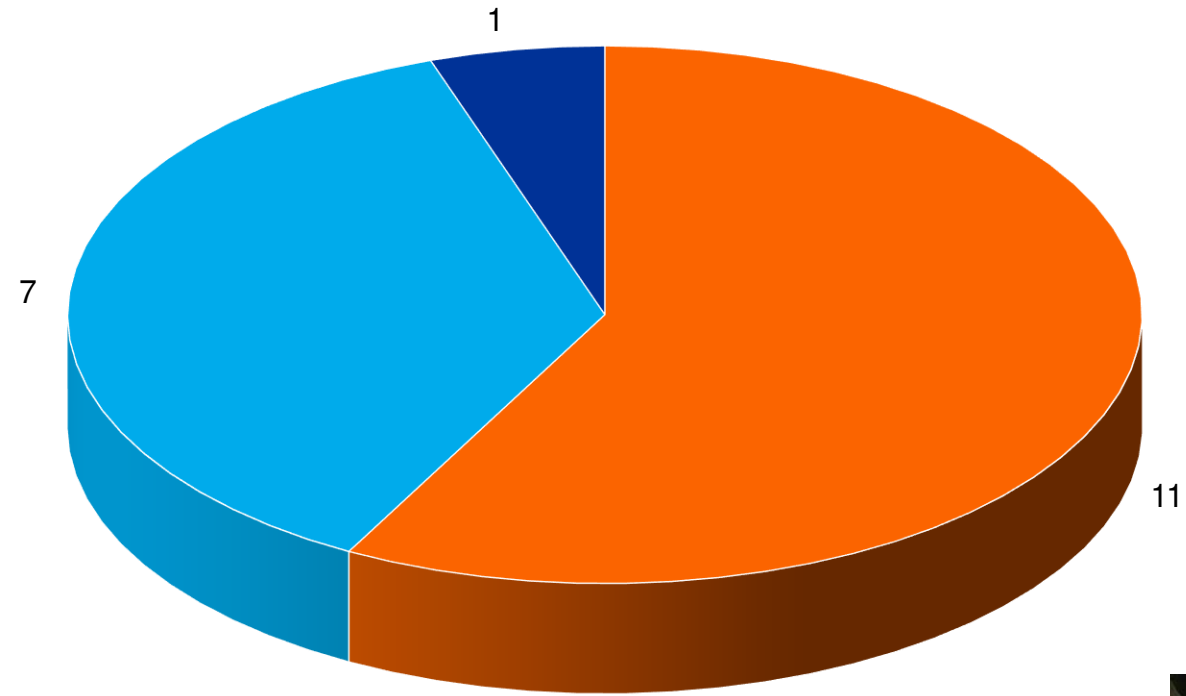


Participants

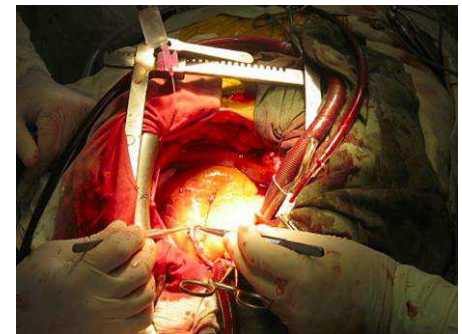


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Participants



- Percutaneous Coronary Intervention
- Coronary Artery Bypass Graft
- Valve Surgery



Methods

Intervention Group	Control Group
Prescribed individual aerobic exercise via Metabolic Equivalents (METs)	Prescribed individual aerobic exercise via maximum Heart Rate (HRmax)
Primary outcome measure was the Six-Minute Walk Test (6MWT) conducted on the first and twelfth session.	



Methods

Your Health and Well-Being

This questionnaire asks for your views about your health. This information will help keep track of how you feel and how well you are able to do your usual activities. *Thank you for completing this survey!*

For each of the following questions, please mark an in the one box that best describes your answer.

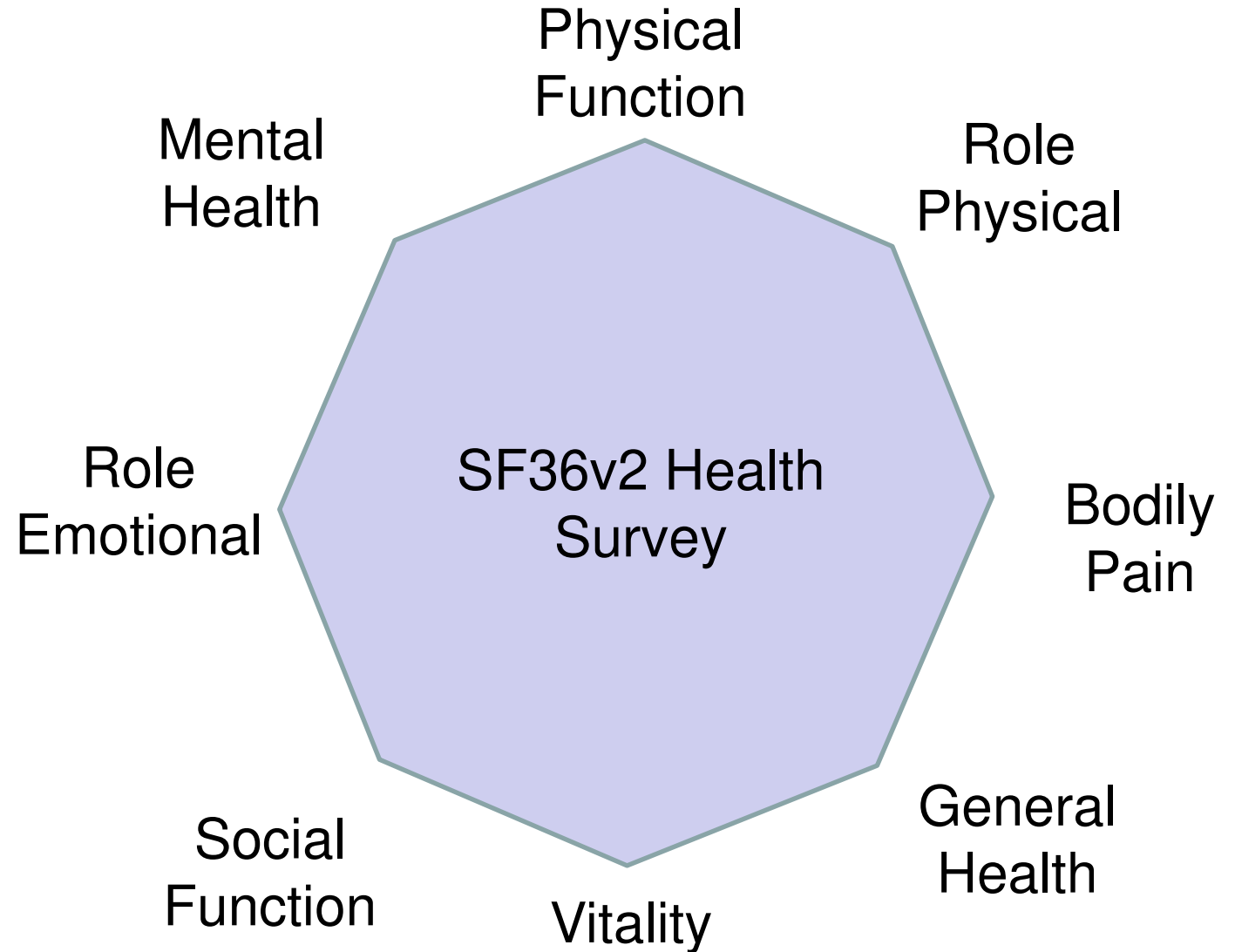
1. In general, would you say your health is:

Excellent	Very good	Good	Fair	Poor
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Compared to one year ago, how would you rate your health in general now?

Much better now than one year ago	Somewhat better now than one year ago	About the same as one year ago	Somewhat worse now than one year ago	Much worse now than one year ago
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SF-36v2™ Health Survey © 1992, 2004 Health Assessment Lab, Medical Outcomes Trust and QualityMetric Incorporated. All rights reserved.
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Methods



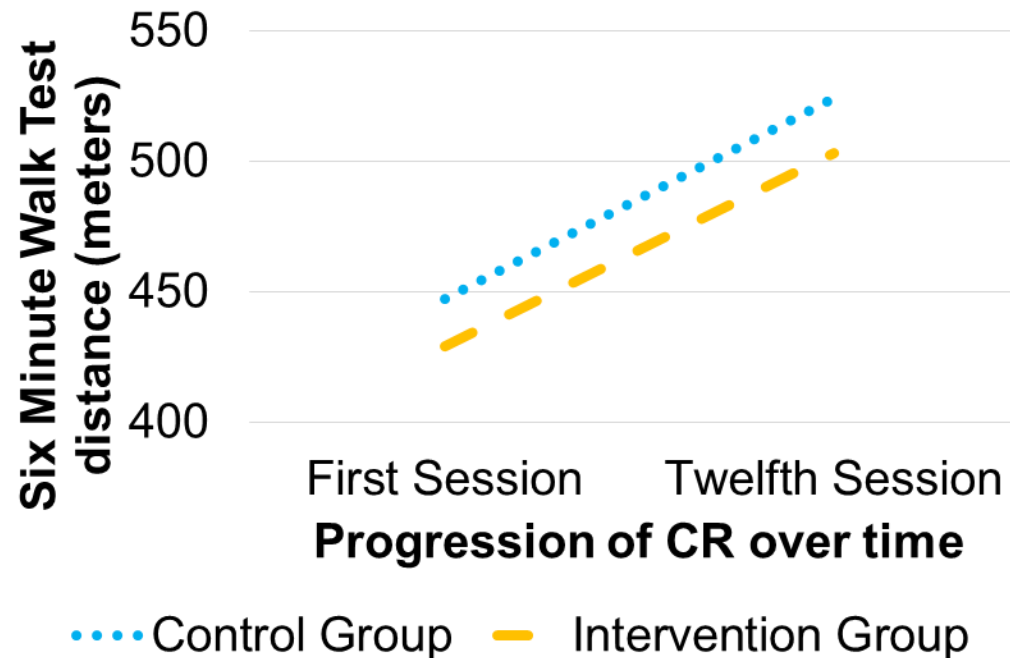
Results

Results

	Intervention Group	Control Group
Age (years)	57 ± 10	58 ± 10
BMI (kg·m ⁻²)	26.0 ± 4.7	22.8 ± 3.7
Male	16	
Female	3	

Results

- Significant improvement ($p = 0.0005$) in pre and post-6MWT within intervention and control group.
- Exercise prescription via METs led to similar 6MWT distance improvements when compared with exercise prescription via HRmax ($p = 0.86$).

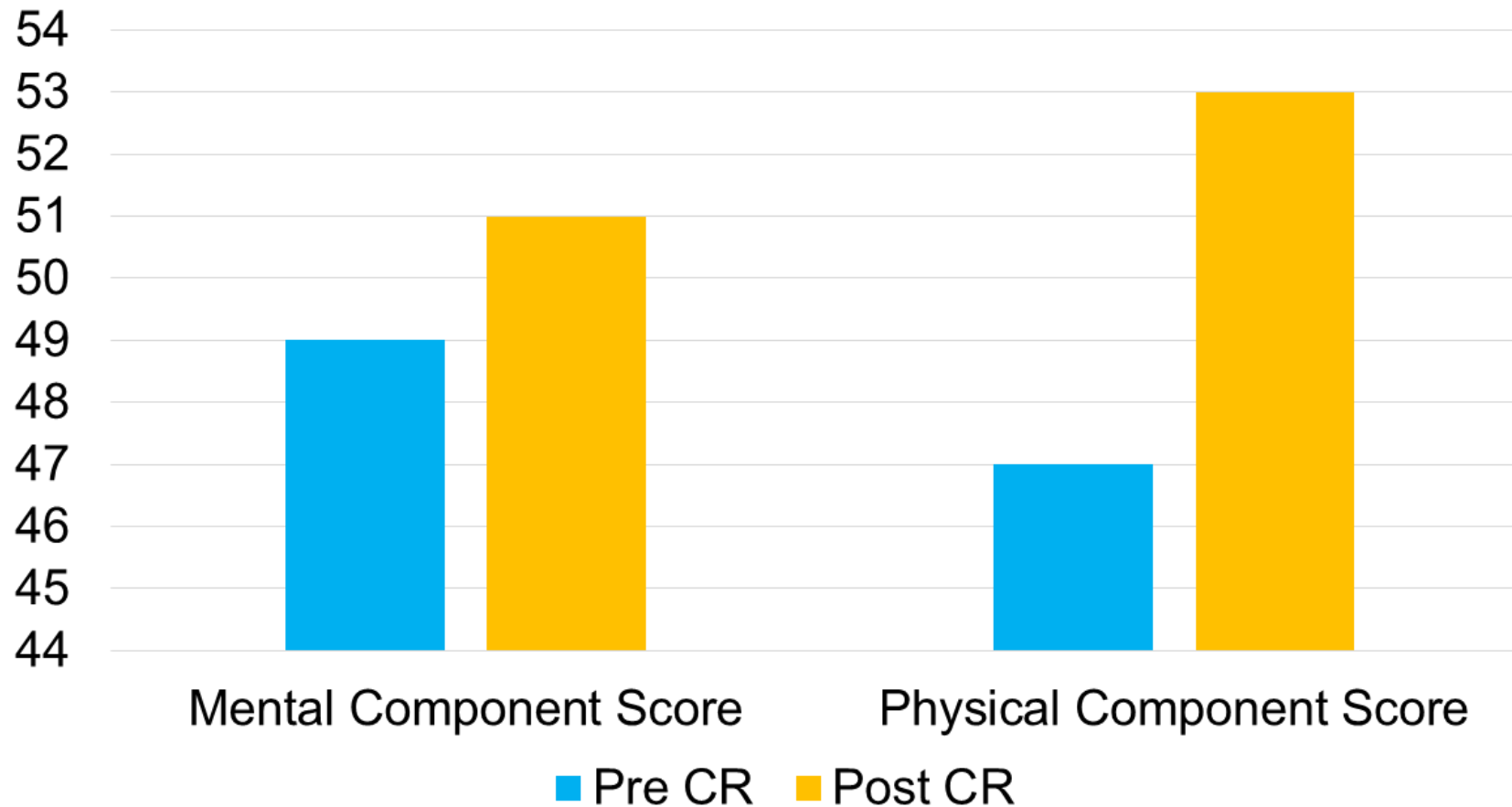


Results

SF36v2	Pre CR Scores	Post CR Scores	p-value
Physical Function	45.45 ± 6.66	52.60 ± 2.95	0.001
Role-Physical	44.04 ± 10.08	47.58 ± 7.74	0.11
Bodily Pain	50.39 ± 7.49	52.77 ± 8.20	0.09
General Health	50.41 ± 8.58	55.66 ± 7.85	0.001
Vitality	50.25 ± 8.02	56.66 ± 7.68	0.01
Social Functioning	44.94 ± 7.35	50.48 ± 7.88	0.004
Role-Emotional	45.36 ± 11.37	46.46 ± 9.75	0.92
Mental Health	51.28 ± 7.81	53.07 ± 9.68	0.43


Results

- **CR resulted in improvements in physical component score ($p = 0.001$) but not mental health score ($p = 0.32$).**



Discussion

Discussion

- **Improvement in 6MWT distance was similar when exercise was prescribed via HRmax or METs.**
 - **Moderate inverse correlation between initial 6MWT distance and distance improved post Cardiac Rehabilitation**
 - **Lower physical function = greater improvement in 6MWT distance**
 - **'Ceiling effect' may occur in participants with higher pre-6MWT distance**
- 

Discussion

- **Currently using Heart Rate Walking Speed Index (HRWSI) to explain improvement**

Improvement of HRWSI: 1.60 to 1.40

- **Compare METs value to estimated energy requirements for tasks of daily living or sports.**



Improved METs from 4 to 6.5



4 to 9 METs

Discussion

- **Cardiac Rehabilitation improves Physical but not Mental Health-Related Quality of Life.**
- **Modest correlation between relative distance improved in 6MWT and relative improvement in Physical Component Score**
- **Availability of normative scores in Singapore**
- **Early identification and justification of psychosocial assistance**



Summary

Metabolic
Equivalents

Maximum Heart
Rate



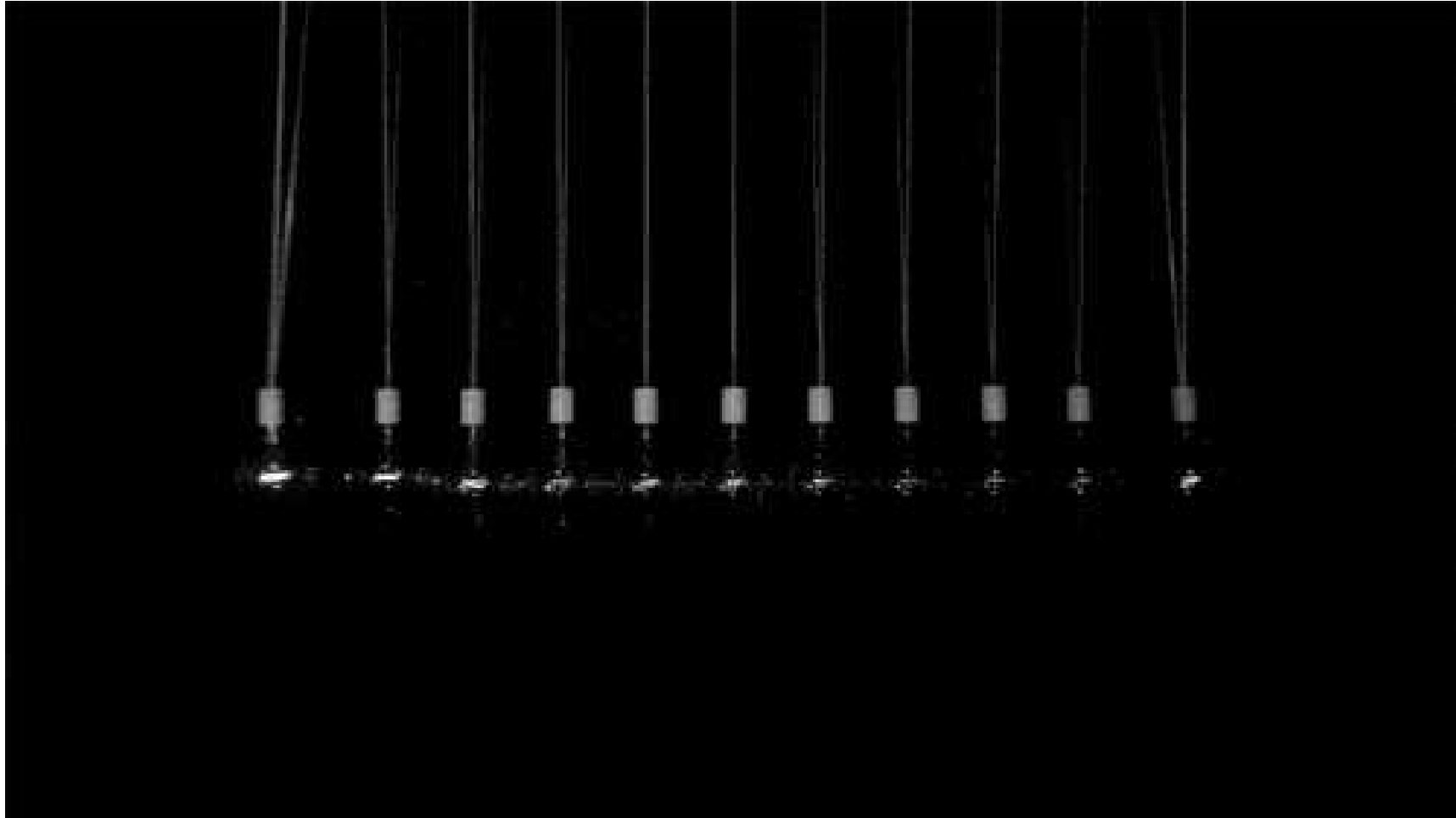
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Questions



Thank you for your attention

Research

Clinical Care

Education