

THE VALUE OF CARDIAC REHABILITATION IN THE ICD POPULATION

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Presentation Content

- Background
- Literature
- Study at CHB and MMUH
- Results
- Conclusions and
- Recommendations



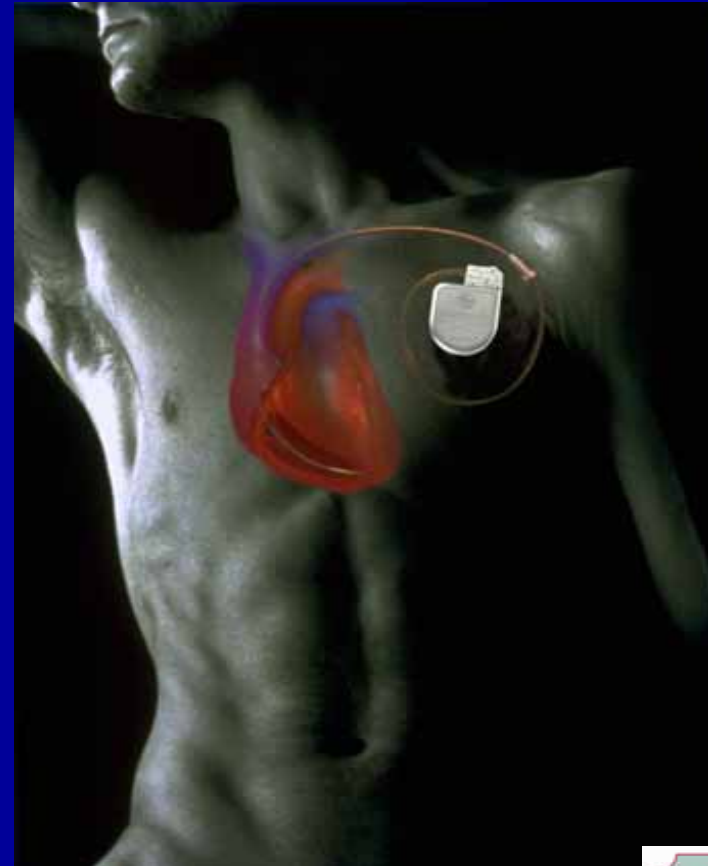
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Background

What is an ICD?

- Lifesaving device
 - ICD: 3 Tier therapy- pacing, cardioversion, and defibrillation therapies to treat brady and tachy arrhythmias.
- Fast rhythms
 - Rapid pacing
 - Low energy shock
 - High energy shock
- Slow rhythm
 - Pacing



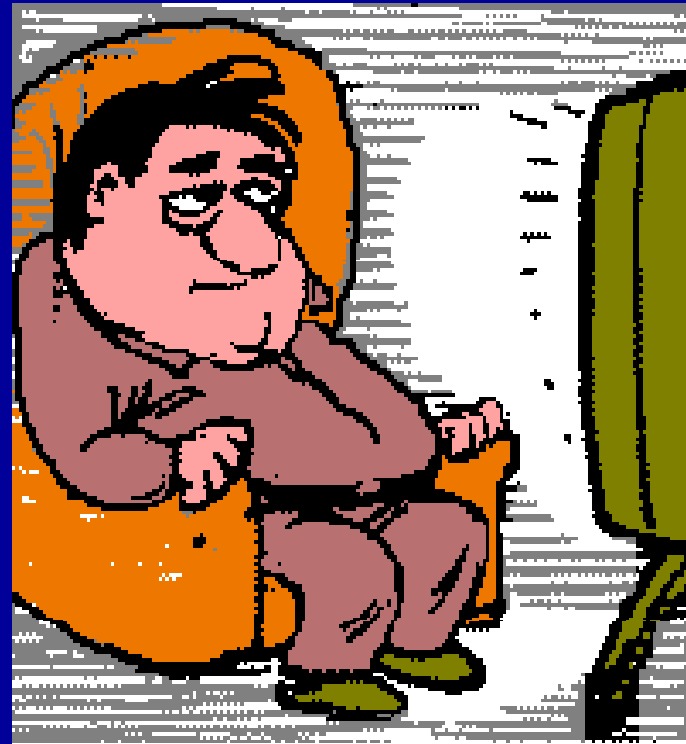
Background

- Cardiac Rehabilitation
- Increase in ICD referrals
 - MADIT I 1996, AVID 1997, MADIT II 2002;
SCD-HeFT 2005
- Little research ICD recipients in Cardiac Rehabilitation
- Fear of exercise (Sears 1999; Lampman 2000; van Ittersum et al 2003)



Physical Inactivity

- One of the major risk factors for heart disease.



Current Literature: ICD patients attending Cardiac Rehabilitation

Author	Year	n	Comment
Friedman et al	1996	2	Case Study
Vanhees et al	2001	8	Prospective study
Fitchet et al	2003	11	RC crossover study



Current Literature: ICD patients attending Cardiac Rehabilitation

Author	Year	n	Comment
Kamke et al	2003	118	Prospective
Frizelle et al	2004	22	Crossover study
Vanhees et al	2004	92	Prospective study

Current Literature: ICD patients attending Cardiac Rehabilitation

Author	Year	n	Comment
Dauids et al	2005	28	Retrospective comparative study
Schmid et al	2006	26	Prospective study
Fan et al	2009	42	Retrospective study



Aim and Objectives

- ICD recipients can achieve similar physical and psychological benefits as those achieved in other cardiac patients
 - compare functional capacity pre and post Cardiac Rehabilitation
 - compare psychological functioning
 - to assess safety and feasibility
 - inform practice & make recommendations



Methodology

- All ICD recipients referred to CHB & MMUH CR over 15 months
- Control Group- All patients referred to Cardiac Rehab at CHB over same time period
- Outcome Measures-TMET-METS, HADS, Concerns pre and post Cardiac Rehabilitation.
ICD shocks adverse events



Cardiac Rehabilitation Programme

- Multifactorial Cardiac Rehab Programme
- 8-10 week programme/2-3 times week
- Monitored exercise aerobic circuit
- 65% -80% MHR (Karvonen)
- 1CD's 10 beats below ICD activation threshold
- Multidisciplinary education sessions
- Access to individual sessions, Physiotherapy, Dietitian, Psychology, CNS



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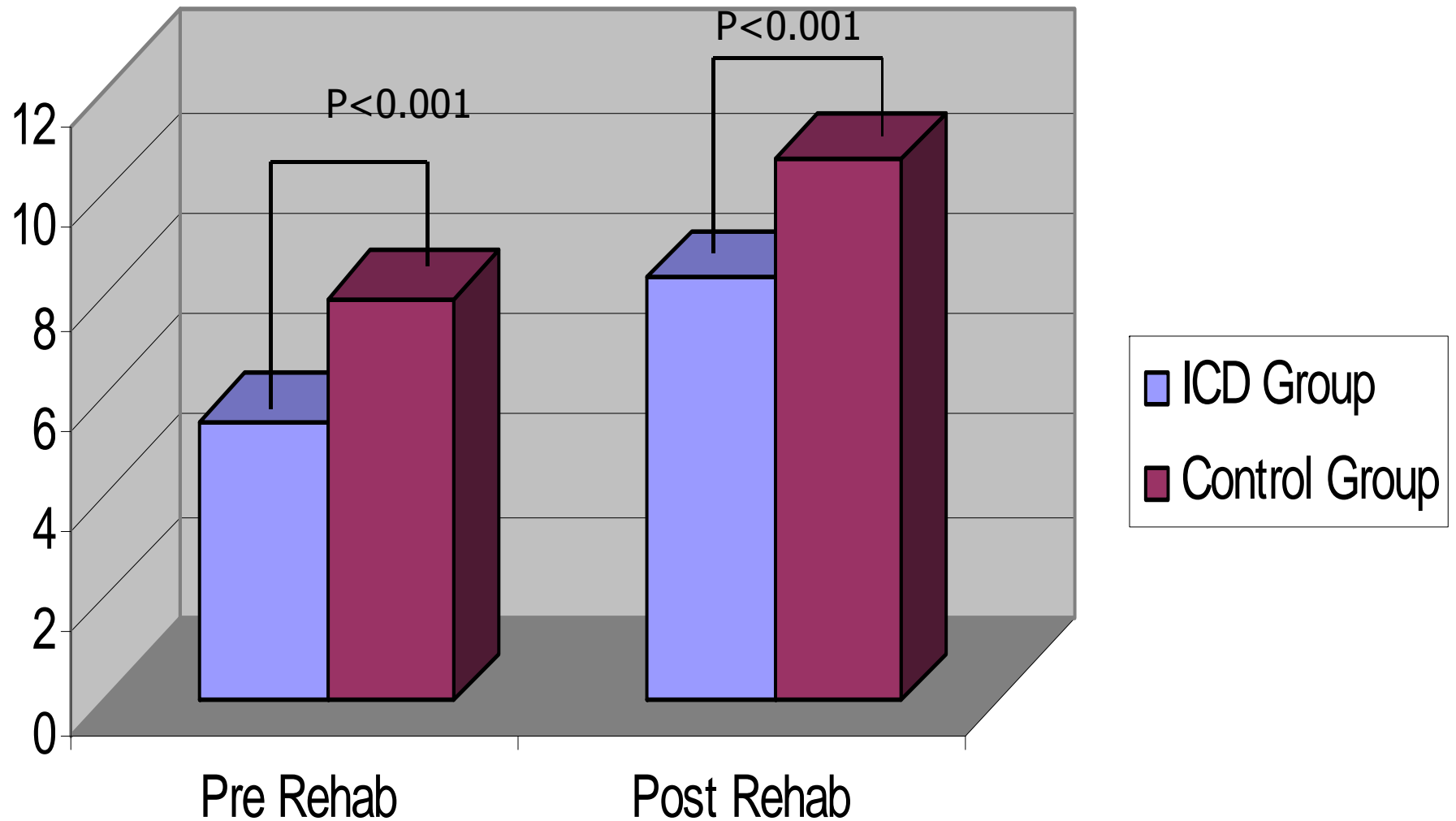


Results

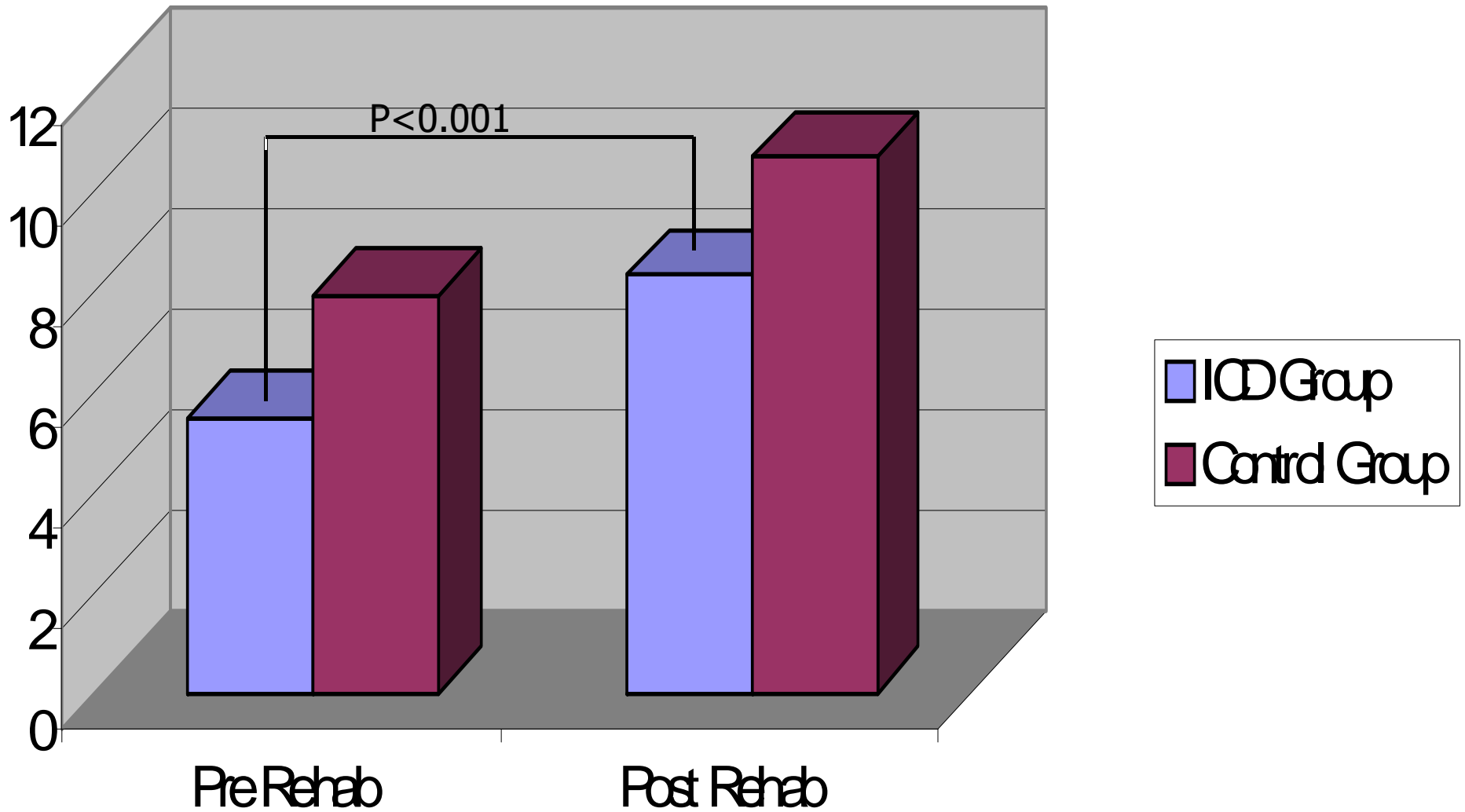
	ICD (n=28)	Control (n=78)
Gender	82% (male)	84% (male)
Previous Cardiac History		
MI	81%	27%
CABG	32%	12%
PCI	29%	23%
Prior Cardiac Arrest	32%	4%
Ejection Fraction (EF) (Mean \pm S.D.)	25% \pm 12%	48% \pm 11%
EF \leq 35%	82%	22%



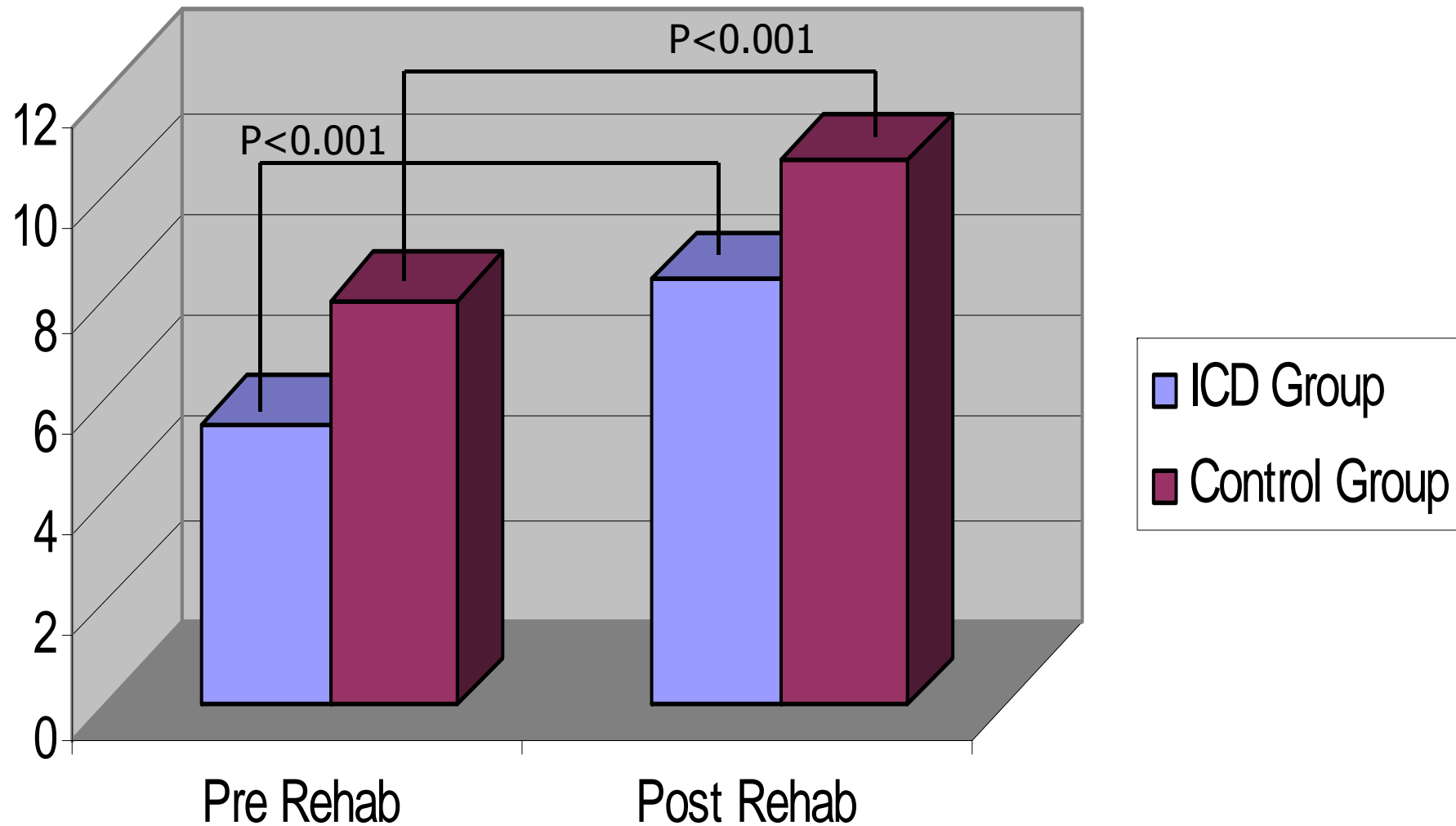
Mean METS pre and post Cardiac Rehabilitation for ICD group and control group



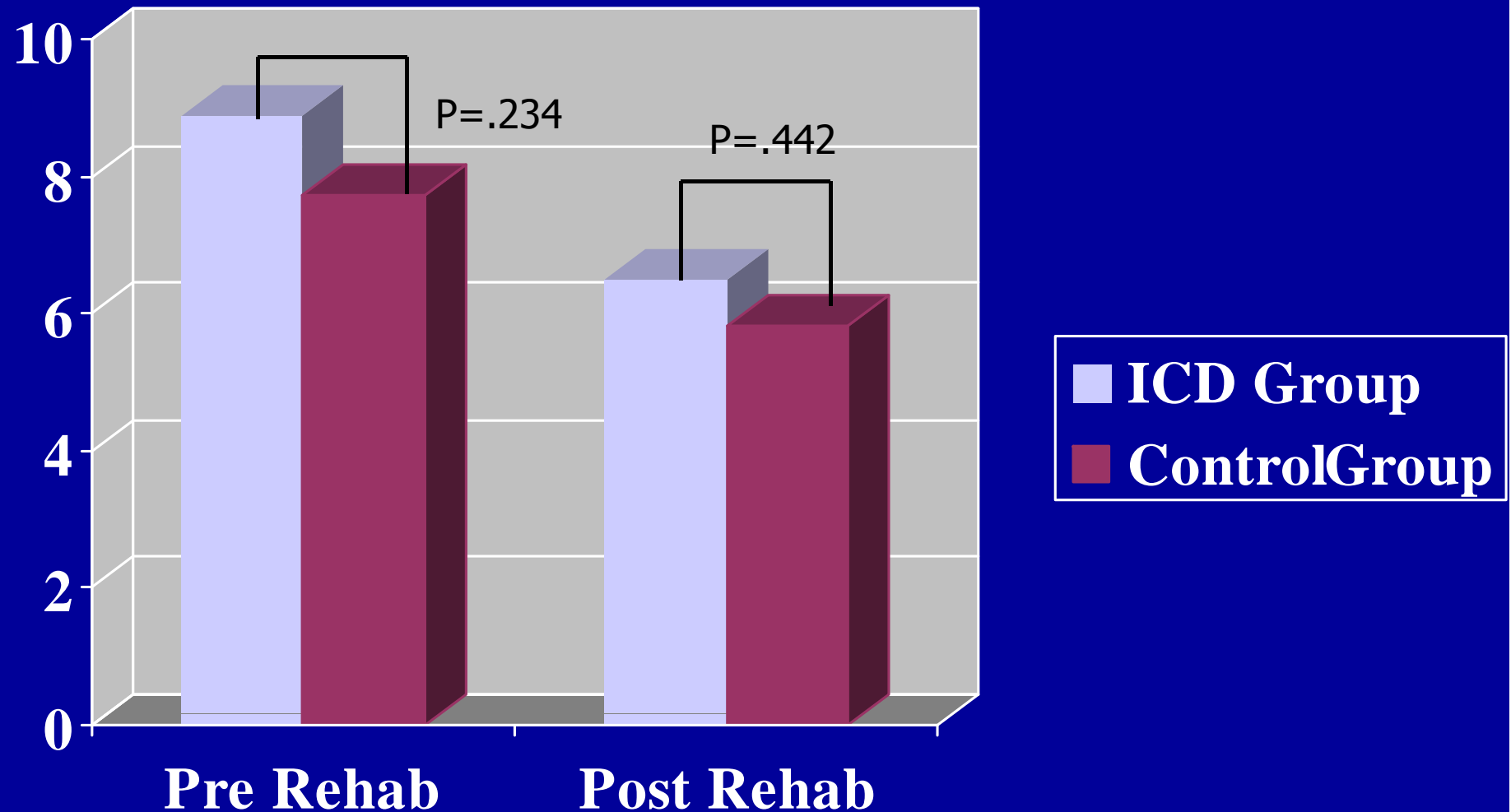
Mean METS pre and post Cardiac Rehabilitation for ICD group and control group



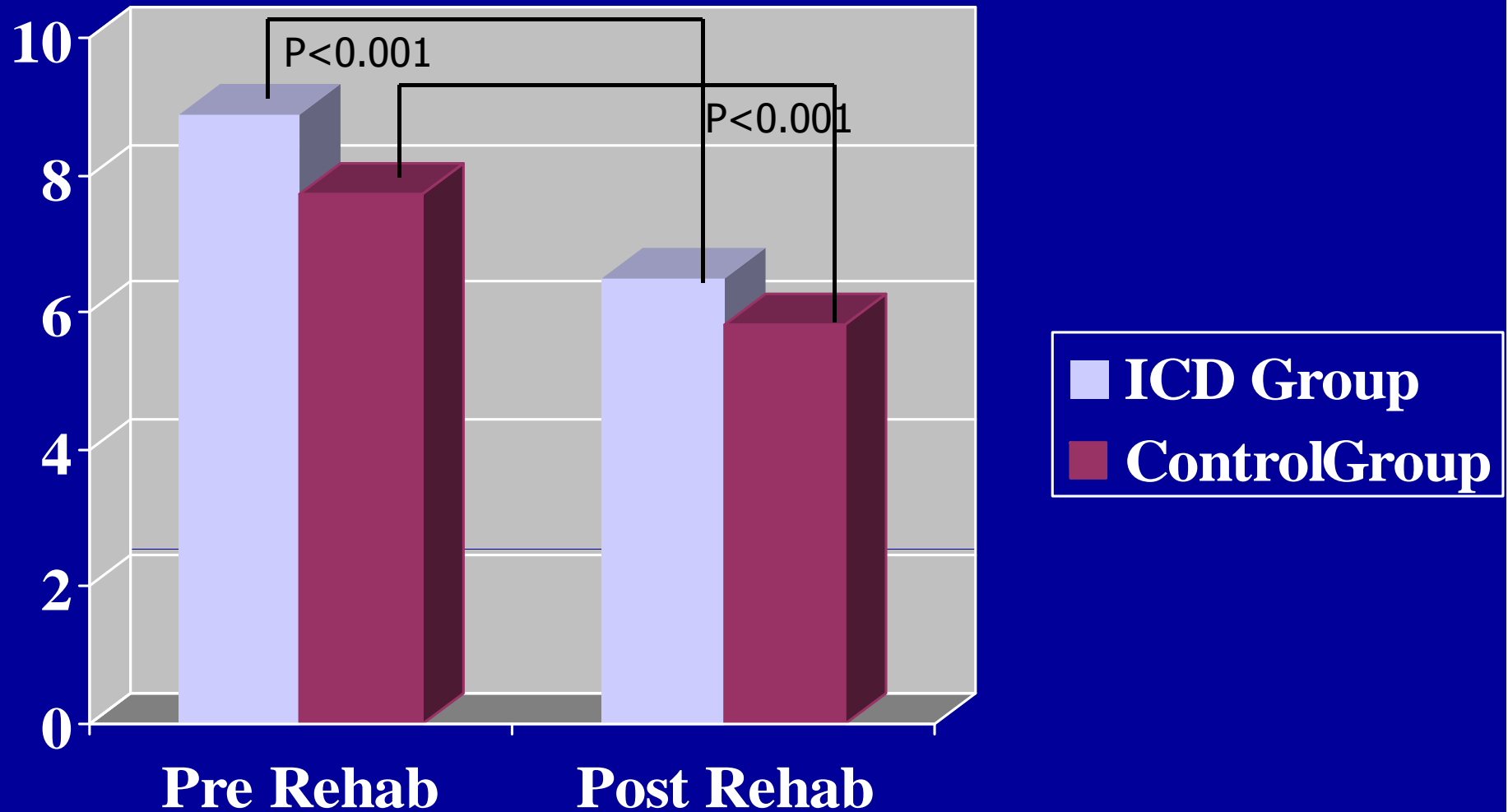
Mean METS pre and post Cardiac Rehabilitation for ICD group and control group



HADS for ICD and Control Group



HADS for ICD and Control Group



Concern regarding Physical Activity

	ICD Group	Control Group
Pre Cardiac Rehabilitation	46%	33%
Post Cardiac Rehabilitation	16%	13%

Safety

- No ICD Discharges during course of programme, either during sessions or at home
- One at post rehab TMET
- Stable Heart Rates and BP



Limitations

- Functional capacity-respiratory gas exchange
- Selection bias
- Small sample



Conclusions

Value of CR for ICD recipients?

- ICD recipients can participate
- Increase in functional capacity
- Improvement in psychological outcomes
- “Confidence to exert” Fitchet 2003; Sears 2004
- Safe



Recommendations

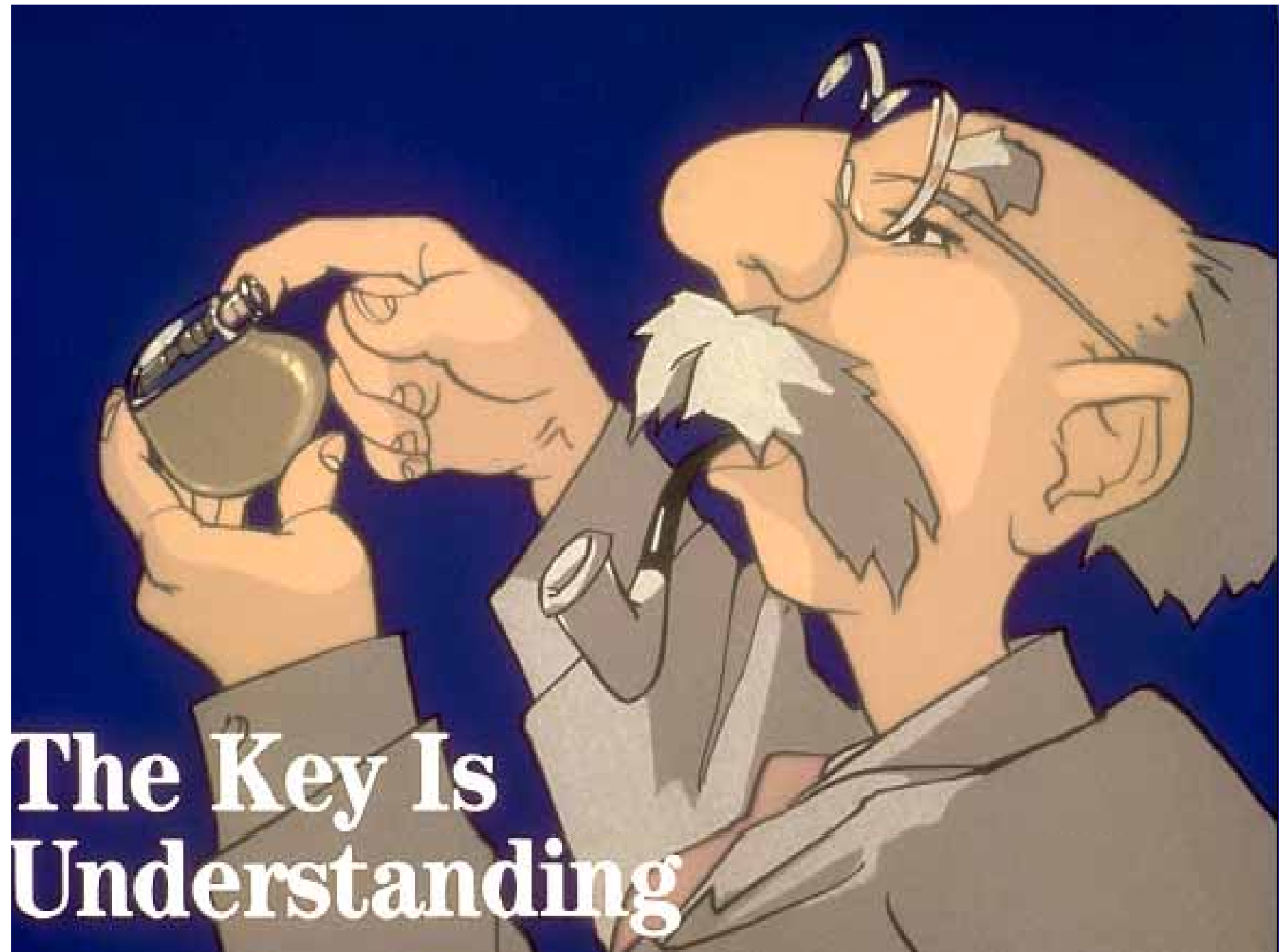


- Medical supervision/access to Cardiologist
- Assessment- strict guidelines
- Careful supervision/qualified staff/ECG monitoring
- Access to onsite ICD expertise
- Access to cardiac diagnostics
- Psychological support
- Multicentre randomised trial is required



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**The Key Is
Understanding**