COMPARISON OF EXERCISE TOLERANCE IN CORONARY HEART DISEASE PATIENTS AGE 40-54, 55-69, AND \geq 70 YEARS OLD BEFORE AND AFTER ATTENDING A COMPREHENSIVE EXERCISE BASED CARDIAC REHABILITATION PROGRAM

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Ms. Donella Proud (Registered Nurse)
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Cardiac rehabilitation

Return to active life

Prevents recurrent cardiac events

Specific aims:

- Facilitates recovery post cardiac events
- Provides strategies for ongoing prevention
- Long-term behaviour change and self-management
- Treatment/medication adherence





TCH INPATIENT CARDIAC REHABILITATION

- Inpatient enrolment
- Basic health/lifestyle modification education/counselling
- Initial assessment 3-4 weeks post discharge
- 6 weeks program, 2 sessions per week
- Exercise regimen
- Referral to outpatient cardiac rehabilitations
- Multidisciplinary approach

Main component of inpatient cardiac rehabilitation is exercise.





Arteries

↓atherosclerosis ↑central artery compliance ↓central artery wall thickness ↑vascular function ↑endothelial progenitor cell mobilisation ↑angiogenesis Hemodynamic ↑stroke volume ↓resting heart rate ↓systemic vascular resistance

Cardiome

Heart

↑LV diastolic relaxation
↑LV systolic contraction
↓LV afterload
↑Ischemic tolerance
↑coronary collateralisation
↑myocardial capillary density
↑coronary flow reserve

Neural

 ↓renal & muscle sympathetic nerve activity
 ↓norepinephrine spill-over
 ↓renal & cardiac baroreflexes
 ↑heart rate variability

Cardiovascular risk factors

↓ blood pressure
 ↓ body fat ↓ waist circumference
 ↓ blood glucose
 ↓ triglycerides*
 ↑ HDL cholesterol
 ↑ maximal oxygen consumption
 ↑ sleep quality & duration

Metabolic

↑insulin sensitivity ↑fibrinolytic activity ↓oxidative stress ↓plasma renin activity ↑nitric-oxide bioavailability ↓inflammation

Clinical outcomes ↓all-cause mortality (primary & secondary prevention) ↓coronary heart disease mortality ↓cardiovascular events

Sharman et al. 2015

Straight 30 meter track- ideal! Rate of perceived exertion- Borg scale

Haemodynamic measurement- blood pressure, heart rate and oxygen saturation

Scoring:

Absolute change- minimum important distance of 25 meters for cardiac patients Percentage change- relevant for frail patients with short baseline distance







1. To determine if exercise capacity improves in patients undergoing a cardiac rehabilitation program

2. To establish if the changes are different in different age categories











Age categories - as per AIHW CHD age trend in Australia: 40-54 y old 55-69 y old 55-69 y old ≥ 70 y old

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Participants - 50 cardiac patients
Intervention - completion of inpatient cardiac rehabilitation
Timeframe - July till September 2015
Setting - cardiac rehabilitation department, Canberra hospital
Data analysis – paired t test, p \le 0.05
Exercise capacity measurement- 6 minute walk test pre and post cardiac rehabilitation P
Ethics – TCH Ethics Committee
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Mean **age** 66.68 y/o











Before CR

After CR

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9 AUCUST 2017

DISCUSSION AND CONCLUSION

Improved exercise capacity pre and post CR in all age categories

40-54 years old – highest mean change in meter

 \geq 70 years old - highest percentage change

55-69 years old - lowest pre and post improvement meter/percentage









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