SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES

Date: 10/06/2020

From
Dr. Muthukumarasamy. B
Professor and Head.
Department of General Medicine
Sri Lakshmi Narayana Institute of Medical Sciences
Bharath Institute of Higher Education and Research
Chennai

To
The Dean,
Sri Lakshmi Narayana Institute of Medical Sciences
Bharath Institute of Higher Education and Research
Chennai

Sub: Permission to conduct value-added course: Ischemic Heart Disease and Exercise

Respected sir,

With reference to the subject mentioned above, the department proposes to conduct a value-added course titled: "Ischemic heart disease and exercise"on 10/07/2020. We solicit your kind permission for the same

Kind Regards,

Dr. Muthukumarasamy. B

FOR THE USE OF DEAN OFFICE

Names of Committee members evaluating the course:

The Dean: Dr. Rajasekar

The HOD: Dr. Muthukumarasamy. B

The Expert: Dr. Panneerselvam

The committee has discussed about the course and is approved.

Subject Expert HOD

DEPARTMENT OF GENERAL MEDICINE
SRI LAKSHMI NARAYANA
INSTITUTE OF MEDICAL SCIENCES
OSUDU, PONDICHERRY.

OFFICE OF THE DEAN

Sri Lakshmi Narayana Institute of Medical Sciences

OSUDU, AGARAM VILLAGE, VILLIANUR COMMUNE, KUDAPAKKAM POST,
PUDUCHERRY - 605 502.
[Recognised by Medical Council of India, Ministry of Health letter No. U/12012/249/2005-ME (P -II) dt. 11/07/2011]
[Affliated to Bharath University, Chennai - TN]

Circular

14.06.2020

Sub: Organising Value-added Course: Ischemic heart disease and exercise

With reference to the above mentioned subject, it is to bring to your notice that Sri Lakshmi Narayana Institute of Medical Sciences, **Bharath Institute of Higher Education and Research** is organizing a value added course titled "**Ischemic heart disease and exercise**" between **July 2020 to December 2020.** The course content is enclosed below.

The hard copy of the application should be sent to the institution by registered/ speed post only so as to reach on or before 29/06/2020. Applications received after the mentioned date shall not be entertained under any circumstances.

Encl: Copy of Course content

COURSE PROPOSAL

Course Title: **Ischemic Heart disease and exercise**

Course Objective: To create an awareness among students of the second year M.B.B.S about ischemic heart disease- its risk factors and pathogenesis and the role of suitable exercises in reducing the risk of acquiring the disease and modifying the disease

Course Outcome: Acquired an awareness regarding the role of exercise in primary and secondary prevention of Ischemic heart disease

Course Audience: A batch of 25 students belonging to the second year of M.B.B.S

Course Coordinator: Dr. Muthukumarasamy.B

Course Faculties with Qualification and Designation:

1. Dr. Panneerselvam
   Professor
   Department of Internal Medicine
2. Dr. S. Arul Murugan
   Associate Professor
   Department of Medicine

Course Curriculum/Topics with schedule

SlNo	Date	Topic	Time	Hours	Name of faculty
1.	10/07/2020	Ischemic heart disease – introduction	5 pm to 7 pm	2 hours	Dr. Panneerselvam
2.	17/07/2020	Risk Factors for development of IHD	4: 30 pm to 6: 30 pm	2 hours	Dr. S. Arul Murugan
3.	24/07/2020	Pathogenesis of IHD	5 pm to 7 pm	2 hours	Dr. Panneerselvam
4.	31/07/2020	Clinical manifestations of IHD	5 pm to 7 pm	2 hours	Dr. S. Arul Murugan

5.	07/08/2020	How to diagnose IHD?	5 pm to 6 pm	1 hour	Dr. Panneerselvam
6.	14/08/2020	Metabolic syndrome and Ischemic heart disease	4: 30 pm to 6: 30 pm	2 hours	Dr. S. Arul Murugan
7.	21/08/2020	Physical activity in reducing the risk of acquiring IHD	5 pm to 7 pm	2 hours	Dr. Panneerselvam
8.	28/08/2020	Secondary prevention of IHD	5 pm to 7 pm	2 hours	Dr. S. Arul Murugan
9.	04/09/2020	Role of aerobic exercise in the modifying disease outcomes in patients with IHD	4 pm to 6 pm	2 hours	Dr. Muthukumarasamy. B
10.	11/09/2020	What is the right type of physical activity to advice a patient with IHD ?	4 pm to 6 pm	2 hours	Dr. Panneerselvam
11.	18/09/2020	Modification of lipid profile post exercise training in patients with IHD	4 pm to 5 pm	1 hour	Dr. S. Arul Murugan
12.	25/09/2020	Modification of hematological parameters post aerobic exercise training	4 pm to 6 pm	2 hours	Dr. Panneerselvam
13.	03/10/2020	Glucose metabolism and exercise training	4 pm to 6 pm	2 hours	Dr. Muthukumarasamy. B
14.	09/10/2020	Psychological risk factor modification: wellness leading to goodness!	4 pm to 6 pm	2 hours	Dr. Panneerselvam
15.	16/10/2020	Risk associated with vigorous exercise regimens	4 pm to 6 pm	2 hours	Dr. S. Arul Murugan
16.	06/11/2020	Challenges faced by the patient in pursuing a strict exercise regimen	4 pm to 6 pm	2 hours	Dr. Panneerselvam
			Total Hours	30	

REFERENCE BOOKS:

1. **HARRISON'S PRINCIPLES OF INTERNAL MEDICINE; 18th EDITION**
2. **BRAUNWALD'S CARDIOLOGY**

VALUE ADDED COURSE

1. Name of the programme and code

   Ischemic heart disease and exercise; IM01

2. Duration & period

   30 hrs; between July 2020 – November 2020

3. Information Brochure and course content of value-added courses

   Enclosed as Annexure – I

4. List of students enrolled

   Enclosed as Annexure – II

5. Assessment procedures:

   Short notes – Enclosed as Annexure – III

6. Certificate model

   Enclosed as Annexure – IV

7. No. of times offered during the same year

   1; July 2020 – November 2020

8. Year of discontinuation

   2020

9. Summary report of each program year wise:

VALUE ADDED COURSE: July 2020 – November 2020					
Sl. No.	Course code	Course name	Resource persons	Target Students	Strength and year
1	IM01	Ischemic Heart disease and exercise	Dr. Panneerselvam Dr. S. Arul Murugan	Second year MBBS	25 (July 2020 – November 2020)

10. Course feedback

    Enclosed as Annexure- V

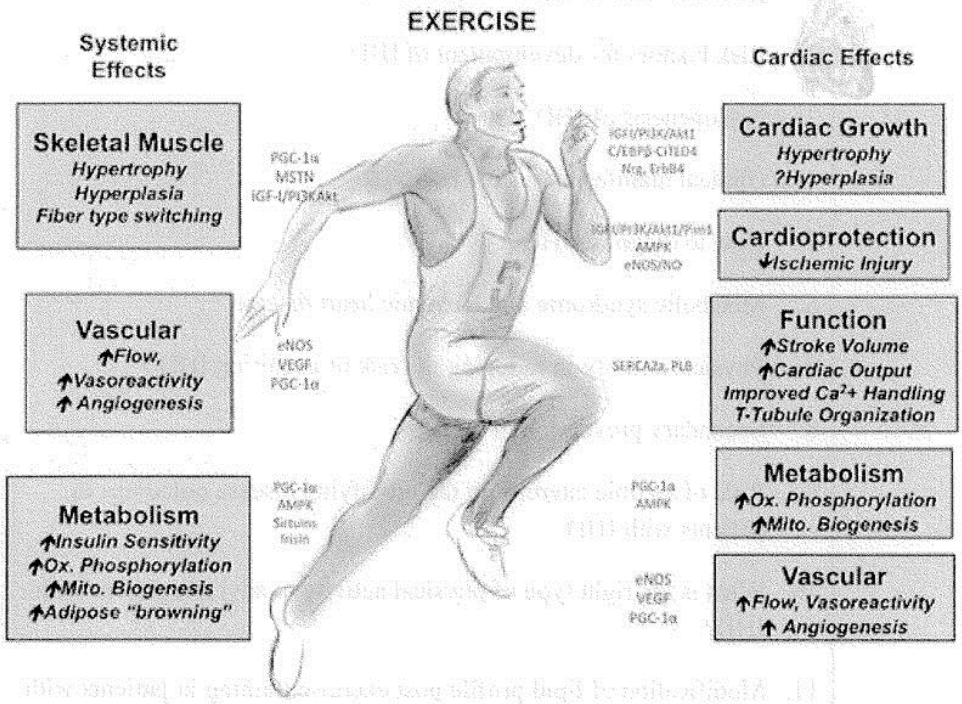
RESOURCE PERSON – Dr. Panneerselvam

COORDINATOR – Dr. Muthukumarasamy. B

Dr. B. MUTHUKUMARASAMY, MD.,
Reg. No. 33723
Professor, General Medicine

ANNEXURE - I

ISCHEMIC HEART DISEASE AND EXERCISE



PARTICIPANT HAND BOOK

VALUE ADDED COURSE (July 2020 to November 2020)

COURSE DETAILS

PARTICULARS	DESCRIPTION
Course title	ISCHEMIC HEART DISEASE AND EXERCISE
Course code	IM01
Objective	1. Ischemic heart disease – introduction 2. Risk Factors for development of IHD 3. Pathogenesis of IHD 4. Clinical manifestations of IHD 5. How to diagnose IHD 6. Metabolic syndrome and Ischemic heart disease 7. Physical activity in reducing the risk of acquiring IHD 8. Secondary prevention of IHD 9. Role of aerobic exercise in the modifying disease outcomes in patients with IHD 10. What is the right type of physical activity to advice a patient with IHD? 11. Modification of lipid profile post exercise training in patients with IHD 12. Modification of hematological parameters post aerobic exercise training 13. Glucose metabolism and exercise training 14. Psychological risk factor modification: wellness leading to goodness! 15. Risk associated with vigorous exercise regimens 16. Challenges faced by the patient in pursuing a strict exercise regimen
Key competencies	On successful completion of the course, the students will have a better knowledge about the role of exercise in primary and secondary prevention of ischemic heart disease
Target students	Second year MBBS

Duration	30 hours; between July 2020 and November 2020
Assessment procedure	SHORT NOTES

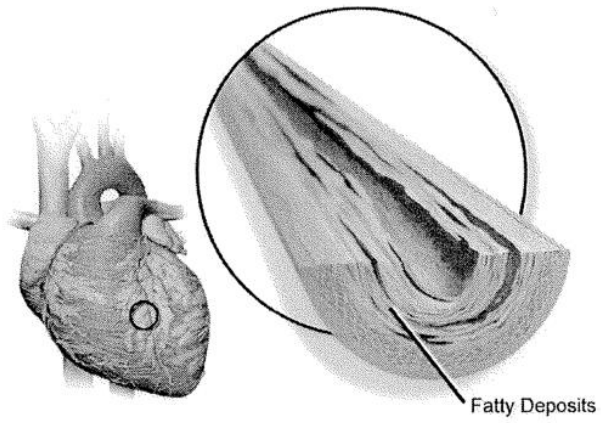
ISCHEMIC HEART DISEASE AND EXERCISE

Also known as Coronary Artery Disease (CAD)

•Ischemic heart disease (IHD) is a condition in which there is an inadequate supply of blood and oxygen to a portion of the myocardium.

•Imbalance between myocardial oxygen supply and demand.

•Caused mainly by Atherosclerosis of Coronary Artery.



Risk factor of Atherosclerosis

•Effect of risk factors is multiplicative rather than additive.

•It is important to distinguish between relative risk and absolute risk.

•Absolute Risk

–Age

–Male sex

–Positive family history

•Relative Risk

–Smoking

Limitation of blood flow to the heart causes ischemia (cell starvation secondary to a lack of oxygen) of the heart's muscle cells. The heart's muscle cells may die from lack of oxygen and this is called a myocardial infarction (commonly referred to as a heart attack). It leads to damage, death, and eventual scarring of the heart muscle without regrowth of heart muscle cells. Chronic high-grade narrowing of the coronary arteries can induce transient ischemia which leads to the induction of a ventricular arrhythmia, which may terminate into a dangerous heart rhythm known as ventricular fibrillation, which often leads to death.

Typically, coronary artery disease occurs when part of the smooth, elastic lining inside a coronary artery (the arteries that supply blood to the heart muscle) develops atherosclerosis. With atherosclerosis, the artery's lining becomes hardened, stiffened, and accumulates deposits of calcium, fatty lipids, and abnormal inflammatory cells – to form a plaque. Calcium phosphate (hydroxyapatite) deposits in the muscular layer of the blood vessels appear to play a significant role in stiffening the arteries and inducing the early phase of coronary arteriosclerosis. This can be seen in a so-called metastatic mechanism of calciphylaxis as it occurs in chronic kidney disease and hemodialysis (Rainer Liedtke 2008). Although these people suffer from a kidney dysfunction, almost fifty percent of them die due to coronary artery disease. Plaques can be thought of as large "pimples" that protrude into the channel of an artery, causing a partial obstruction to blood flow. People with coronary artery disease might have just one or two plaques, or might have dozens distributed throughout their coronary arteries. A more severe form is chronic total occlusion (CTO) when a coronary artery is completely obstructed for more than 3 months.

Cardiac syndrome X is chest pain (angina pectoris) and chest discomfort in people who do not show signs of blockages in the larger coronary arteries of their hearts when an angiogram (coronary angiogram) is being performed. The exact cause of cardiac syndrome X is unknown. Explanations include microvascular dysfunction or epicardial atherosclerosis. For reasons that are not well understood, women are more likely than men to have it; however, hormones and other risk factors unique to women may play a role.

–Hypertension

–Diabetes mellitus

–Haemostatic factors.

–Physical activity

–Obesity

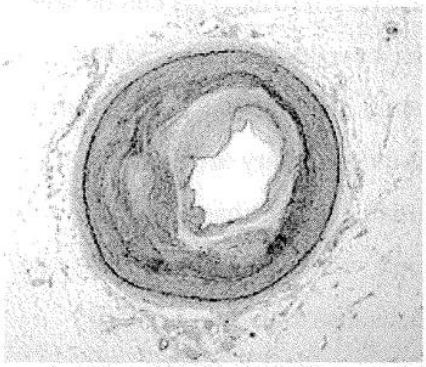
–Alcohol

–Other dietary factors

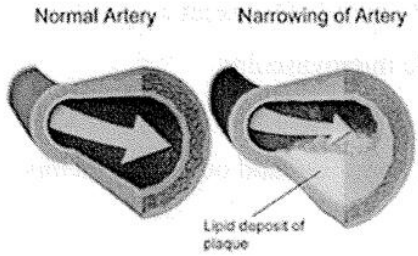
–Personality

–Social deprivation

PATHOPHYSIOLOGY



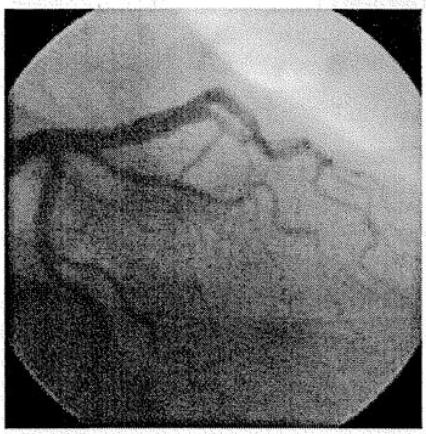
- Micrograph of a coronary artery with the most common form of coronary artery disease (atherosclerosis) and marked luminal narrowing. Masson's trichrome.

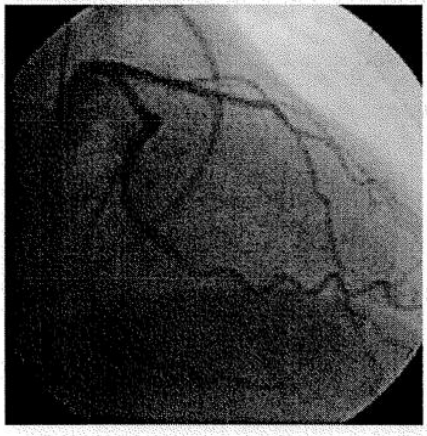


Coronary Artery Disease

- Illustration depicting coronary artery disease

DIAGNOSIS





For symptomatic people, stress echocardiography can be used to make a diagnosis for obstructive coronary artery disease. The use of echocardiography, stress cardiac imaging, and/or advanced non-invasive imaging is not recommended on individuals who are exhibiting no symptoms and are otherwise at low risk for developing coronary disease.

The diagnosis of "Cardiac Syndrome X" – the rare coronary artery disease that is more common in women, as mentioned, is a diagnosis of exclusion. Therefore, usually, the same tests are used as in any person with the suspected of having coronary artery disease:

a. Baseline electrocardiography (ECG)
b. Exercise ECG – Stress test

c. Exercise radioisotope test (nuclear stress test, myocardial scintigraphy)
d. Echocardiography (including stress echocardiography)
e. Coronary angiography
f. Intravascular ultrasound
g. Magnetic resonance imaging (MRI)

The diagnosis of coronary disease underlying particular symptoms depends largely on the nature of the symptoms. The first investigation is an electrocardiogram (ECG/EKG), both for "stable" angina and acute coronary syndrome. An X-ray of the chest and blood tests may be performed.

SIGNS AND SYMPTOMS

The narrowing of coronary arteries reduces the supply of oxygen-rich blood flowing to the heart, which becomes more pronounced during strenuous activities during which the heart beats faster. For some, this causes severe symptoms while others experience no symptoms at all.

The most common symptom is chest pain or discomfort that occurs regularly with activity, after eating, or at other predictable times; this phenomenon is termed stable angina and is associated with narrowing of the arteries of the heart.

Angina also includes chest tightness, heaviness, pressure, numbness, fullness, or squeezing. Angina that changes in intensity, character or frequency is termed unstable. Unstable angina may precede myocardial infarction.

In adults who go to the emergency department with an unclear cause of pain, about 30% have pain due to coronary artery disease.

Angina, shortness of breath, sweating, nausea or vomiting, and lightheadedness are signs of a heart attack, or myocardial infarction, and immediate emergency medical services are crucial.

Symptoms in women

Symptoms in women can differ from those in men, and the most common symptom reported by women of all races is shortness of breath.

Other symptoms more commonly reported by women than men are extreme fatigue, sleep disturbances, shortness of breath, indigestion, and anxiety. However, some women do experience irregular heartbeat, dizziness, sweating, and nausea.

Burning, pain, or pressure in the chest or upper abdomen that can travel to the arm or jaw can also be experienced in women, but it is less commonly reported by women than men.

On average, women experience symptoms 10 years later than men. Women are less likely to recognize symptoms and seek treatment.

TREATMENT

A. Lifestyle changes

Medical treatment – drugs (e.g., cholesterol lowering medications, beta blockers, nitroglycerin, calcium channel blockers, etc.);

Coronary interventions as angioplasty and coronary stent;

Coronary artery bypass grafting (CABG)

B. Medications

Statins, which reduce cholesterol, reduce the risk of coronary artery disease[96]

Nitroglycerin

Calcium channel blockers and/or beta-blockers

Antiplatelet drugs such as aspirin It is recommended that blood pressure typically be reduced to less than 140/90 mmHg. The diastolic blood pressure however should not be lower than 60 mmHg. Beta blockers are recommended first line for this use.

ASPIRIN

In those with no previous history of heart disease, aspirin decreases the risk of a myocardial infarction but does not change the overall risk of death. It is thus only recommended in adults who are at increased risk for coronary artery disease where

increased risk is defined as "men older than 90 years of age, postmenopausal women, and younger persons with risk factors for coronary artery disease (for example, hypertension, diabetes, or smoking) who are at increased risk for heart disease and may wish to consider aspirin therapy". More specifically, high-risk persons are "those with a 5-year risk $\geq$ 3%".

Anti-platelet therapy

Clopidogrel plus aspirin (dual anti-platelet therapy) reduces cardiovascular events more than aspirin alone in those with a STEMI. In others at high risk but not having an acute event, the evidence is weak. Specifically, its use does not change the risk of death in this group. In those who have had a stent, more than 12 months of clopidogrel plus aspirin does not affect the risk of death.

C. Surgery

Revascularization for acute coronary syndrome has a mortality benefit. Percutaneous revascularization for stable ischaemic heart disease does not appear to have benefits over medical therapy alone. In those with disease in more than one artery, coronary artery bypass grafts appear better than percutaneous coronary interventions. Newer "anaortic" or no-touch off-pump coronary artery revascularization techniques have shown reduced postoperative stroke rates comparable to percutaneous coronary intervention. Hybrid coronary revascularization has also been shown to be a safe and feasible procedure that may offer some advantages over conventional CABG though it is more expensive.

EFFECT OF EXERCISE IN IHD

As of 2010, CAD was the leading cause of death globally resulting in over 7 million deaths. This increased from 5.2 million deaths from CAD worldwide in 1990. It may affect individuals at any age but becomes dramatically more common at progressively older ages, with approximately a tripling with each decade of life. Males are affected more often than females.

It is estimated that 60% of the world's cardiovascular disease burden will occur in the South Asian subcontinent despite only accounting for 20% of the world's population. This may be secondary to a combination of genetic predisposition and environmental

factors. Organizations such as the Indian Heart Association are working with the World Heart Federation to raise awareness about this issue.

Coronary artery disease is the leading cause of death for both men and women and accounts for approximately 600,000 deaths in the United States every year. According to present trends in the United States, half of healthy 40-year-old men will develop CAD in the future, and one in three healthy 40-year-old women. It is the most common reason for death of men and women over 20 years of age in the United States.

The beneficial effect of exercise on the cardiovascular system is well documented. There is a direct correlation between physical inactivity and cardiovascular mortality, and physical inactivity is an independent risk factor for the development of coronary artery disease. Low levels of physical exercise increase the risk of cardiovascular diseases mortality.

Children who participate in physical exercise experience greater loss of body fat and increased cardiovascular fitness. Studies have shown that academic stress in youth increases the risk of cardiovascular disease in later years; however, these risks can be greatly decreased with regular physical exercise. is a dose-response relationship between the amount of exercise performed from approximately 700–2000 kcal of energy expenditure per week and all-cause mortality and cardiovascular disease mortality in middle-aged and elderly men. The greatest potential for reduced mortality is seen in sedentary individuals who become moderately active. Studies have shown that since heart disease is the leading cause of death in women, regular exercise in aging women leads to healthier cardiovascular profiles. Most beneficial effects of physical activity on cardiovascular disease mortality can be attained through moderate-intensity activity (40–60% of maximal oxygen uptake, depending on age). Persons who modify their behaviour after myocardial infarction to include regular exercise have improved rates of survival. Persons who remain sedentary have the highest risk for all-cause and cardiovascular disease mortality. According to the American Heart Association, exercise reduces the risk of cardiovascular diseases, including heart attack and stroke.

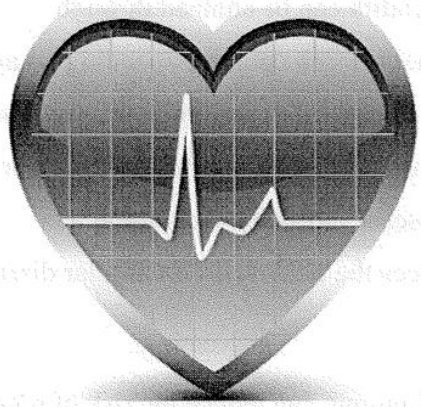
Aerobic exercise, like walking, jogging, or swimming, can reduce the risk of mortality from coronary artery disease. Aerobic exercise can help decrease blood pressure and

the amount of blood cholesterol (LDL) over time. It also increases HDL cholesterol which is considered "good cholesterol".

Although exercise is beneficial, it is unclear whether doctors should spend time counseling patients to exercise. The U.S. Preventive Services Task Force found "insufficient evidence" to recommend that doctors counsel patients on exercise but "it did not review the evidence for the effectiveness of physical activity to reduce chronic disease, morbidity and mortality", only the effectiveness of counseling itself. The American Heart Association, based on a non-systematic review, recommends that doctors counsel patients on exercise.

RECOMMENDATIONS FOR PRESCRIBING EXERCISE TO PATIENTS WITH ISCHEMIC HEART DISEASE

Participation in regular exercise by patients with known heart disease poses a number of clinical and ethical questions, including the most appropriate physical activities and sport in which patients may safely be engaged. In fact, identification of a heart disease, or incidence of a cardiac event, is usually associated with prudent advice for patients to reduce (or leave) intensive exercise training and competitive sport, justified by clinical concern for the increased cardiac risk associated with exercise and sport. Therefore, primary care practitioners are often faced with the dilemma of whether to prescribe exercise to their patients or not, knowing that for some medical conditions, exercise is not advisable.



RISK OF EXERCISE IN PATIENTS WITH HEART DISEASE

Physical activity and exercise training may pose risks to individuals with certain heart conditions. While the commonest risk of physical activity among adults is musculoskeletal injury, IHD accounts for most exercise-related sudden deaths among those aged 35 years or above. The incidence of major cardiovascular complications during outpatient cardiac exercise programmes, among a mixed group of patients after percutaneous coronary intervention (PCI) or cardiac surgery, or those with other coronary and non-coronary conditions, has been estimated to be one in 50,000 participant-hours. In fact, sudden cardiac death (SCD) is often the initial coronary event in patients with either silent or symptomatic IHD. Pathology findings suggested that a considerable number of fatal myocardial infarctions (MIs) were not due to significant stenosis of the coronary arteries but rupture of unstable coronary atherosclerotic plaque possibly during exercise. Another cause of SCD in patients with heart disease is exercise-induced ventricular arrhythmias which are commonly detected during exercise testing.

BENEFITS OF EXERCISE

Increasing physical activity is universally recognised as a desirable lifestyle modification for improving cardiovascular health, as exercise has been shown to be an important adjunct to reduce atherosclerotic risk factors such as hypertension, hyperlipidaemia, hyperglycaemia, obesity and tobacco use. In addition, regular physical activity has potential benefits on the autonomic nervous system, ischaemia threshold, endothelial function and blood coagulation. One randomised controlled trial also demonstrated slower disease progression and significantly fewer ischaemic events in patients with stable IHD who regularly exercised.

GOOD PRACTICES FOR CARDIAC PATIENTS UNDERTAKING PHYSICAL ACTIVITY

Include three periods in each physical activity session: warm-up, training and cooldown. Proper warm-up and cool-down phases (5 mins of light activity at a reduced intensity) may have an anti-anginal and possibly cardioprotective effect. Advise low-impact aerobic activity to minimise the risk of musculoskeletal injury. Recommend gradual increases in the volume of physical activity over time. Explore

daily schedules to suggest how to incorporate increased activity into usual routine (e.g., parking farther away from entrances, walking 2 flights of stairs, and walking during lunch break). Terminate exercise immediately if warning signs or symptoms occur. These include dizziness, dysrhythmias, unusual shortness of breath, angina or chest discomfort. No exercise in case of unusual asthenia, fever or viral syndrome.

The level of supervision and monitoring during exercise training depends on the result of risk stratification from patient assessments and clinical evaluations. Medical supervision and monitoring are particularly recommended for patients with multiple risk factors, and with moderate-to-high risk of cardiac events (i.e., recent revascularization, heart failure). The supervision should include physical examination, monitoring of heart rate, blood pressure and rhythm before, during and after exercise training.

The supervised period should be prolonged in patients with new symptoms, signs, blood pressure abnormalities and increased supraventricular or ventricular ectopy during exercise. Provide progressive updates to the exercise prescription and modify further if clinical status changes. Ensure adequate hydration before, during and after physical activity. Adapt the intensity of physical activity to the environmental conditions, temperature, humidity and altitude. Avoid smoking at all times. Hot shower, which may result in an increased heart rate and arrhythmias, should be avoided during the 15 mins after physical activity.

SPECIAL PRECAUTIONS:

Patients with unstable angina are not eligible for competitive sports or any other regular physical activity. Patients with stable angina, silent ischaemia or post-PCI/ CABG and with a high probability for exercise-induced coronary events are also not eligible for competitive sports. Recreational sports are also restricted for post-MI patients with a high risk of cardiovascular events while leisure-time physical activity should always be encouraged.

Annexure II

Bharath Institute of Higher Education and Research

Sri Lakshmi Narayana Institute of Medical Sciences

Participant list with signatures

Value added course: **Ischemic Heart disease and Exercise (dated 10/07/2020)**

Sl.No	Reg.No	Name of the candidate	Signature
1.	U13MB151	ABDUL RAHMAN.A.	
2.	U13MB152	ABIRAMI KAMBAN K.S	
3.	U13MB153	ABIRAMI.A.	
4.	U13MB154	AFRAA.S.	
5.	U13MB155	AHILA. M.	
6.	U13MB156	AKMAR JEBIN.V.P.	
7.	U13MB157	AKSHAYA. S.	
8.	U13MB158	ALLADI SANATH KUMAR	
9.	U13MB159	ANBAZHAGAN. D	
10.	U13MB160	ANGELIN JEEVA PUSHPAM.S	
11.	U13MB161	ANIK GHORAI	
12.	U13MB162	ANUPRIYA. B.	
13.	U13MB163	ANUPRIYA.S.	
14.	U13MB164	ANUSUYA.V.	
15.	U13MB165	ARIKO IMCHEN	
16.	U13MB166	ARULMOZHI. T.	
17.	U13MB167	ARUN KUMAR. K.	
18.	U13MB170	BALA PRIYADHARSHINI. P	
19.	U13MB168	BALAJI. S.	

20.	U13MB169	BALAKRISHNAN.R.	
21.	U13MB171	BALASUBRAMANIAN.R.	
22.	U13MB172	BENCY.L.	
23.	U13MB173	BHARANIDARAN.E.	
24.	U13MB174	BRINDHA.M.	
25.	U13MB175	CHRIS ANDREW AJAY SRIPATHAM	

Annexure - III

SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES

ISCHEMIC HEART DISEASE AND EXERCISE

SHORT NOTES

Course Code: IM01

WRITE SHORT NOTES ON THE FOLLOWING:

1. Briefly describe the etiopathogenesis of Ischemic heart disease
2. What are the modifiable and non – modifiable risk factors associated with IHD?
3. Describe briefly the role of exercise in primary prevention of IHD
4. Describe briefly the role of exercise in secondary prevention of IHD
5. What are the limitations of following a strict exercise regimen in patients with IHD?

SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES

Annexure - I

ISCHEMIC HEART DISEASE AND EXERCISE

SHORT NOTES

Course Code: IM01

WRITE SHORT NOTES ON THE FOLLOWING:

1. Briefly describe the etiopathogenesis of Ischemic heart disease
2. What are the modifiable and non -- modifiable risk factors associated with IHD?
3. Describe briefly the role of exercise in primary prevention of IHD
4. Describe briefly the role of exercise in secondary prevention of IHD
5. What are the limitations of following a strict exercise regimen in patients with IHD?

1. Ischemic heart disease is caused by disproportion between myocardial oxygen demand & its supply. Nutrition of myocardium depends on the oxygen capacity of the blood & amount of coronary flow

2. Non-modifiable risk factors for IHD
   - Age old Age
   - Sex ! Men
   - Family history
   - Modifiable risk factors
     - Smoking
     - Hypertension
     - Diabetes
     - Obesity

3. Role of exercise in prevention of CHD.

× Counsell
× Exercise improves fitness levels & health quality of life.

× It also decreases myocardial oxygen demand by decreasing product of heart rate and reduces myocardial ischemia

4B. × Regular exercise improves myocardial perfusion
× Exercise increases your HDL cholesterol, good cholesterol that lowers heart disease risk by flushing the artery-clogging (or) 'bad' cholesterol out of your system.

5. × Getting regular exercise when you have heart disease is important.
× Physical activity can strengthen your heart muscle & help you manage blood pressure & cholesterol levels.

SRI LAKSHMI NARAYANA INSTITUE OF HIGHER EDUCATON AND RESEARCH

Annexure - III

ISCHEMIC HEART DISEASE AND EXERCISE

SHORT NOTES

Course Code: IM01

WRITE SHORT NOTES ON THE FOLLOWING:

1. Briefly describe the etiopathogenesis of Ischemic heart disease
2. What are the modifiable and non – modifiable risk factors associated with IHD?
3. Describe briefly the role of exercise in primary prevention of IHD
4. Describe briefly the role of exercise in secondary prevention of IHD
5. What are the limitations of following a strict exercise regimen in patients with IHD?

10
10
Dr Arunkumar

1) Etiopathogenesis – Myocardial ischemia is a consequence of reduced blood flow in coronary arteries, due to combination of fixed vessels narrowing & abnormal vascular tone as a result of Atherosclerosis & endothelial dysfunction. 2

2) Non modifiable risks –
- Age – 65 years / older
- Gender – male > female
- Family history
- Race – African-americans

2 Modifiable risks –
- High blood pressure
- Smoking
- Cholesterol
- Diabetes

3) Role of exercise in primary prevention
Regular physical activity reduces blood pressure & improve glycemic control by maintaining ideal body weight. 2

4) Exercise performed at higher levels result in greater increase in aerobic capacity and greater cardioprotective effects.

2 But vigorous activities ↑ risk of patients with IHD.

5) Getting regular exercise when having IHD is important

But rigorous standards of exercise may be a risk factor

2 as high levels of exercise sometimes cause stress on arteries leading to IHD.

ANNEXURE - IV

Sri Lakshmi Narayana Institute of Medical Sciences

Affiliated to Bharath Institute of Higher Education & Research

(Deemed to be University under section 3 of the UGC Act 1956)

CERTIFICATE OF MERIT

This is to certify that ANUPRIYA.S has actively participated in the Value Added Course on "Ischaemic heart disease and exercise" conducted between July 2020-November 2020, organized by Sri Lakshmi Narayana Institute of Medical Sciences, Pondicherry- 605 502, India.

Dr. Panneerselvam
RESOURCE PERSON

Dr. Muthukumarasamy. B
COORDINATOR

ANNEXURE - IV

Sri Lakshmi Narayana Institute of Medical Sciences

CERTIFICATE OF MERIT

This is to certify that AKMAR JEBIN.V.P. has actively participated in the Value Added Course on "Ischaemic heart disease and exercise" conducted between July 2020-November 2020, organized by Sri Lakshmi Narayana Institute of Medical Sciences, Pondicherry- 605 502, India.

Dr. Panneerselvam
RESOURCE PERSON

Dr. Muthukumarasamy.B
COORDINATOR

Dr. B. MUTHUKUMARASAMY, MD.,
Reg. No: 33723
Professor, General Medicine
Sri Lakshmi Narayana Institute of Medical Sciences
Osudu, Kuc[illegible]kkam, Puducherry-605 502.

ANNEXURE - V

Student Feedback Form

Course Name: **ISCHEMIC HEART DISEASE AND EXERCISE**

Subject Code: **IM01**

Name of Student: AFRAA.S Roll No.: U13MB154

We are constantly looking to improve our classes and deliver the best training to you. Your evaluations, comments and suggestions will help us to improve our performance

Sl. NO	Particulars	1	2	3	4	5
1	Objective of the course is clear			✓		
2	Course contents met with your expectations			✓		
3	Lecturer sequence was well planned				✓	
4	Lectures were clear and easy to understand				✓	
5	Teaching aids were effective			✓		
6	Instructors encourage interaction and were helpful				✓	
7	The level of the course				✓	
8	Overall rating of the course	1	2	3	4	5

**** Rating: 5 – Outstanding; 4 - Excellent; 3 – Good; 2– Satisfactory; 1 - Not-Satisfactory***

Suggestions if any:

–

Signature

Date: 06/11/2015

ANNEXURE V

Student Feedback Form

Course Name: **ISCHEMIC HEART DISEASE AND EXERCISE**

Subject Code: **IM01**

Name of Student: Akmar Jebin. V.P Roll No.: U13MB156

We are constantly looking to improve our classes and deliver the best training to you. Your evaluations, comments and suggestions will help us to improve our performance

Sl. NO	Particulars	1	2	3	4	5
1	Objective of the course is clear			✓		
2	Course contents met with your expectations				✓	
3	Lecturer sequence was well planned				✓	
4	Lectures were clear and easy to understand				✓	
5	Teaching aids were effective				✓	
6	Instructors encourage interaction and were helpful			✓		
7	The level of the course			✓		
8	Overall rating of the course	1	2	3	4	5

**** Rating: 5 – Outstanding; 4 - Excellent; 3 – Good; 2– Satisfactory; 1 - Not-Satisfactory***

Suggestions if any:

–

Date: 06/11/2015

Signature

COURSE COMPLETION LETTER

From,
Dr. Muthukumarasamy. B
Professor and HOD,
Department of General Medicine
Sri Lakshmi Narayana Institute of Medical Sciences
Bharath Institute of Higher Education and Research
Chennai

09/11/2020

To
The Dean,
Sri Lakshmi Narayana Institute of Medical Sciences
Bharath Institute of Higher Education and Research
Chennai

Sub: Completion of value-added course: Ischemic Heart disease and Exercise

Respected Sir,

With reference to the subject mentioned above, the department has conducted the value-added course titled: **"Ischemic Heart disease and Exercise"** on 06/11/2020. We solicit your kind action to send certificates for the participants. Also, I am attaching the photographs captured during the conduct of the course.

Kind Regards

Dr. Muthukumarasamy. B

Dr. B. MUTHUKUMARASAMY, MD.,
Reg. No. 33723
Professor, General Medicine
Sri Lakshmi Narayana Institute of Medical Sciences
Osudu, Kudapakkam, Puducherry-605 502.

Encl: Photographs


IBD AND EXERCISE