# CARING HEARTS

OFFICIAL JOURNAL OF HEART CARE FOUNDATION

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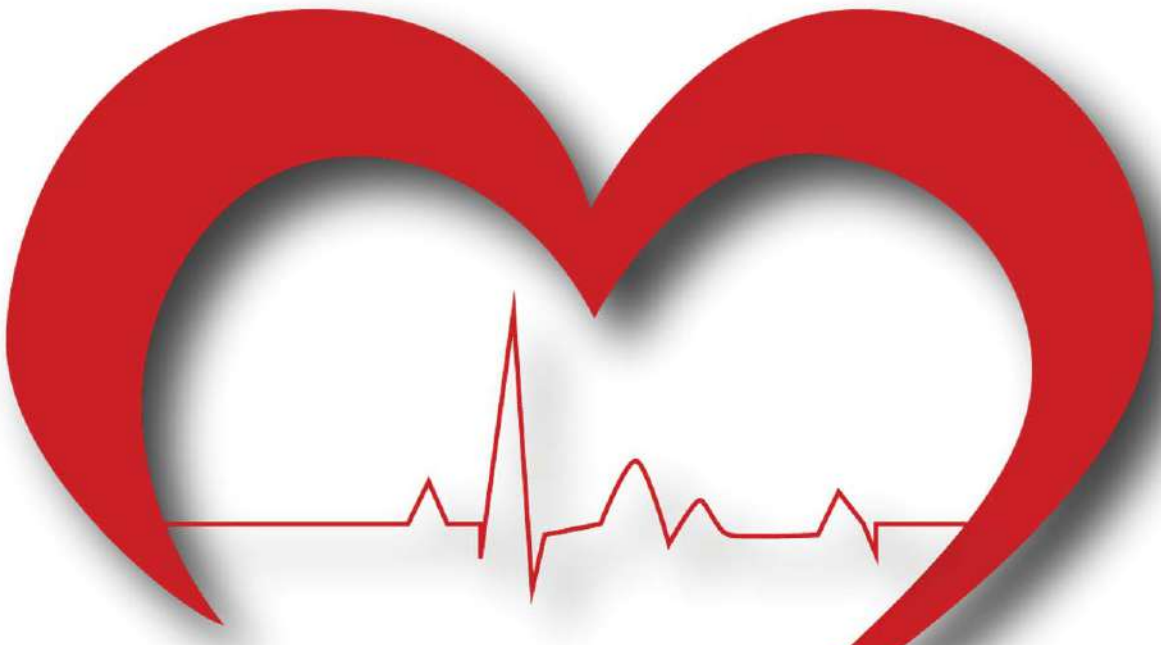

## STRESSFUL JOBS & HEART RHYTHM DISORDERS

## Family History and Heart Disease

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# Chairman's MESSAGE

Padma Shri Awardee
Dr. Jose Chacko Periappuram
Chairman, Heart Care Foundation

Dear Friends in Heart Care Foundation.

It appeared good when the "Mango rains" started early and heavily. It was to the great relief of the farmers that the rains came early as most of the wells and ponds were getting dry. There was a sigh of relief when it came. But the Pre-monsoon rains merged with the monsoon rains which happened to be the heaviest of the decade, withering the dreams of a multitude of farming community of Kerala. Not only it did crash the dreams of a better tomorrow, but also it took away many lives also depriving many families of their near and dear ones.

Once again the nature has warned us of their power over the human abilities and powers and cautioned us of the misdeeds we do to our mother nature to disrupt the ecology.

Not only the Mother Nature plays its havoc on human lives, but also it leaves behind irreparable damages to the future generation in the form of diseases and epidemics. It's imperative that the rulers should take adequate precautions and warn the people of the potential danger to lives during such times of peril.

Most of the accidents happen during the bad weather are due to callousness of the system and the people. Inadequate warnings of the potential danger, leaving behind uncompleted works in public areas, substandard safety measures by the authorities, etc are the reasons for the calamities.

Let us all do our bits of work which we can do to prevent accidents and illnesses during this period by disposing the waste materials properly and also to invite attention of the authorities of potential dangerous situation we see in our everyday life.

Wish you all a good heart and health.

**Dr Jose Chacko Periappuram**
Chairman HCF

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# MEAT PROTEIN IS UNHEALTHY, BUT PROTEIN FROM NUTS AND SEEDS IS HEART SMART

**A study conducted by researchers in California and France has found that meat protein is associated with a sharp increased risk of heart disease while protein from nuts and seeds is beneficial for the human heart.**

Titled "Patterns of plant and animal protein intake are strongly associated with cardiovascular mortality: The Adventist Health Study-2 cohort," the study was a joint project of researchers from Loma Linda University School of Public Health in California and AgroParisTech and the Institut National de la Recherche Agronomique in Paris, France.

The study, which was published online by the *International Journal of Epidemiology*, found that people who consumed large amounts of meat protein experienced a 60-percent increase in cardiovascular disease (CVD), while people who consumed large amounts of protein from nuts and seeds experienced a 40-percent reduction in CVD.

The study, which included data from more than 81,000 participants, is one of the few times detailed sources of animal protein have been examined jointly with animal fat in a major investigation.

Gary Fraser, MB ChB, PhD, from Loma Linda University, and François Mariotti, PhD, from AgroParisTech and the Institut National de la Recherche Agronomique, served as co-principal investigators.

"While dietary fats are part of the story in affecting risk of cardiovascular disease, proteins may also have important and largely overlooked independent effects on risk," Fraser said. He added that he and his colleagues have long suspected that including nuts and seeds in the diet protects against heart and vascular disease, while red meats increase risk.

Fraser added that nutritionists have traditionally looked toward what he termed "bad fats" in meats and "helpful fats" in nuts and seeds as causal agents. However, these new findings suggest more. "This new evidence suggests that the full picture probably also involves the biological effects of proteins in these foods," he said.

Fraser says the team's research differed in another significant way from previous investigations. While prior studies have examined differences between animal and plant proteins, this study did not stop at just two categories, but chose to specify meat protein and proteins from nuts and seeds along with other major dietary sources. "This research is suggesting there is more heterogeneity than just the binary categorization of plant protein or animal protein," Fraser said.

Fraser said the study leaves other questions open for further investigation, such as the particular amino acids in meat proteins that contribute to CVD. Another is whether proteins from particular sources affect cardiac risk factors such as blood lipids, blood pressure and overweight, which are associated with CVD■■

Mr. P. Sreeramakrishnan – Hon. Speaker of Kerala Legislative Assembly, Inagurating Hridayasamgamam 2018. Also seen are, Dr. Jose Chacko Periyapauram - Chairman, HCF, Fr. Thomas Vaikathuparambil – Director, Lisie Hospital, Mr. Kochouseph Chittilapilly – Chairman , V-Guard Industries Ltd, Mr. Solamon – Manager – Operations – Idea, Dr. Rony Mathew Kadavil – Chairman Medical Panal , Lissie Hospital, Dr. Jacob Abraham – Trustee, HCF, Mr.Raju Kannampuzha, Secretary, HCF.

# Hrudaya Sangamam-2018

Shri. P Sreeramakrishnan
Hon. Speaker of Kerala Legislative Assembly

Dr Jose Chacko Periappuram,
Chairman, Heart Care Foundation

Hrudaya Sangamam 2018' was jointly organised by the Heart Care Foundation and Lisie Heart Institute at Avenue Centre at Panampilly Nagar. Inaugurating the event, Speaker P Sreeramakrishnan said it's not the material gains achieved by a person that matter in the long run, but what he/she does for others.

"When we scrutinise what we have done for others, the scoresheet might display a big zero. So, the programmes like Hrudaya Sangamam are an inspiration. It extols people to manifest themselves as benefactors by helping fellow human beings and in the process transform into a kind-hearted person," the Speaker said.

On the occasion, the Speaker presented this year's Social Excellence Award instituted by the Heart Care Foundation to Kochouseph Chittilappilly,

# SOCIAL EXCELLENCE AWARD-2018
# KOCHOUSEPH CHITTILAPPILLY HONOURED


Mr. Kochuuseph Chittillapiilly receiving 'HCF Social Excellence Award 2018' from Mr. P. Sreeramakrishnan, Hon. Speaker Kerala Legilative Assembly. Also seen are, Dr. Jacob Abraham, Mr. Raju Kannampuzha, Mrs. Sheela Chittilappilly, Dr. Jose Chacko Periyappuram, Fr. Thomas Vaikathuparambil, Dr.Rony Mathew Kadavil, Mr.Solamon Manager Idea Cellular, Mr. Raju Kannampuzha,

Shri. Kochouseph Chittilappilly

Dr Jacob Abraham

chairman, V-Guard Group. The award consists of a citation and gold medallion. In his award acceptance speech, Kochouseph Chittilappilly said all he is doing is giving back what he has taken from society.

Dr Rony Mathew

Fr Thomas Vaikathuparambil

Fr Thomas Vaikathuparambil, director, Lisie Hospital; Dr Jose Chacko Periappuram, chairman, Heart Care Foundation and cardiac surgeon; Dr Jacob Abraham, trustee, Heart Care Foundation, and Foundation Medical Panel chairman Dr Rony Mathew spoke on the occasion.

Mr. Solamon

Mr. Raju Kannampuzha

An interactive session also organized along with 'Hrudaya Sangamam'. Dr. Jo Joseph, Dr. Jeevesh John Thomas, Nutritionist Dr. Nisha Vikraman and Physiotherapist Dani Jose were lead the classes and session .

# NOISE POLLUTION

## CAN TRIGGER DEATH DUE TO HEART ATTACK

Often the sound of honking, loudspeaker or crackers is irritating and not so pleasing. People experience headaches, palpitations and uneasiness. It is also very problematic for the heart patients. Sound pollution can cause metabolic abnormalities and autonomic imbalance, characterized by dizziness and exercise intolerance. Exposure to this noise can also lead to behavioral issues in children. Apart from dust mixed with toxic fumes from vehicular exhausts can exacerbate lung and heart diseases and trigger death from heart attack, stroke, chronic obstructive pulmonary disease, lung infections like pneumonia, and cancers of the lung and respiratory tract.

**Effects:**

- Noise is a recognized environmental stressor, which has both physiological and psychological effects. It is associated with anxiety, high blood pressure, increased heart rate, insomnia, annoyance, stress.
- Progressive hearing loss may result from continuous and repeated exposure to loud noise. The safe limit for sounds at 85 db or less is 8 hours of exposure.
- Loud noise affects the speech intelligibility and consequently work performance and increases chances of errors.
- Conversation has to be conducted at higher dbs for clear speech communication because of noise interference.
- People living in areas with

high traffic noise are also 25% more likely than those in quieter neighborhoods to have symptoms of depression such as sadness, loneliness and trouble concentrating.

Control of noise levels is very important in hospitals for patient well-being and healing. Noise creates an unhealthy work environment for doctors. Inability to hear the warning patient monitoring alarm over the general background noise in an ICU may have potentially disastrous outcome. Moreover, doctors too are prone to develop high BP and other negative effects on health.

**Remember:**

- Traffic flow around schools and hospitals should be minimized as much as possible.
- Signboards displaying 'Silence zone', 'No honking' must be placed near these areas.
- Efforts should be made to ban the use of horns with jarring sounds, motorbikes with damaged exhaust pipes, and noisy trucks.
- The use of loudspeakers in parties and discos, as well as public announcements systems should be checked and discouraged.
- Noise rules must be stringent and strictly enforced near such silence zones.
- Planting trees along roads and in residential areas is a good way to reduce noise pollution as they absorb sound.

■■

# HIGH-PROTEIN DIET COULD INCREASE HEART FAILURE RISK IN MIDDLE-AGED MEN

**However, proteins from fish and eggs were not associated with heart failure risk.**

**A** high-protein diet could increase the risk of heart failure in middle-aged men, suggests a research.

However, proteins from fish and eggs were not associated with heart failure risk in this study by University of Eastern Finland.

Despite the popularity of high-protein diets, there is little research about how diets high in protein might increase the risk of heart failure in men.

"As many people seem to take the health benefits of high-protein diets for granted, it is important to make clear the possible risks and benefits of these diets," said Jyrki Virtanen, study author.

"Earlier studies have linked diets high in protein – especially from animal sources — with increased risks of type 2 diabetes and even death."

Researchers studied 2,441 men, age 42 to 60, at the study's start and followed them for an average 22 years. Overall, researchers found 334 cases of heart failure were diagnosed during the study and 70 percent of the protein consumed was from animal sources and 27.7 percent from plant sources.

Higher intake of protein from most dietary sources was associated with slightly higher risk. Only proteins from fish and eggs were not associated with heart failure risk in this study, researchers said.

For this study, researchers divided the men into four groups based on their daily protein consumption. When they compared men who ate the most protein to those who ate the least, they found their risk of heart failure was:

-33 percent higher for all sources of protein

-43 percent higher for animal protein

-49 percent higher for dairy protein

-17 percent higher for plant protein

The study has been published in the journal Circulation: Heart Failure.

■■


Birthday celebration of Dr. Jose Chacko Periyapauram - Chairman , HCF

A view of audience

Hrudaya Sangamam – Interactive session

Hrudaya Sangamam – A view of registration counter

# HOW TO DEAL WITH A HEART DISEASE DURING PREGNANCY?

**Increased occurrences of Heart Disease have been found in pregnant women, this constitutes a substantial amount of high risk pregnancies.**

Changes that occur in maternal circulation have the potential to affect both maternal and unborn baby's health. Records show that 4% of pregnancies may have heart issues, with no prior known existence. It is a two-way relation, i.e. the disease can influence pregnancy and vice-versa.

Pregnancy has a profound effect on the mother's body and especially the heart. Most of these changes start in the first three months and peak during the second trimester, and plateau during the third trimester. some changes that occur in the Heart and related system during pregnancy are:

- The pulse rate increases
- The cardiac output (blood pumped out by the heart) increases
- Certain changes occur in the ECG

A patient's medical history is important to assess the possible risks at hand and should comprise of evidence on the baseline functional status and previous cardiac events as these are strong interpreters of cardiac issues that occur during pregnancy.

- Previous cardiac occurrence
- Left-sided heart obstruction-
- valve disease or thickened heart muscles
- Low pumping power of heart
- Diabetes and high BP during pregnancy
- Physiological changes during
- pregnancy and after delivery

Many of the normal symptoms of pregnancy, such as breathlessness on exertion or lying flat, swelling of the body, and feeling one's own heart beat are also symptoms of associated Heart Disease. Physical signs commonly seen with pregnancy are clearly swollen visible neck veins, extra heart sounds, exaggerated heart sounds and swelling of feet.

**Types:**

1. **Rheumatic Heart Disease**: 90% of Heart Disease problems in pregnancy are of this type. Mitral Stenosis (narrowing of Mitral valve) is the most common. In all these types of heart diseases, the risk of heart failure is high, followed by risk of fetal loss. The others that fall in the same group are Aortic Stenosis (narrowing of Aortic Valve) and

Mitral Insufficiency (the valve does not close properly when the heart pumps out blood).

2. The second type of heart disease that is seen during pregnancy is the **Congenital Type**. This can exist already but are asymptomatic and can show symptoms for the first time during pregnancy. A few of them are Atrial Septal Defect (ASD) and Ventricular Septal Defect (VSD), which are septal defects (hole in the heart), Tetralogy of Fallots (rare condition caused by a combination of four heart defects that are present at birth), Pulmonary Hypertension (high blood pressure that affects the arteries in your lungs and the right side of your Heart) and Cyanotic Heart Disease.

**Pulmonary Hypertension and Cyanotic Heart**

Disease pose the biggest problem during pregnancy and the mortality rate can significantly increase.

3. **Cardiac Arrhythmias** (problems with rhythmic beating of the heart) are managed more or less in the same way in pregnant and non-pregnant patients.

4. **Cardiomyopathies** are not common during pregnancy. They are seen towards the last part of pregnancy or early post-partum period. The exact cause of this is not known but these women may be Hypertensive or malnourished during pregnancy.

**Management:**

Management of these pregnancies is based on a multidisciplinary approach, by both an Obstetrician and Cardiologist who play an important role. For milder heart diseases, frequent consultations with time to time hospital admissions are the accepted methods of management. Women with heart disease are at risk of cardiac complications during pregnancy and delivery. Risk assessment should be performed in these women, and the management of pregnancy and delivery should be planned accordingly.

**Basic guidelines to be followed are as follows (All types of heart diseases in pregnancy)**

- Avoid excess weight gain
- Consume low sodium diet
- Rest in left lateral position
- Get adequate sleep
- Strenuous activity and anemia increase the work load on the Heart and also interfere with placental circulation (blood supply to the baby), and are hence best avoided
- Labored breathing and difficultly in doing routine work is to be looked for. Especially during labor and immediate post delivery period
- Use of Epidural Anesthesia to reduce pain during labor
- Prophylactic Antibiotics to reduce chances of infection
- Delivery to be done at a Tertiary Care Hospital
- Vaginal delivery is advisable unless there is an obstetrical indication
- Other routine obstetrical care and fetal monitoring for growth etc. is managed as in any other pregnancy
- Electrocardiography or Echocardiogram should be promptly done in case of any doubts
- Diagnosis of problem at the earliest

■■

# Quickly lower blood pressure by following a healthy lifestyle

**Lifestyle factors such as diet and exercise is as effective as medication at reducing blood pressure**

The study, presented at the Nutrition 2018 meeting in Boston, suggested that the participants saw their blood pressure drop 19 points, on average, after taking part in a lifestyle programme for just 14 days.

"By adapting selected lifestyle health principles, half of the people in our study achieved normal blood pressure within two weeks while avoiding the side effects and costs associated with blood pressure medications," said lead researcher M. Alfredo Mejia, Associate Professor at Andrews University.

The researchers found that the reduction in blood pressure accomplished by the programme was equivalent to what can be achieved using three half-dose standard medications for blood pressure.

At the end of the programme, half of the participants achieved a systolic blood pressure below the recommended 120 mmHg, the researcher said.

■■

# EXERCISE AFTER A HEART ATTACK

## It could save your life, research suggests

"It is well known that physically active people are less likely to have a heart attack and more likely to live longer," said lead author Dr Örjan Ekblom, associate professor, Swedish School of Sport and Health Sciences, GIH, Stockholm, Sweden. "However, we did not know the impact of exercise on people after a heart attack."

This study, which was a collaboration between the GIH and Centre for Health and Performance at Gothenburg University, Sweden, assessed the association between physical activity and survival after a heart attack. The study included 22,227 patients in Sweden who had a myocardial infarction between 2005 and 2013. Data was obtained from the RIKS-HIA registry, SEPHIA registry, and Swedish Census registry.

Levels of physical activity were reported 6-10 weeks and 12 months after the heart attack. The difference between answers was considered a change in physical activity over the year following the heart attack.

On both occasions, patients were asked how many times they had exercised for 30 minutes or longer during the previous seven days. Patients were categorised as constantly inactive, reduced activity, increased activity, or constantly active.

A total of 1,087 patients died during an average follow-up of 4.2 years. The researchers analysed the association between the four categories of physical activity and death, after adjusting for age, sex, smoking, and clinical factors. Compared to patients who were constantly inactive, the risk of death was 37%, 51%, and 59% lower in patients in the categories of reduced activity, increased activity, or constantly active, respectively.

Dr Ekblom said: "Our study shows that patients can reduce their risk of death by becoming physically active after a heart attack. Patients who reported being physically active 6 to 10 weeks after the heart attack but became inactive afterwards seem to have a carry-over benefit. But of course the benefits for active people are even greater if they remain physically active."

Dr Ekblom said the study provided additional evidence for healthcare professionals and policy makers to systematically promote physical activity in heart attack patients. He said: "Exercising twice or more a week should be automatically advocated for heart attack patients in the same way that they receive advice to stop smoking, improve diet, and reduce stress."

**Becoming more physically active after a heart attack reduces the risk of death, according to research presented today at EuroPrevent 2018, a European Society of Cardiology congress.1 The study, which followed more than 22,000 patients, found that those who became more physically active after a heart attack halved the risk**

"Our study shows that this advice applies to all heart attack patients," he continued. "Exercise reduced the risk of death in patients with large and small myocardial infarctions, and for smokers and non-smokers, for example."

Dr Ekblom said the study did not investigate what type of exercise

# Exercise could MAKE THE HEART YOUNGER

In a new study performed in mice, researchers from the Harvard Department of Stem Cell and Regenerative Biology (HSCRB), Massachusetts General Hospital (MGH) and Harvard Medical School (HMS), and the Harvard Stem Cell Institute (HSCI) uncovered one reason why exercise might be beneficial: it stimulates the heart to make new muscle cells, both under normal conditions and after a heart attack.

Published in *Nature Communications* on 25 April, the findings have implications for public health, physical education and the rehabilitation of cardiac patients.

**Doctors, health organizations, and the Surgeon General all agree that exercise is good for the heart -- but the reasons why are still not well understood.**

The human heart has a relatively low capacity to regenerate itself. Young adults can renew around 1% of their heart muscle cells every year, and that rate decreases with age. Considering that losing heart cells is linked to heart failure, interventions that increase new heart cell formation have potential to prevent heart failure.

The two first authors on the study were Ana Vujic, Ph.D. of HSCRB, and Carolin Lerchenmüller, M.D. of MGH and HMS.

"We wanted to know whether there is a natural way to enhance the regenerative capacity of heart muscle cells,"

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patients undertook. "More research is needed to find out if there is any type of activity that is especially beneficial after a heart attack," he noted, "Should patients do resistance exercise, aerobic training, or a combination, for example? Is walking sufficient or do patients need more vigorous exercise which makes them short of breath? Answering these questions will help us to give more specific advice."

said Vujic. "So we decided to test the one intervention we already know to be safe and inexpensive: exercise."

**A 5K race every day**

To test the effects of exercise, the researchers gave one group of healthy mice voluntary access to a treadmill. When left to their own devices, the mice ran around five kilometers each day. The other healthy group had no such gym membership, and remained sedentary.

To measure heart regeneration in the mice, the researchers administered a labelled chemical that was incorporated into newly made DNA as cells prepared to divide. By following the labelled DNA in the heart muscle, they could see where new cells were being produced.

The researchers found that the exercising mice made over four and a half times the number of new heart muscle cells than the mice without treadmill access.

The results were certainly significant -- but were they relevant? To find out, the researchers brought the experiment a little closer to home.

"We also wanted to test this in the disease setting of a heart attack, because our main interest is healing," said Vujic.

After experiencing a heart attack, mice with treadmill access still ran five kilometers a day, voluntarily. Compared to their sedentary counterparts, the exercising mice showed an increase in the area of heart tissue where new muscle cells were made.

The conclusion: in mice, exercise means regenerating heart tissue -- a lot.

**"Make your heart younger"**

The two senior authors behind the study were Richard Lee, M.D., Harvard Professor of Stem Cell and Regenerative Biology, and Principal Faculty member of HSCI, and Anthony Rosenzweig, M.D., Paul Dudley White Professor of Medicine at HMS, Chief of the Cardiology Division at MGH, and Principal Faculty member of HSCI.

"Maintaining a healthy heart requires balancing the loss of heart muscle cells due to injury or aging with the regeneration or birth of new heart muscle cells. Our study suggests exercise can help tip the balance in favor of regeneration," said Rosenzweig.

"Our study shows that you might be able to make your heart younger by exercising more every day," said Lee.

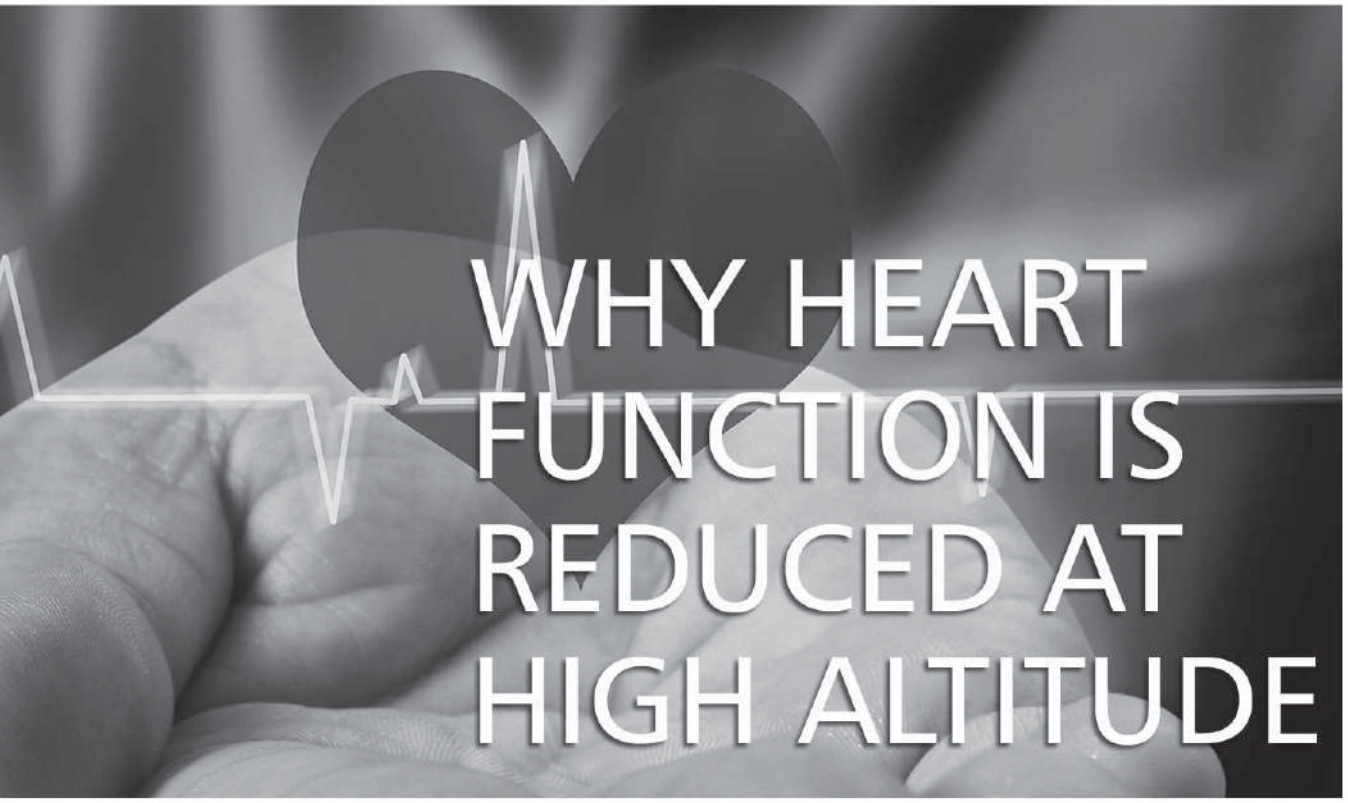
**Diving deeper**

It's all very well to say that exercise is good for the heart -- but how does that actually work? To find out, the researchers plan to pinpoint which biological mechanisms link exercise with increased regenerative activity in the heart.

In this study, the researchers identified a specific biological pathway that is required for exercise to turn on cardiac regeneration. "Now we need to find the signals that are sufficient to turn this pathway on," said Rosenzweig.

"If we can turn on these pathways at just the right time, in the right people, then we can improve recovery after a heart attack," said Lee.

**For over a century, we have known that high altitude reduces the amount of blood the heart pumps around the body with each beat. New research published in *The Journal of Physiology* has unearthed why this is the case and the findings will be important for people who live, travel and exercise at high altitudes**



# WHY HEART FUNCTION IS REDUCED AT HIGH ALTITUDE

Over the years, several theories have been proposed to explain the reduction in the amount of blood the heart can pump; this was even of interest to the scientists involved in the first summit of Mt Everest in the 1950's. It has now been shown that this is because at high altitudes (over 3000 m), the lower amount of oxygen in the air leads to a decrease in the volume of blood circulating around the body, and an increase in blood pressure in the lungs. The researchers found that both of these factors play a role in the reduction in the volume of blood the heart can pump with each beat, but importantly neither of these factors affects our ability to perform maximal exercise.

This research is important because it improves our understanding of how the human body adapts to high altitude areas. This will help us make exploration and tourism of Earth's mountainous regions safer, and may also help facilitate exercise performance in a wide range of sporting events that take place at high altitude.

The research conducted by Cardiff Metropolitan University, in conjunction with the University of British Columbia Okanagan and Loma Linda University School of Medicine, involved collecting data on how the heart and pulmonary blood vessels adapt to life with less oxygen. The researchers and participants conducted the study during two weeks at a remote research facility called The Barcroft Laboratory on White Mountain, California.

It is important to note that the sample size of this study was small and the effects of these mechanisms were only compared in individuals of European descent. Furthermore, echocardiography was used to assess cardiac and pulmonary vascular function which is non-invasive and indirect.

Michael Stembridge, the chief investigator on the project commented on future research plans: "Currently, a number of the research team are ready to depart for an expedition that will focus on high altitude natives who live and work in the industrial mines of the Andean mountains. Unfortunately, a third of these individuals experience long-term ill health due to their residence at high altitude, a condition termed 'Chronic Mountain Sickness'. We hope to apply the findings of this work to help improve the health and well-being of these populations by furthering our understanding of the condition and exploring therapeutic targets."

# STRESSFUL JOBS & Heart rhythm disorders

The most stressful jobs are psychologically demanding but give employees little control over the work situation -- for example, assembly line workers, bus drivers, secretaries, and nurses.

The study found that being stressed at work was associated with a 48% higher risk of atrial fibrillation, after adjustment for age, sex, and education.

Dr Eleonor Fransson, study author and associate professor of epidemiology, School of Health and Welfare, Jönköping University, Sweden, said: "We need people to do these jobs but employers can help by making sure staff have the resources required to complete the assigned tasks. Bosses should schedule breaks and listen to employees' ideas on how the work itself and the work environment can be improved."

Atrial fibrillation is the most common heart rhythm disorder (arrhythmia). Symptoms include palpitations, weakness, fatigue, feeling light headed, dizziness, and shortness of breath.

Atrial fibrillation causes 20-30% of all strokes and increases the risk of dying prematurely.[2] One in four middle-aged adults in Europe and the US will develop atrial fibrillation. It is estimated that by 2030 there will be 14-17 million patients with atrial fibrillation in the European Union, with 120,000-215,000 new diagnoses each year.

Dr Fransson said: "Atrial fibrillation is a common condition with serious consequences and therefore it is of major public health importance to find ways of preventing it. Little is known about risk factors for the disease and especially the role of the work environment."

This study assessed the link between work stress and atrial fibrillation. The study included 13,200 participants enrolled into the Swedish Longitudinal Occupational Survey of Health (SLOSH) in 2006, 2008, or 2010. Participants were employed and had no history of atrial fibrillation, heart attack, or heart failure. At study inclusion, participants completed postal surveys on sociodemographics, lifestyle, health, and work-related factors.

Work stress was defined as job strain, which refers to jobs with high psychological demands combined with low control over the work situation. The survey included five questions on job demands and six on control -- for example: Do you have to work very hard or very fast? Are there conflicting demands in your work? Do you have enough time to complete your work tasks? Does your work include a lot of repetition? Can you decide how and what to do at work?

**Having a stressful job is associated with a higher risk of a heart rhythm disorder called atrial fibrillation, according to research published in the *European Journal of Preventive Cardiology*, a European Society of Cardiology (ESC) journal.**

During a median follow-up of 5.7 years, 145 cases of atrial fibrillation were identified from national registers.

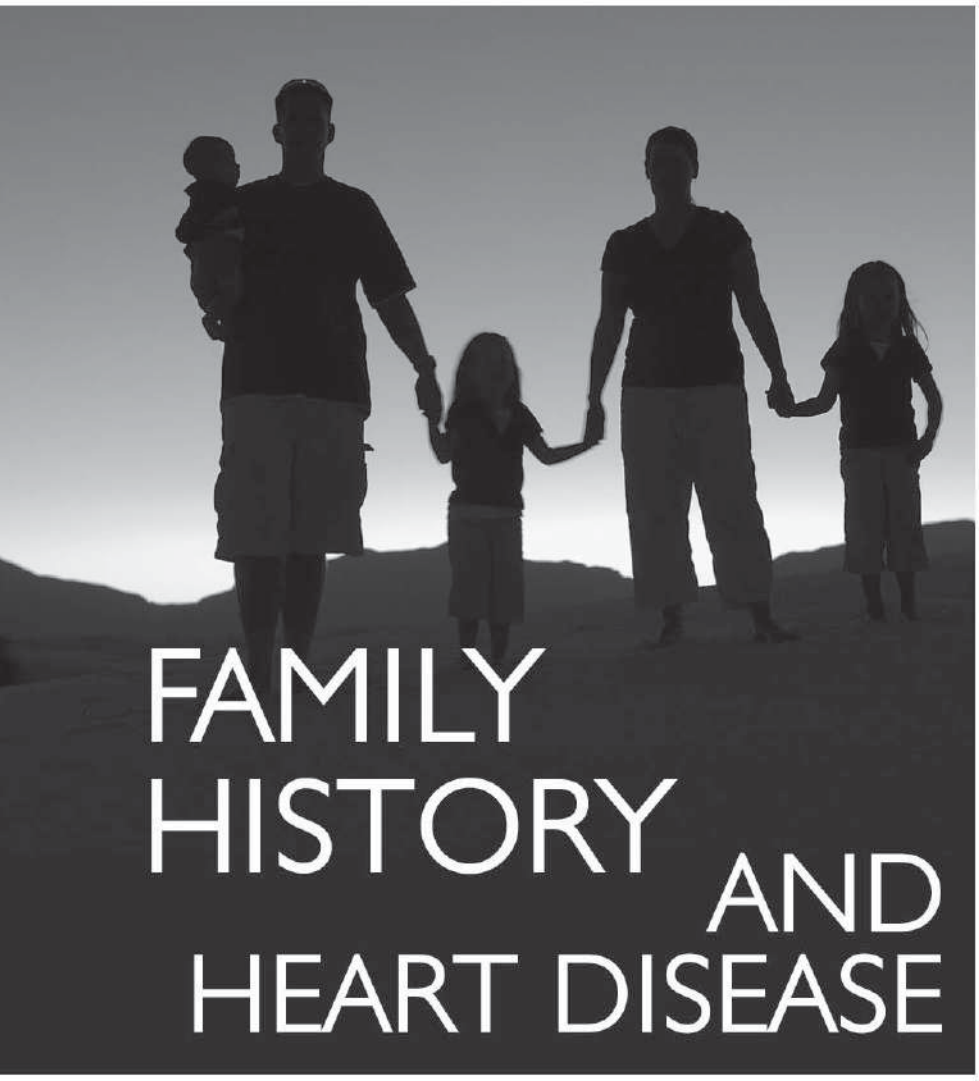
Dr Fransson said: "In the general working population in Sweden, employees with stressful jobs were almost 50% more likely to develop atrial fibrillation. The estimated risk remained even after we took into

account other factors such as smoking, leisure time physical activity, body mass index, and hypertension."

The authors then pooled their results with two other studies on the same topic, and found that job strain was associated with a 37% increased risk of atrial fibrillation. "Across studies there was a consistent pattern of work stress being a risk factor for atrial fibrillation," said Dr Fransson.

She concluded: "Work stress has previously been linked with coronary heart disease. Work stress should be considered a modifiable risk factor for preventing atrial fibrillation and coronary heart disease. People who feel stressed at work and have palpitations or other symptoms of atrial fibrillation should see their doctor and speak to their employer about improving the situation at work."

European guidelines on the prevention of cardiovascular disease state that stress at work contributes to the risk of developing cardiovascular disease and having a worse prognosis.í:[3]Assessment of psychosocial risk factors is recommended in people who have, or are at risk of developing, cardiovascular disease.



# FAMILY HISTORY AND HEART DISEASE

## Will you suffer from a heart attack if there is a family history of heart disease?

***No, you cannot blame genes for a heart attack, read to know why!***

Some people love to blame their health condition to genetics and heredity. Since a family history of heart diseases is thought to be a risk factor in developing coronary heart diseases and cardiovascular diseases in future, many people take it for granted that they are doomed to suffer a heart condition because it runs in the family. But the truth is, even if you have this risk factor making it tricky for you to safeguard your heart, a lot can be done to prevent the onset of heart diseases – eating right, exercising, yoga and meditation, controlling stress and more. But people seldom do the right and blame it on family history if they get a heart attack or are diagnosed with a heart condition.

It's a widespread misconception that if you have a family history of heart disease, you are bound to have heart problems, the problem is that genetic factors need environmental factors also to manifest themselves especially in case of heart diseases. In fact, heart disease runs in the family, because no one runs in the family.

The clustering of a sedentary lifestyle, low exercise and diabetes among family members make them more prone to having heart disease rather than the genetic factors. It is pertinent to recognize that modifiable risk factors like diabetes, hypertension, smoking, hyperlipidemia, lack of exercise, stress all play a much important role in the early onset of heart diseases rather than genetic factors. Major reductions in the incidence of cardiovascular disease, worldwide have been found with the control of modifiable risk factors and hence individuals with a strong family history of heart disease would need to evaluate the clustering of risk

factors among the family members and take appropriate action.

Now, this breaks the myth that family history will make one prone to suffer from a heart attack. In fact, if there are other risk factors that contribute towards making someone prone to heart diseases those needs to be taken into consideration and acted on with stern seriousness. The importance of diet and exercise in keeping the heart healthy cannot be stated enough. However, the modern day lifestyle is making us an eat-at-the-desk jockey and an expanding mass of flesh that keeps on ballooning at the girth. If these two factors can be controlled a lot of problems can be tackled. The right diet can help to control blood glucose levels, keep the arteries healthy and suppress the genetic factors that can work against you. So, it is better to take charge of your life rather than blaming your genes when you get a heart attack.

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# HOW SHOULD YOU GET YOUR BLOOD PRESSURE CHECKED

## while sitting, standing or lying down?

**N**ow you will know why your position when you take a blood pressure reading is so important.

Ever wondered why your doctor prefers to take your blood pressure reading in sitting position and not lying down (unless it is necessary)? There is a reason for this. Your position while checking blood pressure has an impact on the reading. A Turkish study done in the year 2007, researchers tried to check blood pressure in a different position, and it showed different readings during the course of the experiment. There were four positions that were taken into consideration during the study:

**Sitting position:** Where blood pressure was measured from the left arm bent at the elbow and supported on the heart level of the chair.

**Standing position:** After one minute of recording the blood pressure in sitting position, it was recorded in standing position with the arm supported at elbow and the cuff at heart level.

**Supine position or lying down:** After one minute of the standing position, blood pressure was measured in the lying down position.

**Supine position with crossed legs:** After one minute again blood pressure was recorded in the same position with legs crossed.

**What was the conclusion**

Taking all the reading of the individuals into consideration it was seen that the systolic and diastolic pressure (i.e. both the upper and lower reading) was the highest when taken lying down. Hence the study concluded that while assessing blood pressure it is important to take the position of the patient into consideration. Also, blood pressure measurement should be taken in sitting position with the arms supported at the right level.

**Here are few rules to follow while measuring blood pressure at home when alone:**

Sit at a comfortable position (ideally next to the table) with your feet resting on the floor, back straight and arms flexed at the elbow, resting at heart level. Don't keep your legs crossed.

- Next, keep your forearm on the table with your palms facing up.
- Make sure that you have emptied your bladder, as a full bladder can affect your readings.
- If you need to record your blood pressure every day do it at the same time.
- Don't smoke or drink at least 30 minutes prior to taking your blood pressure reading.
- Always, keep a record of all your readings along with the time and date.

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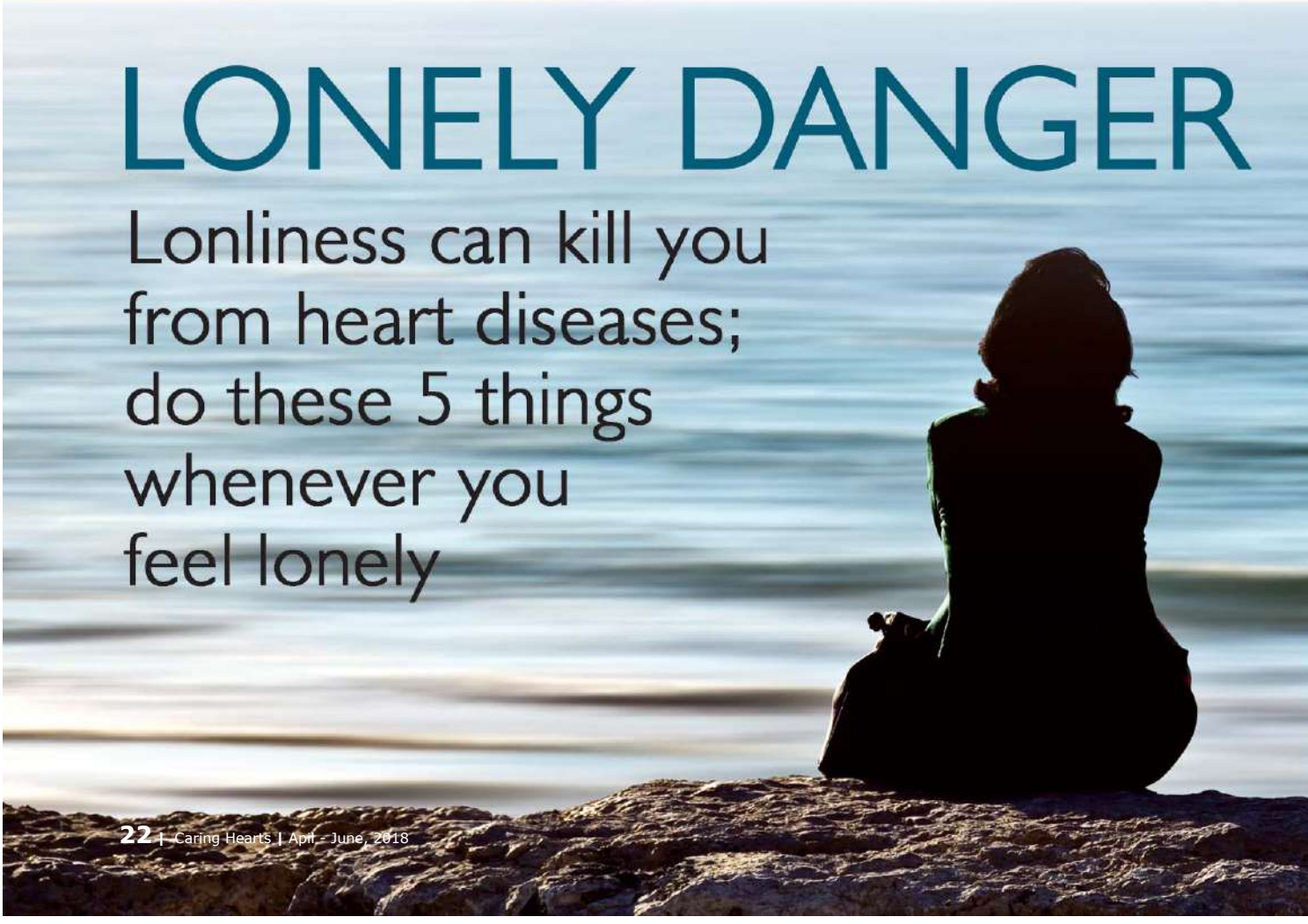
## Feeling lonely was a stronger predictor of disastrous outcomes than living alone.

A recent research concluded that lonely people are twice as likely to die from heart problems than others who aren't lonely. The study further laid down that feeling lonely was a stronger predictor of disastrous outcomes than living alone. Prevalent in both men and women this study should ring the alarm bell amongst the whole generation. The study also analysed the worst outcomes of being lonely and it was found that loneliness could cause ischaemic heart disease, heart failure, arrhythmia (abnormal heart rhythm) or heart valve disease.

However, having laid down a few facts, the practical truth is that we all do feel lonely at times. Feeling lonely and distancing yourself once in a while is fine and absolutely normal but if this feeling is persistent you must make sure that you take advice from a professional psychologist and take it seriously and if you are someone seeing someone around you who has turned too lonely lately, you must ignore it. However, if you are aware that you are feeling too lonely and want to do something to bring change and feel better here are a few things you can do.

1. Exercise: Exercising doesn't only make you physically fit but also makes you feel better, energised and happy. Moreover, your advancement towards a fitter body is always motivating.

2. Learn: Even when you lack motivation you know there are a few things we always wanted to learn since childhood. Just pick up a day and go for it. It is never too late to start anything. Be it playing guitar or skating try out learning different skills. The feeling of having learnt a new skill will only motivate you and make you feel better.



3. Dance: Dancing has a lot of health benefits and also it helps you let your body free and relax your body. And you don't need to be an ace dancer for that. Switch on the music and go on, let yourself loose.

4. Sing: You will be surprised to know the health benefits of singing. Moreover, like dancing singing-even in the bathroom-relaxes you. Don't shy away, bring some melody to life.

5. Write: Writing has a lot of mental health benefits, and you won't believe butwriting poems has a lot of health benefits too. You don't need to be any kind of an epic writer… just write whatever comes to your mind and you'll feel you have a listener.

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# KEEP SAYING YES TO FISH

## TWICE A WEEK FOR HEART HEALTH

**A new scientific advisory reaffirms the American Heart Association's recommendation to eat fish- especially those rich in Omega-3 fatty acids twice a week to help reduce the risk of heart failure, coronary heart disease, cardiac arrest and the most common type of stroke (ischemic). The advisory is published in the American Heart Association's journal *Circulation*.**

"Since the last advisory on eating fish was issued by the Association in 2002, scientific studies have further established the beneficial effects of eating seafood rich in Omega-3 fatty acids, especially when it replaces less healthy foods such as meats that are high in artery-clogging saturated fat," said Eric B. Rimm, Sc.D., chair of the American Heart Association writing group and professor of epidemiology and nutrition at the Harvard T.H. Chan School of Public Health in Boston.

The Association recommends eating two 3.5-ounce servings of non-fried fish, or about ¾ cup of flaked fish every week. Emphasis should be placed on eating oily fish like salmon, mackerel, herring, lake trout, sardines or albacore tuna, which are all high in omega-3 fatty acids.

The advisory was written by a panel of nutrition experts, who also reviewed studies about mercury in fish. Mercury is found in most seafood but is prevalent in large fish such as shark, swordfish, tilefish, king mackerel, bigeye tuna, marlin and orange roughy. The writing group concluded that while mercury contamination may be associated with serious neurological problems in newborns, existing scientific research finds that mercury contamination does not have adverse effects on heart disease risk in adults, and the benefits of eating fish substantially outweigh any risks associated with mercury contamination, especially if a variety of seafood is consumed.

The importance of environmentally sustainable fish farming techniques and other topics are also briefly discussed in the advisory. A previously published American Heart Association advisory on Omega-3 fish oil supplements noted that the supplements are not recommended for the general public to prevent clinical cardiovascular disease because of a lack of scientific evidence regarding any effect on cardiovascular risk.

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# HEART ATTACKS IN ELDERLY PEOPLE: HERE'S WHAT YOU SHOULD KNOW

## Here are tips on what you should and shouldn't do when some elderly person suffers from a heart attack.

Heart attacks are common amongst the elderly. According to the 2016 Global Burden of Disease Report, heart disease is the leading cause of death in India (17.8% of all the deaths), figures rising by 53% compared to 2005. Over the last 60yrs, congenital heart disease prevalence has increased from 1% to 9-10% in urban areas and has gone from 1% to 4-6% in rural areas. A heart attack happens when there is a sudden complete blockage of an artery that supplies blood to a section of the heart. As a result, some of the heart muscle starts to die. Most of the time, older adults are dependent on family members or caregivers to understand the signs and to get medical aid.

**Risk factors for heart attacks in elderly**

- Family history of heart attacks or cardiac problems
- Diabetes
- High blood pressure
- High cholesterol
- Smoking (even second-hand smoke exposure)
- Alcohol consumption
- Being overweight or obese
- Inactive or sedentary lifestyle

Symptoms of heart attack in elderly:

Experiencing any of these may not necessarily indicate that the person has a heart attack. It is better to leave the clinical decision to the doctor. While it is known that the most common symptom is sudden onset chest pain, many of the elderly do not present this characteristic complaint.

**Commonly reported symptoms include**

- Uncomfortable chest pain, heavy pressure or squeezing or sensation of fullness in chest, with pain radiating to neck, jaw and arm
- Indigestion or heartburn
- Experiencing shortness of

breath

- Nausea, vomiting, sudden sweating or dizziness
- Fatigued and noticeable decrease in energy
- In some cases, acute change in behaviour (delirium)

**Steps to reduce heart attacks in the elderly**

- It is important for people of all ages to eat a healthy diet. If suffering fromhigh blood pressure, they should have a diet low in salts and pickles; consume less oily and fried foods.
- If diabetic, diet should be low in sugars and consume foods with low glycemic index. It is always a good option to consume fresh fruits and green leafy vegetables and avoid all sorts of junk food
- Senior citizens who have been sedentary should start exercising slowly, by taking short walks every day
- One of the most preventable causes of heart attacks is smoking. It is always better to quit smoking at any age. Limit the amount of alcohol you drink
- Keep your Blood Pressure, Diabetes and Cholesterol in good control
- Try and lead a stress-free life; visit your doctor on a regular basis

**Steps for caregivers if an elderly person has a heart attack outside the hospital**

- Have that person sit down, rest and try to keep calm
- Loosen any tight clothing
- Keep constantly reassuring them that medical aid is on its way
- If the person takes any medication for chest pain or heart condition, help them take it
- Call for help and immediately, take the person to the hospital

**What not to do?**

- Do not leave the person alone, except to call for help
- Do not give anything by mouth, unless a heart medication is prescribed
- Do not wait to see if the symptoms go away. Take the person immediately to the hospital

Each and every minute matters, once a person develops a heart attack; the medical intervention is to get the blood flowing back to the heart. The sooner the treatment is received, once the symptoms of heart attack are noticed, the less damage will be caused to the heart. In most cases, an elderly individual will live through a heart attack, if they get the emergency help at the earliest. Delay of even a few minutes can be fatal.

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# BEST SUPERFOODS FOR EXCELLENT HEART HEALTH

**E**ating unhealthy foods can increase your risk of heart disease. Similarly, if you adopt healthy eating habits, it can help you to keep the heart diseases at bay. So, follow a heart-healthy diet to combat heart ailments and stay healthy and hearty!

**Experts** advises, "Include a variety of fruits, vegetables and fibre. Whole grains, skinless poultry and fish should be a part of your diet. Avoid consuming carbonated drinks."

She adds, "Consuming salmon, tuna, mackerel which contains omega -3 fats can be helpful. It also lowers the levels of triglycerides in the blood which can cause blood clotting can be helpful. It can also regulate the irregular heart rhythms. Include oils like rice bran, peanut, wheat germ, pumpkin seed and sunflower. Control your portion size as going over-board can invite a lot of health problems."

**Eat and avoid these foods:**

- Fresh vegetables – tomatoes, cabbage, carrots and leafy green salads.
- Eat broccoli, spinach, kale and so on.
- Apples, berries and pomegranate can be a good option.
- Eat fat-free or low-fat dairy products.
- Consume green tea, legumes, nuts and soy.
- Cut down on sodium: Don't eat more than 2400mg/d.
- Avoid eating saturated fats: cakes, cookies, pizza, burger and so on.

As per experts, "Along with diet, physical exercise is also equally important. Take up a physical activity you like and do it regularly. Since, this will pay a way towards leading a healthy life and benefit you in the long run."

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# DID YOU KNOW
# THERE IS NO 'PERFECT' BP READING?

## SOME IMPORTANT FACTS ABOUT HYPERTENSION

Hypertension or high blood pressure is a lifestyle ailment which needs to be managed effectively. Proper medication, diet modification and corrective lifestyle changes help in doing the same. Since the condition doesn't show any prominent symptoms, many people tend to become complacent with its management. However, that could be detrimental to one's health.

**1. You may not have hypertension even though it runs in your family**

We all believe that hypertension runs in the family. If our ancestors had it, we would inevitably end up having it, which makes us lenient in making lifestyle choices. But this might not be true, always. In 90 percent of cases, the cause of hypertension cannot be ascertained, and it turns out to be secondary hypertension. However, one can't rule out the genetic linkage and family history and some are preconditioned to suffer from same. But it is not like the rule of mathematics that you need to have it. Other than genetics, one's BMI, metabolism and other physiological factors are also responsible for the same. So, let's not blame genetics alone.

**2. Stopping hypertension medications could be dangerous**

Medications for hypertensive patients are akin to insulin for diabetics. Like you cannot stop taking insulin if you are a diabetic, you can't do the same with your high blood pressure pills. However, if the cause of your hypertension is an underlying health condition like thyroid, obesity, endocrine issues, snoring or sleep apnoea then treating these conditions can help limiting hypertension medication. Borderline hypertension can also be dealt with correct diet and exercise. But if it is 'secondary hypertension,' where the numbers are shooting up and there isn't any reversible pattern, in that case, medication should be taken lifelong.

Remember, medications for high blood pressure is prescribed to keep the condition in check. So, if your numbers come down from 170/180 to 110/80 and you stop taking medication, especially the beta blockers prescribed to treat hypertension, your blood pressure can shoot up to 200/180, which is called reactive hypertension. Reactive hypertension can be potentially dangerous and lead to stroke or heart attack. Restarting high blood pressure medication can be a good idea even if you were off it for a while. However, it is better to check with your doctor before restarting to know if you still need the same dosage or higher.

**3. It is not salt that is harmful, but the component sodium**

For people who are suffering from hypertension or high blood pressure cutting down on salt help improve their condition. While it is true but that is just a half-hearted approach. Salt is definitely the white culprit, but it is not salt that needs to be blamed entirely for the raging

pressure. Every individual has a unique ability to control salt in their body. Salt consist of two components sodium and chloride. It is sodium intake that needs to be checked. Even processed foods and preservatives are high in sodium content. The aim should be to limit sodium intake and not just salt consciously.

**4. There is no perfect blood pressure**

If you thought 120/90 is the perfect blood pressure and you are striving hard to attain it, know that there is no perfect blood pressure reading. Blood pressure is measured as an average taken over a spectrum of the population. Like there is no one skin colour that matches all, but shades of a tone, every individual have a different reading of their blood pressure. A doctor has to measure your blood pressure numerous times to get your correct reading. Doctor's don't prescribe medication when the first time you walk in unless it is as high as 180/90 and needs immediate attention.

Measuring hypertension is not just about the reading, it also takes into consideration the BMI, height, weight, race and geography of a population. So for some population spectrum 120/90 could be normal and for others, it might be 150/90 or even 170/90. So, when the doctor takes your blood pressure and the top number remains 140 consistently say even after four times of checking and the lower above 80 then probably 140/90 is your normal blood pressure and there is nothing to fret about it.

However, there is also a fear of registering white coat blood pressure, where the pressure goes up by 10 or 20 percent when you visit the doctor's clinic in response to stress. In such cases, an angular BP monitoring machine is given to the patient, which helps to record the pressure throughout the night to get the correct reading.

**5. It is not necessary to monitor your blood pressure throughout the day**

Unlike blood sugar it is not necessary to monitor high blood pressure throughout the day. Remember blood pressure keeps fluctuating throughout the day as it is a stress response. Never will your blood pressure be the same for 24 hours. Remember, if there are no fluctuations in your blood pressure you will in fact collapse. Unless you are a stroke survivor, recuperating from a heart failure or have badly controlled hypertension, monitoring your blood pressure throughout the day and fretting about it is not necessary.

**6. Wine can't make your heart health better or worse**

There are various studies on the internet doing the round that wine can help you keep your heart healthy because of the flavonoids present in them. However, in reality, its efficiency cannot be pledged. So if you love wine and have a heart condition better go slow. Remember, wine is not your medicine.

**7. Eating fruits and vegetables can keep your heart healthy but can't treat hypertension**

Many people think eating healthy, like loading on vegetables and fruits can help them be off medications forever. While eating fruits and vegetables is necessary to give your body the required nutrition to function and thrive well, depending on them to treat a condition like hypertension isn't advisable. Like if you think vegetables rich in nitrate can dilate your blood vessels and help control blood pressure, know that you have to eat them by kilos which isn't possible. However, follow a balanced diet for nutrition and medications to keep your heart healthy.


# IS YOUR MEDICATION RAISING YOUR CHOLESTEROL?

**Various kinds of medication have been known to cause mild to significant increase in cholesterol levels**

Did you know that your medications could actually be raising your cholesterol levels? "Various kinds of medication have been known to cause mild to significant increase in cholesterol levels," according to Dr Uma Nambiar, Member – Strategic Advisory Board at Easybuyhealth. She elaborates on the same:

These medications cause high cholesterol:

1. Prednisone: A synthetic corticosteroid drug, it is used to treat inflammatory diseases, autoimmune disorders etc. The continued usage of this drug can raise triglycerides, Low Density Lipoprotein (LDL) cholesterol levels, and HDL cholesterol levels.

2. Beta blockers: Used to manage abnormal heart rhythms and protect the heart from consecutive attacks, beta blockers also have been noted to decrease HDL levels and elevate triglyceride levels. Not all beta blockers have this effect except

- Atenolol (Tenormin®)
- Bisoprolol (Zebeta®)
- Metoprolol (Toprol®, Lopressor®)
- Nadolol (Corgard ®)
- Propranolol

3. Amiodarone: antiarrhythmic drug medication used to treat and prevent disorders relating to irregular heartbeats creates an increase in LDL levels.

4. Estrogen: An excess of the female sex hormone may also increase triglyceride levels.

5. Progestin: Higher levels of progestin have been associated with lower HDL levels. In combination with estrogen, progestin may cancel out the healthy effect estrogen has in raising HDL levels.

6. Anabolic steroid: These drugs raise LDL levels and lower HDL levels, while a higher dose of Anabolic steroid causes an increase in Triglyceride levels.

7. Cyclosporine-Used mostly after organ transplants, it allows the new organ to function normally. It produces an increase in plasma levels of triglycerides, very low density lipoprotein (VLDL)

triglycerides, low-density lipoprotein (LDL) cholesterol and in total cholesterol/HDL cholesterol and LDL cholesterol/ high-density lipoprotein (HDL) cholesterol ratios.

8. Protease inhibitor-Needed to prolong life in patients with HIV infection, it causes an elevation in serum total cholesterols.

9. Diuretic: Required for patients of hypertension, prolonged use of this drug can cause elevation in serum lipid levels. Some of the cholesterol impacting diuretics are:-

- Thiazide diuretics (including hydrochlorothiazide, chlorothiazide, metolazone)
- Loop diuretics (including furosemide, torsemide, bumetanide)

Numbers for normal and high cholesterol levels: Cholesterol levels less than 200 milligrams per deciliter (mg/dL) are considered desirable for adults. A reading between 200 and 239 mg/dL is considered borderline high and a reading of 240 mg/dL and above is considered high.

Can steroids cause high cholesterol levels? They are known to raise LDL levels and decrease HDL levels. Oral steroid medications have a more visible detrimental effect on cholesterol than injectable medications. DHT based steroids have shown the highest effect of reducing HDL and enhancing LDL.

Can progestin cause high cholesterol levels? Progestin can cause a rapid increase in LDL while decreasing HDL. However, such changes were observed under high doses of Progestin, which are not expected for lower doses. Additionally, high Progestin dosage can also cause a disparity in the LDL-HDL ratio.

Can retinoids cause high cholesterol levels? Retinoid intake is inversely proportional to Serum Lipid level changes. Specific vitamins such as isotretinoin, a well-known therapy for acne vulgaris, increases total cholesterol and LDL cholesterol levels.

Can diuretics cause high cholesterol levels? Specific diuretic drugs such as thiazide and loop diuretics are known to enhance total cholesterol, LDL and blood glucose. Excessive use of this medicine can further cause deposition of excessive calcium in the blood, resulting in hypercholesterolemia.

Can beta blockers increase cholesterol levels? Beta blockers such as propranolol and atenol etc. can have very little increasing effect on triglycerides while decreasing HDL or good cholesterol.

Can fluoxetine (Prozac) increase cholesterol levels? It's a popular antidepressant that has been known to raise cholesterol, be a cause for hypoglycemia and gout. Other medicines such as Venlafaxine are an extreme risk to take for patients with high cholesterol or blood pressure problems, as this medication raises levels of both the physiological functions.

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## The heart contains two distinct white blood cells

**R**esearchers have shown that two genetically and functionally distinct types of macrophage —white blood cells that engulf foreign matter — exist in the human heart.

The discovery, by a team led Geetika Bajpai from Washington University in Missouri, US, is revealed in a paper published in the journal *Nature Medicine*. It has important implications for the development of targeted immune treatments for patients with a particularly insidious type of heart disease.

Macrophages are the mammoth cells that detect, hoover up and destroy microbes and other invaders. The cells are not uniform, however, and are classified into subtypes. Two – dubbed CCR2-plus and CCR2-minus – were identified in mouse hearts in the 1960s, and have been exhaustively researched ever since.

Different macrophage subtypes have previously been found in human organs, including the skin, lungs and eyes, but this is the first study to prove that CCR2-plus and CCR2-minus are found in the human heart.

# GREEN TEA MOLECULE CAN PREVENT HEART ATTACKS

## Compound breaks-up potentially dangerous protein plaques in blood vessels

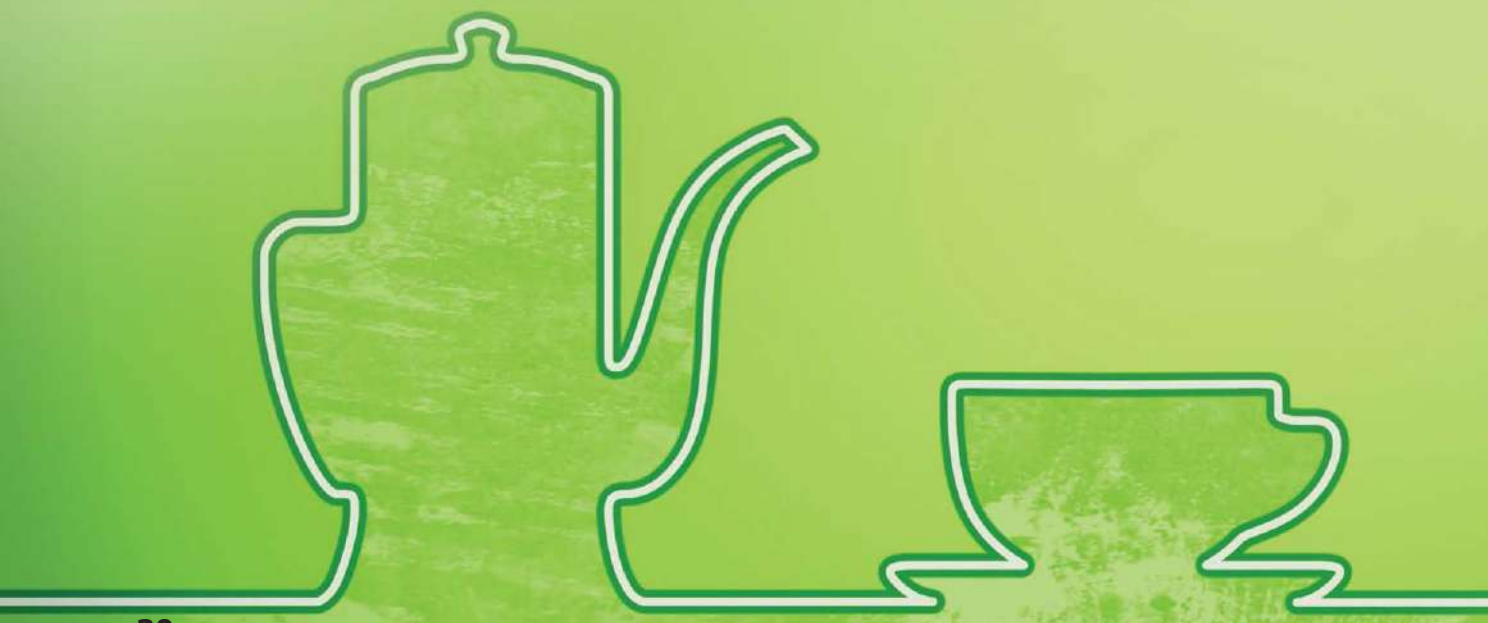
Green tea could hold the key to preventing deaths from heart attacks and strokes caused by atherosclerosis, according to research funded by the British Heart Foundation and published in the *Journal of Biological Chemistry*.

Scientists from Lancaster University and the University of Leeds have discovered that a compound found in green tea, currently being studied for its ability to reduce amyloid plaques in the brain in Alzheimer's disease, also breaks up and dissolves potentially dangerous protein plaques found in the blood vessels.

Atherosclerosis is the build-up of fatty material inside our arteries that can reduce the flow of blood to the heart and brain. In advanced stages of the condition, a protein called apolipoprotein A-1 (apoA-1) can form amyloid deposits, which are similar in structure to those associated with Alzheimer's disease. These deposits build up within atherosclerotic plaques. Here, they increase the size of the plaques, further restricting blood flow, and may also make the plaques less stable, increasing the risk of a heart attack or stroke.

Researchers found that epigallocatechin-3-gallate (EGCG), most commonly associated with green tea, binds to the amyloid fibres of apoA-1. This converts the fibres to smaller soluble molecules that are less likely to be damaging to blood vessels.

Now, the team are working on finding ways of introducing effective amounts of EGCG into the bloodstream without it being necessary to drink large and



potentially harmful quantities of green tea. This could involve modifying the chemical structure of EGCG, making it easier to be absorbed from the stomach and more resistant to metabolism, or developing new methods to deliver the molecule to the plaques -- such as via an injection.

David Middleton, Professor in Chemistry at Lancaster University, said:

"The health benefits of green tea have been widely promoted and it has been known for some time that EGCG can alter the structures of amyloid plaques associated with Alzheimer's disease.

"Our results show that this intriguing compound might also be effective against the types of plaques which can cause heart attacks and strokes."

Professor Jeremy Pearson, Associate Medical Director at the British Heart Foundation, said: "Our bodies are very good at breaking down EGCG so swapping your cuppa for green tea is unlikely to make a big difference with respect to your heart health. "But by engineering the molecule slightly, we might be able to make new medicines to treat heart attack and stroke."

Professor Sheena Radford, Director of the Astbury Centre for Structural Molecular Biology at the University of Leeds and co-author of the research, said: "The findings of this round of studies are very encouraging. We now need to apply the best scientific techniques to find how we can take the molecular EGCG element from green tea, and turn it into a functioning tool to combat life-limiting health issues." ■■

# KEEP SAYING YES TO FISH

**A new scientific advisory reaffirms the American Heart Association's recommendation to eat fish- especially those rich in Omega-3 fatty acids twice a week to help reduce the risk of heart failure, coronary heart disease, cardiac arrest and the most common type of stroke (ischemic). The advisory is published in the American Heart Association's journal *Circulation*.**

"Since the last advisory on eating fish was issued by the Association in 2002, scientific studies have further established the beneficial effects of eating seafood rich in Omega-3 fatty acids, especially when it replaces less healthy foods such as meats that are high in artery-clogging saturated fat," said Eric B. Rimm, Sc.D., chair of the American Heart Association writing group and professor of epidemiology and nutrition at the Harvard T.H. Chan School of Public Health in Boston.

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The advisory was written by a panel of nutrition experts, who also reviewed studies about mercury in fish. Mercury is found in most seafood but is prevalent in large fish such as shark, swordfish, tilefish, king mackerel, bigeye tuna, marlin and orange roughy. The writing group concluded that while mercury contamination may be associated with serious neurological problems in newborns, existing scientific research finds that mercury contamination does not have adverse effects on heart disease risk in adults, and the benefits of eating fish substantially outweigh any risks associated with mercury contamination, especially if a variety of seafood is consumed.

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## NEW LINK FOUND BETWEEN

# ALCOHOL, GENES AND HEART FAILURE

**The researchers investigated faulty versions of a gene called titin which are carried by one in 100 people or 600,000 people in the UK.**

Titin is crucial for maintaining the elasticity of the heart muscle, and faulty versions are linked to a type of heart failure called dilated cardiomyopathy.

Now new research suggests the faulty gene may interact with alcohol to accelerate heart failure in some patients with the gene, even if they only drink moderate amounts of alcohol.

The research was carried out by scientists from Imperial College London, Royal Brompton Hospital, and MRC London Institute of Medical Sciences, and published this week in the latest edition of the *Journal of the American College of Cardiology*.

The study was supported by the Department of Health and Social Care and the Wellcome Trust through the Health Innovation Challenge Fund.

In the first part of the study, the team analysed 141 patients with a type of heart failure called alcoholic cardiomyopathy (ACM). This condition is triggered by drinking more than 70 units a week (roughly seven bottles of wine) for five years or more. In severe cases the condition can be fatal, or leave patients requiring a heart transplant.

The team found that the faulty titin gene may also play a role in the condition. In the study 13.5 per cent of patients were found to carry the mutation — much higher than the proportion of people who carry them

in the general population.

These results suggest this condition is not simply the result of alcohol poisoning, but arises from a genetic predisposition — and that other family members may be at risk too, explained Dr James Ware, study author from the National Heart and Lung Institute at Imperial.

"Our research strongly suggests alcohol and genetics are interacting — and genetic predisposition and alcohol consumption can act together to lead to heart failure. At the moment this condition is assumed to be simply due to too much alcohol. But this research suggests these patients should also be checked for a genetic cause — by asking about a family history and considering testing for a faulty titin gene, as well as other genes linked to heart failure," he said.

He added that relatives of patients with ACM should receive assessment and heart scans — and in some cases have genetic tests — to see if they unknowingly carry the faulty gene.

In a second part of the study, the researchers investigated whether alcohol may play a role in another type of heart failure called dilated cardiomyopathy (DCM). This condition causes the heart muscle to become stretched and thin, and has a number of causes including viral infections and certain medications. The condition can also be genetic, and around 12 per cent of cases of DCM are thought to be linked to a faulty titin gene.

In the study the team asked 716 patients with dilated cardiomyopathy how much alcohol they consumed.

None of the patients consumed the high-levels of alcohol needed to cause ACM. But the team found that in patients whose DCM was caused by the faulty titin gene, even moderately increased alcohol intake (defined as drinking above the weekly recommended limit of 14 units), affected the heart's pumping power.

Compared to DCM patients who didn't consume excess alcohol (and whose condition wasn't caused by the faulty titin gene), excess alcohol was linked to reduction in heart output of 30 per cent.

More research is now needed to investigate how alcohol may affect people who carry the faulty titin gene, but do not have heart problems, added Dr Paul Barton, study co-author from the National Heart and Lung Institute at Imperial:

"Alcohol and the heart have a complicated relationship. While moderate levels may have benefits for heart health, too much can cause serious cardiac problems. This research suggests that in people with titin-related heart failure, alcohol may worsen the condition.

"An important wider question is also raised by the study: do mutations in titin predispose people to heart failure when exposed to other things that stress the heart, such as cancer drugs or certain viral infections? This is something we are actively seeking to address."

■■

## This incredible device could be a lifesaver for heart attack victims

**A** new minimally invasive device could be a lifesaver for patients who have experienced a heart attack, allowing for regular treatments for the rest of their lives.

As if experiencing a heart attack wasn't bad enough, the subsequent risks posed by the build-up of scar tissue can be just as life-threatening.

Additionally, current therapies exploring the prevention of this build-up have involved drugs, proteins and adult stem cells, all of which come with negatives, including their inability to stay at their intended target as well as the potential toxic side effects.

So, it can be seen as welcome news that a joint US-Irish research team has unveiled a new minimally invasive device that could substantially change the lives of those living after a heart attack, without needing a number of procedures or experimental treatments.

The breakthrough was the result of a collaboration between Harvard, MIT and Boston Children's Hospital in the US; and NUI Galway, the Royal College of Surgeons in Ireland, Trinity College Dublin and AMBER, the Science Foundation Ireland-funded materials science centre.

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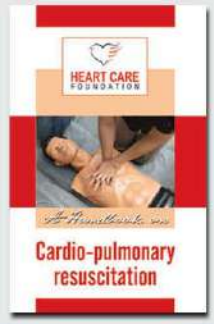



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