Arrhythmia Alliance

The Heart Rhythm Charity

Promoting better understanding, diagnosis, treatment and quality of life for individuals with cardiac arrhythmias

Physical activity and exercise advice for patients with an ICD

www.heartrhythmcharity.org.uk

Introduction to Physical activity and exercise advice for patients with an ICD

As a result of suffering from, or being at risk from, serious heart rhythm disturbances (arrhythmia), you have been fitted with an Implantable Cardioverter Defibrillator or ICD. One of the most important reasons for you having this device is to keep you as healthy, active and independent as possible.

Your cardiologist, arrhythmia/ICD nurse and/or cardiac physiologists will have given you information regarding how the device works, what to do if it goes off and should have advised you regarding matters such as driving and equipment that may interfere with your device. Please see also our ICD patient information booklet

A question that often does not come up for a while after the ICD is fitted, however, is "can I take exercise, and if so, how much and what sort?"

Arrhythmia Alliance (A-A) is a coalition of charities, patient groups, patients, carers, medical groups and allied professionals.

These groups remain independent, however, work together under the **A-A** umbrella to promote timely and effective diagnosis and treatment of arrhythmias.

A-A supports and promotes the aims and objectives of the individual groups.

Contents

Introduction

Glossary

Is it safe to exercise?

How might exercise affect my ICD?

Is there any exercise I definitely can't do?

So what can I do?

Arrhythmia Alliance patient booklets are reviewed annually.

This booklet will be next updated April 2009,

if you have any comments or suggestions

please contact A-A.

Glossary of terms

Ablation
A procedure performed by an electrophysiologist to clear a small volume of cardiac tissue.

Arrhythmia
An abnormal heart rhythm.

Atria
Top chambers of the heart that receive blood from the body and from the lungs. The atrium is where the heart's natural pacemaker (sino atrial node) can be found.

AV Node
Part of the electrical pathway between the atria and the ventricles.

Catheter
These are fine wires which are passed through tubes and are positioned within the heart.

Defibrillation
The use of a higher energy shock to stop fast heart rhythms.

Electrophysiologist
A cardiologist who has specialised in the electrical side of the heart, meaning the heart's rhythm.

Sinus Node
This is the natural pacemaker of the heart.

SVT
Supraventricular tachycardia abnormal heart rhythm arising from the upper chambers of the heart.

Tachycardia
Fast heart beat.

Ventricular Fibrillation (VF)
A fast, dangerous heart rhythm which causes the heart to stop pumping. This rhythm needs a shock to stop it and return the heart back to a normal rhythm. A cardiac arrest can soon follow if the rhythm is not treated quickly with a shock.

Ventricular Tachycardia (VT)
A fast rhythm which causes the heart to pump less efficiently, and can lead to dizziness, fainting and unconsciousness. If not treated with medication or an electric shock, the rhythm can lead to ventricular fibrillation.

Is it safe to exercise?

The simple answer to this question is yes, but the full answer is influenced by the cause and type of your arrhythmia and the type of exercise you perform.

The likelihood of arrhythmia during exercise is very small but when it occurs it is sometimes linked to an abnormality of heart function and not the presence of an ICD. This is especially true if you have suffered considerable damage to your heart as a result of a heart attack (myocardial infarction) or have a heart muscle disease cardiomyopathy.

The likelihood of arrhythmia is no greater during moderate intensity aerobic exercise than during resting but there are certain types of exercise that increase the risk of arrhythmias. If you exercise hard, from rest, without a warm-up and immediately cease exercise, without a cool down or active recovery period, you increase the likelihood of arrhythmia.

In cardiac rehabilitation exercise programmes, worldwide, where a warm-up and cool down are the norm, arrhythmia rarely ever occurs.

How might exercise affect my ICD?

Your ICD detects abnormal heart rhythms in a number of ways, one of which relates to the speed of the heart during the arrhythmia. Most arrhythmias treated with ICDs will be significantly faster than your normal heart rate would reach, even with strenuous exercise. Occasionally, however, the ICD needs to be programmed to recognise abnormal heart rates that are close to those that can be achieved with exercise. For this reason, it is worthwhile to check how your ICD is programmed before undertaking anything other than recreational exercise or exercise to lose weight; your cardiologist, arrhythmia nurse or cardiac physiologist can advise you about how high you can safely raise your heart rate. If you are concerned about your safe exercise level, you should ask your cardiologist, arrhythmia/ICD nurse or cardiac physiologist whether an exercise test would be a helpful way to gain reassurance. If you are concerned you may also be referred to an exercise specialist within the cardiac rehabilitation team.

In order for you, and others around you, to feel safe about exercise the following information is useful: (1) the ICD detection threshold setting in beats per minute; (2) whether the device is set for ventricular tachycardia (VT) or ventricular fibrillation (VF); (3) rapid onset setting (how quickly the heart rate is allowed to increase before therapy is delivered); (4) sustained ventricular tachycardia settings (how long each episode should last before therapy is delivered); (5) ICD mode of therapy e.g. anti tachycardia pacing (ATP) or shocks; (6) are you taking beta blockers? Knowledge of these factors can reduce the anxiety in setting physical activity and exercise targets for you and people involved with exercise e.g. gym instructors. For example, a patient who is taking beta blockade, has a VF setting of 180bpm with a rapid onset setting of 30 beats and set for shock therapy (defibrillation), is very unlikely to experience arrhythmia or shock therapy with moderate intensity exercise.

Is there any exercise I definitely can't do?

As a general rule, before undertaking any exercise you should ask yourself "what would happen if my ICD goes off?". For most forms of recreational exercise, this probably means that someone who knows that you have an ICD should accompany you - often just to prevent well-meaning bystanders over-reacting! You should also ensure that you have your ICD card with you **AT ALL TIMES**, in case you need to be taken to hospital for any reason.

You should not undertake any contact sports. Although the ICD itself is very tough, bruising or breaking the skin over the site where the device is implanted may lead to infection, which can then become very troublesome to treat and resolve. You should also recognise that you are unlikely to be able to obtain insurance for winter sports such as skiing or, indeed any other "extreme" sports where the effects of a shock may put you or others at risk.

Swimming can be undertaken once your implant wound has healed fully (although you should be accompanied at all times by someone able to get you out of the water should your ICD go off or in case you lose consciousness or feel unwell). Some ICDs are implanted for arrhythmias which may be triggered specifically by swimming (some Long QT Syndromes - check with your cardiologist) but snorkelling is not recommended and SCUBA diving should not be undertaken. Water sports generally need to be undertaken only if you are accompanied at all times by at least one other person who is able to get you out of the water in case your ICD goes off.

You will not be able to take part in any form of competitive motor sport, as you will not be eligible for an appropriate licence. Regular driving should be discussed with your cardiologist. Latest regulations for ICD patients can be found on the DVLA website:

http:/www.direct.gov.uk/en/motoring/driverlicening/medicalrulesfordrivers

You should also avoid any sport (or indeed any situation) where you might be exposed to strong magnetic or electrical fields or a powerful radio source (radio-controlled planes, cars, boats, etc may be a problem - please check with your local implant centre).

So what can I do?

As discussed above, it is likely that your underlying heart condition (i.e. the cause of your arrhythmia and therefore the reason you had the ICD implanted) will have more influence on your ability to exercise than the presence of your ICD. Your underlying heart condition may limit your exercise capacity due to shortness of breath, fatigue or chest pain - these should not be ignored.

Research has shown that physical activity and exercise are beneficial for people fitted with an ICD. Aerobic and skilled flowing movement, muscular endurance and flexibility should dominate the exercise and physical activity sessions. Such activities are very well tolerated, effective and lead to optimal carry-over into your daily life. There is a dose response relationship between the frequency and intensity of exercise prescription whereby the most favourable fitness improvements occur with a moderate intensity performed frequently.

Physical activity and exercise should be progressed slowly and should use one of the standard approaches of monitoring, e.g. heart rate or perceived effort. An exercise intensity of between 60 to 75% target heart rate (220 minus age) is sufficient to bring about significant health benefits and improve fitness and endurance. If you are taking beta-blocker medication you may not be able to reach these heart rate levels. Instead you should look to increase your exercise heart rate by 30 to 40 beats above your resting heart rate.

Alternatively you can use the body's built-in monitor, which is your ability to rate your own effort or exertion. Imagine that sitting down equals 'zero' effort and a score of ten equals the 'most extreme' effort you could perform if pushed to do so. Now in your own mind split the distance between 0 and 10 by half and try to keep your effort or exertion below a score of five.

The key is to avoid becoming too breathless during exercise, as this will sap your strength and over load your cardiovascular system.

All exercise sessions should start with a warm-up and finish with a cool-down period, both of which should last for 10 minutes, so that the cardiovascular system has time to adjust to the alteration in demand. The sequence of exercise should vary from arm work to trunk and legwork, with flexibility and co-ordination exercises following the more strenuous exercises. The main part of the training programme should consist of graded aerobic circuit training exercises lasting 25 to 30 minutes and incorporating multi joint movements with part body weight and moderate resistance. Static exercise where you are holding tight, or resisting strongly, and 'holding your breath' should be avoided as this type of exercise has no health benefit and is dangerous. The key is to emphasise the skill of the activity, be it aerobic exercise or strength and with practice the task will become easier.

In general, most exercises should be performed standing, with horizontal (lying down) and seated arm exercises kept to a minimum. Seated arm exercise with weights leads to excessive cardiac demand and an increased likelihood of arrhythmia. If seated exercise is to be performed then the intensity of exercise should be low and the emphasis placed on muscular endurance (lots of repetitions without feeling unduly fatigued). Slight leg exercise, for example alternate heel raises, when combined with arm exercise, reduces the load on the heart during seated arm work.

A note of caution is required for those few patients who are at risk of ICD lead problems. This situation is often known immediately post-operatively and your ICD implant team will have informed you about it. In these circumstances it is important to avoid excessive shoulder range of movement and or highly repetitive vigorous shoulder movements. Light to moderate strength activities performed within a normal range of movement, that closely match functional daily activities have been used successfully in patients with an ICD.

Physical fitness is soon lost if training is not continued at a level sufficient to maintain the effect. Moderate physical activity as well as leisure and sport are known to benefit health and where possible, these should be pursued most days of the week. Continuous physical activity of 30 minutes or more is considered most effective, although multiple activity sessions of 10 to 15 minutes, duration, on the same day, have also demonstrated significant health improvement.

Summary

Physical activity and exercise has a substantial role in enabling patients with an ICD to take control of their condition. Exercise can be performed safely without increasing the risk of complications so long as the exercise is performed at the appropriate intensity and the exercise session incorporates a warm up and cool down period. The mode of exercise needs to be similar to daily activity, e.g. walking, in order to gain the most from exercise sessions and maintain the effect over years.

A long-term, preferably lifestyle, approach to physical activity and exercise is essential if patients are to achieve the greatest benefits.

If you have any remaining questions or need to clarify how any of the information in this leaflet relates specifically to you, please contact your local ICD implant centre, cardiologist, cardiac physiologist or arrhythmia/ICD nurse.

Useful websites

A list of useful sites can be found at:- www.heartrhythmcharity.org.uk. This list is not exhaustive and it is constantly evolving. If we have excluded anyone, please accept our sincerest apologies and be assured that as soon as the matter is brought to the attention of the Arrhythmia Alliance, we will quickly act to ensure maximum inclusiveness in our endeavours.

If you wish to contact us direct please phone on 01789 450 787 or email heartrhythm@stars.org.uk

Please feel free to discuss any concerns at all with the doctors, physiologists or your specialist nurse at any time.

Further reading

The following list of Arrhythmia Patients booklets are available to download from our website or to order please call 01789 450787.

- Arrhythmia Checklist - Could your heart rhythm problem be dangerous?
- Atrial Fibrillation (AF)
- AF Checklist
- Blackout Checklist
- Bradycardia (Slow Heart Rhythm)
- CRT/ICD
- Catheter Ablation
- Catheter Ablation for Atrial Fibrillation
- Drug Treatment for Heart Rhythm Disorders (Arrhythmias)
- Electrophysiology Studies
- Exercising with an ICD
- FAQs
- Heart Rhythm Charity
- Highlighting the Work of the Arrhythmia Alliance
- ICD
- Implantable Loop Recorder
- Long QT Patient Information
- National Service Framework Chapter 8
- CRT/Pacemaker
- Pacemaker
- Palpitation Checklist
- Remote Monitoring for ICDs
- Sudden Cardiac Arrest
- Supraventricular Tachycardia (SVT)
- Tachycardia (Fast Heart Rhythm)
- Testing Using Drug Injections to Investigate the Possibility of a Risk of Sudden Cardiac Death
- Tilt-Test

Please help us to improve services for all those affected by arrhythmias and to save lives by making a donation today. Please complete the donation form below and return to PO Box 3697 Stratford upon Avon CV37 8YL or click on www.heartrhythmcharity.org.uk and click the donate icon.

Membership is free to individuals, however if you would like to make a DONATION please complete and return.

I would like to make a donation to A-A and enclose:	£
I have made donation to A-A via PAYPAL at www.arrhythmiaalliance.org.uk to the sum of:	£
I have arranged a standing order from my Bank/ Building Society Account to A-A, (min amount £10p.a.)	£
Please tick here if you agree to Gift Aid your subscription/donation	☐ Tick here

Gift Aid

Name of taxpayer:.....

Address:.....

..... Postcode: .....

Please allow Arrhythmia Alliance to claim an extra 28p for every £1 you donate at no cost to you. I want Arrhythmia Alliance to treat all donations I have made since 6 April 2000, and all donations I make from the date of this declaration until I notify you otherwise, as Gift Aid donations. I currently pay an amount of income tax and/or capital gains tax at least equal to the tax that Arrhythmia Alliance reclaims on my donations in the tax year. I may cancel this declaration at any time by notifying A-A. I will notify A-A if I change my address. Please note full details of Gift Aid tax relief are available from your local tax office in leaflet IR 65. If you pay tax at a higher rate you can claim further tax relief in your Self-Assessment tax return.

Standing Order Authority

My Bank:

Bank Address:

Please Pay: A-A, Account: 02685818 Sort Code: 30-98-26, Lloyds TSB Plc, 22 Bridge St, Stratford upon Avon, CV37 6AG

The Sum of £/E/$:	On (1st Date): / / 200....
And after this, every: Month / Year (delete)	Account No.:
Sort Code:	Signature:
Date:	Please hand this form in to your Bank

Credit Card Payment

Card Type:	Expiry Date:
Card Number:	Amount of £/E/$:
Name on Card:	Address:

Arrhythmia Alliance

The Heart Rhythm Charity

Executive Committee

endorsed by DH *Department of Health*

Arrhythmia Alliance
PO Box 3697 Stratford upon Avon
Warwickshire CV37 8YL
Tel: 01789 450787
e-mail: info@heartrhythmcharity.org.uk
www.heartrhythmcharity.org.uk

Please remember these are general guidelines and individuals should always discuss their condition with their own doctor.

Published 2007 revised April 2008