

Welding and Chain Saws

I read in my Patient Manual that I should avoid welding and the use of chain saws. Why?

Unlike most other household power tools, welders and chain saws are two tools that may have a higher tendency to temporarily affect the normal function of your pacemaker or implantable defibrillator.

Chain Saws

The spark discharge of the ignition system of a gasoline-powered chain saw produces electromagnetic (EM) energy that may affect your pacemaker or implantable defibrillator. Effects may be caused by current inadvertently conducted into your body (leakage current), or by the EM field. You may not feel the leakage current passing from one hand to the other through your body, but it may still affect the operation of your heart device. Gas-powered chain saws that have the spark plug located near the handgrips pose a greater risk of conducting leakage current.

Your pacemaker could continuously pace your heart if it were to detect either leakage current or the radiated EM field. This may result in an irregular heart rate if your heart were beating on its own. Your implantable defibrillator could deliver a shock if it detects either leakage current or the radiated EM field.

Some heart devices can be programmed to the rate-responsive mode. These types of heart devices have special sensors that detect changes in activity and increase or decrease your pacing rate accordingly. Rate responsive heart devices may sense vibrations generated by both electric and gas-powered chain saws, increasing your pacing rate. These heart devices, however, are designed with a limit on how fast they will pace.

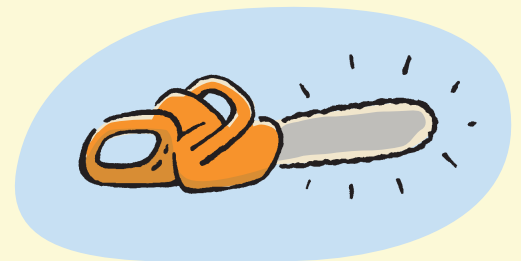
Most importantly, if you become lightheaded or dizzy and lose control of an electric or gas-powered chain saw, it could result in injury.

Welding

Because of the random nature of the EM energy generated during welding (including AC arc, DC arc, MIG, TIG, plasma) it is difficult to predict the effect on your heart device.

The EM energy generated from a welding arc can cause your pacemaker to continuously pace the heart. If your heart is beating on its own, this may result in an irregular heart rate.

The intense EM energy generated when spot welding or starting a bead may cause your pacemaker (including the pacemaker function of an implantable defibrillator) to pause temporarily if it were pacing your heart. Your implantable defibrillator could



detect the EM energy from the welder (especially when spot-welding) as a fast heart rhythm, causing it to deliver a shock.

Will welding or using a chain saw damage my pacemaker or implantable defibrillator in any way?

No, use of these tools will not cause any permanent damage or re-programming to your pacemaker or implantable defibrillator. Any potential effects will end when the welding is stopped or when the chain saw is turned off.

I may need to use a welder or a chain saw. What can I do to reduce the risk of interaction?

It is recommended you avoid welding and the use of chain saws. We understand some individuals may still need to use these tools. It is our hope that any decision you make to use these tools is made in consultation with your heart doctor. Your doctor can advise you as to the degree of risk these responses pose for your medical condition. Aprons or vests will not effectively shield your pacemaker or implantable defibrillator from the EM energy generated by these two types of tools. After consultation with your doctor, if you decide you must use these tools, please follow the guidelines for use in this brochure.

Chain Saws

1. The motor of an electric chain saw held 6 inches from a heart device poses less risk of affecting your pacemaker or implantable defibrillator than the ignition system of a gas-powered chain saw.

2. If using a gas-powered chain saw maintain a 12 inch distance between the components of the ignition system and a heart device. Also, it is better to use one that is built with the spark plug located away from the handgrips.
3. Immediately stop cutting and turn off your chain saw if you start feeling lightheaded, dizzy, or you believe your implantable defibrillator has delivered a shock.

Welding

1. Limit welding current to less than 130 ampere range.
2. Work in a dry area with dry gloves and shoes.
3. Maintain a 2 foot (60 centimeters) distance between the welding arc and heart device.
4. Keep the welding cables close together and as far away as possible from your heart device. Place the welding unit approximately 5 feet from the work area.
5. Connect the ground clamp to the metal as close to the point

of welding as possible. Arrange the work so the handle and rod will not contact the metal being welded if they are accidentally dropped.

6. Wait several seconds between attempts when having difficulty starting a weld.
7. Work in an area that offers firm footing and plenty of room for movement.
8. Work with an informed person who understands these suggestions.
9. Immediately stop welding and step away from the area if you start feeling lightheaded, dizzy, or you believe your implantable defibrillator has delivered a shock.

If you have specific questions regarding welding or using a chain saw, please ask your doctor or nurse. Your doctor should discuss all potential risks with you. You can also call Medtronic Patient Services toll-free at 1 (800) 551-5544, x41835 (7:00 a.m. to 6:00 p.m., Monday – Friday, Central Time) with non-medical questions.

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UC200605081 EN
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Printed in USA
April 2006

