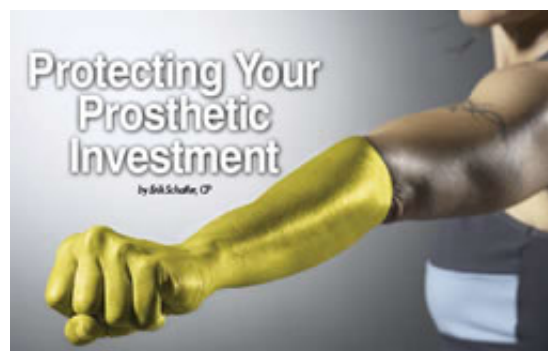


by Erik Schaffer, CP

Today, prosthetic devices often cost as much as or more than a new car, and with the advent of new prosthetic technologies, such as bionics and neuroprosthetics, the cost will only continue to escalate. Given the significant dollar amounts at issue, individuals would be wise to consider their prosthesis as an investment – as a unique piece of functional art – and to take steps to maximize its useful life.



### 1. Schedule Regular Maintenance

A prosthesis is a mechanical device, and like any other mechanical device, it can fail due to wear and tear over time. Unfortunately, it can be difficult to remember that when it is operating properly and you are not experiencing any discomfort. To prevent or postpone dangerous and expensive problems, however, it is important to schedule regular check-ups even when you have no current problems.

If you fail to follow this basic guideline, you are putting both your safety and your finances at risk. Some insurance policies, for example, permit delivery of a prosthetic foot or hand only once every three years. If you wear your prosthesis for a year, waiting to come in for an appointment until something breaks, you may then have to pay out-of-pocket to replace the foot or hand because it is so badly damaged that it cannot be fixed.

Alternatively, if you had simply taken the time to schedule regular follow-up visits – three or four a year, ideally – the problem could have potentially been remedied by giving your prosthetist the opportunity both to identify the problem and perform repairs before the component failed. Thus, you would have (a) protected yourself against injury/inconvenience, (b) extended the useful life of your prosthesis, and (c) simultaneously saved a significant amount of your own money.

There is no downside to this kind of maintenance, other than the time it takes to have it performed. Regular visits to your prosthetist are an important element in protecting your prosthetic investment.

### 2. Avoid “Self-Medicating”

Making adjustments to your prosthesis without the guidance and oversight of your prosthetist can result in damage to your prosthesis, voiding of applicable warranties, out-of-pocket costs to you, and the risk of bodily injury. Even the most basic prosthesis is a complex device specifically tailored to your unique anatomy and designed to withstand the stresses and forces you naturally create when using it.

Altering the socket, prosthetic alignment, or settings of the components can change the dynamics of the system, resulting in unanticipated wear and stress. This, in turn, can effectively shorten the lifespan of your prosthesis, while also placing your health at risk. In addition, because none of these changes have been performed by an authorized individual or in accordance with manufacturers' recommendations, the warranties that came with your components may no longer be honored.

### 3. Treat It Like a Valuable Item ...

You wouldn't leave \$10,000 in cash in checked luggage at the airport while flying from New York to L.A. Similarly, you shouldn't leave a \$10,000 (or more) prosthesis there either. More often than I care to think about, patients frantically call to inform me that a backup prosthesis has been lost by the airline. If you are carrying a backup or secondary/specialty prosthesis with you or are not wearing your primary prosthesis for some reason, you must keep it with your carryon

items while traveling by plane.

Similarly, nothing good can happen when you leave your prosthesis unattended in your car. Should the car or its contents be stolen, you're literally left without a leg to stand on (or an arm/hand to grab the perpetrator with).

Even if you avoid the misfortune of a break-in, leaving your prosthesis in the car on a hot, sunny day can cause the socket to lose shape, prevent components from operating correctly, and melt the adhesives that link components to each other. If you're leaving your vehicle and your prosthesis is with you but not on you, make sure it goes with you when you climb out of the car.

In short, remain aware of where it is at all times. It can be stolen from your school locker, your hotel room, or any other location that others have access to in your absence. Carelessly leaving it leaning against a radiator can damage it. Simply being aware that your prosthesis is a valuable item worthy of protection will protect it and you from unexpected problems.

#### **4. . . . But Don't Use It to Store Valuables!**

Your prosthesis is not a safe. As silly and obvious as this sounds, the concept is not apparent to all. A jeweler who I once treated used to slip pouches filled with diamonds into the space between his prosthetic socket and frame. Thieves who were casing his store somehow observed this and ultimately dispossessed him not only of the jewels but the prosthesis that held them. Using your prosthesis as a safe, wallet or lockbox places the prosthesis – and you – at risk.

#### **5. Protect It From the Elements**

Water is generally unkind to prostheses, particularly myoelectric or microprocessor-controlled devices. Given the significantly higher cost of these kinds of prosthetic devices, keeping them away from liquid exposure is critical to ensure their long-term operation. One solution to protect all types of prostheses, including computer-driven ones, is silicone protective coverings, which have much greater resistance to water and other environmental contaminants than a traditional foam cover. These types of systems are available both off-the-shelf from major prosthetic manufacturers and in highly customized forms from companies specializing in their design.

The more customized covers tend to offer better protection against exposure to liquids and other contaminants than off-the-shelf products because they are specifically fabricated for each individual prosthesis, rather than purchased in Small, Medium, Large, Left and Right. On the flip side, off-the-shelf models are usually much less expensive. Some kinds of covers even enable certain prostheses to actually be submerged in water for extended periods of time. For below-knee and upper-extremity amputees, one company, for example, makes a vacuum-sealed latex cover that slides over the prosthesis, permitting the wearer to shower or go into a swimming pool. Products like this are relatively inexpensive, obtainable for less than \$50 on the Internet.

Even without silicone or latex protective coverings, you can take certain steps to protect your prosthesis should you accidentally or intentionally submerge it in water or expose it to other liquids/contaminants.

***(If your myoelectric or microprocessor-controlled prosthesis is submerged, the following comments do not apply, and you should immediately take the device to your prosthetist for evaluation and any necessary repairs.)***

Before submerging your prosthesis in water intentionally, you should first check with your prosthetist to make sure that such exposure will not damage the prosthesis. The prosthesis should be oiled or lubricated per your prosthetist's instruction beforehand.

Sometimes, however, unexpected events result in total submersion of the prosthesis unintentionally. When that happens, you should carefully wipe down the entire prosthesis with a dry towel, particularly focusing on metal bolts and attachment points, as these are areas where rust could more quickly form, resulting in structural weakness and later breakage. In addition, you should speak to your prosthetist about oiling/lubricating the prosthesis after it has dried to ensure optimal performance in the future.

If submerged in or exposed to salt water, you must flush the entire prosthesis with fresh water immediately. Salt water's corrosive effects will weaken attachments points and the structural integrity of certain components, both damaging them and exposing you to the risk of possible injury. After thoroughly rinsing the prosthesis with water, you should then follow the same measures outlined in the preceding paragraph.

#### **Conclusion**

Your prosthesis is a custom, costly item that ideally permits you to live without limitations. By following the steps outlined in this article, you can maximize the useful life of your prosthesis and, by extension, your potential.

## About the Author



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