

A SPRING IN THE STEP FOR PETS

Increasing mobility and quality of life with orthopedic devices

By Janice Olynich

In the field of animal rehabilitation, services such as physiotherapy, hydrotherapy, acupuncture and chiropractic care have become widely accepted as ways of treating and managing joint injuries. One very specialized discipline that can be added to that list is the service of providing orthotic and prosthetic devices for small animals. Often these devices are used in conjunction with other forms of therapy, and they round out the spectrum of services that are used to effectively increase an animal's mobility. It should be noted that while they can be provided to other small animals, dogs are most commonly the recipients of this type of care.

While the terms "prosthesis" and "orthosis" are sometimes used interchangeably, they each have a distinct definition. An orthosis is an external orthopedic brace that supports a limb or joint, and a prosthesis is a partial limb replacement. An orthotic device can be used for immobilization, controlling range of motion, support or correction of alignment and positioning or



protecting the limb. A prosthesis can give protection for the end of the residual limb, add additional length and provide a structure through which the dog can effectively bear weight. Both categories of devices have their own unique applications and there are important criteria for determining whether a device is appropriate for a particular injury.

One of the main indications for bracing (when it is done in place of surgical correction) is a dog's age. Whether it is an actual risk factor, or just a hesitation on the part of the owner, many dogs will use a brace if they are of an age that presents a risk, either with surgery or post-surgical recovery. Having co-existing medical conditions that make surgery contraindicated is also a reason that some orthopedic conditions are managed this way.

There are also post-surgical applications that incorporate orthotic devices. These braces are used to support or immobilize a joint after a ligament or tendon repair, and they can take the place of the more commonly used bandage and splint system. One of the main benefits of post-surgical bracing

is that the brace can start out providing complete immobilization and later be adjusted to allow incremental increases in range of motion at a joint. Having this potential allows some surgical repairs to be stressed under controlled circumstances before support is completely removed. An example of this would be using a brace following surgery to repair an Achilles tendon.



Some neurological conditions can also benefit from orthopedic devices. Many of these applications involve supporting the affected limb in a functional position so that it can be used most effectively. In many cases of nerve injury, the dog may have some control and sensation higher up on the affected leg, but the lower part is lacking in nerve input and sensation. An orthosis can keep that lower part in a neutral, weight bearing position, to protect it and to keep it from developing a contracture at the affected joint or joints.

Finally, there are some orthopedic conditions that may have no conventional treatment options or surgical solutions. On a case-by-case basis, these unusual presentations can be evaluated to see if they would



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benefit from positional support, protection or any of the other benefits of custom bracing.

There are two main reasons that a dog would require a prosthetic limb. The first is that they were born with a congenital limb deficiency, meaning that one or more of their legs is missing a bone or section of bone, resulting in a smaller, shorter or differently shaped limb. The second is if they had an acquired amputation. A stipulation is that there needs to be a significant length of limb still remaining in order to fit a dog with a prosthesis. The most successful fittings happen if the amputation is done through the carpus (wrist) or below, or through the hock (ankle) or below. With these levels, the length of the leg is such that the dog is often trying to touch it down to the ground, and a device needs only to protect the residual limb and to add enough leg length so that the dog can weight bear through it effectively. With amputations that are done higher up, there is often not enough of the limb left to get a hold of for support, and the long segment that needs to be created to span the distance to the ground is often difficult for the dog to manipulate. With higher amputations there is also a tendency for the dog to hold the residual limb in and toward their body, thus making it difficult for them to want to put weight through the device.

A common assumption, one that is somewhat at odds with prosthetic fitting, is that dogs do perfectly well on three legs. While this is true to a point — dogs can adapt to using three legs — there are many structural adaptations and compensations that occur because of this. These can lead to muscle imbalances and over-use injuries later in life. If the amputation level is such that they cannot be fit, certainly there is no option but to adapt to life on three legs, but for the appropriate cases, prosthetic fitting offers a positive option.

The decision to have a dog fit with an orthotic or prosthetic device always comes about after a veterinary assessment and careful consideration of the other treatment options. If the decision is made to go ahead with a brace or prosthesis, the dog is then referred to a service that provides these custom devices. If there is a service available locally or within driving distance, the whole process (casting, test-fitting, dispensing the final device) can be done by the same indi-

vidual. In cases where there is no locally accessible service, there are companies that will involve the veterinarian in the process by having them take the cast and then fit the device once it is made.

Whether it is an orthosis or a prosthesis, experience has shown that most dogs will tolerate and adapt to devices in a short period of time. If they fit well and are designed cor-

rectly, orthopedic devices can provide a great opportunity for support and increased mobility for the dogs that use them. 🐾

Janice Olynich is the owner of PawsAbility in Toronto, ON, which specializes in providing custom prosthetic and orthotic devices for dogs. www.pawsability.ca



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