



Brachial Plexus/Radial Nerve Injury Considerations

Patients diagnosed with a Brachial Plexus or Radial Nerve injury often experience secondary complications, such as injury of the carpus or paw due to loss of full or partial function of the limb. Some patients may be able to advance their limb forward while others may only drag it behind them. Contracture of the carpus/paw is fairly common among these injuries and can worsen over time.

It is important to be aware that the goal of the orthosis is to assist in preventing contracture and retain limb position in the most reduced anatomical position as it can be manually reduced. The orthosis is not able to return function to the affected limb as this relates to neurological recovery. Return of limb function should be discussed with your veterinarian. Certain patients may be a candidate for an additional component called a turnbuckle, which is designed to aid in slowly releasing the contracture, along with rehabilitation, depending on your pet's individual case. The current functional ability your pet has will remain largely the same manner your pet will utilize the forelimb in the device. If your pet is unable to bear weight, advance his/her limb forward, has a limited or absent function of the biceps/triceps, an orthosis may not be able to return your pet to function and not be an appropriate solution.

Because an orthosis is not the appropriate approach for all patients, before pursuing an orthosis the following points are important to consider:

1. **Device design is paramount to success.** Careful consideration is taken in designing a device and its specific components. Important clinical variables surround use of a paw segment and whether articulation by way of hinging is possible or recommended.
 - a. The paw segment is required for all brachial plexus and radial nerve injuries. Without a paw segment these patients are at risk for poor control of their pathology, and most importantly, serious skin trauma/wounds due to uncontrolled pressure, friction and possible ground contact to the dorsum of their paw.
 - b. Articulation (hinging) may not be recommended when a patient has reduced or absent function of his/her forelimb. The device will be fabricated as a non-articulating device to provide full support and stability to the carpus and paw unless articulation and a turnbuckle are used to aid in releasing contracture.
2. **Depending on the goals for the orthosis, the device can be worn for 24 hours per day with AT LEAST 3-5 non-weight bearing air breaks throughout the day.** While unsupported, the forelimb may experience new or worsening contracture. Therefore, it is important to follow the recommended wearing schedule as discussed with your veterinarian and your A Loyal Companion mobility specialist.



3. **Adjustments are expected and are a normal part of the custom orthosis process.** The device is custom-made for your pet. Every effort is made to accurately fit the device. If adjustments are necessary to optimize the fit and function of the device, A Loyal Companion can complete most adjustments in Tucson. Those devices requiring more extensive adjustment will be shipped to OrthoPets and require a 1-3 day turn-around time, not including shipping time.
 - a. Your pet is much more active at home than at the clinic. Increased activity can expose fit concerns requiring adjustment. Additional adjustments are most commonly required in the first few months based on follow up appointments with A Loyal Companion. Adjustments are a normal part of a custom orthosis. While adjustments are not always required, they should be anticipated. Please follow all instructions with regard to monitoring the limb and device. Please contact A Loyal Companion promptly if you have concerns.
4. **Follow-up is critical to success.** Proper use of the orthosis is necessary to meet therapeutic goals and to ensure a safe application for the duration of injury healing/accommodation. In the first few months of fitting the orthosis, your veterinarian and A Loyal Companion will see you and your dog for fit checks and coaching with regard to device use. Annual or twice annual appointments, depending on injury, age and activity of your dog, are recommended. At these appointments, your doctor or mobility specialist will thoroughly assess your pet's orthopedic condition and/or evaluate the condition/fit of the device. Recommendations will be made for continued success in the device.
5. **Rehabilitation, the first key for success.** Most dogs adapt quickly to wearing an orthosis. Behavioral techniques can facilitate this. Your dog will need to learn basic skills while wearing the device. These include: transitions (sitting, lying down, and getting up), stairs, getting into vehicles safely, managing on different types of surfaces (ground, carpet, hardwood floor, etc.). The use of a custom orthosis is a process and will take time to adjust. Orthopedic injury can lead to compensatory abnormal movement and associated muscle strain and weakness. The best way to ensure the highest level of success with an orthosis is to follow a rehabilitation schedule. Each patient's condition and abilities are unique and as such an individualized rehabilitation program is recommended. OrthoPets and A Loyal Companion strongly advise working with a certified canine rehabilitation professional (CCRT or CCRP). Please consult your veterinarian for referral to a veterinary rehabilitation professional in your area
6. **A proactive approach to arthritis management is the second key to long-term success.** If the joint itself is injured, rather than a ligament alone, osteoarthritis may develop. Just as rehabilitation is important, arthritis management is key as well. Steps taken early and continued throughout your pet's lifetime will make a difference in terms



PH 520-448-3548
FX 520-457-5828

4758 E. Grant Road
Tucson, AZ 85712

info@aloyalcompanion.com
www.aloyalcompanion.com

of regaining and maintaining comfort and an active lifestyle well into his/her senior years. Consult with your veterinarian to discuss if a comprehensive pain management plan is appropriate.



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