ORTHOPETS®

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Is A Paw Segment Necessary?

Paw segments are clunky, and they seem like a hassle! Ever wonder why they are necessary? It all comes down to physics and digits (toes), and the severity and location of the patient's injury will dictate whether a paw segment is needed.

A Little About Physics and Control:

The paw segment gives us direct contact to the ground. This is important when a patient cannot control instability in rotation, or in terms of pronation/supination arising from severe varus or valgus. Without the paw segment, the paw itself contacts the ground and moves the limb within the device. Instead of the device and the limb working together, they fight each other. Such rotation creates friction wounds and/or soft tissue strains.

Imagine trying to ski with your bare foot taped to a ski. Your foot and ankle are not controlled, and the ski can rotate your foot as it makes contact with the ground. This is why we use rigid ski boots to manage and control the forces exerted on the foot and ankle. Another example is walking in deep sand with flip-flop sandals. It's difficult to keep your heel from slipping off (rotating) the sandal. A full coverage shoe prevents this issue.

The paw component also lengthens the lever arms we have to work with, which are the segments above and below the joint we are supporting. Whenever joint instability must be controlled, the longer the lever arms the better to provide more control with less force. Think about trying to break a stick into two pieces. First with your hands far apart (long lever arm) and then with your hands close together (short lever arm). You must push harder when trying with the short lever arm which is more painful because more force is required. This example is like the patient without a paw segment. If our lever arm is too short, we have poor control of joint instability, and the patient's skin is more likely to break down due to excessive pressure and friction.

Challenges and Solutions for Paw Segments:

- Paw segment makes leg longer: Know as limb length discrepancy (LLD), the increased length is minimal and nearly insignificant relative to the entire length of the patient's leg. Most patients are quadrupeds (4 legged) and as such the consequences of a slightly longer leg is less significant than in humans because compensation is distributed over more legs. The patient will learn to adjust their gait.
- Mud, snow and debris collect in paw segment: Ask about an OrthoPets gaiter to minimize this.
- Tread has to be replaced: Many devices utilize bike tire as a simple, inexpensive solution for tread replacement by pet owners.
- Bolts scratch on floors of home: Tread application can be reversed, or a boltless tread may be utilized.
- Some patients kick the contralateral/opposite leg with the paw segment: We can make a splint boot to cover the other limb and/or pad the inner side of the paw segment until the patient learns a gait pattern to avoid this.