INSTRUCTIONS FOR CUSTOM-SPLINTING

General Uses: 1) stabilize or immobilize a body part, 2) prevent or correct deformity, 3) protect against injury, 4) promote healing, 5) assist with function.

Some Common Applications: 1) immobilize a limb and/or joint after surgery, 2) stabilize elbow or shoulder joints following subluxations or luxations, 3) stabilize carpal or tarsal joints following subluxations or luxations, 4) support the carpus following hyperextension, 5) support limbs following nerve injuries (e.g., radial, sciatic, or brachial plexus injuries, paralysis), 6) correct limb deformities.

Equipment and Materials:To make a custom splint, you will need a sheet of Marque-Easy thermoplastic, an electric heating pan, tongs, cotton stocking, strapping material, a few sheets of paper towel, a waterproof marker or wax pencil, an ace bandage, scissors, and a clean, dry cloth. Padding material may be needed. A plastic pan liner can be placed in the electric heating pan to prevent the thermoplastic from sticking to the bottom of the pan. A heat gun is also helpful for spot heating and molding.

Instructions for Custom Splinting:

Fill the electric heating pan with about 2 inches of water and preheat the water to about 200 degrees (just under boiling).

While the animal is resting comfortably or lying down, place a few sheets of paper towel under the animal's limb or body part that requires splinting. With a magic marker, trace the shape of the body part.

If splinting a limb, the tracing should go up about 2/3 the length of the limb, and should be made wide enough to go about 1/2 the circumference of the limb. Make sure that the distal part of the pattern is large enough to accommodate the animal's foot, allowing enough room for the toes to abduct when the animal bears weight on the foot. Also, an extra inch or more of border should be left around the nails so that the edge of the splint can be curled up. This will prevent dirt and debris from getting into the splint.

On each side of the paper pattern, mark any anatomical angles if needed. For example, if fabricating a carpal splint, each side of the carpal joint and the proximal end of the main footpad should be marked.

After you have finished tracing your pattern and marking the specified locations, use a scissors to cut out your pattern. Cut out a "V"-shaped notch at each of the marked locations so that the material can be molded around the angles without bunching.

After you have cut out your pattern, check it against the animal's limb or body part to ensure that the length, width, and angle notches are correct.

Using a waterproof marker or wax pencil, trace your pattern onto a Marque-Easy sheet, then place the sheet into the hot water pan. If your sheet is too large to fit completely into the pan, use a boxcutter to cut off parts of the sheet. Alternately, you can slide part of the sheet into the hot water and then keep sliding it through the water once it has softened.

Using tongs, frequently check the pliability of the material and remove it when soft. Softening should take 1-3 minutes. Place the material flat on a clean, dry cloth and pat it dry. Make sure that you do not fold the sheet since the softened material will stick to itself.

While the material is soft, use scissors to cut out the rough pattern. While cutting, allow the bulk of the material to rest on the towel to prevent the material from stretching and loosing its shape.

If the material becomes rigid, reheat part or all of the material in the water, as needed, to resoften it. Cut the final pattern from the freshly softened material. At this point, it is a good idea to round all the corners of the splint to prevent potential irritation of the animal' skin.

When the splint pattern is complete, reheat the shaped splint in the hot water. While the splint is heating, slip a cotton stocking onto the animal's limb to protect it from the hot splinting material.

When the splint is soft and pliable, remove it from the hot water and place it flat on a cotton cloth. Pat it dry, then use the cloth to transfer the splint to the animal, then wrap the limb or body part with the splint. An ace bandage can be wrapped around part of the splint so that you can free your hands to work on the rest of the splint.

If you are fabricating a functional mobility assist or weight-bearing splint,it is best to form the foot portion of the splint with the animal in standing. If this is a large animal, you may require some assistance to help the animal stand up. While the animal is standing, use your hands to mold the distal part of the splint around the foot.

Hold the animal and the splint in place until the splint material cools and hardens. This should take less than a minute. Once the splint has hardened, mark any area of excess material that will need to be trimmed.

Carefully remove the splint and the cotton stocking.

To trim the excess material, use the hot water to heat just the edges that need trimming. Be careful reheating too much of the splint since you risk losing the shape of the splint. Dry the splint then trim along your marks. Also, you can heat the edges at the top of the splint so that you can round the corners and get rid of any sharp ends. At the same time, you can use your fingers to smooth and curl away any sharp edges along the length of the splint.

At the notch conjunctions, make sure that the two ends of the splint material stick together. Marque-Easy adheres to itself when hot, so reheat and reseal any notch junctions that you feel loose or unstable.

A heat gun is often used to soften the splint at precise points. You can also use a heat gun to soften small, tight areas such as corners. The heat gun is useful any time you have an area that is too oddly shaped or too small to heat easily in hot water. When using a heat gun, it is important to keep the splint material moving over the heat so that one area does not overheat and loose its shape.

Once the splint is formed, attach the strapping material. Velcro hook (with adhesive backing) and padded Velcro loop are the strapping materials of choice. Attach the Velcro hook to the splint as needed. For example, when fabricating a carpal splint attach the strapping material proximally and distally to the carpus. Another strap can be used over the foot area if required. Then, attach the padded Velcro loop as needed to fit around the limb or body part.

If needed, padding (with adhesive backing) can be added. Padding may be suggested for the following: 1) the foot, 2) areas of decreased skin integrity, 3) areas where there is potential for to prevent rubbing, chafing, or other discomfort. If you plan to use padding inside the splint, plan for extra room when tracing the pattern.

Finally, place the splint on the animal and check for any final adjustments.

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