

THE HUMERAL NECK SHOULDER JOINT

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We are indeed proud of our scientific advances in this age of conquering space. Some inventions have failed because of their tremendous complexity. In Prosthetics, inventions have to meet certain requirements, the most important being that of Simplicity. Such a simple device was recently developed in the Prosthetics Research Department of the University of California at Los Angeles: the humeral neck shoulder joint.

The humeral neck shoulder joint is a manual friction joint. It is used for very short above-elbow disarticulation or thoracic amputations. The shoulder joint itself consists merely of an axilla ring made of 2024 aluminum with its exterior threaded having a 10 degree undercut, a center groove for anchoring, 8 holes, an outcut plus a stainless steel band which fits around the plastic portion of the humeral section with an adjustment screw for the friction. The principle is that half of the axilla ring is laminated permanently in the thoracic section, while it allows the humeral section to turn on the other half, the plastic being part of the thread. I personally have never seen a better shoulder joint of this type. The advantages are listed as follows:

1. It is simple and dependable.
2. It is strong and durable
3. It is light in weight.
4. It is economical.
5. There is very little maintenance.
6. It permits ventilation.
7. It is neat in appearance and not bulky.
8. The flexion and extension of the humeral section has a wide range.
9. There is a possibility of flexion-abduction (by proper alignment).
10. It is usable for double or single wall sockets.
11. If replacement of the socket is necessary the humeral section need not necessarily be replaced.
12. It is commercially available in 6 sizes.
13. It allows the double amputee to reach to the perineum.

The disadvantages are listed as follows:

1. More skill is required in laminating.
2. If not aligned correctly it must be done all over again.

Some suggestions for laminating follow:

Prepare in two parts, humeral section first. Make check socket to assure proper fit and alignment. Make sure turntable is rotated internally enough to allow for rotation of elbow turntable to bring forearm in horizontal position, in combination with flexion abduction. (See drawing). Be sure to tie off well in tie groove, possibly anchor through holes. Tighten friction band snugly over the axilla ring when laminating humeral section but line previously with a strip of soft leather or felt to prevent from cutting PVA bag. Plastic will form its own thread under pressure. Trim and remove ring while warm. The angle for the axilla ring may vary between 5 and 25 degrees horizontally and only a few degrees vertically.