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Complex made Simple...clinically relevant education by Judy C. Colditz, OT/L, CHT, FAOTA

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ClinicalPearls

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HOW LONG SHOULD I SERIAL CAST A FINGER?

Digital serial casting is nearly always my first choice for treatment of stubborn PIP joint flexion contractures. In addition to contracture resolution, digital edema resolves and inflamed joints become quiescent. In my experience, serial casting is usually more effective than the other approaches to regaining PIP joint extension.

My clinical training taught me to change the serial cast every 2 to 3 days, which I did for many years. But a few years ago my practice setting changed and I was working part-time seeing patients who had driven many hours for treatment. These were patients with chronic contractures whose PIP joint had been unresponsive to other treatment approaches. When I applied a serial cast to a patient's finger it was difficult for me to ask him/her to drive the long distance again two days later to have the cast changed. So I increased the intervals between cast changes, with the interval sometimes being as long as two weeks because of a variety of circumstances!!! Keep in mind the cast was not removable.

What I discovered to my amazement as these intervals increased, was that not only was passive PIP joint extension greater and had less resistance, but nearly always active PIP extension exceeded the measurements of passive PIP extension at the previous visit. It was as if I had given the tissue long enough to dramatically change, removing resistance to motion. When I was changing the cast every 2-3 days, my measurements had shown a dramatic improvement with the first one or two cast changes, but the response diminished as I continued the 2-3 day intervals.

Now I have evolved to a different timeline for serial casting for PIP joint flexion contractures. If I am seeing a patient fairly soon after an injury and only a couple of casts are needed, I might still change the cast every 2 to 3 days. But if I am seeing a patient who has a chronic PIP joint flexion contracture I would change the serial cast every 2 to 3 days only once or twice, and then I would increase the time of cast application. In other words, the longer I am casting the patient the more I increase the intervals. I have no set formula for this as I have no way of determining the optimum number of days of immobilization extension. But I think about the length of time since the initial injury and the passive resistance to PIP joint extension and the greater both of these are, the longer the interval I choose between cast changes.

In my opinion, continuing the 2-3 day interval over many cast changes often "pushes" the joint to move faster than the tissues are able to "grow" to accommodate the new position. I feel we need to be more respectful of the readiness of the tissue to respond. Flowers and Lastayo's article (J Hand Ther, 7:3, 150-157;1994) proved that six days of wearing a serial cast is more effective than three days with a variety of PIP joint injuries.

Many therapists are concerned that increased intervals of PIP joint extension casting will lose flexion. Although one may see diminished flexion ability immediately upon cast removal, it is my experience that this is very short-lived and loss of flexion is not a reason to retain short cast intervals in most cases. The flexors are much more powerful!!!

NOTE: For greater mechanical efficiency on those stubborn joints or really short little fingers, you may want to alter the usual casting technique. 9See www.HandLab.com for article by Judy Colditz). I no longer use a splinting material insert because it can cause maceration, but I add a small roll of plaster of Paris longitudinally on the proximal volar piece to reinforce it before wrapping the entire digit.

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