

Role of knits in Orthopedics and Rheumatology



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Abbreviations: HOA: Hand Osteoarthritis; RA: Rheumatoid Arthritis

Introduction

“Knits” relates to orthopedics and rheumatology in two distinct ways:

- As a therapeutic activity for managing symptoms of hand arthritis.
- As a type of material used in the manufacturing of medical devices like compression supports, bandages, and even implantable scaffolds.

Knitting as a Therapeutic Activity

For individuals with hand osteoarthritis (HOA) or rheumatoid arthritis (RA), the repetitive, low-intensity movement involved in knitting can serve as a beneficial self-management strategy. It can help in the following ways:

- Pain and Stiffness Relief:** Gentle, regular hand movement can promote synovial fluid circulation, lubricate the joints and reduce morning stiffness and overall pain perception. The immediate effects can last for several hours.
- Improved Flexibility and Strength:** Consistent, moderate knitting helps maintain muscle strength and flexibility in the hands, wrists, and fingers.
- Psychological Benefits:** The activity provides cognitive stimulation and can induce a meditative state, diverting attention from chronic pain signals. This can also help with social isolation if performed in a group setting.

Tips for Knitting with Arthritis

The Arthritis Foundation recommends several adjustments to make knitting more comfortable:

- Warm up hands in warm water or with gentle stretches before starting.
- Use appropriate tools, such as lightweight bamboo or wooden needles, or ergonomic, cubic-shaped needles that require a less forceful grip.
- Choose smoother, elastic yarns (like wool or wool blends) over cotton, which requires less tension.
- Take frequent breaks to rest the hands and avoid overuse, especially during active inflammatory flares.

Knitted Materials in Medical Devices

Knitted fabrics are widely used in orthopedics due to their unique properties, such as breathability, elasticity, and comfort, which are vital for products worn for long periods.

- Compression Products:** Knitted materials are the basis for most compression bandages and orthopedic supports (e.g., knee or ankle braces). They are engineered to provide specific, controlled pressure to a limb, which aids in recovery, manages swelling (edema), and provides support.
- Implantable Textiles:** Advanced knitting techniques are used to create complex implantable medical devices. Examples include artificial ligaments (using silk or polyester scaffolds), vascular grafts, and hernia patches. The porous structure of knitted fabrics allows for better tissue integration and sometimes drug delivery.
- Customization:** Modern knitting machines can produce customized, shaped products that match a patient's anatomy precisely, improving both the fit and functionality of the medical support.



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