Tendon surgery

- Tendons are soft collagenous tissues.
- Tendons connect muscles to bone
- The primary function of tendons is to transmit the energy of muscular contraction to the bony skeleton to create movement
- Tendons have the basic physical characteristics of high tensile strength, compactness, and a smooth surface
- Tendons are very in thickness, length, and shape in order to move over the joints

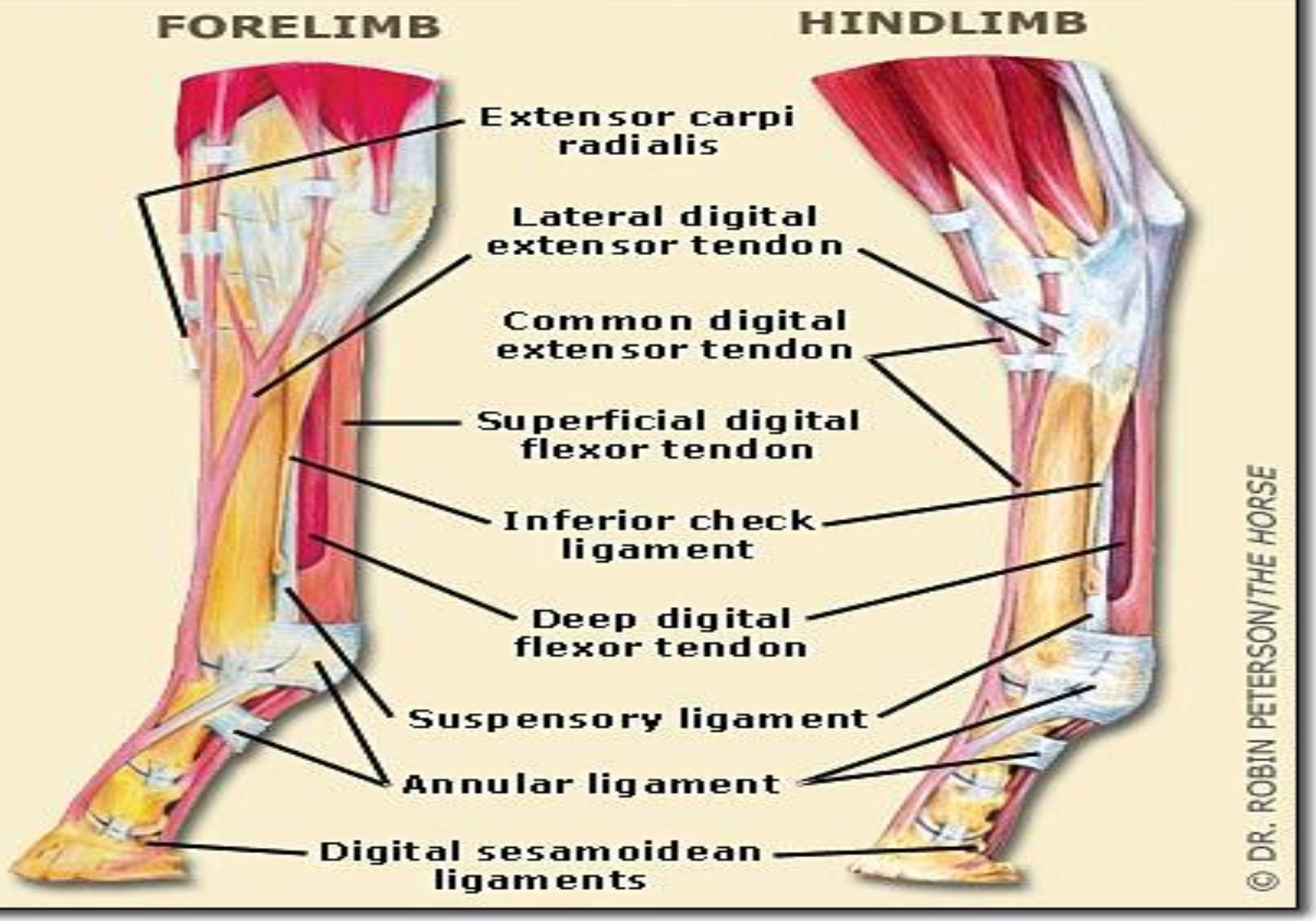
Anatomy

- Tendons contain collagen fibrils
- Tendons contain a proteoglycan matrix
- Tendons contain fibroblasts that are arranged in parallel rows

Basic Functions

- Tendons carry tensile forces from muscle to bone
- They carry compressive forces when wrapped around bone like a pulley

Tendons and Ligaments



Contractures of tendon

- Most cases of contracture involve the flexor tendons
- The method of correction for this condition will be dependent upon the degree of contracture.
- The simplest procedure is tenotomy in which the tendon is divided and allowed to retract
- the method of lengthening tendons
- can be useful

The accordion technique for lengthening a tendon

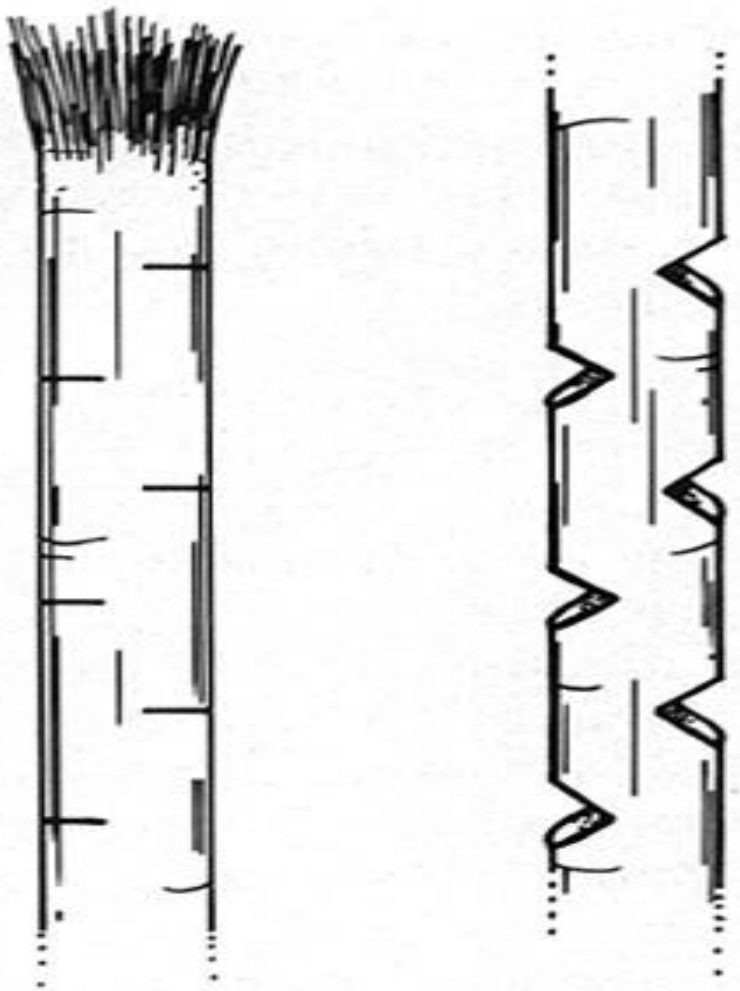


FIG. 68-5 The accordion technique for lengthening a tendon.

The Z tenotomy technique for tendon lengthening

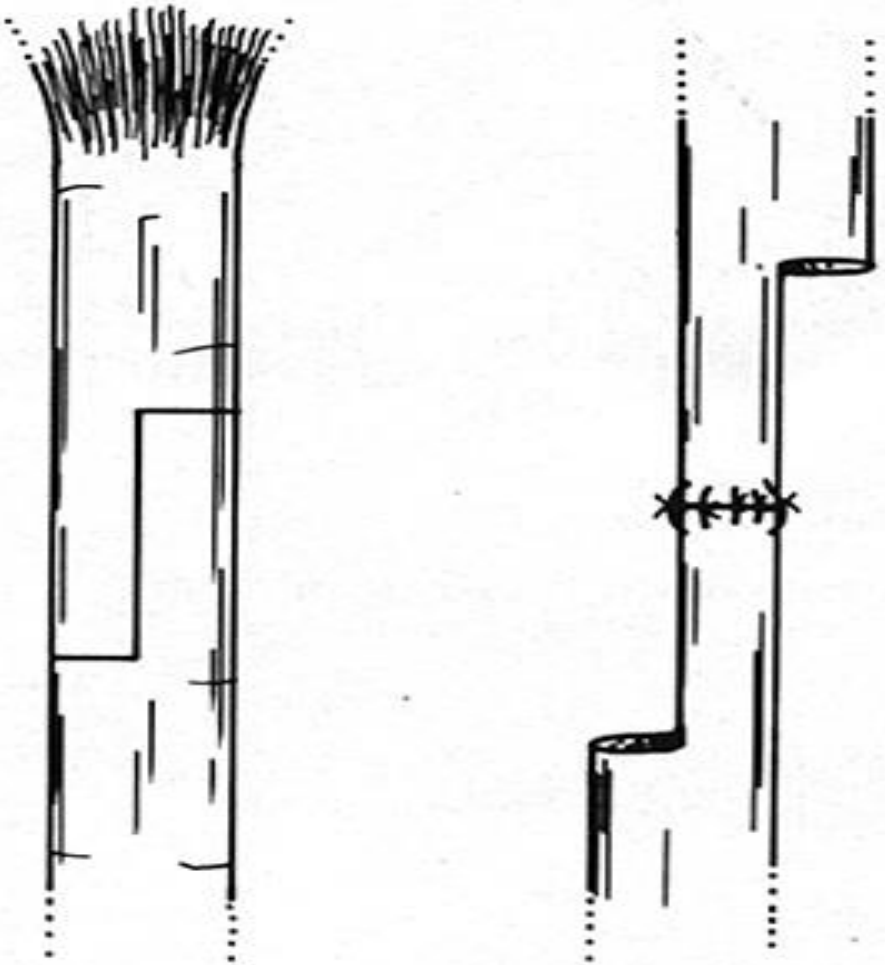


FIG. 68-6 The Z tenotomy technique for tendon lengthening.

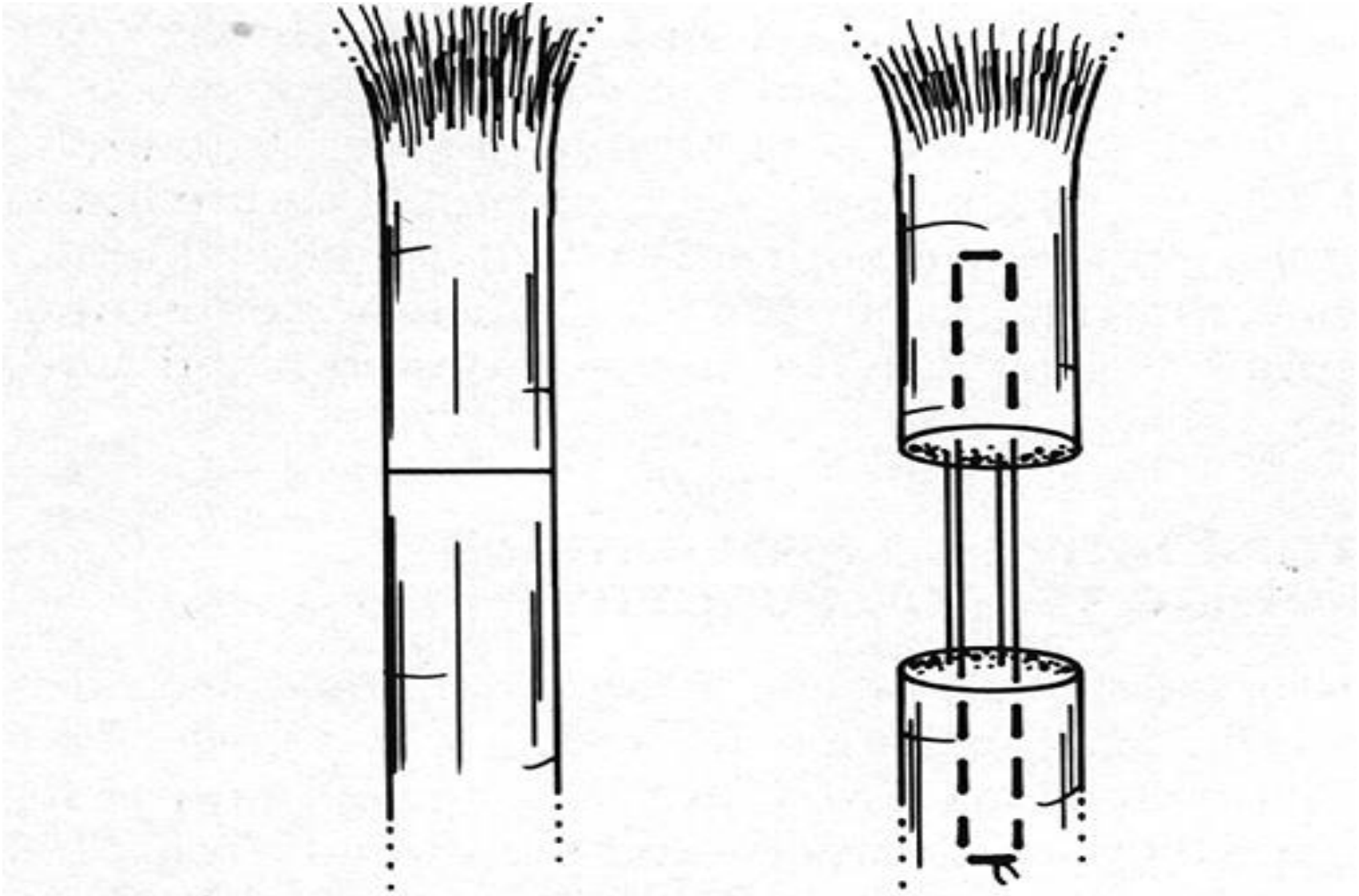


FIG. 68-9 The Lange technique for lengthening tendons.

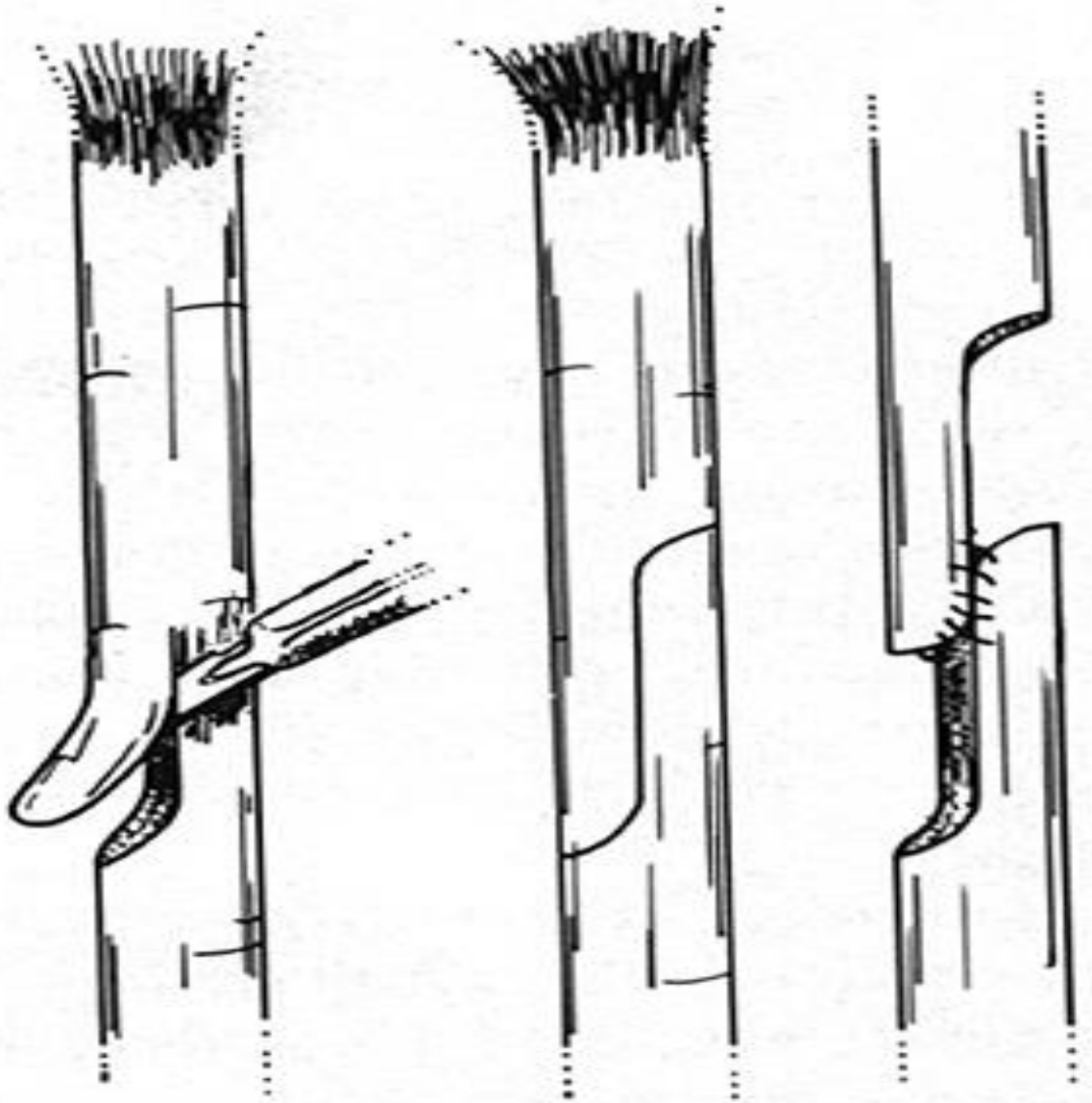


FIG. 68-7 A modified Z tenotomy.

Techniques for Shortening Tendons

- An abnormally long tendon is generally a result of the breakdown of supporting structures
- There are several methods for shortening tendons, each of which is quite satisfactory

A Z incision with subsequent resection of tendon end for shortening tendons

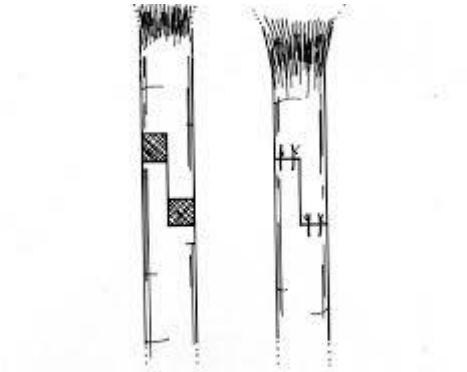
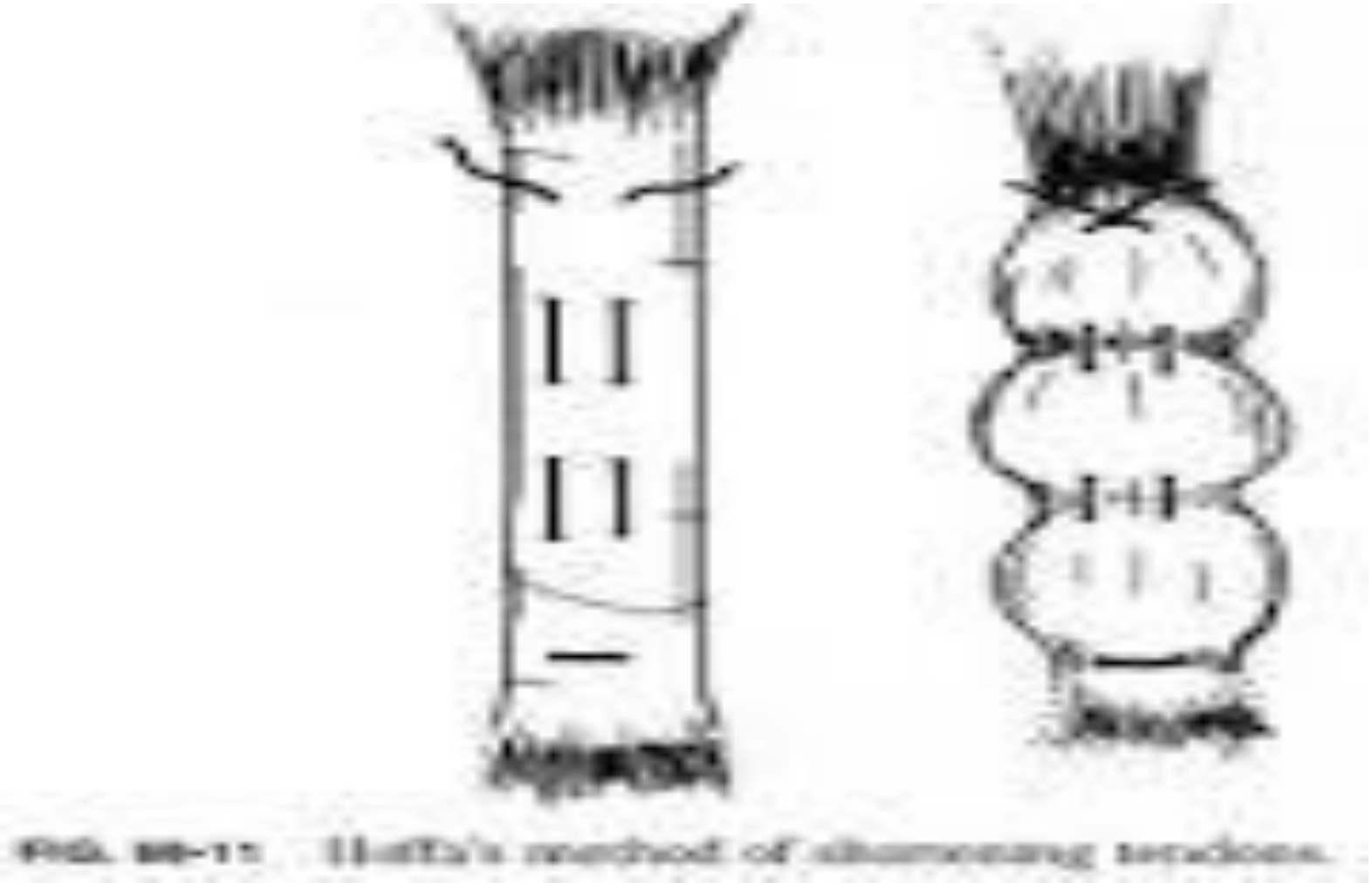


FIG. 68-10 A Z incision with subsequent resection of tendon end for shortening tendons.

Hoffa's method of shortening tendons



The doubling-over procedure

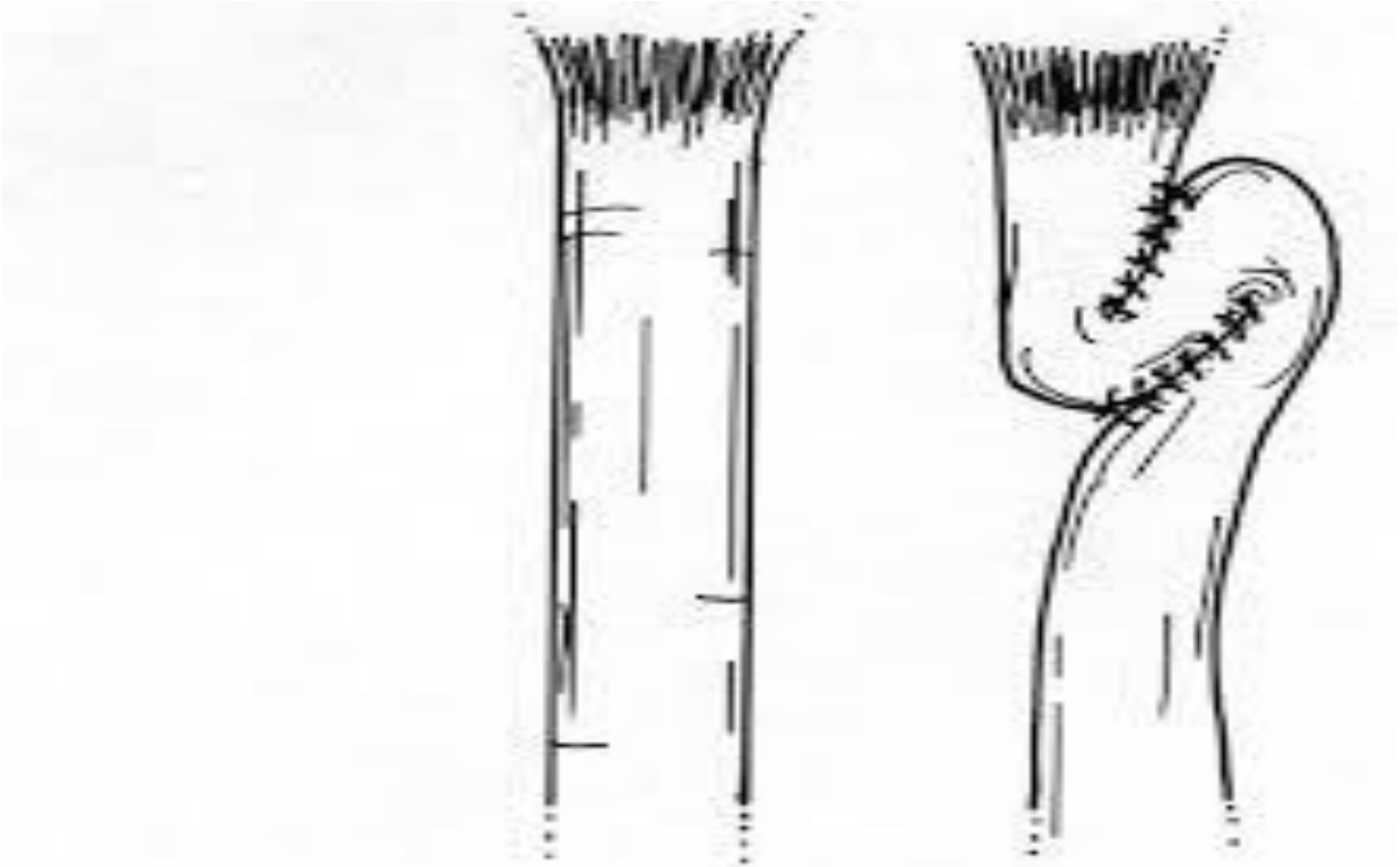


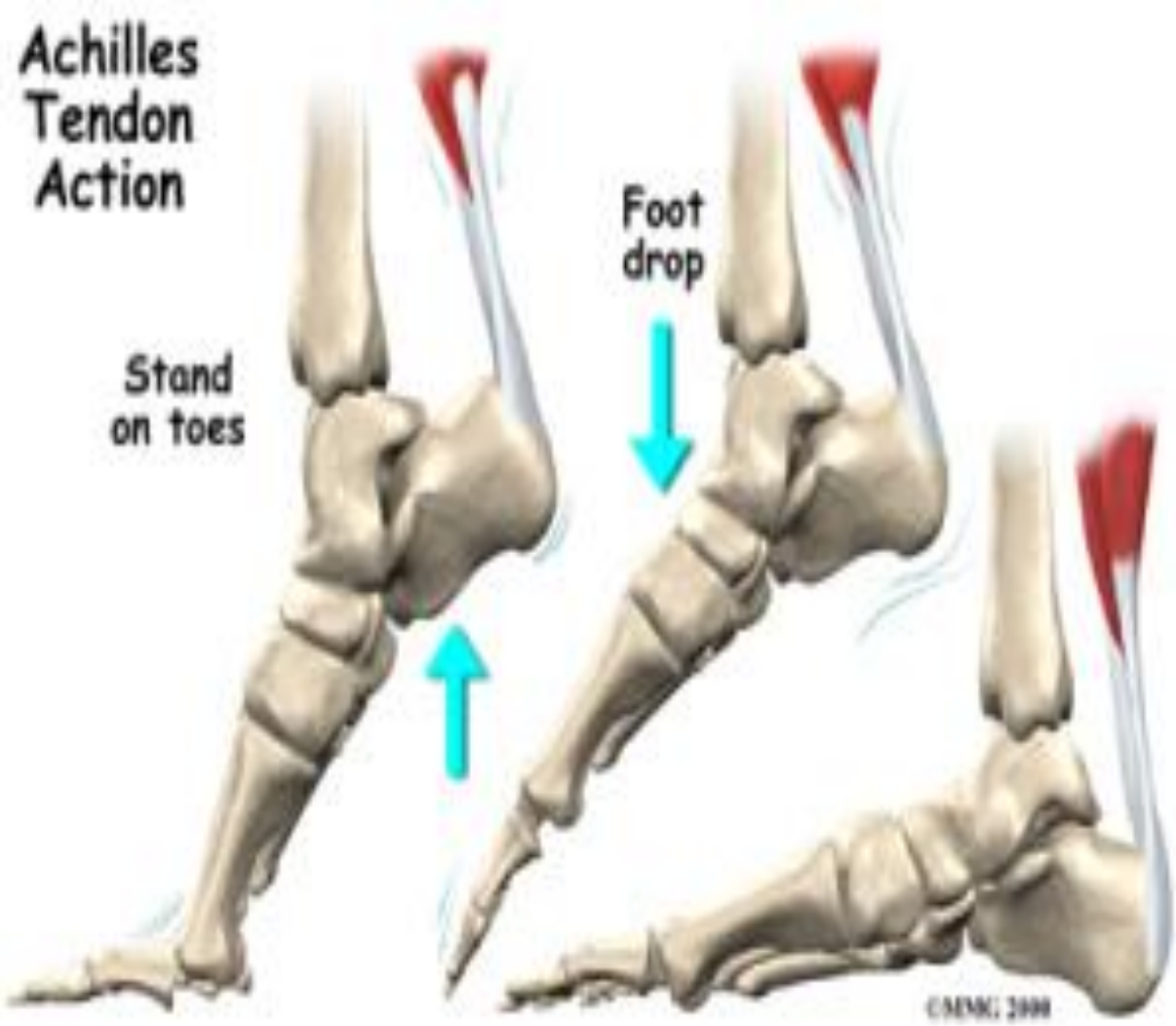
FIG. 68-12 The doubling-over procedure.

The Achilles' tendon injuries

- The Achilles' tendon or common calcaneal tendon is made up of multiple tendons from several different muscles of the hind limb.
- The superficial digital flexor muscle and tendon
- A multitude of injuries can occur in the Achilles' tendon, but two main types of injuries occur most commonly.
- Traumatic (lacerations, blunt force trauma, severe stretching/pulling)
- Traumatic (chronic and degenerative in nature)

Signs and Symptoms

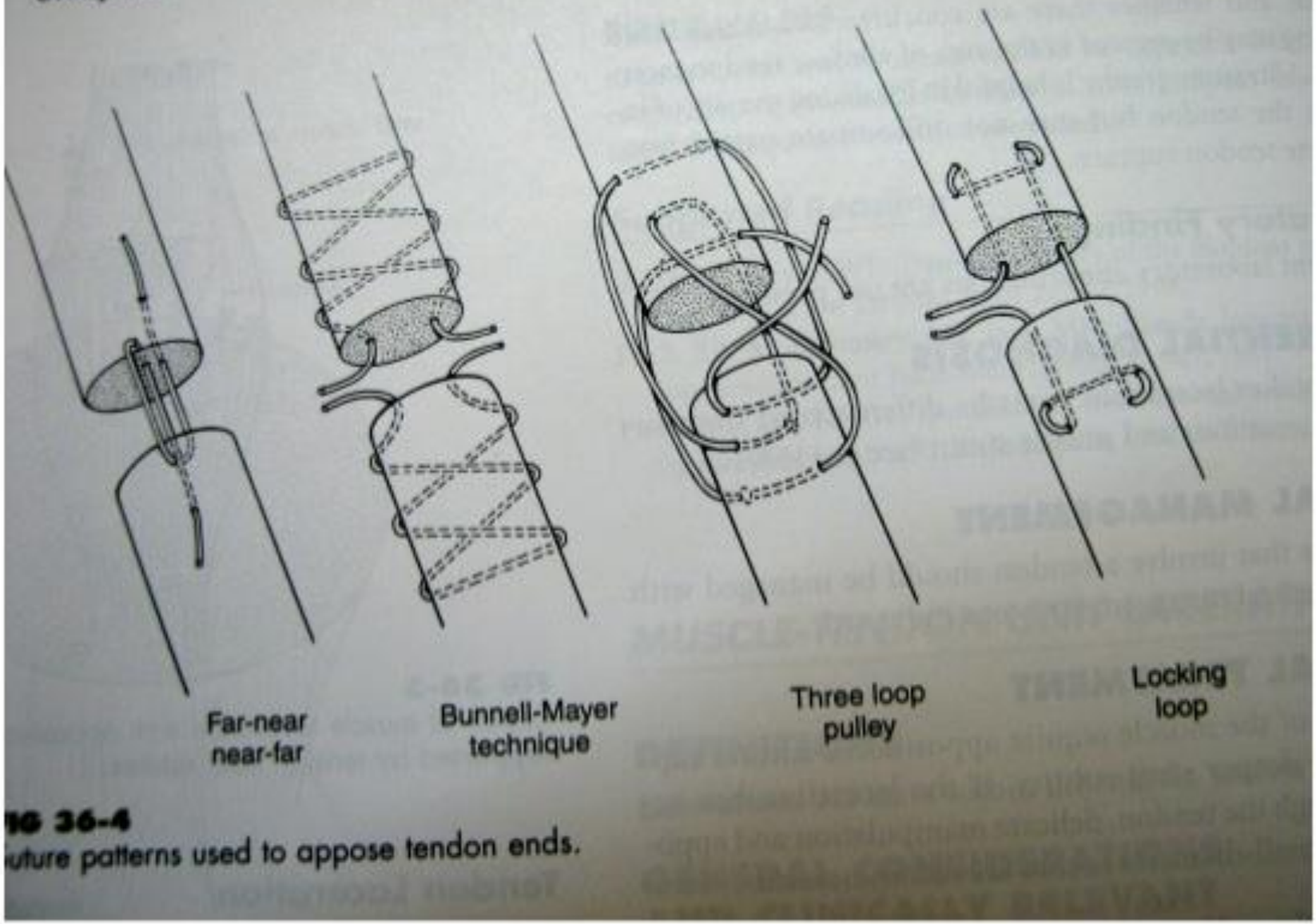
- Many animals will be lame on that limb with a variable amount of swelling around the injury.
- An animal with a complete rupture of the Achilles' tendon will walk "flat-footed" or "dropped", .


Achilles
Tendon
Action
Foot
drop
Stand
on toes

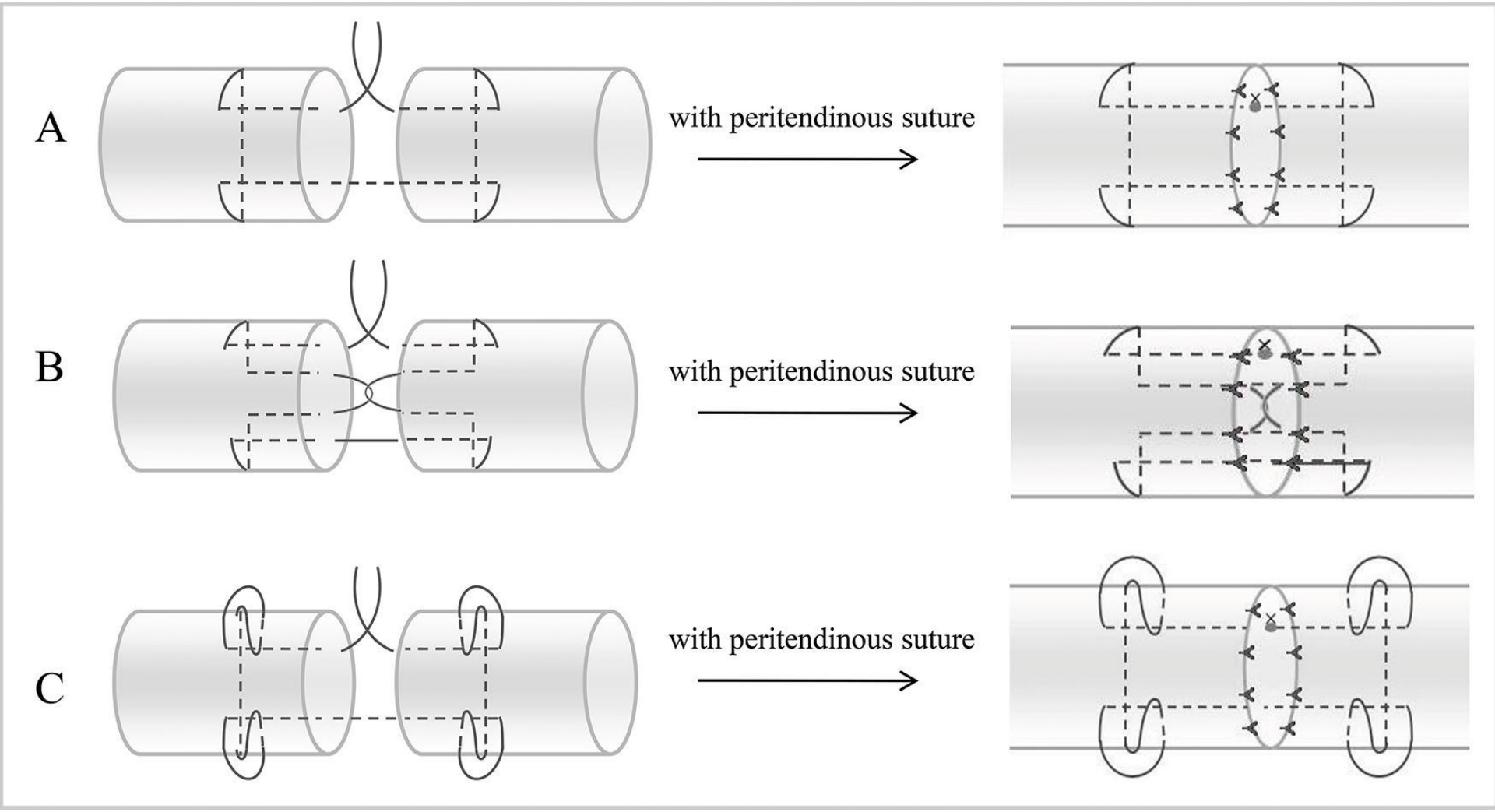
Diagnostics

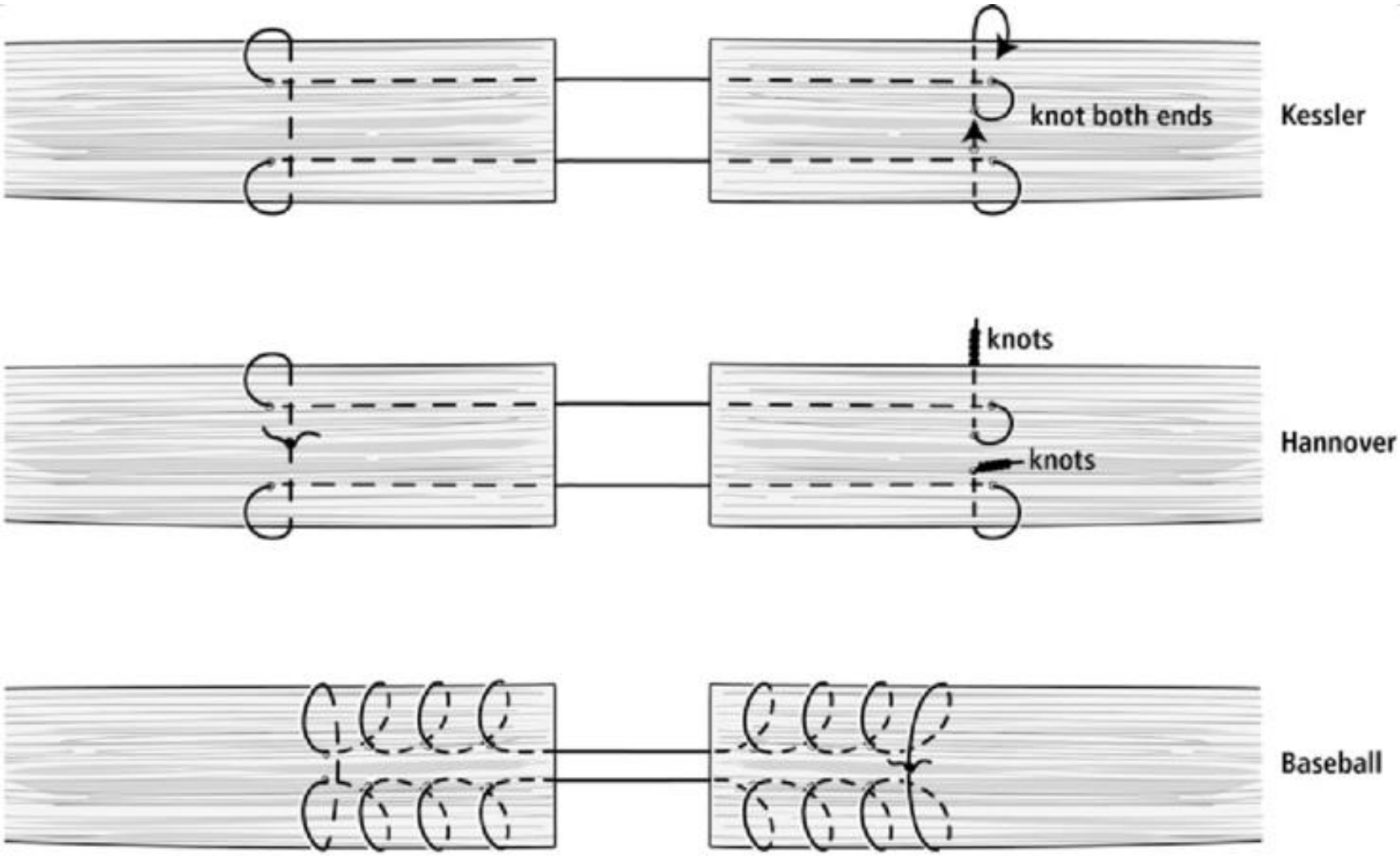
- The physical exam is very important to diagnosing and localizing the injury as well as identifying what therapies might be needed.
- Other tests that your veterinarian may recommend to diagnose the problem are x-rays and ultrasound

- POSTOPERATIVE CONSIDERATIONS FOLLOWING TENDON SURGERY
- It is essential that all tension be removed from the tendon during the healing period for the first 3 weeks.
- Tendons have little ability to hold sutures for the first 5 days after surgery, and the wound strength is not increased to any marked degree until after 14 days.
- At this point the strength increases rapidly.
- Between 3 weeks and 6 weeks exercise should be quite restricted.
- Immobilization should be accomplished by cast application. If the tendon is a flexor or extensor tendon, the cast is applied in such a way that it reduces any stresses on the anastomotic area.

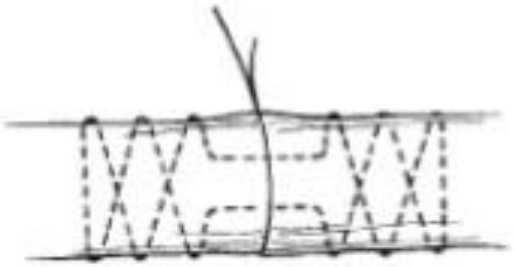


36-4
uture patterns used to appose tendon ends.

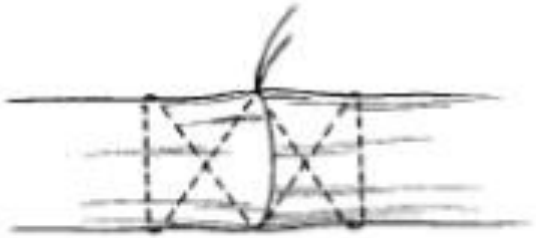

A
with peritendinous suture
B
with peritendinous suture
C
with peritendinous suture


knot both ends
Kessler
knots
knots
Hannover
Baseball

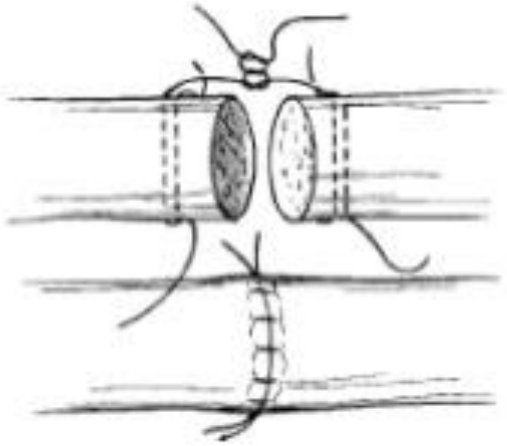
Core Suture Techniques



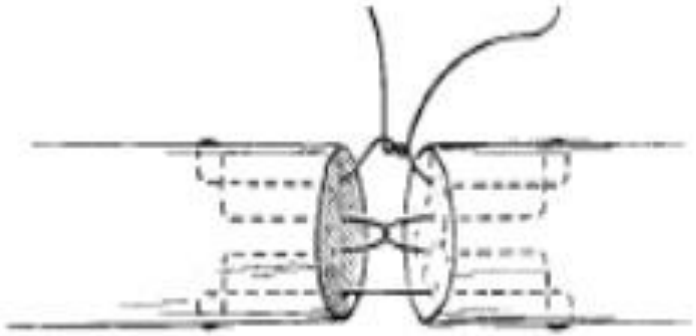
Bunnell stitch



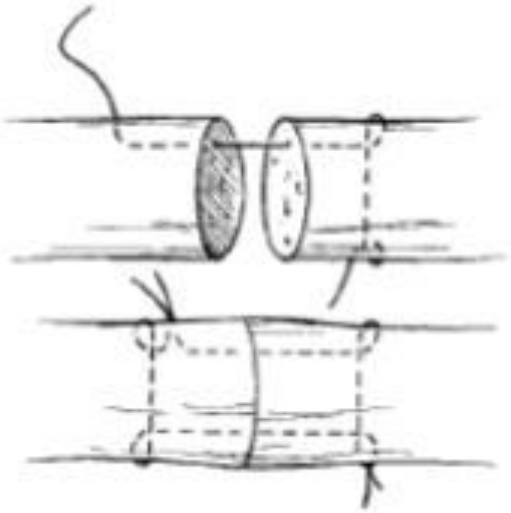
Crisscross stitch



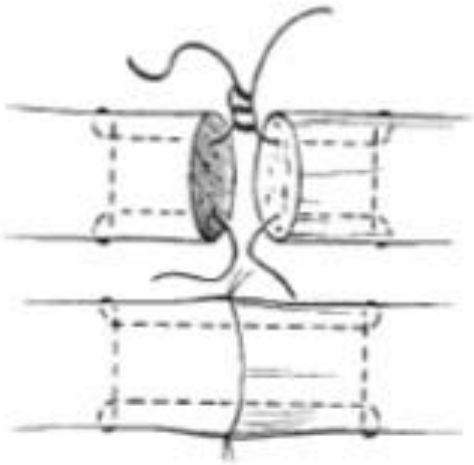
Mason-Allen stitch



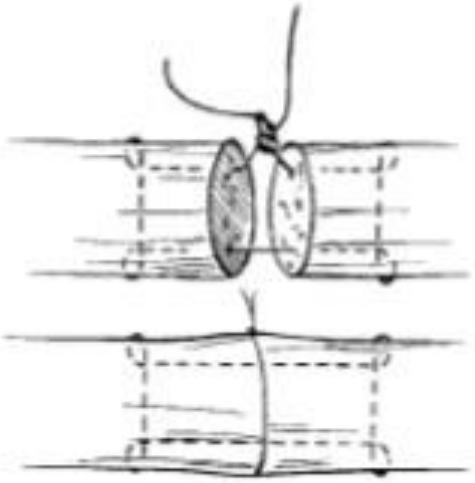
Robertson and Al-Qattan
Interlock stitch



Kessler stitch



Tajima modification
Of kessler stitch with
double loop at repair
site



Modified Kessler

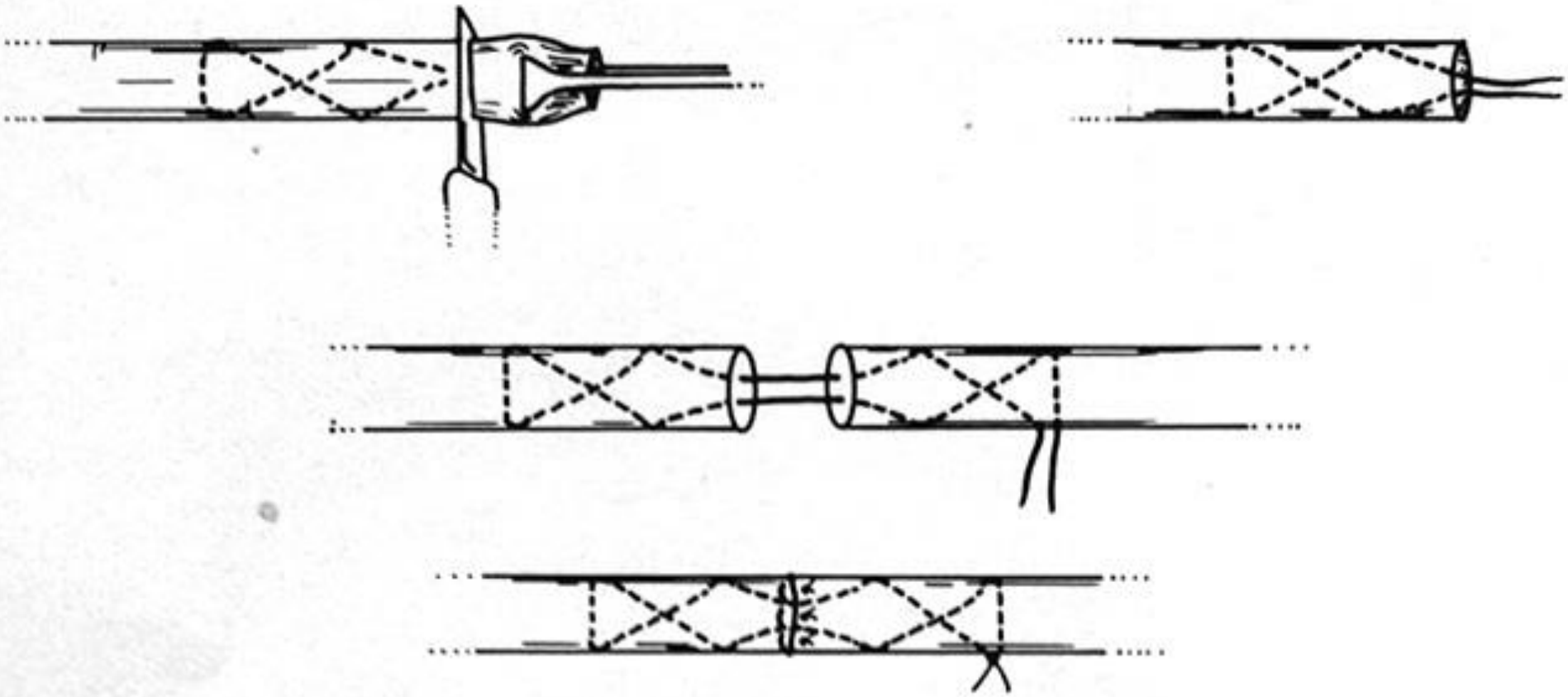
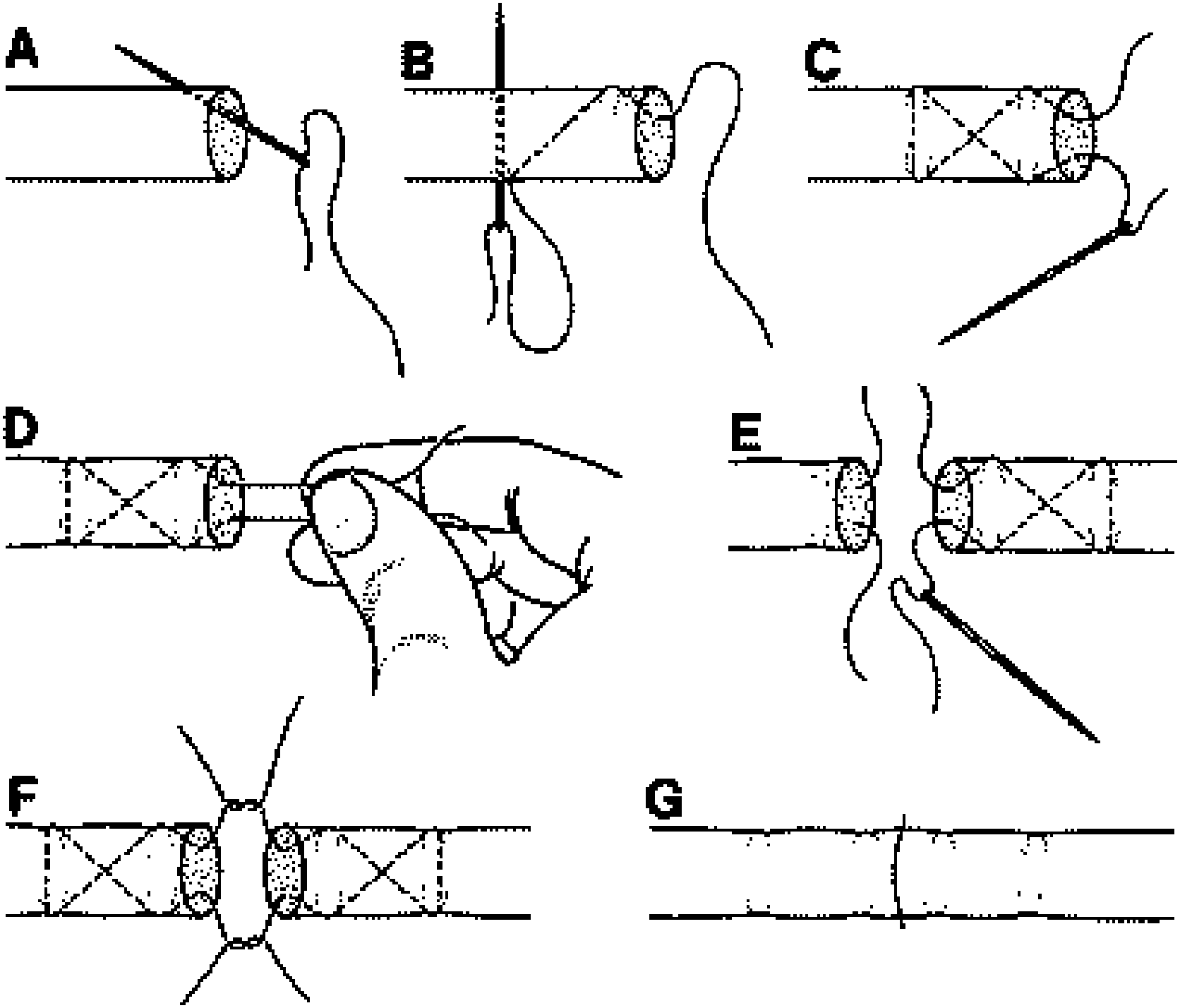


FIG. 68-2 The Bunnell–Meyer tendon suture pattern.


A
B
C
D
E
F
G

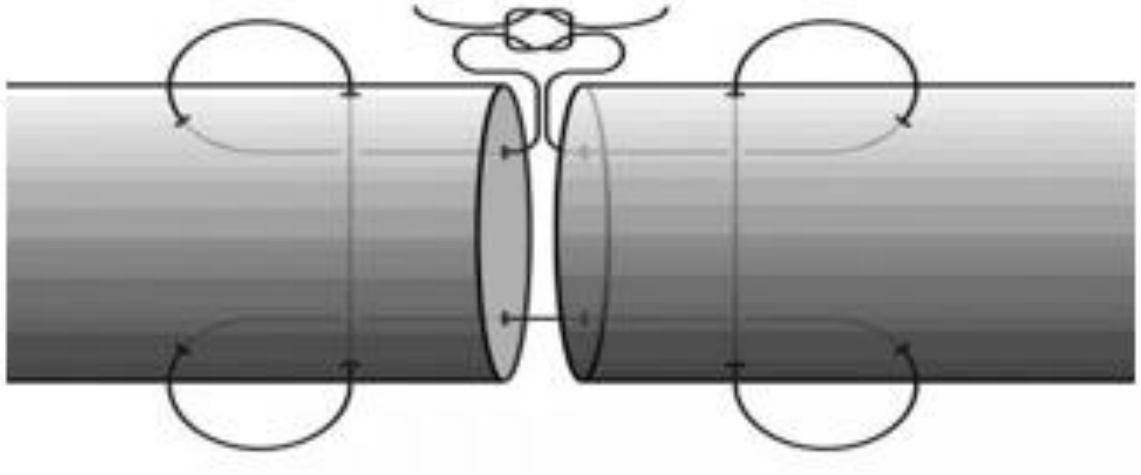
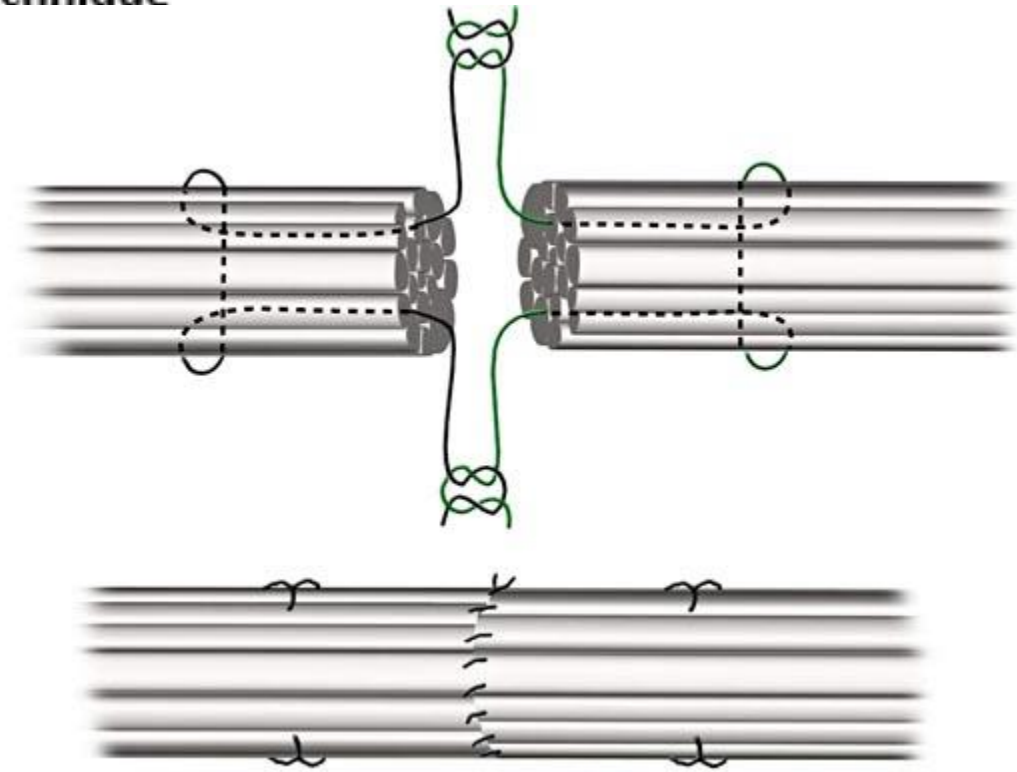


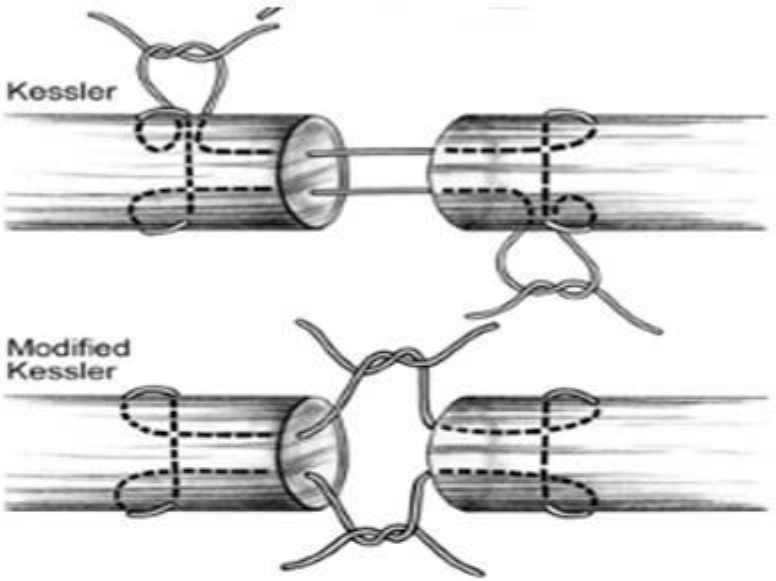
Figure 1. Modified Kessler technique

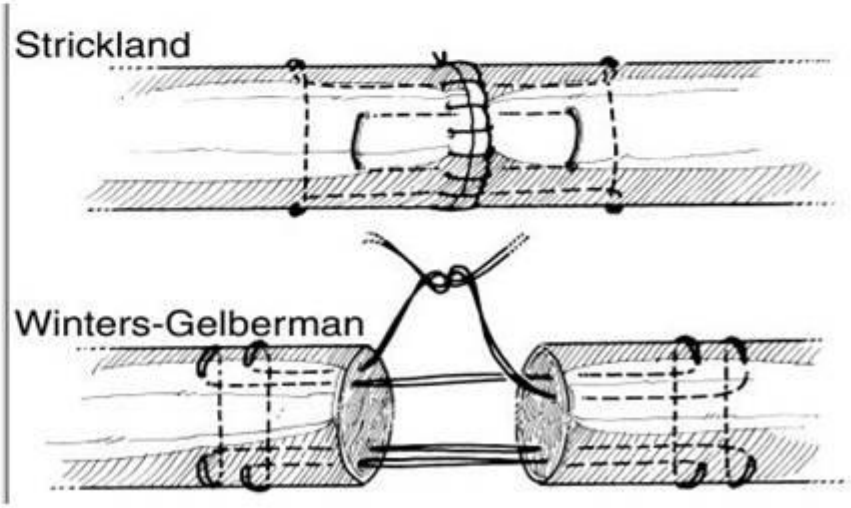


Suturas Centrales

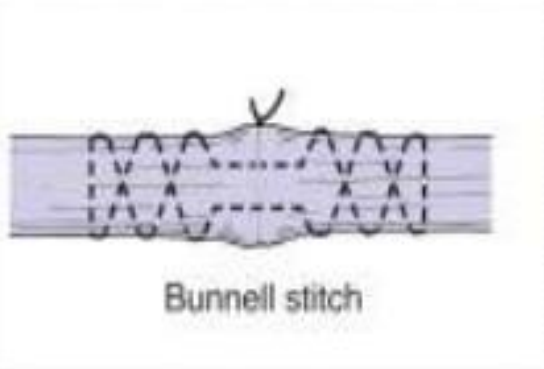
- Resistencia de sutura central directamente relacionada con el número de hilos que atraviesan la zona de reparación entre tendón proximal y distal.

- Suturas:
  - No reabsorbibles:
  - Prolene 4-0,
  - Ethibond 4-0

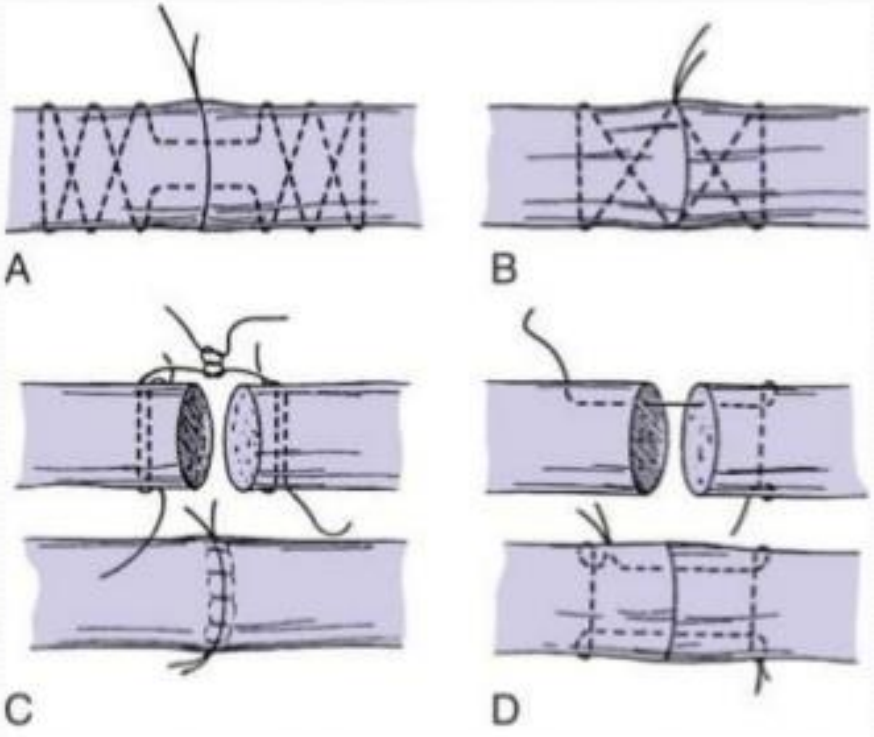


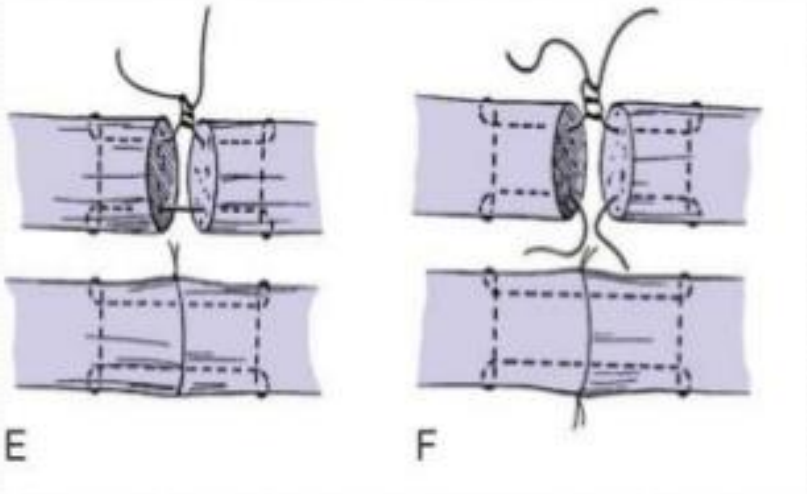


Hand Surgery Berger & Weiss 2004.
Green's Hand Surgery Volume 1. 2005



A, Conventional Bunnell stitch. B, Crisscross stitch





. E, Modified Kessler stitch with single knot at repair. F, Tajima modification of Kessler stitch with double knots at repair site.

. C, Mason-Allen (Chicago) stitch. D, Kessler grasping stitch