WHAT IS THE SUPERFICIAL FASCIA?

- The Anatomical Terminology [FCAT] suggested that the term fascia could be used to indicate a sheath, sheet or other dissectible connective tissue aggregations.
- The aim of our studies is to demonstrate the constant presence of a sheet of connective tissue inside the subcutaneous tissue.

THE SUPERFICIAL FASCIA OF THE ABDOMEN

A fibrous sheet, corresponding to the Scarpa’s fascia, could be easily isolated inside the subcutaneous adipose tissue.
The superficial fascia of the back

In the dorsum, the superficial fascia appears as a thick fibrous lamina extending in a homogenous manner from the neck to the gluteal region, easily separable from the deep fascia. It adheres to the deeper layers along the spinous processes and along the inferior margin of the scapula.

Superficial fascia

At MRI in T1 weight imaging the superficial fascia is easy to see both in coronal and in sagittal planes.
The superfi cial fascia of the LIMBS

The SF of the thigh  The SF of the leg  The SF of the arm

The superfi cial fascia adheres to the deep fascia and it is also connected with the skin by thick vertical septa.
WHAT IS THE SUPERFICIAL FASCIA?

- The superficial fascia could be recognized in almost all the human body, even if with regional specialization.
- Vertical/oblique septa connect the superficial fascia to the skin (retinaculum cutis superficialis or skin ligaments) and the deep fascia (retinaculum cutis profundus) forming a 3-D network between the fat lobules.

REGIONAL SPECIALIZATIONS IN THE FACE

- In the face, we can recognize three different patterns.
- Changes in the quantitative and qualitative characteristics of the retinacula cutis and superficial fascia of the face, may contribute to ptosis of facial soft tissues during aging.

The appearance of the SMAS in CT

(Stecco et al, Italian J of Anatomy, 2008)

In axial CT images, the SMAS appears as a relatively hyperdense tortuous line between the hypodense superficial adipose tissue (SAT) and the hypodense deep adipose tissue (DAT).
**Histological features of the SUPERFICIAL FASCIA**

- Superficial fascia of the thigh (azan-Mallory, 25x)
- Superficial fascia of the leg (immunohistochemical stain anti-S100 antibody, 100x)
- Superficial fascia in the temporal region (van Gieson stain, 100x)

---

**SUPERFICIAL FASCIA AND MUSCLES**

- In humans, muscular fibers can be found inside the superficial fascia, particularly in the neck (platysma muscle), in the face (SMAS), in the anal region (external anal sphincter), in the scrotum (dartos).
- The superficial fascia is homologous to the cutaneous muscle layer (panniculus carnosus) found in other mammals.

---

**Resistance to traction in different directions**

- Mean value of resistance to traction:
  - SF of the dorsum: 8.5 Kg
  - SF of the abdomen: 2.8 Kg
  - SF of the leg: 1.7 Kg
- Mean value of resistance to traction:
  - SF of the dorsum: 6 Kg
  - SF of the abdomen: 5.5 Kg
  - SF of the leg: 1.4 Kg
Resistance to traction in different directions

In the dorsum, the superficial fascia shows a great variation in its behaviour, going from a maximum of 10 Kg to a minimum of 0.5 Kg.

THE SUPERFICIAL FASCIA AND VESSELS

In some regions the superficial fascia splits, forming special compartments around major subcutaneous veins and lymphatic vessels. In this way it protects the vessels during movements and maintains the vessels open.
The superficial fascia and the vessels

Inside the superficial fascia we can recognize the superficial vascular plexus and numerous lymphatic ducts. Also the perforantes vessels have to cross the superficial fascia to reach the skin.

SUPERFICIAL Fascia AND NERVES

The terminal fibers of the nerves inside the superficial fascia: could be this a possible site of compression?

The POSSIBLE ROLES OF THE superficial fascia

The features of the SF and its relationships with the surrounding tissues determine:

- The mobility of skin respect to the deep planes (age ptosis and wrinkles, but also it is important for plastic surgery)
- Protection of the superficial vessels and nerves (varicose veins, tired feeling and weakness in the legs...)
- Lymphatic drainage (lymphoedema, fascitis, cellulites...)
- The separation between esteroception (skin) and proprioception (deep fascia)
Normal morphology of Hypodermis

Pathological morphology of Hypodermis

The retinacula cutis

- The retinacula cutis provide an anchorage of skin to underlying tissues and of the superficial fascia to the deep fascia.
- In this way a flexible and yet resistant mechanism of transmission of the mechanical loads from multi-directional forces could be recognized.
- Regional specializations determine the variations in mobility of the skin with respect to underlying tissues.

"Densification" of the connective tissue (retinacula cutis).
Superficial fascia is more adherent to the skin

The septa of the retinaculum cutis superficialis are usually many and vertically oriented, while the septa of the retinaculum cutis profundum are less, thinner and with an oblique direction. In this way the superficial fascia generally is more adherent to the skin than to the deep fascia.

GROSS ANATOMY: the fasciae of the thigh

Subcutaneous adipose tissue after having removed the skin
Isolation of the superficial fascia
Deep fascia of the thigh and epimysium of the quadriceps

GROSS ANATOMY: the fasciae of the leg

Superficial fascia
Deep fascia
Deep and epimysial fasciae