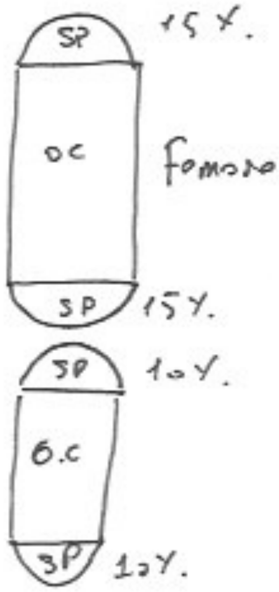
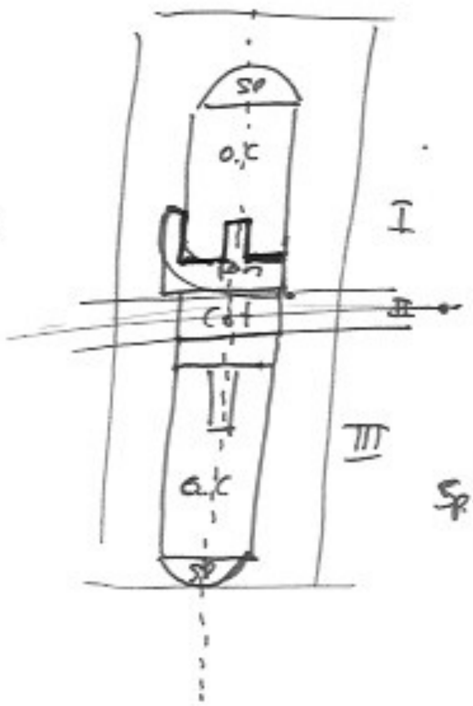
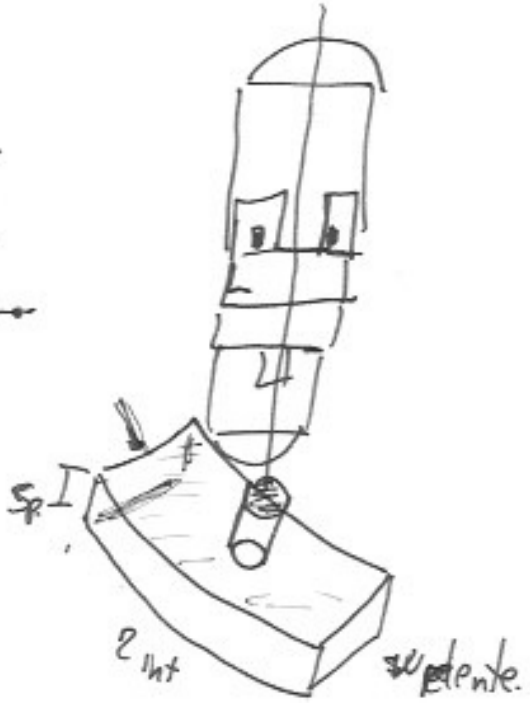
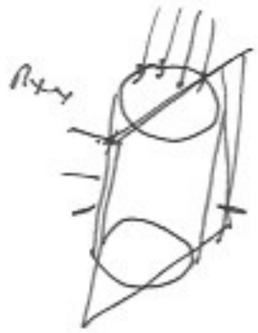






Conserviamo legamento femorale.

hst, rst, rint, rest o dsp fon



$$\frac{R'_z}{\pi r_{int} \cdot w_{dente}} = \frac{R'_{xy}}{2\pi r_{phe} + sp_{dd} \cdot w_{dente}}$$

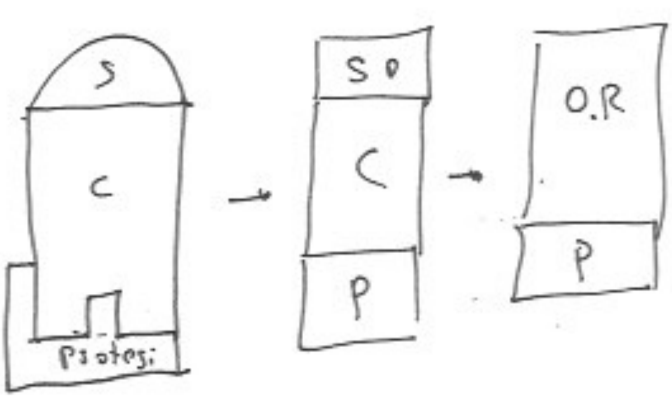
$$\sigma = \frac{R_z}{\pi r_c^2} \qquad \sigma = \frac{R_z}{\frac{\pi R_c^2}{2}}$$

$$R'_z = \frac{R_z}{2}$$

$$R'_{xy} = \frac{R_{xy}}{2}$$

$$\boxed{E_z^0 = \frac{E_c E_s}{0.3 E_c^{z} + 0.7 E_s}}$$

$$E_{xy}^0 = \cancel{1}0.3 E_s + 0.7 E_c^{xy}$$



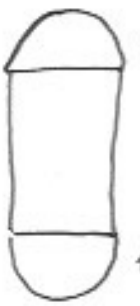
$$E_z = \frac{E_{OR}^{z} E_P}{f_P E_{OR}^{z} + f_{OR} E_P}$$

$$E_{xy} = f_P E_P + f_{OR} E_{OR}^{xy}$$

$$f_P + f_{OR} = 1$$

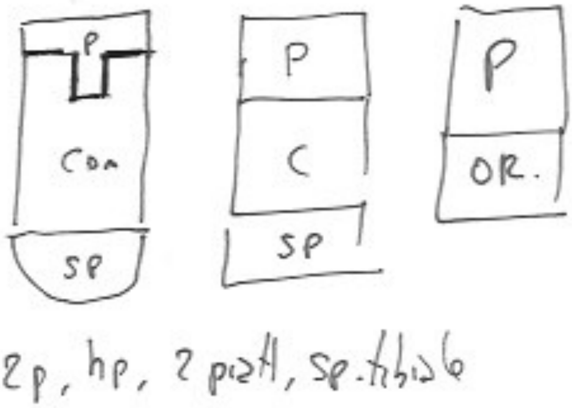
Isostress.

Tibiale



$$E_o^{z} = \frac{E_c^{z} E_s}{0.2 E_c^{z} + 0.8 E_s}$$

$$E_o^{xy} = 0.2 E_s + 0.8 E_c^{xy}$$

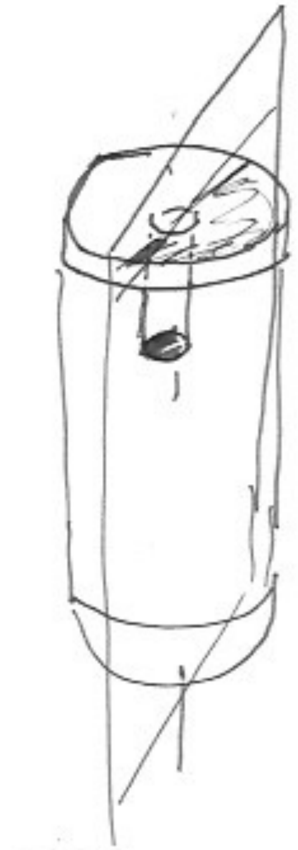


2p, hp, 2 piatt, sp. tibiale

$$E^{z} = \frac{E_P E_{OR}^{z}}{f_P E_{OR}^{z} + f_{OR} E_P}$$

$$E_{xy} = f_P E_P + f_{OR} E_{OR}^{xy}$$

$$f_P + f_{OR} = 1$$



isostress

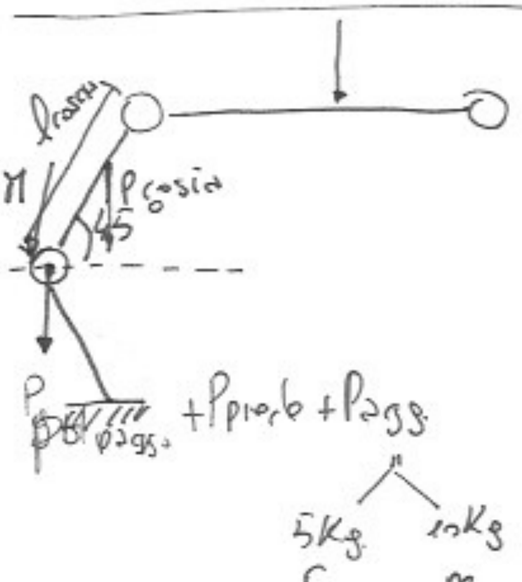
$$\frac{R'_z}{\frac{\pi R^2_{tib}}{2}} = \frac{R'_{xy}}{\pi r_p h_p + \pi R_{tib} \cdot h_{tib}}$$

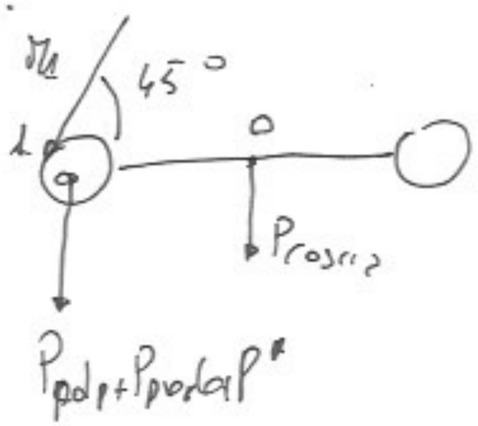
II° componente cotile. $\delta \leq 15\ \mu m/anno$

$0.5 < \delta < 1$ cm

Senza conservazione del legamento

Metodo puntuale.

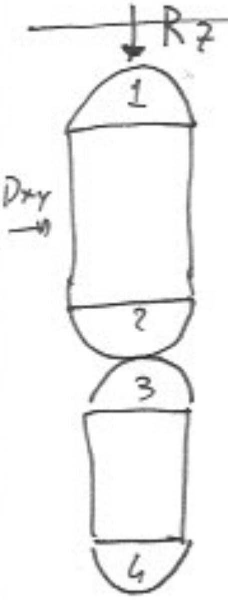




$M_{10A} = P_{coscia} \cdot \frac{l_c}{2}$ $M_1 = P_{coscia} \frac{l_c}{20A}$

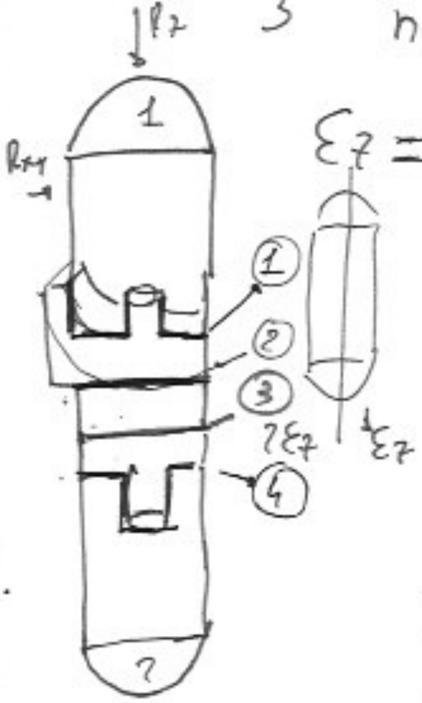
$R_z = -P_{pol} - P_{piede} - P_{agg} - P_{rosse} - M_1 \operatorname{sen} \alpha$ $\qquad \alpha = 45°$

$R_{xy} = -M_1 \cos\alpha$



$$\varepsilon_z = \frac{R_z}{2\pi R^2_{ep1}} \cdot \frac{1}{E_{os}} + \frac{R_z}{\pi R^2_{fem}} \cdot \frac{1}{E^z_{oc}} + \frac{R_z}{2\pi R^2_{ep2}} \cdot \frac{1}{E_{os}} + \frac{R_z}{2\pi R^2_{ep3}} \frac{1}{E_{os}} + \frac{R_z}{\pi R^2_{tib}} \cdot \frac{1}{E^z_{oc}} + \frac{R_z}{2\pi R^2_{ep4}} \cdot \frac{1}{E_{os}}$$

$$\varepsilon_{xy} = \frac{R_{xy}}{\frac{2}{3}\pi \frac{R^3_{ep1}}{h_{ep1}}} \cdot \frac{1}{E_{os}} + \frac{R_{xy}}{2\pi r^2_{fem} h_{fem}} \cdot \frac{1}{E^{xy}_{oc}} + \frac{R_{xy}}{\frac{2}{3}\pi \frac{R^3_{ep2}}{h_{ep2}}} \cdot \frac{1}{E_{os}} + \frac{R_{xy}}{\frac{2}{3}\pi \frac{R^3_{ep3}}{h_{ep3}}} \cdot \frac{1}{E_{os}} + \frac{R_{xy}}{2\pi r_{tib} h_{tib}} \cdot \frac{1}{E^{xy}_{oc}} + \frac{R_{xy}}{\frac{2}{3}\pi \frac{R^3_{ep4}}{h_{ep4}}} \cdot \frac{1}{E_{os}}$$



$$\varepsilon_z = \frac{R'_z}{\pi R^2_{ep1}} \cdot \frac{1}{E_{osr}} + \frac{R'_z}{\frac{\pi R^2_{fem}}{2}} \cdot \frac{1}{E^z_{ocr}} + \frac{R'_z}{\pi R_{dente.vedente}} \cdot \frac{1}{E_p} + \frac{R'_z}{\frac{\pi R^2_{cot}}{2}} \cdot \frac{1}{E_{cot}} + \frac{R'_z}{\frac{\pi R^2_{tib}}{2}} \cdot \frac{1}{E_{p1}} +$$

$$\frac{R'_z}{\frac{\pi(R^2_{tib} - R^2_{st})}{2}} \cdot \frac{1}{E^z_{ocr}} + \frac{R'_z}{\pi R^2_{ep2}} \cdot \frac{1}{E_{osr}}.$$

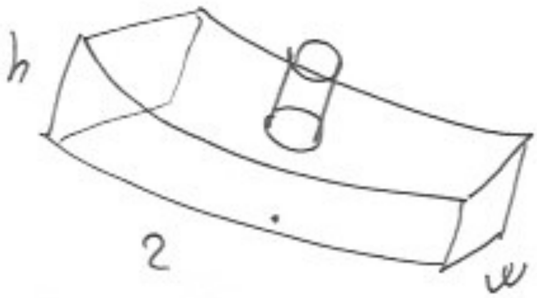
(5)

$$\varepsilon_{xy} = \frac{R'_{xv}}{\frac{1}{3}\pi \frac{R^3_{ep1}}{h_{ep1}}} \cdot \frac{1}{E_{osR}} + \frac{R'_{xy}}{\pi R_{fem} h_{fem}} \cdot \frac{1}{E^{xy}_{ocR}} + \frac{R'_{xy}}{Sp_{cont} \cdot w_{cont} + 2\pi r_p h_p} \cdot$$

$$\cdot \frac{1}{E_{P1}} + \frac{R'_{xv}}{Sp_{cot} \cdot \pi r_{cot}} \cdot \frac{1}{E_{cot}} + \frac{R'_{xy}}{\pi R_{pt} sp_t + \pi r_{st} h_{st}} \cdot \frac{1}{E_{P2}} +$$

$$\frac{R'_{xv}}{\pi r_{tib} \cdot h_{tib}} \cdot \frac{1}{E^{xy}_{CR}} + \frac{R'_{xy}}{\frac{1}{3}\pi \frac{R^3_{ep2}}{h_{ep2}}} \cdot \frac{1}{E_{osR}}$$

(1) $\frac{R'_z}{\pi R_{cont} \cdot w_{cont}} =$



$$\frac{R'_{xv}}{Sp_{cont}\, w_{cont} + 2\pi r_p h_p}$$

(2) $$\frac{R'_z}{\frac{\pi}{2} R^2_{cot}} = \frac{R'_{xv}}{\pi R_{cot}\, \delta_{cot}}$$

(3) $$\frac{R'_z}{\frac{\pi R^2_{tib}}{2}} = \frac{R'_{xv}}{\pi R_{tib}\, sp_{tib} + \pi R_{st} h_{st}}$$

Fem) R_{pcont}, h_{cont}, r_{int}, r_{est}

tib) $r_{ptibia6}$, δ_{tibia6}, r_{ptib}, hp_{tibia}

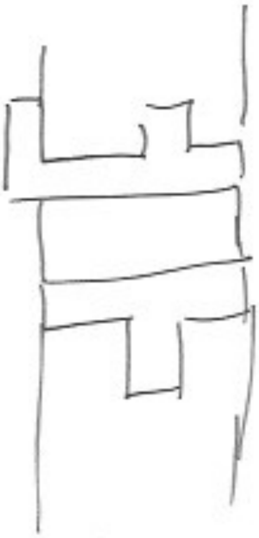
$r_{cot} = r_{ptibia6} = r_{est}$.

cotile) r_{cot}, δ_{cotile}

(1)

Torsione.

Tibiale.



$$\sigma^{fem}_{TORSIONE} = \frac{R'_z}{\pi R_{dente}\, w_{dente}}$$

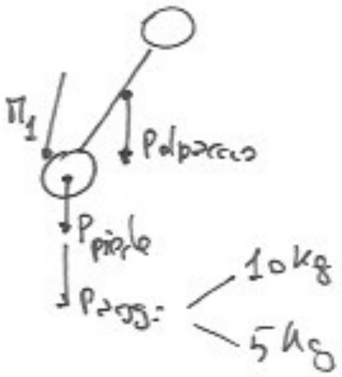
$$\sigma^{fem}_{TORSIONE} = \frac{M_T \cdot z_{fem}}{I} \qquad M_T = R_{xy} \cdot z_{fem}$$

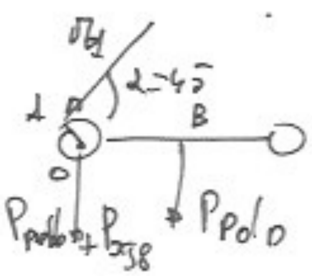
$$I = \frac{\pi}{2}\left(R^4_{fem} - R^4_{dente}\right)$$

$$\sigma^{TIBIALE}_{TORSIONE} = \frac{R'_z}{\frac{\pi}{2} R^2_{tibiale}}$$

$$\sigma^{tib}_{TORSIONE} = \frac{M_T \cdot z_{tibiale}}{I} \qquad M_T = R_{xy} \cdot z_{tib}$$

$$I = \frac{\pi}{2}\left(R^4_{tib} - R^4_{perno}\right)$$





$$M_1 \cdot OA = P_{palb} \cdot \frac{l_P}{2} \qquad M_1 = P_{palb} \cdot \frac{l_P}{2OA}$$

$$\begin{cases} R_z = -P_{pierle} - P_{agg} - P_p \cdot l_p - M_1 \sin\alpha \\ R_{xy} = -M_1 \cos\alpha \end{cases}$$