

La Chaussure de Football

Biomecanique de l'Interaction
entre la Chaussure et le Terrain



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BioMechanica, LLC
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Performance et la Protection

Traction: Nécessaire pour la performance

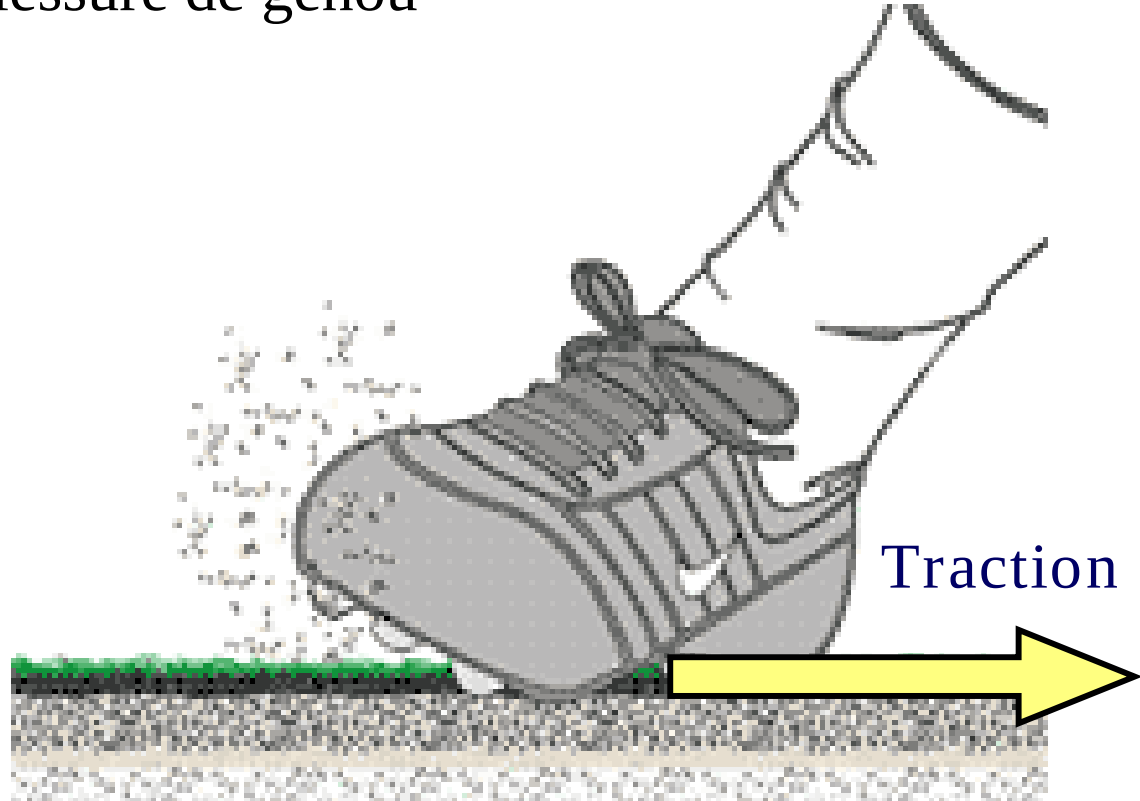
Risque de blessure de genou



Performance et la Protection

Traction: Nécessaire pour la performance

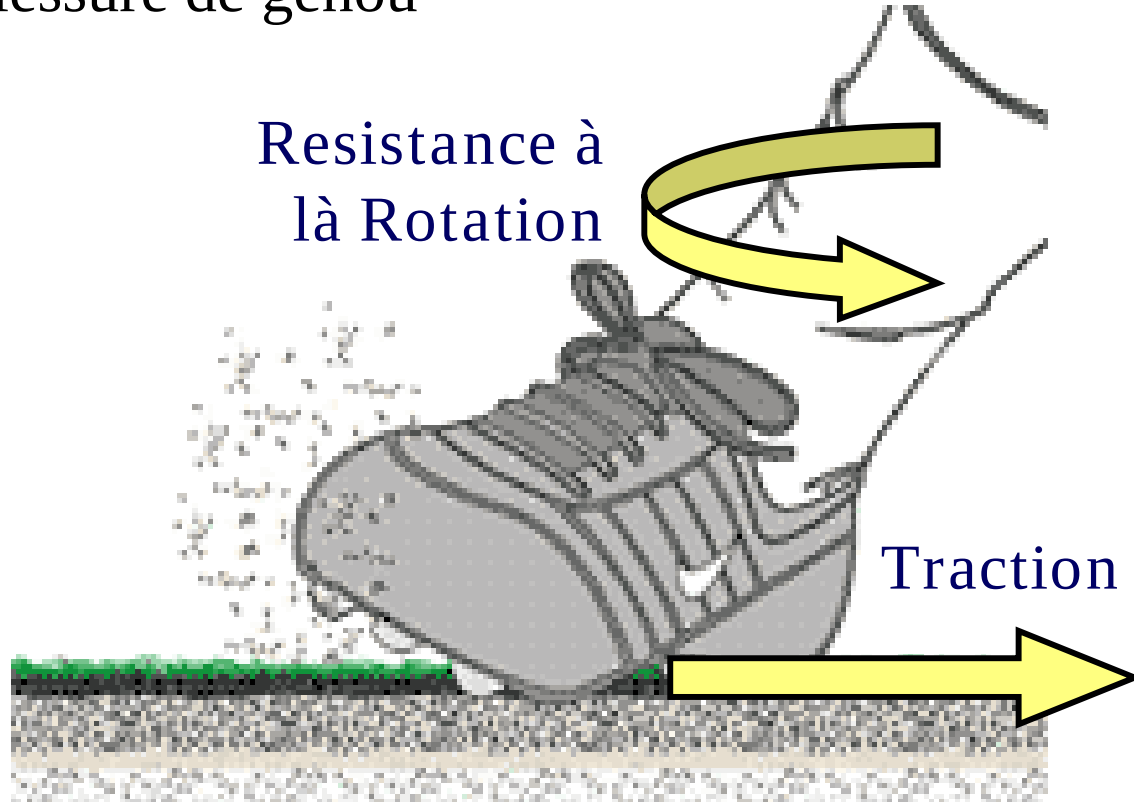
Risque de blessure de genou



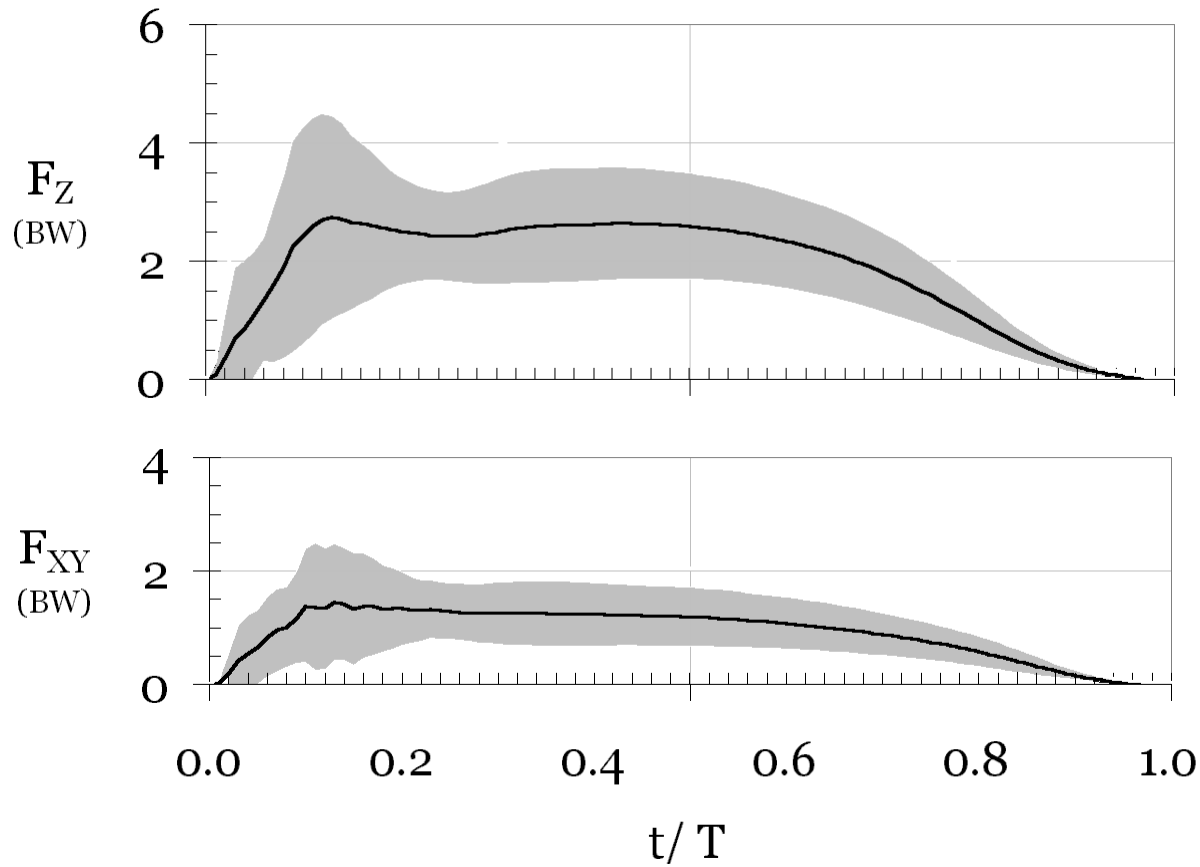
Performance et la Protection

Traction: Nécessaire pour la performance

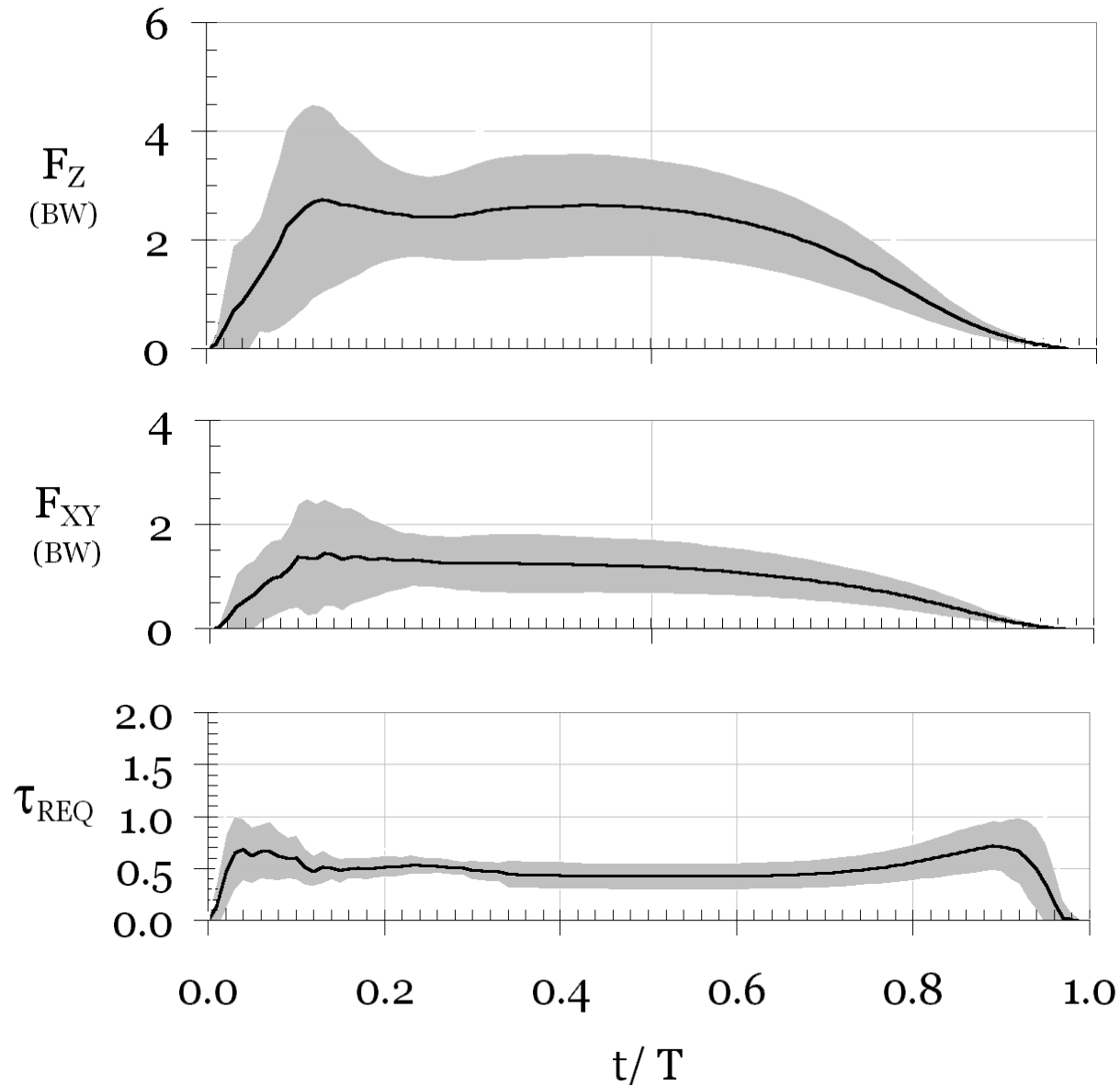
Risque de blessure de genou



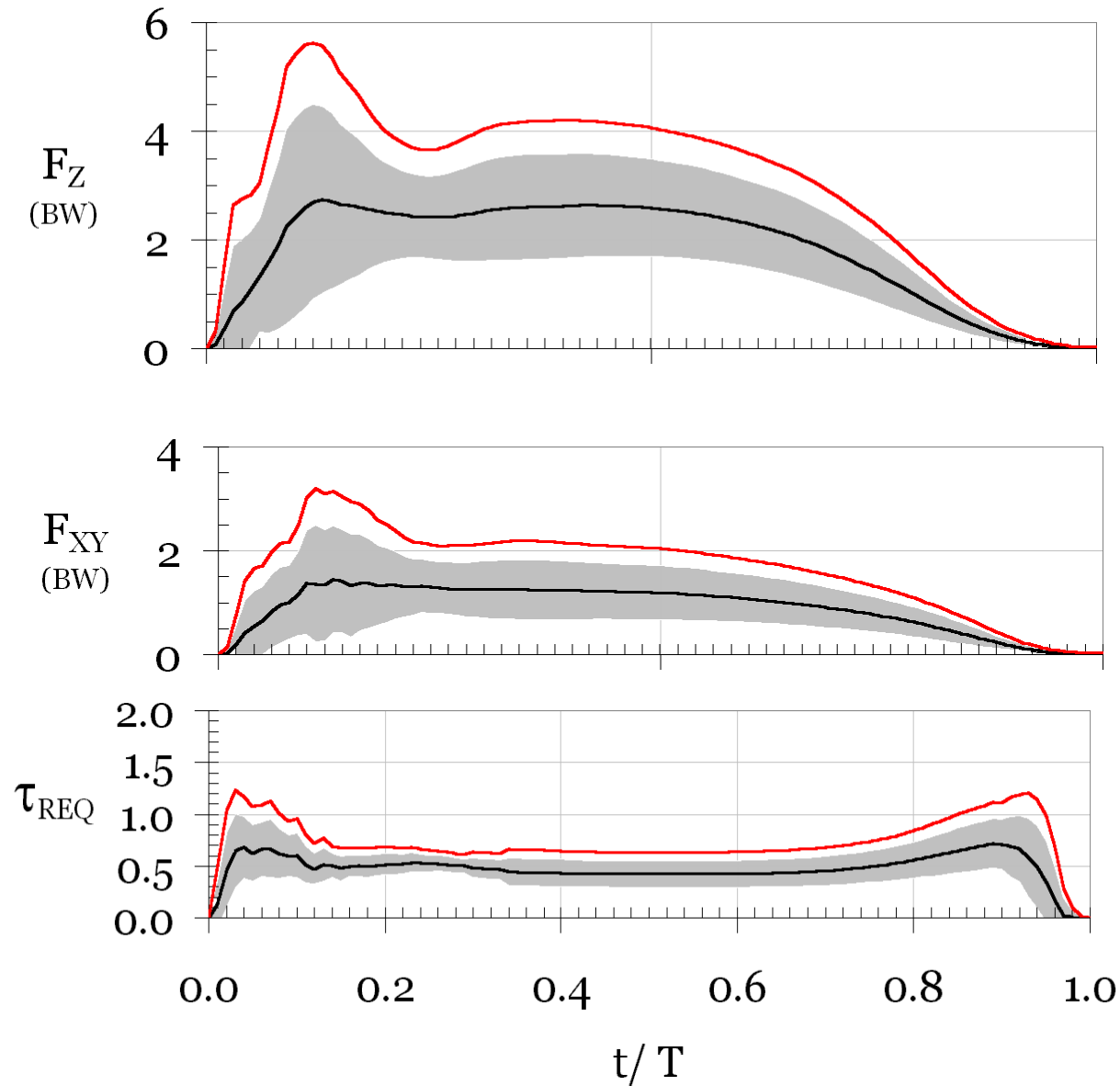
Besoins de Traction



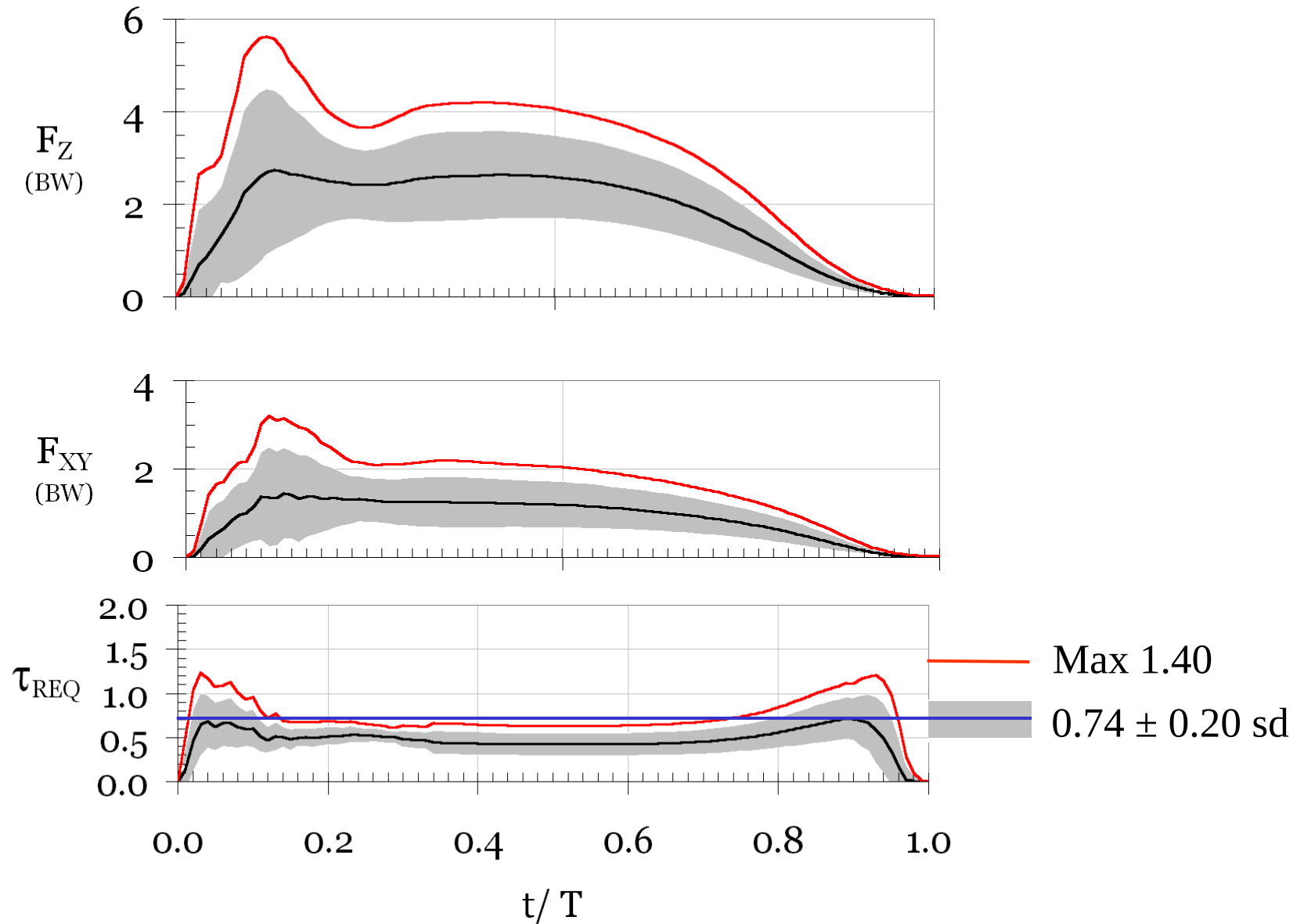
Besoins de Traction



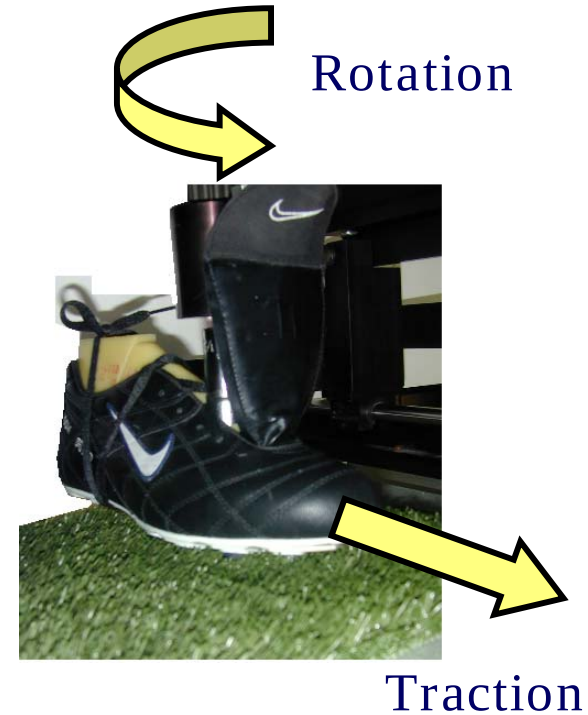
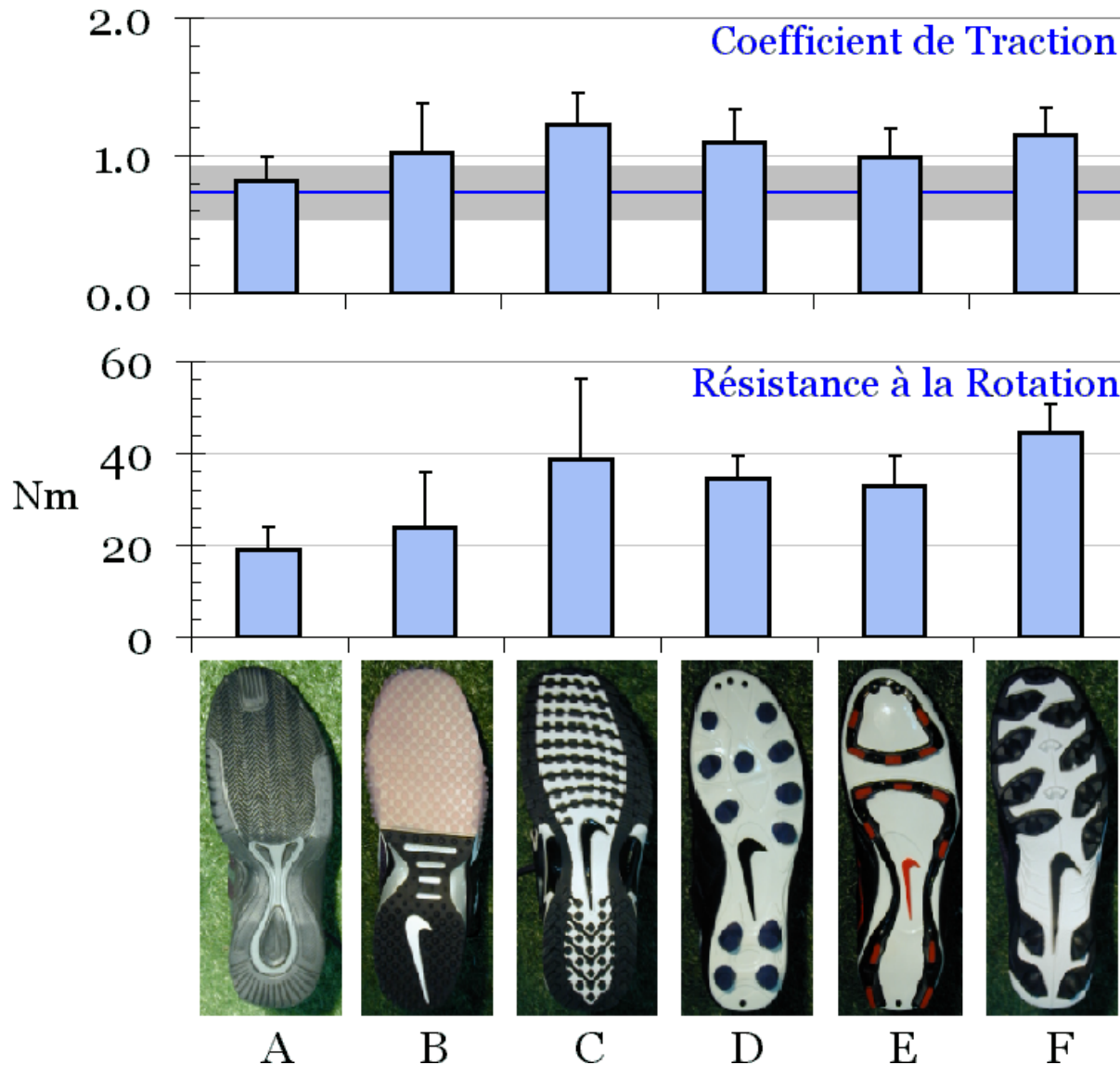
Besoins de Traction



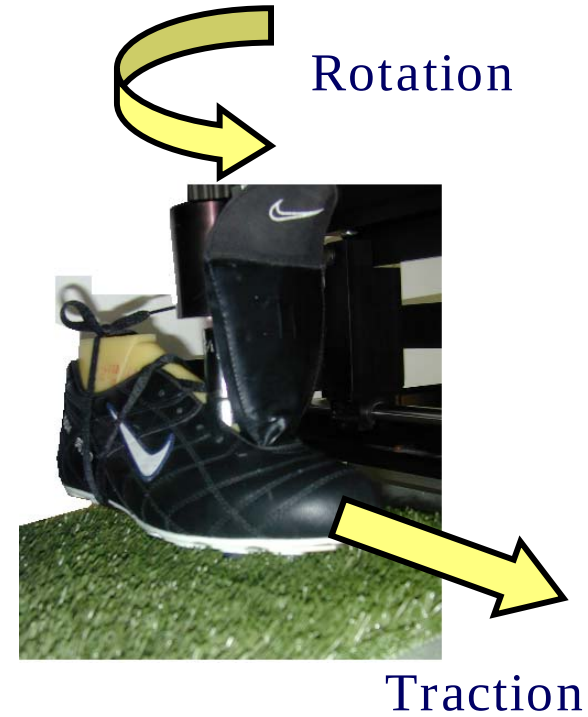
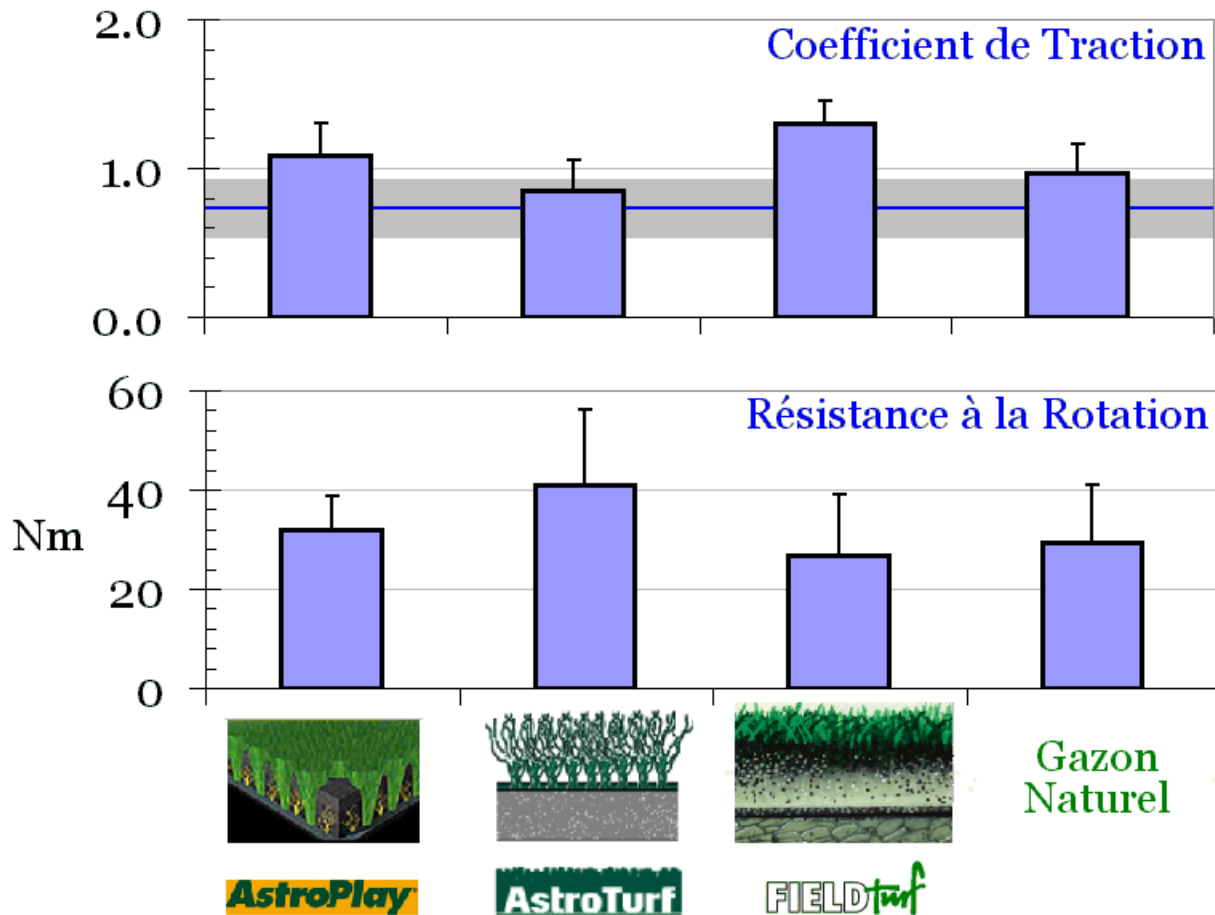
Besoins de Traction



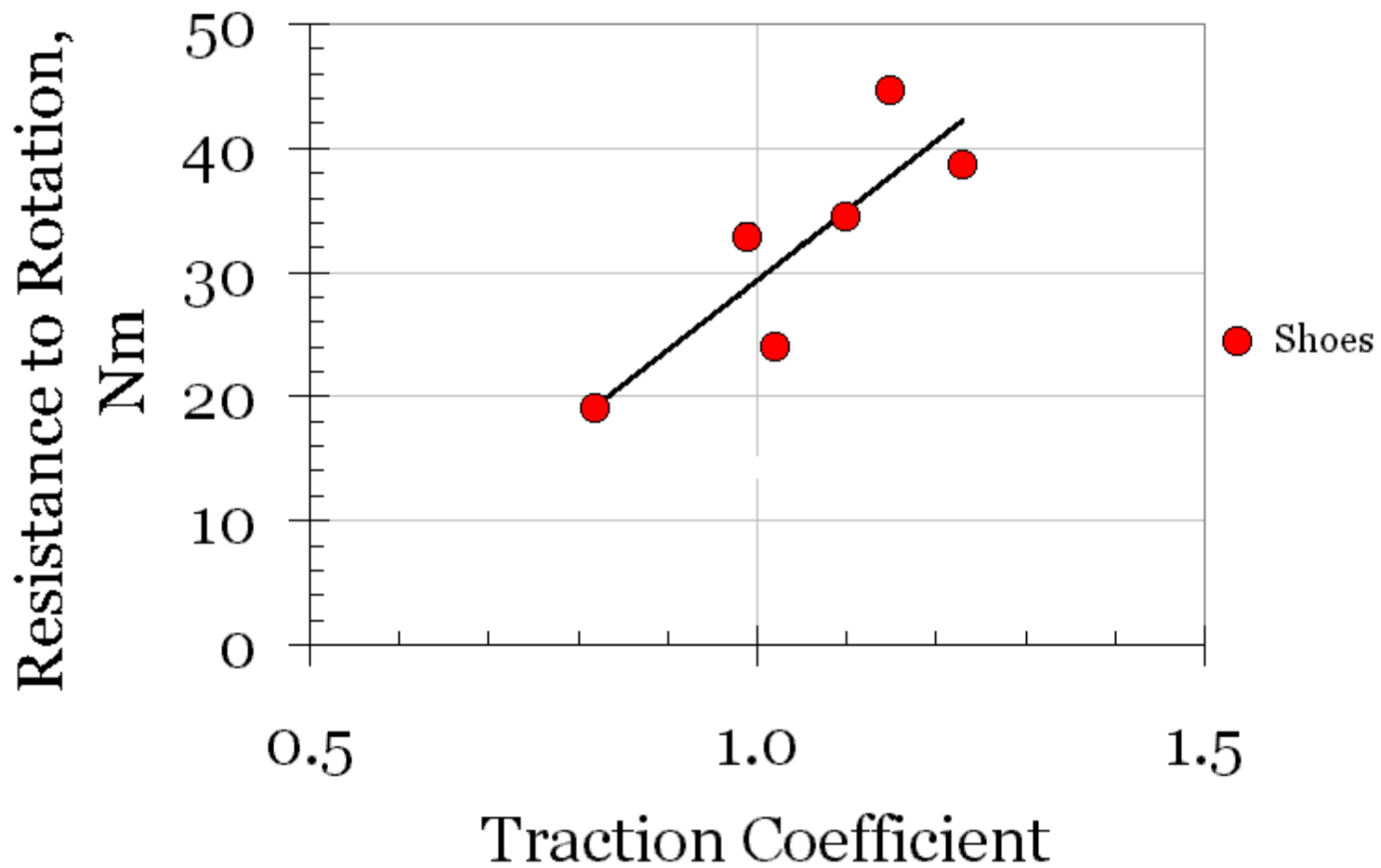
Moyenne de Traction des Chaussures



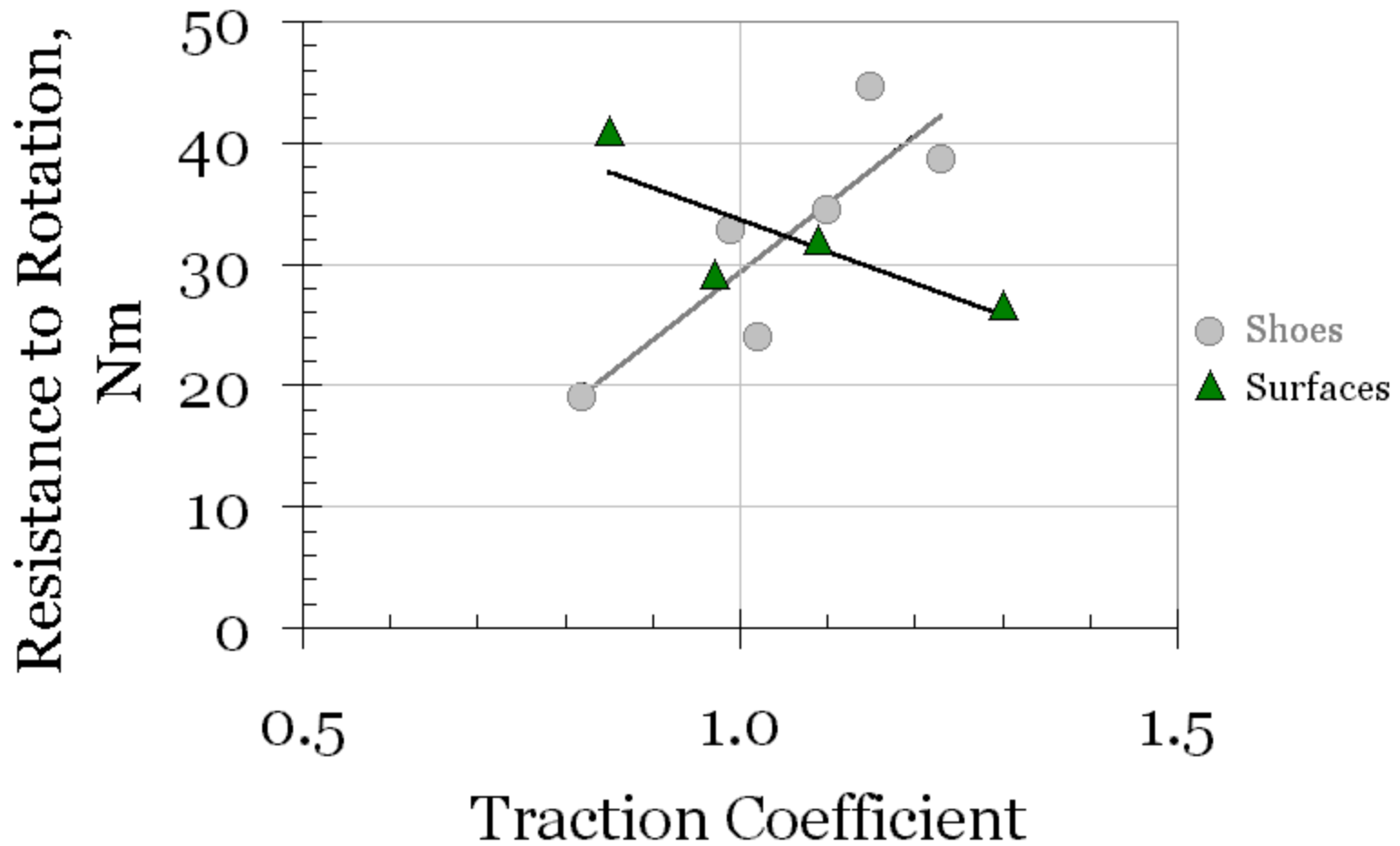
Moyenne de Traction des Surfaces



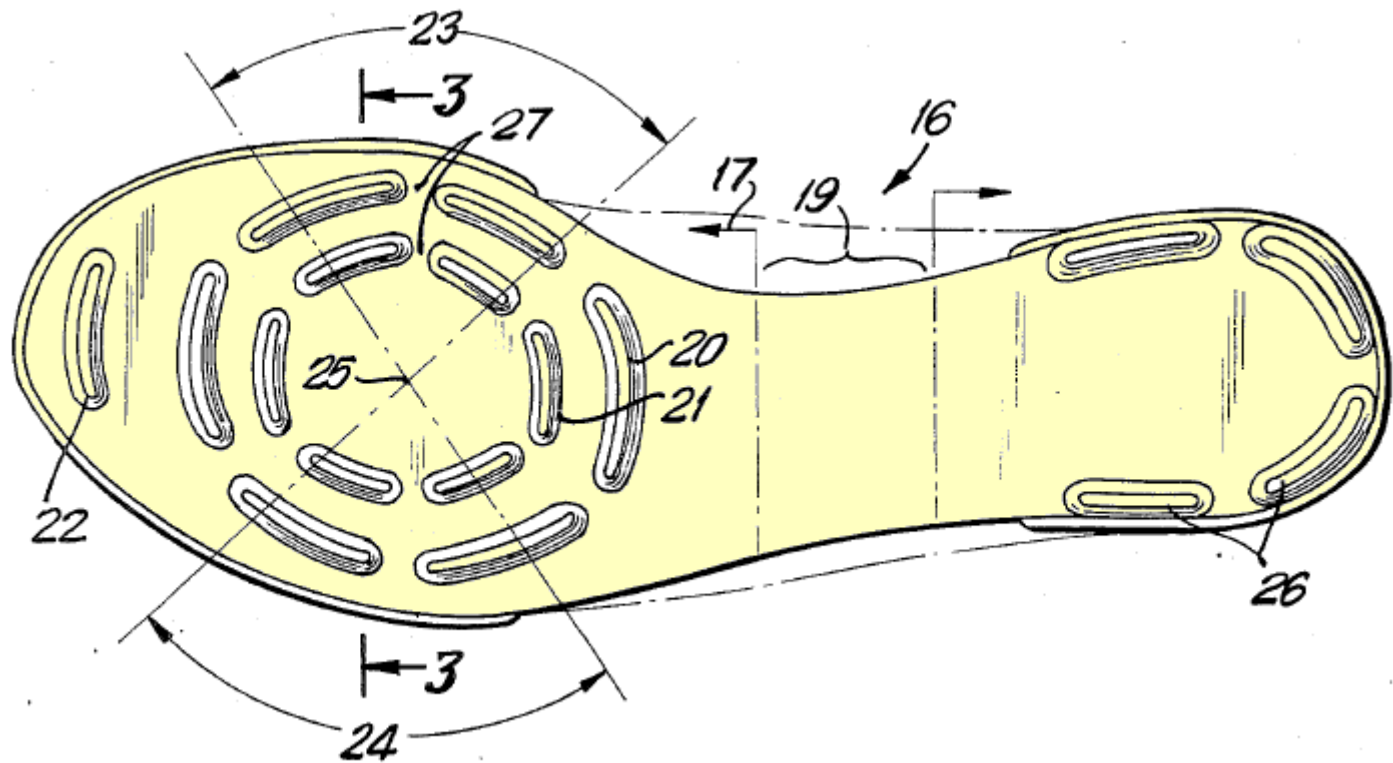
Interaction Chaussures / Surfaces



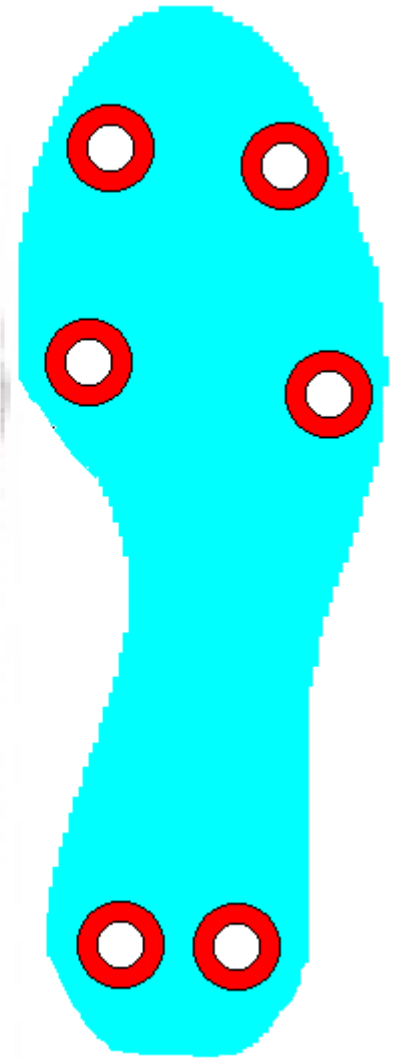
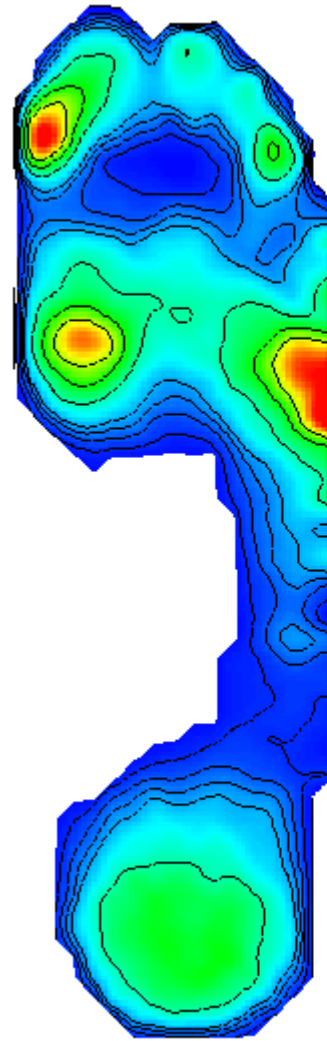
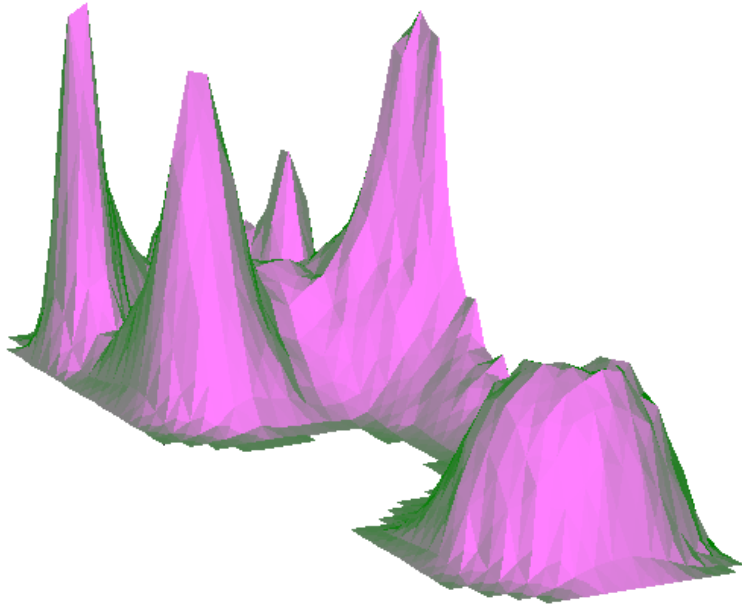
Interaction Chaussures / Surfaces



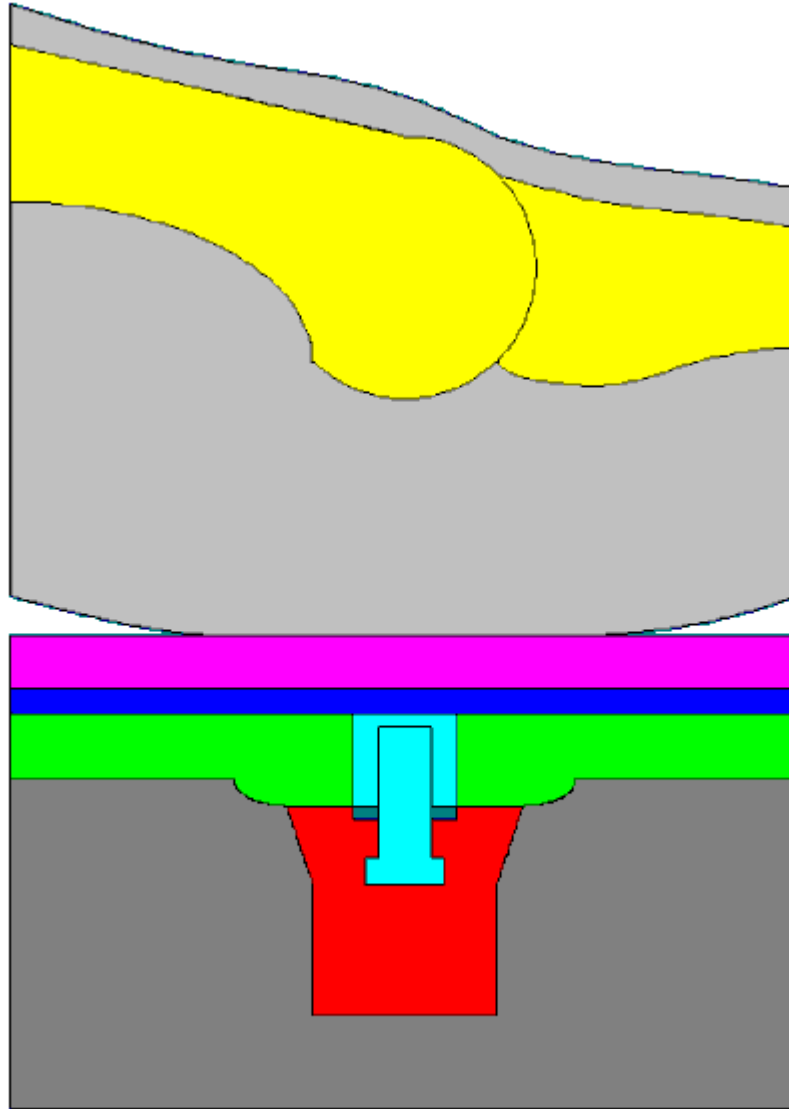
Exemple de Conception d'un Pivot



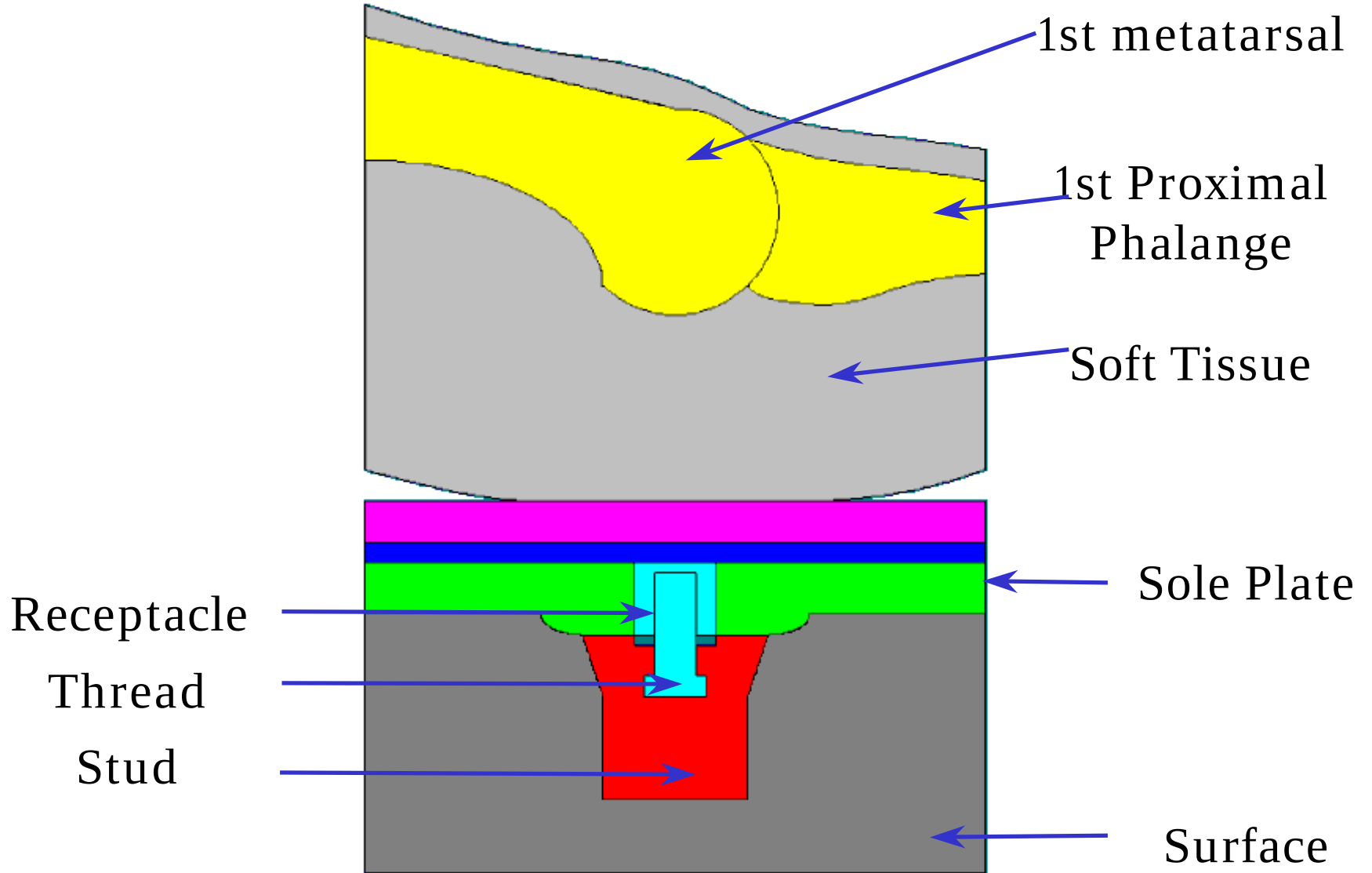
Pression des Crampons



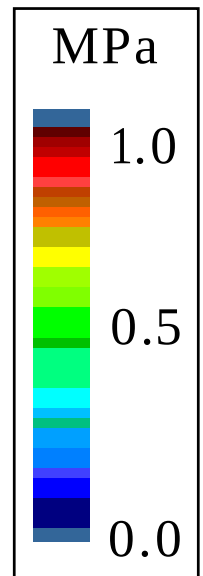
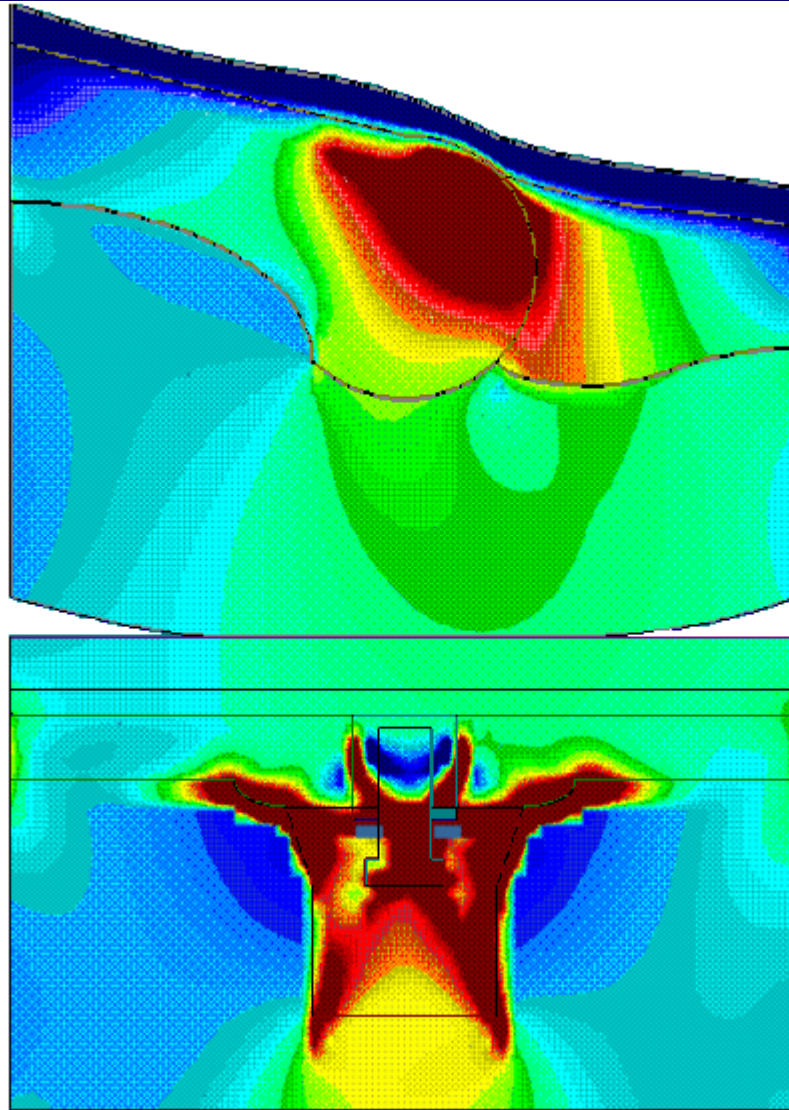
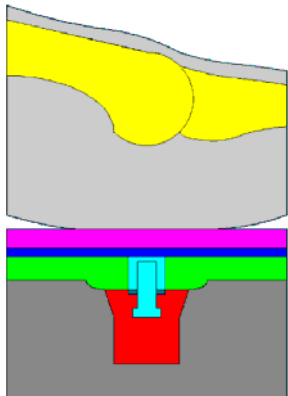
Modelisation des Pressions



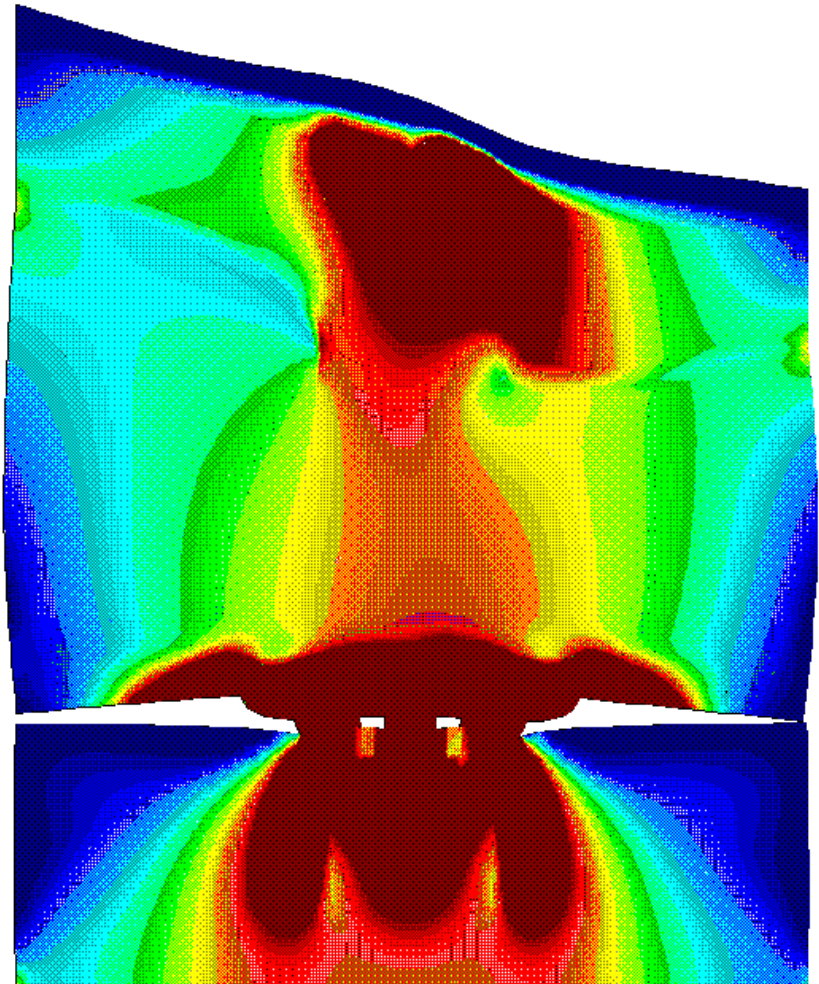
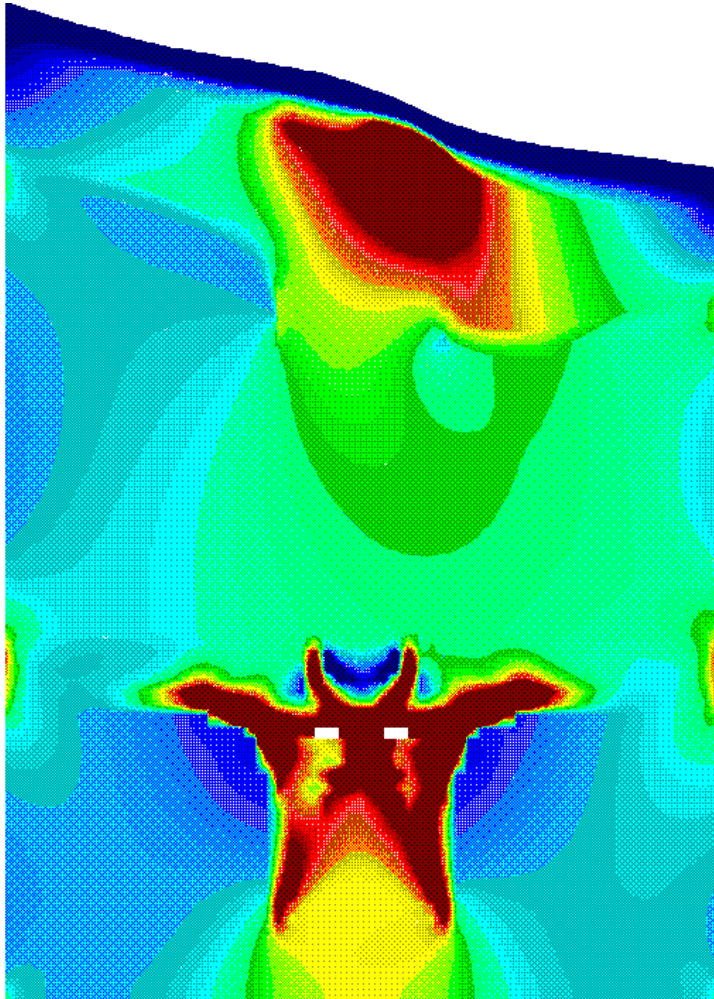
Modelisation des Pressions



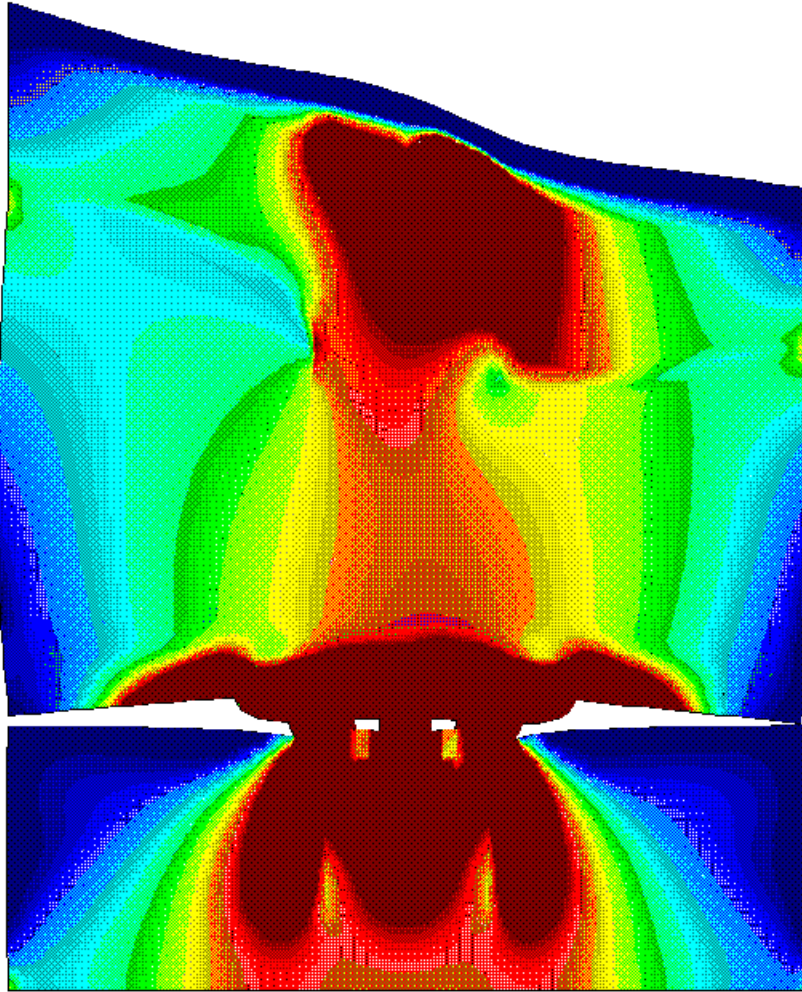
Contraintes Induites par les Crampons



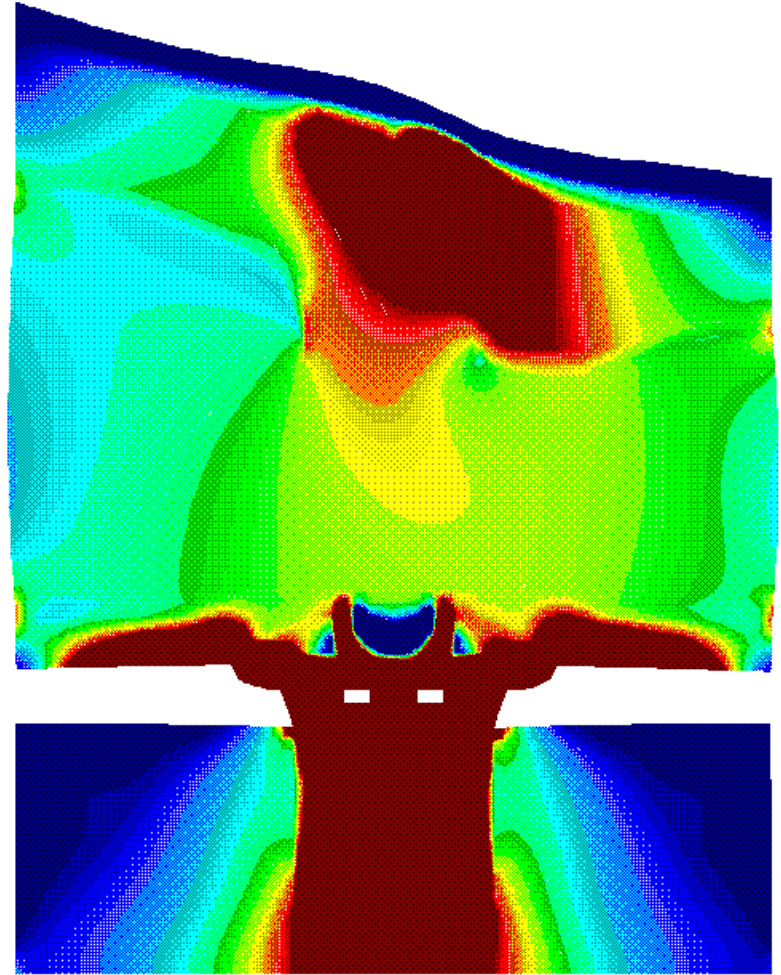
Longueur des Crampons et Pénétration dans les Surfaces



Souplesse des Semelles

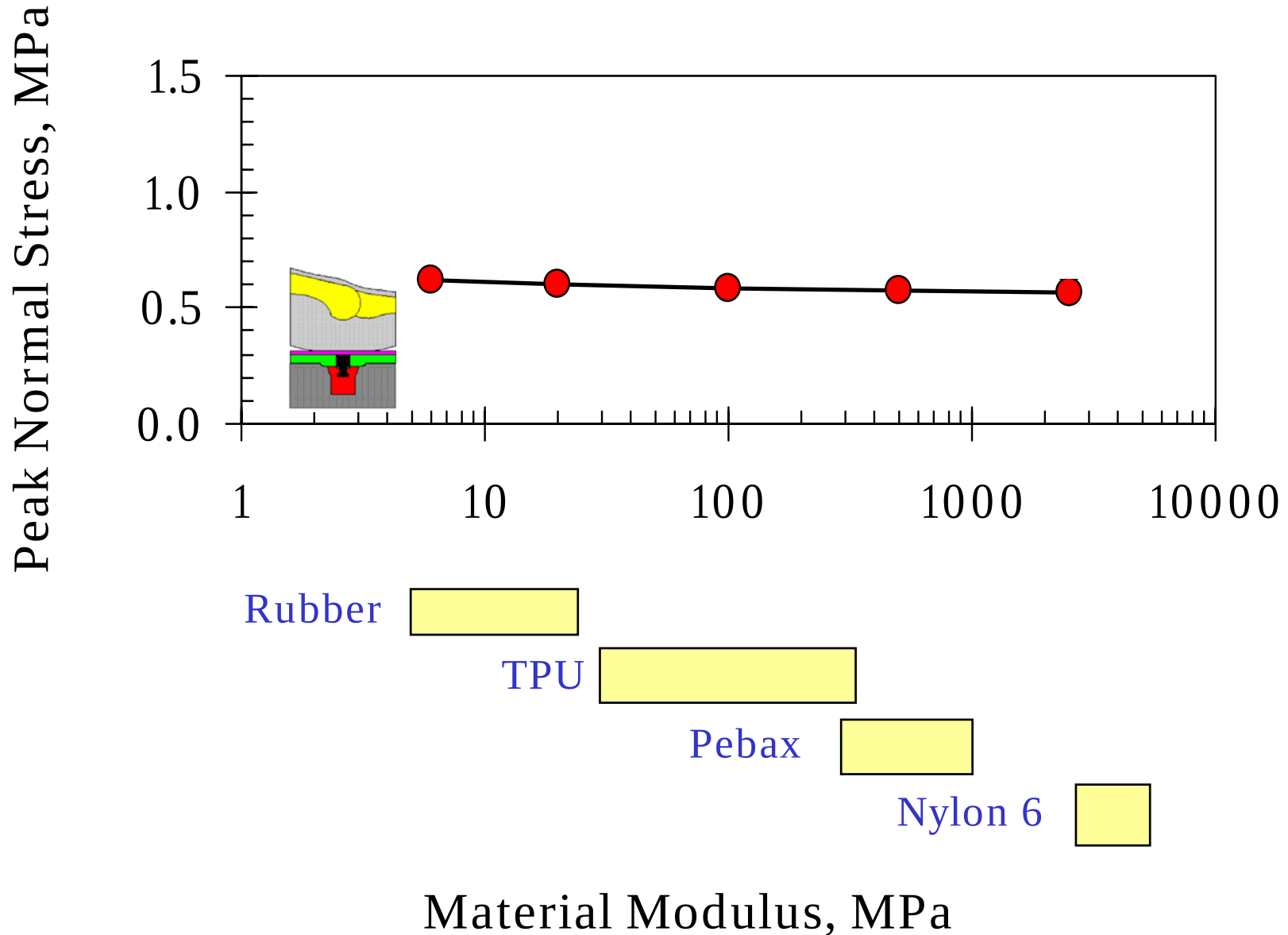


Rubber

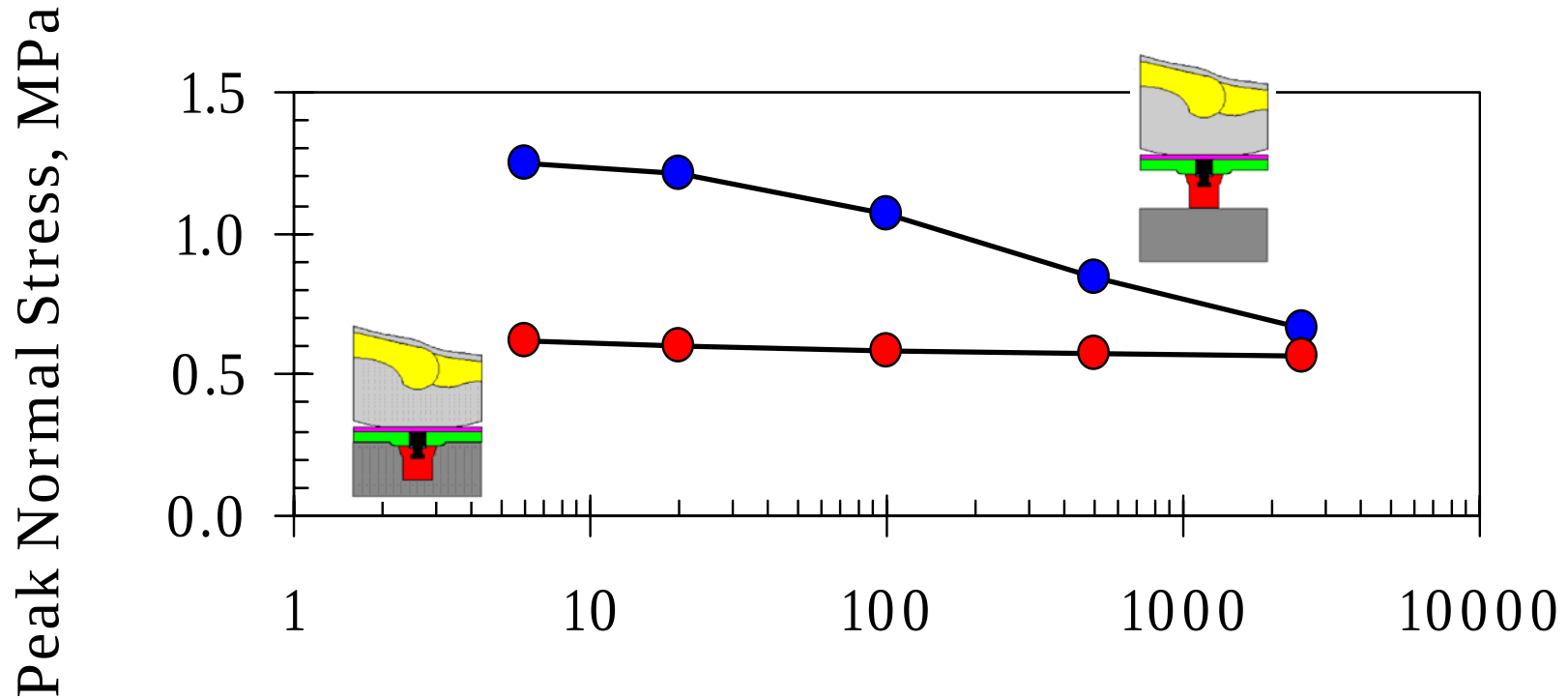


Nylon

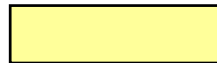
Interaction de Pénétration et Souplesse



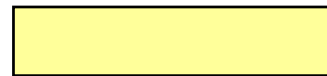
Interaction



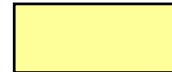
Rubber



TPU



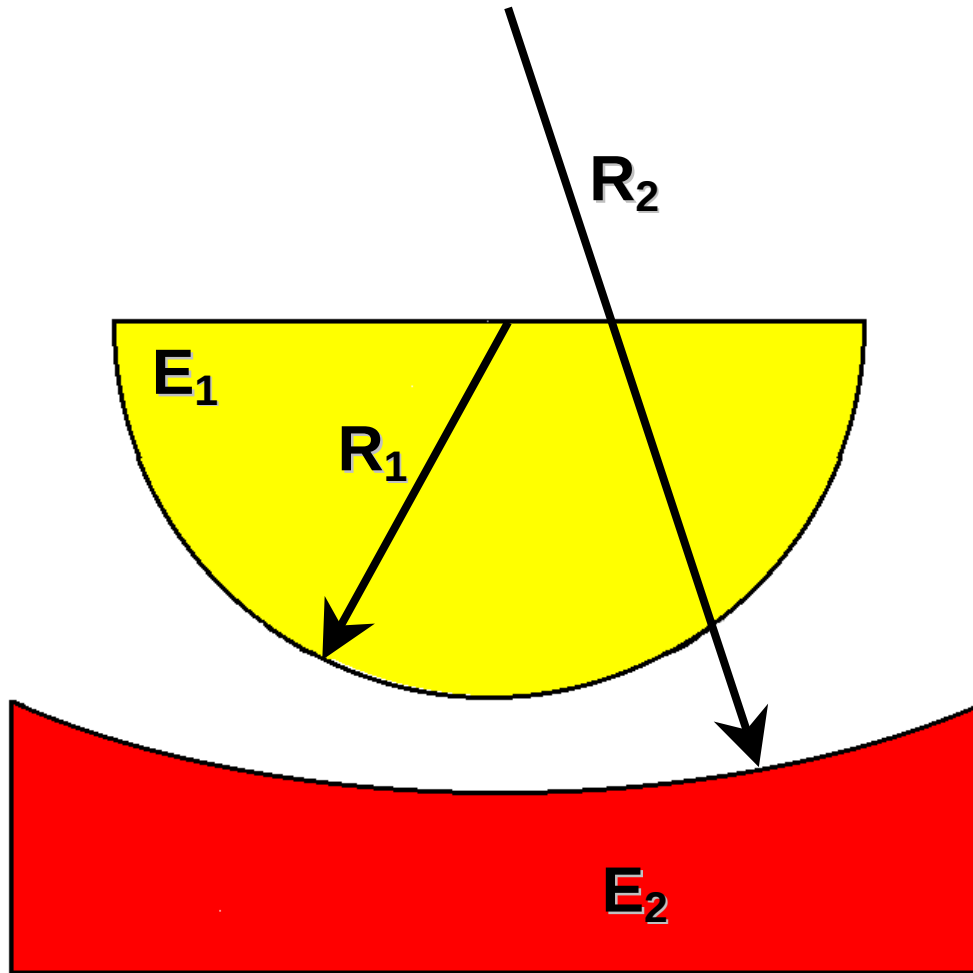
Pebax



Nylon 6



Material Elastic Modulus, MPa



$$E^* = \left(\frac{1}{E_1} + \frac{1}{E_2} \right)^{-1}$$

Equivalent Modulus

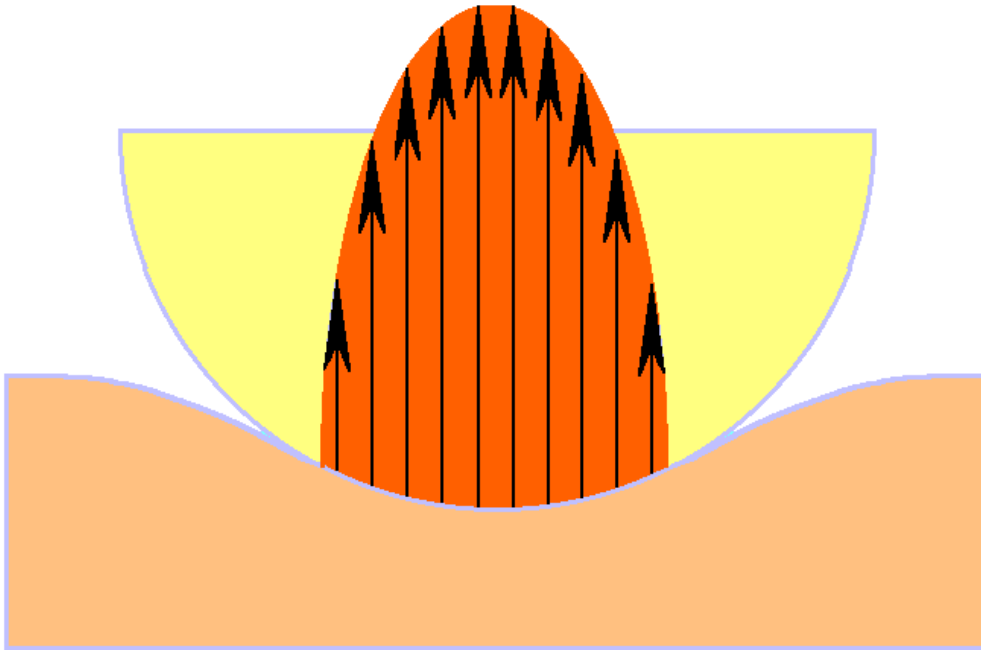
$$R^* = \left(\frac{1}{R_1} - \frac{1}{R_2} \right)^{-1}$$

Equivalent Radius

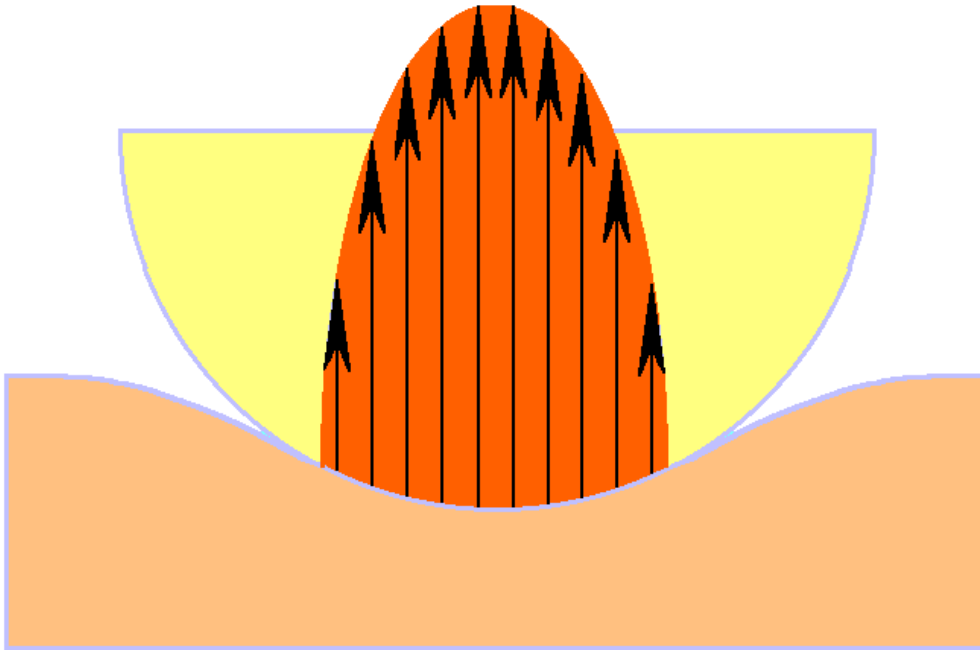


$$p_0 = \frac{(6F)^{\frac{1}{3}}}{\pi} \left(\frac{E^*}{R^*} \right)^{\frac{2}{3}}$$

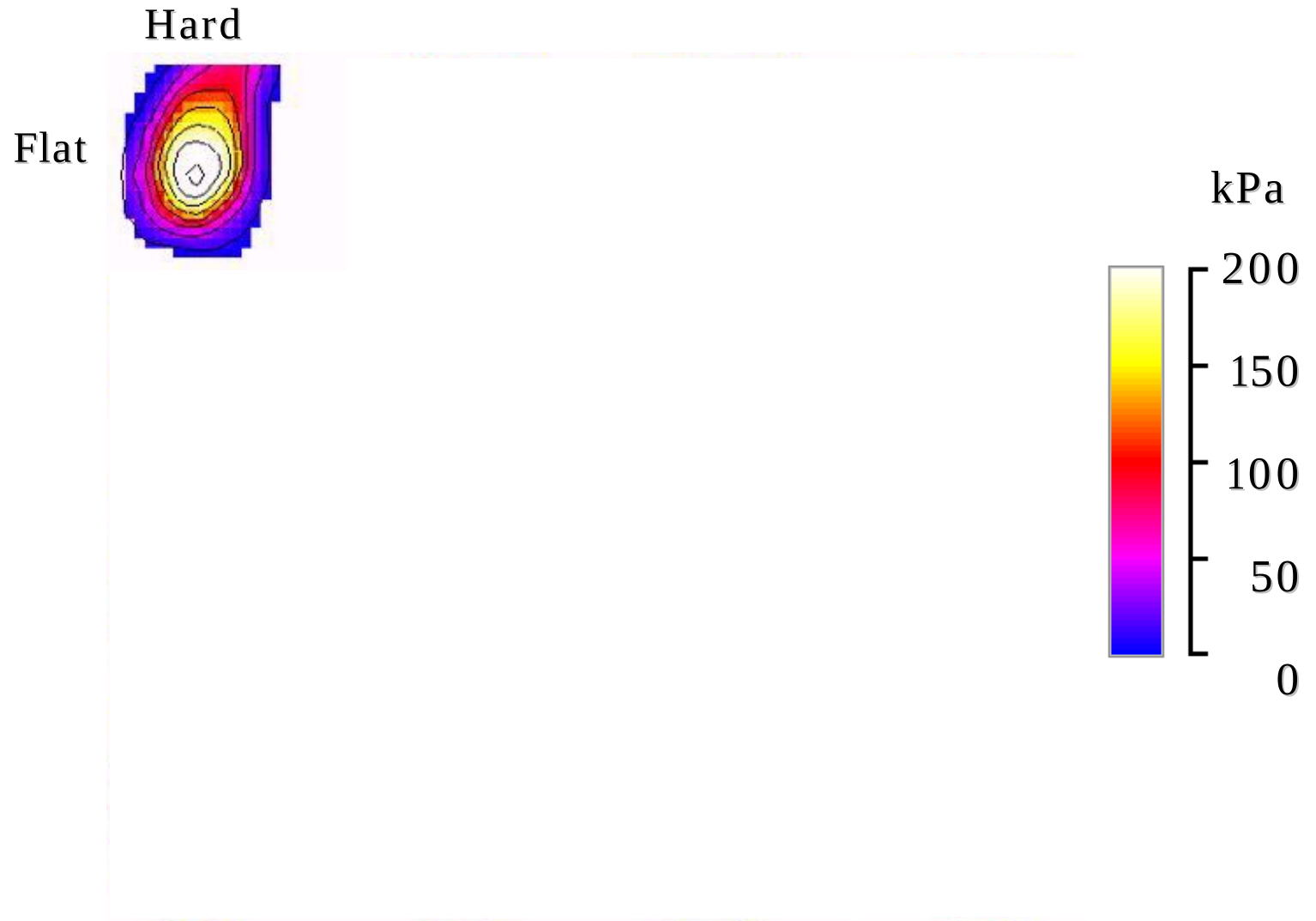
Peak Pressure

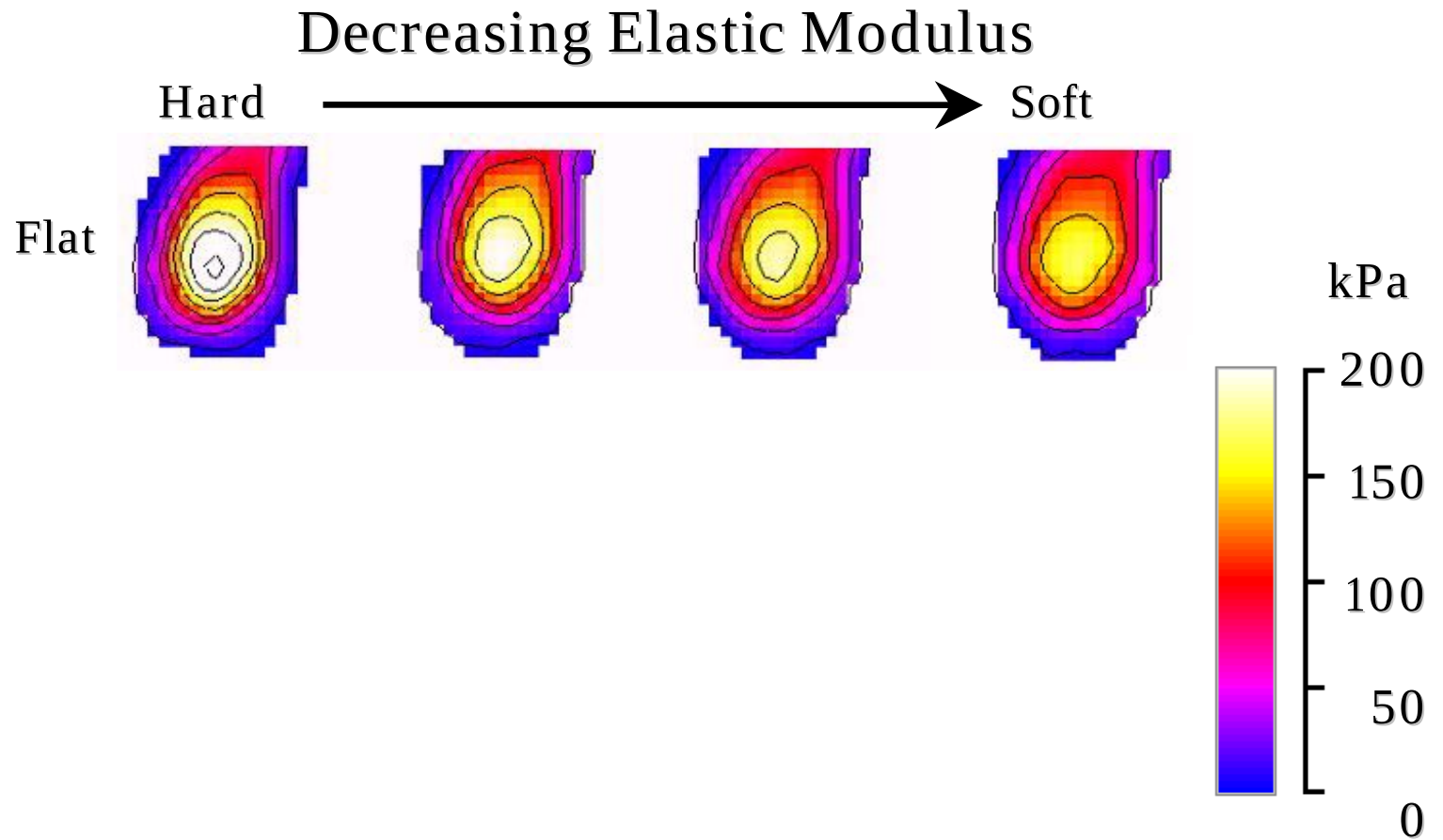


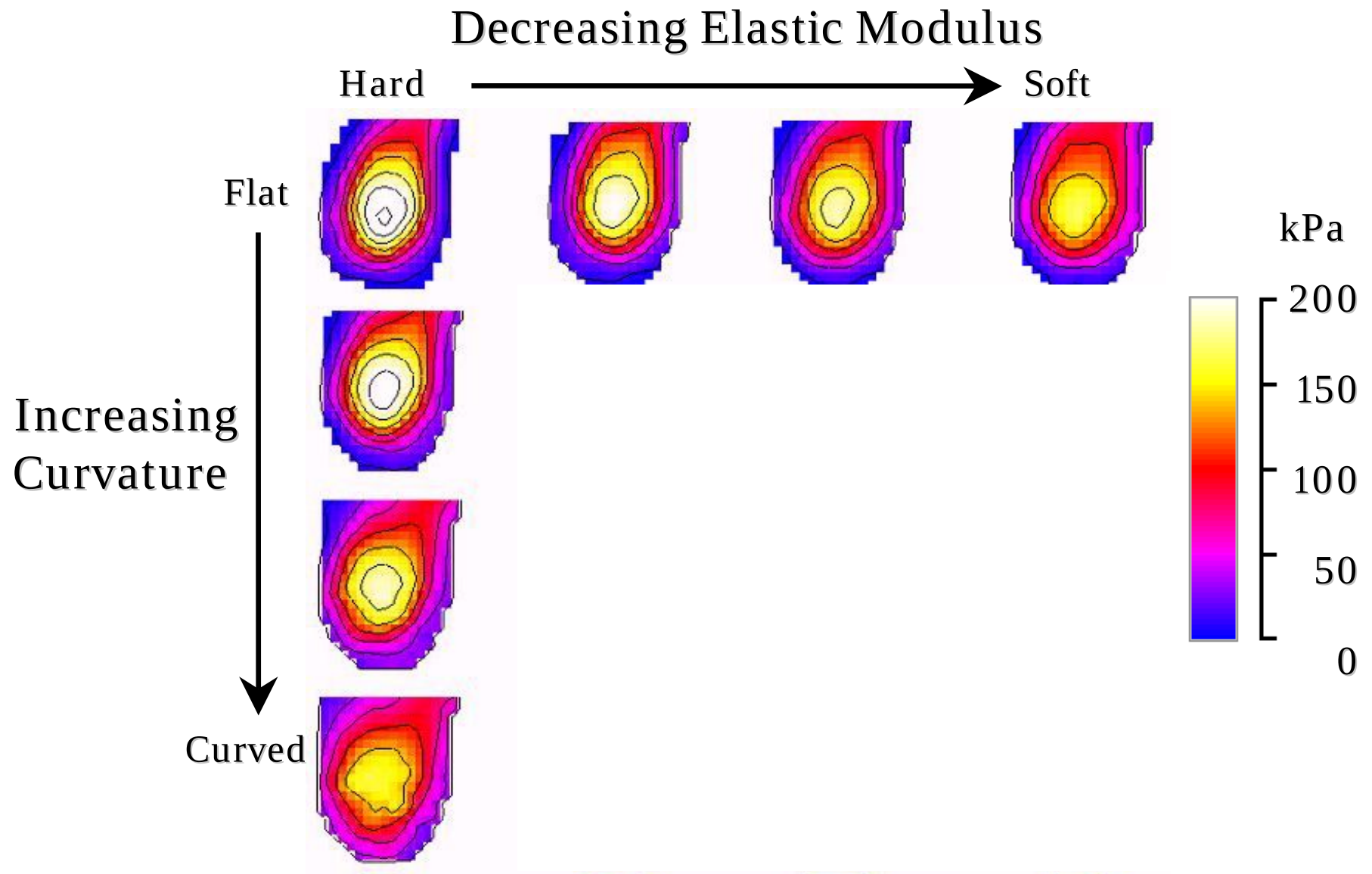
$$p_0 = \frac{(6F)^{\frac{1}{3}}}{\pi} \left(\frac{E^*}{R^*} \right)^{\frac{2}{3}}$$

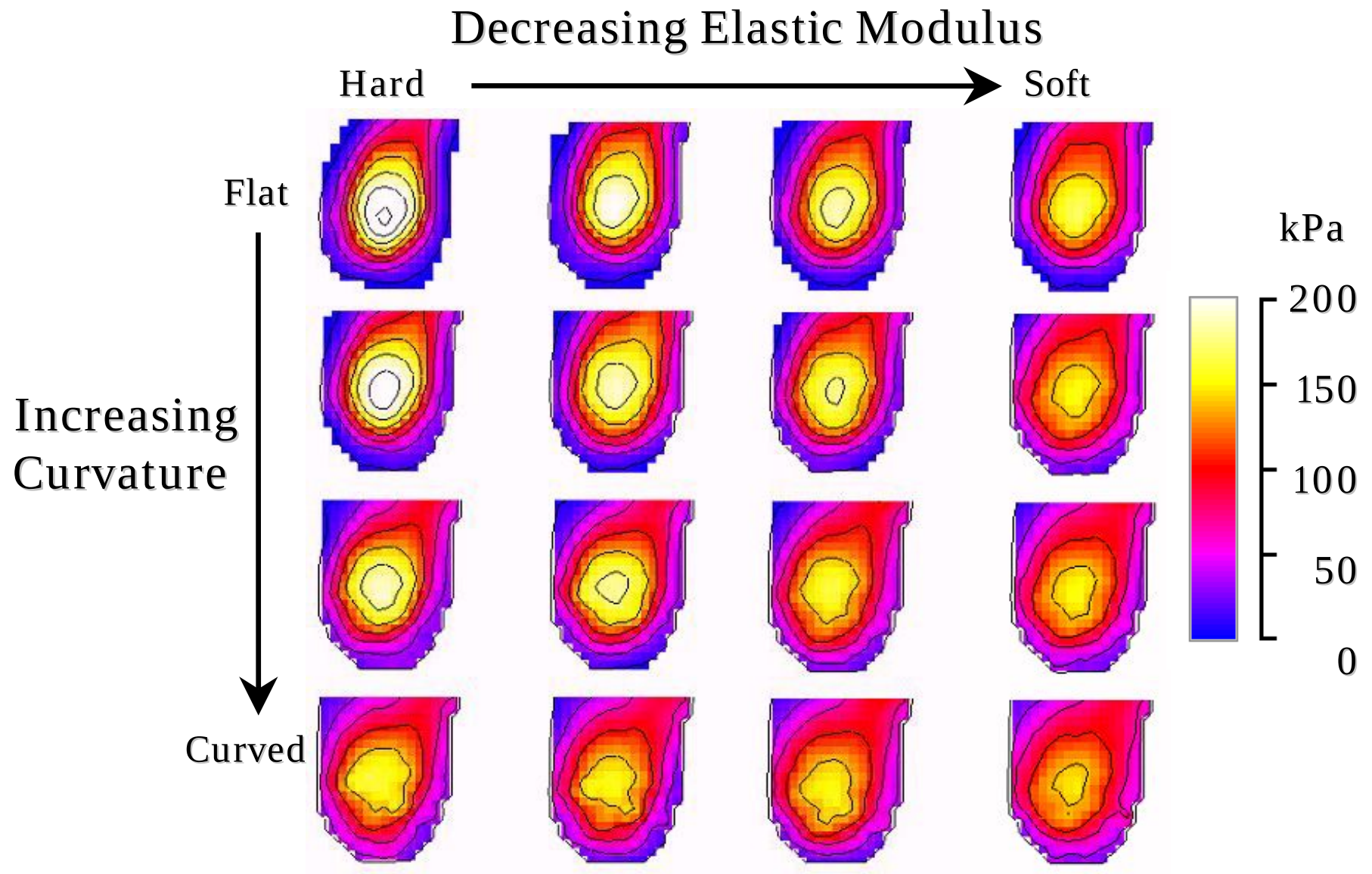


Peak Pressure







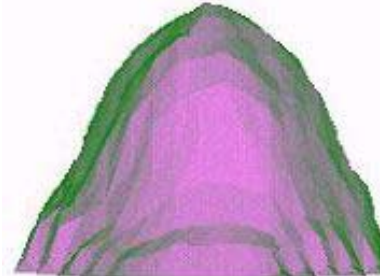
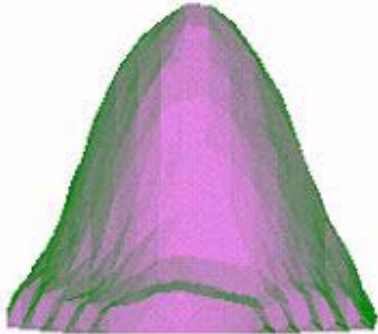


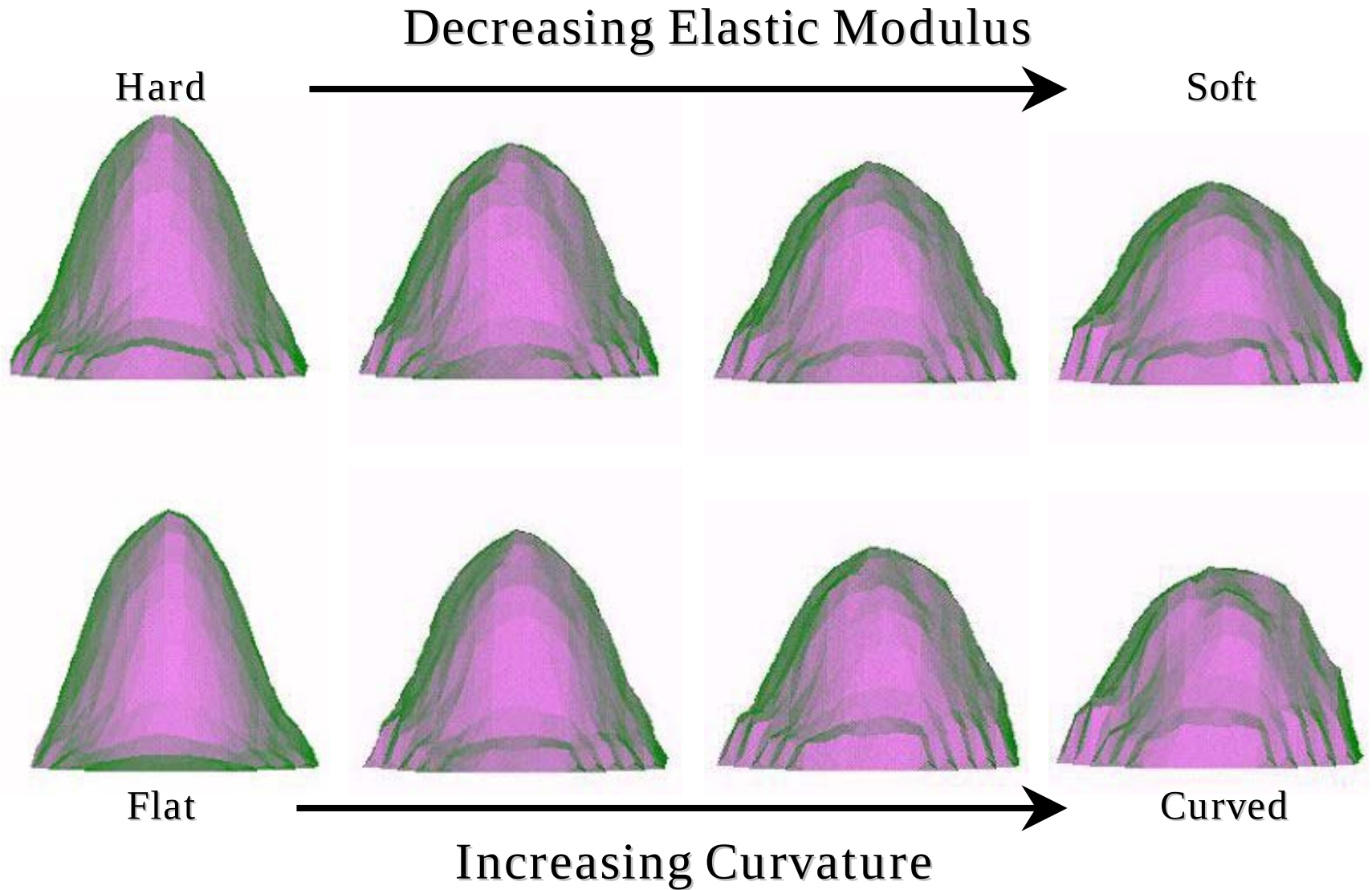
Decreasing Elastic Modulus

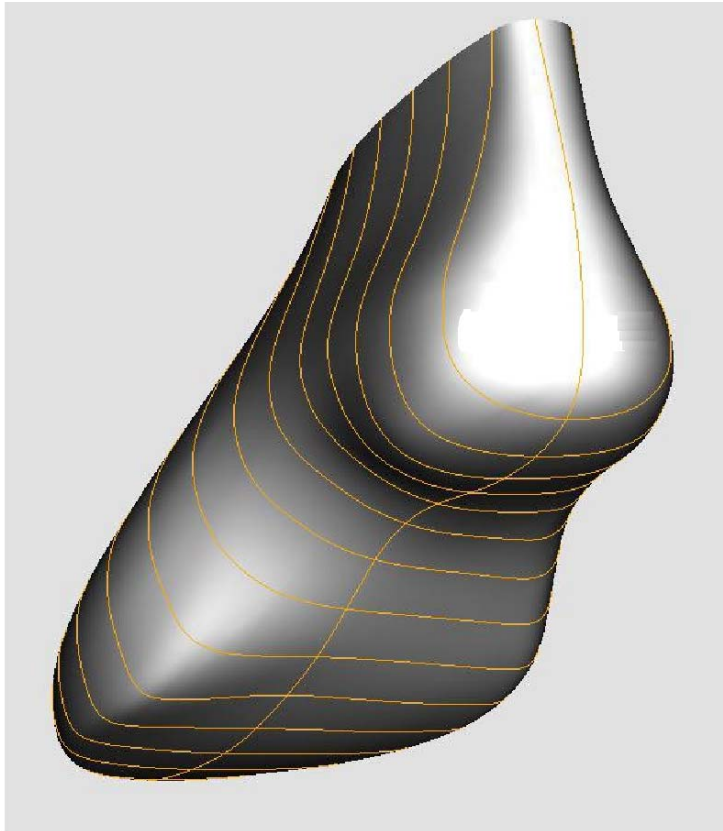
Hard

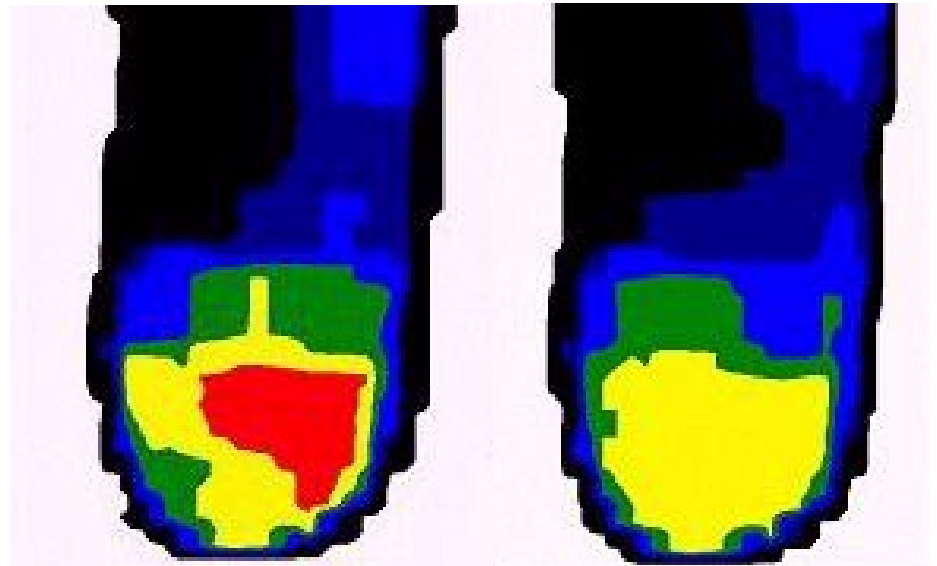
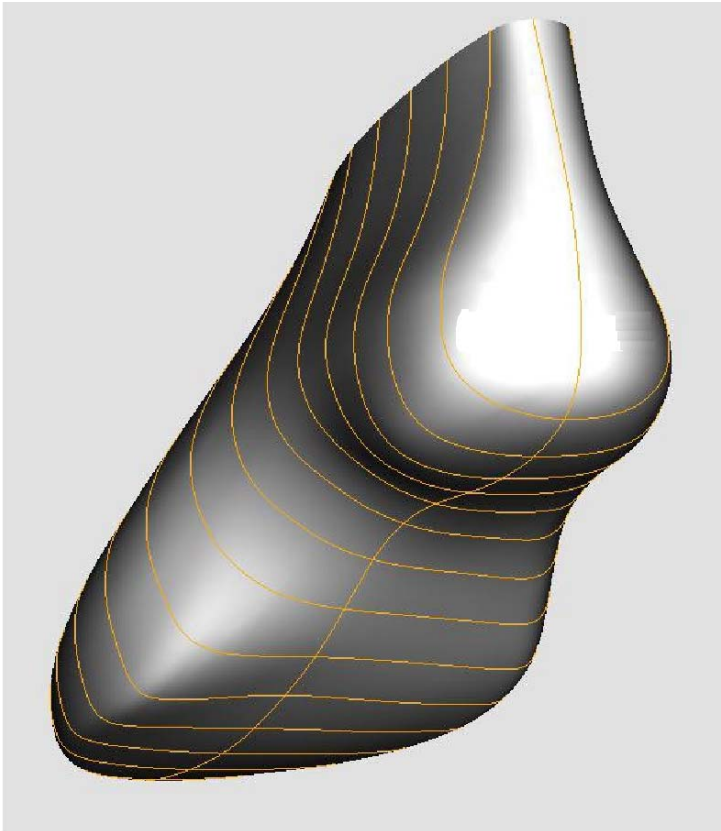


Soft









Flat

Contour





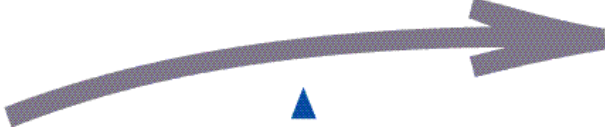


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