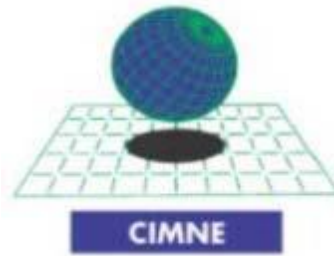




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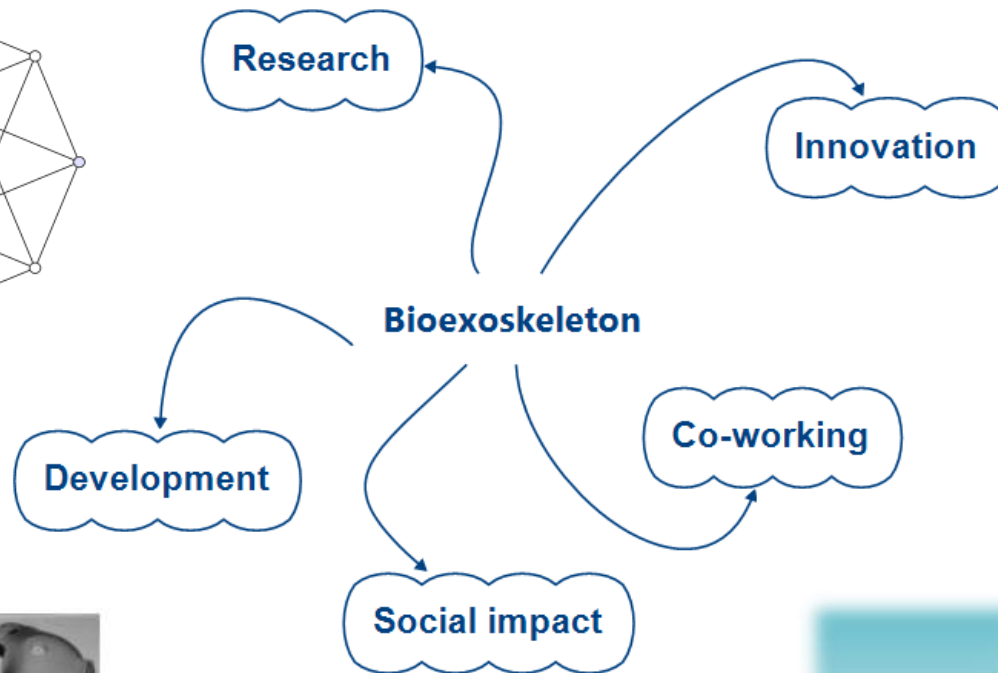
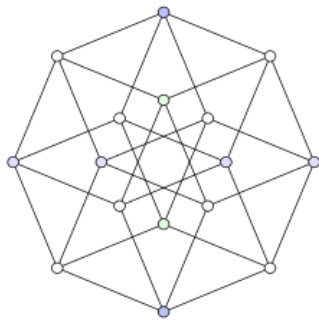
Learning from the nature: Bionic & Lightweight design



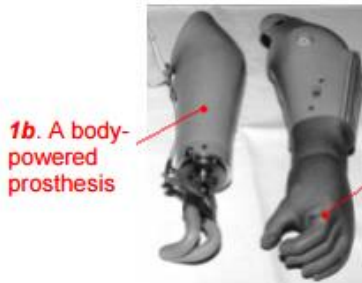
Jorge Alvarez
2016

Learning from the nature

Bionics & Lightweight design!



1a. A passive prosthesis made at the Northern General Hospital, Sheffield.

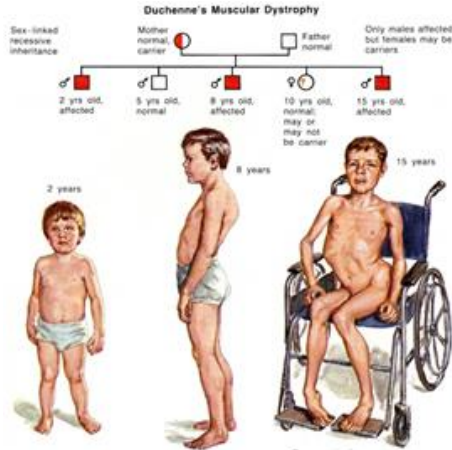
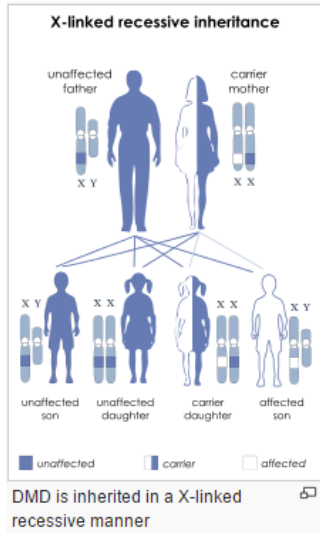


1b. A body-powered prosthesis

1c. A myoelectric prosthesis



Disease ... the extreme paradigm...!!!

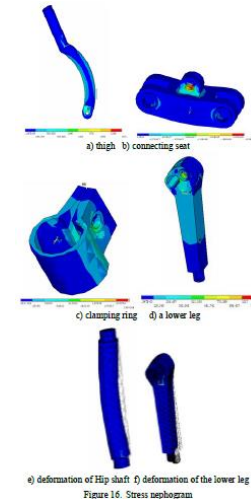
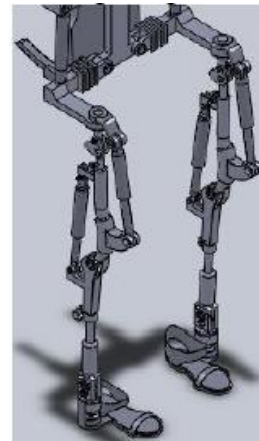
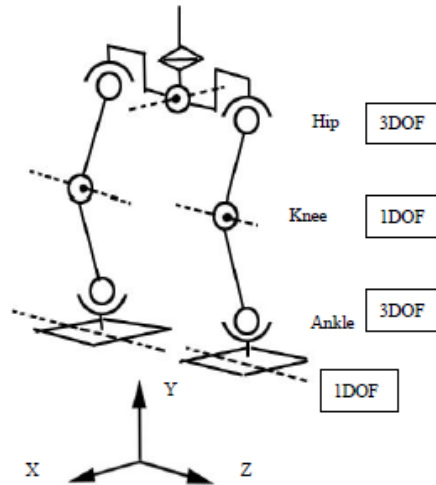


Paralysis of Duchenne (DMD)

- Neuromuscular disease
- X chromosome

FEM Simulation

- Mechanical Modelling
- Structure Optimizing

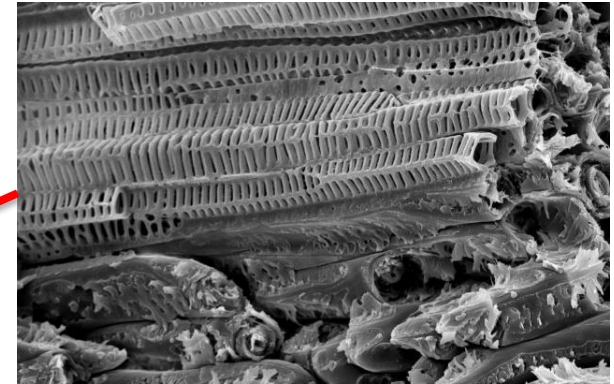


Bioskeleton

- Bionics lightweight structure
- Innovation on biocomposite



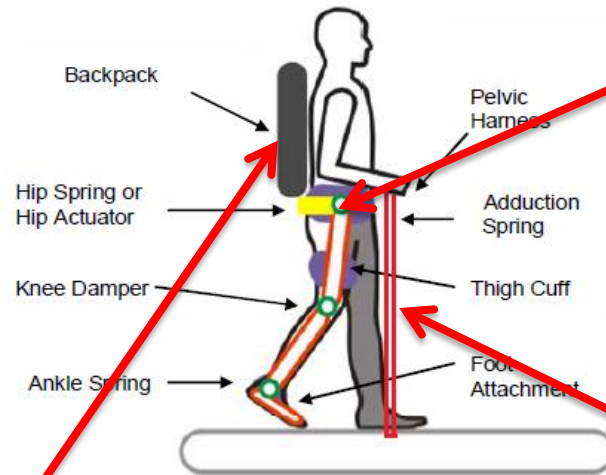
Coconuts shell



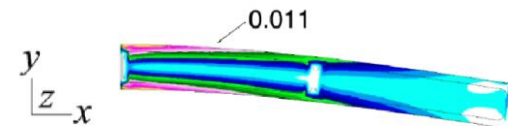
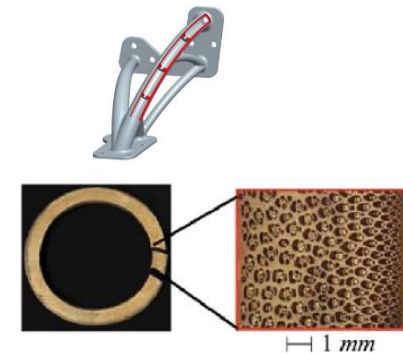
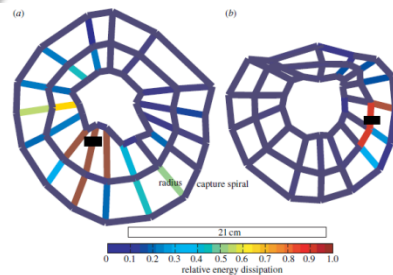
Source: Freiburg University, Biomechanic Group



Source: **able BIONICS** and Rick Hansen Foundation



Spider web



Bamboo



do you want to know more or co-work with me?