

Biomaterials - Tissue Interactions

Homework #3

1. Write 3 unit cell processes that could occur in the acute phase of wound healing of a vascularized tissue, showing their interactions.
2. Write 2 unit cell processes that could occur during the chronic phase of wound healing, showing their interactions.
3. A major problem with joint replacement prostheses is polyethylene particle-induced degradation of bone (referred to as "osteolysis"; see Fig. 1). Write the unit cell process(es) to describe this phenomenon. Name possible regulators when they are known.

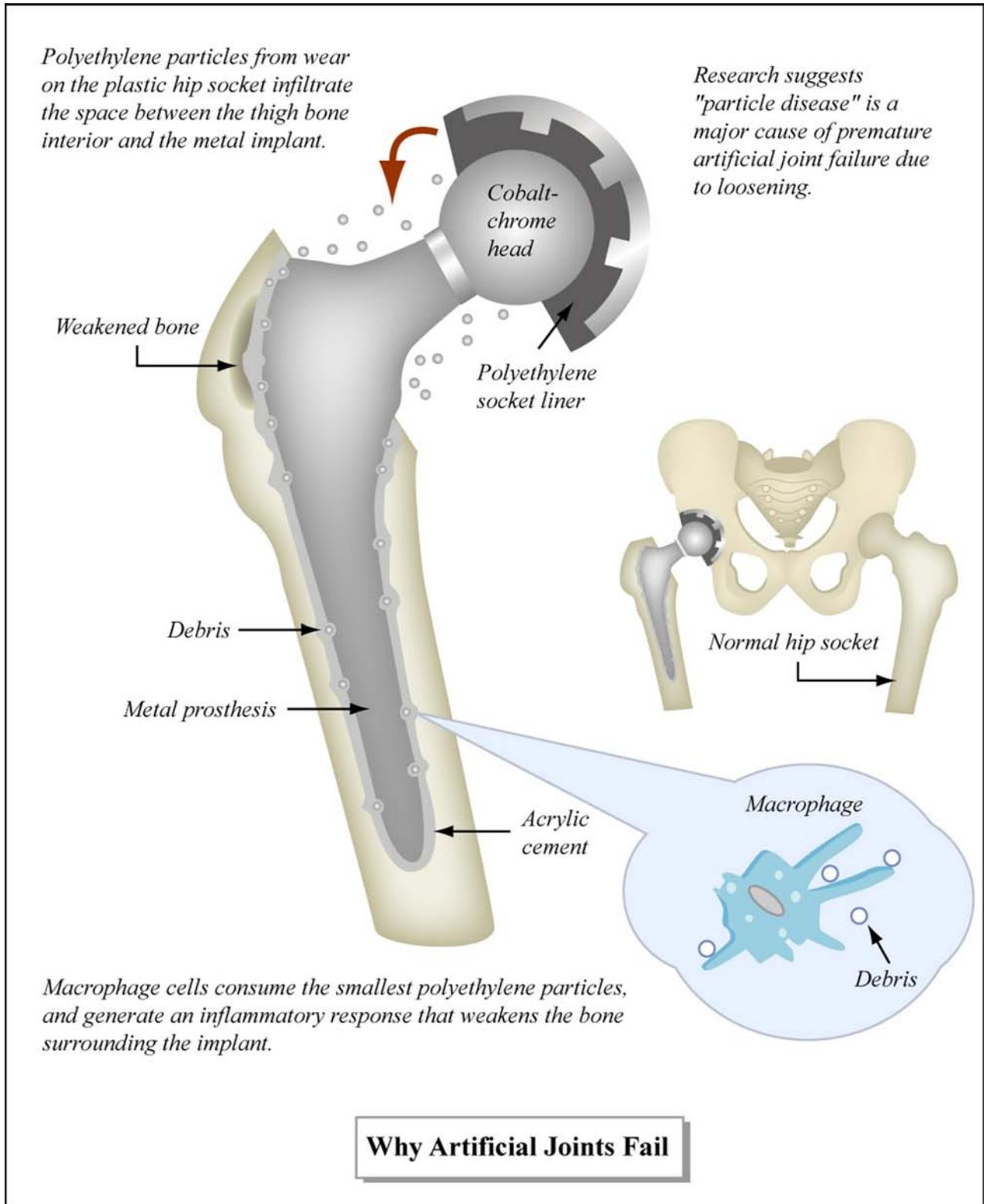


Figure by MIT OpenCourseWare. Sources: University of Pittsburgh and Pittsburgh Post Gazette.

Fig. 1. Article from the Pittsburgh Post Gazette showing the particles of polyethylene, generated by a wear process, infiltrating the tissue around a prosthesis. The area shown as “weakened bone” is a region where bone resorption has resulted from the response to the polyethylene particles.

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