**Appendix S2 Rule of Mixtures**

 The gradual change of an element from one tissue type to another is accounted for in the model of the element material properties. The material properties are calculated *via* the rule of mixtures:

 (A2)

The Young’s Modulus of an element, *E*, is calculated as a function of the element’s cell density (*n*), the maximum cell density (*n*max), the Young’s Modulus of granulation tissue (*E* granulation) and the Young’s Modulus of the tissue the element is differentiating towards. The rule of mixtures is applied to the other material properties in a similar manner.