Terminology of bone healing after fracture

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Union The fracture has healed su ffi ciently from a clinical perspective to withstand physiological loads, with very little pain and mini mal tenderness at the fracture site. Radiologically a fracture has united when the callus bridges the fracture site. Delayed union This description can be applied to a fracture that is slow to heal and that has not healed in the expected time frame. Non-union This description can be applied to a fracture that has not healed and shows no potential to heal without further intervention. A non-union can also be defined as a fracture that fails to demon strate clinical or radiological improvement over 3 months. In general, you do not describe a fracture as ‘non-union’ until 6 /uni00A0 months after the injury . Stephan M Perren , 1932–2019, Director, AO Research Institute, Davos, Switzerland, 1967–1996. phic, hypertrophic and infected. It is useful to consider certain factor s with regard to the non-union: the biology of the frac - - ture, the mechanical environment and the host (patient factors such as diabetes and smoking). In an atrophic non-union, the pr oblem is generally a bio - logical one, with a lack of stimulus or blood supply . A hyper - trophic non-union generally occurs when there is too muc h movement at the fracture site. Consolidation This follows union and demonstrates that the bone has returned to normal strength. Radiologically it is demonstrated by the return of the normal cortical pattern. Remodelling In children, and to a lesser degree in adults, bone remodels based on the forces passing through it. - Summary box 32.3 - Fracture healing - /uni25CF /uni25CF -

Direct – cortical apposition and absolute stability Indirect – secondary bone healing, requires some movement

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