



Trabecular bone microarchitecture: A review

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Résumé en anglais	<p>SummaryThe bone mass is constituted during the life by the modeling and remodeling mechanisms. Trabecular bone consists in a network of trabeculae (plates and rods) whose distribution is highly anisotropic: trabeculae are disposed parallel to the resultant of stress lines (Wolff's law). Trabecular microarchitecture appears conditioned by mechanical strains, which are exerted on the bones of the skeleton. However, few methods are currently clinically validated to appreciate and follow the evolution of microarchitecture in bone diseases. The most developed studies relate to microarchitectural measurements obtained by bone histomorphometry with the use of new algorithms, which can appreciate 2D various characteristics of the trabeculae, such as thickness and connectivity. Several works have shown that microarchitecture parameters should be obtained by using several independent techniques. X-ray microtomography (microCT), micro-RMI, synchrotron also allow the measurement in 3D of the trabecular microarchitecture in a nondestructive way on bone specimens. This review describes the evolution of our knowledge on bone microarchitecture, its role in bone diseases, such as osteoporosis and the various methods of histological evaluation in 2D and 3D.</p>
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Liens

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