

## Human preimplantation development in vivo: ultrastructural observations.

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The ultrastructure of a 2-cell, 4-cell, 7-cell and 16-cell human embryos fertilised and developed in vivo were compared using transmission electron microscopy. Among the structures which exhibited more notable changes throughout these developmental stages, were the mitochondria, ribosomes, nuclear envelope and nucleolus. Mitochondria which were initially round, dense with cristae oriented parallel to the surface changed to oval with less dense mitochondrial matrix and with cristae perpendicular to the mitochondrial membrane. Ribosomes and polyribosomes decreased in amount from 2 to 7-cell stages and increased again at the 16-cell stage. The nuclear envelope exhibited intense blebbing activity at the 4-cell stage, less at 7 and none at 16. The nucleolus initially very dense was progressively infiltrated by chromatin, became reticular at the 7-cell stage and appeared fully mature at the 16-cell stage. This study discloses structural details of human preimplantation embryos which may be o