

A Research Paper on 3D Printing Innovations

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Abstract: *Digital fabrication technology, also referred to as 3D printing or additive manufacturing, creates physical objects from a geometrical representation by successive addition of materials. 3D printing technology is a fast-emerging technology. Nowadays, 3D Printing is widely used in the world. 3D printing technology increasingly used for the mass customization, production of any types of open source designs in the field of agriculture, in healthcare, automotive industry, locomotive industry and aviation industries. 3D printing technology can print an object layer by layer deposition of material directly from a computer aided design (CAD) model. This paper presents the overview of the types of 3D printing technologies, the application of 3D printing technology and lastly, the materials used for 3D printing technology in manufacturing indust Long-jump is a vigorous athletic event with high speed. Due to so fast run-up and take-off velocities in horizontal and vertical directions, significantly large and varying impact loads often appear in the knee joint region so that the long-jumpers are often badly injured. Based on the physical conditions of an ordinary Chinese man long-jumper, a combination of finite element analysis (FEA) and multi-body dynamics analysis (MDA) approach was tried analyzing the real and detailed long-jump process. Research results show that the maximum resultant force does appear the second phase of the long-jump and that the most notable deformation, displacement and the maximum stresses are all located at the medial sides, especially at the lateral condyle of the articular cartilage*

Keywords: Digital Fabrication, 3D Printing, Additive Manufacturing, Applications, Materials, Long-Jump, Knee Injuries, Finite Element Analysis (FEA), Multi-Body Dynamics Analysis (MDA), Heat Transfer, Phase Change Materials (PCM), Energy Storage, Fluent Enthalpy Method, Simulation