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An Investigation on Orthopedic Rehabilitation by Avoiding Thermal Necrosis

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Abstract : Maintaining natural integrity of biosystem is paramount significant for orthopedic surgeon while performing surgery. Restoration is challenging task to rehabilitate trauma patient. Drilling is an inevitable procedure to fix implants. The task leads to rise in temperature at the contact site which intends to thermal necrosis. A precise monitoring can avoid thermal necrosis. To accomplish it, data acquiring instrument is integrated with the drill bit. To contemplate it, electronic feedback system is developed. It not only measures temperature without any physical contact in between measuring device and target but also visualizes the site and monitors correct movement of tool path. In the current research work an infrared thermometer data acquisition system is used which monitors variation in temperature at the drilling site and a camera captured movement of drill bit advancement. The result is presented in graphical form which represents variations in temperature, drill rotation and time. A feedback system helps in keeping drill speed in threshold limit.

Keywords : thermal necrosis, infrared thermometer, drilling tool, feedback system
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