

# Reaffirming the Critical Role of Transformative Research and Knowledge Production in the Age of Post-Truth



## A Review of the Performance of the Tianji Orthopedic Robot (TiRobot) and Da Vinci Surgical System on Pelvic Fractures Based on Recovery Time and Rehabilitation Period

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**Abstract:** Fractures are the most common large-organ, traumatic human injuries. In 2019, there were 178 million new fractures, a 33% increase since 1990. The purpose of the study is to investigate the success rate of using the Da Vinci and TiRobot in pelvic fracture surgery in terms of these outcomes: recovery rate and rehabilitation period since these are highly beneficial to both patients and surgeons. This systematic review aims to analyze and compare the performance data of freehand techniques to the TiRobot and Da Vinci Surgical System. Furthermore, previous research has shown that without the employment of robots, the field of vision is limited, bleeding time increases, and surgeons are exposed to radiation. To achieve the research objectives, the researchers conducted a qualitative systematic literature review using the JBI assessment tool to analyze the success rate of the surgeries using TiRobot and Da Vinci Surgical System conducted in the past five years. Different academic databases were examined, namely ScienceDirect, PubMed, Europe PMC, Springer, Cochrane Library, and Wiley Online Library. Among the 40 analyzed studies, ten were included in the current review after the identification, screening, and eligibility processes based on a set of inclusion and exclusion criteria. A total of 520 subjects for all ten papers were included in the current review. In conclusion, the TiRobot has proven to be more efficient than freehand surgery in terms of recovery and rehabilitation rate. As for the Da Vinci model, there is insufficient data to draw conclusions.

**Keywords:** Tianji Robot; TiRobot; Da Vinci Surgical System; pelvic fracture; robot-assisted surgery