

Minimally Invasive Surgery Week

**MINIMALLY INVASIVE SURGERY WEEK 2013
ANNUAL MEETING & ENDO EXPO
HYATT REGENCY RESTON
RESTON, VA (WASHINGTON DC)**

Keynote Lecture

Wednesday 11:30am-12:30pm

Ergonomics, the Bane of MIS: Is Robotics the Solution?

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Surgery has always been a physically and mentally demanding task. With the widespread adoption of minimally invasive (MIS) techniques, new psychomotor skills have been needed, while at the same time new cognitive and physical stresses have been experienced by surgeons. The benefits of MIS such as magnification of the surgical field and less tissue trauma have been accompanied by the challenges of viewing the surgical field on a 2D monitor while manipulating long instruments inserted through a fulcrum with only 4 degrees of freedom of movement.

Several ergonomic issues have emerged from this experience:

1. Generalized physical and mental fatigue (“hitting the wall”): This syndrome, known to happen after long hours of open surgery, seems to occur earlier in MIS – sometimes in as little as two hours.
2. Specific musculoskeletal problems: Severe sharp pain in the neck, shoulders, and wrists has been described and attributed to improper table/monitor positions, prolonged static postures, and awkward instrument interfaces or working angles
3. Difficulty or higher workload in performing some basic surgical tasks such as suturing and hemostasis
4. Extreme difficulty or impossibility to perform more complex suturing tasks with restricted access or exposure (e.g. pelvic suturing)

Robotic surgical techniques offer alternative platforms and instrumentation that may improve or alleviate some of these ergonomic limitations of MIS. This talk will explore the published data on Robotics and the ergonomics of MIS.