

Public Abstract

First Name:Carrie

Middle Name:Catherine

Last Name:Schmitt

Adviser's First Name:Sheila

Adviser's Last Name:Grant

Co-Adviser's First Name:

Co-Adviser's Last Name:

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Title:Efficacy of Nanoparticles in Achieving Hemostasis

Uncontrollable bleeding is significant cause of preventable death in the military and civilian setting. Hemostatic wound dressings have been created in an attempt to rectify this problem, but none currently on the market are highly effective at controlling bleeding resulting in a need for an effective hemostatic wound dressing. This study investigated the effects of gold, silver, and silica nanoparticles on blood clotting time in order to determine if nanoparticle incorporation into a hemostatic wound dressing would effectively clot blood. Gold, silver, and silica nanoparticles were experimented in two different studies to determine their effects on blood clotting. A modified Lee White Method and a rotational viscometer were utilized to assess the nanoparticles ability to clot blood. Results obtained from the modified Lee White Method proved inconsistent and inconclusive demonstrating a need for improved testing methods. Results acquired from viscometer testing demonstrated that silica was effective in decreasing blood clotting time indicating its potential use as a hemostatic agent and its prospective incorporation into a hemostatic wound dressing.