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An investigation into the effects of probiotic lysate on the re-epithelialization of *ex vivo* wounded skin in diabetic foot ulcer

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Studies suggest topical application of probiotics as a treatment for infected wounds. There is convincing evidence that probiotics can impact significantly on enhancing the wound-healing process and reducing infection in gut. At present, there is an unfulfilled, clinical need for new therapies in the treatment of skin wounds, especially diabetic ulcers, that are a significant cause of morbidity and mortality in the world. Since probiotics have been demonstrated to promote wound healing in the gut, the aim of this study was to examine the effects of enteric probiotic lysates in a model wounded diabetic skin biopsy. Human full-thickness *ex vivo* skin cultures have been employed in several studies associated with human dermatology; for example, identification and pre-clinical examination of novel therapeutics, cytokine expression in psoriatic skin, effects of hormones on wound re-epithelialization, infected wounds and the study of normal epidermal epithelialization. This study describes investigations on whether probiotic lysate has the capability to stimulate the re-epithelialization of wounded diabetic skin in an *ex vivo* model. Full-thickness skin was obtained from individuals undergoing elective diabetic foot ulcer surgery. This skin was wounded using excisional punch and cultured using a serum-free medium, either in the presence or absence of probiotic lysate. We focused on the hypothesis that topical applications/formulation of probiotics lysate may be effective for the treatment of diabetic foot ulcers. The present study speculates that probiotic lysate has the potential to be used as a therapeutic agent to enhance wound healing in diabetic foot ulcer.