

## General: In Sickness and in Health – How Marital Stress Slows Down the Healing Process

Can a happy marriage really help to make wounds heal more quickly? Findings from a recently published study carried out at Ohio State University, USA would seem to indicate that this is indeed the case.

The research team set out to assess how hostile marital behaviours affected wound healing, as well as local and systemic proinflammatory cytokine production. As Dr. Kiecolt-Glaser noted “there’s growing evidence that the quality of marriage is related to health”. Certainly, a body of epidemiological evidence has been amassing over the last few years indicating that “marital discord is a risk factor for morbidity and mortality” (Kiecolt-Glaser *et al.* (2005)). The underlying question has to be why should this be so?

The voluntary participants in the study were 42 healthy married couples, aged 22 to 77 years who had been married an average of 12 years. Each couple was admitted into the University's General Clinical Research Center for two, 24-hour-long visits, separated by a two-month interval. During each visit, both the husband and wife were fitted with a small suction device which created eight tiny uniform blisters on their arms, from which fluids were subsequently removed. Wound healing was assessed daily after each visit. Blood samples were also taken. In addition, all the participants completed questionnaires at the start of the experiment in order to assess their stress levels.

During the first visit, couples had a structured social support interaction, with each spouse being asked to talk for several minutes about some characteristic or behaviour which he or she would like to change. This was a supportive, positive discussion. However, during the second visit the couples discussed an area of marital disagreement, thereby provoking strong feelings. During each visit the couples' interpersonal behavior, wound healing, and local and systemic changes in proinflammatory cytokine production were assessed.

The results confirmed that the blister wounds healed more slowly following the marital disagreement discussion than following the supportive discussion. Indeed, the wounds took a day longer to heal after the argument than after the positive discussion. Couples who demonstrated consistently higher levels of hostile behaviors across both their interactions healed at 60% of the rate of low-hostile couples.

Local cytokine production (Interleukin-6 (IL-6), tumor necrosis factor  $\alpha$ , and Interleukin-1 $\beta$ ) was also lower at the wound sites following the marital disagreement than following the positive discussion. IL-6 is a key immune system chemical that controls wound healing. Highly

hostile couples also produced relatively larger increases in plasma IL-6 and tumor necrosis factor  $\alpha$  values the morning after a conflict than after a social support interaction compared with low-hostile couples. High IL-6 levels are linked to long-term inflammation, which in turn is implicated in a range of age-related illnesses, including cardiovascular disease and arthritis.

The fact that such an innocuous event as a half hour marital discussion, albeit one that was designed to provoke strong feelings, can delay healing of a minor wound by a day, demonstrates just what a sensitive process wound healing is and serves to illustrate just how much control the mind has over the body and its functions. It also shows just how powerful a tool having a happy and stable marriage can be when it comes to recovering from an injury.

It maybe a little premature to project these results on to the healing of major organs – as Professor Steve Bloom, an expert in stress at Imperial College London, notes the skin is particularly sensitive to emotional states. You only have to consider how quickly blood flow increases resulting in blushing when somebody is embarrassed. However, as Dr Kiecolt-Glaser comments, the findings of her team's research should encourage hospitals to try and minimise stress for patients ahead of surgery so as to lead to the most time effective wound healing. This, in turn, could lead to shorter hospital stays and the concomitant cost savings.

Kiecolt-Glaser JK, Loving TJ, Stowell JR, Malarkey WB, Lemeshow S, Dickinson SL, Glaser R. Hostile Marital Interactions, Proinflammatory Cytokine Production, and Wound Healing. *Arch Gen Psychiatry*. 2005;62:1377-1384

BBC “Stress ‘hinders healing process’” 5/12/2005