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## Breaking the itch-scratch cycle

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Itch is the most frequent symptom in dermatology and can be more disabling and distressing than the condition itself. Although feelings of itch are strongly correlated with the desire to scratch, those suffering from a chronic skin condition know only too well the vicious cycle that exists between itching and scratching, which can lead to secondary infections, scarring and emotional distress. In order to alleviate symptoms we need to break this 'itch-scratch cycle', but the mechanisms that trigger itch perceptions are poorly understood. The purpose of our research is threefold: (i) to understand the psychological mechanisms of how itch sensations are triggered, (ii) why some people are more susceptible to these triggers, and (iii) whether inhibiting itch sensations through a psychological intervention can break the itch-scratch cycle. The ultimate goal is in finding better treatments for chronic itch. To achieve these aims we have used experimental paradigms adapted from chronic pain research and our own work ('visually-evoked itch – VEI; Lloyd DM, Hall E, Hall S, et al. Can itch-related visual stimuli alone provoke a scratch response in healthy individuals? *Br. J. Dermatol* 2013; 168:106–111; Young M, Burke MR, Lloyd DM. Somatotopic mapping of visually-evoked itch (VEI) and the scratch response. In Preparation) to first identify the environmental triggers that evoke itch sensations and thus provoke the scratch response. Participants viewed itch and visually-matched non-itch images depicting different body parts (arms, legs, torsos, and heads) and contents (actions, skin responses, irritant contact, irritant context). For each trial they provided ratings of itchiness and reported the location on the body of any itches felt. Video evidence of scratch location was also recorded. We found that images of insects in contact with the skin are the most potent inducers of VEI. This may be due to the evolutionary salience of this situation as contact with a potential irritant can be seen as a threat, for which scratch is the mechanism for removing. VEI is also influenced by body part viewed, with the head being a particular focal point for VEI. Scratch frequency also correlated with the total number of itches, suggesting the relationship between itch and scratch in VEI is not as weak as previously speculated. We have now developed the paradigm to measure attentional bias to these triggers in non-clinical and clinical populations with common skin conditions. The aim is to develop a cost-effective psychological intervention that biases attention away from itch-evoking environmental triggers resulting in a decreased desire to scratch and essentially break the 'itch-scratch cycle'.

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