

**Tea tree oil reduces the swelling associated with the efferent phase of a contact hypersensitivity response.**

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**OBJECTIVE:** To examine the anti-inflammatory activities of tea tree oil (TTO) in vivo. **METHODS:** Mice were sensitized to a chemical hapten, trinitrochlorobenzene, on their ventral skin and 7 days later challenged (or re-exposed) on their dorsal skin with the same hapten. **RESULTS:** TTO applied 30 min before or up to 7 h after to the same dorsal site as hapten challenge caused a significant reduction in skin swelling after 24 h. TTO reduced oedema but not the influx of inflammatory cells. This finding was supported by the inability of TTO to suppress TNFalpha-induced E-selectin expression by human umbilical vein endothelial cells. TTO did not suppress irritant- or ultraviolet B-induced oedema. **CONCLUSION:** Topical TTO, specifically the TTO components, terpinen-4-ol and alpha-terpineol can regulate the oedema associated with the efferent phase of a contact hypersensitivity response.