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Sugar bandage is not effective for local reactions to bee stings

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Insect venoms contain various enzymes and low molecular weight substances with toxic effects. Composition and amount differ between species, but humans will in all cases react with pain and swelling when stung or bitten. The primary treatment is to remove the stinger as quickly as possible, because this will reduce the amount of venom given (1). Secondly, various kinds of local treatment have been advocated, ranging from suction to application of ice and chemicals in the belief that this could 'neutralize' the venom. None of these treatments have been scientifically tested.

Adhesive bandage with humidified sugar was not able to reduce pain or swelling to bee stings compared to placebo.

Humidified sugar on the skin if stung by an insect is a home remedy regularly used in many countries. The postulated effect is thought to be attributed to osmosis acting through the puncture from the sting and there by 'extracting' or 'neutralizing' the toxic components in the venom. In stead of carrying sugar along in case of a sting, a bandage with sugar would be more convenient if effective. To investigate this idea, we performed a double-blinded placebo controlled study on 19 healthy volunteers, aged 19–58, 6 women and 13 men, with no allergy to bee stings. All had had local reactions to stings from bees or unidentified insects of at least 5 cm, and none were taking antihistamines, corticosteroids or other medications that could affect the results. The study was accepted by the regional Ethics Committee and National Board of Health and monitored according to GCP. Before inclusion, a negative skin prick test and no specific IgE to bee venom were ensured.

Participants were stung simultaneously by honey bees on the dorsal side of each lower arm. Insects were left in place for 30 s. Then, insects and stingers were removed, and then a drop of water was applied to the textile side of each bandage before these were applied to the sting sites. The active bandage (18 × 30 mm) contained

220 mg of sugar (sucrose), and the placebo bandage had no additive. Bandages were left for one hour, and slight pressure applied to ensure contact between sugar and skin.

Pain, registered on a 100-mm visual analogue scale (VAS), was measured every 15 min, and median diameter of swelling every 30 min for the first hour and the areas under the curves calculated. Itching and swelling after 24 h were registered by the participant at home (missing data from two persons). Wilcoxon signed rank test was applied on differences in each participant, and a *P*-value < 0.05 was regarded significant.

Results showed pain to be maximum at 15 min with no significant difference between the two arms neither at any time point nor when judged by the area under the VAS × time curve (Table 1). Similarly, no difference was observed in the size of swelling at any time point or in the area under the curve.

In conclusion, the concept of application of humidified sugar to reduce local symptoms after bee stings does not seem to work in individuals with normal sting reactions to bees. We did not test the concept in patients with allergy— but would not expect it to benefit such patients either. Persons with known large local reactions to insect stings should carry antihistamine and

Table 1 Reactions to bee stings in individuals stung simultaneously in both arms and treated with humidified sugar or placebo bandage. No statistical differences in the paired analyses

	Sugar bandage		Placebo bandage	
	Median	25%–75%	Median	25%–75%
Pain, 0–1 h (area under curve)	555	255–1110	225	450–1275
Swelling, 0–1 h (area under curve)	187.5	7.5–675	202.5	0–600
Itching, 24 h (VAS-score)	10	1–24.5	7	3.5–20
Swelling, 24 h (mm)	10	0–42.3	9.5	0.3–62.5

maybe corticosteroid tablets to use when stung (2).

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