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## An exercise intervention to reduce adverse events with HPV vaccination

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**Introduction:** Human papillomavirus (HPV) has been identified as a necessary cause of cervical cancer, but is uniquely vaccine preventable. HPV vaccine programs face several challenges such as high rates of local adverse events (AE) and psychogenic responses which may reduce vaccine acceptance and contribute to low coverage rates. Exercise at the time of vaccination has been investigated for its potential to adjuvant the immune response, which would be a valuable effect in multi-dose vaccines such as HPV. Notably, exercise may also provide analgesic effects to reduce pain and alter the occurrence of AE.

**Method:** 116 students (11-13yrs) receiving HPV vaccinations through the school vaccination program were randomized to control (Con) or exercise groups (Ex). Control-group received the vaccination according to usual-care procedure; exercise-group completed a 15-min moderate exercise task prior to the normal vaccination procedure. Participants completed a seven day AE diary with parental supervision.

**Results:** On average 90% of participants reported an AE per dose. Reported number of days with pain in Ex decreased from dose 1 ( $2.00 \pm 0.23$ ) to dose 2 ( $1.54 \pm 0.23$ ) while it increased for Con (Dose 1:  $1.91 \pm 0.24$ ; Dose 2:  $2.00 \pm 0.25$ ;  $p=0.140$ ). Reported number of days with tenderness decreased in both Ex and Con ( $p=0.01$ ), with a steeper decrease in Ex (Dose 1:  $2.14 \pm 0.25$ ; Dose 2:  $1.29 \pm 0.25$ ) than Con (Dose 1:  $2.12 \pm 0.26$ ; Dose 2:  $1.75 \pm 0.27$ ). Reported pain and fear of the injection was not different between groups.

**Conclusion:** Preliminary analysis shows a trend for a benefit in using exercise as an intervention to improve the vaccination process for children. Furthermore, the practicality of this intervention within a school vaccination program seems to be reasonable with all parties involved being satisfied with the logistics.

### Biography

Vivian Y Lee has completed her Master's degree from Massey University in New Zealand. She is currently conducting her PhD studies at The University of Sydney..

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