Getting active with active learning: an interactive demonstration of neural concepts using the 'mexican wave'

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The ultimate goal of every lecturer is that students understand the discipline. Therefore, we want them to achieve meaningful learning. This requires that students build conceptual knowledge through construction of knowledge from simple to complex concepts, integration of knowledge, deconstruction of knowledge and testing of knowledge. In science this often includes students working through concepts by experimentation and investigation. As lecturers we should aim for meaningful learning through active processes, not passive transmission of facts (Michael, 2001). Students have different preferred learning styles, experiences, background knowledge, and interests. Therefore, we must use a variety of teaching strategies to maximise student learning. One such teaching strategy involves the use of interactive classroom demonstrations. This paper explores the use of an interactive classroom to demonstrate different neural concepts in a first-year human physiology course. Students are enrolled in a variety of programs including biomedical science, sport and exercise science, education and nursing. We use the commonly known 'Mexican Wave' to 'act out' action potential generation, propagation and synaptic transmission. This has been successfully used in both a large lecture setting and smaller tutorial groups using no more resources than a few tennis balls as neurotransmitter and student groups to represent different receptive and active areas of the neuronal membrane. Students work cooperatively to gain meaningful learning of sometimes difficult neural concepts and at the same time have fun with physiology.

Michael, J. (2001). In pursuit of meaningful learning. *Advances in Physiology Education*, **25**: 145-158.