

**Background** The presence of extra riders increases the likelihood of an all-terrain vehicle (ATV) crash and injury. However, many ATVs have seats long enough to accommodate passengers.

**Aims/Objectives/Purpose** To determine if ATV seats could be redesigned to limit use to only one rider.

**Methods** A convenience sampling of 14 ATV models were measured and compared, and seat dimension requirements were analysed at a 26 degree incline/decline.

**Results/Outcomes** Seat lengths varied from 22–35 inches. The seat backs ended fairly consistently at 38–45 inches away from the handlebar attachment. Most of the seat length differences were accountable by the distance from the handlebar attachment to the front of the seat, which varied from 9–19 inches. The incline/decline study revealed that when going downhill, a rider needs to fully extend their arms and move their bottom back to the seat edge in order to move their centre of gravity behind the front tires and avoid a front rollover. When going uphill, a forward lean is sufficient to keep the operator's centre of gravity ahead of the rear tires and prevent a backward rollover.

**Significance/contribution to the field** Since a rider can adequately change their centre of gravity on an uphill incline without shifting their bottom forward, the seat is not required to be as close to the handles as many manufacturers design. We suggest that a shorter seat starting further from the handlebar is the preferred ATV seat design. This should discourage multiple passenger use by reducing the space available for additional riders.