

0624 **IN A SEARCH FOR A SAFETY BUCKET TO PREVENT  
CHILD DROWNING AT HOME**

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**Objective** To test different bucket shapes and to measure the force needed to spill the water contained into it.

**Methods** We designed six metal buckets, all 23 cm high and 26 cm of rim diameter, but with different base diameters: 26.00, 24.67, 23.26, 21.75, 20.14 and 18.38 cm. We fill all them with water up to 20 cm from bottom-to-top. Then, we exert a progressive pressure in a 45 downward direction until the bucket was tilted enough to pour the water it contained. The pressure in kg at that moment was measured and registered.

**Results** Base bucket diameter and kg pressured needed to till the bucket showed a straight and direct relationship, with  $\beta=1.20$  kg,  $\alpha=-14.05$ ,  $r=0.99$  and  $p<0.001$ .

**Conclusion** For the bucket sample studied, its stability is in direct relationship with its base diameter: the bucket with the wider base (diameter of 26 cm) needed 17.3 kg to till, while the narrower (diameter of 18.38 cm) needed 8.0 kg. Since a 11 months old child weight about 9.7 kg, in the case he/her trips over a bucket and falls into it could more easily till the bucket (pour the water and save his/her life) when the base is narrower (at least 50%) than the diameter of the opening when the diameter of the rim is 26 cm and the height is 23 cm.