This study examined the different methods of tablet splitting to establish which one was likely to be most accurate.

Is splitting tablets dangerous?

**In this article...**

- Why tablet splitting is common practice
- Potential dangers of tablet splitting
- How different methods compare

Splitting tablets is daily practice in nursing homes where nurses are responsible for safely administering medicines to residents. However, the practice can lead to medication errors because the tablet parts are often not equal in size, and a substantial amount of tablet can be lost as a result of splitting. If tablet splitting is performed without the correct device, splitting may be inaccurate and can lead to a dosing error, which may result in harm.

In most cases, dose deviations do not have clinical consequences for patients but in the few cases (mostly medications with a narrow therapeutic index) that a small dose deviation does have a clinical consequence, it can be serious – especially in older people.

**The study**

This study aimed to investigate the differences in tablet weights and the average weight loss after being split using three methods. Five volunteers mimicked the situation in nursing homes and split eight tablets of different sizes and shapes using three different routine methods:

- A splitting device (Pilomat);
- Scissors for unscored tablets or manual splitting for scored tablets;
- A kitchen knife.

No specific splitting guidelines or instructions were given. Tablets and tablet parts were weighed both before and after splitting.

Eight commercially available tablets of different sizes and shapes, which are commonly split in nursing homes, were selected for the experiment. We assessed the initial weight of 10 tablets of each formulation per volunteer and per method, using an electronic analytical balance. We also recorded the mass of each tablet. After splitting, each half or quarter tablet – depending on the formulation – was individually weighed.

**Findings**

With all the tablets, using a splitting device resulted in less of a difference in weight compared with the two other methods. The device also resulted in significantly less weight loss than splitting by hand (for scored tablets) or with scissors (for unscored tablets), or splitting with a kitchen knife. The differences between using scissors or manual splitting and a kitchen knife was not statistically significant.

Splitting tablets can lead to major differences in both fragment weights and weight losses. Using a splitting device appeared to be the best method for splitting tablets as it resulted in smaller weight losses compared with the other two methods.

**Conclusion**

While tablet splitting may be common practice in nursing homes, not all formulations are suitable for splitting and, even when they are, weight losses can occur. This could have serious clinical consequences for medications with a narrow therapeutic–toxic range.

We would recommend using a splitting device as a routine method when splitting cannot be avoided, for example when the prescribed dose is not commercially available or when there is no alternative formulation, such as a liquid.

Nursing home staff performing the splitting should be educated in doing it as accurately as possible. They should also be aware of the possible clinical consequences of dose deviations.

We also recommend that pharmacists give clear messages about the risks related to splitting. Manufacturers could avoid the need for splitting by introducing a wider range of tablet doses or liquid formulations.


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