

This document is a summary of the Griffith University (Gold Coast campus) report titled "Biomechanic & Ergonomic report on the Knife Fork Spoon".

### **Qualifications and experience**

Dr Andrew Petersen is a consultant researcher in Biomechanics and Ergonomics. He holds a Bachelor degree with Honours in Human Movement Science, a Graduate Diploma in Occupational Health & Safety, and the degree of Doctor of Philosophy in Biomechanics & Ergonomics.

### **The Knife Fork Spoon (KFS)**

The KFS is described as a multifunctional feeding utensil that may be used by individuals who have difficulties with independent feeding due to an inability to grasp and manoeuvre a standard set of utensils. The main distinguishing features of a KFS are the integration of a knife, fork and spoon along with bottle and drink-can ringtab openers into a single utensil that has an extra wide handle with an elliptical hole along its length. A KFS eliminates any need to coordinate separate utensils, which allows a KFS to be used by one hand, either right or left. An advantage of increasing the handle's diameter to an extra wide handle is it eliminates the need for a user to tightly flex their fingers when grasping. Furthermore, the inclusion of an elliptical hole along the handle provides a novel way for an individual's finger, typically a thumb, to slot through the hole. The weight of the thumb pressing the handle down onto the hand secures the KFS for use. This grasping technique permits easy manoeuvring of the utensil, although some practice time is required. In general, using a multifunctional utensil may return a sense of freedom to an

individual, return some dignity and permit greater social interaction during meal times.

## **Opinion**

The design of the KFS is clearly distinct from other multifunctional utensils in how it assists independent feeding. To our knowledge no research has been conducted into the KFS and so no definitive conclusions can be reached at this time. The following section is therefore based primarily on opinion and would need to be confirmed by appropriate scientific testing.

Some of the perceived benefits/advantages associated with using a KFS:

- ◆ Allows for independent feeding by an individual who currently requires assistance to feed.
- ◆ A KFS can be held with either a wide over-handle grip or by a thumb through the handle slot.
- ◆ An individual can use a KFS with either right or left hand.
- ◆ A KFS is made from a lightweight durable material, balanced about the mid-length of a KFS and is relatively easy to clean and maintain.
- ◆ No moving pieces that may potentially jam or break

Possible pitfalls, disadvantages and/or limitations with using a KFS:

- ◆ A user will require time to learn how to grasp and coordinate a KFS.
- ◆ Depth of the knife blade under the spoon cup may limit the thickness of foods to be cut.
- ◆ Bottle opener is limited to a single size lid compared with a V-shaped universal lid opener that may have a greater range of uses.