

Patient's texture vocabulary: coated and uncoated tablets

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Introduction: Palatability and taste-testing are commonly measured during the development of oral dosage forms [1]. However, the perception of mouthfeel rather than taste is often neglected, despite being important for patient acceptability [2]. Descriptive analysis provides a means to discover the sensory attributes which are important in the acceptance of a product [3]. This is especially useful for novel products, or where sensory data is limited. This research uses descriptive analysis to understand desirable mouthfeel attributes of a tablet.

Aims: This study aimed to collect the lexicon of words, which patients use to describe coated and uncoated tablets and relate this words to palatability of the tablets.

Methodology: A cross-over single centre study assessed the mouthfeel of 4 placebo tablets (1 uncoated tablet and 3 film coated tablets (provided by Colorcon®)). The film coatings were a standard film and 2 novel films designed to be slippery to ease swallowing. Ethical approval was obtained from the University of Birmingham (ERN_17-0883 (17-1074)). All participants received the same 4 samples in a randomised order. A palate cleanser was provided between each sample. The palatability of the samples was evaluated using a 100 mm Visual Analogue Scale with anchor phrases from pleasant (score 100) to unpleasant (score 0). In addition participants were asked to "describe in 3 words how the product feels in the mouth". The whole collected vocabulary was sorted into groups for tablets that scores >70mm (pleasant) on the VAS and those that scored <30 mm (unpleasant). For each particular tablet a sensory profile was created based on the frequency of descriptors.

Results: A total of 84 non-smoking, healthy adults between 18 and 75 years of age participated in the study. Pleasant samples were reported to have smooth and slippery textures with no pronounced taste. In contrast, unpleasant tablets were reported to be sticky, rough and powdery. The subjects used varied vocabulary to describe similar concepts i.e., sticky, gluey, tacky, glutinous; or chalky, floury, powdery, dusty. The uncoated tablet was predominantly described as dissolving (30% of participants), while the coated tablets as smooth (38%). Some phrases appeared in both lists of pleasant and unpleasant (i.e., smooth, sticky).

Conclusions: This study provides a descriptive analysis of the mouthfeel of tablets. A pleasant tablet is likely to be smooth and slippery whilst an unpleasant tablet is one that is sticky or rough. Some tablet descriptions were classified as both pleasant and unpleasant (i.e. sticky); this demonstrates the variability in texture sensation and subjective nature of acceptability of a tablet. This data supports development of an *acceptable by design* film coated tablet.

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