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Can changing the serving temperature improve the palatability of oral nutritional supplements in older consumers?

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Compliance issues with consumption of oral nutritional supplements (ONS) are known to be a problem and a high proportion of these products are wasted⁽¹⁾. Anecdotal evidence suggests that the temperature of serving affects the acceptability of the products. The present study aimed to investigate whether changing serving temperature could beneficially change the flavour profile of ONS and improve acceptability.

A proprietary vanilla flavour ONS was prepared at room temperature (21°C), chilled (6°C) and as ice cream (–13°C). The flavour profile of ONS (20 ml) was evaluated by a trained analytical sensory panel (n 12) and correlated with acceptability data collected from a healthy older volunteer consumer group (n 29, mean age 76 (range 65–84) years).

The analytical panel found ice cream to be significantly lower in odour than the room-temperature product (P<0.05 for three odours) and sweet taste to be significantly lower in the chilled drink compared with the room-temperature drink (P=0.06). Older consumers found a significant difference in sweetness between serving temperatures (P=0.001). Clusters of consumers preferred chilled and ice cream products over the standard room-temperature product.

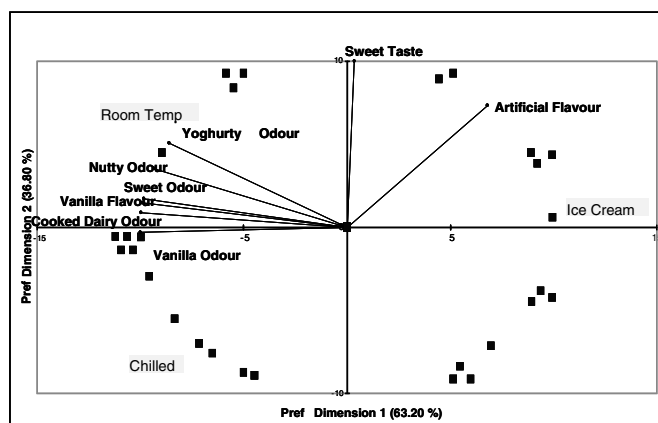


Figure 1. Preference Map of ONS Products at Different Temperatures. Square = consumer liking positions; Lines = Sensory Drivers; Blocked text = product positions.

Consumer-expected preference of ONS found the room-temperature product to be the least preferred format in all but one serving situation.

Situation	Ranking of ONS format for different situations*		
	Room temperature	Chilled	Ice cream
If you are feeling ill	1.5 ^a	2.2 ^b	2.3 ^b
During the morning	1.8 ^a	2.5 ^b	1.5 ^a
With meals	1.4 ^a	2.2 ^b	2.4 ^b
During the afternoon	1.6 ^a	2.0 ^{a,b}	2.1 ^b
During the evening	1.7 ^a	2.0 ^a	2.2 ^a

1, Least preferred; 3, most preferred.

^{a,b} Mean values within the same row with different superscript letters were significantly different (Dunn’s procedure; P<0.10).

Air incorporation increased the ice cream volume for consumption compared with liquid product, which may be unacceptable. Further work will investigate the use of different technologies to overcome this problem. However, altering the temperature of serving of ONS may be a simple and effective strategy to increase consumption of these products.

1. Nolan A (1999) *J Hum Nutr Diet* 12, 453–458.