

CLASSIC ARTICLE

Masticatory performance and efficiency in denture wearers

Krishan K. Kapur, DMD, MS,^a and Sham D. Soman, BDS, MS^b

Tufts University School of Dental Medicine, Boston, Mass

In dental literature, the terms “masticatory performance” and “masticatory efficiency” have been used interchangeably. Manly and Braley¹ have suggested an important distinction between these two terms. They defined masticatory performance in terms of “the percentage particle size distribution of food when chewed for a given number of strokes.” This ratio provides a measurement of performance of a dentition, but it fails to disclose the degree of impairment.

Manly and Braley¹ went one step further to ascertain the degree of impairment by defining masticatory efficiency in terms of the number of extra chewing strokes required by an impaired dentition in order to achieve the same degree of food pulverization as a norm. The norm in their study represents the average value obtained from a group of subjects who had lost third molars, but no other teeth, from their dentitions. Manly² devised a table from which masticatory efficiency could be determined for any given chewing performance ratio. This table applies only when peanuts are used as the test food.

It is illogical to compare the masticatory process of denture wearers with that of subjects with natural teeth. As shown in an earlier study,³ mastication in denture wearers is a random process lacking the preferential grinding of coarser food particles which is observed in dentitions. Furthermore, the degree of pulverization of food by dentures is greatly diminished.³

Previous trials⁴ demonstrated that the use of carrots as a test food would detect differences in the chewing ability of denture wearers whose denture design had been altered in several ways. The purpose of this investigation was to develop standards or norms by which functional impairment in denture wearers could be evaluated.

CONCLUSIONS

If the appropriate corrections are made for different performance levels and norms, the chewing efficiency of the denture wearer is less than one-sixth that of the subject with a dentition. This substantiates the earlier statement that the chewing process of denture wearers should not be compared with that of people with dentitions. Obviously, dentures provide poor functional replacements for (complete) dentitions.