Improvements in racket shape promote development and popularity of table tennis

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Abstract

This article demonstrates that improvement in racket shape can promote the popularity and high level of table tennis development. The author advocates that the International Table Tennis Federation should make efforts to initiate improvements in racket shape. He has designed and invented three totally new rackets, and discusses their advantages.

Key words: racket shape, M-handleless racket, penhold slant handle racket, penhold round/square racket

1. The importance of improvement in racket shape

Tool improvement may lead to technical revolution. In the history of table tennis several major leaps forward in technique were initiated by improvements in the racket. However all these improvements so far belong in the category of racket coverings. Although it is stipulated in the regulations that there is no restriction on shape, size and weight of the racket, the few shapes in practical use have undergone almost no change since the first world championship was held. The shape of the racket relates to the simple, thorough and successful completion of a stroke. The several popularly used rackets all have advantages, but also disadvantages that are unfavorable to both the change of striking action and the completion of some of them. This is responsible for the very long time needed to master various and complicated striking skills, compared with other sports. The improvement of racket shape is therefore an important subject which relates to the popularity and high level of table tennis development.

2. Three new racket shapes and their advantages

Knowledgeable people have already contributed to the improvement in racket shape. This article is merely intended to introduce three new shapes designed by the author.

2.1 M-handleless racket

Designed from a bionic model, this racket brought the author a patent authorized by the National Patent Bureau on May 17, 1989. The design includes three technical changes: a) Slightly enlarge the surface of the currently available rackets and widen the part near the handle. b) Place the thumb and forefinger on this racket and separate the fingers at each side of the handle. Cut out the handle and that part of the racket which is covered by the thumb. This produces an M-shaped curve which is identical with the

thenar (fig.a) of the hand. c) Add a vertical cylinder or mushroom-shaped buttress to the racket where the second joints of thumb and forefinger are placed as described above. b and c are the key steps while the size of the blade, the shape of the curve and the distance between the hand and the buttress are flexible. M-8610, M-877 and the same racket of reduced size for children were designed by the author (fig.b) and samples were manufactured by the Qingdao Bat Factory in 1986 and 1987.

The user should separate his thumb and forefinger and apply them naturally to the M curve. Hold the racket and at the same time bend the thumb and forefinger or middle finger so that they can grip the blade (when the middle finger is used for the grip the forefinger should extend behind the left convex and then across the top outer ring). This racket has two axes of rotation: 1. A vertical axis which is the extension of the line of the players' arm. Rotating around this axis the angle between the racket surface and the table surface can be adjusted. 2. An axis through the grip of the thumb holding the racket is loosened, the racket can rotate about this axis to permit many delicate strokes.

It has been proved in practice that this kind of racket is as convenient as the player's palm. Its use can considerably simplify the stroke action and maintain its reproducibility. It permits various kinds of stroke on both forehand and backhand and is advantageous in improving skill. As the player can readily and almost at will adjust the angle between racket surface and table surface, it is also easy for him to control the trajectory of the struck ball. Then obviously the rate of success can be increased and the change from drive to chop is easy. It is even more favorable for the production and return of the loop, especially the rarely used sidespin loop. Players become accustomed to this racket within a very short time and very soon achieve the desired results. The use of this racket also helps dispel the current feeling that children are engaged in specialized training at a too early age.

2.2 Penhold slant handle racket (note 2)

This racket was designed by the author in 1978 and manufactured at the Qingdao Bat Factory in 1979.It is designed according to the idea of slanting the handle of a penhold round racket toward the player's side at a particular angle. Models 1(5°), 2(7°) and 3(10°) have been used (fig.c). Special models can be manufactured according to the needs of the players. This racket has the following advantages: a) As the surface is vertically lowered in forehand shots, the attacking action with the lower ball close to the net is simply distinct (it means this action is made easier for the other player to identify so that he could be better prepared for a return) and the forearm can play a better role.b) When a racket rotates around the handle in a backhand stroke and is leaning forward, its center of gravity is moved to the upper front of the rotating axis. The gravitational force of the racket would form a moment toward the rotating axis, which can help players stabilize the leaning forward situation and then return forceful topspin loop shots with block shots.

2.3 Penhold round-square racket (note 2)

This racket was designed by the author between 1979 and 1980 and manufactured at the Qingdao Bat Factory in May 1980. The design combines the so-called shoulder curve of the penhold round racket with side and end curves of the penhold square racket (fig.d). Because of the differing age, sex and build of players, the author designed OS-1, OS-2 and OS-3, similar in shape but different in size, for the players' choice.

This new racket is also nimble in practical use. It enjoys not only the advantage of penhold round racket (note 3), whose wider shoulders can make it easier for fingers to produce a large moment so that the angle between the racket surface and the table surface

can be flexibly adjusted, but also the advantage of penhold square racket, which can cause a more forceful striking power because its center of gravity is lower than that of other commonly used rackets. Thus this racket can be popularly used by traditional penhold players from many Asian countries and areas.

3. Efforts to advocate improvement of racket shape

The international table tennis world is confronting the urgent challenge of increasing the length of the rally, promoting the attractiveness of a variety of techniques, and attracting more participants and fans. The improvement in racket shape is anticipated to play an underestimated beneficial role in this attempt which will, of course, be faced with opposition from deep-rooted traditions. So it is expected that the International Table Tennis Federation will make efforts to advocate this creative work so that more attention can be drawn to it and the improvement will be accepted. It should be mentioned that Mr. Xu Yinsheng, who is the president of the ITTF and the president of the China Table Tennis Association, is one of the forerunners in this work. It is a great pleasure for the author to present the three rackets to all the friends from the table tennis world, hoping that they will help in promoting the development of our sport.

Note 1. Liu Weizeng, Research on the M-Handleless racket and its impact on Table Tennis Techniques, China Sports Science and Technology, 12: 1991.

Note 2. Liu Weizeng, The Design, Function and Effect of the short-pimple Rubber and Penhold Slanted-Handle and Penhold Round-square rackets, China Sports Science and Technology, 23: 1982.

Note 3. The square racket has narrower shoulder than the round one so the new racket is the combination of the two traditional ones.

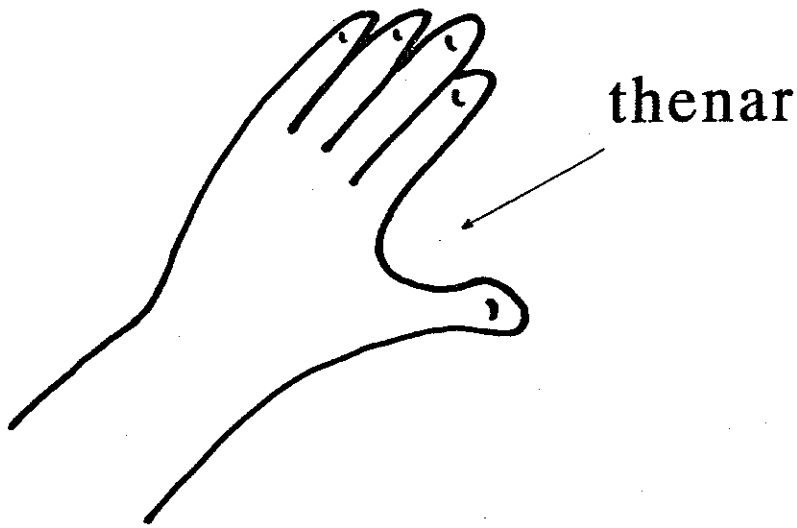
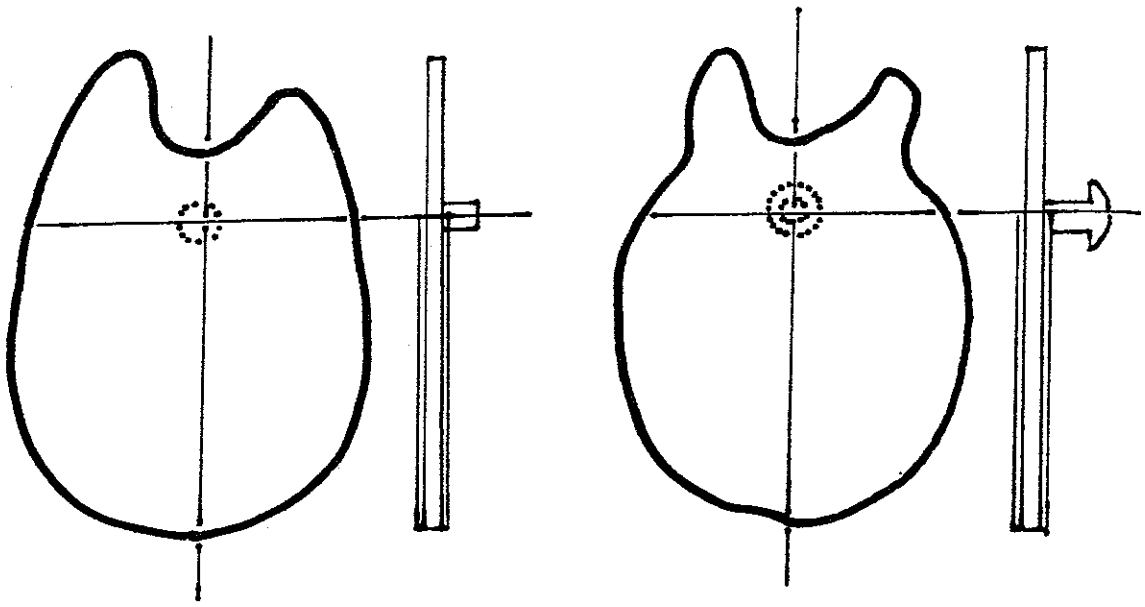


Fig. a



M-8610 M-877

Fig. b

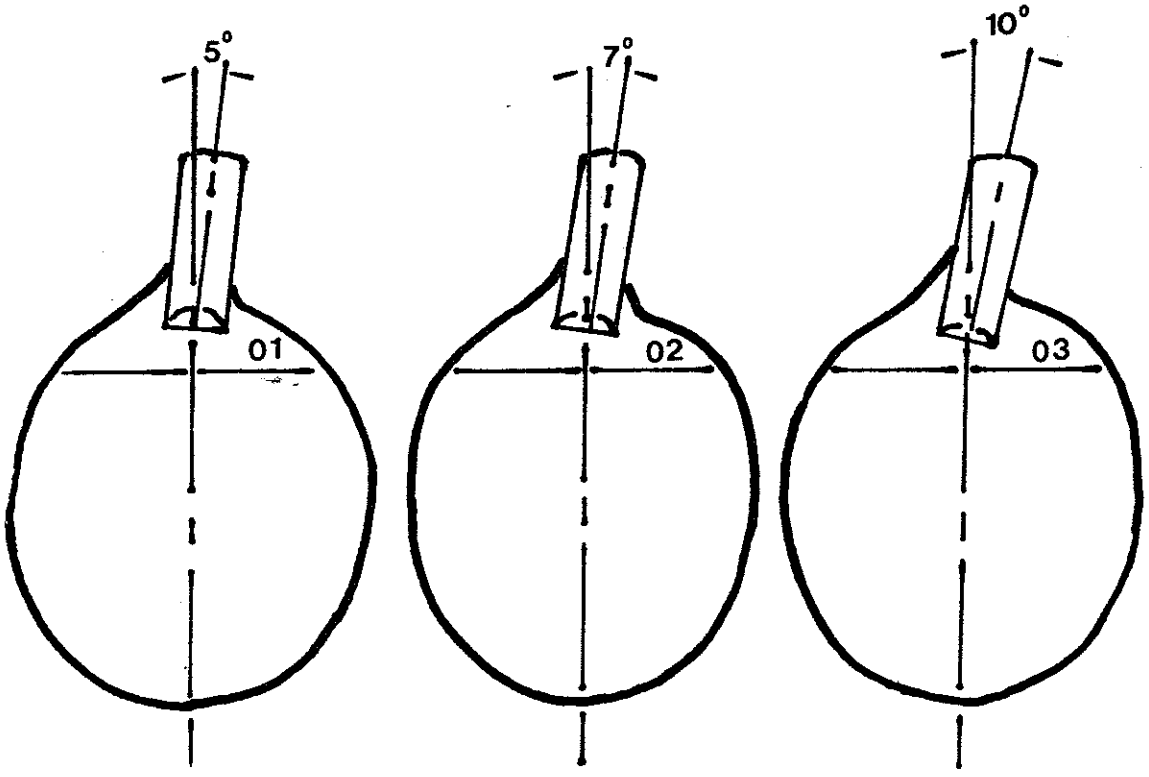


Fig. c

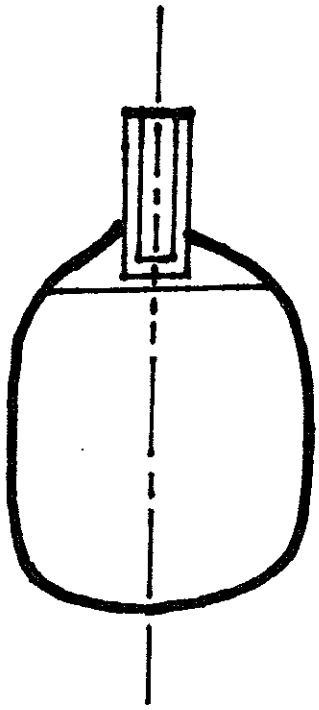
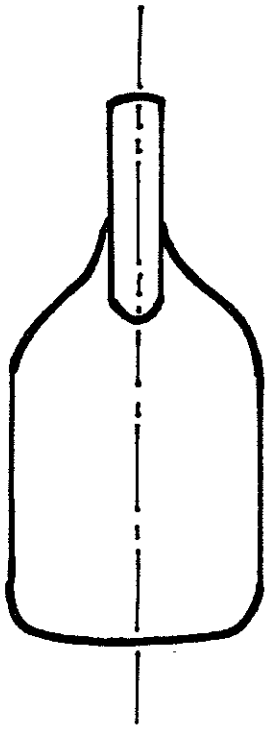
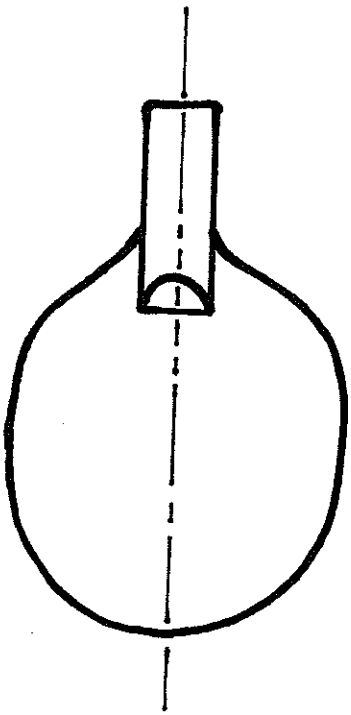


Fig. d



Sqare racket



Round racket