Title
Swim training paddle

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Related Art
US 7,597,601
US 2004/0203301
US 2008/0032573
US 4,548,588
US 1,217,681
ABSTRACT

To form a paddle with a size that fits within a palm and reduce the gap in water pressure felt by a swimmer when he/she swims without the paddle, in consideration of a situation where the paddle having the conventional size or the large area causes the water resistance felt by the hand to be decreased when the swimmer takes off the paddle.

A swim training paddle is provided with a paddle body formed of a synthetic resin plate material and having an appropriate thickness dimension X. The area of the paddle body approximately equals the product of a breadth dimension (Y) and a vertical width dimension (Z), the breadth dimension (Y) corresponding to the dimension of the state where four fingers excluding a thumb of a hand are roughly closed together, and the vertical width dimension (Z) corresponding to the dimension from roughly the vicinity of the base of each of the four fingers to the vicinity of the tip of a middle finger. The swim training paddle is further provided with a through hole (2) having an appropriate size in the vicinity of the tip of the paddle body as well as a pair of string passing holes (3) and (3) located posterior to the through hole.
DESCRIPTION

SWIM TRAINING PADDLE

Technical Field
[0001]

The present invention relates to a swim training paddle which is worn on both left and right hands, and particularly to a swim training paddle which is placed on each palm and used while worn and fixed to a middle finger of the hand by a string.

Background Art
[0002]

A swim training paddle has conventionally been available in the market as a tool to be worn on a hand in swim training. A swimmer has however experienced an extremely large gap between when he/she swims while wearing the conventional paddle and when he/she swims without the paddle feeling less water resistance.

[0003]

This is due to the size and area of the paddle where, with the conventional paddle, a swimmer has been unable to clearly find which part of the hand he/she should mainly strain in order to swim more accurately, beautifully, and efficiently.
Moreover, it has been unclear for a swimmer which part of the hand he/she should mainly strain when swimming with the conventional paddle. At the same time, the swimmer has felt the water resistance to be too light when swimming upon taking off the conventional paddle.

There have been other swim training tools to be worn on the body for training as disclosed in Patent Literature 1, Patent Literature 2, and Patent Literature 3, for example.

Citation List
Patent Literatures

Patent Literature 1: JP 2005-224331 A
Patent Literature 2: JP 2006-000237 A
Patent Literature 3: JP 2011-011010 A

Patent Literature 1 relates to a "swimming aid" which is a tool worn not on hands but on legs.

Patent Literature 2 relates to a "palm relaxing paddle for swimming practice" which has had a drawback of injuring a swimmer's shoulder when practicing with the paddle because
the paddle body is larger than the palm and causes high water pressure.

[0009]

Patent Literature 3 relates to a "wrist fixed paddle for swimming" which is the invention provided to mainly fix the wrist but has no plate-like paddle provided.

Summary of Invention
Technical Problem

[0010]

The paddle having the conventional size or the large area causes the water resistance felt by a hand to be decreased when a swimmer takes off the paddle. In consideration of such situation, the problem to be solved by the present invention is to form a paddle with a size that fits within a palm and investigate the size which can reduce the gap felt by the swimmer when he/she swims without the paddle.

[0011]

Another problem to be solved by the present invention is to obtain a paddle required for a wide range of swim enthusiasts to swim while recognizing the path of a hand stroke.

[0012]
Yet another problem to be solved by the present invention is to develop and provide a swim training paddle provided with several types of paddles each suited for two types of swimmers who has the rounded palm and who keeps the palm straight and flat when moving the palm underwater as well as for different swimming styles including a style where left and right hands are moved simultaneously and a style where the left and right hands are moved alternately.

Solution to Problem

Provided in the present invention is a swim training paddle, the size of which fits approximately within the width dimension of fingers excluding a thumb of each palm of both hands and fits within the vertical dimension measured from around the base of the fingers of both palms to the length of a middle finger, whereby the paddle has the shape and the size that allow the water resistance to be reduced as much as possible. The swim training paddle includes: one through hole formed in the vicinity of the center of the tip of a paddle body; and a pair of string passing holes formed to fix a string which fixes the middle finger to the paddle body.

Advantageous Effects of Invention

[0014]
According to the present invention, the area of the paddle is reduced by forming the size and the shape of a paddle body (1) smaller than that of the conventional paddle, thereby bringing an extremely superior effect that, although one feels more water resistance than when swimming barehanded, the paddle can be comfortably used for training by a wide range of swimmers from a beginner with not much muscle strength to an athlete while suppressing stress on the body.

The present invention can further bring a superior effect of being able to get closer to an ideal form by swimming while constantly pressing on a through hole (2) part formed in the vicinity of the tip of the paddle by the ball of the tip of the middle finger and focusing on this single point, so that one can swim while paying attention to the fingertips in contact with the paddle body (1) with the focus on the middle finger and can thus develop the sense of being able to sharply feel the path underwater or the water resistance in detail.

Brief Description of Drawings

Figs. 1(A) and 1(B) are diagrams illustrating an embodiment of the present invention where Fig. 1(A) is a plan
view of a paddle for a left hand, and Fig. 1(B) is a cross sectional view taken along line a-a of Fig. 1(A).

Figs. 2(A) and 2(B) are diagrams illustrating another embodiment of the present invention where Fig. 2(A) is a plan view of a paddle commonly used for both left and right hands, and Fig. 2(B) is a cross sectional view taken along line b-b of Fig. 2(A).

Figs. 3(A) and 3(B) are diagrams illustrating yet another embodiment of the present invention where Fig. 3(A) is a plan view of a paddle commonly used for both left and right hands, and Fig. 3(B) is a cross sectional view taken along line c-c of Fig. 3(A).

Figs. 4(A) and 4(B) are diagrams illustrating yet another embodiment of the present invention where Fig. 4(A) is a plan view of a paddle for a left hand, and Fig. 4(B) is a cross sectional view taken along line d-d of Fig. 4(A).

Figs. 5(A) and 5(B) are diagrams illustrating yet another embodiment of the present invention where Fig. 5(A) is a plan view of a paddle commonly used for both left and right hands, and Fig. 5(B) is a cross sectional view taken along line e-e of Fig. 5(A).

Figs. 6(A) and 6(B) are diagrams illustrating yet another embodiment of the present invention where Fig. 6(A) is a plan view of a paddle for a left hand, and Fig. 6(B) is a cross sectional view taken along line f-f of Fig. 6(A).
Fig. 7 is a diagram illustrating a palm of a left hand used in the present invention.

Description of Embodiments

[0017]

Preferred embodiments of the present invention will be described in detail below. Note that the present invention is not limited to what is described below, where modifications can be made as appropriate without departing from the scope of the invention.

Embodiments

[0018]

First, an embodiment of the present invention will be described in detail with reference to Figs. 1(A) and 1(B). A swim training paddle is provided with a paddle body (1a) formed of a synthetic resin plate material and having an appropriate thickness dimension (X). The area of the paddle body (1a) equals approximately the product of a breadth dimension (Y) and a vertical width dimension (Z) illustrated in Fig. 7, the breadth dimension (Y) corresponding to the dimension of the state where four fingers excluding a thumb of a hand are roughly closed together, and the vertical width dimension (Z) corresponding to the dimension from roughly the vicinity of the base of each of the four fingers to roughly
the vicinity of the tip of a middle finger. The swim training paddle is further provided with a through hole (2) having an appropriate size in the vicinity of the tip of the paddle body (1a) as well as a pair of string passing holes (3) located posterior to the through hole (2).

[0019]

Note that the breadth dimension (Y) in the dimension of the paddle body (1a) is described as the state where the four fingers excluding the thumb of the hand are roughly closed together because the breadth dimension deviates from an actual breadth dimension by approximately ±5 mm when the paddle is used while the fingers are completely closed together or slightly apart from one another. Likewise, the vertical width dimension (Z) is described as the dimension from roughly the vicinity of the base of each of the four fingers to the vicinity of the tip of the middle finger by using the word "roughly", because the vertical width dimension (Z) deviates from an actual vertical width dimension by approximately ±5 mm.

[0020]

The pair of string passing holes (3) is provided to temporarily fix the middle finger while the ball thereof is pressed against the through hole (2) formed in the paddle body (1a). As illustrated in Fig. 6(B), for example, the pair of string passing holes (3) is provided so that each end
of an elastic string (4) having an appropriate length and formed of a rubber tube is inserted into each of the string passing holes (3) which then pull both ends of the elastic string (4) to fasten and fix the middle finger.

[0021]

The paddle body (1a) is provided to be worn on a left hand and formed into a protruded shape of a reversed half bowl (a bowl that is halved and reversed) except for a region in the vicinity of the tip where the ball of each finger is placed. The little finger is held on a flat region at the left edge of the paddle illustrated in Fig. 1(A), whereas a paddle provided to be worn on a right hand has a flat region at the right edge on which the little finger of the right hand is held.

[0022]

Now, another embodiment of the present invention will be described in detail with reference to Figs. 2(A) and 2(B). Although roughly identical to the aspect of the invention described in paragraph [0017], this aspect of the invention pertains to a paddle body (1a') commonly used for both left and right hands where the paddle body (1a') has no flat region on both edges to hold the little finger as described above. That is, the plane of the paddle body (1a') is formed symmetrically about a through hole (2).

[0023]
Yet another embodiment of the present invention will be described in detail with reference to Figs. 3(A) and 3(B). The upper hem of a paddle body (1b) is formed into the shape of a truncated horn when seen in a plan view, while the surface of the paddle (1b) is formed flat as illustrated in Fig. 3(B). The paddle is commonly used for both left and right hands.

Yet another embodiment of the present invention will be described in detail with reference to Figs. 4(A) and 4(B). The upper hem of a paddle body (1c) is formed into the shape of an asymmetric arc when seen in a plan view while the lower hem is formed into the shape of a symmetric arc. The surface is formed flat as illustrated in Fig. 4(B). One of a pair of string passing holes (3) is formed at a position different from another hole with respect to a through hole (2), whereby the paddle is to be worn on a left hand.

Yet another embodiment of the present invention will be described in detail with reference to Figs. 5(A) and 5(B). The upper and lower hems of a paddle body (1c') are formed into the shape of an arc when seen in a plan view. The surface of the paddle body is formed flat as illustrated in Fig. 5(B) but is different from the paddle body (1c).
illustrated in Figs. 4(A) and 4(B) and commonly used for both left and right hands.

Lastly, the paddle body (la) illustrated in Figs. 6(A) and 6(B) is identical to that illustrated in Figs. 1(A) and 1(B) except for an elastic string (4) fitted to the pair of string passing holes (3).

Furthermore, it is naturally required that the paddle body with a plurality of sizes be provided because the size of the paddle body varies depending on the size of a hand of a swimmer who wears the paddle. As a result, the paddle body is made by varying not the vertical dimension (Z) but the horizontal dimension (Y) when the size is to be decreased. The overall ratio, namely the ratio of the vertical dimension (Z) to the horizontal dimension (Y), is increased when the size of the paddle body is to be increased.

As described above, the swim training paddle includes the paddle body which is formed such that a contact surface between the paddle body and the fingers is formed flat for a swimmer who keeps the palm straight when swimming and, for a swimmer who curves the palm when swimming, the paddle body is protruded in the shape of the reversed half bowl excluding
the region in the vicinity of the tip where the ball of each finger is placed.

While the surface shape of the paddle body is substantially rectangular in most cases, the upper hem of the paddle body illustrated in Figs. 1(A) and 1(B) may be formed into the arc shape along the shape of each fingertip as with the paddle body (la) illustrated in Figs. 1(A) and 1(B) and the paddle body (la') illustrated in Figs. 2(A) and 2(B). The upper hem may also be formed into the truncated horn shape as with the paddle body (1b) illustrated in Figs. 3(A) and 3(B). The lower hem of the paddle body may be linear as with the paddle bodies (1a, 1a', and 1b) illustrated in Figs. 1, 2, 3, and 6 or arc-shaped as with the paddle bodies (1c and 1c') illustrated in Figs. 4 and 5, for example.

It is desired that the size of the through hole (2) be approximately 8 to 10 mm.

It is originally required to make two types of paddles having different shapes suited for left and right hands when making the paddle on the basis of the middle finger located at the center. However, the paddle commonly used for both left and right hands also exists to be used in the swimming.
style such as the butterfly and the breaststroke where both hands are moved simultaneously.

The thickness dimension \( X \) of the paddle body \( (1) \) is approximately 2.5 to 3.5 mm for the flat type and approximately 10 mm as a whole for the protruded type.

While the size of the through hole \( (2) \) is approximately 8 to 10 mm as described above, the shape of the through hole \( (2) \) is normally circular but may be elliptical in some cases. That is, the through hole may be formed into another shape and not particularly limited to a certain shape.

The elastic string \( (4) \) formed of a rubber tube is provided to fasten the middle finger and partially fix the palm and the paddle body \( (1) \) together by inserting the middle finger between the string passing holes \( (3) \) and \( (3) \) while pressing the ball of the tip of the middle finger against the through hole \( (2) \) and pulling the elastic string by the string passing holes.

Industrial Applicability

The present invention has industrial applicability when the technology pertaining to the swim training paddle is
established and, on the basis of the technology, the paddle is manufactured, used, and sold in large quantities.

Reference Signs List

[0036]

1a, 1a', 1b, 1c, 1c' paddle body
2 through hole
3 string passing hole
4 elastic string
X thickness dimension
Y breadth dimension
Z vertical width dimension

[0037]

Throughout this specification and the claims which follow, unless the context requires otherwise, the word "comprise", and variations such as "comprises" or "comprising", will be understood to imply the inclusion of a stated integer or step or group of integers or steps but not the exclusion of any other integer or step or group of integers or steps.

[0038]

The reference in this specification to any prior publication (or information derived from it), or to any matter which is known, is not, and should not be taken as, an acknowledgement or admission or any form of suggestion that that prior publication (or information derived from it) or known matter forms part of the common general knowledge in the field of endeavour to which this specification relates.
The claims defining the invention are as follows:

1. A swim training paddle comprising:
   - a paddle body which is formed of a synthetic resin plate material and has an appropriate thickness dimension;
   - a through hole which is provided in the vicinity of a tip of the paddle body and has a size equal to approximately 8 to 10 mm; and
   - a pair of string passing holes provided posterior to the through hole, wherein a size of the paddle body is approximately 72 mm to 83 mm in a breadth dimension (Y) and approximately 71 mm to 73 mm in a vertical width dimension (Z).

2. The swim training paddle according to claim 1, wherein the paddle body is formed into a shape including:
   - a flat plate in which a contact surface between the body and a finger is formed flat; or
   - a protruded shape of a reversed half bowl excluding a region in the vicinity of a flat tip at which a ball of each finger is placed.

3. The swim training paddle according to claim 1 or 2, wherein
a surface shape of the paddle body is flat and substantially rectangular, and an upper hem of the paddle body is formed into a shape including:

- an arc shape along a shape of each fingertip; or
- a truncated horn shape.

4. The swim training paddle according to claim 1 or 2, wherein

- a surface shape of the paddle body is flat,
- an upper hem of the paddle body is formed into an arc shape along a shape of each fingertip, and
- a lower hem of the paddle body is formed into an arc shape.