SKIPPING ROPES

This invention relates to skipping ropes.

Skipping ropes have been known for centuries and constitute both a children's activity plaything and a serious device for promoting health and fitness. The exercise of skipping is one which can have substantial beneficial effects. It is particularly practised by athletes and others such as boxers in order to build up muscle strength and tone as well as sharpening reactions, but skipping is an activity which is beneficial across a very wide range of ages and it can be beneficially practised by all who wish to improve or maintain their physical fitness. Skipping can be carried out purely for fun and enjoyment or as part of a serious fitness or training schedule.

Conventional skipping ropes consist of a length of flexible material such as rope or a plastics substitute for rope with a handle at each end. Generally speaking, the handle is an elongate member which, if held up by the rope, extends vertically. While not absolutely necessary, most skipping ropes enable the rope to swivel about the elongate axis of the handle in order that, as

the loop of rope is turned around the body of the person skipping during that activity, it does not undergo twisting.

The conventional disposition of handles and swivel mechanisms is not ideal, particularly for serious skipping, for a number of reasons:

First the holding position of the handles is somewhat awkward; with the handles held extending across the palm of the hand, and held against that by the curled fingers and the thumb, in order to position the handle horizontally and with the end from which the rope extends remote from the skipper's body, the arms must be turned outwards around their longitudinal axis. This is not particularly comfortable, compared with the relaxed position of the hands when the arms are simply allowed to hang at a person's sides, where the palms face inwards.

Secondly, the swivel mechanism introduces friction and drag which, at high skipping speeds, can be substantial.

Also, at high skipping speeds it is easy for the handle to slip axially within the hand, or even, due to the high pull from the rotating rope, slip out from the hand entirely. If slippage is compensated by the skipper attempting to shift the handle inwards, this can easily lead to the handle being moved so far in that the rotating rope then starts to chafe at the knuckles of the thumb and first finger, which is naturally undesirable.

FR-A-2366848 discloses a skipping rope with a D-shaped handle in place of the conventional straight one.

According to the present invention, a skipping rope is characterised in that each handle consists of an elongate portion and a transverse portion, one end of the elongate portion being swivellably attached to one end of the rope and the other end of the elongate portion being attached to the transverse portion intermediate its ends so that the transverse portion of the handle extends to either side of the elongate portion. This provides a type of "T-bar" handle, with much improved grip.

When using such a skipping rope, the transverse portion can be held easily effectively in the palm of the hand with the elongate portion extending between two fingers. This gives a much more comfortable skipping position as well as a considerably more slip-proof one, even if the hand becomes sweaty. The transverse portion of the handle nestles within the curled up fingers while the elongate portion extends between two of the fingers, usually most comfortably the first and second fingers. The effective grip on the handle is much stronger, and the distribution of forces is better configured with the base of the fingers taking the strain rather than the forefinger and thumb doing so. This can be of particular importance if the skipper does not have a strong grip, for example due to arthritis, injury or even deformity in the hand or hands. The position is much more secure, being more in the nature of a mechanical interlock than a friction grip. The hands are also held at the sides without twisting the arms, i. e. with the backs of the hands facing outwards on opposite sides of the skipper's body.

The rope is preferably attached to the handle by means of a swivel. This is preferably a low friction swivel, for example

a small ball-bearing or the like, but many types of simple mechanical joint construction may be used. One possibility is to have the end of the rope pass through a bore in a ball. The end may be secured to the ball in any convenient fashion, for example by adhesion, by a knot at its end, the knotted end being located in a counterbore to prevent it protruding from the outline of the ball, or by engagement with one side of the rope within the ball of a grub screw threadedly engaged in a threaded bore running transverse to the

bore in the ball through which the rope passes. The ball may then be received in a cup of or internally coated with low-friction material mounted on the end of the elongate part of the handle remote from the transverse part. The ball may be held captive in the cup by suitable means, and may also be constrained to rotate within the cup in such a fashion that the axis of the rope lies within a certain solid angular range relative to the axis of the elongate portion of the handle. The ball may be a press fit in a cup which has a spherical interior encompassing a surface which is bounded by a circle and which constitutes slightly more than a complete hemisphere. Alternatively, the cup may have a removable cap in the form of a retaining ring or collar.

In an alternative construction, the end of the rope may be arranged to extend substantially transversely to the axis of the elongate portion of the handle. For example, the rope may be fixed at each end to a swivel collar which, via a suitable low friction bearing, is mounted on the end of the handle remote from the transverse portion.

The handles may be made of any convenient material or assembly of materials. The handle may be a unitary plastics moulding, or made of metal, e.g. light alloy. The surface finish may vary as desired, e.g. smooth or textured.

The precise configuration of the transverse portion of the handle at the outer end may vary. The transverse portion should not be too insubstantial, nor too large to be held comfortably. Generally, it will be of a right cylindrical shape, but the cross-section of the cylindrical shape need not be a perfect circle. Furthermore, the transverse portion may vary in shape

and cross-section along its length if desired. In particular, the transverse portion may have generally thicker and thinner sections, the thicker ones corresponding to the parts of the handle which will lie adjacent the gaps between the fingers of the user's hand when the skipping rope is in use, and the thinner portion corresponding to the fingers themselves. Put in other words, the transverse portion of the handle may have conventional hand grip type shaping to it to enable it to feel better fitted to the user's hand. Indeed, for serious skipping rope users, for example professional athletes and boxers, the present invention may even be applied to the manufacture of a customised skipping rope where the shape of the transverse portion of the handle is itself matched to the shape of the particular user concerned. In other words, the transverse portion really does correspond to the shape of the particular user's hands and has a particularly comfortable fit and feel when used.

The transverse portion of the handle may also be in the form of one or more loops extending transversely relative to the elongate portion of the handle, the loops being shaped and dimensioned to receive relatively snugly fingers of the user.

The degree to which the transverse portion of the handle extends to either side of the end of the elongate portion may also vary. In particular, the elongate portion is preferably substantially at the centre of the transverse portion where the handle is designed to be used with the elongate portion extending between second and third fingers, and is relatively thereto shifted towards one end of the transverse portion if the rope is designed to be used with the handle held so that the elongate portion of the handle lies between the first and second fingers of the user.

Skipping ropes in accordance with the invention are illustrated by way of example in the accompanying diagrammatic drawings. In the drawings:

Figure 1 is a side view of a first embodiment of a skipping rope in accordance with the invention with the majority of the rope omitted for clarity,

Figure 2 is a longitudinal section through one end of the skipping rope of Figure 1,

Figure 3 is a longitudinal section through one end of an alternative construction of skipping rope, and

Figure 4 is a diagrammatic view of a further alternative handle.

Referring to Figures 1 and 2 of the drawings, a rope 1 has on each end a handle 2. Each handle consists of an elongate portion 3 which is adapted to be placed between the fingers with a transverse portion 4 then resting inside the hand of the skipper. The ends of the rope are attached to a rotatable ball 5 which is set in a cup at the end of portion 3. The materials of the ball and the cup are chosen to enable the ball to rotate with low friction. The end of rope 1 passes through a relatively close-fitting bore in ball 5 and is held captive in the ball by a knot or other enlarged end portion which is located in an enlarged counterbore 6 in ball 5. The dimensions of ball 5 and the cup on the end of portion 3 are such that the ball may be press-fitted into place using a force sufficient to enable that to occur, but without damage to the cup, the force to pull the rope 1 and ball 5 out of the cup being sufficiently high to ensure that the ball remains captive even at high skipping speeds. The length of portion 3 is sufficient

to hold the rope sufficiently far away from the back of the user's hand to avoid risk of the rope rubbing or chafing the user's hand.

Referring to Figure 3, this shows an alternative construction. The end of the rope 1, which is a flexible single unitary filament of plastics material, is held captive in a ball 10 by means of a grub screw 11 which is located in a threaded bore running transverse to the bore in ball 10 into which the end of the rope 1 is inserted.

The ball 10 is held captive in the handle by means of a threaded collar 15 which is screwed into a threaded socket 16 forming part of the handle. The collar 15 and handle define a chamber in which the ball is able to move freely, the angular extent of movement being defined by the internal circumference of the rim of collar 15.

Referring now to Figure 4, this shows in perspective view one handle at the end of a rope 1 which, as in the embodiment shown in Figure 3, has its end held captive in a captive ball 10. The ball 10 is set in a socket at the end of an elongate portion 20 of the handle. At the end of portion 20 remote from the rope 1, this merges into a transverse portion which, as shown, is contoured. Between widened sections 23 which are spaced apart roughly by the width of the human palm, the transverse portion is sculpted to accommodate the fingers of the user more comfortably. As shown in the drawing, the transverse portion has four thinner sections 22 corresponding to the four fingers and separated by three rather bulged sections which in use align themselves with the three gaps between the four fingers of each hand. The handle shown in Figure 4 is pre-moulded, but clearly could be asymmetric and precisely dimensioned to

the shape of a particular user's hand if desired.

It is found that using skipping ropes in accordance with the present invention, a substantially more comfortable position of the skipper's hands is achieved and the skipping action is enhanced by the very low frictional losses as the rope is rotated around the body of the skipper. This enables more vigorous and more enjoyable skipping to be practised, as well as enhancing the ability of the skipper to learn to perform various skipping tricks effectively.

CLAIMS:

1. A skipping rope consisting of a length of flexible material with a handle swivellably mounted at each end thereof, characterised in that each handle consists of an elongate portion and a transverse portion, one end of the elongate portion being swivellably attached to one end of the rope and the other end of the elongate portion being attached to the transverse portion intermediate its ends so that the transverse portion of the handle extends to either side of the elongate portion.

2. A skipping rope according to claim 1, wherein the rope is attached to the elongate portion of each handle via a swivelling ball through which the end of the rope passes.

3. A skipping rope according to claim 2, wherein the elongate portion of each handle comprises a cup for receiving the ball and means to retain the ball within the cup.

4. A skipping rope according to any of claims 1 to 3, wherein the handle is a unitary plastics moulding.

5. A skipping rope according to any one of Claims 1 to 4, wherein the elongate portion is attached to the transverse portion substantially at its centre.

6. A skipping rope substantially as hereinbefore described with reference to and as shown in the drawings.