

## **DEVICE FOR EXERCISING PELVIC FLOOR MUSCLES**

The invention relates to a device for exercising pelvic floor muscles.

Without exercise, pelvic floor muscles often weaken with age. This can give rise to problems with bladder control with women, often exacerbated by childbirth. However, many women have no conscious control of these muscles, and find it very difficult to exercise them properly, in order to strengthen them, without assistance.

One known way of providing assistance is by means of a device for exercising pelvic floor muscles by insertion into the vagina, comprising a casing defining an internal cavity and being formed of two parts which are moveable between an open configuration allowing access to the internal cavity and a closed configuration in which the parts are sealingly connected together, and at least one weight adapted to be removably received in the internal cavity, the arrangement being such that in the closed configuration the casing parts defining the internal cavity are adapted to be fully received in the vagina.

This device however suffers from the drawback that the weights are required to be held in place by being mounted on a spindle which itself is a separate item, which can easily be lost, and in any event should preferably be maintained sterile, which can be difficult when the device is used on a frequent basis, as is necessary for a full exercise regime to be followed.

It is accordingly an object of the invention to seek to mitigate this disadvantage.

According to a first aspect of the invention there is provided apparatus for exercising the pelvic floor muscles of a female, comprising a hollow body adapted to be inserted into a vagina and defined by a plurality of separable parts, there being a support means of the body adapted to receive at least one of a set of weights, the arrangement being that the weight of the body is variable depending on the number of weights, from zero - N where N is the number of weights in the set, for providing exercise of the pelvic floor muscles of a user.

The body may comprise two parts which are screw-engageable. This is a relatively simple yet effective construction.

The support means may comprise an elongate member mounted in one part and extending into the other part. This again provides a relatively simple yet effective construction, particularly when the elongate member may be stepped with a push fit in an orifice in the one part.

There may be a plug for providing said push fit.

The elongate member may comprise a support part spaced inboard of the one part for receiving and supporting a weight. This provides a positive support in the body.

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The support part may also be supported against the interior surface of the one part. This again provides a positive support.

The end of the elongate member may extend into the other part and may be received in a seating of that other part, this again provides a positive seating of the support means.

The elongate member may comprise a retrieval member, which preferably may comprise a thread with a finger grip at an end remote from the elongate member.

Suitably the elongate member and retrieval member may be formed integrally, preferably by insert moulding of plastic material.

The thread may be a monofilament. This provides a hygienic thread.

The set of weights may comprise four individual weights, generally of differing mass. This provides for flexibility in varying the mass of the body as desired.

The support means may be removable from the one part for cleaning.

The apparatus may be put up for marketing in a container having seatings for the body and the set of weights.

According to a further aspect of the invention there is provided a support means for one or more of a set of weights for apparatus for exercising the pelvic floor muscles of a female, comprising an

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elongate member for mounting at least one weight to mount the support internally of a body of the apparatus, and a retrieval member which in use is external to the body.

There may be a support part in use inboard of the body for receiving and supporting a weight.

The retrieval member may include a finger grip, which may be at a free end of a thread, which comprises the retrieval member.

The thread may be a monofilament, and the whole support means may be formed integrally of plastic by insert moulding.

An embodiment of apparatus for exercising the pelvic floor muscles of a female is hereinafter described, by way of example, with reference to the accompanying drawings.

Fig.1 is a longitudinal sectional view of a body of the apparatus in a disassembled condition;

Figs. 2 and 3 respectively show transverse sectional views on lines A-A and B-B of Fig. 1;

Fig. 4 shows an elevational view of a set of weights;

Fig. 5 shows apparatus according to the invention and formed of the items of Figs. 1 - 4, in an assembled condition for use;

Fig. 6 shows an elevational view of a support member for supporting the set of weights of the apparatus; and

Figs. 7 and 8 show a container for the apparatus respectively in a closed and open condition.

Referring to the drawings, there is shown apparatus 1 for exercising the pelvic floor muscles of a female (not shown) comprising a hollow body 2 adapted to be inserted into a vagina and defined by a plurality of separable parts 3, 4, two in the embodiment, there being support means 5 of the body adapted to receive at least one of a set of weights 6, the arrangement being such that the weight of the body 2 is variable depending on the number of weights, from zero to N, where N (four in the embodiment) is the number of weights in the set, for providing exercise of the pelvic floor muscles of a user.

The two body parts 3, 4 are each moulded from physiologically acceptable plastic, are cup shaped and have interengagable screw threads 7 for joining the parts 3, 4 together to form the body 2, and by which the parts 3, 4 are separable by unscrewing. One body part 3, the lower as viewed and in use, mounts the support means 5, which in the embodiment has an elongate member or spindle 8 which has at one end a larger diameter cylindrical plug 9 with a frusto-conical upper, in use, flange 10. The plug 9 is a secure push fit in an orifice 11 at the base of the one part, the cone angle of the frusto-conical flange 10 being such as to be complementary to the (tapered) inner surface of the one part 3 adjacent the orifice 11 for centering and providing support for the support member 5. The upper end of

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the spindle 8 is received in a blind hole 12 in the interior of the other part 4 which also has internal fins 13, for guiding the weight(s).

In use, the support means 5 is firmly and securely fixed in the body in use (Fig. 5). This is enhanced by an intermediate support part in the form of a transverse shoulder or flange 14 inboard of the plug 9 and which has a frusto-conical peripheral surface 15 which is of complementary cone angle to the adjacent interior surface of the one part 3 and the upper surface of which also serves to support a weight 6.

The support means 5 has extending from the plug 9 externally of the body 2 a retrieval member in the form in the embodiment of a monofilament thread 16 which is inherently flexible and which terminates in a finger grip or tag 17 in the form of a loop of plastic.

The thread 16 has in the embodiment shown a total length of 100mm.

The support means 5 of Fig. 6 is integrally formed by insert moulding of plastic.

The four weights 6 are made of brass or weighted plastic. Each weight is annular, there being a central through hole 18 in each one of a diameter just to receive the spindle 8 as a close-sliding fit.

There may be two weights of 20gm each, one of 10gm and one of 5gm.

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The apparatus 1 is put up for marketing in a hinged case 18, in which there is an insert or liner 19 in which is a recess or seating 20 for an assembled body, and an individual recess 21 for each weight of the set of weights. The hinged case 18 can be snap-engaged at 22 to close it, and the insert 19 is maintained in place by snap-engagement in the lower (as viewed) part of the case 18. There are two bodies 2 shown, one being of larger diameter than the other.

The body 2 and weights 6 are sterilised before use. The user then inserts the body part 4 first, with or without a weight 6, in the vagina to exercise the pelvic floor muscles. As those muscles strengthen, and more exercise is required, then the body 2 is removed, opened and one or more weights inserted over the spindle 8 in the part 3 to rest on the shoulder 14, up to the maximum of the four shown in the embodiment.

The pelvic floor muscles are exercised by attempting to retain the body in position. The body will normally be left in place for a given length of time, perhaps 10 to 15 minutes, and is then removed by means of the tag.

It will usually be necessary for each subject to determine by experiment the appropriate mass which provides the necessary exercise for strengthening the muscles, but for heavier masses conscious control is required. The appropriate mass will usually be the lightest one to require this conscious control. It has been found that, when the body has the appropriate mass, it tends to slip out, and this sensation provides a biofeedback which makes the pelvic

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floor muscles contract to try to retain it. As the muscles strengthen, heavier masses can be retained.

Once the appropriate mass has been determined initially, the device is used regularly, preferably each day, at home by the subject. The subject can increase the mass herself as the muscles strengthen, simply by opening the upper and lower parts 3, 4, inserting a different selection of weights, and then fitting the parts together again. This means that the subject can monitor her progress herself, without needing frequent visits to a hospital or clinic.

The support means 5 can as desired be pulled from the one part 3 for cleaning and/or sterilising.

**CLAIMS**

1. Apparatus for exercising the pelvic floor muscles of a female, comprising a hollow body adapted to be inserted into a vagina and defined by a plurality of separable parts, there being a support means of the body adapted to receive at least one of a set of weights, the arrangement being such that the weight of the body is variable depending on the number of weights, from zero - N where N is the number of weights in the set, for providing exercise of the pelvic floor muscles of a user.
2. Apparatus according to Claim 1, the body comprising two parts which are screw-engageable.
3. Apparatus according to Claim 2, the support means comprising an elongate member mounted in one part and extending into the other part.
4. Apparatus according to Claim 3, the elongate member being stepped with a push fit in an orifice in the one part.
5. Apparatus according to Claim 4, the elongate member comprising a plug for providing said push fit.
6. Apparatus according to Claim 5, the elongate member comprising a support part spaced inboard of the one part for receiving and supporting a weight.

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7. Apparatus according to Claim 6, the support part also being supported against the interior surface of the one part.
8. Apparatus according to any of Claims 3 to 7, the end of the elongate member extending into the other part being received in a seating of that other part.
9. Apparatus according to any of Claims 3 to 8, the elongate member comprising a retrieval member.
10. Apparatus according to Claim 9, the retrieval member comprising a thread with a finger grip at an end remote from the elongate member.
11. Apparatus according to Claim 10, the elongate member and retrieval member being formed integrally.
12. Apparatus according to Claim 11, the integral elongate member and retrieval member being formed by insert moulding of plastic material.
13. Apparatus according to any of Claims 10 to 12, the thread being a monofilament.
14. Apparatus according to any preceding claim, the set of weights comprising four individual weights.
15. Apparatus according to any of Claims 3 to 14, the support

means being removable from the one part for cleaning.

16. Apparatus according to any preceding claim, put up for marketing in a container having seatings for the body and the set of weights.

17. A support means for one or more of a set of weights for apparatus for exercising the pelvic floor muscles of a female, comprising an elongate member for mounting at least one weight to mount the support internally of a body of the apparatus, and a retrieval member which in use is external to the body.

18. A support means according to Claim 17, including a support part in use inboard of the body for receiving and supporting a weight.

19. A support means according to either of Claims 17 and 18, the retrieval member including a finger grip.

20. A support member according to Claim 19, the retrieval member comprising a thread.

21. A support member according to Claim 20, the thread being a monofilament.

22. A support means according to any of Claims 17 to 21, being formed integrally of plastic by insert moulding.