Product reviews

Elvie

Chiaro, London, £149.00
www.elvie.com

The National Institute for Health and Care Excellence recommends that pelvic floor muscle (PFM) exercise therapy should be the first-line treatment for women with stress, urge or mixed urinary incontinence (NICE 2015). Pelvic floor muscle training (PFMT) should also be offered to women during their first pregnancy as a preventative strategy (Boyle *et al.* 2012). One of the most difficult tasks in clinical practice is to persuade patients to follow a pelvic floor exercise programme. Among the barriers to adherence, and therefore, subsequent improvements in pelvic floor dysfunction, are boredom, socioeconomic status, perceptions of effectiveness, low levels of motivation and physiotherapist–patient relationships. Real-time or biofeedback may improve compliance with PFMT (Herderschee *et al.* 2011), but it is still not clear which elements of the feedback are the most useful.

In recent years, there has been an explosion in the number of commercially available intravaginal devices that promise women a fun way of achieving "Olympic type" pelvic floor strength. Combined with the fact that smartphones are increasingly ubiquitous in everyday life, this means that the use of such gadgets is now more acceptable than ever before.

The Elvie is the latest and most sophisticated of these new products. It is a small, oval-shaped intravaginal device with motion sensors that measure the strength rather than the pressure of the PFMs. The information is relayed wirelessly via Bluetooth to a smartphone in order to provide real-time feedback on your exercise technique.

If you are computer and smartphone literate, then this gadget is very easy to use: you only need to download the app and connect to Bluetooth to begin. The Elvie can be downloaded to both iPhones and Android devices.

After an initial trial that can be done by using your hand, there are three different programs to choose from: Beginner, Intermediate and Advanced. These contain a mixture of both endurance and coordination exercises. Once the device is inserted into the vagina, a small ball appears on the smartphone screen, and this

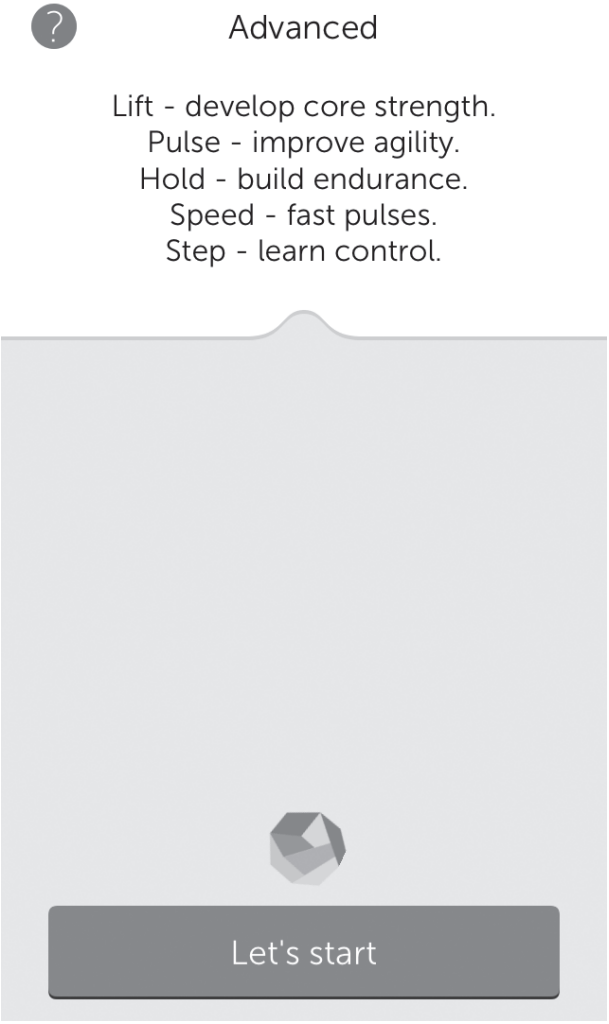

Figure 1. Screenshot of the Advanced Elvie program being launched.

moves up and down as you contract and relax your PFMs during the various workouts (Fig. 1).

The three workouts will accommodate most women. However, it would have been beneficial if the Elvie had had a "professional mode" that physiotherapists could use to create individualized pelvic floor exercise programmes.

At the end of each workout, a summary of your average strength, endurance and coordination appears on the mobile screen. This information is stored so that improvements in PFM strength and function can be observed over time (Fig. 2).

The size of the device is perfect for most women, and it is easy to insert. Nevertheless, there is an option to make it slightly wider, thus catering for different vaginal sizes. The Elvie is made of silicone, and is feminine, sleek and very discreet.

The manufacturer's website promises that the gadget will improve PFM performance. Indeed, as you push down instead of contracting your

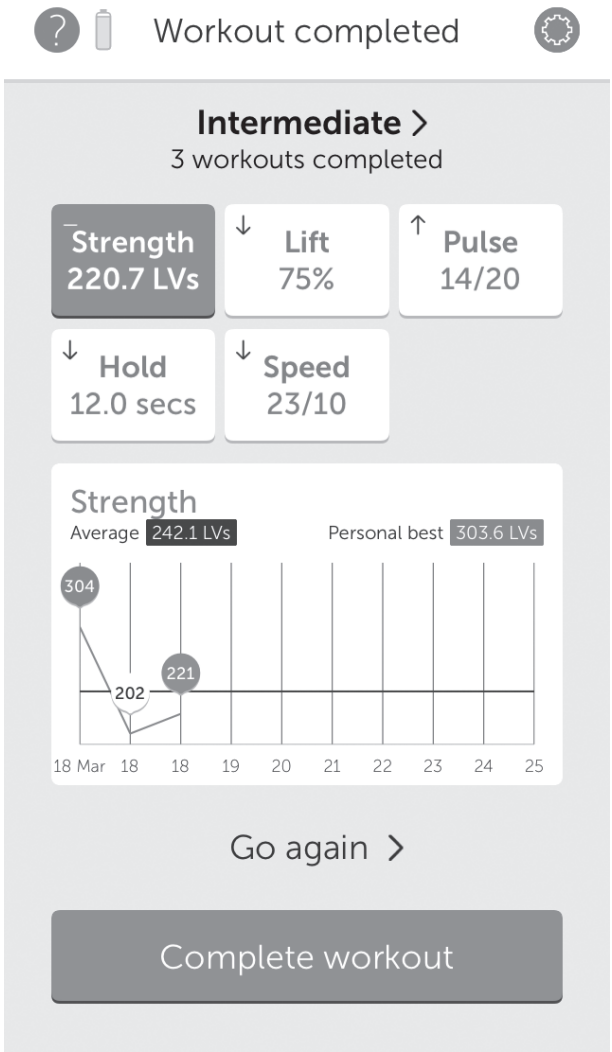

Figure 2. Screenshot of a summary of an Elvie workout.

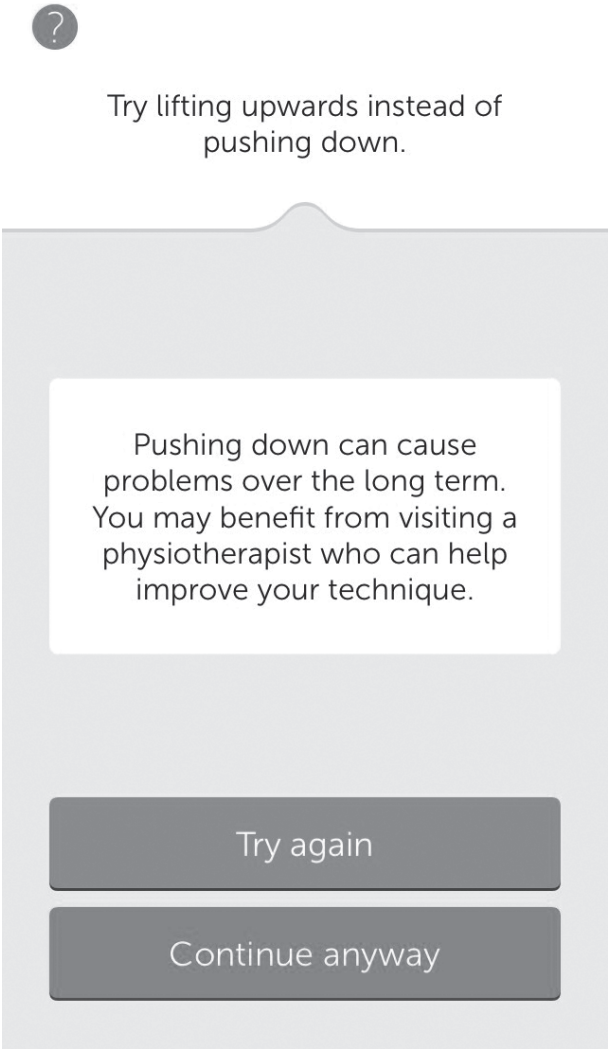

Figure 3. Screenshot of the Elvie recommendation to seek advice from a physiotherapist.

pelvic floor, a message appears that asks you to seek advice from a physiotherapist (Fig. 3). However, it is still not clear how interference from co-contracting muscles affects the readings. You can use your abdominal and gluteal muscles at the same time as your PFMs and still get a "good" pelvic floor reading. I believe that this is where the manufacturers should make a further investment in order to improve the device.

The Elvie should only be recommended to a patient after a health professional has assessed her pelvic floor. This will not only ensure that the woman has sufficient PFM strength to use the device, but also and more importantly, that there is no evidence of pelvic organ prolapse, which would make it difficult and/or uncomfortable for her to use it. The instruction manual advises users to seek professional help if insertion is painful. Perhaps the manufacturers should also state that professional help should be sought if there is no observable improvement in the PFMs

and/or change in the symptoms after 3 months of use. This information is important because many women now search for treatment options on the Internet before reporting their pelvic floor symptoms to their general practitioner.

Both the Elvie instruction manual and website fail to mention the posterior pelvic floor compartment. We need to remember that one in 10 women have faecal incontinence, and PFMT is also the favoured first-line management approach for this condition (Boyle *et al.* 2012).

Furthermore, the Elvie website recommends that only pregnant women in their second trimester should use the device, and advises those in their first and third trimesters not to exercise with it. However, as a clinician, I would be cautious about advocating the device to any pregnant women because there has been no other research into its safety in this patient group.

Nevertheless, compared with the kGoal and PeriCoach devices (see below), the Elvie is certainly a much nicer and smaller device. However, a major issue is the price: at £149, it must still be considered a luxury item!

Overall, I have enjoyed using the Elvie, and it is certainly pretty and easy to use. I have also recommended it to my patients as a way for them to continue their pelvic floor exercise programme once they have been discharged from physiotherapy, as well as to women who have enquired about devices to use at home.

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References

Boyle R., Hay-Smith E. J. C., Cody J. D. & Mørkved S. (2012) Pelvic floor muscle training for prevention and treatment of urinary and faecal incontinence in antenatal and postnatal women. *The Cochrane Database of Systematic Reviews*, Issue 10. Art. No.: CD007471. DOI: 10.1002/14651858.CD007471.pub2.

Herderschee R., Hay-Smith E. J. C., Herbison G. P., Roovers J. P. & Heineman M. J. (2011) Feedback or biofeedback to augment pelvic floor muscle training for urinary incontinence in women. *The Cochrane Database of Systematic Reviews*, Issue 7. Art. No.: CD009252. DOI: 10.1002/14651858.CD009252.

National Institute for Health and Care Excellence (NICE) (2015) *Urinary Incontinence in Women: Management.* NICE Clinical Guideline 171. National Institute for Health and Care Excellence, London.

PeriCoach

Analytica Ltd, Brisbane, £145.00
www.pericoach.com

The PeriCoach System has been developed to treat women with urinary incontinence. Biofeedback enables users to work with their clinicians from home so that they can be guided through a PFMT programme to strengthen their PFMs.

The kit consists of a case containing a vaginal probe, a USB cable and a smartphone app. The silicone-coated probe is waterproof, and has three biosensors that detect the forces generated by the PFMs as these contract and relax. This information is relayed wirelessly via Bluetooth to the smartphone app that provides real-time audio and visual feedback as the exercises are performed. The results are recorded, which allows the user to monitor her progress, and can also be shared with a healthcare provider via the Web-based portal system.

The quick guide to setting up the system is easy to follow (PeriCoach 2015). Once the set-up is complete, the user starts on the beginner's programme. This must be completed three times with 100% success before progressing to the next level. Intermediate, advanced and maintenance programmes are also available. The exercise programmes generally last for 2–3 min each, and it is recommended that the device is used twice a day in order to achieve the best results.

The PeriCoach has a larger probe than other devices, such as the Elvie. The portion of the probe that is inserted is $8.5 \times 3.0 \times 11.5$ cm in length, width and circumference, respectively. These dimensions mean that it could be particularly useful for postnatal women, or those who struggle to retain tampons, since they would be

able to feel and retain the probe when performing the exercises. However, it would not be suitable for women who have the following: a short and/or narrow vagina, dyspareunia, pelvic pain, unstable pregnancy, abnormal vaginal discharge, no PFM contraction, or an incorrect contraction.

The advantages of using this product are that: it is easy to use; it makes the exercises more interactive and interesting; it allows the user to monitor her progress; and it also connects her with a clinician who can customize programmes, remotely monitor her progress and make changes to her programme in a timely manner. In addition, it enables clinicians to provide motivational advice through the Web portal, which could improve user compliance.

There are two main disadvantages of the PeriCoach System. First, you must have a smartphone in order to use it, and only 66% of the UK population had such a device in 2015. Therefore, this would exclude a significant number of women from being able to use it (and the Elvie and kGoal products discussed above and below). Secondly, its large size means that some women may not be able tolerate using the probe. Therefore, I would advise clinicians to perform a vaginal examination with two fingers, so as to ensure adequate vaginal capacity, if they are going to recommend this product to a patient.

The PeriCoach System could be used in both the National Health Service and private settings, but because of the cost, it would probably be more widely used by private patients. However, it is competitively priced in comparison to other biofeedback devices, and considering the technology involved, £145 is a reasonable cost. Although most women are initially compliant with their exercise programmes, many struggle to maintain their dedication over time, and adherence wanes as a result. Therefore, I would recommend the PeriCoach System to any woman who wants to make her PFMT more interactive and interesting, and who connects with her clinician remotely in order to bolster her motivation and compliance. However, such patients would need to have adequate vaginal capacity, and also be able to perform a correct PFM contraction if they were to use this product.

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Reference

PeriCoach (2015) *QuickStart Guide for the PeriCoach System*. [WWW document.] URL http://www.pericoach.com/PeriCoachQuickStartGuide.pdf

kGoal

Minna Life, Inc., San Francisco, CA, US$149.00
www.minnalife.com

According to the manufacturer's website, the kGoal is a "smart kegel [sic] exerciser" (Minna Life 2016a) that has been designed to revolutionize PFMT for women. The Minna Life team consists of designers, engineers and health experts who produce "well-designed, high quality sexual health products" (Minna Life 2016b). However, there is little information on the website about the development and technology of this particular product. The kGoal device is connects to your smartphone via wireless Bluetooth technology, and a free app provides you with a choice of exercise programmes to follow with real-time visual and vibratory feedback. The larger Squeeze Pillow (see image) is inserted into the vagina while the "control arm" sits over the pubic bone. The app has three different 5-min "workouts", which have been designed as games that challenge power, endurance and control. The user is able to view her workout history and also set reminders.

I was excited to be asked to trial this product. However, I found that the initial setup was more complicated than expected. I had hoped that I could simply pop it in and start playing the "games", but even before inserting the Squeeze Pillow, I had to deflate it by pressing the awkward Comfort Vent button. On my third attempt, the pillow had deflated. This button is incredibly small, and I had to use my fingernail to fully push it down, which does not make this product easy to use for those with poor dexterity.

The website states that "kGoal is designed to fit a wide range of body types and anatomies", and

that it was found to be comfortable for 95% of women during user testing (Minna Life 2016a). However, I would question this because inserting the Squeeze Pillow was not a comfortable experience. In comparison to the pebble-shaped Elvie (see above), which is easier to insert, the end of the kGoal is hard, relatively large and spherical. Therefore, this product would be less suitable for certain women, including those with vaginal atrophy. The instructions then advise you to inflate the Squeeze Pillow, but do not state by how much it needs to be inflated. Although the website states that "kGoal is now accustomed to fit your body" (Minna Life 2016c), I had no idea how inflated the pillow was and so I continued to expand it to its maximum capacity.

Once the device is connected to the smartphone app via Bluetooth, the instructions and tips are clear, and the majority of patients should find these easy to understand. However, the introductory text is in a small, pale grey font, which makes it quite difficult to read. The user chooses one of three different workouts: "Bricks", "Shape Shift" and "Moving Target". The stronger you squeeze your PFMs, the stronger the vibrational feedback. The settings can be changed to no vibratory feedback, Squeeze Pillow or Control Arm vibratory feedback alone, or both together. Personally, I found the Squeeze Pillow option more useful because the Control Arm vibrations were felt over the pubic bone, which seemed less effective. The games were fun, challenging and provided excellent visual feedback. Each game lasts 5 min, so the option to perform one or more workouts gives the user increased flexibility.

Overall, the kGoal is a fun interactive tool that I would recommend to patients alongside other devices (e.g. the Elvie), particularly if they want to use an adjunct to help them perform their PFMT. However, the high cost of these devices may deter some women, and the Squeeze Cushion will not be appropriate for everyone.

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References

Minna Life (2016a) *kGoal.* [WWW document.] URL http://www.minnalife.com/products/kgoal

Minna Life (2016b) *About Minna: Welcome to Minna.* [WWW document.] URL http://www.minnalife.com/pages/welcome

Minna Life (2016c) *kGoal Quick-Start Guide.* [WWW document.] URL http://www.minnalife.com/pages/kgoal-help

KegelSmart

Intimina, Stockholm, £69.95 (with 1-year warranty)
www.intimina.com

The KegelSmart is an innovative biofeedback unit which has been "designed to help women prevent and overcome pelvic floor disorders, as well as tone and tighten their intimate area" (Intimina 2016). The aim of the product is to use vibrations generated by a vaginal probe to mimic sensations such as a cough or laugh that would trigger the PFMs to engage naturally. It was created in consultation with a medical advisory board, and in conjunction with multiple American specialists, including gynaecologists and physical therapists.

The KegelSmart is a bright pink vaginal probe that is 83 × 34 mm in size. It is covered in waterproof medical grade silicone, and has a small string attached for easy withdrawal. The device is powered by a single AAA battery, and comes with a small storage pouch and an instruction leaflet in multiple languages.

The design of the probe is slim and smooth, and it is easy to insert and withdraw. The overall package and inconspicuousness of the product will make it rather appealing and attractive to the general female population.

The KegelSmart has five progressive exercise programmes. You can check which one you are on by looking at the light-emitting diode on the side of the probe, which flashes as you turn it on. The programmes consist of a mixture of short and long holds, and the level these are set at is based on the user's most recent performance. Therefore, if you have had a successful session, you will automatically be progressed. If not, you will either stay on the same level or be dropped to an easier one.

Women who are trying to build up their PFM awareness and establish a regular exercise programme could find this product beneficial. The vibrations generated may help them to locate where they should be engaging their muscles. This vibratory feedback may help women with poor eyesight, or those prone to distraction by the sound or lights of other biofeedback machines, to contract and relax.

For a clinician's point of view, it is hard to see that using the KegelSmart will be of much benefit. There is no gauge on the device to indicate when the user's pressure/squeeze is decreasing. There is also no way to monitor a patient's progress over time other than by knowing which of the five programme they were on last. There is no information in the user guide, on the website or from a direct e-mail to customer services that indicates exactly what the user is doing during each level. As with other biofeedback machines (see above), there is also no way of detecting when an incorrect technique is being used.

Overall, the KegelSmart device is attractive, easy to use and has multiple programmed levels that will challenge the user as they get stronger. It is a good tool to motivate and test women who want to do pelvic floor exercises without counting or visual feedback. I would recommend the KegelSmart to women who are on a maintenance pelvic floor programme, and are known to have a correct PFM technique. However, as a clinician, I see no advantage to this product: it does not provide any visual representation of strength or endurance feedback, and there is no facility to modify programmes based on the patient's abilities.

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Reference

Intimina (2016) *Who We Are.* [WWW document.] URL https://www.intimina.com/en/Who-We-Are.php