The Pelvic Floor

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actively, ask follow-up questions, comment, and summarize. In this way, objective findings can be supplemented with impressions of the patient's emotional state.

If necessary, the therapist can conclude the history with a few direct questions. Clinical experience demonstrates that if the therapist begins by asking two or three direct questions, the patient is less inclined to disclose her emotions.

While taking the history, the physiotherapist also gains an impression of nonverbal aspects of the patient, such as posture, breathing, voice, and eye contact.

It is important to gain as complete a picture of the patient as possible in order to establish a specific treatment plan. For this reason, it is important to obtain a complete history, if necessary in several sessions. Details may be added in the course of treatment—for instance, if the patient realizes that her voiding behavior differs from what she originally thought (and described at first during the history-taking). Questions about sexual or other abuse are often answered in the negative initially. When the therapist asks about negative experiences during the first session, the patient can return to the subject later, when the situation appears safer.

The sequence of questions is not rigid. It is advisable to ask exhaustive questions about one subject before proceeding to the next. The history consists of several parts: general, urologic, gynecologic, sexual, and gastrointestinal (Table 4.23). A number of indications in the history can point to an overactive and/or hypertonic pelvic floor musculature. These are summarized in Table 4.24.

### Patient Education

Patient education includes—if possible, during the first session:
- Anatomy and physiology of the pelvic floor
- Function and dysfunction of the pelvic floor
- Possible causes of dysfunction

Education can be supplemented with illustrations, anatomic plates, and models. It is best if the physiotherapist is present when the patient views the models or plates, to help with the patient's understanding. Moreover, it is necessary to anticipate that looking at illustrations may increase the patient's anxiety, and this must of course be prevented. Hence, illustrations and models should only be shown to the patient after their use has been explained.

Good education can clarify for the patient why she has been referred to a physiotherapist and what the connection between the complaints is. This better understanding usually has a motivating effect [Alewijnse 2000].

### Improving Awareness

The patient must be aware of the muscles of the pelvic floor in order to be able to work with them. Becoming aware is not a separate exercise, but is embedded in the whole treatment. Attention is directed to perception and experience of the pelvic floor through every segment of the treatment. At first, the physiotherapist provides constant feedback during the exercises. When the patient herself becomes aware of her pelvic floor, the physiotherapist tries to link this awareness to everyday activities (see also “application to daily life” below).

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**Table 4.24 Indications in the history suggesting an overactive or hypertonic pelvic floor**

<table>
<thead>
<tr>
<th>Area</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>High activity pattern, deep breathing, hyperventilation, speech disturbances, mandibular symptoms, low back pain, coccydynia, anorexia nervosa</td>
</tr>
<tr>
<td>Urologic</td>
<td>Straining during micturition, hesitancy, not taking time to urinate, retention, recurrent bladder infections, previous urethral dilation, intermittent or diminished flow, urgency, low voiding frequency with normal fluid intake, high voiding frequency (small amounts), strong urgency, low abdominal pain, and/or pain in thighs</td>
</tr>
<tr>
<td>Gynecologic</td>
<td>Yeast infections, daily use of pads, excessive pelvic floor training postpartum, fanatical practicing of drop-wise voiding</td>
</tr>
<tr>
<td>Sexual</td>
<td>Sexual trauma, dyspareunia, anorgasmy, lower abdominal pain, vaginismus, vulvar vestibulitis syndrome</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>Hemorrhoids, anal fissure, constipation, inflammatory bowel syndrome, straining during defecation, not taking time to empty bowels, anal spasm, spastic colon, lower abdominal pain (most often left), upper abdominal pain (most often right)</td>
</tr>
</tbody>
</table>
Examples

“How did your pelvic floor feel when you woke up, when you were quarreling, or in that particular situation?” And if the pelvic floor was tense, “Were you able to relax afterwards?” The physiotherapist can pick up specific cases of this type, explore them, and adapt the exercises to specific situations or points in time when the patient was unable to relax.

Initial Exercises

Starting position. The patient sits on a bench, with the feet hanging down and supported by a footstool (Fig. 4.51). The therapist sits opposite her, but at a lower level, to give the patient better control over the situation.

Goal. The goal of these initial exercises is for the patient to:
- Become aware of the position of her pelvic floor muscles in the pelvis: awareness.
- Learn to distinguish between the pelvic floor muscles and the large muscles surrounding them (muscles of the buttocks, abdomen, legs): awareness and control.
- Learn to distinguish between the different parts of the pelvic floor (urethral, vaginal, anal): awareness and control.
- In the course of these exercises, the physiotherapist gains an impression of the patient’s body awareness and more specifically of her awareness and control over her pelvic floor musculature. The influence of the sitting position on the pelvic floor is also explored.
- The physiotherapist gives the patient feedback on her observations with respect to breathing and tensing of the gluteal, abdominal and leg muscles, feet and shoulders. Relaxation of the pelvic floor can be described as a feeling as if the vagina and anus sag and open a little. Contraction is closing and pulling inward. Contraction can also be described as “holding your urine” and “holding the expulsion of gas.”

Procedure
- The therapist asks the patient: “Can you feel a small bone in each of your buttocks? Wiggle backward and forward a bit.”
- The patient is asked to remove any jewelry from her hand and put her hands under the posterior portion of her buttocks, over the anus. She is asked to relax the anus, and place the buttocks so that the ischial tuberosities (sitting bones) are resting on her hands. “The pelvic floor lies between your hands—its width runs from one bony knob (tuberosity) to the other. Now move your pelvis back

![Fig. 4.51](image-url) The initial exercise for pelvic floor awareness.
and forth (the pelvis is tilted backward and forward) and tell me what, if anything, happens to the bony knobs."

- "If you now sit way back, you are sitting on your tailbone. The pelvic floor begins at the tailbone. If you now go slowly forward, you will be sitting closer and closer to the broad, middle part of the pelvic floor. Now, if you move even further forward and sit on your pubic bone, you are sitting on the smallest part of your pelvic floor in front, on the urethral opening."

- "Now take your hands away from your buttocks. How does that feel?"

- "Now sit on the tailbone again. When you are sitting on the tailbone, you are sitting over your anus. Try to let go of your anus. What are you feeling now? Now try to contract your anus, as if you are trying to hold back gas. What are you feeling? And now let go."

- "Now go back on those bony knobs. You are now sitting on your vagina. Try to relax the most central part. What are you feeling? Now try to contract the muscles around your vagina. What are you feeling?"

- "Let go again."

- "Now, would you sit on the foremost part of your pelvic floor? Now you are sitting on the urethral opening. Can you let that go, as if you are about to urinate? Now can you contract, as if you want to hold your urine? What are you feeling?"

- "And let go again."

- "You have now experienced three different openings in the pelvic floor, each of which is able to move independently. So when you contract your pelvic floor, you can put the accent in three different places."

- "Now sit on your anus again. Try to contract your urethral opening. How does that work? Now do the same while sitting on the urethral opening. Does it make a difference how you sit? Keep sitting like that and try to pull in your anus. Do the same thing while sitting on your tailbone. Is there a difference?"

Most often, the experience is that the part on which the patient sits is that which is easiest to contract and relax. Next, the patient should be asked how she usually sits. Show her the link between her posture and the (presumable) tension of the pelvic floor.

At this point, the topic of posture when sitting on the toilet can be broached, since the patient has experienced the way in which the part of the pelvic floor on which she is sitting is easiest to control. Thus, for voiding she should adopt a posture as if sitting on the urethral opening, and for defecation on the anus. The patient is advised to emphasize relaxation of her pelvic floor every time she goes to the toilet. This means that she has to take time before using the toilet to relax the pelvic floor muscles consciously before voiding or defecating. Voiding and defecating are initiated and continued without increasing abdominal pressure.

**Complete Relaxation and Breathing**

**Goal**

- To become conscious of breathing
- Learning to relax

This can be accomplished by a number of methods—e.g., Schulz’s autogenous method [van Dixhoorn 2001] or Jacobson’s method [Jacobson 1970].

It is important to include the pelvic floor in general relaxation. In Jacobson’s method, this may mean that the pelvic floor is first contracted and then relaxed. N.B.: a strong contraction in a hyperactive pelvic floor can lead to spasms. In Schulz’s method, the suggestion might be made that “Warmth flows through the pelvic floor” or “The vagina and anus are relaxed. The vagina and anus are completely relaxed.” [Nijman-du Bois and Geerdes-Klaassen 2001, Voors 2002].

To improve the circulation in the pelvic area, what are known as venous pump exercises can be introduced. These are large, quiet movements of the pelvis, hips, knees, and/or ankles, in which the movements are combined with breathing. Each movement should be repeated three times [Beard 1984, 1988, Bonde 1992, Reginald 1987].

When the patient is able to relax and breathe toward the pelvic floor, she should try to relax the gluteus muscles, hamstrings, and adductors. Because these muscles almost always contract along with the pelvic floor muscles, they have to be relaxed consciously before further relaxation of the pelvic floor can be attempted [van de Velde 1999, Bø and Stein 1994, Sapsford et al. 2001, van de Velde and Everaerd 2001].

It is best to start routinely with relaxation of the anus, since clinical experience shows that this is the part of the pelvic floor the patient feels most distinctly. However, if the symptoms focus on the anus, it is best to begin with the most anterior part.
In the course of breathing toward the pelvic floor and relaxing the muscle groups around the pelvic floor and the pelvic floor itself, the technique of specific palpation is used (see below).

If the posture of lying on her back with the knees flexed is too threatening for the patient, the exercises can be done on a Swiss ball. The aim should be that the patient should learn to sit “in” the ball, not “on” it. Sitting in the ball stimulates relaxation and awareness of the pelvic floor. Sitting on a hot water bottle can also stimulate pelvic floor awareness and relaxation.

**Specific Palpation**

This method of palpation was developed by two pelvic floor physiotherapists in the Netherlands [Homan and Westerlink 1996] in conjunction with the Department of Sexology and Psychosomatic Obstetrics and Gynecology at the University of Amsterdam’s Academic Medical Center. They developed this procedure to treat patients with sexual dysfunction due to hypertonia, in whom there was often a history of (sexual) trauma, in order to prevent retraumatization. The procedure enabled them to examine pelvic floor muscle tension objectively in a way that was safe for the patient (without internal examination). While performing this method of palpation, the physiotherapist maintains constant contact with the patient and provides verbal feedback throughout the exercise sessions. This palpation procedure makes it possible to:

- Determine the degree of (basic) tension and relaxation
- Follow movements (coordination)
- Evaluate the amplitude of dynamic and static contractions
- Evaluate the response to increases in abdominal pressure

The physiotherapist gives the patient verbal feedback, which makes it possible for both the patient and the therapist to evaluate the degree of awareness, control, strength, and basal tone, as well as the degree of relaxation of the pelvic floor. The physiotherapist observes the patient and asks her what she is feeling during the exercises.

**Starting position.** The patient lies on the treatment bench with the knees drawn up. The therapist sits next to her on a chair. At times, the patient may find it difficult to hold the legs in position. The feet may slide away, or the knees can fall away on each side. This can be remedied in several ways:

- The end of the bench supporting the feet can be raised to provide some counterweight.
- The bench can be placed along a wall, so that one knee can lean against the wall. The other knee can lean against the therapist (although this may be too intimate).
- A rough mat (an anti-slip mat) can be placed under the feet to provide a better foothold.

**Procedure** (Fig. 4.52)

- One hand is placed on a clearly visible spot (e.g., the bench), while the tips of the fingers of the other hand are placed on various parts of the pelvic floor, palpating.
- The little finger rests on the support against the seat.
- The tip of the ring finger rests against the anus.
- The tip of the middle finger lies on the perineum, just below the vestibule. The thumb or index finger can rest against the adductors (against the pubis).

The hand position can be modified according to personal choice. What matters is that the pelvic floor and the large muscles surrounding it can be felt at the same time.

The whole pelvic floor, the glutei, adductors and hamstrings can be followed manually in...
this way. When the pelvic floor is relaxed correctly, the examiner will note a soft, broad, pressure towards the fingers. Respiratory movements can also be felt. Contraction is felt as retraction away from the fingers. The therapist can note any contraction of the abdominal muscles by observing the abdomen.

The therapist gives the patient constant verbal feedback. Specific palpation is introduced into the treatment to give the patient feedback about the functioning of her pelvic floor. It is characteristic of patients with hypertonic pelvic floor that their awareness of the pelvic floor is minimal or absent. They are therefore unable to feel the state of tension in their pelvic floor. Once the therapist’s perception coincides with the patient’s, feedback will no longer be necessary. At this point, the patient can feel her own tension.

Self-Examination of the Pelvic Floor
In therapy, every patient is taught to observe and examine her own pelvic floor and external genitals. This self-examination is coordinated with the attending sexologist or psychologist.

The aims of the self-examination, performed at home, is to increase the woman’s contact with her own genitals and makes it possible for her to link her awareness of her contraction and relaxation and their strength with her own visual and tactile perceptions.

The self-examination is best performed in a semi-sitting position, with adequate support for the back, with the lower body undressed, and using a shaving or hand mirror. She places the mirror on the bed between her legs so that she can see her genitals in the mirror. She carefully spreads the labia minora and looks at the entrance to the vagina. The anatomy will have been explained to her, perhaps with illustrations or photographs, together with the pelvic floor movements that accompany contraction, relaxation, coughing, and pressing. The aim is that the results of the examination should be discussed with the physiotherapist, who can clarify and resolve possible questions. At the patient’s request, the physiotherapist can join the patient in the examination. However, instructional examinations of this type are usually carried out along with the sexologist.

In VVS, the patient can make a diagram of the sensitive areas around the introitus. This type of examination must be timed correctly. If the patient is still too anxious, it can lead to increased anxiety or dissociation, which is undesirable. The examination is therefore never suggested in the form of an instruction, but rather as an option, always in consultation with the other therapists who are involved.

Strength Improvement
The point of departure for this set of exercises is maximal relaxation of the pelvic floor muscles before the beginning and after the completion of each contraction (degree of relaxation). During an exercise, the physiotherapist uses specific palpation to indicate to the patient the degree of relaxation of her pelvic floor muscles and the way in which her coordination is progressing. In this way, the patient is able to familiarize herself with the various degrees of muscle tension. Once awareness and control are complete, the exercises can be given as a homework task.

The patient is also given the assignment to take time several times a day to check her breathing and the tension in her pelvic floor. If breathing is thoracic (high) and the pelvic floor is tense, she should try to let breathing “sag” and relax the pelvic floor. The best times for these assignments to be carried out can be discussed with the patient.

The starting position for the following exercises is with the patient in the supine position with the knees drawn up. It is only in this position that the physiotherapist can carry out the specific palpation. Other starting positions can be introduced once the patient is able to feel what is happening in her pelvic floor for herself. The patient should be able to perform the exercises in various positions.

“Wink”
This is the ability to perform one or more light, brief contractions of the pelvic floor, with each contraction being followed by complete relaxation. These contractions can be separated from breathing, and are performed in isolation in the most anterior part (the muscles surrounding the urethral opening and the vagina) and the most posterior part (the muscles around the anus). There should be no co-contractions [Schussler 2000].

Goal. The aims here are to improve awareness, control, and the degree of relaxation, and to exercise the fast-twitch fibers.
Sustained Contractions
(Strength and Duration)
The patient must be able to carry out a powerful
contraction of the pelvic floor while exhaling, and
eventually maintain separate anterior and pos-
terior contractions for two breaths.

Goal. The aim here is to improve awareness, con-
trol, the degree of relaxation, and strength (with
the slow-twitch muscle fibers).

The Elevator
Contraction and relaxation of the pelvic floor can
be likened to an elevator rising and descending. The
elevator rises from the basement to the first, second, and third floors.
The patient should be able to bring the pelvic
floor to various floors while exhaling: continue
breathing, hold the breath, and return to the
basement.

Goal. The aim here is to improve awareness, con-
trol, the degree of relaxation, strength and endur-
ance (with the slow-twitch muscle fibers).

Increasing the Frequency
The patient now carries out the same exercises as
described for the “elevator,” but more quickly.

Goal. The aim is to improve strength and endur-
ance (slow-twitch muscle fibers) and the degree
of relaxation.

Application to Daily Life
The goal here is to make the patient conscious of
the tension in her pelvic floor, and of the times
during the day when the tension builds up (de-
pending on the circumstances to which it is
linked). The patient learns to normalize the ten-
sion during her everyday activities, allowing the
pelvic floor to function better.

All sorts of everyday activities are carefully ex-
amined for their relationship to pelvic floor func-
tioning. Specific exercises are used to improve
this functioning as needed—for example, sitting,
walking, fitness exercises, talking, eating.

Toileting Posture and Behavior
The aim here is to develop optimal toileting be-
havior and posture (see Fig. 4.37), so that any
dyssynergies resolve.

Micturition. In addition to an intact nervous
system, the conditions for correct micturition
[Messelink 1999] include:

- Adequate fluid intake
- The desire to void
- Feeling safe
- The ability to relax the pelvic floor muscles

With the aid of a voiding diary, in which the pa-
tient records at home when and how much she
voids, the total urinary volume, the voiding fre-
quency, and the amount of urine at each voiding
are objectively noted and discussed with the pa-
tient. The aim is to achieve a urine output of
about 2 L in 24 h, with a urinary frequency of
seven times in 24 h (and perhaps once during
the night), with a minimum of 250–350 mL
urine at each voiding [Heldeweg et al. 2002].

The ultimate aim is that the patient should be
able to void without straining, maintain a contin-
uous flow, and have no retention and no leakage
between voiding.

Defecation
The conditions for correct defecation include:

- Adequate fluid intake (at least 1.5 L in 24 h)
- Eating regularly (three meals a day)
- Good fiber intake (30–35 g fiber/day).
- Visiting the toilet when the urge is felt
- Relaxing the pelvic floor, avoiding straining

The patient is asked to keep a record of food in-
take. This should include what and how much she
eats and drinks in a day. With the help of
this list, the amount of fiber ingested in a day is
calculated. Any concerns arising from the list
are discussed with the patient. After consultation
with the attending physician, the patient can be
referred to a dietician. Exercises to stimulate
the gut or abdominal massage can be used.

It is essential for the patient to take time to
relax both before micturition as well as before
defecation. The correct toileting posture is then
determined individually; this is the posture in
which the patient is best able to relax and
breathe quietly. The starting points are the posi-
tions proposed by Versprille-Fischer [1995].
Hygiene Protocol

This protocol was developed specifically for women with symptoms of VVS [van Lunsen 1996, Ramakers and van Lunsen 1997]. Women with dyspareunia often make matters worse by inadequate (or excessive) hygiene and the use of all kinds of (sometimes irritating) ointments and creams. The hygiene protocol is mainly prescribed and discussed with the patient by the attending physician or sexologist (see above). The physiotherapist should note this and take it into consideration in her treatment.

Exercises Requested by the Patient

In the course of history-taking, the patient may indicate a specific treatment goal—for instance, allowing penetration in a specific posture, whether for coitus or internal gynecologic examination. The treatment can be oriented towards this. In both cases, penetration should be possible without additional tensing of the pelvic floor. In the supine position with the legs drawn up, the patient contracts the muscles of the abdomen, gluteal region, and/or legs, while the pelvic floor remains relaxed and breathing remains undisturbed. The physiotherapist palpates and provides feedback. Later on, these exercises can be practiced in different positions.

If the exercises can be done successfully, penetration itself can then be exercised step by step, in consultation with the sexologist (allowing gradual exposure).

Goal. The aim is to improve awareness, control, and the degree of relaxation.

Duration and Frequency of Treatments; Duration of the Whole Course of Treatment

Differences between patients determine the duration of every treatment, the frequency of treatments, and the duration of the whole course of treatment. The initial session (history-taking and discussion) and the second session, during which exercise treatment is started, take an hour for an overactive pelvic floor. A 1-h duration is ideal for cases in which the treatment consists of breathing and relaxation exercises. For exercises aimed at the treatment of coordination, 30 min is more suitable, as coordination exercises are very tiring and fatigue needs to be avoided in such exercises in particular [Fox et al. 1988].

The treatment frequency is once every 2–3 weeks. For later treatments, the interval is longer, about 4–6 weeks.

It is the patient who sets the pace of treatment, since each exercise can only be started once the previous one has been mastered. The total duration of the treatment depends on the degree and rate at which the multifactorial causes can be influenced, and it generally takes about a year.

References


Bonde B. Training of the pelvic floor under the skilled instruction of physiotherapists has proven to have such a favorable effect that the waiting lists for surgery are going down. Dan Fysioter 1992; 10:4–8.