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## **Sexual rehabilitation after treatment for gynaecological cancer**

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### **Citation**

Bakker, R. M. (2017, May 16). *Sexual rehabilitation after treatment for gynaecological cancer*. Retrieved from <https://hdl.handle.net/1887/49750>

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**Note:** To cite this publication please use the final published version (if applicable).

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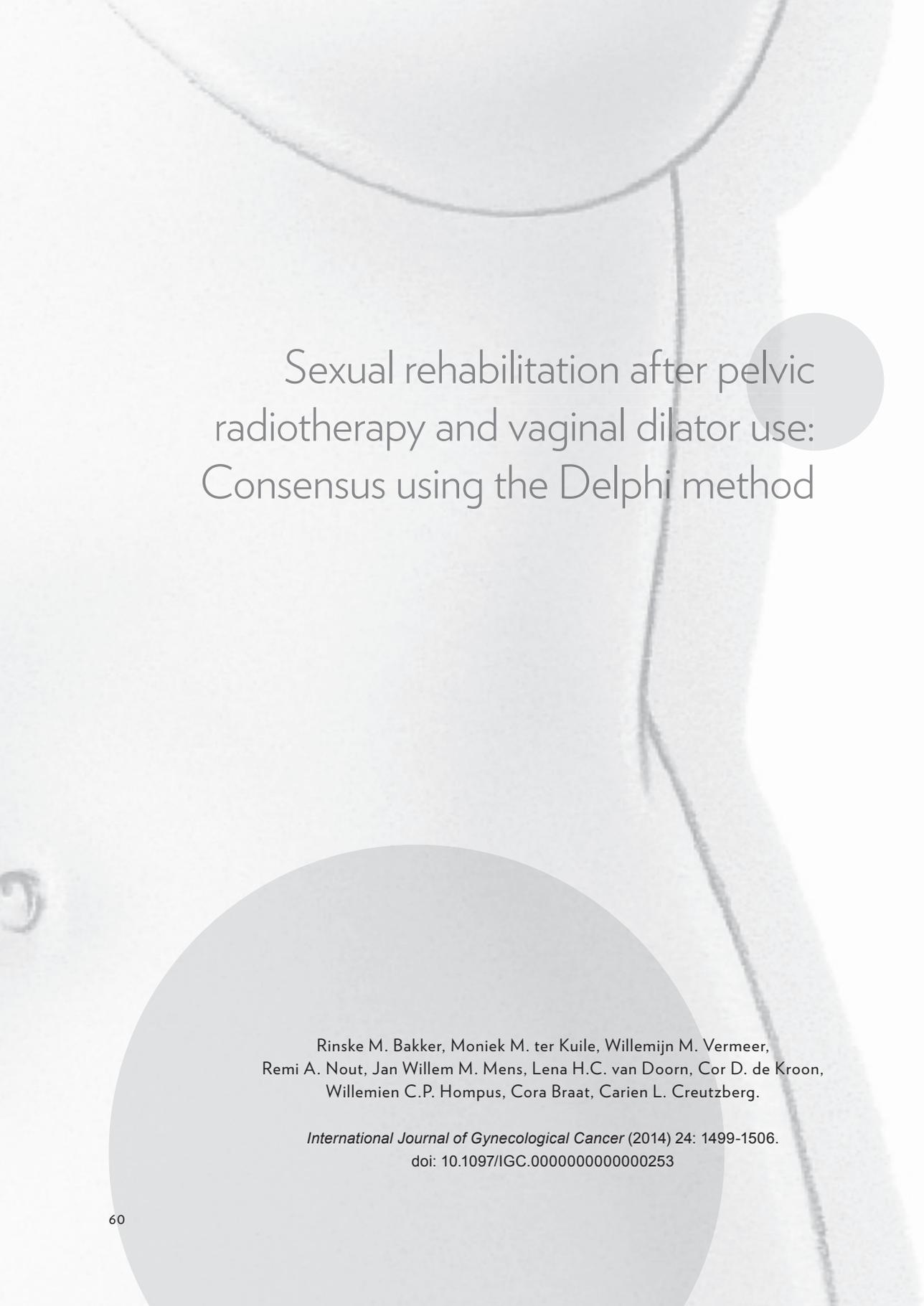


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**Title:** Sexual rehabilitation after treatment for gynaecological cancer

**Issue Date:** 2017-05-16



Sexual rehabilitation after pelvic  
radiotherapy and vaginal dilator use:  
Consensus using the Delphi method

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*International Journal of Gynecological Cancer* (2014) 24: 1499-1506.  
doi: 10.1097/IGC.0000000000000253

# Abstract

## Objectives

This study aimed to reach consensus among professional experts on patient information provision and support, regarding sexual rehabilitation and vaginal dilator use after radiotherapy for gynaecological cancers.

## Methods

An online three-round Delphi study was conducted among 10 radiation oncologists, 10 gynaecologic oncologists and 10 oncology nurses from 12 gynaecological cancer centres providing radiotherapy for gynaecological tumours. We assessed the desired content and provider of instructions and patient support regarding sexuality and vaginal dilator use. Responses were measured on a 7-point scale varying from 'totally disagree' to 'totally agree'. Consensus was reached when 70% of participants' answers fell within two scale categories with an interquartile range  $\leq 1$ .

## Results

The panel agreed that information about sexual rehabilitation using vaginal dilators should be provided by radiation oncologists prior to treatment. Information should always be provided to sexually active cervical and vaginal cancer patients, younger than 70. Tailored information was recommended for vulvar and endometrial cancer patients, patients older than 70, and sexually inactive patients. Preferably, specifically trained oncology nurses should give psychological and practical support. Participants recommended vaginal dilation to prevent vaginal adhesions, tightening and shortening. The panel advised to start dilation around 4 weeks after treatment, to perform dilation 2-3 times a week, for 1-3 minutes, and to continue dilation for 9-12 months. Plastic dilator sets were considered the most suitable type of dilator.

## Conclusions

Consensus was reached on patient information provision and support during sexual rehabilitation after radiotherapy for gynaecological cancers. Results were used to develop a sexual rehabilitation intervention.

# Introduction

In the Netherlands, each year 4500 women are diagnosed with gynaecological cancer, among which 1900 are endometrial cancers, 750 are cervical cancers and 60 are vaginal cancers.<sup>1</sup> About 35% of these women are treated with pelvic radiotherapy (RT), either as primary or post-surgical treatment.<sup>5</sup> Treatment for gynaecological cancer may cause physical and psychological side effects that interfere with the women's sexuality. Reported sexual problems among gynaecological cancer survivors are a tightened and shortened vagina, diminished lubrication, dyspareunia, post-coital bleeding, and loss of sexual desire, enjoyment and satisfaction.<sup>18,19,21,22,31</sup> Most studies agreed that the negative effect of gynaecological cancer treatment on sexual functioning was more pronounced when treatment included RT, compared to surgery alone.<sup>13,20,30</sup> The negative effect of RT is attributed to decreased lubrication, shortening and tightening of the vagina as a result of formation of fibrosis.<sup>30,49</sup>

Few studies investigated the effect of the regular use of vaginal dilators on the development or prevention of vaginal stenosis after treatment with RT. These studies showed that regular vaginal dilator use is associated with less vaginal shortening and/or tightening.<sup>39,62,63</sup> It is not clear how the (changes in) vaginal dimensions were assessed in these studies, nor what the cause-and-effect relationship was between dilator use and the vaginal measurements. Although more empirical evidence is needed, in clinical practice regular dilator use is found to reduce the risk of shortening and/or tightening due to adhesions and fibrosis.<sup>65</sup> Dilator use is therefore advocated in many guidelines and reviews.<sup>44,67,148</sup>

It is important to provide consistent and uniform, evidence-based counselling regarding when and how dilators should be used.<sup>68-70</sup> In two survey studies from the UK and Australia there was consensus among professionals that women undergoing pelvic RT for gynaecological malignancies should receive information about vaginal dilation.<sup>71,149</sup> Also, professionals recommended to insert a vaginal dilator during 5-10 minutes.<sup>71,149</sup> Other recommendations were inconsistent.<sup>71,149</sup> No consensus existed regarding the most appropriate time interval after RT, the frequency and duration of dilator use, dilator sizes offered, insertion techniques, or the appropriateness of dilator use among sexually inactive patients.<sup>71,149</sup> Moreover, there was no consensus on the content of instructions regarding patients' sexual rehabilitation.

There is a clear need for consensus on all of these aspects in order to further investigate the efficacy of a standardized procedure of sexual rehabilitation and dilator use after RT. Consensus is needed specifically on which specific gynaecological cancer patients should receive information about sexual rehabilitation and dilator use, what type of health care provider should provide this information, counselling and support, what should be the practical guidelines for use of vaginal dilation.

The Delphi method proved to be an anonymous and economic tool to reach consensus on best practice issues in health care settings.<sup>150-154</sup> At first a questionnaire

addressing the opinion of an expert panel is assessed. Then a second questionnaire is developed that is based on the first questionnaire without the statements on which consensus was reached. It is offered to the panel containing anonymous feedback on the panels' agreement. This encourages the panel to reconsider their first response to the statements.

This study used the Delphi method and aimed to determine clear recommendations on the content and procedures of patient information provision and support, regarding sexual rehabilitation and vaginal dilator use after RT for gynaecological cancers. This was done conducting an online three-round Delphi study among recognized gynaecologic oncology professionals, from different cancer centres and with various areas of clinical expertise.

## Materials and Methods

### Participants

Eligible participants were radiation oncologists, gynaecologic oncologists and oncology nurses, with recognized clinical expertise in the treatment of gynaecological cancer patients receiving pelvic RT, and expert knowledge on vaginal dilation in this population. It was expected that 30 participants, representing all Dutch gynaecological cancer centres and each of the three specialisms equally, would create a heterogeneous and representative panel.<sup>151-154</sup>

Clinicians who participated in the Dutch gynaecological cancer network received an invitation e-mail, together with a brochure explaining the study content and the Delphi method, and an online informed consent form. Non-responders were approached by phone one week later. Prior to enrolment, it was ascertained that participants had the intention to complete all rounds of the study and had access to the Internet. At the conclusion of the study the participants received a 20-euro gift voucher as a token of appreciation. The study was approved by the Leiden University Medical Centre Medical Ethics Committee.

### Questionnaire

The questionnaire consisted of statements and questions addressing participants' opinions on seven different categories (see Table 1, page 64). The questionnaire was developed based on literature on sexuality and vaginal dilation after pelvic RT,<sup>68-71,149,155</sup> and previous in-depth interviews with professionals involved in gynaecological cancer treatment. Items were pilot tested on comprehensibility among five experienced researchers in the field of gynaecologic oncology and/or conducting Delphi studies. Answers were measured using 7-point Likert scales varying from 1 (totally disagree) to 7 (totally agree) ( $n = 53$ ), single- ( $n = 8$ ) and multiple-choice questions ( $n = 6$ ). The questionnaire also consisted of items measuring demographic and work-related characteristics (e.g. age and the years of experience in the field).

**Table 1**

Description of the seven item categories used in the questionnaire.

Item category	Description of the item category
Responsibility	Responsibilities that radiation oncologists, gynecological oncologists and oncology nurses have regarding their patients' sexual rehabilitation (e.g. providing practical advice on how to cope with sexual problems).
Target population	Specific patient groups that should receive information regarding sexual rehabilitation using vaginal dilators.
Vaginal dilator	Type of dilator that is best advised.
Rationale	The rationale that health care providers should use to advise the use of dilators.
Content instructions	Information and instructions that should be provided regarding the use of vaginal dilators and sexual intercourse during sexual rehabilitation.
Information provision	Type of health care provider that should provide information regarding sexual rehabilitation and vaginal dilator use, the time interval at which information should be provided, and the informational resource that should be used.
Patient support	Type of health care provider that should provide sexual health support during rehabilitation and dilator use, and to what extent sexual health support should be given by a radiation oncologist, gynecological oncologist or oncology nurse.

## The Delphi process

The present Delphi method was based on a frequently published standard design.<sup>150–154</sup> The questionnaire elicited responses in three rounds. After each round, the degree of consensus was calculated. In case no consensus was reached on an item, the group response was fed back to the participants in the next round. Participants were asked to comment on their answers in case it differed from the group response. Items on which no consensus was reached and that, according to the comments by participants, appeared to be unclear were adapted.

The degree of consensus on the six multiple-choice questions that were used in Round 1 could not be calculated. Therefore, the multiple-choice questions were not counted as part of the total number of items in Round 1 and reformulated as 25 Likert scale statements in the next round.

An online Delphi study was conducted to allow anonymous inclusion of professionals across diverse centres and expertise and avoid that a specific expert might dominate the consensus process. Participants were asked to fill in each questionnaire within 2 weeks. Non-responders were sent a reminder by e-mail and, if necessary, received a subsequent phone call after 1 week.

## Consensus

It was decided beforehand that consensus was reached when at least 70% of participants' answers fell within the two lowest or highest answer categories on a Likert

scale, or within one category on a single- or multiple-choice question. In addition, to reach consensus, an interquartile range (IQR) of  $\leq 1$  was required. An IQR is a measure of statistical dispersion representing the distance between the 25<sup>th</sup> and the 75<sup>th</sup> percentile. A smaller IQR signifies a large consensus and a IQR  $\leq 1$  represents good consensus on a 7-point Likert scale.<sup>153,154</sup> When the degree to which consensus was reached differed between the three specialisms, this will be reported.

### Statistical analyses

Descriptive statistics (percentages and IQR's) were calculated to measure consensus. The group response on items on which no consensus was reached, were fed back to the participants in Round 2 by stating the median, and in Round 3 by stating the median together with the modus. All statistical analyses were done using the Statistical Package for the Social Sciences (SPSS) version 20.0.

## Results

### Participants

Thirty-two clinicians were approached, of which 30 agreed to participate with a mean age of 48 years old (see Figure 1, page 66, for more information on the Delphi panel characteristics). Experts from three different disciplines and all 12 gynaecological cancer centres in the Netherlands were included. Twenty-seven participants had more than 5 years of experience within the field of gynaecologic oncology (90%) and 24 participants regularly or often gave patients sexological support (80%). All participants (100%) completed the three rounds.

### Consensus results

The specific results of the consensus rounds are shown in Supplemental Information 1 and 2, which illustrate all items that reached consensus (in Round 1, 2 and 3) and all items that did not reach consensus respectively.

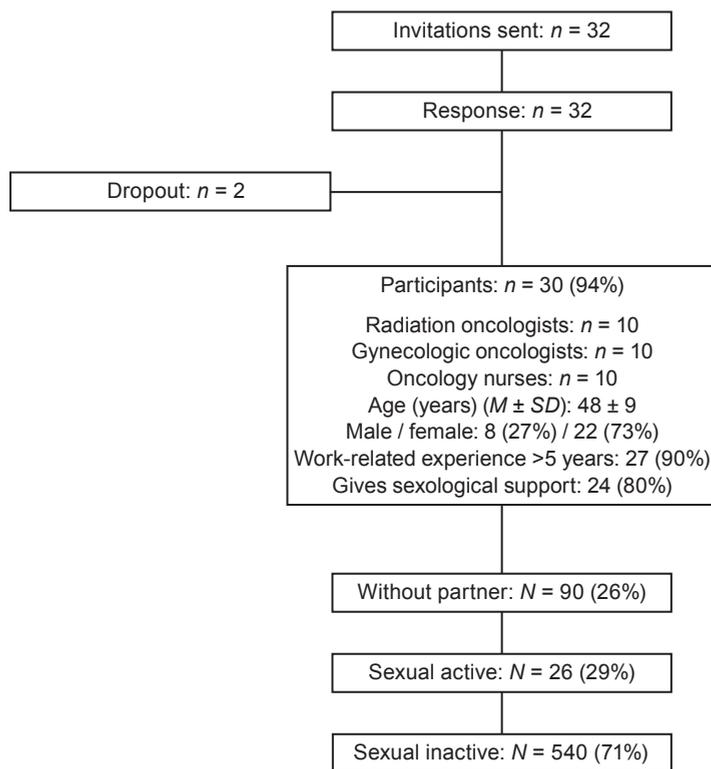
#### *Consensus Round 1*

Consensus was reached for 22/50 items in Round 1 (44%, see Supplemental Information 1, page 71). After Round 1 eight items were formulated differently based on comments by participants. Furthermore, one item was removed from the questionnaire because this question was not specific enough.

The degree with which consensus was reached, was equal between the three professional groups except for one item. The gynaecologic oncologists reached the consensus that it is part of their responsibility to evaluate their patients' sexual functioning ( $n = 10$ , 100% agreed and IQR = 1.00). The radiation oncologists almost reached the same consensus ( $n = 8$ , 80% agreed and IQR = 1.25).

However, the oncology nurses disagreed (IQR = 4.50) about whether this is their responsibility.

The panel did uniformly agree that it is important to give patients advice on how to cope with fear for sexual contact after treatment and, if necessary, to refer



**Figure 1.** Delphi panel characteristics.

patients to a sexologist after treatment with RT for gynaecological cancers. Furthermore, participants agreed that all sexually active cervical and vaginal cancer patients with a partner, younger than 70, should always be informed about sexual rehabilitation using vaginal dilators. Regarding the use of vaginal dilators, participants thought that dilators should be prescribed with the rationale that regular dilator use prevents the formation of vaginal adhesions and stenosis, and keeps the vagina accessible for penetration in the future. Vaginal dilators should be used together with lubricants. Furthermore, it was thought that the frequency of vaginal dilator use could be reduced in case the patient has resumed sexual intercourse. Health care providers, instead of the patient herself, should initiate the provision of information and patient support on this topic during follow-up appointments after treatment. Monitoring of dilator use and discussion of barriers or problems with its use should take place during each follow-up appointment.

### *Consensus Round 2*

The panel reached consensus on 31/52 items in Round 2 (60%, see Supplemental Information 1, page 71) with an equal degree of consensus between the three specialisms. After Round 2, 14 items were formulated differently based on comments by participants. Also, one item was removed from the questionnaire because this question was less specific than another item addressing the same subject.

The participants agreed that it is part of their responsibility to provide practical advice on how to cope with sexual problems. Patients treated with brachytherapy in combination with external beam RT (or on individual indications) and also patients without a current partner, especially those with cervical and vaginal cancer, should be informed about sexual rehabilitation using vaginal dilators. Patients may start having sexual intercourse 2 to 4 weeks after treatment completion. Most participants also recommended use of dilators with the rationale that dilator use makes future vaginal examinations during follow-up appointments less inconvenient. Two participants added however that this is not an argument to prescribe vaginal dilators, in case a patient would have no other reason to use dilators. Furthermore, participants agreed that it is not desirable to recommend use of vaginal dilators only after vaginal adhesions have been established. According to the panel, the most suitable dilators were commercially available plastic dilator sets. Vaginal dilators should be used two to three times a week during 9 to 12 months after treatment. It could help to move and rotate the dilator around when inserted. The panel agreed that gradually using a bigger cylinder circumference in time is important.

### *Consensus Round 3*

Consensus was reached for 8/21 items in Round 3 (38%, see Supplemental Information 1, page 71) and the degree of consensus was equal between the three specialisms. The panel agreed that it is best if radiation oncologists give the first introduction and information about vaginal dilation. More extensive information should be provided during the first post treatment follow-up appointment. According to the panel, the use of vaginal dilators can also help patients to reduce fear of bodily changes and fear of sexual activity. If preferred, patients can use a vibrator as a vaginal dilator. Furthermore, health care providers should counsel patients on which type(s) of dilator they can use, but the patient ultimately decides. To prevent adhesions, inserting the vaginal dilator for 1 to 3 minutes was thought to be sufficient. Table 2 (page 68) summarizes the results and consensus-based recommendations of the study.

### *No consensus*

No agreement was reached on whether or not to provide standard information about sexual rehabilitation using vaginal dilators to vulvar and endometrial cancer patients, patients older than 70 years, and patients who were not sexually active before treatment (see Supplemental Information 2, page 75). Some participants recommended tailoring the information for these patient groups; depending on the specific type(s) of treatment, age, wish to retain sexual activity, personal and medical situation. Some participants commented to inform every patient about sexuality and vaginal dilator use after treatment with regard to possible needs in the future. Furthermore, participants did not agree on whether dilation should be started between 2 and 4 weeks after RT ( $n = 20$ , 67%) or later. It was commented that it is important for the vaginal mucosa to have healed before dilation is started, which often takes 4 weeks after completion of RT.

**Table 2**

Summary of the consensus-based recommendations described per category.

Category	Consensus
Responsibility	<ul style="list-style-type: none"> <li>• Health care providers should give patients simple sexological advice<sup>2</sup>, such as how to cope with fear for sexual contact after treatment<sup>1</sup></li> <li>• It is desirable to refer patients to a sexologist in case simple sexological advice does not suffice<sup>1</sup></li> </ul>
Target population	<p><i>Patients should be informed about vaginal dilation in case they were:</i></p> <ul style="list-style-type: none"> <li>• Sexually active before treatment<sup>1</sup> (independent of whether they have a partner<sup>1,2</sup>)</li> <li>• Treated with pelvic radiotherapy (RT) for cervical<sup>1</sup> or vaginal cancer<sup>1</sup></li> <li>• Treated with vaginal brachytherapy in combination with external-beam RT (or on individual indications)<sup>2</sup></li> </ul>
Vaginal dilator	<ul style="list-style-type: none"> <li>• Health care providers should advise on which type of dilator should be used, but the patient ultimately decides<sup>3</sup></li> <li>• The most often recommended type of dilator are commercially available plastic dilator sets<sup>2</sup></li> <li>• Patients may use a vibrator if preferred<sup>3</sup></li> <li>• The circumference of a dilator is important during usage<sup>1</sup></li> </ul>
Rationale	<p><i>The rationale that health care providers use to prescribe vaginal dilation should contain that dilation:</i></p> <ul style="list-style-type: none"> <li>• Prevents the formation of vaginal adhesions<sup>1</sup></li> <li>• Keeps the vagina accessible for any form of penetration in the future<sup>1</sup></li> <li>• Also makes future vaginal examination (during follow-up appointments) more convenient<sup>2</sup></li> <li>• Can be useful to help reduce fear for bodily changes and sexual activity<sup>3</sup></li> <li>• Vaginal dilation should start preventively<sup>1</sup> and not only in case of established adhesion<sup>2</sup></li> </ul>
Content instructions	<ul style="list-style-type: none"> <li>• Plastic cylinders, vibrators, dildo's and fingers should be inserted at least 1 to 3 minutes, 2 to 3 times a week<sup>2</sup>, and during 9 to 12 months after treatment<sup>2</sup></li> <li>• Vaseline tampons (tampons covered in Vaseline), should be inserted overnight<sup>2</sup>, 2 to 3 times a week<sup>2</sup>, and during at least 9 to 12 months after treatment<sup>3</sup></li> </ul>
Content instructions continued	<ul style="list-style-type: none"> <li>• Lubricants should be advised together with vaginal dilators<sup>1</sup></li> <li>• Gradually using a bigger cylinder circumference in time is important<sup>2</sup></li> <li>• It is best to insert vaginal dilators as deep as possible<sup>1</sup>, in a position determined by the patient herself<sup>1</sup>, and to move the dilator around when inserted<sup>2</sup></li> <li>• Patients should consult their health care provider in case of new complaints about pain<sup>1</sup> or lasting loss of blood<sup>1</sup></li> <li>• Whether or not the partner is actively involved should depend on the patients' needs<sup>3</sup></li> <li>• The frequency of use can be lowered in case the patient also has successful sexual intercourse<sup>1</sup></li> <li>• Patients may start having sexual intercourse 2 to 4 weeks after treatment<sup>2</sup></li> </ul>
Information provision	<ul style="list-style-type: none"> <li>• The health care centre decides which health care provider is responsible for informing patients about vaginal dilation<sup>2</sup></li> <li>• The radiation oncologist<sup>3</sup> should provide the first introduction<sup>3</sup> before RT<sup>2</sup></li> <li>• The oncology nurse should provide the more extensive information<sup>2</sup> during the first follow-up appointment<sup>3</sup></li> <li>• The health care provider should initiate information provision, at least face-to-face<sup>1</sup>, even if the patient does not begin to talk about it<sup>1</sup></li> <li>• Patients' partners should be involved<sup>2</sup></li> <li>• The availability of an informational brochure<sup>1</sup> and website<sup>1</sup> is desirable</li> </ul>

Patient support	<ul style="list-style-type: none"> <li>• The health care centre decides which health care provider is responsible for supporting patients during sexual rehabilitation<sup>2</sup></li> <li>• Monitoring vaginal dilator use should always take place during follow-up appointments<sup>1</sup></li> <li>• The oncology nurse should provide psychological and practical patient support during sexual rehabilitation<sup>2</sup></li> <li>• The health care provider should initiate providing patient support, even if the patient does not take the initiative<sup>1</sup></li> <li>• Extra consultations to support the patient should be possible<sup>2</sup></li> <li>• Extra referral possibilities<sup>1</sup> for patients with sexual problems and more training possibilities in assessing sexual complaints<sup>2</sup> are desirable</li> </ul>
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<sup>1</sup>Consensus reached in Round 1; <sup>2</sup>Consensus reached in Round 2; <sup>3</sup>Consensus reached in Round 3.

## Discussion

An online three-round Delphi study was conducted to assess the content and procedures of patient information provision and support regarding sexual rehabilitation and vaginal dilator use after RT for gynaecological cancer. The study was conducted among 30 gynaecologic oncology experts from 12 gynaecological cancer centres. The panel equally represented radiation oncologists, gynaecologic oncologists and specialized oncology nurses, involved and experienced in counselling, and the follow-up of gynaecological cancer patients after RT. All participants completed the three rounds. The degree to which consensus was reached, was equal between the three professional groups. Previously, no specific recommendations could be made regarding the content and procedures of information provision and support during sexual rehabilitation and vaginal dilator use.<sup>67,71,149</sup> This study offers a clear consensus on these topics.

Consensus was reached that information about sexual rehabilitation and vaginal dilator use should be given to all sexually active cervical and vaginal cancer patients, younger than 70. Moreover, comments by the participants made clear that vulvar and endometrial cancer patients, patients older than 70, and patients that were not sexually active before treatment, should receive care tailored to their needs. The participants also agreed that radiation oncologists should initiate and provide information about sexual side effects of RT, rehabilitation and preventive measures including vaginal dilator use prior to treatment. Additionally, in line with previous suggestions, more extensive dedicated psychological and practical support should preferably be initiated and given by specifically trained oncology nurses.<sup>156</sup>

Although in this study no clear consensus was reached on the best time to start dilator use, most participants recommended to start between 2-4 weeks after completion of RT ( $n = 20$ , 67%), or as soon as the vaginal mucosa is healed (which is usually around 4 weeks). This was also the most commonly cited time interval in the studies of White & Faithfull (2006) and Lancaster (2004).<sup>71,149</sup> Furthermore, there was consensus that the frequency with which dilators should be used, preferably 2-3

times a week, could be reduced in case the patient has resumed sexual intercourse.

The panel agreed that it is important to gradually use a bigger cylinder circumference in time. Participants in this study also agreed that each dilator should be inserted during 1-3 minutes, which is in contrast to previous recommendations of 5-10 minutes<sup>67,71,149</sup> Furthermore, the panel agreed it is best to perform dilation 9-12 months, whereas in previous studies about half of the respondents recommended indefinite use.<sup>71,149</sup> However, in contrast to the aforementioned survey studies,<sup>22,23</sup> his present study conducted the Delphi method among a heterogeneous panel. Therefore, the results of this study were thought to reflect the opinion of all professionals involved in counselling and the follow-up of gynaecological cancer patients after RT.

Adapting items for the next round in the Delphi study obviously poses a risk of a self-fulfilling prophecy.<sup>151</sup> However, the items concerned were adapted using experts' comments in a systematic way and all the adapted items were pilot tested on comprehensibility again among five experienced researchers in the field. The professionals that participated in this study were expected to be potential users of the findings and, consequently, were thought to form the most useful expert panel. In a separate in-depth interview study the perspective of gynaecological cancer patients on sexual rehabilitation and dilator use after pelvic RT will be investigated. The patient's perspective on this topic is required to be able to improve patient care, since it is expected that these patients have additional needs. For example, participants in this study considered the rigid plastic dilator sets the most suitable type of dilator to prescribe, whereas patients might have preferred a softer flexible dilator.<sup>70</sup> The efficacy of regular dilator use can only be assessed in a randomized controlled trial if there is a standardized procedure of sexual rehabilitation and vaginal dilator use. Using the Delphi method, a common consensus was created out of the available expertise. It is therefore important to further investigate whether the results of this study are generally applicable in clinical practice and support patients during their sexual rehabilitation after pelvic RT, before final policy decisions can be made.

In conclusion, the results of this study offer clear consensus-based recommendations for the education and support of gynaecological cancer patients treated with pelvic RT, during sexual rehabilitation and vaginal dilator use. Based on these results, an intervention has been developed and is currently pilot tested in which patients receive support during sexual rehabilitation and vaginal dilator use after pelvic RT. This study was a first step towards the improvement of gynaecological cancer patient support during their sexual rehabilitation after pelvic RT.

**Supplemental Information 1**

Items that reached consensus in Round 1, 2 and 3.

Category	Item and comments by participants	N <sup>a</sup>	% <sup>b</sup>	IQR <sup>c</sup>
Round 1				
Responsibility	It is the health care providers' responsibility to give patients advice on how to cope with fear for sexual contact after treatment.	22	73	1.00
	It is desirable to refer patients to a sexologist in case simple sexological advice does not suffice.	29	97	1.00
	According to gynecological oncologists, it is the health care providers' responsibility to evaluate their patients' sexual functioning. *	10	100	1.00
Target population	Patients treated with RT for cervical cancer have to be informed about vaginal dilation.	29	97	0.00
	Patients treated with RT for vaginal cancer have to be informed about vaginal dilation.	24	80	0.00
	Patients treated with RT for ovarian cancer do not have to be informed about vaginal dilation. †	28	93	0.00
	Patients that were sexually active before treatment have to be informed about vaginal dilation.	26	86	1.00
	Patients with a partner have to be informed about vaginal dilation.	25	83	0.00
Vaginal dilator	The circumference of a dilator is considered important during usage.	21	70	1.00
Rationale	The rationale that health care providers use to prescribe vaginal dilation should at least contain that dilation prevents the formation of vaginal adhesions.	24	80	0.00
	The rationale that health care providers use to prescribe vaginal dilation should at least contain that dilation keeps the vagina accessible for any form of penetration in the future.	25	83	0.00
	Vaginal dilation should start preventively, before the formation of vaginal adhesions.	27	90	1.00
Content instructions	The frequency with which vaginal dilators are used can be lowered in case the patient also has successful sexual intercourse.	28	93	0.00
	Lubricants should be advised together with the use of vaginal dilators.	30	100	0.25
	The position in which a vaginal dilator is inserted, is best determined by the patient herself.	22	74	1.00
	It is best to insert vaginal dilators as deep as possible.	21	70	1.00
	Patients should consult their health care provider in case of new complaints about pain.	21	70	1.00

Category	Item and comments by participants	N <sup>a</sup>	% <sup>b</sup>	IQR <sup>c</sup>
	Patients should consult their health care provider in case of lasting loss of blood.	25	83	0.25
Information provision	Health care providers should initiate information provision about vaginal dilation, even if the patient does not begin to talk about it.	26	87	1.00
	Patient education about vaginal dilation should at least take place face-to-face.	27	90	1.00
	Initially, the sexologist does not provide patient education about vaginal dilation.	26	87	0.00
	The availability of an informational brochure is desirable.	28	94	1.00
	The availability of an informational website is desirable.	27	90	0.25
Patient support	Monitoring vaginal dilator use should always take place during follow-up appointments.	24	80	1.00
	The health care provider should initiate providing patient support during sexual rehabilitation, even if the patient does not take the initiative.	25	83	0.00
	Initially, the sexologist does not provide patient support with vaginal dilation.	23	77	0.25
	Extra referral possibilities, to refer patients with sexual complaints to, are desirable.	24	80	0.00
Round 2				
Responsibility	It is the health care providers' responsibility to provide simple sexological advice.	25	83	1.00
Target population	Patients treated with vaginal brachytherapy should be informed about vaginal dilation. <i>Eight participants added that only treatment with brachytherapy in combination with external-beam RT or individual indications would make them inform patients.</i>	28	94	1.00
	Patients without a partner should be informed about vaginal dilation. <i>Five participants commented that this is important because dilation would make future physical examinations and sexual intercourse possible.</i>	20	76	1.00
Vaginal dilator	The best advised type of dilator are commercially available plastic dilator sets.	23	77	0.25
Rationale	The rationale should also contain that dilation makes future vaginal examination (during follow-up appointments) more convenient. <i>Two participants added however that this is not an argument to prescribe vaginal dilators, in case a patient would have no other reason to use them.</i>	21	70	1.00
	Participants agreed that it is not desirable to advise dilation only in case of established adhesion.†	26	87	0.00

Category	Item and comments by participants	N <sup>a</sup>	% <sup>b</sup>	IQR <sup>c</sup>
Content instructions	Patients may start having sexual intercourse 2 to 4 weeks after treatment completion. <i>According to two participants, the right moment to start depends on to what extent the vaginal epithelia is healed and the ability to have sexual intercourse cautiously.</i>	21	70	0.50
	Plastic cylinders, vibrators, dildo's and fingers can best be used two to three times a week.	25	83	0.00
	Plastic cylinders, vibrators, dildo's and fingers can best be used during 9 to 12 months after treatment. <i>Although, according to three participants, adhesions can also emerge after this period.</i>	21	70	0.00
	It is thought that gradually using a bigger cylinder circumference in time is important.	24	80	0.00
	Some advised the use of Vaseline tampons (tampons covered in Vaseline), which should be used two to three times a week.	24	80	0.00
	Vaseline tampons should be inserted overnight.	22	73	1.00
	It is advantageous (against the formation of adhesions) to move vaginal dilators around when inserted.	25	83	0.00
Information provision	Every health care centre should decide for themselves which health care provider is responsible for informing patients about vaginal dilation.	25	83	0.00
	Patients' partners should be involved during information provision. Although, six participants commented that patients should decide whether their partner is present or not.	21	70	1.00
	It is best if the oncology nurse provides the more extensive information.	21	70	1.00
	The first introduction about vaginal dilation should be given before RT starts.	23	77	0.25
Patient support	It is best if the oncology nurse gives the psychological and practical patient support during sexual rehabilitation.	22	73	1.00
	Every health care centre should decide for themselves which health care provider is responsible for supporting patients during sexual rehabilitation.	27	90	0.00
	Extra consultations to support the patient with vaginal dilator use should be possible.	29	97	0.00
	More training possibilities in assessing sexual complaints is desirable.	22	73	1.00
Round 3				
Vaginal dilator	Health care providers should advise on which type of dilator should be used, but the patient ultimately decides.	24	80	0.00
	Patients may use a vibrator if preferred. <i>One participant added that it is possible as long as the dilator has a wide tip.</i>	22	74	1.00
Rationale	It is useful to add to the rationale that using dilators can help patients to reduce fear for bodily changes and sexual activity.	29	96	0.00

Category	Item and comments by participants	N <sup>a</sup>	% <sup>b</sup>	IQR <sup>c</sup>
Content instructions	Inserting the cylinder, vibrator, dildo or fingers for 1 to 3 minutes is sufficient against the formation vaginal adhesions.	23	77	0.00
	It is sufficient to use Vaseline tampons 9 to 12 months after treatment.	24	80	0.00
	Whether or not the partner is actively involved during the use of dilators should depend on patients' needs.	27	90	0.00
Information provision	The panel agreed that radiation oncologists could best introduce vaginal dilation.	27	90	0.00
	More extensive information should be given during the first follow-up appointment after treatment.	24	80	0.00

<sup>a</sup> Number of participants that agreed on the item (N);

<sup>b</sup> Percentage of participants that agreed on the item (%);

<sup>c</sup> Interquartile range of the total group response (IQR);

\* This statement did not appear applicable to all participants' and was removed from the questionnaire after Round 1. Radiation oncologists almost agreed ( $n = 8$  agreed and IQR = 1.25) and oncology nurses disagreed (IQR = 4.50) about whether it is part of their responsibility to evaluate their patients' sexual functioning;

† This item was inversely formulated in the original questionnaire.

## Supplemental Information 2

Items that did not reach consensus and comments made by participants.

Category	Item and comments by participants	N <sup>a</sup>	% <sup>b</sup>	IQR <sup>c</sup>	Mdn <sup>d</sup>
Target population	Patients treated with solely external-beam RT should be informed about vaginal dilation.	18	60	1.00	6.0
	Patients treated with RT for endometrial cancer should be informed about vaginal dilation.	18	60	1.00	6.0
	Patients treated with RT for vulvar cancer should be informed about vaginal dilation.	14	46	1.00	5.0
	<i>Some participants stated that the information these patients receive should depend on their personal situation (n = 4), needs (n = 3), sexual activity (n = 1) and possible operational outcomes (n = 2).</i>				
	Patients who were not sexually active before treatment should not be informed about vaginal dilation.*	6	20	2.00	5.0
	Patients older than 70 years should be informed about vaginal dilation.	12	40	2.00	5.0
	<i>Some participants inform every patient about sexuality and the use of vaginal dilators after treatment with regard to possible needs in the future (n = 4), but others adjust their information provision to the patients' age (n = 4).</i>				
Vaginal dilator	The use of fingers as a vaginal dilator is less effective because fingers can be inserted less deep.	16	54	2.00	6.0
Content instructions	Vaginal dilation should be started between 2 and 4 weeks after RT. <i>Three participants commented that it is important for the vaginal epithelia to heal and that it is often not before 4 weeks after RT.</i>	20	67	0.00	2 - 4 weeks <sup>†</sup>
	The use of various plastic cylinder sizes should be build up to a size comparable to the size of the penis of their partner. <i>Four participants thought it is not always necessary, because sexual intercourse may be less problematic than inserting a large plastic cylinder and intercourse is sufficient to prevent adhesions.</i>	14	46	2.00	5.0
	It is useful to embed the use of vaginal dilators in the sexual relationship. <i>Two participants commented that medical reasons for using dilators may be held separate from sexual contact and patients may decide for themselves in what context they use vaginal dilators.</i>	20	69	1.00	6.0

<sup>a</sup> Number of participants that agreed on the item (N);

<sup>b</sup> Percentage of participants that agreed on the item (%);

<sup>c</sup> Interquartile range of the total group response (IQR);

<sup>d</sup> Median of the group response on a 7-point Likert scale varying from 1 (totally disagree) to 7 (totally agree) (Mdn);

\* This item was inversely formulated in the original questionnaire;

<sup>†</sup> This item was a single-choice question.

The median of the group response on the answer options was reported.