

Sexual counselling for individuals with cardiovascular disease and their partners

A Consensus Document From the American Heart Association and the ESC Council on Cardiovascular Nursing and Allied Professions (CCNAP)

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After a cardiovascular event, patients and their families often cope with numerous changes in their lives, including dealing with consequences of the disease or its treatment on their daily lives and functioning. Coping poorly with both physical and psychological challenges may lead to impaired quality of life. Sexuality is one aspect of quality of life that is important for many patients and partners that may be adversely affected by a cardiac event. The World Health Organization defines sexual health as '... a state of physical, emotional, mental and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity. Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences ...'^{1(p4)} The safety and timing of return to sexual activity after a cardiac event have been well addressed in an American Heart Association scientific statement, and decreased sexual activity among cardiac patients is frequently reported.² Rates of erectile dysfunction (ED) among men with cardiovascular disease (CVD) are twice as high as those in the general population, with similar rates of sexual dysfunction in females with CVD.³ ED and vaginal dryness may also be presenting signs of heart disease and may appear 1–3 years before the onset of angina pectoris. Estimates reflect that only a small percentage of those with sexual dysfunction seek medical care;⁴ therefore, routine assessment of sexual problems and sexual counselling may be of benefit as part of effective management by physicians, nurses, and other healthcare providers.

Keywords

AHA Scientific Statements • Cardiovascular disease • Sex • Sex counselling

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Sexual counselling is important for both cardiac patients and their partners. Psychological concerns, including anxiety, fear, and depression, are prevalent among cardiac patients and, to some extent, their partners.^{5–7} Returning to sexual activity is a common concern, and patients frequently request information on how to resume sexual activity.^{8,9} Partners have considerable concerns, often more so than patients;^{10,11} therefore, the inclusion of partners in sexual counselling is important.

Sexual counselling is an interaction with patients that includes information on sexual concerns and safe return to sexual activity,¹² as well as assessment, support, and specific advice related to psychological and sexual problems, also referred to as psychosexual counselling. Sexual counselling takes place during a one-to-one exchange with a trained person, with the aim of solving a problem and offering advice. It offers a psychophysiological approach with the possible integration of pharmacotherapy, which is different from other types of therapy.^{13,14} Counselling can be short-term, as might occur in the acute care setting, or ongoing counselling in the office setting during repeated patient visits. Patients with both acute and chronic cardiovascular problems can benefit from sexual counselling. Current research clearly articulates the need for healthcare professionals to become more actively involved in sexual counselling.^{15–17} In general, healthcare professionals, in caring for cardiac patients, recognize the importance of discussing sexual function and activity and also express their responsibility to do so,^{15,17} although many healthcare professionals do not know what specific advice to give. Therefore, the intent of this consensus statement is to synthesize and summarize current evidence related to sexual counselling in CVD and to provide direction to physicians, nurses, and other healthcare professionals in the practice of sexual counselling.

In writing these guidelines, the writing group applied the rules of evidence and the formulation of strength of recommendations used by other writing groups of the American Heart Association (Table 1). A summary of the 'top 10 things to know' is presented in Table 2.

Recommendations for sexual counselling by healthcare professionals

Patient and spouse/partner counselling by healthcare professionals is useful to assist in resumption of sexual activity after an acute cardiac event, new CVD diagnosis, stroke, changes in chronic cardiac disease function or status, or implantable cardioverter-defibrillator (ICD) implantation, and may include the use of educational materials, such as written materials or a video provided to both patients and partners (Class I; Level of Evidence B).^{2,17,18}

Training should be provided for staff working with patients with CVD in relation to taking a sexual history; counselling and communication techniques for use within a sexual counselling consultation; delivery of accurate information to patients; follow-up education or counselling; referrals to other healthcare professionals; and discussion

of sexual concerns in various populations and situations (Class I; Level of Evidence C).

It is reasonable to tailor sexual counselling to the individual needs of the patient, regardless of age and sex, and offer it to patients as well as partners (Class IIa; Level of Evidence B).^{8,17,19,20}

Evidence suggests that information and support regarding sexual issues are not readily available to patients,^{21,22} and this lack of support may be attributable to both healthcare provider and patient misperceptions relating to sexual counselling after a coronary event.^{15,20,23,24} Findings from descriptive qualitative studies reveal that cardiac patients want and need to receive information about sexual functioning and a safe return to sexual activity related to myocardial infarction (MI),^{9,25–27} coronary artery bypass graft (CABG) surgery,²⁸ stroke,⁴ and heart failure (HF).²⁹ Patients who have experienced a coronary event may report issues related to resuming sexual activity that are both physiological and psychological, such as general anxiety, fear of having another MI, feeling unwanted by their partner or not good enough, changes in self-perceptions, inadequate knowledge regarding the impact of heart medications, and finally, partner concerns.^{9,25,30} Patients generally report a desire to receive information regarding the resumption of sexual activity and to have sexual counselling services available when sexual problems arise.³¹ Discussion of sexual concerns is not limited to those with acute conditions, because those with chronic CVD may require ongoing counselling and support.

Barriers to sexual counselling by healthcare professionals include an expectation that the patient does not want this information, provider inexperience, a lack of training, and time constraints. Cultural and language barriers may also inhibit sensitive discussions.^{15,17,22,32–39}

Although healthcare professionals indicate some knowledge about sexual activity in cardiac populations and are willing to engage in sexual counselling,²² evidence suggests limited follow-through in providing such interventions to patients^{40,41} because of lack of confidence and specialized training,^{15,32,42} as well as perceived restrictions in the practice setting⁴³ and cultural background of the healthcare provider.³³

Specific areas of knowledge to be addressed in staff training are the role of intimacy without sex to gain confidence, positions for sexual activity, use of foreplay before sexual activity, and avoidance of unfamiliar partners and surroundings,^{17,36,44} as well as knowledge regarding the use of medications to enhance sexual performance and whether or not these are safe for patients to use with specific types of CVD. Embarrassment and fear of upsetting the patient are often cited as barriers by providers, and patients themselves cite embarrassment as their greatest barrier to discussing sexual health issues.^{45–49} Assumptions, stereotypical views, and overprotective judgments on the part of the healthcare professional may unnecessarily deter sexual counselling.

Patient counselling

The practice of delivering sexual counselling to patients varies both across and within countries and services.^{33,44,50} Only a few studies have focused on the number of patients receiving

Table 1 Applying classification of recommendations and level of evidence

ESTIMATE OF CERTAINTY (PRECISION) OF TREATMENT EFFECT	SIZE OF TREATMENT EFFECT				
	CLASS I <i>Benefit >>> Risk</i> Procedure/Treatment SHOULD be performed/ administered	CLASS IIa <i>Benefit >> Risk</i> Additional studies with <i>focused objectives needed</i> IT IS REASONABLE to per- form procedure/administer treatment	CLASS IIb <i>Benefit ≥ Risk</i> Additional studies with broad <i>objectives needed; additional</i> <i>registry data would be helpful</i> Procedure/Treatment MAY BE CONSIDERED	CLASS III <i>No Benefit</i> or CLASS III <i>Harm</i>	
				Procedure/ Test	Treatment
				COR III: No benefit	No Proven Benefit
				COR III: Harm	Excess Cost w/o Benefit or Harmful to Patients
LEVEL A Multiple populations evaluated* Data derived from multiple randomized clinical trials or meta-analyses	<ul style="list-style-type: none"> Recommendation that procedure or treatment is useful/effective Sufficient evidence from multiple randomized trials or meta-analyses 	<ul style="list-style-type: none"> Recommendation in favour of treatment or procedure being useful/effective Some conflicting evidence from multiple randomized trials or meta-analyses 	<ul style="list-style-type: none"> Recommendation's usefulness/efficacy less well established Greater conflicting evidence from multiple randomized trials or meta-analyses 	<ul style="list-style-type: none"> Recommendation that procedure or treatment is not useful/effective and may be harmful Sufficient evidence from multiple randomized trials or meta-analyses 	
LEVEL B Limited populations evaluated* Data derived from a single randomized trial or non-randomized studies	<ul style="list-style-type: none"> Recommendation that procedure or treatment is useful/effective Evidence from single randomized trial or non-randomized studies 	<ul style="list-style-type: none"> Recommendation in favour of treatment or procedure being useful/effective Some conflicting evidence from single randomized trial or non-randomized studies 	<ul style="list-style-type: none"> Recommendation's usefulness/efficacy less well established Greater conflicting evidence from single randomized trial or non-randomized studies 	<ul style="list-style-type: none"> Recommendation that procedure or treatment is not useful/effective and may be harmful Evidence from single randomized trial or non-randomized studies 	
LEVEL C Very limited populations evaluated* Only consensus opinion of experts, case studies, or standard of care	<ul style="list-style-type: none"> Recommendation that procedure or treatment is useful/effective Only expert opinion, case studies, or standard of care 	<ul style="list-style-type: none"> Recommendation in favour of treatment or procedure being useful/effective Only diverging expert opinion, case studies, or standard of care 	<ul style="list-style-type: none"> Recommendation's usefulness/efficacy less well established Only diverging expert opinion, case studies, or standard of care 	<ul style="list-style-type: none"> Recommendation that procedure or treatment is not useful/effective and may be harmful Only expert opinion, case studies, or standard of care 	
Suggested phrases for writing recommendations	should is recommended is indicated is useful/effective/beneficial	is reasonable can be useful/effective/beneficial is probably recommended or indicated	may/might be considered may/might be reasonable usefulness/effectiveness is unknown/unclear/uncertain or not well established	COR III: No Benefit is not recommended is not indicated	COR III: Harm potentially harmful causes harm associated with excess morbidity/mortality should not be performed/ administered/ other
Comparative effectiveness phrases†	treatment/strategy A is recommended/indicated in preference to treatment B treatment A should be chosen over treatment B	treatment/strategy A is probably recommended/indicated in preference to treatment B it is reasonable to choose treatment A over treatment B		should not be performed/ administered/ other is not useful/ beneficial/ effective	

A recommendation with Level of Evidence B or C does not imply that the recommendation is weak. Many important clinical questions addressed in the guidelines do not lend themselves to clinical trials. Although randomized trials are unavailable, there may be a very clear clinical consensus that a particular test or therapy is useful or effective.

*Data available from clinical trials or registries about the usefulness/efficacy in different subpopulations, such as sex, age, history of diabetes, history of prior myocardial infarction, history of heart failure, and prior aspirin use.

†For comparative effectiveness recommendations (Class I and IIa; Level of Evidence A and B only), studies that support the use of comparator verbs should involve direct comparisons of the treatments or strategies being evaluated.

sexual counselling,^{2,51} and even fewer have examined the quality and efficacy of sexual counselling after a cardiac event or stroke.^{19,52–54}

Healthcare professionals must balance the sensitivity of the topic, their own knowledge and comfort, and the need for education and support on the part of the patient when discussing resumption of sexual activity. Patients who have had no sexual activity before CVD may have no interest in initiating sexual activity or indeed in discussing sexual activity, so careful history taking is imperative to ascertain the need for sexual counselling.⁵⁵ Conversely, those patients whose cardiac symptoms have previously precluded sexual activity may now be interested in a return to sexual activity.

Patients who have concerns about resuming sexual activity after a cardiac event or stroke²⁵ report wanting healthcare professionals, especially their cardiologists,³¹ to discuss sexual issues, with a preference for individual counselling tailored to meet their individual needs. Timing the provision of information is difficult to ascertain, because some patients would prefer information while hospitalized, whereas others prefer the information later, after settling back into their usual routine.⁸ The level of specific information and detail required varies with individual needs and preferences.¹⁶

Patient reluctance to discuss intimate details of their relationships and sex life may be related to gender, age, gender of the healthcare professional, and personal issues such as embarrassment or regarding

Table 2 Top 10 things to know

1. Sexual counselling should be tailored to the individual needs and concerns of patients with CVD and their partners/spouses.
2. Healthcare professionals working with patients with CVD may need education and training in sexual assessment, communication techniques, and sexual counselling (Class I; LOE C).
3. Structured strategies, such as the use of the PLISSIT model and assessment tools, can be useful in assessing psychosexual concerns of patients with CVD (Class I; LOE C).
4. Patients with CVD and their partners may want to discuss sexual issues and their associated psychological concerns (Class I; LOE C).
5. Psychological factors including fear, anxiety, and depression can adversely influence participation in sexual activities in patients with CVD (Class I; LOE B).
6. Sexual counselling interventions with patients with CVD can improve the frequency of sexual intimacy and the quality of sexual functioning and should be offered regardless of age, gender, culture, or sexual orientation, using a team approach when possible (Class I–IIa; LOE B).
7. Cognitive-behavioural techniques, patient education, and therapeutic communication strategies have been used successfully in sexual counselling with cardiac patients (Class IIa; LOE B).
8. Sexual counselling content appropriate for all patients with CVD includes a review of medications and potential effects on sexual function, any risk related to sexual activity, the role of regular exercise in supporting intimacy, use of a comfortable familiar setting to minimize any stress with sexual activity, use of sexual activities that require less energy expenditure as a bridge to sexual intercourse, avoidance of anal sex, and the reporting of warning signs experienced with sexual activity (Class IIa; LOE B–C).
9. Specific recommendations by cardiovascular diagnosis should be incorporated in sexual counselling, for example, fear of ICD discharge with sexual activity or appropriate sexual activities in patients with heart failure with reduced exercise capacity (Class IIa–IIb; LOE B–C).
10. RCTs using a specific sexual counselling intervention with patients with CVD and their partners would be useful in determining efficaciousness in reducing the incidence or severity of specific physical and psychological variables.

CVD indicates cardiovascular disease; ICD, implantable cardioverter-defibrillator; LOE, level of evidence; PLISSIT, permission, limited information, specific suggestions, and intensive therapy; and RCTs, randomized controlled trials.

sex as a taboo topic. In some cultures, sex is regarded as more private than in others and is not openly discussed. In 1 study, 69% of MI patients stated that because sex was regarded as private, it could not be discussed with friends, spouse, sisters or brothers, or children. In addition, participants stated that people could not talk about sex because of cultural taboos.²⁵ The patient's perception of the provider's knowledge, maturity, and willingness to discuss sexual issues also plays a role in facilitating discussion.^{46,56–58}

Gender and sexual counselling

Sexual problems are highly prevalent in both sexes and across all age groups among people with CVD.^{59–61} What is not known is whether men and women have different needs and experiences related to CVD and sexual counselling. It has been suggested that men and women may have different physiological and psychological responses to sexual activity.^{62–64} Sexual dissatisfaction differs in men and

women who have experienced a cardiac event or stroke; women often relate sexual dissatisfaction to conflict within the relationship, fear of intercourse, and lack of orgasm, whereas men report dissatisfaction relating to rejection of sexual advances, problems with arousal, fear of ED, and low self-esteem. Both men and women report that the perceived importance of sex within the relationship was related to the level of sexual dissatisfaction and satisfaction with life.⁶⁰ In general, research exploring female sexual dysfunction after a cardiac event or stroke has received considerably less attention than that in men,^{65,66} and the need for specialists to provide sexual advice and counselling for a woman is less well recognized.^{34,67}

Age and sexual counselling

Many individuals enjoy a sex life into older age,⁶⁸ but later life is typically viewed as a time of being asexual by society, and resuming or continuing sex with an illness is rarely discussed.⁶⁸ Healthcare professionals may hold stereotypical views on ageing and sexuality, so to provide sexual counselling, a thorough understanding of the myths and realities of sex in older age is needed.⁶⁹ In a review of 25 articles from 1999 to 2010, patients were more likely to seek help if the provider used a proactive approach and inquired about sexual concerns during routine visits with adults of any age, which highlights the need for providers to avoid making the assumption that sexual issues are of lesser concern to older adults.⁷⁰

Partner counselling

The focus of education and counselling is often on the person with cardiac disease, and partners may feel their needs are pushed aside.^{71–73} Among partners of patients undergoing cardiac rehabilitation, sexual concerns were among the most prevalent stressors reported. Distressed spouses also reported significantly less intimacy in their marriages.⁷³ If a couple believes that their sex life is over because of illness, they will need help in redefining their sexual relationship. The severity of the disease often requires the patient and partner to redefine their sexual roles and to explore other sexual behaviours besides intercourse. Couples who have been together for many years often have established routines related to their sexual behaviour and will need help in negotiating new roles.⁷⁴ Couples may have had sexual problems for many years and have not sought treatment; therefore, sexual problems may now need to be addressed.

Both sexes report fear of intercourse or orgasm after a cardiac event, and often this information is not communicated by the patient to the partner or provider, which leads to stress and possible deterioration of the relationship.^{57,75} Men as partners reported challenges to masculine self-image as a sexual being and hesitancy in approaching their female partners, viewing them as more fragile after MI.⁷⁶ Women as partners reported a great sense of loss and uncertainty, both emotional and sexual, related to their male partner with MI.⁷⁷

The experience of being in a caregiver role affects not only the intimate relationship but also the physical health of the partner. Overprotection by family members is cited as a source of frustration and aggravation for cardiac patients and can create conflict for the couple,⁷⁸ particularly for those who have experienced an MI or have had an ICD implanted.^{10,79} It is important to provide interventions for patients and partners in coping and management specific to sexuality and psychological health;^{10,72,80} such an intervention

may include telephone follow-up with the couple.⁸¹ During sexual counselling with the couple, health professionals should acknowledge the impact CVD may have on the partner in relation to anxiety, fear, and overprotectiveness and offer interventions in coping and stress-relieving strategies.

Sexual counselling for same-sex couples

Very little literature exists in relation to sexual counselling for same-sex couples,⁸² and even less in the context of CVD. Gender stereotyping about same-sex couples by healthcare professionals may be a barrier for sexual counselling. Assumptions about sexual orientation need to be addressed and explored in provider training.⁸³ Patients may be prevented from discussing sexual issues because of fear of healthcare providers' attitudes toward homosexuality or bisexuality.³⁹

Recommendation for psychological impact of CVD and implications for sexual counselling

To reduce the psychological sequelae associated with CVD, sexual counselling can be useful for most patients and their partners (Class IIa; Level of Evidence C).

The association between CVD and psychological issues such as fear,^{25,84,85} anxiety,^{79,86,87} and depression^{86,88,89} has been well documented. There is limited evidence, however, specifically related to sexual counselling and psychological concerns, yet depression and anxiety can have detrimental effects on sexual activity when comorbid CVD is present and should be assessed in patients before they engage in sexual activity.² There is a strong association between sexual disorders and comorbid conditions, especially ED, CVD, and depression.^{90–92} Depression may be an important contributing cause of ED, including decreased libido, difficulty with arousal and orgasm, and dyspareunia.^{3,93,94} Changes in sexual activity after a cardiac event may impair the patient's quality of life, negatively affect psychological health, and strain marital or other important intimate relationships, which in turn may lead to depression and anxiety.^{3,9,93} These psychological effects can occur after an acute cardiac event but may persist for those with chronic CVD. Fear of a cardiac event during sexual intercourse can interfere with patients' ability to perform and enjoy sex;⁹⁵ therefore, providers should discuss this issue as soon as possible, including offering reassurance to patients and partners that the risk of MI with sexual activity is low.⁹⁶ Anxiety itself has been found to be a contributor for increased likelihood of cardiac events; therefore, the assessment of anxiety and a discussion of sexual concerns are important areas to be addressed by healthcare professionals.⁹⁷ For those with an ICD, shocks contributed to anxiety, fear, and overall distress for the patient and his or her partner,¹⁰ with psychological adjustment to the device similar for both patient and partner.⁸⁰

A small number of well-designed non-randomized studies have examined sexual counselling and related psychological issues in a cardiac patient population. One study comparing healthy older adults ($n = 59$) and patients with HF ($n = 85$) found that higher sexual self-efficacy, lower sexual anxiety, and being married and of younger age independently predicted sexual activity, whereas

sexual depression (a specific measure reflecting sadness or unhappiness within the sexual relationship)¹¹ had no effect on sexual activity.⁹⁸ Randomized controlled trials measuring the effects of psychological issues on sexual functioning among patients with cardiac conditions are lacking, and intervention studies using sexual counselling have received even less attention in this population. The only randomized controlled trial measuring the effectiveness of sexual therapy (patient education and cognitive-behavioural techniques) involved men ($n = 92$) admitted to a cardiac rehabilitation program and then randomized to treatment/sexual therapy or to a control group.⁵⁴ After patients and partners participated in 3 sessions conducted by cotherapists who specialized in sexual counselling, patients receiving sexual therapy reported improvement in the frequency of sexual intimacy and quality of sexual functioning compared with reports of control subjects.⁵⁴ In addition to using cognitive-behavioural techniques^{54,99} in counselling cardiac patients, there is evidence to suggest the value of patient education^{19,25} and therapeutic communication strategies in sexual counselling.^{35,97,100}

Recommendations for sexual assessment and counselling

Structured counselling strategies to address the psychosexual needs of cardiac and stroke patients can be useful (Class IIa; Level of Evidence C).

The use of instruments to assess cardiac and stroke patients' sexual concerns can be beneficial (Class IIa; Level of Evidence C).

A variety of factors should be assessed related to sexual function, including response to treatment, previous medical history, and the couple's concerns about resuming sexual activity. Coexisting conditions, such as hypertension, diabetes mellitus, and HF, may also influence the ability to return to sexual activity. Vascular changes and reduced exercise endurance may affect sexual performance.⁹⁷

Annon¹⁰¹ published the PLISSIT model to assist healthcare professionals in addressing sexual concerns, and it has been used for 35 years to help practitioners better conceptualize their roles in helping patients and their sexual partners.^{100,102,103} PLISSIT is an acronym for the strategies or stages of giving Permission, Limited Information, Specific Suggestions, and Intensive Therapy, a model that may be useful to practitioners in addressing sexual concerns. Although it is helpful to conceptualize each of these stages or strategies as being separate, there is a great deal of overlap among the stages. Giving the patient or partner permission to bring up sexual issues is considered the first stage in addressing sexual concerns and is considered within the realm of all practitioners in all settings. Giving permission is as simple as saying, 'After a heart attack, patients and their partners may have concerns about whether it is safe to engage in sex. What concerns do you have?' After giving permission, the next step is giving the patient limited information, providing a few instructions to assist with sexual functioning.¹⁰⁰ The suggestions of waiting 2 hours after a meal before engaging in sex, having sex in a cool room, and having sex with a familiar partner are examples of limited information. Giving patients and their partners copies of educational pamphlets is also an example of limited information (Table 3). Specific

Table 3 Patient education resources for cardiovascular sexual counselling

Resource	Location
Sex and Heart Disease (American Heart Association)	Online resource, available at: http://www.heart.org/HEARTORG/Conditions/More/MyHeartandStrokeNews/Sex-and-Heart-Disease_UCM_436414_Article.jsp Brochure product code 50-1622; order at: http://www.heart.org/HEARTORG/General/Sex-and-Heart-Disease-Brochure_UCM_310082_Article.jsp
Sex, Intimacy, and Heart Disease (Krames Patient Education)	Brochure product code 1900; order at: https://www.kramesstore.com
The Sensuous Heart: Guidelines for Sex After a Heart Attack or Heart Surgery (Pritchett & Hull Associates)	Booklet (24 pages); order at: http://www.p-h.com/product.php?productid=17372&cat=1&page=1
Sex After Stroke: Our Guide to Intimacy After Stroke (American Heart Association/American Stroke Association)	Brochure product code 50-1653; order at: http://www.heart.org/HEARTORG/General/Sex-After-Stroke-Our-Guide-to-Intimacy-After-Stroke_UCM_310558_Article.jsp
Sex after stroke (National Stroke Association)	StrokeSmart magazine, January/February 2009 featured article: 'Redefining sexuality after stroke.' Available at: http://www.stroke.org/site/PageServer?pagename=SS_MAG_jf2009_feature_sexuality National Stroke Association fact sheet: Recovery After Stroke: Redefining Sexuality. Available at: http://www.stroke.org/site/DocServer/NSAFactSheet_Sexuality.pdf?docID=999
Intimacy After Stroke (Stroke Foundation of New Zealand)	20-Page document that includes a patient questionnaire on sexual functioning after stroke. Available at: http://www.stroke.org.nz/resources/Sexuality-Booklet.pdf Print copies: send an e-mail message to strokenz@stroke.org.nz
Other stroke resources	Stroke Association - United Kingdom: Sex after Stroke. Available at: http://www.stroke.org.uk/factsheet/sex-after-stroke Caswell J. Sex and intimacy after stroke. Stroke Connection. March/April 2009; pp 12–15. Available at: http://www.nxtbook.com/nxtbooks/aha/strokeconnection_200903/#/14 .
Sex and heart failure (ESC and the Heart Failure Association of the ESC)	Heart Failure Matters Web site. Available at: http://www.heartfailurematters.org/EN/Living-with-Heart-Failure/EN-Sex-and-heart-failure

ESC indicates European Society of Cardiology.

suggestions involve tailoring information for a specific individual who has a specific concern. For example, a patient may ask whether it is safe to take sildenafil citrate after MI; the healthcare provider would evaluate the patient's medications, conduct a short health history for contraindications for that specific patient, and explain the serious adverse effects of phosphodiesterase-5 (PDE5) inhibitors and nitrates when taken together, if appropriate for that patient. Intensive therapy is conceptualized as being provided by a sex therapist or counsellor unless a healthcare provider has had specific training, as would be indicated in dealing with longstanding or complex sexual problems.¹⁰¹

The PLISSIT model has been advocated to use or adapt for clinical practice or research, although some believe it is outdated¹⁰⁴ and that it might be more helpful to focus on reflective, patient-centred, and negotiated forms of communication about sexuality and intimacy issues to truly help patients and their partners adapt their sexual experiences when confronted with an acute or chronic illness. A practical approach that can be used by clinicians is reflected in the BETTER acronym.¹⁰⁵ As a clinician, (1) **B**ring up the topic of sexuality, (2) **E**xplain concerns you have about the patient's quality of life that may be impacted by their cardiac disease/event, (3) **T**ell patients you can help guide them to resources that can address their concerns, (4) consider the **T**iming (although the patient may not want to discuss the subject at this time, reassure the patient that issues he or she might have can be discussed in the future), (5) **E**ducate patients about the potential effects of their cardiac disease/event/treatments on their sexual functioning, and (6) **R**ecord or document the

assessment and interventions provided. Although this approach can be used with many clinical situations, it may be quite useful in discussing sexual concerns.

Specific assessment of sexual dysfunction can help the provider differentiate cardiac disease-specific causes, other underlying conditions that contribute to sexual dysfunction, and adverse effects of cardiovascular medications. Assessment instruments and other tools can provide a basis for providing psychosocial support and for addressing a patient's particular concerns or problems (Table 4). These instruments can be used easily in the practice setting and may provide a starting point for sexual counselling, education, and provision of resources and referrals to address sexual issues.

Recommendations for interventional studies using sexual counselling

Sexual counselling based on a psychosocial framework, including cognitive behavioural therapy and social support, can be a useful approach with CVD patients and their partners (Class IIa; Level of Evidence B).

It can be beneficial to provide sexual counselling through several meetings and to include partners/spouses, using a multidisciplinary team approach where possible (Class IIa; Level of Evidence B).

Table 4 Assessment instruments for sexual function

Instrument	Areas assessed	Attributes
Female Sexual Function Index (FSFI) ¹⁰⁶	Women's sexual functioning: Desire, arousal, lubrication, orgasm, satisfaction	19 Items Discriminates between clinical and non-clinical populations ^{106,107} Established reliability (test-retest: 0.79–0.86; Cronbach $\alpha = 0.82$), with reported construct and divergent validity Response time 15 min
Brief Index of Sexual Functioning for Women (BISF-W) ¹⁰⁸	Dimensions of sexual functioning: Thoughts/ desires, arousal, frequency of sexual activity, receptivity/initiation, pleasure/orgasm, relationship satisfaction, problems affecting sexual function ¹⁰⁹	22 Items; self-report Subscale and composite score, with major factors of sexual desire, sexual activity, and sexual satisfaction Most items rated on Likert scale Reliability (test-retest, 0.68–0.78; 0.39 [factor 1] to 0.83 [factor 2]) and validity demonstrated ^{109,110} Response time 15–20 min
Changes in Sexual Functioning Questionnaire (CSFQ) and Changes in Sexual Functioning-Short Form (CSFQ-SF) ^{111,112}	Male and female sexual function in all domains of the sexual response cycle Subscales: Dimensions of pleasure, desire/frequency, desire/interest, arousal/excitement, orgasm/completion, and phases of sexual functioning (desire, arousal, orgasm)	CSFQ: females, 35 items; males, 36 items CSFQ-SF: 14 items for each of the female and male versions 5-Point Likert scale, from 'never or no enjoyment' to 'every day or always' May be scored on the 3 phases of sexual response: Desire, arousal, orgasm/completion ¹¹² Reliability (0.89–0.90, CSFQ-SF) and construct validity established ¹¹² Response time for CSFQ, 15–20 min; CSFQ-SF appropriate for clinical setting, with response time of 4–5 min
Derogatis Interview for Sexual Functioning (DISF) and Derogatis Interview for Sexual Functioning – Self-Report (DISF-SR) ¹¹³	Patient's perception of overall current sexual functioning 5 Domains: Sexual cognition/fantasy, sexual arousal, sexual behaviour/experience, orgasm, sexual drive/relationship	26 Items Rated on 4-point Likert scale Composite score Gender-specific versions Reliability (0.74–0.80) and validity established Response time 15–20 min
Brief Male Sexual Function Inventory (BMSFI) ¹¹⁴	4 Functional domains: Drive, erection, ejaculation, problem with sexual function; and sexual satisfaction	10 Items for 4 domains, 1-item sexual satisfaction Overall score reflects sexual functioning Rated on 0–4 scale, from 'no function/big problem' to 'no difficulty/no problem' The 4 domains explained 28% of variance in overall sexual satisfaction Reliability: Cronbach $\alpha = 0.90–0.94$ ¹¹⁴
Index of Erectile Function-5 (IIEF-5) ¹¹⁵	Measure of ED in men	5-Item tool revised from original 15 items Ordinal measurement of items Score ranges from 5–25 Score <21 indicative of ED; further ED scoring: Severe (5–7), moderate (8–11), mild to moderate (12–16), mild (17–21), and none (22–25) Reported instrument sensitivity 0.98 and specificity 0.88; reported weighted $\kappa = 0.85$ for agreement between the predicted and true ED classes ¹¹⁵
Arizona Sexual Experience Scale (ASEX) ¹¹⁶	Sexual function in men and women Sexual drive, arousal, vaginal lubrication/penile erection, ability to reach orgasm, satisfaction with orgasm	5 Items, male and female versions Rated on a 1–6 ordinal scale Scores range from 5–30 Higher scores indicate sexual dysfunction; ASEX score >19, or any 1 item with a score >5, or any 3 items with a score ≥ 4 would indicate sexual dysfunction Cronbach $\alpha = 0.906$; test-retest reliability ranged from 0.801–0.892; has reported convergent and discriminant validity ¹¹⁶

ED indicates erectile dysfunction.

Study quality and methods

Only a small number of studies have used sexual counselling interventional approaches in patients with CVD. In all, we found 10 intervention studies with a focus on sexual counselling that spanned a 35-year period (1976–2012; Table 5). Of these 10 studies, sexual counselling was the main focus in 4 studies^{11,19,54,123} and a secondary focus in 2 studies,^{117,122} whereas the remaining 4 studies^{118–121} included a comprehensive sexual counselling intervention. Although a power calculation was performed in 2 studies,^{19,123} none of the 10 studies had a sufficient number of participants, either because of a small initial sample size or large drop-out rates during follow-up. Follow-up time was relatively short in most studies; in 6 studies, patients were followed up for <1 year,^{11,19,54,117,122,123} whereas in 4 studies, they were followed up for 1 to 2 years.^{118–121} In 3 studies, only men were enrolled,^{54,117,118} and 1 study did not indicate the sex of the participants.¹²¹

Interventional approaches

The theoretical frameworks guiding the interventions were drawn from various perspectives, including physical,^{118,121,122} psychosocial,^{11,19,54,123} medical,^{117,119} or a mix of physical and psychosocial perspectives¹²⁰ (Table 5). Three studies that included partner dyads focused specifically on sexual counselling interventions, such as physical exercise and social support, specific sexual counselling, and sexual counselling with cognitive behavioural therapy.^{54,120,123} The setting of sexual counselling interventions was either in-hospital^{117,119,120,123} or started in the hospital and then continued out of the hospital,^{54,118,121,122} whereas 2 interventions were implemented completely at home.^{11,19} All but 2 interventions^{118,121} provided comprehensive quality-of-life perspectives that included provision of verbal information (e.g. lecture, dialogue), written information (e.g. brochure, booklet), visual information (e.g. video, slide presentation), seminar discussions (e.g. lifestyle factors, risk factors), and practical training (e.g. cooking, physical training, relaxing, stress management). All but 2 studies^{117,123} used several didactic approaches, most commonly verbal information/dialogue (n = 9), followed by practical training (n = 7). Five interventions invited both patients and partners to participate.^{11,19,54,120,123} The meeting points and duration of the interventions varied between viewing a 15-minute video on demand, without healthcare professional participation,¹⁹ to participating in 120-minute sessions with the healthcare team twice a week during a 6-month period.¹²⁰ A multidisciplinary team was involved (nurses, occupational therapists, physiotherapists, physician, social workers) in the interventions from 5 studies,^{54,119,120,122,123} whereas a single healthcare professional (nurse, physician, or physiotherapist) was involved in the remaining interventions.^{11,19,117,118,121}

Measurement and outcomes

Established (but not commonly used) instruments have been used to evaluate the effects of counselling interventions, such as sexual knowledge, activity, function, and satisfaction, as well as quality of life and partner satisfaction. The most commonly evaluated patient-focused outcome was sexual activity, with mixed results. Studies using a partner-focused outcome, such as partner satisfaction,

demonstrated a positive result (Table 6). When the interventional approach involved > 3 sessions, positive outcomes regarding sexual activity were demonstrated.^{54,118,120,121} Both short-term interventions (<3 months) and a long-term intervention (>3 months) yielded mixed results, as did short-term follow-up (<12 months), whereas long-term follow-up (>12 months)^{118,120,121} showed a more positive outcome. Interventions with a specific focus on sexual counselling resulted in positive outcomes,^{54,123} and similar outcomes were found with a team approach and spousal/partner participation in the counselling process.^{54,120,123} A main focus on exercise counselling related to sexual issues with cardiac patients showed mixed results, whereas positive outcomes were shown with a main focus on specific nonmedical sexual therapy (cognitive behavioural therapy)⁵⁴ and social support¹²⁰ that included partners/spouses.

Sexual counselling: sexual health topics of concern for the patient with CVD

General strategies/advice

Recommendation for medication effects

During sexual counselling, it can be useful to review medications to consider any impact on sexual function, and it can be beneficial to encourage the patient to report any side effects of medications related to sexual activity and to inform the patient to not stop taking the medication if a side effect is experienced; as long as cardiac risk is not altered, it can be beneficial to change medication dosage or drug type to minimize impact on sexual function (Class IIa; Level of Evidence C).

Patients experiencing sexual function problems after MI frequently attribute the cause to medications.⁹ Medications such as β -blockers and diuretics can cause decreased libido, erectile problems, impaired ejaculation, and sexual dysfunction, although recent studies have not found a clear relationship between cardiac medications and sexual dysfunction.^{2,124} Some medications may have less impact on sexual function than others in the same drug classification, and providers should consider altering medications that cause sexual dysfunction where possible.^{2,9}

The literature revealed 5 epidemiological studies that evaluated the effect of cardiovascular drugs on erectile function, 8 trials that evaluated the effect of β -adrenergic blockers, 5 trials that evaluated the effect of angiotensin-converting enzyme inhibitors or angiotensin receptor blockers, and 1 trial that evaluated the effect of diuretics on erectile function. These trials demonstrated that only thiazide diuretics and β -blockers (except nebivolol) may adversely influence erectile function. Angiotensin-converting enzyme inhibitors, angiotensin receptor blockers, and calcium channel blockers are reported to have no relevant effect, or even a positive effect, on erectile function.¹²⁵

Cardiovascular drugs that can improve symptoms or survival should not be withheld because of concerns about their adverse impact on sexual function. If a patient being treated with a cardiovascular drug complains of sexual dysfunction, efforts should be made to

Table 5 Intervention studies: setting, design, and interventional content

Setting, design, and interventional content	Sum	Kushnir <i>et al.</i> (1976) ^{117*}	Stern and Cleary (1982) ^{118*}	Stern <i>et al.</i> (1983) ^{119*}	Fridlund <i>et al.</i> (1991) ^{120*}	Bertie <i>et al.</i> (1992) ^{121*}	Froelicher <i>et al.</i> (1994) ^{122*}	Steinke and Swan (2004) ^{19*}	Klein <i>et al.</i> (2007) ^{54†}	Song <i>et al.</i> (2011) ^{123‡}	Steinke <i>et al.</i> (2012) ^{11*}
Continent											
Asia	2								X	X	
Europe	3	X			X	X					
North America	5		X	X			X	X			X
Design											
Randomized controlled trial	7		X	X	X	X	X	X	X		
Quasi-experimental	3	X								X	X
Setting											
In-hospital	4	X		X	X					X	
Out-of-hospital	2							X			X
Both	4		X			X	X		X		
Intervention											
Interventional framework		MCO	PE	PE or RFM	PE/SS	PE	PE	SC	SC/CBT	SC	SC
Life perspective											
Single dimensional	2		X			X					
Multidimensional	8	X		X	X		X	X	X	X	X
Input period											
Short-term (<3 mo)	9	X	X	X		X	X	X	X	X	X
Long-term (>3 mo)	1				X						
Meeting approach											
Single	3	X						X		X	
Several	7		X	X	X	X	X		X		X
Follow-up period											
Short-term (<12 mo)	6	X					X	X	X	X	X
Long-term (>12 mo)	4		X	X	X	X					
Personnel approach											
Single member	5	X	X			X		X			X
Team	5			X	X		X		X	X	
Didactic approach											
Oral information/ dialogue	9	X	X	X	X	X	X		X	X	X
Visual information	5				X	X		X	X		X
Written information	6		X		X		X	X	X		X

Continued

Table 5 Continued

Setting, design, and interventional content	Sum	Kushnir et al. (1976) ^{117*}	Stern and Cleary (1982) ^{118*}	Stern et al. (1983) ^{119*}	Fridlund et al. (1991) ^{120*}	Bertie et al. (1992) ^{121*}	Froelicher et al. (1994) ^{122*}	Steinke and Swan (2004) ^{19*}	Klein et al. (2007) ^{54†}	Song et al. (2011) ^{123‡}	Steinke et al. (2012) ^{11*}
Practical training	6		×	×	×	×	×	×	×		×
Targeted participants											
Patients	5	×	×	×		×	×				×
Partner dyad	5				×			×	×	×	
Targeted sexes											
Males	3	×	×			?	×	×	×		×
Both sexes	6			×	×			×		×	×
Ethnicity	4		×	×			×	×			×
Social class	6		×	×	×		×	×			×

The Table reflects the setting, design, and intervention content in 10 sexual counselling intervention studies in patients (and spouses) with cardiovascular disease (cardiac disease, n = 9; vascular disease, n = 1). CBT indicates cognitive behaviour therapy; MCO, medical consultation; PE, physical exercise; RFM, risk factor management; SC, specific sexual counselling; and SS, social support.
*Myocardial infarction (n = 8 studies).
†Myocardial infarction/coronary artery bypass surgery (n = 1).
‡Stroke (n = 1).

assess whether the sexual dysfunction is more likely related to underlying vascular or cardiac disease, the placebo effect, or anxiety or depression. The patient should be encouraged to report symptoms related to sexual dysfunction to the healthcare provider. In some cases, a lower dosage may improve sexual dysfunction symptoms, or consideration may be given to an alternative drug or drug class that has fewer sexual side effects.

Recommendation for environment for sexual activity
It can be beneficial to encourage the use of a comfortable, familiar setting to minimize any cardiac stress associated with sexual activity (Class IIa; Level of Evidence C).¹²⁶

The setting and environment for sexual activity are important considerations. Sex in familiar surroundings, in a comfortable room temperature, and with the usual partner adds less stress to the heart.^{126,127} Sexual activity with an extramarital partner could pose a health risk for those with cardiac disease; therefore, extramarital sexual encounters should also be discussed in the counselling session. This is based on data from a study with pathological analysis of deaths that occurred during sexual activity (n = 68), in which almost all deaths occurred in men (92.6%), with the majority of the deaths occurring during extramarital intercourse (n = 39).¹²⁸ Only 19 of the fatal events occurred in the victim's home (n = 16) or the home of a longtime partner (n = 3). Other studies from Asia^{129,130} have been consistent with Western data in that men are the major victims of sudden death in the context of extramarital relations, and their underlying CVD contributes to mortality. It is presumed that secret sexual activity in an unfamiliar setting may significantly increase blood pressure and heart rate, resulting in sudden death or cardiovascular events.¹³⁰ The risks, however, appear to be very low, and the increase in risk attributed to coitus was found to be far less than that associated with anger and unaccustomed physical exercise.

Recommendation for coital positioning
Encouraging the patient and their partner to assume their usual coital position or one of comfort can be beneficial (Class IIa; Level of Evidence C).

There is no consensus on what kind of position the patient should assume for sexual activity. Some empirical studies indicate that the most energy expenditure with sexual activity is with the person who is on top using the superior ('missionary') position. A lesser amount of energy is expended with the person on the bottom during the use of the missionary position. The least amount of energy is expended with self-stimulation or partner stimulation.¹³¹ Other studies conducted at home with the goal of presenting real-world data found no significant changes in heart rate and blood pressure when different positions were used during intercourse.¹³² A maximal heart rate and blood pressure alteration has been described during orgasm that occurs regardless of position,¹³³ and blood pressure and heart rate were increased when the patient was in an unfamiliar position.¹³⁴ Advising patients to assume their usual position or one of comfort seems appropriate.⁹⁷ Suggested positions for chronic illness or stroke and for individuals who have an ICD are illustrated in the online-only Data Supplement (Figures I and II) and may be useful in general for cardiac patients and their partners. For individuals who have had CABG surgery, avoidance of the superior

Table 6 Intervention studies: measurements and outcomes

Measurements and Outcomes	Sum	Kushnir et al. (1976) ^{117*}	Stern and Cleary (1982) ^{118*}	Stern et al. (1983) ^{119*}	Fridlund et al. (1991) ^{120*}	Bertie et al. (1992) ^{121*}	Froelicher et al. (1994) ^{122*}	Steinke and Swan (2004) ^{19*}	Klein et al. (2007) ^{54†}	Song et al. (2011) ^{123‡}	Steinke et al. (2012) ^{11*}
Sexual activity											
Positive	5		X		X	X			X	X	
Neither/nor or negative	5	X		X			X	X			X
Sexual function/efficacy											
Positive	1								X		
Neither/nor or negative	2							X			X
Sexual knowledge											
Positive	1							X			
Neither/nor or negative	2									X	X
Sexual satisfaction											
Positive	2								X	X	
Neither/nor or negative	1										X
Quality of life											
Positive	2			X	X						
Neither/nor or negative	4		X			X		X			X
Partner satisfaction											
Positive	1				X						
Neither/nor or negative	1										X

Measurements and outcomes in the sexual counselling intervention studies (n = 10) in patients (and spouses) with cardiovascular disease (cardiac disease, n = 9; vascular disease, n = 1).

*Neither/nor or negative' indicates results were neither positive nor negative or were negative.

*Myocardial infarction (n = 8 studies).

†Myocardial infarction/coronary artery bypass surgery (n = 1).

‡Stroke (n = 1).

(missionary) position is recommended,²⁸ and extra support with pillows, particularly for large-breasted women, may be helpful.¹²⁶ Sexual positions that avoid strain on the ICD implantation site are illustrated in the online-only Data Supplement (Figure II).

Anal sex can be a pleasurable sexual activity enjoyed by both heterosexual and homosexual couples; however, anal penetration stimulates the vagus nerve, which leads to a slowed heart rate, rhythm, impulse conduction, and coronary blood flow,¹³⁵ which can result in diminished cardiac performance and chest pain.¹³⁶ Therefore, sexual counselling might include the avoidance of anal sex until the cardiac condition is stabilized and after further evaluation of the safety of sexual activity.

Recommendation for energy consumption

Because cardiovascular symptoms during sexual activities rarely occur in patients who do not experience similar symptoms during exercise testing, it is reasonable to encourage the patient to resume sexual intercourse when the patient is capable of expending 3 to 5 metabolic equivalents of task (METs) (Class IIa; Level of Evidence B).^{2,137}

The construct of sex as a state of arousal is perhaps more clinically useful than the construct of sex as a form of physical exertion, because in most cases, the cardiovascular and metabolic response to sex is more closely related to arousal than to exertion.¹³⁸ Sexual activity conceptualized simply as arousal is unassociated with physical exertion. It is not until exertion is coupled to arousal that energy expenditure occurs. The gradual progression from non-coital experiences (e.g. mutual holding, touching, caressing without genital stimulation) to sexual intercourse coincides with increases in activity levels. Cardiovascular symptoms during sex rarely occur in patients who do not experience similar symptoms during exercise testing at a level equivalent to 6 METs.¹³⁸ Sexual activity is often equated with an exercise workload of 2 to 3 METs in the preorgasmic stage and 3 to 4 METs during the orgasmic stage.¹³¹ This is equivalent to walking a treadmill at 3 to 4 miles per hour.¹³⁹ This amount of energy expenditure has also been compared to climbing 2 flights of stairs at a brisk pace, although this may not be a useful indicator in those who are older or less physically fit or who have significant CVD.² For those with HF, the 6-minute walk test can easily be administered in the clinical setting to assess stability and ability for exertion. HF patients who are not able to manage the 6-minute walk test, or expend \approx 3 to 5 METs, may not be able to handle the exertion required for sexual activity. This should be discussed with the patient and partner.¹²⁶

Recommendation for risks with sexual activity

It can be useful to evaluate and inform patients about the level of risk related to sexual activity, and it is reasonable to encourage patients at low risk to initiate or resume sexual activity; it is also reasonable that those at high risk or those who experience cardiovascular symptoms precipitated by sexual activity defer sexual activity until their condition is stabilized or optimally managed (Class IIa; Level of Evidence B).²

Successful sexual counselling for patients with coronary artery disease, angina, or MI begins with an initial assessment of

cardiovascular risk before patients initiate or resume sexual activity.^{2,100} Exercise testing is recommended for patients whose symptoms are intermediate or whose risk is unclear during the initial assessment, to determine whether angina occurs with exertion and to assess the severity of ischaemia with physical activity.² If a person with coronary artery disease can achieve an energy expenditure of \geq 3 to 5 METs without demonstrating ischaemia during exercise testing, then the risks associated with sexual activity are very low.¹³⁷ Patients with mild, stable angina are at low risk for sexual activity—triggered cardiovascular events, whereas patients with unstable or refractory angina are at high risk.^{138,140} For patients deemed to be at high risk, sexual activity should be deferred until their condition is optimally managed and stabilized.²

The relative risk of MI is raised significantly during episodes of physical or sexual activity compared with time not engaged in these activities; however, this association is less evident for physically active people than for sedentary individuals.¹⁴¹ Sexual activity as a contributor to the onset of MI occurred in only 0.9% of cases. Empirical studies have shown a relative risk of MI of 2.1 at 1 hour after sexual intercourse in patients with no premonitory symptoms.¹⁴² The absolute risk of events, however, for all patients is extremely low (\approx 2–3 per 10 000 person-years associated with 1 hour of sexual activity per week), because time spent engaging in sexual activity is a very small percentage of total time at risk.¹⁴¹

Patients whose cardiac conditions are uncertain, as well as those with multiple risk factors, require further testing or evaluation before they resume sexual activity.¹⁴⁰ Clinically, patients should be advised that heart rate, blood pressure, and respiratory rate normally rise with sexual activity, and this is not a cause for alarm.⁹⁷

Recommendation for warning signs during sexual activity

The patient should be encouraged to report any symptoms that are experienced with sexual activity; nitroglycerine (if prescribed) can be used for chest pain experienced with sexual activity, but the patient should be encouraged to report and seek medical assistance for unrelieved chest pain (Class I; Level of Evidence B).

Patients should be assured that the relative risk of a cardiac event with sexual activity is low; however, symptoms of chest pain, shortness of breath, a rapid or irregular heart rate, dizziness, insomnia after sexual activity, or fatigue the day after sexual activity should be reported to the physician.^{127,139,143,144} If a patient tends to experience chest pain with sexual activity, nitroglycerine, if prescribed, can be taken just before or during sex.¹⁴³ The patient should be encouraged to seek medical assistance for any unrelieved chest pain and to report adverse symptoms to their healthcare provider. Patients (or partners) who use supplemental oxygen should also use it during sexual activity (online-only Data Supplement Figure I).

Recommendation for resuming sexual activity

It is reasonable to encourage the couple to use activities that require less energy expenditure (e.g. hugging, kissing, fondling) as a bridge to sexual intercourse or for those for whom sexual intercourse is not possible because of compromised cardiac function (Class IIa; Level of Evidence B).

Sexual activity is reasonable for patients who can exercise at >3 to 5 METs without angina, excessive dyspnoea, ischaemic ST-segment changes, cyanosis, hypotension, or arrhythmia.

The high-risk group (e.g. those with unstable angina, uncontrolled hypertension, or high-risk dysrhythmias) should receive cardiac treatment and become stabilized before the initiation or resumption of sexual activity or before any sexual dysfunction is treated.^{2,140,145} It can be suggested to patients that they begin with less strenuous sexual activities, such as fondling and kissing, and progress to activities such as mutual masturbation and oral sex, which can allow vital signs to rise more gradually and enable patients to assess their tolerance for sexual activity. If patients can engage in these activities without any adverse effects, such as chest pain, shortness of breath, a rapid or irregular heart rate, dizziness, insomnia after sexual activity, or fatigue the day after sexual activity, they will have more confidence that they can progress to sexual intercourse and are less likely to be fearful of experiencing risk associated with sexual activity.¹⁷

The frequency and quality of sexual activity are closely related to general health. The frequency of sexual intercourse was a significant predictor of longevity in men; at a 10-year follow-up, fatal CVD events were more than twice as common in those reporting an intermediate or low frequency of sexual intercourse.¹⁴⁶ In another study, mortality risk was 50% lower in the group with high orgasmic frequency than in the group with low orgasmic frequency.¹⁴⁷

Recommendations for resumption of sexual activity often vary by cardiac diagnosis. If a post-MI patient is asymptomatic or has no ischaemia during stress testing, he or she is at low risk for a sexual activity-triggered cardiovascular event. There has been some debate regarding when a patient can safely resume sexual activity after an MI, but the most recent guidelines suggest that sexual activity is reasonable 1 or 2 weeks after uncomplicated MI, when the patient is without cardiac symptoms during mild to moderate physical activity.^{2,148} Although many patients and their partners resume sexual activity in the first month after MI, a more gradual return over several months is also common.¹⁹ Patients with complicated MIs should resume sex more gradually, depending on their tolerance to exercise and activity.¹⁴⁸

Cardiac surgery patients can generally resume sexual activity 6 to 8 weeks after CABG or non-coronary open heart surgery with a well-healed sternotomy incision. Among patients who have had incomplete coronary revascularization, stress testing may be needed before they resume sexual activity.² After cardiac transplantation, if a patient can perform mild to moderate levels of physical activity without symptoms, he or she can likely tolerate the physical exertion required with sexual activity.¹⁴⁹

Most of the advice in the literature with regard to sexual activities in HF patients is based on logical reasoning, for example, advising patients that a semireclining or bottom position may decrease the amount of physical effort needed for sexual activity,^{2,97} or that the amount of exertion needed for sexual activity can be estimated at 3 to 5 METs.²

Recommendation for physical training

Because regular physical exercise is associated with a reduced risk of sexual activity-triggered cardiovascular events, it can be beneficial to include recommendations to

exercise regularly as part of sexual counselling (Class IIa; Level of Evidence B).²

An integral part of successful resumption of sexual activity is engaging in regular exercise based on the physician's recommendations. Exercise training during cardiac rehabilitation has been shown to increase maximum exercise capacity and decrease peak coital heart rate.¹⁵⁰ Regular exercise is associated with a decreased risk of sexual activity-triggered MI¹⁵¹; therefore, regular exercise is a reasonable strategy in patients with stable CVD who plan to engage in sexual activity.

Sedentary lifestyle is a potential modifiable risk factor in men with ED, and empirical studies provide moderate support for the beneficial role of increasing exercise.^{152,153} Furthermore, marked improvements in erectile function were shown in a prospective study of exercise and weight loss compared with an educational control in obese men with moderate ED and no overt symptoms of CVD.¹⁵⁴ Thus, patients and their partners may find a renewed interest in intimacy and sexual activity that they may not have experienced in many years. This may be a major motivator for patients to abstain from smoking, keep their blood sugar under control, lose weight, and exercise regularly to enhance sexual functioning. A significant positive correlation between the 6-minute walk test and patient levels of sexual function has been described.¹⁵⁵

Sexual counselling by diagnosis

The aforementioned general strategies should be included in sexual counselling of patients and their partners who have experienced cardiac disease or stroke. The following section addresses sexual counselling evidence related to specific cardiac conditions and advice not mentioned in the previous sections.

Recommendations for coronary artery disease, angina, and MI

Sexual activity is reasonable ≥ 1 week after uncomplicated MI, when the patient is without cardiac symptoms during mild to moderate physical activity (Class IIa; Level of Evidence C).²

After an MI, it is reasonable to counsel patients to resume sexual activity gradually, starting with activities that require less exertion, such as fondling and kissing, and building up to sexual intercourse, to enable patients to build confidence and allow them to assess their tolerance for sexual activity (Class IIa; Level of Evidence C).

During sexual counselling, it might be reasonable to reassure patients about the low risks of coital angina, in cases in which angina is not experienced during usual physical exertion; however, it may also be reasonable to advise patients that when coital angina is experienced and does not resolve spontaneously in 15 minutes, or 5 minutes after nitrate use, they should seek emergency services (Class IIb; Level of Evidence C).¹⁵⁶

For patients using PDE5 inhibitors before sexual activity, nitrates should not be used in the event of coital angina (Class III; Level of Evidence C). These patients should be advised to contact emergency services immediately on experiencing coital angina.

Myocardial infarction

Often, post-MI patients fear having another MI with sexual activity.^{9,157} In a longitudinal study of 91 patients over a 6-month period after MI, there was general agreement among patients that they would like to receive information about sexual issues, although there was less agreement about the appropriate time to discuss this information after MI.⁸ Most patients stated that they would prefer to receive general information about the effect of the cardiac event on sexuality when hospitalized; however, some patients preferred more specific information, such as the ideal setting for sexual activity, to be provided later, after hospital discharge. The methods of information provision preferred by patients were written information, individual discussion with a healthcare professional and a video on sexual concerns to be viewed after discharge from the hospital.⁸

Coital angina

Coital angina is angina that occurs immediately after sexual activity; it represents <5% of all angina attacks.¹⁵⁶ It is rare in patients who do not experience angina during non-sexual physical exertion. Coital angina occurs when there is an imbalance between myocardial oxygen supply and demand. This happens because demand may increase because of the raised heart rate and blood pressure that accompany sexual activity, or supply may be reduced because of a reduction in coronary blood flow from rupture of a coronary artery plaque. An increase in myocardial oxygen demand is likely to resolve spontaneously with time or in response to nitroglycerine. A decrease in oxygen supply often will not resolve spontaneously or in response to nitroglycerine and may proceed to an acute MI; therefore, health professionals should advise patients who have not used PDE5 inhibitors and are experiencing postcoital angina to use nitrates and to call emergency services if the angina is still present after 5 minutes.¹⁵⁶ If nitrates are not available, postcoital angina that lasts >15 minutes should prompt a call to emergency services. For patients using PDE5 inhibitors who experience postcoital angina, emergency assistance should be summoned promptly and emergency response staff informed of PDE5 inhibitor use, because nitrate use is contraindicated.¹⁵⁸ PDE5 inhibitors cause mild vasodilation and increase the hypotensive effects of nitrates, which leads to potentially serious adverse cardiac effects.¹⁵⁹

Recommendations for CABG, cardiac transplantation, and left ventricular assist device

Sexual counselling specific to the CABG surgical patient that addresses both physical and psychosocial concerns, including return to sexual activity, management of incisional discomfort, and encouragement of cardiac rehabilitation as a means of supporting physical activity and sexual function, can be useful (Class IIa; Level of Evidence C).

It is reasonable for sexual activity to be resumed in 6 to 8 weeks after a standard CABG surgery (Class IIa; Level of Evidence B) or non-coronary open heart surgery (Class IIa; Level of Evidence C), if the sternotomy is well healed.²

Sexual activity may be reasonable after placement of a left ventricular assist device (LVAD) (Class IIb; Level of Evidence C).^{160,161}

During sexual counselling, it may be useful to discuss any changes in position needed with sexual activity, instructions on battery use, and protection of the driveline from tension or the possibility of it being pulled during sexual intercourse (Class IIb; Level of Evidence C).¹⁶⁰

CABG surgery

Sexual activity may decrease after CABG surgery because of pre-operative functional impairments, symptoms experienced, poor self-image, or partners' anxiety or fears.^{162–165} Patients report greater problems with return to sexual activity after surgery than with other areas of psychosocial functioning (e.g. mood, job satisfaction, family relations),¹⁶² even when angina is relieved with cardiac revascularization.¹⁶⁴ At 3 months after CABG surgery, problems reported were limited sexual desire and responsiveness,²⁸ whereas at 2 years after CABG surgery,¹⁶⁶ sexual problems were reported frequently; independent predictors were preoperative sexual problems ($P < 0.0001$), male gender ($P < 0.0001$), and diabetes mellitus ($P < 0.0008$). Overall variance in the sexual quality of life of CABG surgical patients (33%) was accounted for by patient age, disease duration, and spousal communication.²⁸ In contrast, at 6 and 12 months after surgery, CABG patients ($n = 89$) had an increased interest in (85%) and level of (49%) sexual activity,¹⁶⁷ although preoperative ratings of sexual performance and frequency of sexual contact were higher than those at 6 months after CABG ($P < 0.02$).¹⁶⁸ Sexual satisfaction among patients ($n = 63$) increased over time when baseline (before CABG) satisfaction levels were compared with those levels 8 years after CABG surgery, with an increase in sexual satisfaction from 57% to 63%.¹⁶⁹ Although there is variability in sexual functioning and activity after CABG surgery, clearly patients who experience sexual impairments and related psychosocial problems warrant further evaluation.

The opportunity to have a detailed discussion with medical staff members before hospital discharge was perceived as the most important aspect for resuming sexual activity without risk,¹⁷⁰ and the provision of sexual instructions after CABG surgery and sexual therapy were found to be related to resumption of sexual activity.^{171,172} In addition, participation in cardiac rehabilitation resulted in improvements in sexual satisfaction¹⁷³ and sexual activity^{173–175} for CABG surgical patients, with an increase in sexual activity from posttreatment to 4 months after cardiac rehabilitation ($\bar{x} = 3.28$ versus 4.02 times per month), whereas the control group had decreased sexual activity ($\bar{x} = 3.34$ to 2.94 times per month).^{174,175}

It is important to discuss the management of incisional pain or discomfort, including the differences in incisional pain versus ischaemic chest pain the patient might have experienced previously. In 2 small studies, women reported radiating sharp pain to the breasts, chest numbness, tingling, heaviness, or a burning sensation^{176,177}; therefore, discussion of breast issues with women is advised. For both men and women, incisional discomfort can be treated with acetaminophen before sexual activity.²⁸

Cardiac transplantation

Although the majority of patients report good to excellent quality of life after cardiac transplantation ($n = 75$), sexual dysfunction (impotence) was reported as the most 'upsetting' symptom by 41% of

recipients taking corticosteroid/azathioprine and by 37% taking corticosteroid/cyclosporine drug regimens.¹⁷⁸ Compared with before transplantation, 50% of cardiac transplant patients ($n = 21$) reported decreased sexual frequency and decreased libido.¹⁷⁹ Specific concerns unique to cardiac transplant patients included having difficulty integrating the new organ into their 'sense of self'; for example, avoiding sexual activity out of concern to protect their heart, anxieties about assuming the sexual identity of the donor, and perceptions of sexual unattractiveness (e.g. related to medication adverse effects).¹⁷⁹ Patients ($n = 128$) with sexual dysfunction (61%), compared with those without sexual dysfunction ($n = 72$), had decreased quality of life in general health ($P = 0.02$), physical functioning ($P = 0.02$), and physical role functioning ($P = 0.01$), although the groups did not differ by mental health or depressive symptoms.¹⁸⁰ Cardiac rehabilitation can improve the exercise capacity of patients who received transplants, enabling them to achieve improvements in physical activity, which may also enhance sexual functioning.^{149,181–183}

Left ventricular assist devices

There is limited evidence related to sexual concerns of patients who have an LVAD, with 1 pilot study ($n = 8$)¹⁶⁰ and a phenomenological study ($n = 9$).¹⁶¹ After LVAD placement, there may be renewed interest in sexual activity, improved sexual desire, and more energy to engage in sex, whereas before implantation of the LVAD, the debilitating symptoms of HF may have prevented patients from engaging in or thinking about sex. Partners reported being somewhat anxious about intercourse, mainly because of fears of causing harm, injury, or death. The majority of couples returned to sexual intimacy within 1 month of returning home,¹⁶⁰ and most used sexual stimulant medications to have sex. When sexual intercourse was not possible, couples found other ways to maintain intimacy. The patient's greatest fear in engaging in sex had to do with pulling out the driveline. Noted adjustments that were made to have sex with the LVAD that should be addressed in counselling included hooking up to batteries, sexual position changes to accommodate the device, and the use of binders or barriers to protect the LVAD, in particular the driveline.

Recommendations for HF

During sexual counselling, it can be beneficial to discuss resumption of sexual activity, because those with compensated or mild HF (New York Heart Association class I or II) may be able to engage in sexual activity (Class IIa; Level of Evidence B).²

Sexual counselling of the patient with HF might reasonably include tolerance for sexual activity, as well as general strategies such as positioning, being well rested before sexual activity, and how to manage shortness of breath or other symptoms with sexual activity (Class IIb; Level of Evidence C).⁹⁷

Sexual activity is not advised for patients with decompensated or advanced (New York Heart Association class III or IV) HF until their condition is stabilized and/or optimally managed (Class III; Level of Evidence C).²

Despite several studies describing changes in sexual function in HF patients^{29,61,155,184–186} and the need of patients and partners for information,⁶¹ there are currently no trials available that specifically

focus on sexual counselling of patients with HF. Patients report the need for specific information (rather than general information) regarding activities they can undertake,²⁹ as well as clear information and treatment to help cope with sexual problems as a result of HF.¹⁸⁷ In 1 large study ($n = 792$), 48% and 70% of HF patients reported problems with sexual activity at 1 month and 18 months after discharge, respectively, whereas 27% of patients without sexual difficulties at 1 month later reported sexual problems.¹⁸⁶ Sexual problems occurred more frequently among those living with a partner (odds ratio, 3.76; 95% confidence interval, 2.58–5.48), males (odds ratio, 3.08; 95% confidence interval, 2.10–4.43), and those of a younger age (odds ratio, 0.96; 95% confidence interval, 0.94–0.97).¹⁸⁶ When HF patients ($n = 438$) were compared with healthy elders ($n = 459$), the amount of sexual dysfunction was similar, at 59% and 56%, respectively, but with HF patients reporting more ED (37% versus 17%, respectively; $P < 0.001$), shortness of breath (20% versus 0%, respectively; $P < 0.05$), fatigue (20% versus 8%, respectively; $P < 0.001$), medication use (primarily β -blockers and lipid-lowering drugs; 10% versus 2%, respectively; $P < 0.001$), and limited circulation (11% versus 6%, respectively; $P < 0.05$) that caused changes in sexual function.⁶¹

Patients should be advised of the need for their HF to be optimally managed and their condition stabilized before they resume sex,² although the energy requirement and strain on the heart might be different for some sexual activities (e.g. hugging, cuddling, coitus). The use of sexual foreplay, for example, hugging, kissing, or fondling, may be helpful in determining tolerance for sexual activity, because activities such as mutual masturbation, oral sex, or intercourse may not be possible with decreased exercise capacity.⁹⁷ The general suggestions regarding being well rested before sexual activity and stopping to rest if the patient becomes short of breath with sexual activity¹²⁶ may be particularly useful strategies for the HF patient. The patient may wish to adjust the timing of diuretic use so as not to have frequent urination interfere with sexual activity. Although many patients with HF are older, they have an expressed need for information.¹⁸⁸ Partners and patients might need different information based on differences in the amount and type of sexual problems.¹⁸⁵

Recommendations after ICD implantation

It is reasonable to return to sexual activity after an ICD is implanted, and it is generally safe for those who had the ICD implanted for primary prevention or for secondary prevention, if moderate physical activity does not precipitate arrhythmias (Class IIa; Level of Evidence C).²

During sexual counselling, it may be reasonable to address the following areas: When it is safe to resume sex, the potential for an ICD shock with sex, what to do if a shock occurs with sex, that an ICD shock will not harm the partner, the level of sexual activity that is safe, how to deal with changes in sexual desire or function, and pre-pregnancy counselling for women who wish to become pregnant (Class IIb; Level of Evidence C).

The majority of the data derived on this topic have been completed by 1 centre using descriptive methods.^{10,79} The concerns of patients and their intimate partners after receipt of the ICD included erectile problems, overprotectiveness of the partner/spouse, lack of interest in sex, fear of the ICD firing, and fear of death if the ICD did not

fire.^{10,79} Intimate partners reported the same concerns as the patient. There was a 23% decline over a 3.5-year period in patients returning to sex after ICD implantation. Information requested by couples regarding the resumption of sex after an ICD included when it is safe to resume sex, the potential for an ICD shock with sex, what to do if a shock occurs with sex, the level of sexual activity that is safe, and the effects of medications on sexual function. The percentage of patients receiving an ICD shock during sex was reported as 13%.⁹⁷ Women with an ICD have similar concerns when considering sex after an ICD, but they also have some unique needs when considering pregnancy and delivery. These include being concerned that an ICD shock might harm the foetus, a higher risk of receiving an ICD shock with labour and delivery, and worry that sinus tachycardia commonly associated with pregnancy may cause inadvertent ICD shocks.¹⁸⁹ In a brief report of the effects of cardiac resynchronization therapy on sexual functioning 6 months after implantation (n = 31),¹⁹⁰ cardiac resynchronization therapy was associated with a significant reduction in ED and a significant increase in libido, as well as being significantly related to a reduction in New York Heart Association class.

Counselling advice for ICD patients and partners includes discussing fear about sex after an ICD, using exercise to build confidence to resume sex, encouraging patient-partner communication to address mutual concerns, following the same shock plan with sex as would be noted with any ICD shock, explaining that an ICD shock will not injure the partner, taking medications on time to protect the heart from sinus tachycardia, and reporting sexual difficulties to the provider. Patients may note a change in sexual desire or function after an ICD implantation, and fear of receiving an ICD shock during sex is a common concern. Returning to sex after an ICD is encouraged to maintain healthy relationships, quality of life, and emotional function.⁸⁴

Recommendations for congenital heart disease

Sexual activity is reasonable for most patients with congenital heart disease (CHD), although those with decompensated or advanced HF, significant valvular disease, or uncontrolled hypertension may need further evaluation before engaging in sexual activity (Class IIa; Level of Evidence C).²

Sexual counselling for those with CHD might reasonably include psychological manifestations such as fear and anxiety, body image related to surgical scarring, contraception and pregnancy planning, and severity of underlying disease in relation to sexual activity (Class IIb; Level of Evidence C).

There is little evidence related to sexual counselling of those with CHD. Individuals with CHD are reported to be fearful about having sex and lack enjoyment with sexual activity, with women reporting being more insecure with regard to engaging in sex.¹⁹¹ The severity of the heart defect did not contribute to the degree of sexual problems experienced, although a worse New York Heart Association class was positively associated with lack of enjoyment, insecurity, lack of arousal, and worry regarding sexual activity. Of note, patients reported fewer sexual problems and healthy matched control subjects reported more problems and greater worry about sex that was associated with being more distressed about sexual activity.¹⁹¹ Focused areas for sexual counselling should include discussion of

pleasure in the intimate relationship, addressing anxiety and fear about having sex, and examining prior patterns of sexual activity that might be adjusted to provide a more fulfilling sexual experience.

Studies using self-report surveys addressed 3 main populations of individuals with CHD: adult men, women wishing to become pregnant or use contraception, and adolescents. In adult men, fear and anxiety before or during sexual activity and physical symptoms such as dyspnoea, sensations related to arrhythmia, and chest pain were reported.⁹³ Those men with ED had lower perceptions of self-reported well-being and quality of life. Women with CHD were evaluated to determine whether appropriate advice was given regarding contraception and pregnancy.¹⁹² Among women who had discussed contraception with their general practitioner or family planning clinic, one third were given incorrect information regarding contraception, and some were using suboptimal methods of contraception. Progesterone-only methods are highly effective, and reversible methods of contraception are an appropriate choice for women with complex heart problems. In counselling women with CVD regarding contraceptive choices, the use of an effective method of contraception is important to avoid the risks related to an unplanned or complicated pregnancy.¹⁹² Transitioning from adolescence to adulthood was examined in 1 small study, with poor adjustment in sexual relations noted.¹⁹³ Parents were reluctant to discuss issues related to sexual function and reproduction, thus underscoring the need for healthcare professionals to counsel both adolescents and their parents regarding sexual issues. The authors suggest that sexual counselling address poor body image and self-esteem related to surgical scarring, anxiety related to sexual relations, and overall psychological adjustment. Sexual counselling should include topics such as severity of underlying disease, risks related to sexual activity, optimal use of contraception, planned and unplanned pregnancies, complications of pregnancy, and sexually transmitted diseases.¹⁹²

Recommendations after stroke

All stroke survivors and their partners should be asked about intimacy and sexual function at the time of the stroke, and then at regular intervals during follow-up after their stroke (Class I; Level of Evidence B).⁴

Sexual activity is reasonable for patients after stroke (Class IIa; Level of Evidence B).¹⁹⁴

A review of 17 studies confirms that sex and intimacy after stroke are complex phenomena and vary widely among individuals.⁴ Decades of research have found that stroke sequelae may have a profound effect on sexual desire and sexual function. The sequelae include dysphasia, hemiparesis or hemiparalysis, changes in cognition, and changes in the ability to express and interpret emotions, all of which may impact the ability of a stroke survivor to perform activities of daily living, including sexual activity. Even as functional improvement and increased independence occur, invisible impairments are as likely to cause problems with sex and intimacy as more obvious ones. In addition, the majority of those who have a stroke are older and have coexisting health problems, including diabetes mellitus, heart disease, high blood pressure, arthritis, and chronic pain, all of which may have led to a loss of sexual desire and problems with sexual excitement. These health problems may lead to fatigue and depression, which also cause sexual problems. Common sexual problems include difficulty with erection and ejaculation in men,

vaginal lubrication issues for women, and orgasmic problems for both men and women.¹⁹⁵ Weakness and difficulty assuming sexual positions for sexual intercourse can cause additional concerns.

Several investigators have found that stroke survivors and their partners wish to discuss sexual concerns, but no studies have been done to test whether interventions are effective in overcoming these problems. These same investigators have found that some couples continue to engage in sexual intercourse after a stroke. Thus, recommendations for sexual activity after stroke are based on descriptive and qualitative studies, as well as anecdotal reports and opinion.

Monga et al.¹⁹⁴ conducted a pioneering study that found no increased risk of stroke from sexual activity. Couples vary as to when they want information, and improvement continues to occur in the year after a stroke.⁴ Discussion of sexual issues with both the patient and partner can help in understanding their concerns and difficulties, even if the problem cannot be resolved completely.¹⁹⁵ The following recommendations may be helpful to stroke survivors and their sexual partners. All of these recommendations are based on anecdotal reports and clinical articles, and although there is no research that indicates this information will help in overcoming sexual problems, there is also no reason to suspect that any of these recommendations are harmful.^{4,103,196}

Paraparesis may require couples to adopt new positions for intercourse, as illustrated in the online-only Data Supplement (Figure I).¹⁹⁷ These positions also work well for those with chronic lung disease, heart disease, and arthritis, all of which can occur concurrently in stroke survivors or their partners. Aphasia and difficulty speaking can interfere with intimacy and sex. Tools are available to help couples communicate about sex when the stroke survivor has aphasia.¹⁹⁸ Couples may focus on non-verbal communication using gestures and touching during intimacy and sex. In addition, stroke survivors may use concrete thinking and miss subtle cues during intimacy. Partners may need to be very direct with sexual communication and give more specific directions to focus on mutual pleasure. Physical impairments and loss of sensation after a stroke may make sexual activity clumsy or uncomfortable. Couples may need to experiment with new positions, new sexual activities, and new ways of touching to feel pleasure and satisfy each other.

There are several resources that may be helpful to stroke survivors and their sexual partners (Table 3). This information should be offered at the time of the stroke and at regular intervals thereafter, such as at follow-up visits. It has been suggested based on an integrative review that follow-up poststroke sexual counselling occur at 3 months, 6 months, 9 months, and 1 year after the stroke.⁴

General implications for practice

Sexual counselling is an area of importance for many cardiac patients; therefore, physicians, nurses, and other healthcare professionals must take an active role in providing sexual counselling in practice. A growing number of studies worldwide illustrate that sexual counselling is often overlooked by providers and that preparation for providing sexual counselling by healthcare professionals is an area of need. Educational strategies are necessary that not only address

the knowledge and content of sexual counselling but also focus on increasing providers' comfort in delivering this information. Modelling and role modelling with common patient questions and scenarios may be a useful strategy to increase both knowledge and comfort about resuming sexual activity. Inclusion of sexual counselling content in basic professional training and continuing education is an important component. The knowledge needed for sexual counselling could be provided by face-to-face or online learning methods. Although face-to-face practice in modelling sexual counselling is ideal, other strategies that address increasing the provider's comfort in providing sexual counselling in practice might be addressed via online discussions such as blogs or other types of discussions. Given the sensitive nature of these issues, the use of secure discussion rooms or online sites would be important. The widespread use of video media allows one to video a practice interaction with an actor-patient that could be submitted for critique by an expert in sexual counselling, thus providing an alternative approach to face-to-face interactions for a busy provider.

The use of the PLISSIT model and assessment tools provides a structured approach to begin discussion of sexual concerns. The inclusion of both the patient and partner/spouse in these discussions serves to allay fears, ensures the sexual problems of both the patient and partner are addressed, and ensures that both receive the same counselling information and benefit from the education and support of the healthcare team.²² Many of the questions asked by patients and partners can be easily addressed with both the general strategies and the diagnosis-specific strategies presented in this consensus statement. In addition, pamphlets and other resources are available to provide supplementary information to patients and partners (Table 3), although these resources are not a substitute for face-to-face discussions, which are viewed as important by patients and partners.^{8,25}

Summary and future considerations

Both physical and psychological concerns of cardiac patients and their partners can be addressed through sexual counselling by healthcare professionals, with only a few patients needing referral and more intensive follow-up by a specially trained sex counsellor. It is important that providers assess sexual problems and concerns in a timely manner and address any issues through sexual counselling and medical management where indicated. All cardiac patients should be assessed, regardless of age or gender, because those who do not have sexual concerns or require sexual counselling will generally readily admit this to the provider, thus allowing the provider to focus on those patients/partners for whom sexual concerns are apparent.

The research evidence illustrates that sexual counselling is not uniformly practised; therefore, future studies should focus on better understanding the physical and psychosexual concerns of patients and their partners. Specifically, studies that further the body of knowledge on psychological issues related to sexual activity and sexual concerns are important. Furthermore, it is important to gather more evidence on the content of information that should be provided to patients and partners. Clinical trials that test sexual

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Molly Byrne	National University of Ireland, Galway	None	None	None	None	None	None	None
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counselling interventions are particularly needed, keeping in mind that time-efficient interventions are key for adoption in practice. Studies with larger sample sizes and the report of effect sizes to better understand the magnitude of the intervention are important considerations. In addition, studies of the validated, standardized instruments used in various cardiac and stroke populations are needed to further knowledge about sexual concerns and counselling. Open-ended questions are particularly useful in understanding the nature of individual patient and partner concerns, to appropriately inform sexual counselling, therapy, or treatment. Sexual satisfaction, sexual knowledge, and measures specific to sexual anxiety and depression have shown some promise in understanding sexual concerns, although further validation of prior study results is needed. Longitudinal studies are particularly needed, because some patients and partners report continuing sexual problems for 6 to 12 months or longer after a cardiac event, and others might report changes throughout the disease trajectory.

In addition to studies with patients, studies that develop and evaluate educational and counselling interventions with healthcare professionals and those with positive and useful outcomes could lead to more widespread education and use of sexual counselling in practice. The barriers to sexual counselling as noted in the present document must be addressed in the development of successful sexual counselling interventions. Greater attention to the inclusion of sexual counselling content in healthcare providers' educational programmes would also facilitate greater adoption of sexual counselling in practice. All members of the healthcare team must be prepared to address sexual issues, whether responding in relation to drug interactions as a pharmacist, to the physical risks of sexual activity as the physical therapist, or in a discussion of when and how to resume sexual activity as the physician or nurse. Therefore, future research must focus on patients and their partners, as well as healthcare professionals, to both understand sexual concerns and to develop strategies to ensure that sexual counselling is a part of routine practice.

Disclosures

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