Chapter 12
Orthopedic and Physical Ability Issues

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Contents

Introduction

The World Association for Sexual Health posits sexuality as a basic human right and an essential part of healthy life [1]. Sexual activity can be an indicator of quality of life and functional status [2]. Further, the World Health Organization's Classification of Functioning, Disability, and Health considers participation in sexual relationships as a major factor to describe and measure health and disability [3]. Acute and chronic health conditions to varying degrees may diminish quality of life and abilities to engage in meaningful activity.

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The approach to patients with physical or cognitive disabilities from congenital and genetic conditions is discussed in Chap. 11. This chapter will focus on acquired physical conditions and non-congenital chronic illness. Additionally, discussions of sexual positions that limit pain and discomfort for patients with musculoskeletal positions will be described in this chapter.

Events such as joint replacement surgeries, spinal cord injury, stroke, or myocardial infarction can result in impairments of body structure and function including muscle weakness, decreased range of motion, pain, balance deficits, and limited activity tolerance. These impairments can lead to difficulty performing daily tasks and alter participation in life, including sexual activity. Similarly, chronic health conditions such as osteoarthritis and coronary artery disease may result in adaptive changes that limit physical abilities. Whether affected temporarily or chronically with disability, people remain sexual beings. Sexual problems are common and associated with a myriad of health conditions [4]. Patients and partners have concerns about sexual activity in the context of health care. However, the topic of sexual activity is often overlooked and clinicians are underprepared for conversations that would best serve their patients [5–10].

There is a lack of materials available for counseling on physical ability and sexual activity. Those which exist are predominately considered from a heteronormative point of view with very little literature available in relation to same-sex couples [10]. There is a clear and important need for the development of clinician knowledge, skills, and materials for education regarding sexual functioning and disability. Clinicians should take an active role in investigating the impact of health conditions on sexual health and make recommendations to address concerns. In addition to clinician recommendations, peer support and guidance have been effective in some health populations with persons benefitting from learning about sexual functioning from individuals with similar injuries [11].

In order to meet the best needs of patients, providers should consider strategies around history taking, physical examination, and interventions related to sexual health. Several models exist (e.g., PLISSIT, PLEASURE, ALARM, BETTER) to prepare clinicians for therapeutic conversations about sexual health [12]. The models elucidate the importance for primary care clinicians to have the capacity to build rapport, giving permission for patients to share sexual health concerns in a nonjudgmental and confidential environment. This requires providers consider their own knowledge, comfort, and biases as related to sex and disability. Two models most commonly referred to in the literature to initiate conversations around sexual health and physical activity are the PLISSIT and BETTER models. The PLISSIT (*P*ermission, *L*imited *I*nformation, *S*pecific *S*uggestions, *I*ntensive *T*herapy) model developed by JS Annon, in 1976 [13], expects that all primary care clinicians be able to validate that sexual health is a legitimate concern and topic to discuss and, as such, be able to provide preliminary information on the topic limited information that, when shared, can empower patients to understand their conditions and potentially remedy problems. The BETTER (*B*ring up the topic, *E*xplain your concerns, *T*ell patients you can help, consider *T*iming of conversation, provide *E*ducation, document in medical *R*ecord) model, developed and utilized largely for use in

oncology, echoes the communication strategy and education components of the PLISSIT model. In addition, the BETTER model reminds primary care clinicians to consider the timing of sexual counseling and the importance of recording assessments and interventions about sexual health in patients' medical records [12]. Both models can be reasonably applied to other populations and patients.

Patients with physical limitations affecting daily life and mobility may also present to providers with challenges for physical examination procedures for sexual health, such as a pelvic examination. Evidence suggests that patients with disabilities are less likely to have a full and complete physical examination due accessibility of the examination room and physician training [14]. To improve access and care, clinicians may benefit from learning from persons with disabilities and rehabilitation therapists about safe transfers to a standard examination table. Patients with mobility issues may need more time, physical assistance, or adaptive equipment such as a step stool to safely transfer to a traditional examination table. To ensure patient safety during an exam, other considerations may include use of a lower table, a wider table to facilitate rolling, or use alternate positions to the traditional dorsal lithotomy position, such as side lying, or altering the position of the legs while supine. Modified footrest positions, such as placing footrest under the knees or lower legs, rather than the feet, will lessen the amount of hip and knee flexion and may be more comfortable for patients with back pain from lumbar disc herniation who may have symptom exacerbation in spinal flexion. Additionally, modifying the footrest position to allow the patient to have one leg up and one leg down may achieve a more extended spine position, while also providing access to pelvic area for examination. Alternatively, providing modifications to allow for a neutral or flexed lumbar spine may be helpful for patients with lumbar spine stenosis, who have more comfort in spinal flexion. If footrest position modification is not possible, wedges and towels under the sacrum to facilitate spinal flexion, or rolled and placed under the lumbar spine to facilitate spinal flexion may offer support and comfort. These may also be used for other patient populations who need accommodations to the traditional position. For patients with neurological injuries, clinicians will want to use an integrated knowledge of the patient's sensory and motor status during the physical examination. Patients with impaired sensory and motor status may be at increased risk for tissue damage of insensate areas from positioning and from examination procedures. It is recommended that clinicians visualize vulnerable bony prominences and inspect skin and internal tissues before and after procedures. Providers may also need to modify the sexual health physical examination for patients with medical conditions. Specifically, patients with gastroesophogeal reflux disease and related gastrointestinal disorders should be examined in a modified supine position with the trunk and head supported in flexion. Likewise, individuals recovering from cardiac procedures may have similar restrictions to avoid a full supine position. Access to adjustable tables will aid in achieving this semi-reclined position, as can the use of wedges, towels, and pillows.

In addition to considerations for communicating and examining patients, providers should be prepared to offer specific advice that is individualized to a patient's needs and concerns regarding sexual health. This may include advice for

positioning to protect joints, care for neurogenic bladder and bowel functioning, or use of adaptive equipment. Finally, there are specialty clinicians that can provide intensive therapy. These include sex therapists, psychiatrists, urologists, surrogates, and other licensed practitioners with unique training in sexual health for additional and targeted interventions. Primary care clinicians, as part of the team with the patient at the center, can apply these models and the specific suggestions that follow to address sexual functioning when physical ability is impaired.

Orthopedic Conditions: Considerations and Suggestions

Pain from muscle, joints, and bones, including arthritis, is a common complaint among adults. In a recent survey, more than half of adults in the United States reported musculoskeletal pain [15] and estimates suggest that between 60% and 77% of all injuries involve the musculoskeletal system. Most commonly, adults report low back pain, knee pain, and neck pain, in that order [16]. Further, almost 24 million adults report a diagnosis of arthritis [17]. Living with musculoskeletal pain and injury is often accompanied by changes in joint mobility, muscle strength, balance, and flexibility and, therefore, results in limitations in activity. These limitations include difficulty carrying out basic self-care, and home- and work-related activities of daily living. It has been widely reported that chronic low back pain is associated with considerable disability and that an estimated 44% of individuals living with arthritis report activity limitations related to their diagnosis [17]. Included in these reported activity limitations are reports of decreased sexual activity due to pain with sex, decreases in libido, and decreases in satisfaction in sex [18–20]. Although it is likely that most musculoskeletal injuries and musculoskeletal pain effects participation in sexual activity, patients with lower extremity pain and spinal pain are reporting more difficulties participating in sexual activity. For example, patients with low back pain report more difficulty with sex that those with neck pain [21] and a higher percentage of patients with hip arthritis and hip arthroplasty report disruptions in their sexual activity compared to patients who have arthritis in other areas of the body [19, 20]. Therefore, the following information will provide common presentations and specific suggestions related to lower extremity and spine pain and injuries; however, the principles behind the suggestions can be extrapolated to any individual living with musculoskeletal pain or injury.

Lower Back Pain

Low back pain is among the most common medical conditions for adults over the age of 18 such that almost one third of adults in the United States are currently experiencing back pain [15]. It is also the most common condition for which patient

seek medical care and negatively affects individuals' ability to participate in work and activities of daily living [15]. Individuals with low back pain report interruption of regular domestic chores, recreation and exercise, sleep, and social and leisure activities. Additionally, individuals suffering from low back pain report changes in work productivity, from modifying regular tasks at work, to not being able to participate in work altogether [22]. Not only does low back pain result in challenges with physical function, but it also results in challenges with social relationships. Individuals often report difficulty with relationships due to changes in their social roles due to pain, difficulty with social interactions, and in maintaining sexual function [22].

Studies suggest that half to three-quarters of patients with low back pain report a negative impact on their sexual activity, resulting in decreased satisfaction, sexual drive, and frequency [5, 21]. Yet, less than one-third of individuals report discussing sex with their healthcare provider. This is despite the fact that individuals with low back pain expect their clinician to provide ways improve their sexual activity and feel that it should be a routine part of managing low back pain [5]. A large proportion of patients report pain during intercourse—position was a major concern, and women more often report pain during sex than men [5, 21]. However, there is variability in the literature as to the specific influence of position on pain.

A potential source of this variability lies in the complexity of low back pain, its etiology, and the way it manifests in individuals. Each person likely experiences low back pain differently; therefore, it would be impossible to provide one single recommendation to patients regarding their sexual activity. One approach to managing the variable presentations of low back pain is determining the motions and positions which provoke a patient's pain, which is a critical part of the successful subgrouping for treatment method, which is considered best practice currently [23]. This can be done as a part of a physical examination or could also be elucidated with a thorough patient interview in which patients could be able to report activities or positions that worsen pain. Clinicians should ascertain whether their patients' pain is exacerbated in positions of spinal flexion or spinal extension, the two most common joint motions identified during sex. In some case, patients may report exacerbation in both positions, making recommendations more difficult. This information is imperative for the clinician to provide meaningful advice on coital positions for comfort.

The following discussion will provide specific suggestions on coital position for individuals with low back pain, depending on their position of exacerbated symptoms. For this discussion, positions for those in position for penetration and those in position to receive will be provided.

Recommended Positions for Patients in Position for Penetration

For individuals whose pain is exacerbated in flexion, two rear entry methods are recommended, with the patient tall-kneeling behind the partner, who would be in quadruped, as it requires little flexion range of motion. The least amount of flexion

is required with the quadruped partner leaning forward on their arms. It has been noted that even small changes in a partner's position is likely to change the mechanics for the patient in this position, so advising on their partners position is also important [24]. In addition, face-to-face position with the individual in a push-up position, is also recommended due to the fact that the spine will remain mostly in extension [24]. Face-to-face position in which the person's position is lower and weight is on the forearms, and side-lying positions would be contraindicated for patients whose symptoms are aggravated in flexion due the range of motion into flexion in these positions. However, for individuals whose symptoms are aggravated in extension, these positions are likely to be positions of comfort, while the tall-keeling and extended face-to-face positions would be contraindicated. For individuals whose symptoms are exacerbated in both flexion and extension, it will be important to think about advising patients on their mechanics of penetration, since all positions may be potentially aggravating. Specifically, counseling individuals to maintain a neutral spine (neither flexion nor extension) during penetration by moving through hip flexion, rather than spinal flexion, will decrease pain since the spine remains relatively still [24].

Recommendations for Those in Position to Receive

For patients whose pain is exacerbated in spinal flexion, three rear-entry methods are recommended as they place the individual in a position of more spinal extension, thus avoiding the painful spinal range of motion. Those positions are quadruped, side-lying, and quadruped with weight on the forearms [25]. Alternatively, face-to-face positions are contraindicated, as they promote spinal flexion. In fact, the more a person's hips are flexed, the more the spine will flex. Therefore, any face-to-face position in which the patient's feet leave the surface would be further contraindicated due to the extreme amounts of spinal flexion range of motion that position would induce. However, for patients whose pain is exacerbated in extension, a face-to-face position would be recommended, particularly with more spinal flexion, and the rear-entry methods, especially quadruped, would be contraindicated. Patients with pain in both flexion and extension should be counseled to move more from their hips than their spine to maintain comfort [25].

It is not reasonable to think that all patients seeking advice for sexual position would be limited to the positions suggested above. Therefore, it will be important for clinicians to have honest conversations with patients about their sexual activity and advise accordingly. A key principle guiding the advice for patients will be to avoid coital positions which would put patients' spines in positions of pain provocation, regardless of their desired position. This discussion may also include alterations to their practiced positions or use of pillows, wedges, or other props to achieve a comfortable spinal posture for sex.

Arthritis and Total Joint Replacement

Arthritis should be considered a major heath concern as the population continues to age, as it will negatively affect the quality of life for more than 34 million individuals [26]. The consequences of living with arthritis are multifactorial. Negative effects on both physical and mental health have been documented [27]. In particular, deficits in muscle strength and muscle mass [28, 29] and range of motion [30], and difficulty with activities of daily living are common [31]. Further, due to high pain levels and significant stiffness [30], many individuals are physically inactive [32]. In addition, difficulties in sexual activity have been reported due to hip and knee arthritis in the literature, negatively effecting participation and satisfaction in sex [7, 20]. Difficulties with sexual activity is correlated with poor reported quality of life for individuals with arthritis, as patients with sexual activity limitations report poorer general function compared with peers who do not report sexual activity limitations due to their arthritis [33].

A large percentage of individuals with hip arthritis report difficulty participating in sexual activity and report difficulty with sex more often than patients with knee arthritis [19, 20, 34]. Importantly, decline in sexual activity due to symptoms of their arthritis has been reported to occur as early as the fourth decade [33]. Two major consequences of arthritis are joint stiffness and pain, which are both likely contributing to declines in sexual activity and satisfaction in patients with arthritis. However, it is possible that stiffness affects patients with hip arthritis to a greater degree. In a study of patients with diagnosed hip arthritis, patients who reported limitations in their sexual activity also reported higher levels of pain and stiffness and had more limited range of motion compared to those with hip arthritis who didn't report sexual activity limitations [34]. Of patients who report declines in sexual activity, stiffness due to their hip arthritis was the primary impairment associated with difficulty during sex [19]. While stiffness was also reported as a factor interfering with sexual activity with those with knee arthritis, pain also played a large role in declining sexual activity. In particular, patients reported the necessity to change positions during sex, primarily due the inability to kneel during sex due to pain [20]. The impact of hip and knee arthritis on sexual activity is a major factor, as between 66% and 82% of patients with hip arthritis, more women than men, and 45% of patients with knee arthritis report difficulty with sex [19, 20, 34], and of those who report difficulties engaging in sex, tension in their relationships is also reported [33]. However, a large percentage of physicians report that they do not discuss sex with their patients [7].

Commonly, patients will undergo total hip or total knee arthroplasty to ameliorate the pain and disability of their arthritis. Total hip and total knee arthroplasty are considered successful surgeries and typically result in improved quality of life for individuals with end-stage arthritis. Generally, undergoing total hip or knee arthroplasty also improves sexual activity; however, some limitations in sexual activity

remain [19, 20]. The largest reduction in sexual activity occurs in the first year after surgery, especially in the first few months following surgery. Most patients report ability to return to sexual activity 1–4 months after surgery, with patients after total knee arthroplasty able to return sooner than those with total hip arthroplasty [7, 19, 20]. Kneeling remains an issue for patients after total knee arthroplasty, which potentially affects sexual activity as it did before surgery. However, patients after total hip arthroplasty have larger concerns regarding pain, stiffness, and risks of dislocation, complicating their return to normal sexual activity. To date, the posterolateral approach remains the most common approach to performing total hip arthroplasty [35]. This approach incises and divides the posterior hip musculature, leaving the hip particularly vulnerable to dislocation when in position of extreme flexion, internal rotation, and adduction. To decrease the risk of dislocation following surgery, range of motion precautions are often prescribed which likely interfere with sexual activity. Despite this, most surgeons believe patients can safely resume sexual activity 1 month following surgery.

To account for pain, stiffness, and postsurgical precautions, specific suggestions for positioning during sex can be provided. Finding positions to ease pain, accommodate stiffness, and promote safety will provide patients with the necessary tools to avoid declines in sexual activity due to these factors. While these suggestions come primarily from the postoperative literature, they can easily be translated to patients with arthritis of the hip or knee.

Knee Pain

The most common pain complaint during sex in individuals with knee pain is in a kneeling position. Pain during kneeling could be due to pressure in the anterior part of the knee that is painful or could be due to stiffness in the knee, where complete knee flexion is not possible. While it could be simple to advise patients to avoid kneeling positions during sex, it's worthwhile to note that of patients with knee pain and stiffness who reported declines in sexual activity, a primary reason noted was that a change in position led to less satisfying sex, and changed their participation in sexual activity [20]. Therefore, it is important to be able to provide specific suggestions that would allow patients to more comfortably assume a kneeling position during sex, thus allowing them to participate as they desire.

For patients reporting pain with kneeling, either in a tall-kneeling or quadruped position, additional padding under the knees will provide a softer surface to kneel on, thus decreasing pain and pressure in a kneeling position. Additionally, considering positions that unweights the knees could be helpful. For example, individuals who are in a position of receiving their partner in a quadruped position, using a rounded bolster under the torso will shift weight away from the knees, decreasing pressure and pain on the anterior surface of the knee. Alternatively, for patients with difficulty kneeling due to stiffness and inability to assume full knee flexion,

assuming a position in which the receiving partner is on top may be difficult. Patients may need to adjust their body position to be more upright in their torso to decrease the demand in knee flexion or consider using small pads or bolsters behind the knees to rest on, thus decreasing the angle of knee flexion while in this position. Finally, for patients willing to alter their position during sex, positions in which the individual and partner are standing, or seated, or in supine or prone positions will also be protective for a painful or stiff knee.

Hip Pain

The presence of hip arthritis often leads to pain and stiffness, which arguably has a larger impact than knee pain and stiffness on sexual activity due to the mechanics of engaging in sex. Often, individuals voluntarily self-limit sexual activity due to pain and stiffness but also due to fear of injury or insufficient knowledge about safe positions and options for participation [33]. Individuals engaging in vaginal receptive sex with hip pain report more difficulties with sexual activity and report difficulties with sex sooner after the onset of pain [33, 34]. Individuals with hip arthritis who report difficulty with sex also demonstrate limitations in hip flexion, abduction, and external rotation range of motion, limiting options for positions during sex [34]. This makes supine positions in which they would receive their partner painful or impossible and may also eliminate the option to assume a position on top of a supine partner, due to the same range of motion concerns. Therefore, information regarding positions which do not require large amounts of hip flexion, abduction, and external rotation range of motion will be helpful to patients wishing to maintain their sexual activity. Positions which have been identified as safe for individuals with hip pathology and that also minimize hip flexion, abduction, and external rotation are likely a rear entry method such as both partners standing, both partners supine or in partial side-lying positions, which require little range of motion in these difficult positions [36]. The requirement of large amounts of hip flexion, abduction, and external rotation to participate in sex appears to be unique to cisgender women and transgender women engaged in vaginal intercourse, which could be why cisgender men with hip arthritis do not typically report difficulties with sex or often need to alter positions to participate in sex [33].

As mentioned previously, patients often choose to undergo total hip arthroplasty to treat the pain and stiffness due to hip arthritis. Undergoing hip arthroplasty improves participation in sexual activity for a good percentage of patients, but not for all patients [7, 19, 33]. Resumption of sexual activity following hip arthroplasty is safe as early as 1 month after surgery [19], although the timeframe to resume sexual activity can vary anywhere from 1 to 4 months after [7, 19]. However, careful consideration for safety in resuming sexual activity is imperative to avoid injury, particularly hip dislocation, which has occurred during sex [7]. In particular, individuals often have range of motion limitations of hip flexion greater than 90°, hip

adduction, and internal rotation, mandated by the surgeon to protect from dislocation. These precautions need to be acknowledged when providing advice regarding return to sexual activity—all individuals should avoid coital positions with large amounts of hip flexion, whether they are in position to receive or in position of penetration. As is the case in those with hip arthritis, cisgender women more often report needing to change their position during sex than cisgender men, as cisgender men can more often use similar positions to before surgery [33, 36]. However, in opposition to comfortable positions suggested above for patients with hip arthritis, positions which promote hip abduction and external rotation are actually preferred to place the hip joint in a more stable position and thus, lessen the risk for dislocation. Taking these principles into consideration, several positions are considered safe for individuals after hip arthroplasty [36]. The most recognized safe coital position after surgery is a position where both partners are standing, either upright, or with the receiving partner flexed slightly forward from the trunk, supported by their upper extremities [33, 36]. Other safe positions include rear entry positions such as both partners prone and, both partners sitting, with the receiving partner facing away. Some supine positions may also be safe and comfortable after surgery, such a missionary, or with the vaginal receptive individual on top facing the partner. However, some modifications for these positions need to be considered. For example, for a vaginal receptive individual in a traditional, face-to-face position, a pillow or wedge under the pelvis will work to raise the pelvis, placing the hips in more relative hip extension, thus avoiding a hip flexion position. In addition, for the insertive partner in this position, it will helpful to counsel individuals to extend their legs while on top of their partner to avoid hip flexion positions that are more likely to occur while on the knees. Some individuals may find that changing positions or the use of supports, such as pillows or wedges, may initially change the sexual experience for one or both partners, so it is also important to counsel patients to communicate with their partners during and after sex. In addition, the first sexual encounter after surgery or any sexual encounters early after surgery may be anxiety provoking for the partner who just had surgery. Again, encouraging individuals to communicate with their partners to communicate concerns will be paramount, and acknowledging that many patients have difficulty returning to sexual activity may provide needed comfort.

Millions of adults are living with low back pain, arthritis, and other injuries or diseased affecting the musculoskeletal system. Of these adults, nearly three quarters report that their injury or disease affects their sexual health and activity. Therefore, sex is a topic that cannot be overlooked during clinical encounters and should be part of routine care. We have described specific suggestions to guide such discussions. The principle of advising patients to find positions that avoid pain provocation through changing preferred positions, or using props to change positioning can be extrapolated to any individual living with pain or injury. However, it is also important to note that for some patients with musculoskeletal pain, intercourse may not always be possible. It may also be prudent to discuss with patients and have patients discuss with their partners, the idea of other means of sexual intimacy including oral sex, manual stimulation, and masturbation.

Neurologic Conditions: Considerations and Suggestions

Neurological disorders can alter sensory, integrative and motor abilities affecting capacities for self-care, functional mobility, work, and recreation. Ultimately, neurological disorders may alter relationships and quality of life. Neurological disease frequently alters sexual response and activity, often to devastating degrees for patients and their partners. There are many neurological conditions known to alter sexual functioning, including but not limited to epilepsy, stroke, multiple sclerosis, Parkinson's disease, neuropathies, traumatic brain, and spinal cord injury [4, 6]. Here we will focus on spinal cord injury, stroke, and the degenerative condition of Parkinson's disease. These conditions will collectively serve to illustrate problems of physical ability and sexual activity. Clinicians may relate the suggestions to other pathologies and associated impairments.

Spinal Cord Injury

Spinal cord injury (SCI) prevalence is relatively low. However, its impact is profound. Currently, an estimated 282,000 persons are living with the consequences of SCI in the United States. The average age at time of injury has increased from 29 to 42 years, with males representing 80% of persons with SCI. Motor vehicle accidents account for the vast majority of SCI, followed by injury from falls, violence, and sports/recreational activity [37]. Much has been learned about sex and disability from this population due of the nature of the injury and the demographics predominately affected. SCI, primarily a traumatic event, leaves those affected with varying degrees of sensory loss, paralysis, and autonomic dysfunction from damage to the white and grey matter of the spinal cord. This consequentially affects multiple systems and participation in life [38]. During rehabilitation for SCI, common pressing questions arise about return to activity, namely, walking, self-care, sexual function, and reproductive abilities.

The Consortium for Spinal Cord Medicine has developed Clinical Practice Guidelines to comprehensively address rehabilitation and life after SCI, including sexuality [38]. The consortium recommends the use of the PLISSIT framework to encourage open and respectful communication. The guidelines emphasize maintaining dignity while matching the patient's readiness to learn about sexual function across the continuum of care. Evidence has shown that for people with SCI, there is an ideal time period that exists for sexual counseling between inpatient rehabilitation and 6 months after discharge. It is important to include sexual partners in these intervention sessions [39].

The level of a person's SCI correlates to a degree with the physiologic effects on sexual function. In the general population, cisgender men experience psychogenic, reflexogenic, and spontaneous erections. For cisgender men with complete upper motor neuron SCI above the level of T11, psychogenic erection typically does not

occur, but they may experience reflexogenic and spontaneous erections. For those with lower motor neuron injuries below T11, psychogenic arousal may be possible, but reflexive arousal typically is not. Clinicians can counsel about expectations, remind patients that actual abilities with physiologic sexual functioning will be unique, and advise about alternate forms of sexual expression—touching on sensate areas, masturbation, and the use of adaptive equipment for pleasure. Clinicians, including rehabilitation therapists, can help identify safety and appropriateness given hand function, general motor, sensory, and mobility abilities. Intensive therapy may be indicated for counseling, and to address fertility and reproduction.

SCI has an impact on the persons psychological, physiological, and physical abilities which may all have an impact upon sexual functioning. Individuals with SCI may have problems assuming positions for sex, physiologic disturbances with arousal, and changes in body image that interfere with sexuality [40]. Here we include specific suggestions, emphasizing those relating to physical activity. Early in rehabilitation, spinal precautions associated with fracture and surgical decompression and stabilization need be maintained to allow for healing and prevent injury. Clinicians can help identify and translate these precautions as related to sexual activity. As persons with SCI may require assistance with functional mobility and transfers, it is important to educate caregivers and patients about optimal positioning. This may include use of alternate positions for coitus in bed with accommodations for weakness and to protect skin and joints from injury. Additionally, this may include expanding activities for pleasure (i.e., mutual masturbation, oral sex, and the use of adaptive sexual aids). Positions that offer the most support and stability for the individual with SCI are recommended. Supine in bed and seated in the person's wheelchair can both allow for maximum stability and therefore safety. Optimally, persons with SCI and their partners can collaborate with health care providers to find solutions facilitating sexual participation. Rehabilitation therapists are encouraged to examine and understand a person's neurological and mobility status, readiness for sexual counseling, and individual goals related to sexual function. When appropriate, written educational materials may provide a tool for important collaborative conversations to address sexual wellbeing, positioning, equipment needs, and special considerations [41, 42].

Special considerations of skin integrity, care of bladder and bowel, and risk of autonomic dysreflexia are important in this population. Providers can help individuals with SCI identify and understand safety and risks related to skin integrity. It is important to protect and inspect areas of insensate skin that are potentially exposed to friction and shear during sexual activities. Things to consider include surfaces that allow for stability and mobility while also protecting skin and joints. Firm mattresses, while facilitating transfers and bed mobility, may be uncomfortable for a person with sensory loss and joint pain. Adaptive equipment such as wedges and thigh slings can help compensate for paralysis and make the physical activity of sex more accessible. Rehabilitation specialists can help to ascertain weight limits and safety precautions for couples engaging sexually in the wheelchair, provide examples of wedges for position, and link an individual's neurological status and mobility skills to the physical abilities involved in sexual activity.

Primary care clinicians should discuss the risk of autonomic dysreflexia and functioning of bowel and bladder as related to sexual activity with individuals with

SCI. During sexual activity, able-bodied persons are known to experience moderate increases in blood pressure, but those with SCI particularly at higher levels (above T6) with intense stimulation have increased likelihood for the hyperreflexive response known as autonomic dysreflexia (AD) wherein blood pressure quickly escalates to life threatening levels [43]. AD can by managed by couples recognizing symptoms (goosebumps, headache, lightheadedness) and contributing factors (UTI, full bowel or bladder, presence of aggressive, or noxious sensory stimuli). Most importantly, couples need to know how to manage AD should it occur. To manage the symptoms of AD, sit the individual with SCI upright, and remove or decrease any contributing factors.

Incontinence is a concern for individuals with SCI, but does not necessarily restrict sexual activity [44]. Bladder management options after SCI include self-catheterization, the use of an indwelling catheter, and suprapubic catheters. Sexual activity is possible with all types, and as such, providers should work to assist the individual with SCI in choosing the option that maximizes health, function, and personal desires. Suprapubic catheters can make sexual activity easier, as they provide an alternate route to the bladder, leaving the genitals free for sexual stimulation. For those who self-catheterize, voiding prior to sex may be helpful. However, some cisgender men with SCI find a full bladder assists with achieving erection, while others report it impairs erectile function [44]. In this case clinicians should caution patients that a full bladder may increase likelihood of AD. Clinicians should encourage persons with SCI to explore to determine their best individual practice and to have contingency plans in place to address incontinence and AD should either or both occur.

Stroke

Stroke is a leading cause of death and disability. With an aging population and advanced medical treatments, large numbers of adults survive stroke [45]. Following stroke an individual may be left with weakness, sensory loss, spasticity, and fatigue making mobility and activities of daily living difficult. Studies have shown that sexual functioning is also impaired. Many persons with even mild stroke report problems with sexual functioning and consequences increase with severity [46]. While the majority of couples experience decreases in their sexual life after stroke, some identified a positive impact from learning slow down and to be mindful and more accepting of their partner [8]. Barriers to sexual function following stroke may be physical, psychosocial, or psychological in nature. Further, problems with sexual functioning may be the result of medication side effects or comorbid conditions. Frequently, multiple domains need to be addressed [47–49]. Examples of psychosocial barriers after stroke include loss of identity and shifts in relational or caretaking roles. Depression, a known frequent consequence of stroke, and the medications used to treat depression can diminish sex drive. Likewise, antihypertensive and lipid-lowering medications are known to have similar side effects. Regardless of causation, survivors of stroke and their partners desire counseling about sexual dysfunction and activity [9].

Approaches by healthcare professionals to addressing these needs are varied but mostly lacking [48]. Studies have identified personal level of comfort, lack of

knowledge, perceptions and fears of patient responses to talking about sex, and unsupportive rehabilitative environments as barriers to effectively engaging with patients to address sexual health following stroke [49]. Primary care clinicians caring for patients after stroke should consider timing regarding inquiry about and counseling for sexual function. There are mixed reports with some persons wanting this information readily in acute care and others with preferences for later in outpatient settings. However, 71% of patients wish to receive counseling within 1-year post stroke [9]. Primary care clinicians can use the PLISSIT model discussed above to initial conversations about sexual activity after stroke. As with other populations, giving permission to discuss sexual health and providing preliminary information that helps patients understand the relationship of their current health condition to sexual functioning is helpful. Encourage patients to assess their own attitudes and feelings about sex after stroke and to talk with their partner(s) and to clinicians. One general recommendation is to plan ahead for sex and allow more time. This may be an adjustment for patients and their partners who have previously enjoyed spontaneity with sex but can address many of the known and potential problems such as fatigue, pain, and incontinence that can occur following stroke.

Commonly following stroke, individuals experience hemiplegia, balance problems, and decreased endurance for activity. Ninety-four percent of people with stroke identify these types of physical limitations as limiting sexual activity [9]. Positions of supine and side lying are recommended as compensatory to provide stability and safety. Bolsters and pillows may be helpful to protect limbs and joints while positioning for comfort and pleasure. Both the individual with stroke and their partner(s) should be aware of insensate areas and counseled to inspect skin that is subject to shear and friction from sexual activity.

In general, a willingness of providers to address sexual activity and provide any written materials has been demonstrated as effective as specific and structured sexual rehabilitation programming [50]. This is promising as providers may be most comfortable with giving permission and limited information but health systems don't always allow time for specific recommendations. Some examples of printable educational materials available online are included (Table 12.1) [48].

Table 12.1 Printable online materials for stroke survivors and caregivers

Website	Document title	Year	Weblink
National Stroke Association	Recovery After Stroke: Redefining Sexuality	2006	http://www.stroke.org/stroke-resources/library/redefining-sexuality
United States Department of Veterans Affairs	RESCUE Resources and Education for Stroke Caregivers Understanding and Empowerment	2016	http://www.stroke.org/stroke-resources/library/redefining-sexuality
The Stroke Association	Sex After Stroke	2017	https://www.stroke.org.uk/sites/default/files/sex_after_stroke.pdf

Adapted from Hamam et al. [48]

Degenerative Neurological Conditions

Degenerative neurological conditions such as Parkinson's disease (PD), multiple sclerosis (MS), and Alzheimer's disease (AD) systematically progress in morbidity, typically with advancing degrees of disability. Persons with such neurodegenerative disorders may experience progressive loss of abilities with locomotion, transfers, mobility, communication, independence with self-care, and ability to carry out activities of daily living changes. Similarly, sexual responses and abilities are altered [11].

Parkinson's disease (PD) affects approximately 1% of Americans older than 60 years, and an estimated 4% of the oldest Americans are now diagnosed with PD. This prevalence is anticipated to double by 2030 [51]. Sexual function may be affected directly by PD, made difficult by the condition's motor impairments (bradykinesia, tremor, rigidity, loss of dexterity) or secondarily by non-motor symptoms of the disease. Non-motor symptoms such as drooling (hypersalivation), pain, fatigue, sleep disturbances, and autonomic dysfunction are known to be troublesome to people with PD. Further, consequences of comorbid conditions and/or side effects of medications can impair sexual functioning. Cisgender men with PD report erectile dysfunction with studies identifying 50–70% having difficulty maintaining an erection. Cisgender women with PD, when compared to aged matched controls, experience more vaginal tightness, decreased lubrication, involuntary urination, and overall a dissatisfaction with sex [4]. Clinicians can help individuals with PD by normalizing conversations about sexual health, considering medication therapies, recommending the use of lubricants and reminders to void prior to sex. Clinicians should investigate complicating factors and be prepared to refer for intensive therapies if indicated. The motor symptoms of PD (rigidity, bradykinesia, decreased fine motor control) tend to be worse in the evening and subject to medication on-off times and may interfere with sexual activity. Encouraging couples to plan for intimacy in relationship to these fluctuations may be helpful. Additionally, suggestions about outercourse (experiencing sexual pleasure without concern for erection, orgasm or intercourse) are also advised for those seeking intimacy but with impaired genital functioning. Satisfaction with sexual activity is negatively affected by the presence of motor symptoms, anxiety, and depression [4]. It is important, then, that primary care clinicians address motor symptoms and mood in PD. Physical therapy and exercise are known to benefit people with PD [52]. Recommending therapy and activity can enable individuals with PD to manage their health condition and improve physical mobility for activity and participation, including sexual activity.

Medical Conditions: Considerations and Suggestions

Individuals with cardiovascular disease (CVD) face challenges with endurance and exercise tolerance, which includes sexual activity. A concern that arises in patients with medical conditions and their partners is the fear that sexual activity can cause

another event such as stroke, heart attack, or death. However, the link between coitus and stroke is not well established [47]. A known patent foramen ovale, post-coital headache, and severe headache with orgasm are associated with an increased risk for stroke with sexual activity. In an analysis of love-death (death associated with sexual activity), several risk factors were identified—preexisting coronary heart disease and myocardial infarction, high body mass index, and elevated heart rate [53].

The American Heart Association recommends that patients with cardiovascular disease (CVD) wishing to resume sexual activity undergo a physical examination, including exercise stress testing, if indicated [54]. Sexual activity is considered safe for patients who are able to exercise at a level of 3–5 METS, which is equivalent to walking up a flight of stairs, without angina or dyspnea. Encouraging cardiac rehabilitation and regular cardiovascular exercise is recommended to reduce risk of cardiovascular complications during sex. Clinicians should engage in conversations with patients about sexual activity and can counsel about engaging in sexual activities that are less energy demanding. One suggestion is to begin with lower level energy expending activities and progressively increase tolerance to all activity including sex. Activities of hugging, kissing, and sexual touching have the lowest energy expenditures, whereas vaginal and anal intercourse have the highest energy expenditures [55]. Lastly, patients may need to be counseled to defer resumption of sexual activity until their medical condition is stable [54].

Conclusion

Sexual health, an important component of whole health, is affected by physical abilities. Many adults are dealing with health conditions that impair physical activity. It is estimated that one-half of adults are affected by chronic conditions, such as arthritis, stroke, or heart disease [56]. These conditions, degenerative neurological conditions and traumatic injuries, are all known to have deleterious effects on sexual health and activity.

Primary care clinicians should include conversations about sexual health in caring for the whole individual.

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