Eighty-six patients who had successful total hip replacement completed questionnaires on their sexual activity. Preoperatively, 46% of patients attributed significant sexual difficulties to their hip disease, whereas only 1% felt that their hips remained a significant source of problems postsurgery. The majority (55%) of patients were able to resume intercourse one to two months postoperation. Male patients were statistically more likely to resume intercourse sooner than their female counterparts. Patients were also questioned about which coital positions they found comfortable after arthroplasty. The supine position (patient on bottom) was the most preferred. The next most comfortable position for males was prone (patient on top), yet for females it was sidelying on the nonoperative hip. In addition, 89% of patients desired more information regarding sexual function postarthroplasty, preferably in the form of a booklet. Therefore, a booklet was written specifically for postoperative patients and their sexual partners.

The beneficial effects of THA on the normal activities of daily living have been well documented. However, data regarding the specific effect of hip arthroplasty on sexual function remains limited. Currey investigated the impact of hip osteoarthritis on sexual activity. Questionnaires were sent to 235 patients who had had surgery for hip arthritis, and 121 adequately completed forms were available for analysis. In general, two thirds of patients indicated that arthritis had caused sexual difficulties in their lives, most commonly because of hip pain and immobility rather than loss of libido. Currey also examined the effect of surgery on 70 of these patients. Approximately 40 patients reported some relief of sexual difficulty. However, only 24 patients reported complete or considerable improvement. In addition, these patients had a variety of operative procedures including total hip arthroplasty (THA; nine patients), cup arthroplasty, osteotomy, arthrodesis, and resections. Although the patients with total hip replacements appeared to have the best overall results, in terms of improved hip pain and sexual function, the numbers were too small to make definitive statements.

Todd et al. interviewed 123 patients regarding sexual problems who had undergone total hip replacement. More detailed information was obtained from a smaller subgroup of 79 patients. Of these, approximately 75% had experienced some sexual difficulties because of hip pathology before operative intervention. Sixty percent of these patients reported some relief postarthroplasty.

Finally, in patients with rheumatoid arthritis who had total hip replacement, Baldurs-son and Brattstrom had responses from 44 of the 53 patients who were sent questionnaires. Preoperatively, 28 of these patients had sexual problems that they attributed to hip pathology. Postoperatively, 27 of these pa-
tients no longer considered their hips to be a cause of sexual difficulty, although ten patients continued to have problems secondary to generalized arthritis.

The purpose of this study was to determine the effect of THA on sexual function in a predominantly osteoarthritic population. In addition, a time course for resumption of sexual activity, as well as coital positions that patients found both comfortable and safe were examined. It was hoped that the data obtained would encourage better communication between patient and surgeon. Patients in general appear to be reluctant to discuss these issues, though many desire more information.¹,²

MATERIALS AND METHODS

At the time of a routine postoperative visit a standardized questionnaire on sexual function was given to 100 patients who had THA within the last year. Patients who were 70 years of age or younger were included in this study. Because of the sensitive nature of this topic, only patients who expressed satisfaction with the results of their operation were asked to participate. The purpose of the study was explained to the patients by one of the coauthors.

The degree of sexual difficulty that patients attributed to either their preoperative hip pathology or their postoperative hip arthroplasty was stratified into four categories (none, slight, severe, and intercourse ended). Patients who said their preoperative hip problems interfered with sexual activity were asked whether this interference was secondary to pain, immobility, decreased desire, or difficulty with arousal, and if their impaired sexual function had played a role in their decision to have a total hip replacement. In addition, information was obtained regarding which sexual positions patients had found most comfortable prearthroplasty and postarthroplasty. Similar questions were asked about the patients' postoperative sexual function and activity, with special emphasis on changes secondary to surgery. Patients were also questioned regarding the time course for resumption of intercourse, as well as preoperative and postoperative coital frequency. Finally, data were collected on the frequency that sexual issues were discussed with the individual patient, and patients were asked if they wished to receive more information in this respect.

To simplify statistical analysis, the four categories used to define sexual difficulty attributable to hip pathology were further collapsed. Patients were classified as having "significant sexual problems" if they complained of either severe or intercourse-ending symptoms related to their hips. Patients were felt not to have "significant sexual problems" if they reported either no difficulties or slight difficulties attributable to their hips. The statistical analysis of a time course of resumption of intercourse was stratified by gender and age and evaluated with the Fisher's exact chi-square method. Frequency of intercourse was evaluated with a paired t-test whereas, a McNemar type chi-square was used to compare patients' sexual functions prearthroplasty and postarthroplasty.

RESULTS

The questionnaire was given to 100 patients. Of these, nine refused to participate in the study and another five patients were not sexually active for reasons unrelated to their hip pathology. This left 86 questionnaires to analyze. Tabulation of the data revealed that in rare instances patients chose not to answer some questions, thus several of the response totals do not equal 86. Forty-seven women and 39 men participated. The average age was 57 years (range, 20 to 70 years). There were eleven bilateral THAs. Sixty of the hips were cemented arthroplasties, eight were porous, and 18 were hybrid (porous cup and cemented stem). The preoperative diagnosis was osteoarthritis in 74 patients, inflammatory arthritis in eight patients, and hip dysplasia in four patients.

Preoperatively, only 14% denied having sexual difficulty attributable to their hip disease, but 46% felt that their hips constituted a "significant sexual problem." Postoperatively, 65% of patients were without sexual problems related to their hips, with only 1% feeling that their hip arthroplasty remained a "significant sexual problem" (Fig. 1; Table 1). When the patients' responses were stratified into two classes, those with and those without "significant sexual problems" secondary to hip pathology, hip arthroplasty ap-
appeared to lead to a significant improvement in sexual function ($p < 0.001$).

Eighty-one patients responded to specific questions on the preoperative causes of sexual difficulties. Fifty-nine (73%) had presurgical sexual difficulty with hip pain, whereas 55 (68%) complained of hip stiffness. Decreased sexual desire was reported by 16 patients (20%), and 25 (31%) noted arousal difficulty.

Of the patients who had attributed sexual difficulty to their hip pathology, only 20% (15 of 74 patients) said sexual issues were a factor in their decision to have a prosthetic joint. Examining the subgroup of patients who had "significant sexual problems" secondary to their hip disease, 30% (12 of 40 patients) considered this dysfunction a factor in their decision to have surgery. The effect of hip replacement surgery on sexual function was only discussed preoperatively with 7% (six of 85 patients) of the people studied.

Seventy-five percent of patients felt that surgery had alleviated hip pain during intercourse. In addition, 35% felt that hip motion had been adequately restored for sexual function (Fig. 2). No patient felt that either hip pain or motion had worsened postarthroplasty.

Data regarding the time frame for resumption of sexual activity was obtained in 75 patients. Fifty-five percent (41 patients) re-

### TABLE 1. Degree of Sexual Difficulty Secondary to Hip Pathology

<table>
<thead>
<tr>
<th></th>
<th>Preoperative</th>
<th>Postoperative</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>12 (14%)</td>
<td>54 (65%)</td>
</tr>
<tr>
<td>Slight</td>
<td>34 (40%)</td>
<td>28 (34%)</td>
</tr>
<tr>
<td>Severe</td>
<td>33 (38%)</td>
<td>1 (1%)</td>
</tr>
<tr>
<td>Intercourse ended</td>
<td>7 (8%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Total</td>
<td>86 (100%)</td>
<td>83 (100%)</td>
</tr>
</tbody>
</table>

* McNemar chi-square of patients with "significant sexual problems" with both pre- and postoperative data evaluated ($p < 0.001$).
Fig. 2. Effect of hip arthroplasty on improving hip pain and hip motion during sexual intercourse.

Fig. 3. Time course for the resumption of intercourse postarthroplasty.

Resumption of intercourse has been divided into groups who resumed relations either less than or greater than two months postarthroplasty. Male patients resumed activity slightly sooner than females ($p < 0.01$). Patients younger than 50 years of age tended to resume sexual activity sooner than older patients, though this was not statistically signifi-
cant \((p = 0.21)\). In addition, it was noted that preoperative patients averaged sexual intercourse 3.3 \((+/ - 2.8)\) times per month, as compared to 5.7 \((+/ - 3.1)\) times per month after surgery \((p < 0.001)\).

Patients were also questioned regarding which coital positions they found comfortable, preoperatively and postoperatively (Figs. 4 and 5). Many patients found more than one position comfortable, and in these cases all preferred positions are included. The supine position (patient on bottom) was the most preferred. The next most comfortable position for males was prone (patient on top), whereas for females it was sidelying on the nonoperated hip. Few females found the prone position comfortable.

Finally, patients were asked if they would have welcomed advice about sexual activity after their operation, and, if so, in what form. Eighty-nine percent (57 of 64 patients) would have welcomed such information and felt that a booklet would have constituted a satisfactory method. Sixty-five percent (39 of 60 patients) felt that a discussion with their private surgeon would have been beneficial, whereas only 19% (nine of 48 patients) would have desired to speak with the orthopedic resident on this subject.

### TABLE 2. Intercourse Resumption Postarthroplasty

<table>
<thead>
<tr>
<th></th>
<th>&lt;2 Months</th>
<th>&gt;2 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>28</td>
<td>6</td>
</tr>
<tr>
<td>Females</td>
<td>21</td>
<td>20</td>
</tr>
</tbody>
</table>

Fisher's exact chi-square \(p < .01\)

<table>
<thead>
<tr>
<th></th>
<th>&lt;2 Months</th>
<th>&gt;2 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age &lt; 50</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>Age &gt; 50</td>
<td>34</td>
<td>20</td>
</tr>
</tbody>
</table>

Fisher's exact chi-square \(p = .21\)

### DISCUSSION

Sexual problems in arthritic patients have received scant attention in medical and orthopedic literature. Other aspects of the lives of arthritic patients have been studied in detail, although issues involving arthritis and sexuality remain largely unexplored. Severe hip arthritis, with its resultant pain, deformity, and immobility, interferes with sexual activity. Prior studies have shown that arthritis appears to have a significant impact on issues of sexual function, including sexual opportunity, sexual image, sexual drive, sexual expression, and sexual competence.\(^1\)\(^2\)\(^4\)\(^9\)\(^11\)

The results of this study are consistent with the work of previous authors in that patients with severe hip arthritis experience sexual difficulty attributed to their hip pathology.\(^1\)\(^2\)\(^4\)\(^6\)\(^8\)\(^9\)\(^11\) Total hip replacement can offer significant improvement in sexual function. The prosthetic joint is most successful in relieving hip pain, deformity, and stiffness, which are the most troublesome symptoms for the patient with hip arthritis. The overall increase in coital frequency postoperatively seen in this study is further evidence of the beneficial effect of hip arthroplasty on sexual function.

The data from this study show that patients can safely resume sexual relations between one and two months after an uncomplicated hip arthroplasty. Only 11% were able to resume activity within the first postoperative month. One month of recuperation allows the wound to heal with decreased skin sensitivity to friction. It also allows the hip musculature to recover from the operative trauma, and thus is better able to control placement of the extremity in space. In addition, periacetabular soft tissue healing occurs, thereby reducing instability and the risk of dislocation.

The etiology for the earlier resumption of intercourse in males is not clear. Factors may include differences in the needed range of
motion, the mechanical nature of intercourse, or psychosexual differences between the sexes. As might be expected, the time to resumption of intercourse tended to increase in patients over 50 years of age. However, this difference was not statistically significant.

Patients afflicted with hip arthritis have difficulty in achieving comfortable coital positions. As expected, both males and females found the supine orientation more comfortable prearthroplasty and postarthroplasty. The supine position requires less energy ex-
penditure, and it minimizes the needed range of motion for a painful hip. Postarthroplasty, males preferred either the supine or prone position, whereas female patients found the supine or sidelying position most comfortable. This difference may be due not only to increased hip comfort in the supine position, but also to a psychological preference of both partners for the more traditional male superior position.

Postoperative dislocation of total hip replacements remains one of the most common complications, with 60% occurring within the first three months. The more common posterior dislocations occur with excessive flexion, adduction, and internal rotation, and patients should be cautioned to avoid these positions especially if the posterior surgical hip approach has been used. There have been anecdotal reports in the literature about dislocations during intercourse, but no dislocations related to sexual intercourse were recalled by the senior authors at the authors' institution.

Guidelines for safe intercourse in the postoperative period, combining results of this study with known movement limitations for hip prosthesis, were formulated. Initially, the postoperative sexual partner should assume the supine position and participate in a more passive manner. Another option, especially in females, would be sidelying on the unaffected side with the operative leg supported to prevent adduction and internal rotation. These general guidelines may need to be modified for individual cases.

Because of the sensitive nature of sexual matters, the patient and the surgeon are generally reluctant to broach this subject. Despite significant sexual dysfunction related to hip disease, less than 10% of patients discussed this issue with their surgeons before surgery. This poor communication appears to persist postoperatively with the large majority of patients remaining uninformed about sexual activity after hip arthroplasty. The responses to the questionnaire demonstrate that it is not a lack of patient interest, but rather the aforementioned reluctance to discuss sexual issues that cause this knowledge gap to persist. Additionally, the orthopedic literature has little information that surgeons could comfortably impart to the patient.

Patients felt that the best educational tool would be a booklet that could easily be shared with the sexual partner. This desire is consistent with results from prior studies. A booklet is also likely to be accepted by the orthopedic surgeon as an initial way to impart this information. Therefore, a pamphlet was developed to address the most common issues about sexual function and it can now be distributed to the total hip patient.

Certain problems inherent in this type of report should be mentioned. Questionnaires are limited by patient recall, though in an attempt to minimize this problem, the study was confined to patients undergoing surgery within the last year. The inability to independently check the validity of the data obtained remains a concern. Bias may be introduced as patients may respond with what they believe are the correct answers. In addition, sexual partners play a significant role in determining the type, extent, and satisfaction of sexual activity, and may have a different perception of the patients sexual function prearthroplasty and postarthroplasty. Although it may have been helpful to include sexual partners in this study, this was not done. Finally, the questionnaire addressed sexual activity as intercourse alone. By simply measuring this one parameter of sexual fulfillment, a distorted picture of a patient's total sexual function may be obtained.

A prospective study, evaluating patients both presurgery and postsurgery, would tend to eliminate some, but not all, of these problems. However, because of the delicate nature of sexual issues in this society, it was believed that initially a retrospective study would be appropriate. It is hoped that this
retrospective paper can stimulate additional research in this field as well as provide a foundation for future research.

CONCLUSIONS

Sexual intercourse can be enjoyable following successful THA. Patients were able to safely resume intercourse when their postoperative pain subsided and they felt comfortable with their prosthetic joints. For the majority of patients, this resumption will probably occur one to two months postarthroplasty as was seen in this study. Both younger patients and males appear to be comfortable with the resumption of sexual activity earlier. Patients should be instructed to resume intercourse in the supine position, play a more passive role in the first few weeks, and avoid extremes of motion according to the approach used. Females may also find the side-lying position suitable, whereas males, if comfortable, can assume the more traditional prone orientation two to three months after surgery. Based on a review of the literature and this paper, a booklet has been developed to educate postoperative patients and their sexual partners, and minimize the reluctance for discussion of this sensitive subject by patient and physician.

ACKNOWLEDGMENT

The authors thank Dr. Raul C. Schiavi, M.D., Professor of Psychiatry at Mount Sinai School of Medicine; Director, Human Sexuality Program at Mount Sinai Medical Center, New York, NY, for his thoughtful advice.

REFERENCES