

The Human Response

In their landmark book *Human Sexual Response*, Masters and Johnson began with a primer on the sorry state of knowledge concerning human sexuality and what little society had done to remedy it

“How can biologists, behaviorists, theologians, and educators insist in good conscience upon the continued existence of a massive state of ignorance of human response, to the detriment of the well-being of millions of individuals?” they implored. “There is no man or woman who does not face in his or her lifetime the concerns of sexual tensions. Can that one facet of our lives, affecting more people in more ways than any other physiologic response other than those necessary for our very existence, be allowed to continue without benefit of objective, scientific analysis?”

These idealistic strains echoed a young Bill Masters, appalled at America’s ignorance about sex and resolving to do something about it. But the book soon sounded like a seasoned medical explorer planting a flag on *terra nova*, rightfully claiming credit for new insights. Their thanks to Alfred Kinsey, dead a dozen years by then, was kept in respectful but comparative terms. While Kinsey and his team “published a monumental compilation of statistics reflecting patterns of sexual behavior,” Masters and Johnson made sure the reader understood Kinsey’s effort was mere sociology and not medicine. Indeed, they suggested “future evaluation” by historians might conclude Kinsey’s biggest contribution was as a precursor to their own work, “opening the previously closed doors of our culture to definitive investigation of human sexual response.”

Masters and Johnson even managed to dig up a quote from Freud that sounded like a clarion call for their work: “*Biology is truly a land of unlimited possibilities. We may expect it to give us the most surprising information and we cannot guess what answers it will return in a few dozen years to the questions we have put to it. They may be a kind which will blow away the whole of our artificial structure of hypothesis.*”

By implication, Masters and Johnson’s book of biological discoveries was just the incendiary device that Freud foretold. Rather than theories or supposition, they would provide plenty of facts in *Human Sexual Response* to back up their claims. Its first section stressed a commonality between men and women during sex, with its increased blood flow and muscle tension. Despite the obvious anatomical differences, they said, “again and again attention will be drawn to direct parallels in human sexual response that exist to a degree never previously appreciated.” Along the way, like bird-watchers from a distance, they noted changing hues and shapes among the plumage, such as the “plateau-phase color changes of the minor labia in the female and the coronal engorgement of the penis in the male.” Although Johnson described case histories near its end, the heart of this 315-page text dealing with the physiology and anatomy of sex was Masters’s, relying on language as “non-inflammatory” as possible, particularly in describing carnal acts.

Most significant, Masters and Johnson outlined a general framework about sex, with four separate stages of human response. When stimulated sexually, both men and women pass through an excitement phase, a plateau phase, an orgasmic phase, and a resolution or refractory phase. These four phases could vary widely in duration and intensity between individuals. But as a way of corralling the unruliness of sex, this generalized “human sexual response cycle” served as well as could be expected. The ambitiousness of their approach rivaled Freud’s grand theories, yet its elemental reduction into four steps seemed familiar enough to even the most uninitiated lover. In men, excitement announced itself quickly, they affirmed. Young males could expand from a flaccid state to a full erection within three to five seconds of their libidos being kindled. While older men waited two or three times as long to become ready, and their firmness might waver a bit, the most obvious embodiment

of excitement in males never changed. Evidence among young women emerged first with nipple erection, fuller breasts, and the vaginal lubrication within ten to thirty seconds of being aroused, with a lengthening of the vaginal barrel in anticipation of more to follow. Although excitement was a bit slower for older women, the researchers found that with the right stimulation, "these reactions may continue into the 80-year age group"—undoubtedly a surprise to the geriatric set.

On this highway to ecstasy, aspirants soon found themselves in the plateau phase, a temporary condition best described as a way station for the main event. Among women, the vagina moistened further as the "sex tension color change" turned the minor labia and surrounding tissue bright red to burgundy. Most significant, the clitoris, regulating sexual response in the female, tightened up considerably from its normal state, with the glans and shaft retracting behind a protective hooded foreskin. In this plateau phase, the male remained erect, with his testes enlarged and somewhat elevated, releasing a few drops of mucous-like fluid. Both genders usually experienced a "sex flush" during this plateau, reflecting "increasing sexual tension" with a temporary measles-like skin rash across the torso. Replete with medical terms, enough to require a glossary for the lay reader, one writer called their book "an almost impenetrable thicket of Latinate medicalese"—pointing to such lines as "This maculopapular type of erythematous rash first appears over the epigastrium," which a popularist might have described as the sex flush across the belly.

With orgasm, both sexes were in bloom, the rhythms of life in full gallop. In the male, heart and breathing rates jumped considerably from normal, with a "sensation of ejaculatory inevitability" in the prostatic urethra, just prior to the propulsion of seminal fluid through the penis. In women, orgasm took somewhat longer to express. However, once her crescendo arrived, the wavelike contractions in her uterus and the outer third of her vagina repeated themselves four to eight times in intervals of 0.8 second—about the same time as the "expulsive contractions" of male ejaculation in orgasm—before the quivering diminished. Masters and Johnson discovered among aroused women that the anterior vaginal wall moved backward and upward, creating a "tenting" effect, along

with a near doubling of the uterus, to accommodate the penis. In both sexes, contractions of the pelvic tissue were followed by the rectal sphincter moving in harmony.

After this pinnacle, a release of muscle tension and the easing of blood flow from the engorged sex organs marked the fourth phase, resolution. This finale was most noticeable in the male, as the hardened penis quickly lost steam. The amethystine male organ remained somewhat inflated for a brief period, until it shrank completely to an unaroused natural state. For females, while some blood flow and skin discoloration soon faded, a refractory period was barely perceptible and "extended over many minutes," they reported.

Masters and Johnson orchestrated these four phases like Vivaldi concertos, even though their claim of a comparable sexual response between men and women seemed a bit strained. "The parallels in reaction to effective sexual stimulation emphasize the physiologic similarities in male and female responses rather than the differences," they contended. Rather than portraying the sexes as polar opposites, as different as Adam and Eve, Masters and Johnson found that each adult having sex was "homogeneous in their physiologic responses," regardless of their own individual likes or dislikes. They based their reasoning on similar "vasocongestion"—blood rushing through the veins to the sex organs—as well as observable secondary traits like heavy breathing and muscle contractions. Skeptics doubted their four-stage construct and wondered whether parallels between men and women were forced and categorized a bit too neatly. For instance, the similar 0.8-second contractions among men and women, as if tested by stopwatch, was a "finding [that] is not practical but symbolic," historian Paul Robinson noted. "It suggests that at the supreme sexual moment men and women are in perfect harmony. They march to the same drummer." The book contained a pleasingly egalitarian tone, without directly confronting the medical profession's mistaken view about male dominance in sex.

Nevertheless, the book's most important, exhaustively detailed finding, derived from watching 382 female and 312 male volunteers over nearly a decade, couldn't be denied—in the rigors of sex, women were superior to men. The book's very structure underlined this point with 141 pages devoted to female sexual response,

tiple the amount spent describing the male. Its clinical descriptions and illustrations provided a road map through the wonderland of a woman's body, detailing new insights into the unexplained physical mysteries of lovemaking. Their landmark findings about female sexual response would prove the most lasting aspect of their clinical work, carrying profound consequences that helped to define and inspire America's sexual revolution over the next two decades. Fascinated by the multiorgasmic capability of women, Masters knew this evidence would shake the totems of a male-dominated American culture, obsessed with what he called its "phallic fallacies" and fantasies. After their first climax, men waited up to an hour or more, enduring a temporary impotence during the politely named resolution period, before they could resume. But most orgasmic women were ready for more immediately, again and again if the mood fit and opportunity existed. "The female has no such refractory period," they wrote, comparing responses between the sexes. "She usually is capable of return to repeated orgasmic experience without postorgasmic loss of sexual tension." Further descriptions of multiple orgasms among women were mentioned throughout *Human Sexual Response* and their earlier clinical writings. "As contrasted with the male's usual inability to have more than one orgasm in a short period, many females, especially when clitorially stimulated, can regularly have five or six full orgasms in a matter of minutes," they reported. In this scenario, women's potential fireworks display in bed far exceeded the single little firecracker of the men beside them.

Before Masters and Johnson, medical literature portrayed the so-called weaker sex as "frigid" or frail, as if women were incapable of keeping up with men. Although one of every six female interviewees mentioned multiple orgasms to Kinsey, as well as a comparable number in a separate study of married couples by Stanford University psychologist Lewis M. Terman, this phenomena was still dismissed by most critics as a minor sideshow, as an anatomical oddity, or, most amusingly by male critics, as not a true orgasm. Masters and Johnson proved the biological reality was quite the other way around. Among multiorgasmic women, they discovered, each climax didn't differ physiologically from the another. If anything, their orgasms became better as they went along. "When

female study subjects were interrogated in the laboratory after multiorgasmic experiences, the second or the third orgasmic episode usually was identified subjectively as more satisfying to more sensually pleasurable than the first orgasmic episode," they wrote. Some women enjoyed orgasms in succession without a break, while others slipped into another phase, like excitement or plateau, before revving up for another orgasm. "One of the important things we established—to our own satisfaction, at least—is that the female is naturally multiorgasmic," Masters later said. "This had not been emphasized before."

In divining the mysteries of female orgasm, Masters and Johnson delved into the intricacies of the clitoris, that little stout bundle of fibrous love, and how it reacts in heat. Unlike previous male doctors—including the author of the venerable *Gray's Anatomy* textbook, who described the clitoris as a "homologue of the male penis"—Masters and Johnson underlined its singular, unmatched qualities. "The clitoris is a unique organ in the total of human anatomy," they wrote. "No such organ exists within the anatomic structure of the human male." A clitoris wasn't some little brother or female phallus, as errant anatomists declared. Nor was it, as the Freudians theorized, the "immature" love object of masturbatory girls before they married and engaged in the preferable bliss of vaginal orgasm. Instead Masters and Johnson said these so-called expert writings about the clitoris amounted to "a potpourri of behavioral concept unsupported by biologic fact" and that "decades of 'phallic fantasies' have done more to deter than to stimulate research." The two researchers probed the interconnections between the clitoris and vagina during sexual response and found no difference in orgasmic response. "Are clitoral and vaginal orgasms truly separate anatomic entities?" they asked. "From a biologic point of view, the answer to this question is an unequivocal No." Nor was there any sense in comparing the clitoris during sex to a man's penis, they added. While vaginal lubrication might occur close to the time of a man's arousal, Masters and Johnson insisted "the widespread belief that the clitoris responds to sexual stimulation with a rapidity equal to that of penile erection is fallacious."

Their evidence was hard to refute. Spread out over several pages, rudimentary pencil drawings of engorging breasts and female

genitalia—including the retracting clitoral hood, glans, and shaft prior to orgasm—provided a guide for the untrained. One reprint of an electrocardiogram traced a racing heartbeat during orgasm, sometimes soaring to as much as 180 beats per minute. Women were observed having sex in the supine, superior, and knee-to-chest positions. They were manipulated manually by themselves or by a spouse, or when mechanically aroused with the clinic's optical device. The artificial penis worked just fine when women received it flat on their back, but it became "technically impossible" if they tried the superior pose. So female volunteers who preferred to be on top had to rely on orgasm the natural way—with a real, live partner. Whether up, down, or sideways, the results all stressed the magnitude of female sexual response.

Orgasm for women was a bodywide sensation—with an "intense clitoral-pelvic awareness" and "often a feeling of receptive opening"—than for men with their narrow, centralized focus on erection and ejaculation. Contrary to old wives' tales or the prejudices of male doctors, women in all stages of life could enjoy intimacy. Pregnant women could have sex without fear of hurting the fetus, their study showed, and in some cases increase the potential orgasm, especially during the second trimester. Older women didn't have to end their love lives either. Among sixty-one active female participants over the age of forty-one, including three between seventy-one and eighty, the results suggested aging might slow, but never extinguish, the intensity of passion. "There is no reason why the milestone of menopause should be expected to blunt the human female's sexual capacity, performance, or drive," they stated. Masters and Johnson also tested the outer limits of female sexual response. In a wounding arrow to male pride, the researchers found the most intense orgasms for females were not with their guys but when they masturbated alone. Along with the possibility of multiple but separate orgasms, some women were capable, in rare circumstances, of "status orgasmus"—an extended peak of orgasm lasting from twenty to more than sixty seconds without returning to a plateau. (On an accompanying page, an electrocardiogram of one such episode appeared, presumably to quell any accusation of exaggerating.) The book didn't cite women who could fantasize to orgasm without being touched,

but they later found and tested three such women after it appeared on shelves.

Most volunteers in Masters and Johnson's study were no strangers to sex or their physical feelings, a factor that undoubtedly influenced the results despite the researchers' insistence on a wide sampling. "The women's personalities varied from the very shy through the agreeably independent" and their previous sexual encounters ranged from "single to many," the book reported. But the unblinking physiological data underlined the possibility of orgasm for every American wife living in a "marital unit." Women considered "frigid"—an imprecise, pejorative term that Masters and Johnson didn't like—were quite capable of orgasm during sex. If anything, they were likely to be victims of religious or cultural inhibitions rather than some anatomic flaw or personal incapacity. With enough information and encouragement, free of society's condemnations, they too could be led into the land of sexual fulfillment. It was a message most women had never heard before. "Neither totem, taboo, nor religious assignment seems to account completely for the force with which female orgasmic experience often is negated as a naturally occurring psychophysiological response," the authors assured their audience, more in the tradition of American self-help manuals than a medical textbook. "With orgasmic physiology established, the human female now has an undeniable opportunity to develop realistically her own sexual response levels."

Sexual fulfillment, they emphasized, was all in her own hands.

By comparison, the male sexual response portrayed by Masters and Johnson could seem inferior and in constant need of reassurance. "The 'fear of performance' developing from cultural demand for partner satisfaction has been in the past uniquely the burden of the responding male," they wrote, as if imagining Hercules carrying the world on his back.

Erection could be an uncertain adventure, no sure bet especially for the aging male, their testing showed. Ejaculation proved limited and fleeting. Some men could not control its premature release, leading to their partners' frustration. On the way to orgasm,

women could exhibit a multifaceted control, able to stop and go seemingly at will, while men often rushed ahead like a runaway train. "In contrast to the fact that orgasmic experience of the human female can be interrupted by extraneous psychosensory stimuli, the male orgasmic experience, once initiated by contractions of the accessory organs of reproduction, cannot be constrained or delayed until the seminal-fluid emission has been completed," they observed.

Masters and Johnson also dispelled other dark "phallic fallacies" with the light of their scientific findings. To men who fondled themselves in private, they assured such "automanipulation" would not drive them crazy. Uncircumcised men did not show any greater ejaculatory control or less impotency than those who were circumcised. To the delight of locker rooms everywhere, they shot down the "wide-spread concept that ejaculation, whether accomplished through masturbation or coition, is detrimental to the physical condition of men in athletic training programs." And for men worried about their potency as they grew older, the maxim of "use or lose it" seemed to apply. "The most important factor in the maintenance of effective sexuality for the aging male is consistency of active sexual expression," they counseled. One section titled "The Penis"—like other genitalia afforded their own subchapters in the book—tackled the widespread factual ignorance surrounding its mythic importance in a male-dominated American culture. "The penis constantly has been viewed but rarely seen. The organ has been venerated, reviled, and misrepresented with intent in art, literature, and legend through the centuries," they observed. "Our culture has been influenced by and has contributed manifold misconceptions of the functional role of the penis. These 'phallic fallacies' have colored our arts and, possibly of even more import to our culture, influenced our behavioral and biological sciences."

The overall portrait they painted was of a rather moody sex organ. During the excitement phase, they reported, penile erections could be lost easily due to "a sudden loud noise, vocalization on an extraneous subject, or an obvious change in lighting, temperature or attendant personnel." Given these conditions, any wife might wonder how a married man with bills to pay, kids in the house, and a TV on in the bedroom could ever get excited. Unlike the hardy, endlessly responsive female in bed, excitement for

the male could be maintained for "extended periods" only by "carefully controlling variation and intensity of stimulative techniques"—in short, by not getting too excited too quickly. To satisfy a woman, a man's control of the ejaculatory impulse was often essential, their investigation found. After the seminal release, some semblance of an erection could be maintained if the man stayed for a time in his partner's vagina rather than quickly bidding adieu. But a rapid departure—or any activity in which this easily distracted, refractory fellow "walks about, talks on any extraneous subject, or is otherwise diverted in an asexual manner"—meant a certain return to flaccidness.

Aware of the defensiveness of men, Masters and Johnson refuted one more common fallacy—that those with bigger penises were more effective lovers. The lore and laughter surrounding tales of men with huge or tiny penises were the stuff of comedy roasts, urinal walls, and worrisome trips to the psychoanalyst. "The delusion that penile size is related to sexual adequacy has been founded in turn upon yet another phallic misconception," Masters and Johnson declared. Yet for reasons of their own, they deliberately avoided a clear answer to the most frequently posed question about male anatomy—the average size of a penis. To be sure, such prognostication was precarious for two researchers already employing a mechanical dildo as part of their studies. Historically, medicine avoided this topic as if it were radioactive. Masters and Johnson cited the late Dr. Robert Latou Dickinson (Masters had studied his anatomical book years earlier), who concurred with the 1899 measurements taken by a German physician named Loeb. In comparing height, penis length, and foot size, Loeb had reported a flaccid penis ranged from 8.5 to 10.5 centimeters, with the average length translated to 3.7 inches. Masters and Johnson did their own homework with willing volunteers but didn't share all the results. Routinely an investigator, armed with a tape measure, was assigned to check the top surface of what amounted to eighty different penises, gauging them in length from base to tip, both erect and at rest. In this tally, forty flaccid penises in the smaller category ranged from 7.5 to 9 centimeters, while the larger flaccid group extended to 10 to 11.5 centimeters. When erect, however, the smaller men nearly all doubled in size, while the larger men did not inflate

proportionally, gaining about a 75 percent increase, according to their results. The biggest winner in this derby was from the smaller group—a volunteer with a penis less than 3 inches long. He experienced a 120 percent growth, and repeated this measure all three times he was checked.

Despite their efforts at quality control, Masters and Johnson conceded the nature of such testing was rushed, “crudely clinical at best,” and bordered on unreliable. One third of the penile measurements were taken during “automanipulation,” with presumably enough room for accuracy. But the rest were taken when men were near ejaculation. They pulled out during “active coition,” to be measured fully engorged, in theory if not practice. “While the information returned obviously is not definitive, there certainly is no statistical support for the ‘phallic fallacy’ that the larger penis increases in size with full erection to a significantly greater degree than does the smaller penis,” they concluded. But that limited disclosure about penile length was as far as the researchers would allow. They evaded any gold standard for the typical American male standing naked in the mirror, wondering whether his member might be deemed big, small, or just right. “When we published *Human Sexual Response*, we purposefully did not include information about the average size of the penis,” Masters explained more than a decade later. “To some degree, we hoped that by not doing so, we would neutralize the concept that penis size is crucial to sexual response.” Of course, Masters and Johnson had figured a median size for the average American, but they refused to say. “We won’t ever tell,” Masters joked, quite seriously. “It’s our contribution to the security of mankind! No matter what we said, every man would reach for a tape measure.”

Instead, Masters and Johnson aimed for a more expansive lesson, for men and women alike. In sexual intercourse, no matter what size a penis may be, the vagina seemed to know what to do. “Full accommodation usually is accomplished within the first few thrusts of the penis, regardless of the penis size,” they wrote. For anxious men, the bottom line was that size really didn’t matter and, in a breathtakingly counterintuitive notion, perhaps was even a detriment! Men with a smaller penis could enter the vagina easier and earlier in the excitement phase, they suggested, acting as a

“dilating agent” for their spouse. Meanwhile, considerate men with a larger penis would have to wait and delay their entry until their wife became ready, somewhere further along the human response cycle. With sufficient care and stimulation, the vagina could accommodate a visitor of virtually any size. This proof was displayed by female volunteers who used the “artificial coition” device, as the color photography showed convincingly. The wondrous powers of the female anatomy seemed a marvel of self-actualization, a phrase coined by psychologist Abraham Maslow, whose work on self-esteem and female sexuality was cited in their book. “It helps to realize that the vagina is a potential, rather than an actual space, in its unstimulated state,” Johnson later explained, almost existentially. “Actually the vagina is virtually an infinitely expandable organ. After all, it goes from a collapsed state to a size large enough to accommodate a baby’s head.”

For all their claims of a four-phase framework steeped in equality, the hard evidence in Masters and Johnson’s book suggested a female’s sexual prowess, in nearly all forms and at any age, outdistanced that of her male counterpart. Their view of human sexuality was simply revolutionary; it turned the existing order on its head. Their account, offered jointly by a man and woman, reflected both perspectives as never before. While they muted their explosive findings in obtuse medical phrases, while they deferred to the vanities and wary fortress of the male ego, while they stepped lively around the minefields of psychoanalysis and never confronted old man Freud by name, while they paid homage to Kinsey and cited 329 other references, and while their arguments were shaped in the conventions of organized medicine and their morally conservative times, their proof was stark, frank, and incontrovertible.

After ten long years, Masters and Johnson succeeded as none of their contemporaries ever achieved or dared to try. They escaped the firings, arrest, and professional revilement their detractors had predicted. Their book offered a new way for men and women to look at themselves and communicate with each other. It was a remarkable achievement unlike anything medical science had ever seen in this realm, or was likely to repeat in the future. Now, after toiling in near anonymity and secret confinement, they could only hope that America noticed.