

Ramadan Fasting and Sexual Health in diabetic patients: Physiological, Reproductive and Psychosocial Perspectives

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Abstract

Background: Ramadan fasting significantly alters meal timing, hydration, sleep patterns, circadian rhythms, physical activity, and sexual behaviour. While the cardiometabolic effects of Ramadan fasting have been extensively investigated, its impact on sexual and reproductive health is less well understood. This review examines the effects of Ramadan fasting on sexual function, reproductive hormones, fertility, and associated physiological mechanisms in both men and women.

Methods: This review critically evaluated evidence from prospective observational studies, cohort studies, systematic reviews, and meta-analyses on Ramadan fasting and sexual function, reproductive hormones, semen parameters, menstrual function, fertility, and sleep. We paid particular attention to study design, sample size, outcome measurement, confounding, and clinical relevance.

Results: Current evidence does not demonstrate consistent impairment of reproductive endocrine function during Ramadan. A meta-analysis of 35 studies involving 1,107 participants reported no significant changes in testosterone, luteinizing hormone, follicle-stimulating hormone, or prolactin. In a prospective study of 45 men, sexual desire and intercourse frequency decreased during Ramadan, whereas erectile function and testosterone levels remained stable. These findings indicate that behavioural and circadian factors may influence sexual activity to a greater extent than physiological erectile capacity. Results regarding semen quality are inconsistent; some studies have identified temporary changes in semen volume or sperm motility, but there is no evidence of reduced conception or live-birth rates. Female reproductive hormones appear largely unaffected, although temporary menstrual irregularities have been observed. Direct evidence concerning female desire, arousal, lubrication, orgasm, and satisfaction remains very limited. Sleep restriction and altered circadian rhythms during Ramadan may significantly contribute to changes in libido and sexual behaviour.

Conclusion: Ramadan fasting is generally compatible with the maintenance of sexual and reproductive function in most healthy adults. Nevertheless, the current body of evidence is constrained by small sample sizes, predominantly observational study designs, heterogeneous fasting protocols, reliance on surrogate outcomes, and insufficient evaluation of female sexual function. Future research should prioritize larger, prospective controlled studies employing validated International Index of Erectile Function (IIEF) and Female Sexual Function Index (FSFI) instruments, standardized hormonal assessments, and clinically relevant fertility outcomes.

Keywords: Ramadan fasting; sexual health; sexual function; testosterone; fertility.

Introduction

During Ramadan, the ninth month of the Islamic calendar, Muslims observe a special time for spiritual reflection. For healthy adults, this means fasting from dawn to sunset, no food, drinks, smoking, or intimate relationships. But when the sun goes down, they can eat, drink, and be with their spouses again. It is a month of self-control and devotion, where Muslims focus on their faith and connection with God. Ramadan is different from other types of fasting in many ways. For one, people eat most of their food at night, and they do not always have access to water when they need it. Their sleep schedules often change too, and their daily routines can be completely turned upside down [1]. This can be challenging, but it is also a unique experience that can have a big impact on a person's physical and social habits. Sexual health is similarly multidimensional. It includes sexual desire, arousal, erectile function, lubrication, orgasm, satisfaction, reproductive function, fertility, psychological wellbeing and relationship intimacy [2]. Consequently, evaluating the effect of Ramadan on sexual health requires looking beyond testosterone or other reproductive hormones [2]. There is not a lot of research on how Ramadan affects sexual health, especially when it comes to women. A comprehensive review [3] published in 2026 identified significant gaps in the current

understanding of the effects of Ramadan fasting on sexual function, especially among women. La Vignera and Condorelli [3] examined 37 studies and found limited direct evidence evaluating sexual desire, arousal, lubrication, orgasm, and satisfaction in women practicing intermittent fasting. The existing literature is marked by small sample sizes, varied fasting protocols, and a predominant focus on reproductive hormonal measurements instead of validated sexual function instruments. These observations highlight the necessity for prospective studies that assess multidimensional sexual health outcomes during Ramadan fasting.

Potential Mechanisms Linking Ramadan Fasting and Sexual Health
Fasting during Ramadan may influence sexual and reproductive physiology through several mechanisms. Ramadan fasting alters meal timing and energy balance, resulting in metabolic and endocrine adaptations that affect sexual and reproductive function [1]. Additionally, changes in sleep patterns and circadian rhythms during Ramadan can increase fatigue and stress, potentially reducing libido and sexual activity. Daytime abstinence also modifies family and social schedules, leading to changes in opportunities for intimacy and sexual frequency (Figure 1) [4]. It is worth noting that just because

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people have less sex during Ramadan, it does not mean they have any physical problems with sex. During Ramadan, sexual activities are often confined to a limited period at night, specifically between the

breaking of the fast and the pre-dawn meal [1]. As prayer, socializing, sleep, and meals also occur during this time, nighttime schedules can become particularly congested.

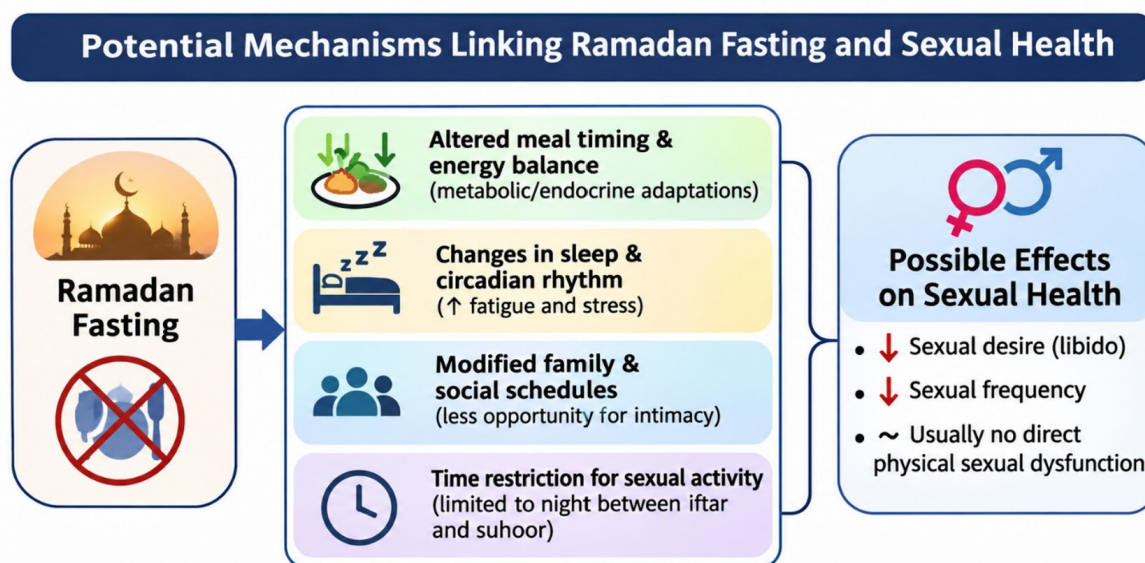


Figure 1: Potential Mechanisms linking Ramadan fasting and sexual health.

Talib et al. [2] conducted a prospective observational study involving 45 men to evaluate the effects of Ramadan fasting by comparing clinical characteristics of study subjects before and at the end Ramadan on sexual desire, erectile function, intercourse frequency, and reproductive hormones (Table 1). This study is one of the few studies that focuses on male sexual function during this time. Researchers found that during Ramadan, people's desire for sex and how often they had sex decreased a lot. But, interestingly, men's ability to get an erection did not get much worse. This observation is clinically important. When it comes to a lower sex drive during Ramadan, it

is not always a sign of a bigger issue like hypogonadism or erectile dysfunction. There are many everyday things that could be causing it. For example, people's sleep schedules change, they might be up late for prayers, and they can get tired. They might also be eating at different times, have less chance to be intimate with their partner, and be focusing more on their spiritual side on purpose. All these things can add up and affect a person's libido. The obvious limitation of this study is that it included a small sample size ($n=45$), so it is difficult to say for sure if fasting during Ramadan is what is causing a decrease in libido.

Table 1: Talib et al study; Clinical characteristics of study subjects before and at the end Ramadan.

Variable	Before Ramadan	End of Ramadan	P value (P < .05 statistically significant)
Intercourse frequency (number/month)	7.96 ± 2.4	6.62 ± 1.8	0.046
IIEF-Erectile function domain score	28 ± 1	27 ± 1	0.714
IIEF-Sexual desire domain score	9 ± 1	6 ± 2	0.002
Total testosterone (nm/L)	14.93 ± 4.5	15.03 ± 3.6	0.847
Free testosterone (nm/L)	0.3 ± 0.06	0.28 ± 0.1	0.682
Bioavailable testosterone (nm/L)	6.45 ± 1.36	6.67 ± 1.2	0.512
SHBG (nm/L)	29.11 ± 12.8	29.27 ± 12.9	0.817
DHEAS ($\mu\text{m/L}$)	7.4 ± 3.2	7.2 ± 3.4	0.290
LH IU/L	2.93 ± 1.7	2.98 ± 1.7	0.876
FSH IU/L	2.97	2.68 ± 1.7	0.016
Oestradiol (pmol/L)	83.3 ± 21.5	78.23 ± 22.6	0.098

Abbreviations: BMI, Body Mass Index; IIEF, International Index of Erectile Function; SHBG, sex hormone binding globulin; DHEAS, dehydroepiandrosterone sulfate; LH, luteinizing hormone; FSH, follicle stimulating hormone

Erectile Function

Erectile function depends on complex interactions between vascular endothelial function, nitric oxide signalling, autonomic activity, testosterone, metabolic health and psychological wellbeing [5]. A study by Talib et al. [2] (Table 1) found that even though men had less sex and desired during Ramadan but their ability to get an erection did not really change. This suggests an important distinction between sexual desire and motivation for sexual activity and erectile function (Table 2) which is the physiological capacity to achieve and maintain erection. So, what does this mean for men who are healthy? It seems that Ramadan might affect their sexual behaviour more than their physical ability to perform.

Table 2: Sexual desire, motivation for sexual activity and erectile function.

Characteristic	Sexual desire (libido)	Motivation for sexual activity	Erectile function
Definition	Interest in or desire for sexual experiences	Willingness or intention to engage in sexual activity	Physiological ability to achieve and maintain an erection
Primary domain	Psychological and neuroendocrine	Psychological, behavioural and interpersonal	Neurovascular and physiological
Main determinants	Hormones, mood, stress and relationship factors	Desire, opportunity, fatigue, privacy, cultural and religious factors	Vascular health, neurological function, hormones and medications
Effect of Ramadan fasting	May decrease in some individuals	May decrease because of altered sleep, fatigue and limited opportunities for intimacy	Limited evidence of a direct adverse effect
Relationship to sexual frequency	Reduced desire may decrease sexual frequency	Reduced motivation or opportunity may decrease sexual frequency despite preserved desire	Erectile dysfunction may limit intercourse despite preserved desire
Assessment tools	Sexual Desire Inventory (SDI-2) [Spector IP, Carey MP, Steinberg L. The Sexual Desire Inventory: Development, factor structure, and evidence of reliability. Journal of sex & marital therapy. 1996 Sep 1;22(3):175-90]	Behavioural interviews and contextual assessment; no single universally accepted measure	International Index of Erectile Function (IIEF-5 or IIEF-15) [Rosen RC, Riley A, Wagner G, Osterloh IH, Kirkpatrick J, Mishra A. The international index of erectile function (IIEF): a multidimensional scale for assessment of erectile dysfunction. Urology. 1997 Jun 1;49(6):822-30.]
Clinical interpretation	Reflects sexual interest	Reflects willingness and contextual readiness	Reflects physiological erectile capacity

Testosterone and the Hypothalamic–Pituitary–Gonadal Axis

A common concern is whether prolonged daily fasting lowers testosterone. The evidence is mixed. Mesbahzadeh et al. [8] investigated the effects of Ramadan fasting on reproductive hormone secretion in 52 healthy, unmarried men aged 18 to 24 years. Serum testosterone, follicle-stimulating hormone (FSH), and luteinizing hormone (LH) were measured before Ramadan and on days 10, 20, and 28 of fasting. Testosterone concentrations declined significantly during the later stages of Ramadan, particularly on days 20 and 28 ($p < 0.05$), while FSH levels increased significantly on day 20 ($p < 0.05$). LH concentrations did not change significantly. These results indicate transient endocrine adaptations during Ramadan. Nevertheless, the small sample size, lack of a non-fasting control group, and possible circadian and nutritional confounders limit the strength of causal inferences

Talib et al. [2] had some interesting results, they did not find any major differences in testosterone, LH, estradiol, or DHEA-S levels (Table 1). Poursalehian et al. [9] performed a systematic review and meta-analysis of 35 studies comprising 1,107 healthy non-athlete adults to

There is a possible connection between overall health and sexual health. Things like being overweight, having trouble with insulin, diabetes, high blood pressure, smoking, and problems with blood vessels can all affect a man's ability to get an erection [5,6]. If someone makes healthy changes during Ramadan, like losing weight, eating better, quitting smoking, or improving their overall metabolic health, it could potentially have a positive impact on their sexual health [7]. The lifestyle changes can improve the health of blood vessels, which is important for getting and keeping an erection. But so far, there is no real proof that fasting during Ramadan can help with erectile dysfunction.

assess the endocrine effects of Ramadan fasting. Eight of these studies focused on male reproductive hormones. The pooled analyses indicated no statistically significant changes in testosterone, luteinizing hormone (LH), follicle-stimulating hormone (FSH), or prolactin concentrations after Ramadan. Interpretation was limited by substantial between-study heterogeneity, inconsistent hormonal sampling times, differences in fasting protocols, and the infrequent inclusion of non-fasting control groups. Overall, the evidence suggests that Ramadan fasting does not consistently affect reproductive hormone concentrations, although individual hormonal responses may differ. Further controlled studies are needed. This is interesting because it suggests that fasting during Ramadan may not have a big impact on these hormones. Ghoreishy et al. [10] performed a systematic review and meta-analysis of 15 randomized controlled trials with 954 adults to assess the effects of fasting and caloric restriction on reproductive hormones. The interventions produced neutral or inconsistent effects on total testosterone, luteinizing hormone, follicle-stimulating hormone, and oestradiol. In contrast, fasting resulted in a significant

reduction in free testosterone (weighted mean difference -4.90 pg/mL; 95% CI -9.22 to -0.59 ; $p=0.02$). Interpretation was limited by substantial heterogeneity, small sample sizes, short intervention durations, and predominantly very low-certainty evidence. These results underscore the necessity for larger, rigorously designed trials evaluating reproductive endocrine outcomes. In conclusion, there is no enough evidence to show that fasting during Ramadan has a big impact on the male reproductive system in healthy adults. In other words, the current research does not support the idea that Ramadan fasting consistently suppresses men's hormones in a significant way.

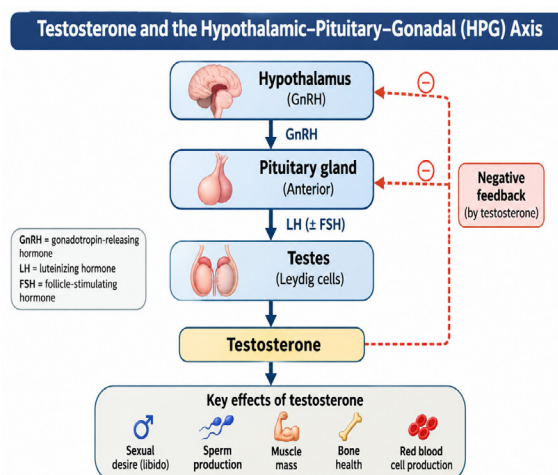


Figure 2: Testosterone and the Hypothalamic–Pituitary–Gonadal Axis.

Ramadan and Male Fertility

Semen quality provides another potential link between Ramadan and reproductive health. Engel et al. [11] conducted a retrospective cohort study involving 97 men undergoing in vitro fertilization to evaluate the association between Ramadan fasting and semen parameters. Semen volume was significantly lower during the Ramadan-associated period compared with control periods (3.28 vs. 4.08 mL; $p=0.001$). Post-processing progressive sperm motility also decreased significantly (30.01% vs. 38.12%; $p=0.001$). However, sperm concentration, pre-processing progressive motility, and total motile sperm count remained statistically unchanged. The retrospective design, uncertain fasting adherence, and potential lifestyle confounding limit causal interpretation. These findings suggest selective changes in semen parameters, although implications for fertility outcomes remain uncertain.

Female Sexual and Reproductive Health

There is not much research on women in this area, which makes it harder to know what works best for them. La Vignera and Condorelli [3] reviewed evidence on intermittent fasting, reproductive hormones, fertility, and sexual function in women and identified substantial shortcomings in current research. Although some studies suggested improvements in insulin sensitivity and reproductive hormonal profiles, particularly among women with polycystic ovary syndrome, direct assessments of female sexual function were largely absent. Specifically, validated measurements of sexual desire, arousal, vaginal lubrication, orgasm, satisfaction, and dyspareunia were lacking. Consequently, the effects of intermittent fasting, including Ramadan fasting, on female sexual health remain uncertain. The authors stressed the need for prospective controlled studies using validated sexual-function instruments throughout various reproductive and menopausal stages.

This represents an important evidence gap, researchers have traditionally focused on menstrual cycles, fertility hormones and pregnan-

cy rather than sexual wellbeing itself. So, we can not conclude that Ramadan has a positive or negative effect on women's sexual health, there is not enough evidence to support either claim.

Female Reproductive Hormones

Çağlayan et al. [12] examined the effects of Ramadan fasting on reproductive hormone concentrations in 30 healthy women. The researchers measured luteinizing hormone (LH), follicle-stimulating hormone (FSH), oestradiol, testosterone, and prolactin. The results indicated no statistically significant changes in any of the five hormones ($p>0.05$), which suggests relative stability of reproductive endocrine function during Ramadan. Nevertheless, the small sample size, lack of a non-fasting control group, and limited follow-up period constrain the ability to draw causal conclusions. Additionally, stable hormone concentrations do not necessarily reflect preserved sexual function or fertility, underscoring the need for larger, controlled studies that assess both hormonal and patient-reported sexual health outcomes.

Hussain et al. [13] conducted a narrative review examining Ramadan fasting and women's reproductive health. In one included study of 80 women, 30% experienced menstrual irregularities during Ramadan, and the prevalence of oligomenorrhea increased to 13.8%, compared to 1.3% before and 2.5% after Ramadan. Studies of reproductive hormones, with sample sizes up to 76 participants, generally reported no significant changes in luteinizing hormone, follicle-stimulating hormone, oestradiol, progesterone, or prolactin. The available evidence does not indicate consistent adverse effects on ovulation or fertility. However, small sample sizes, heterogeneous methodologies, and limited longitudinal follow-up restrict the ability to draw definitive conclusions regarding reproductive safety and long-term outcomes. In conclusion, current evidence indicates that Ramadan fasting does not significantly affect reproductive hormone concentrations in healthy women, although transient menstrual irregularities may be observed. Nevertheless, small sample sizes, methodological variability, and a lack of longitudinal data limit the ability to draw definitive conclusions regarding fertility and sexual health. Larger, prospective controlled studies utilizing validated sexual-function assessments are necessary.

Menstrual Cycle

Some women report alterations in menstruation during Ramadan. Research shows that fasting during Ramadan can cause some temporary changes in women's menstrual cycles [13]. These changes might include irregular periods, changes in the length of their cycle, or having fewer periods [13]. However, most studies agree that these changes do not last and do not affect women's reproductive hormones in the long run. Hussain et al. [13] found that Ramadan fasting can cause some mild and temporary irregularities in menstrual cycles, but it does not seem to have a large impact on hormone levels. Potential contributors include changes in:

Caloric intake and body weight

- Sleep
- Psychological stress
- Exercise
- Circadian rhythm
- Meal timing
- Energy availability

It is hard to pinpoint fasting as the main reason for something when there are other things at play.

Fertility and Ovulation

Current evidence does not demonstrate that Ramadan fasting sub-

stantially suppresses ovulation or fertility in healthy women. Hussain et al. [13] conducted a narrative review of Ramadan fasting and its effects on women's reproductive health. Concentrations of reproductive hormones, such as luteinizing hormone, follicle-stimulating hormone, oestradiol, progesterone, and prolactin, generally remained stable. Several studies reported no statistically significant changes ($p>0.05$). These results indicate relative endocrine stability, even though transient menstrual disturbances may occur. However, small sample sizes, methodological heterogeneity, and limited follow-up restrict the ability to draw conclusions regarding long-term reproductive outcomes.

Li et al. [14] conducted a six-week, single-arm intervention involving 18 women with anovulatory polycystic ovary syndrome (PCOS), of whom 15 completed five weeks of eight-hour time-restricted feeding. Insulin resistance improved, as evidenced by a decrease in HOMA-IR from 3.45 to 2.73 ($p=0.025$). Total testosterone levels declined from 1.00 to 0.91 ng/mL ($p=0.048$), and sex hormone-binding globulin increased from 19.0 to 22.7 nmol/L ($p<0.001$). Menstrual irregularities improved in 73.3% of participants. These findings suggest metabolic and endocrine benefits; however, the small sample size, short intervention duration, and lack of a control group limit the generalisability of the results.

Some studies even found that this approach can lead to more regular periods [15,16]. But it is worth noting that only a few studies were looked at, and these findings might not be the same as what happens when people fast during Ramadan. Ramadan should not be seen to help with fertility issues right now.

Sleep, Circadian Rhythm and Sexual Health

Sleep may be one of the most important indirect pathways connecting Ramadan with sexuality. A systematic review and meta-analysis [17] involving 24 studies and 646 participants found that average total sleep time decreased from approximately 7.2 hours before Ramadan to 6.4 hours during Ramadan. Recently, A systematic review and meta-analysis study [18] found that people who fasted during Ramadan tended to sleep less and have poorer sleep quality. This is based on what people reported about their own sleep. Sleep problems can affect how we feel, our energy levels, and even our relationships and sex drive. So, when people experience a lower sex drive during Ramadan, it might not just be because of the fasting and changes in hormones, but also because their sleep is being disrupted and their daily routine is different. This is a clinically important distinction.

Psychological and Relationship Dimensions

Sexual health cannot be reduced to reproductive physiology. Ramadan is characterised by increased spiritual activity, family gatherings, communal meals, nighttime prayers and changes in work and sleep schedules. These factors may alter the context in which couples experience intimacy [19]. For some couples, the restricted nighttime window may reduce sexual frequency [19]. For others, increased emotional connection, reduced smoking or alcohol exposure where relevant, spiritual wellbeing and greater family interaction could potentially strengthen relationship intimacy [19]. The results can vary a lot from person to person and are not well understood by science yet. Accordingly, sexual frequency, sexual desire and sexual satisfaction should not be treated as interchangeable outcomes.

Pregnancy and Reproductive Counselling

Pregnancy deserves separate consideration because maternal metabolic adaptation affects both mother and foetus. Research on the impact of Ramadan fasting on pregnancy has produced mixed results. Glazier et al. [20] performed a systematic review and meta-analysis

of 22 studies comprising 31,374 pregnancies, of which 18,920 involved Ramadan fasting. Maternal fasting was not linked to a clinically significant difference in birth weight (standardized mean difference 0.03; 95% CI 0.00–0.05) or preterm birth (OR 0.99; 95% CI 0.72–1.37). In contrast, placental weight was significantly lower among fasting women (standardized mean difference -0.94 ; 95% CI -0.97 to -0.90), although this result was primarily influenced by a single study. The predominance of observational study designs, methodological heterogeneity, and limited evidence regarding perinatal mortality restrict the ability to draw definitive conclusions about the safety of fasting during pregnancy.

Al-Taïar et al. [23] performed an umbrella review of 13 studies, including three meta-analyses, six systematic reviews, and four narrative reviews, to assess the effects of Ramadan fasting on pregnancy outcomes. The meta-analyses did not identify significant associations with preterm birth (OR 0.93; 95% CI 0.60–1.44), low birth weight (OR 1.05; 95% CI 0.87–1.26), or mean birth weight (mean difference 0.01 kg; 95% CI -0.06 to 0.08). Evidence concerning gestational diabetes and pre-eclampsia was similarly reassuring, although limited. A reduced amniotic fluid index was reported in some studies. Methodological heterogeneity, residual confounding, and insufficient longitudinal data limit the ability to draw definitive conclusions about maternal and fetal safety. Pregnancy fasting decisions should therefore be individualised according to maternal health, gestational stage, nutrition, hydration, diabetes status and obstetric risk rather than extrapolated from studies of healthy non-pregnant adults.

A Lifestyle-Medicine Perspective

Sexual health during Ramadan can usefully be understood through an integrated lifestyle framework: (Figure 3)

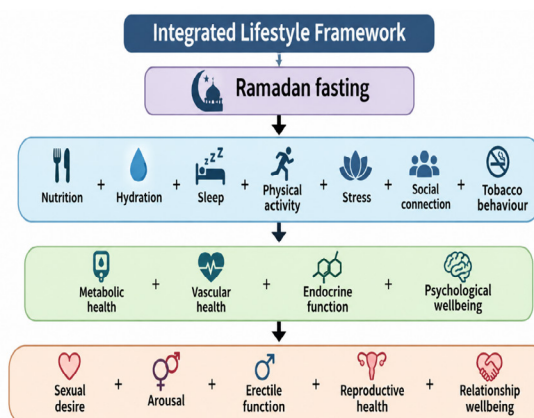


Figure 3: Integrated lifestyle framework.

This model illustrates why fasting itself should not be viewed in isolation. A person who fasts but experiences severe sleep deprivation, dehydration, excessive nighttime eating and inactivity may experience very different sexual wellbeing from someone maintaining balanced nutrition, adequate nighttime hydration, physical activity and sufficient sleep.

Practical Clinical Considerations (Figure 4)

When it comes to healthy adults, research does not show that fasting during Ramadan has any long-term effects on sexual or reproductive health. But doctors can still use appointments during this time to talk about these sensitive topics in a caring way. To stay healthy during fasting, it's a good idea to drink plenty of water between Iftar and Suhoor, get enough sleep, and eat a balanced diet. Do not try to cut back too much on calories. But some people may need special advice like those with diabetes, heart problems, or women who are pregnant or having trouble getting pregnant. They should talk to

a doctor to get a plan that is just right for them. If you are having trouble getting an erection, have lost interest in sex, or are having problems with your period, do not just blame it on Ramadan. These issues could be signs of something more serious, like diabetes, heart disease, or side effects from medication. You might also want to get checked for hormone imbalances, thyroid problems, or high prolactin levels. Sometimes, mental health issues or problems in your relationship can cause these symptoms too. It's a good idea to talk to a doctor to figure out what's really going on.

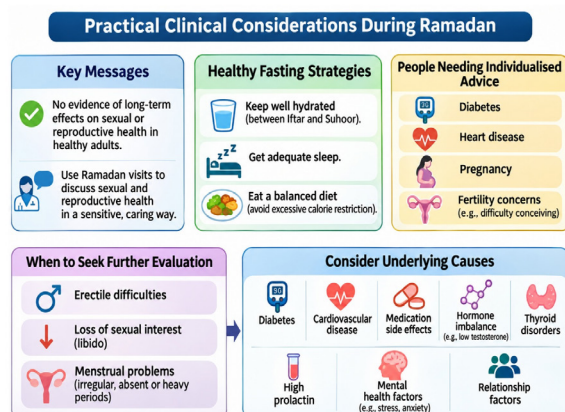


Figure 4: Practical consideration for sexual health during Ramadan fasting.

Critical Appraisal of the Evidence.

The greatest limitation of this field is the quantity and quality of direct evidence. Research on this topic often has some major limitations. For one, many studies are small and only look at people from one place. The participants are usually young and healthy, which makes it hard to apply the findings to older adults or people with health issues like diabetes, obesity, or heart disease. Also, people's diets, how long they fast, the temperature, their sleep habits, and physical activity can vary a lot from one country to another and even from one Ramadan season to the next. This makes it tough to get a clear picture of what's really going on (Tables 2&3).

Glycaemic Control and Sexual Function

Glycaemic instability during Ramadan may adversely affect sexual well-being. Hypoglycaemia can cause fatigue, sweating, palpitations, anxiety, and reduced sexual confidence, while hyperglycaemia may contribute to dehydration, lethargy, and genital infections. People with diabetes, especially those with type 2, are at a higher risk of having severe low blood sugar episodes during Ramadan. Salti et al. [24] conducted the EPIDIAR study, a retrospective population-based

survey of 12,243 individuals with diabetes from 13 countries. During Ramadan, 42.8% of participants with type 1 diabetes and 78.7% with type 2 diabetes fasted for at least 15 days. The incidence of severe hypoglycaemia requiring hospitalization increased 4.7-fold in type 1 diabetes (from 0.03 to 0.14 episodes per patient-month; $p=0.0174$) and 7.5-fold in type 2 diabetes (from 0.004 to 0.03 episodes per patient-month; $p<0.0001$). These results underscore significant fasting-related risks and reinforce the necessity of individualized risk assessment, medication adjustment, and structured pre-Ramadan education to mitigate complications.

It is important for people with diabetes to keep their blood glucose levels stable, especially during special times like Ramadan. Structured pre-Ramadan education, individualised medication adjustment, and glucose monitoring may reduce fasting-related complications and indirectly support sexual well-being. Hormonal, Psychological, and Life-style Factors Changes in sleep duration, circadian rhythms, physical activity, and nutritional intake during Ramadan may influence libido, mood, and sexual performance [10]. Sleep deprivation and psychological stress can exacerbate existing sexual dysfunction, particularly among individuals with poorly controlled diabetes [10]. Research on how Ramadan affects testosterone levels has given mixed results, and it is still unclear if it really makes a difference in sexual function [10]. Also, while losing weight through fasting can be good for your overall health, it is not clear how it affects sexual function in the short term. Some people might see improvements, but more work is needed to understand this. It's a complex issue, and more studies are needed to figure out how fasting and weight loss impact our sexual health.

Clinical Recommendations (Figure 5)

1. Sexual health assessment should be incorporated into pre-Ramadan diabetes consultations.
 2. Clinicians should evaluate erectile or female sexual dysfunction, glycaemic control, cardiovascular risk, medication-related adverse effects, and psychological well-being.
 3. Patients should receive individualised advice regarding hydration between Iftar and Suhoor, balanced nutrition, adequate sleep, physical activity, and appropriate timing of sexual intimacy. Glucose monitoring and recognition of hypoglycaemic symptoms remain essential, particularly among insulin- or sulfonylurea-treated patients.
- In conclusion Ramadan fasting may influence sexual health in patients with diabetes through metabolic, vascular, hormonal, and psychosocial pathways. Nevertheless, direct evidence remains insufficient. An individualised, culturally sensitive approach integrating diabetes optimisation, lifestyle medicine, and sexual health counseling is therefore recommended.

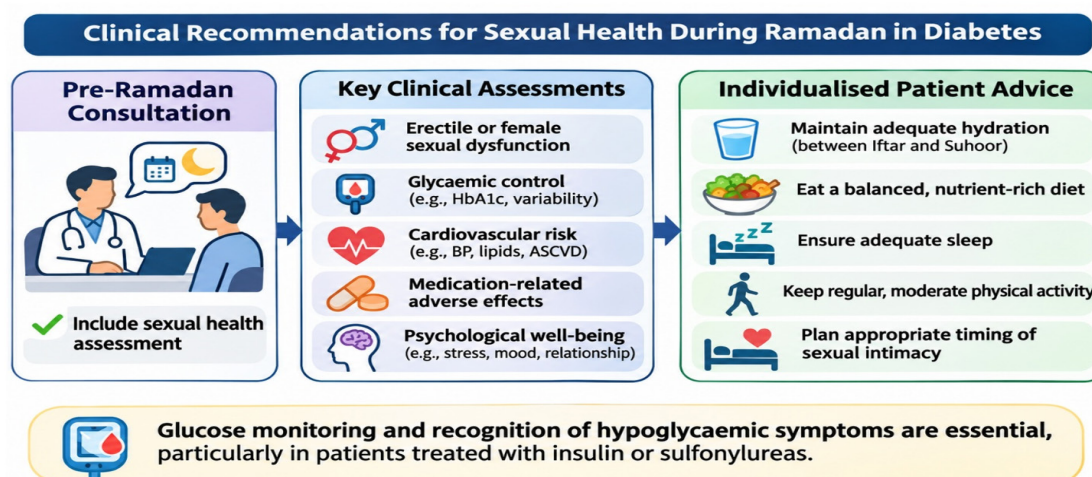


Figure 5: Clinical recommendation for Sexual health during Ramadan.

Table 2: Key trials summary.

Study	Design / participants	Outcomes	Main findings	Interpretation
Talib et al. [2]	Prospective study; 45 men, mean age 37 years	IIEF erectile function, sexual desire, intercourse frequency, testosterone, LH, FSH, oestradiol, DHEA-S	Sexual desire ↓ (P=.002); intercourse frequency ↓ (P=.046); erectile function unchanged (P=.714); testosterone unchanged (P=.847)	Strongest direct evidence that Ramadan may alter sexual behaviour/desire without impairing erectile capacity
Mesbahzadeh et al. [8]	Repeated-measures study; 52 healthy men aged 18–24	Testosterone, LH, FSH measured before and on days 10, 20 and 28	Testosterone decreased significantly on days 20 and 28; FSH transiently ↑; LH unchanged	Suggests possible temporary endocrine adaptation, but does not demonstrate clinical hypogonadism
Bogdan et al. [21]	Intensive circadian endocrine study	24-h testosterone, cortisol, melatonin, prolactin, LH, FSH and other hormones	Timing of testosterone secretion shifted; prolactin rhythm changed; FSH minimally affected	Ramadan may alter hormonal timing rather than simply hormone concentration, supporting a chronobiological mechanism
Abbas & Basalamah, [22]	Prospective before/during/after study; 21 men	Semen characteristics, FSH, LH, prolactin	No overall adverse effect on fertility; several semen/hormonal measures changed transiently	Very small and old study; hypothesis-generating rather than definitive
Ramadan semen cohort [11]	Retrospective within-person cohort; 97 men attending IVF unit	Semen volume, sperm concentration, motility	Lower post-gradient progressive motility during Ramadan-related period; conventional pre-centrifugation parameters largely unchanged	Possible semen changes, but clinical fertility significance remains uncertain
Cağlayan et al. [12]	Prospective study; 30 healthy women	LH, FSH, oestradiol, testosterone, prolactin	No significant changes in measured reproductive hormones	Supports preservation of female hypothalamic–pituitary–ovarian function
Poursalehian et al. [9]	Systematic review/meta-analysis; 35 studies, 1,107 participants	Multiple endocrine hormones	No significant pooled changes in testosterone, LH, FSH or prolactin	Best aggregate evidence against major Ramadan-induced reproductive endocrine suppression
Faris et al. [17]	Systematic review/meta-analysis; 24 studies, 646 participants	Sleep duration and daytime sleepiness	Total sleep time decreased from ~7.2 to 6.4 h/night	Provides an important indirect mechanism for fatigue and altered libido
Glazier et al. [20]	Systematic review/meta-analysis; 22 studies, 31,374 pregnancies	Birth weight, preterm delivery and other perinatal outcomes	Birth weight unaffected; preterm birth OR 0.99 (95% CI 0.72–1.37)	Reassuring for common outcomes, but insufficient evidence for several less-common outcomes
Al-Taiar et al. [23]	Umbrella review; 13 reviews	Maternal and pregnancy outcomes	Little evidence for increased preterm birth, low birth weight, GDM or pre-eclampsia	Overall reassuring but highlights major methodological limitations

Table 3: Deep critical appraisal.

Study	Strengths	Major limitations	Interpretation
Talib et al. [2] 2015; n=45 men	Directly assessed erectile function and sexual desire; within-person comparison; hormonal measurements	Small sample; no randomized/non-fasting control; short follow-up; behavioural and religious confounding; sleep, caloric intake and activity in-completely controlled	Important but low-certainty direct evidence. Suggests libido/activity may decrease while erectile function is preserved
Mesbahzadeh et al. [8] 2005; n=52 men	Serial measurements on days 10, 20 and 28; participants acted as own controls	Young men only (18–24); no control group; no sexual-function outcomes; testosterone vulnerable to circadian/sleep effects	Supports possible transient testosterone change but cannot demonstrate clinically meaningful hypogonadism
Cağlayan et al. [12] 2014; n=30 women	Female-specific study; several reproductive hormones measured; attempted menstrual-cycle matching	Very small; no non-fasting controls; hormone outcomes are surrogates; no FSFI or fertility outcomes	Reassuring for endocrine function but cannot establish preserved female sexual function
Semen cohort, [11] 2023; n=97	Within-person comparisons; larger than earlier semen studies; detailed laboratory analysis	Retrospective; IVF population; selection bias; Ramadan exposure included Ramadan +70 days; semen outcomes are surrogate fertility markers	Suggests possible changes in semen volume/motility but does not establish impaired fertility
Poursalehian et al. [9] 2024; 35 studies, n=1,107	Systematic review/meta-analysis; PRISMA approach; substantially larger evidence base	High heterogeneity for sex hormones; underlying studies generally small/non-randomized; different fasting durations, seasons and sampling protocols	Best aggregate evidence suggests no consistent suppression of testosterone, LH, FSH or prolactin, but certainty remains limited

Conclusion

Ramadan fasting produces a complex interaction between metabolic adaptation, circadian rhythm, sleep, reproductive endocrinology, spirituality and sexual behaviour. Current evidence is broadly reassuring healthy adults do not appear to experience clinically important suppression of reproductive hormonal function during Ramadan. Meta-analytic evidence indicates little consistent change in testosterone, LH, FSH or prolactin. Research on men's sexual health has shown some interesting results. For one, it seems that men's desire for sex and how often they have intercourse may decrease, but they can still get erections, and their testosterone levels remain normal. This suggests that changes in behaviour and lifestyle might be more important factors than hormonal problems. When it comes to fertility, the evidence is mixed and does not really show that men's

ability to have children is significantly impaired. In women, reproductive hormone concentrations and fertility appear largely preserved, although temporary menstrual irregularities may occur. The major knowledge gap is female sexual function itself. Ramadan is more than just about not eating - it's a chance to look at how our whole lifestyle affects us. Things like sleep, drinking enough water, eating well, exercising, feeling good about us, following our faith, and being close to loved ones all impact our sexual health. If we study how all these things work together during Ramadan, we might learn some valuable lessons about how fasting, taking care of our bodies, and our sexual and reproductive health are all connected. This could be a great way to understand how our bodies work and how to stay healthy.

References

1. Ali T, Lessan N (2024) Chrononutrition in the context of Ramadan: Potential implications. *Diabetes/metabolism research and reviews* 40(2): e3728.
2. Talib RA, Canguven O, Al-Rumaihi K, Al Ansari A, Alani M (2015) The effect of fasting on erectile function and sexual desire on men in the month of Ramadan. *Urology journal* 12(2): 2099-2102.
3. La Vignera S, Condorelli RA (2026) Effects of intermittent fasting on male and female reproductive hormones, fertility, and sexual function: A comprehensive review with emphasis on the existing evidence gap in women. *Nutrients* 18(11): 1817.
4. Faris ME, Jahrami HA, Alhayki FA, Alkhawaja NA, Ali AM, et al. (2020) Effect of diurnal fasting on sleep during Ramadan: a systematic review and meta-analysis. *Sleep and Breathing* 24(2): 771-782.
5. Yafi FA, Jenkins L, Albersen M, Corona G, Isidori AM, et al. (2016) Erectile dysfunction. *Nature reviews Disease primers* 2(1): 16003.
6. Visseren FL, Mach F, Smulders YM, Carballo D, Koskinas KC, et al. (2021) ESC Guidelines on cardiovascular disease prevention in clinical practice. *Eur Heart J* 42(34): 3227-3337.
7. Esposito K, Giugliano F, Di Palo C, Giugliano G, Marfella R, et al. (2004) Effect of lifestyle changes on erectile dysfunction in obese men: a randomized controlled trial. *Jama* 291(24): 2978-2984.
8. Mesbahzadeh B, Ghravani Z, Mehrjoofard H (2005) Effect of Ramadan fasting on secretion of sex hormones in healthy single males. *EMHJ-Eastern Mediterranean Health Journal* 11(5-6): 1120-1123.
9. Poursalehian M, Mohseni S, Shadman Z, Mohajeri-Tehrani M, Atlasi R, et al. (2024) Impact of Ramadan fasting on serum levels of major endocrinology hormonal and biochemical parameters in healthy non-athlete adults: A systematic review and meta-analyses. *PLoS One* 19(5): e0299695.
10. Ghoreishy SM, Rafiei S, Atabaki Y, Jafarbeglou N, Hamidi N, et al. (2026) The Effects of Fasting and Caloric Restriction on Reproductive Hormones: A Systematic Review, Meta-Analysis, and GRADE Assessment. *Food Science & Nutrition* 14(7): e72078.
11. Engel OJ, Doctory N, Sun B, Miller N, Levi M, et al. (2023) The effect of month-long daily fasting on semen parameters: a retrospective cohort study. *Gynecologic and Obstetric Investigation* 88(6): 384-390.
12. Çağlayan EK, Göçmen AY, Delibas N (2014) Effects of long-term fasting on female hormone levels: Ramadan model. *Clin Exp Obstet Gynecol* 41(1): 17-19.
13. Hussain S, Ahsan S, Ali A, Khan H, Tibi S, Mohsin H (2026) Exploring the impact of Ramadan fasting on women's reproductive health: A narrative review. *Women's Health* 22: 17455057261435746.
14. Li C, Xing C, Zhang J, Zhao H, Shi W, He B (2021) Eight-hour time-restricted feeding improves endocrine and metabolic profiles in women with anovulatory polycystic ovary syndrome. *Journal of translational medicine* 19(1): 148.
15. Velissariou M, Athanasiadou CR, Diamanti A, Lykeridou A, Sarantaki A (2025) The impact of intermittent fasting on fertility: A focus on polycystic ovary syndrome and reproductive outcomes in Women-A systematic review. *Metabolism Open* 25: 100341.
16. Ranneh Y, Hamsho M, Shkorfu W, Terzi M, Fadel A (2025) Effect of intermittent fasting on anthropometric measurements, metabolic profile, and hormones in women with polycystic ovary syndrome: A systematic review and meta-analysis. *Nutrients* 17(15): 2436.
17. Faris ME, Jahrami HA, Alhayki FA, Alkhawaja NA, Ali AM, et al. (2020) Effect of diurnal fasting on sleep during Ramadan: a systematic review and meta-analysis. *Sleep and Breathing* 24(2): 771-782.
18. Lima GS, Vallim JR, Marques CG, Thomatieli-Santos RV, Jahrami H, et al. (2025) Effects of time restricted feeding on sleep: A systematic review and meta-analysis. *Chronobiology International* 42(12): 1744-1764.
19. Sayari N, Maamri A, Hajri A, Haoua R, Zalila H (2022) Sexuality in the Muslim community during Ramadan. *European Psychiatry* 65(S1): S800-801.
20. Glazier JD, Hayes DJ, Hussain S, D'Souza SW, Whitcombe J, Heazell AE, Ashton N (2018) The effect of Ramadan fasting during pregnancy on perinatal outcomes: a systematic review and meta-analysis. *BMC pregnancy and childbirth* 18(1): 421.
21. Bogdan A, Bouchareb B, Touitou Y (2001) Ramadan fasting alters endocrine and neuroendocrine circadian patterns. Meal-time as a synchronizer in humans?. *Life sciences* 68(14): 1607-1615.
22. Abbas SM, Basalamah AH (1986) Effects of Ramadhan fast on male fertility. *Archives of andrology* 16(2):161-166.
23. Al-Taïar A, Rahman ME, Salama M, Ziyab AH, Karmaus W (2025) Impacts of Ramadan fasting during pregnancy on pregnancy and birth outcomes: An umbrella review. *International Journal of Gynecology & Obstetrics* 169(3): 968-978.
24. Salti I, Bénard E, Detournay B, Bianchi-Biscay M, Le Brigand C, Voinet C, Jabbar A (2004) EPIDIAR Study Group. A population-based study of diabetes and its characteristics during the fasting month of Ramadan in 13 countries: results of the epidemiology of diabetes and Ramadan 1422/2001 (EPIDIAR) study. *Diabetes care* 27(10): 2306-2311.