A Study on Male Masturbation Duration Assisted by Masturbators

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Abstract

We aimed to investigate the effect of male masturbator on prolonged masturbation duration in the general population. 24 single men with normal erectile function participated in this experiment. The entire protocol consisted of a 4 weeks training using the male masturbator, with the corresponding time and round-trip frequency recorded using a vibration sensor. After the entire training, the average masturbation duration with masturbator assisted increased from 6.00 ± 2.04 min to 11.05 ± 4.11 min, an increase of about 5 min, compared with that with bare hands. However, the time with bare hands before and after has only an insignificant improvement from 6.00 ± 2.04 min to 6.76 ± 2.24 min. Participants also experienced significant improvements in self-assessed erection hardness and hormonal levels after entire training. It not only helps increase the self-pleasure duration, but also helps with erectile function.

Keywords: male masturbator, erection function, masturbation duration

1. Introduction

Sexual needs, as a fundamental aspect of human life, are receiving growing attention, with the use of masturbation devices becoming increasingly prevalent, particularly among young people. Li et al. (2013) reported a significant positive correlation between education level and the likelihood of engaging in masturbation, with higher education levels linked to greater prevalence. Lv et al. (2021) conducted a study on Zhejiang University students and found that the masturbation rate among male college students reached 71.5%, indicating that masturbation has become a common way for contemporary Chinese youth to meet their sexual needs. Male masturbators are divided into through-type and non-through-type (Döring N & Pöschl S., 2018) as shown in Figure 1. In response to different application needs, many types have been derived, including electric, disposable, and special-shaped masturbators. In response to different application needs, various types of masturbators have emerged, including electric, disposable and irregular-shaped.

However, the current research in the academic community mainly focuses on the use of male masturbators to assist male sexual dysfunction, and lacks research on the effects of male masturbation devices on normal male sexual ability. Fan et al. (2016) conducted a masturbation-assisted behavioral therapy on patients with masturbation ejaculation difficulty and found that 25 patients successfully ejaculated by themselves through masturbation during the treatment period, with an effective rate of 80.65%. Masato Shirai et al. (2023) reported 18 patients diagnosed with ejaculatory dysfunction (ED) trained for 8 weeks by TENGA® Zero masturbator and the intravaginal ejaculation latency time increased significantly compared to the baseline, with the average value increasing from 103.91 s to 232.10 s, while Kobori et al. (2009) reported the rehabilitation for ejaculatory

dysfunction with masturbation devices. Rodríguez et al. (2016) reported that 18 patients with lifelong premature ejaculation (PE) used the TENGA® Flip Hole masturbator for 6 weeks. The results showed that the proportion who achieved the criteria for clinical benefit were 83 % in control over ejaculation during sexual intercourse. Therefore, we investigated the prolongation effects of 4 weeks training in a general population.

2. Methods

2.1 Study Design

The main outcome measure was the extension of masturbation duration as measured by a stopwatch and the vibration frequency is obtained through the vibration sensor (PolyGon 3D) worn on the arm. The secondary outcome measures were score improvements on the Premature Ejaculation Diagnostic Tool (Symonds T, Perelman MA, Althof S, et al., 2007) (PEDT), International Index of Erectile Function (5 questions version) (Rosen RC, Riley A, Wagner G, Osterloh IH, Kirkpatrick J & Mishra A., 1997) (IIEF-5), Erection Hardness Score (Mulhall JP, Goldstein I, Bushmakin AG, Cappelleri JC & Hvidsten K., 2007) (EHS) and Androgen Deficiency in Aging Males (Morley JE, Charlton E, Patrick P, et al., 2000) (ADAM). The anticipated risk of the aid device is irritation of penile skin.

2.2 Inclusion and Exclusion Criteria

Inclusion criteria were single men with normal erectile function. Exclusion criteria included the presence of neurological diseases, uncontrolled diabetes, or the use of antidepressants or 5α-reductase inhibitors. The entire use protocol consisted of a 4 weeks training using the male masturbator, with the corresponding time and round-trip frequency recorded through the vibration sensor.

2.3 Device Information

The SG Research Club is a non-through-type male masturbators, from Glowing X Palpitation (GXP) Goudou Kaisha, made of thermoplastic elastomer (TPE) material, measuring 198 mm in length, 120 mm in width, and weighing 750 g, featuring intercourse simulation functions, with a vaginal depth of 136 mm. The Sage Lubricant is a low-viscosity, water-based lubricant designed to simulate natural vaginal secretions, with a net weight of 310 g (300 mL) in single bottle. The diatomaceous earth absorbent stick (height 15 cm/Φ 1.3 cm) is used to clean the liquid remaining in the masturbation cup after flushing semen to prevent mold. The product diagram is shown in Figure 2. The overall appearance is shown in Figure 3a, while Figure 3b presents the sectional view of realistic vaginal structure. The cross-sectional channel designs within the yellow boxes correspond to the spiked nubs, vaginal folds, and the G-spot bump. These components are designed to replicate realistic anatomical textures and sensations for enhanced experience.

2.4 Study Protocol

The protocol included a 4 weeks training period, and there was no fixed movement to limit the frequency of penis reciprocation. The experimental group used the SG Research Club masturbator for training, while the blank control group continued to train with bare hands. While the participants were masturbating, the stopwatch was used to time the behavior and calculated the frequency using the vibration sensor worn on their arms. Participants are required to report at least 3 sets of valid data including time and frequency every week. In order to eliminate the impact of different lubrication levels on masturbation duration, approximately 20 mL of Sage Lubricant was used for lubrication in a time. Male masturbators, frequency meters and lubricants were provided at no cost to the participants. Before and after the experiment finished, participants were asked to self-assess their sexual and mental health using four questionnaires mentioned above. We did not collect follow-up data on these patients after they completed the study.

2.5 Statistical Analysis

In the time recording table, all times shown are converted into a percentage-based minute unit if no special mark. Based on the vibration sensor readings, time with similar frequency were selected for calculating the average and standard error (SE). We used SPSS Statistics for all statistical analysis.
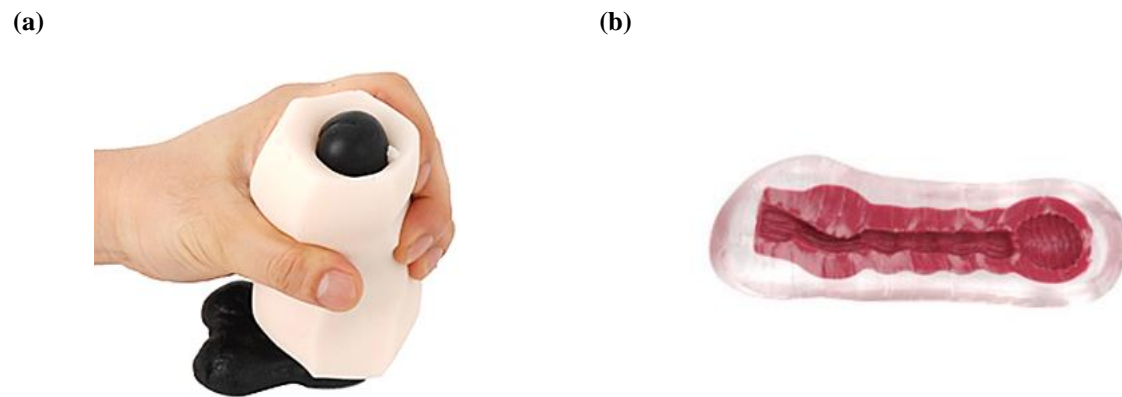
(a)

(b)

Figure 1. The schematic diagram of (a) through-type and (b) non-through-type masturbation cups

(a)

(b)

(c)

Figure 2. The schematic diagram of SG Research Club and accessories: (a) training cup and (b) diatomaceous earth absorbent stick (c) simulated vaginal lubricant
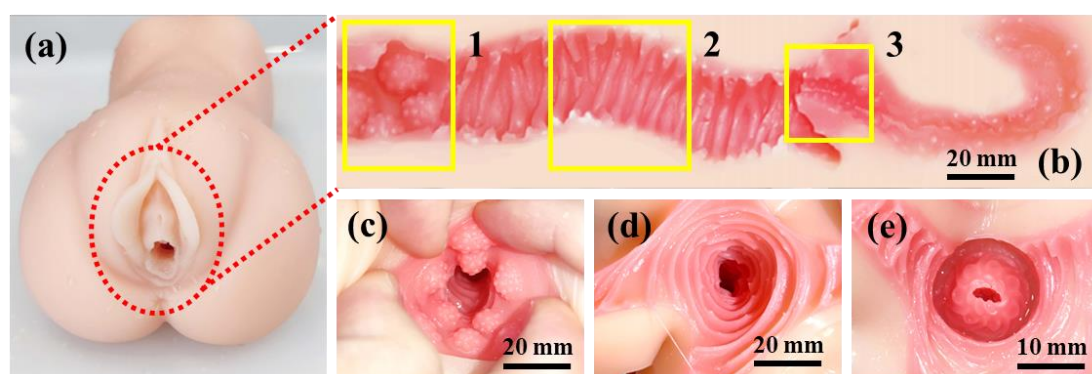

Figure 3. The schematic diagram of SG Research Club (a) realistic vaginal entrance, (b) sectional diagram of realistic uterus. The cross-sectional diagrams of the yellow boxes 1, 2, and 3 correspond to (c) spiked nubs, (d) vaginal folds and (e) G-spot bump

3. Results

Initially, 30 men were enrolled, and after 6 men withdrew from the study, the remaining 24 men were divided into the experimental group (EG) and the blank control group (BCG), then continued to participate in the study without any adverse events. The demographic information is shown in Table 1. The mean age of the men in EG was 22.92, while that of the BCG was 22.76. After obtaining height and weight data, the Body Mass Index (BMI)

was also calculated. The BMI the men in EG was 23.9, while that of the BCG was 24.6, all are within the normal range. In order to reduce the error caused by the different initial physical fitness of the selected personnel on the experimental results, an independent sample t-test was performed between the EG and the BCG. As shown in Table 2, all the P-values are greater than 0.05, indicating that there are no statistically significant differences between two groups in BMI, EHS, AHAM, PEDT, and IIEF-5 before the experiment start.

As shown in Table 4, the baseline represents the masturbation duration with bare hands for the EG and the BCG before the experiment begins. Additionally, the time spent masturbating with a male masturbator, cup using time, was recorded during the one month. For comparison with the baseline, "4 weeks training" represents the time that the experimental group members masturbated with bare hands after 4 weeks masturbation cup training. After first two weeks training, the average masturbation duration increased from 6.00 min to 8.22 min, an improvement of approximately 2 min 12 sec. After whole four weeks training, the geometric mean of the fold increase in the masturbation duration was 1.92 ± 0.66. Five participants had a doubling of their time, one participant had even triple his time from 4.47 min to 14.35 min. Compared to the first two weeks, the average masturbation duration (CUT2) increased by 2.83 min. The results of the paired sample t-test are shown in Table 3, with a p-value smaller than 0.005, indicating a highly significant difference. The average masturbation duration with bare hands was 6.76 min, an increase of only 0.76 min (approximately 43 sec) compared to the baseline. The difference was not significant in contrast to the cup using time with a p-value of 0.342.

As shown in Table 5 and 6, the mean EHS score after 4 weeks training significantly improved to 4.41 ± 0.51, compared to the baseline score of 3.50 ± 0.67 with the p-value of 0.002 in the experimental group, while that of blank control group only increased from 3.75 ± 0.45 to 3.91 ± 0.79, with the p-value of 0.438. All of the PEDT score in both groups are lower than 8, indicating that none of the participants were at risk of premature ejaculation. The mean PEDT and AHAM score after 4 weeks training significantly improved to 2.33 ± 1.72 and 3.08 ± 1.68, compared to the baseline score of 3.67 ± 2.77 and 5.00 ± 2.80 with the p-value of 0.005 and 0.009 in the experimental group while that of blank control group with the p-value of 0.191 and 0.491 were also insignificantly. There was no significant difference in the mean IIEF-5 scores after 4 weeks training between two groups with the p-value of 0.319 and 0.111. However, when further analyzing the score changes for each of the five questions, there were significant changes for the first and fifth questions, the former assessed the confidence level in maintaining an erection, while the later evaluated the satisfaction with masturbation. The mean score of the first question improved to 4.42 ± 0.67, compared to the baseline score of 3.92 ± 0.79 with p-value of 0.007, while that of the fifth question increased to 4.58 ± 0.51 from 4.08 ± 0.79 with p-value of 0.046 in the experimental group. All the mean score of each five questions had no significantly improved in the blank control group.

4. Discussions

It is worth noting that the difference between CUT1 and the baseline is not significant, with a p-value of 0.663. This is because the cup using time of first two week decreased for participants No. 4 and 9, leading to an inconsistent overall trend. According to the inquiries, these two participants had never purchased a male masturbator or other adult products before joining this study. The erect penis length of participant No. 4 reaches 13.8 cm which is almost identical to the theoretical vaginal depth of the masturbator. The granular G-spot bump at the bottom of the channel may have caused excessive stimulation. The spiked nubs at the entrance of the male masturbator may have overstimulated the coronal ridge. Although the male masturbator was a low-stimulation, slow-play model, some participants still required time to become accustomed. The enhancement on EHS scores in experimental group suggests participants experienced a significant improvement in their self-assessed erectile hardness and showed a significant increase in their self-assessed penile resistance to stimulation. It is worth noticing that the changes in the AHAM scores showed a starkly opposite trend between two groups. Alwaal et al. (2015) reported that the quality of orgasm achieved through slow stimulation is higher compared to that achieved through fast stimulation. In the experimental group, with similar frequencies of genital stimulation, longer duration means more sufficient stimulation, which led to a higher quality orgasm. In the blank control group, participants reported a decrease in self-assessed hormone levels, indicating lower sexual drive and increased frustration feelings. In the literature review by Cervilla et al. (2024), 71.4% of the studies observed a negative correlation between masturbation and sexual satisfaction in men (Fischer N, Graham CA, Træen B & Hald GM, 2022; Phuah LA, Teng JHJ & Goh PH., 2024). The simulated vaginal appearance of the masturbation cup may eliminate this negative mentality of reduced sexual desire to a certain extent. Participants experienced a significant improvement in both confidence in erection duration and masturbation satisfaction. It could be because the male masturbator provides conditions similar to intercourse, such as the realistic vaginal appearance and internal folds. Rodríguez et al. found that ejaculation training with a masturbation aid stimulates the penile glans similar to intercourse, which helps transfer the experience gained during masturbation to actual sexual activity (Rodríguez JE, Picazo JA, Marzo JC, et al., 2021; Rodríguez JE, Marzo JC & Piqueras JA., 2019). After experiencing prolonged stimulation from the special design features in the male masturbator, participants may

have gained more confidence in maintaining a longer erection during actual intercourse without specialized stimulation design.

There are some limitations to this study. First, the sample size was relatively small while there were only 12 participants in the experimental group. The exact reasons for most of the dropouts are unknown. One of them dropped out because he found a girlfriend during the experiment and the real intercourse would affect the data availability obviously. We speculate that other participants dropped out due to the shame of uploading masturbation data, which is also related to the overall conservative atmosphere of society. Second, the experiment relied on self-reports to measure subjective feelings such as sexual satisfaction, which may introduce bias cause by psychological factors (Cobos-Sanchiz D, Perea-Rodriguez MJ, Morón-Marchena JA & Muñoz-Díaz MC., 2022). Third, the duration of the present study was 4 weeks, and follow-up of the treatment at 2 to 4 months was not performed. Thus, we could not evaluate long-term effects. In conclusion, it not only helps increase the self-pleasure duration, but also helps with erectile function. In addition, the increased confidence in sexual intercourse caused by the simulated intercourse environment provided by the masturbation cup is also worth considering.

Table 1. Demographics of men at baseline

	BCG (N = 12)	EG (N = 12)
Age, y	22.76 ± 2.74	22.92 ± 2.64
Weight, kg	76.58± 15.46	78.03 ± 20.45
Height, cm	178.58 ± 7.76	177.25 ± 7.56
Body mass index, kg/m^2	23.90 ± 3.76	24.60 ± 5.38
Flaccid penis length, cm	6.38 ± 1.54	6.23 ± 1.86
Erect penis length, cm	13.20 ± 1.54	12.73 ± 1.75
Medications	1: PG	1: PG + CPC, 1: PG

Abbreviations: PG, penicillin; CPC, cephalosporins.

Table 2. The independent sample t-test between two groups

		Mean	SE	t	P value
BMI	EG	24.60	5.38	0.372	0.713
	BCG	23.89	3.76	0.372	0.714
EHS	EG	3.5	0.67	-1.067	0.298
	BCG	3.75	0.45	-1.067	0.299
AHAM	EG	5.00	2.79	1.47	0.156
	BCG	3.67	1.44	1.47	0.161
PEDT	EG	3.67	2.77	0.709	0.486
	BCG	2.92	2.39	0.709	0.486
IEFI-5	EG	21.25	2.14	-0.786	0.440
	BCG	22.00	2.52	-0.786	0.441

Table 3. Paired samples t-test of masturbation duration in two groups

		Mean	SE	t	P value
EG	Baseline-CUT1	-0.49	3.75	-0.448	0.663
	Baseline-CUT2	-3.31	3.89	-2.948	0.013[*]
	CUT1-CUT2	-2.83	1.76	-5.549	0.000[***]
	Baseline-Outcome	0.97	3.39	0.994	0.342
BCG	Baseline-Outcome	-0.12	0.68	-0.596	0.563

*: $p < 0.05$ (statistically significant) ***: $p < 0.001$ (very highly significant).

Abbreviations: CUT1, Cup using time for 1st-2nd week; CUT2, that for 3rd-4th week.

Table 4. The masturbation duration with hands or male masturbator

No.	Baseline	Cup using time (1st-2nd week)	Cup using time (3rd-4th week)	4 weeks training (Outcome)
1	5.12 ± 1.12	8.27 ± 1.01	12.05 ± 3.37	6.12 ± 1.04
2	5.70 ± 1.82	7.32 ± 1.81	8.12 ± 3.30	6.18 ± 1.39
3	7.42 ± 2.56	10.65 ± 2.23	13.07 ± 1.57	8.38 ± 1.13
4	8.02 ± 0.24	7.70 ± 1.97	9.55 ± 3.02	8.67 ± 2.17
5	8.35 ± 1.15	9.17 ± 3.94	9.79 ± 3.64	8.91 ± 1.70
6	10.1 ± 2.19	15.58 ± 1.51	19.93 ± 1.46	11.4 ± 3.22
7	4.38 ± 1.38	5.03 ± 0.92	6.13 ± 1.98	4.48 ± 1.81
8	4.43 ± 0.56	5.36 ± 0.82	6.80 ± 1.15	4.47 ± 1.66
9	3.50 ± 0.55	3.17 ± 0.80	6.20 ± 1.86	4.02 ± 0.96
10	6.18 ± 1.97	10.32 ± 0.88	14.33 ± 1.44	7.63 ± 2.49
11	4.37 ± 1.54	7.93 ± 1.11	14.35 ± 1.05	5.47 ± 1.13
12	4.38 ± 0.40	8.15 ± 1.55	12.33 ± 1.01	5.42 ± 1.43
EG	6.00 ± 2.04	8.22 ± 3.17	11.05 ± 4.11	6.76 ± 2.24
13	7.48 ± 1.89	-	-	7.16 ± 2.19
14	5.16 ± 1.12	-	-	6.03 ± 1.59
15	4.30 ± 0.73	-	-	4.58 ± 0.86
16	6.47 ± 2.04	-	-	6.30 ± 2.31
17	9.67 ± 2.58	-	-	10.1 ± 1.11
18	9.68 ± 2.95	-	-	10.6 ± 2.24
19	3.20 ± 0.52	-	-	3.80 ± 0.44
20	8.98 ± 1.03	-	-	9.30 ± 3.62
21	8.18 ± 2.75	-	-	7.18 ± 2.75
22	7.06 ± 1.83	-	-	7.35 ± 1.18
23	12.2 ± 2.46	-	-	12.5 ± 2.08
24	10.5 ± 2.74	-	-	9.25 ± 2.17
BCG	7.74 ± 2.65	-	-	7.85 ± 2.57

Table 5. Changes in results after 4 weeks training for experimental group

Outcome	Baseline	4-wk training	t	P value
PEDT	3.67 ± 2.77	2.33 ± 1.72	3.546	0.005**
EHS	3.50 ± 0.67	4.41 ± 0.51	-4.005	0.002**
AHAM	5.00 ± 2.80	3.08 ± 1.68	3.149	0.009**
IEFI-5	21.25 ± 2.14	22.00 ± 1.35	-1.043	0.319
1	3.92 ± 0.79	4.42 ± 0.67	-3.317	0.007**
2	4.42 ± 0.67	4.50 ± 0.52	-0.364	0.723
3	4.33 ± 0.78	4.17 ± 0.72	0.456	0.658
4	4.50 ± 0.52	4.33 ± 0.65	0.561	0.586
5	4.08 ± 0.79	4.58 ± 0.51	-2.244	0.046*

**: p < 0.01 (highly significant) *: p < 0.05 (statistically significant).

Table 6. Changes in results after 4 weeks training for blank control group

Outcome	Baseline	4-wk training	t	P value
PEDT	2.92 ± 2.39	2.42 ± 1.56	1.393	0.191
EHS	3.75 ± 0.45	3.91 ± 0.79	-0.804	0.438
AHAM	3.67 ± 1.44	3.92 ± 1.88	-0.713	0.491
IEFI-5	22.00 ± 2.52	21.08 ± 1.24	1.733	0.111
1	4.33 ± 0.65	4.08 ± 0.67	1.000	0.339
2	4.42 ± 0.79	4.25 ± 0.87	1.000	0.339
3	4.42 ± 0.79	4.25 ± 0.62	0.616	0.551
4	4.58 ± 0.51	4.33 ± 0.78	1.149	0.275
5	4.25 ± 0.62	4.17 ± 0.83	0.266	0.795

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Abbreviation

SE	Standard Error
PEDT	Premature Ejaculation Diagnostic Tool
IIEF	International Index of Erectile Function
EHS	Erection Hardness Score
ADAM	Androgen Deficiency in Aging Males
BMI	Body Mass Index
EG	Experimental Group
BCG	Blank Control Group
PG	Penicillin
CPC	Cephalosporins
TPE	Thermoplastic Elastomer
CUT1	Cup using time for 1st-2nd week
CUT2	Cup using time for 3rd-4th week

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