



# **iJRASET**

International Journal For Research in  
Applied Science and Engineering Technology



---

# **INTERNATIONAL JOURNAL FOR RESEARCH**

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

---

**Volume: 5      Issue: XII      Month of publication: December 2017**

**DOI:**

**[www.ijraset.com](http://www.ijraset.com)**

**Call: ☎ 08813907089**

**E-mail ID: [ijraset@gmail.com](mailto:ijraset@gmail.com)**

# Technology for Human Penile Erection – Review

N .Nandakumar <sup>1</sup>, R .Thangavel <sup>2</sup>, Priestly Vivek kumar .S <sup>3</sup>

<sup>1,2</sup> Department of Electronics, Sri Ramakrishna Mission Vidyalaya College of Arts and Science, Coimbatore, India.

<sup>3</sup>Department of Pharmacology, Tagore Medical College, Rathinamangalam, Chennai, India

**Abstract:** In medical field advancement and new inventions are inevitable and rapid. To find suitable solutions for medical problems. For men the problem of penile erectile is one of most important leads to psychological as well as social problems. More and widened technology options may be available for human penile erectile dysfunction (ED) treatment in forthcoming years which is satisfied the patient very much. These erectile technologies are classified in to two, one is natural and the other one is artificial. Using natural method there is no side effect, but in artificial technique there are some side effects. The natural method is further classified in to different types, taking natural healthy food, yoga, exercises, doing romance with partner, foreplay, manual and oral sex and masturbation. The artificial method includes taking pills, injection therapy, vacuum erector, vibrextor, low power shockwave devices, endovascular technology and penis stretchers. End results shows natural and artificial treatment are not able to erectile for penile they are going to penile implants.

**Keywords:** Erectile dysfunction, Penile erectile technology, Artificial methods, Natural methods, Penile implants.

## I. INTRODUCTION

Infertility is a world wide problem now, some countries (society) faces low birth rates. Those countries are worried about their birth rates and they promote their people to take the treatment for infertility problems. To solve these issues patients undergone the fertility, andrology (the study of the function and diseases peculiar to male, especially of reproductive organs), urology and psychology treatments. In General India provides inexpensive quality of infertility treatments with all developed breeding technologies. Specialize in IUI, IVF, ICSI, egg donation, embryo donation, donor egg, infertility clinics, male infertility services and natural infertility treatments. Collection of sperm involves several difficulties. Human penile erection is considering one of the major problems (ED). This review is an attempts to discuss the technology used for human penile erection with out surgery and medicine.

## II. ERECTILE DYSFUNCTION

A man is considered to have erectile dysfunction when he has regular difficulty in getting or maintaining a firm enough erection to be able to achieve sexual penetration, or which interferes with non-penetrative sexual activity [1], [3],[4].

## III. ARTIFICIAL METHODS FOR PENILE ERECTILE

### A. Penile Cast

The Penile Cast is an external shape in a mould that the penis is inserted during intercourse. Two corona glans openings provide sensation during intercourse. This innovative device provides short-term solutions to assist with erectile. There are three sizes are available in market they are medium, large and extra-large, Shown in figure 1 [11],[17].

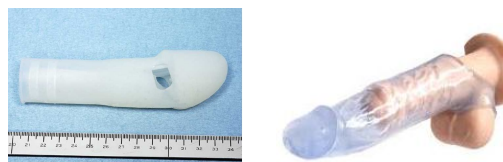


Fig1. Penile cast

### B. Penile support devices external

The Erektor makes dramatic changes, with out surgery this device helps men of all age group adults with Erectile Dysfunction (ED), erectile issues from diabetes, and problems with premature ejaculation once again enjoy a healthy and satisfying sex life. The Erektor gives maximum comfort for customer. The medical professionals recommended, it provides immediate results. This system is available in different sizes in order to Length, Circumference. Shown in figure 2,3 [2],[8].



Fig2. Erektor

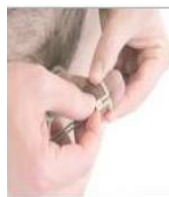


Fig3. Erektor in penile

### C. Vibrator

Penile vibrator stimulate an erection by sending high-frequency vibrations directly into the shaft - just below the head of the penis. These devices are also using spinal cord injuries for human beings, Shown in figure 4 and 5. While they tend to be noisy and a little bit cumbersome, they effectively produce a short-term erection and assist for ejaculation [23],[25].



Fig4. Vibrator Device

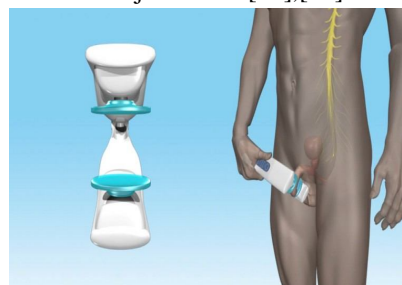


Fig5. Vibrator connected in penile

### D. Shockwave device

Shockwave therapy is one of the treatment for erectile dysfunction, the vascular surgeon use an acoustic waves in order to trigger the process known as neovascularization in specific areas of the body [2]. The Shockwave therapy is used for a number of patients including fractures, heart patients, joint inflammation, kidney stones and of late, it has been used for correcting the erectile dysfunction. Shockwave therapy for erectile dysfunction, the surgeons use low range of intensity shockwaves therapy in order to help men to eliminate from this complaint. Blood flow is really a critical problem when it comes to getting good erections for men. When man is getting sexually stimulate, the arteries is seen getting widen giving the penis freedom from this complaint. Blood only that interprets the penis enough firmness that is required for the vaginal penetration. For man issues of blood flow can end up having weaker kind of erection [14],[19],[27],[28]. Shockwave device connecting method is show in figure 6.



Fig 6. Shockwave device connected with penile

### E. Impulse magnetic field therapy

Force of magnetic field therapy has obtained interest in the field of sexual medicine. Magnetic pulse fields induce an alternating current within the body's electrolytes affecting the cells' water content, mitochondrial function, physical properties of the membranes, nutrient, oxygen and amino acid uptake, energy production, ion membrane permeability, and macrophage migration. Magnetic fields in enough forms and doses can increase oxygen uptake by the cell, enhance blood circulation, and reverse functional impairment. The study demonstrated that magnetic stimulation is a simple, noninvasive method that could induce phallic engorgement and indicated this therapy might be suitable for patients with ED show in figure 7 [18],[21].

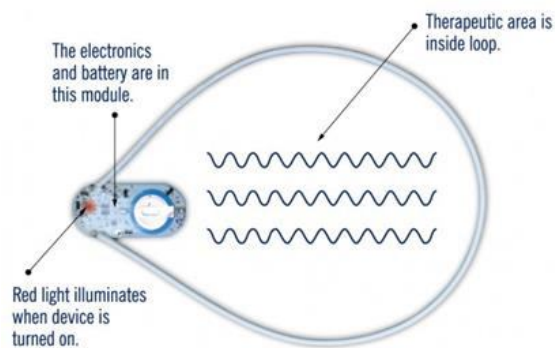


Fig 7. Magnetic method

#### F. Vacuum device

It is special vacuum device through which the penis is inserted and it is deified to induce the blood inflow. Then a ring is placed around the base of the penis to maintain erection. It is important to know that the ring should not remain there for longer than 30 minutes. This therapy is useful to younger patients, since it does not induce rigid erection [12], [13],[33],[34]. The vacuum device using method is show in figure 8.

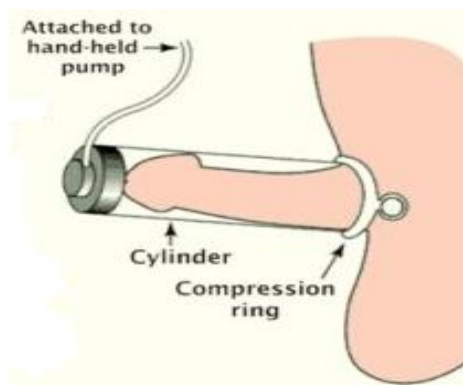


Fig8. Vacuum device method

### IV. NATURAL METHODS FOR PENILE ERECTILE

#### A. Masturbation technique

Masturbation is the self-stimulation of the genitals to achieve sexual arousal and pleasure, usually to the point of orgasm (sexual climax). It is commonly done by touching, stroking, or massaging the penis or clitoris until an orgasm is achieved [22]. Masturbating method is shown in figure 9.



Fig 9. Masturbating by gripping and sliding the foreskin back and forth



### B. Squeeze technique

Erectile dysfunction can be treated by the squeeze technique in which a man is stimulated until close to orgasm and then his frenulum is squeezed by his partner. This procedure is repeated until the penis becomes desensitized and longer intercourse becomes feasible [22].



Fig 10. Squeeze technique

## V. CONCLUSION

As technological advancements are applied to the treatment of ED, patients will ultimately have a plethora of new management options. The natural and artificial erection technologies are not able to find whether penile is naturally erectile or not. There are some disadvantages in both methods. Any way the purpose of this technologies are solved in current situation. The above methods are failed to provide complete satisfactory solution, option for patients with severe ED. So it is necessary to develop new technology or method for reduce the above difficulties. The future technological advancements in the field of sexual medicine are bright, what technologies gain entrance into the medical field will depend upon their safety, efficacy and patient satisfaction. Hopefully using remote control and a smart phone app to control the inflatable penile prosthesis (IPP) may be available in the coming years.

## REFERENCE

- [1] Marshall J. Stein, Haocheng Lin, and Run Wang "New advances in erectile technology" *Ther Adv Urol*; 6(1):15–24. (2014)
- [2] Aschenbach R., Steiner T., Kerl M., Zangos S., Basche S., Vogl T. "Endovascular embolisation therapy in men with erectile impotence due to veno-occlusive dysfunction" *Eur J Radiol* 82: 504–507 [PubMed] (2013)
- [3] Aytal I., McKinlay J., Krane R. "The likely worldwide increase in erectile dysfunction between 1995 and 2025 and some possible policy consequences" *BJU Int* 84: 50–56 [PubMed] (1999)
- [4] Babaev A., Jhaveri R. "Angiography and endovascular revascularization of pudendal artery atherosclerotic disease in patients with medically refractory erectile dysfunction" *J Invasive Cardiol* 24: 236–240 [PubMed], (2012)
- [5] Bretan P., Jr. "History of the prosthetic treatment of impotence" *Urol Clin North Am* 16: 1–5 [PubMed] (1989)
- [6] Chen K., Eberli D., Yoo J., Atala A. "Bioengineered corporal tissue for structural and functional restoration of the penis" *Proc Natl Acad Sci U S A* 107: 3346–3350 [PMC free article] [PubMed] (2010)
- [7] Everaert K., de Waard W., Van Hoof T., Kiekens C., Mulliez T., D'Herde C. (2010) "Neuroanatomy and Neurophysiology related to sexual dysfunction in male neurogenic patients with lesions to the spinal cord or peripheral nerves" *Spinal Cord* 48: 182–191 [PubMed]
- [8] Goldstein L., Koehler T. "The medtronic zotarolimus-eluting peripheral stent system for the treatment of erectile dysfunction in males with sub-optimal response to PDE5 inhibitors: 6 month results" *J Sex Med* 9: 111 (2012)
- [9] Han G., Tar M., Kuppam D., Friedman A., Melman A., Friedman J., et al. "Nanoparticles as a novel Delivery vehicle for therapeutics targeting erectile Dysfunction" *J Sex Med* 7: 224–233 [PMC free article] [PubMed] (2010)
- [10] Kershen R., Yoo J., Moreland R., Krane R., Atala A. "Reconstitution of Human corpus cavernosum smooth muscle in vitro and in vivo" *Tissue Eng* 8: 515–524 [PubMed] (2002)
- [11] Le B., Colombo A., Mustoe T., McVary K. "Evaluation of a Ni-Ti shape memory alloy for use in a novel penile prosthesis" *J Urol* 189 (Suppl.): e502 (2013)
- [12] Lewis R., Witherington R. External vacuum Therapy for erectile dysfunction: use and results. *World J Urol* 15: 78–82 [PubMed] (1997)
- [13] Lin H., Yang W., Zhang J., Dai Y., Wang R. Penile rehabilitation with a vacuum erectile device in an animal model is related to an antihypoxic mechanism: blood gas evidence. *Asian J Androl* 15: 387–390 [PMC free article] [PubMed] (2013)
- [14] Liu J., Zhou F., Li G., Wang L., Li H., Bai G., et al. "Evaluation of the Effect of different doses of low energy shock wave therapy on the erectile function of streptozotocin (STZ)-induced diabetic rats" *Int J Mol Sci* 14: 10661–10673 [PMC free article] [PubMed] (2013)
- [15] Maggi M., Filippi S., Ledda F., Magini A., Forti G. Erectile dysfunction: from biochemical pharmacology to advances in medical therapy. *Eur J Endocrinol* 143:143–154 [PubMed] (2000)
- [16] Montague D., Barada J., Belker A., Levine L., Nadig P., Roehrborn C., et al. "Clinical guidelines panel on erectile dysfunction: summary report on the treatment of organic erectile dysfunction" *The American Urological Association. J Urol* 156: 2007–2011 [PubMed] (1996)
- [17] Patel M., Atala A. "Tissue engineering of the penis" *Sci World J* 11: 2567–2578 [PMC free article][PubMed] (2011)

- [18] Pelka R., Jaenicke C., Gruenwald J. "Impulse magnetic-field therapy for erectile dysfunction: a double-blind, placebo-controlled study" *Adv Ther* 19: 53–60 [PubMed] (2002)
- [19] Qiu X., ; discussion 141–132. [PubMed] (2000)
- [20] Sobrero A.J., Stearns H.E., Blair J.H. "Technic for the Induction of Ejaculation in Humans" *Fertil Steril* 16 765–767 [PubMed] (1965)
- [21] Sonksen J., Ohl D. "Penile vibratory Stimulation and electroejaculation in the treatment of ejaculatory dysfunction" *Int J Androl* 25:324–332 [PubMed] (2002)
- [22] Swords K., Martinez D., Lockhart J., Carrion R. "A preliminary report on the usage of an Intracorporeal antibiotic cast with synthetic high purity CaSO<sub>4</sub> for the treatment of infected penile implant" *J Sex Med* 10: 1162–1169 [PubMed] (2013)
- [23] Tajkarimi K., Burnett A. "Vibrect device use by men with erectile dysfunction: safety, ease of use, tolerability, and satisfaction survey" *J Sex Med* 8: 41–441. (2011)
- [24] Tal R., Teloken P., Mulhall J. "Erectile Function rehabilitation after radical prostatectomy: practice patterns among AUA members" *J Sex Med* 8: 2370–2376 [PubMed] (2011)
- [25] Vardi Y., Appel B., Jacob G., Massarwi O., Gruenwald I. "Can low-intensity Extracorporeal Shockwave therapy improve erectile function? A 6-month follow-up pilot study in patients with organic erectile dysfunction" *Eur Urol* 58: 243–248 [PubMed] (2010)
- [26] Vardi Y., Appel B., Kilchevsky A., Gruenwald I. "Does low intensity extracorporeal shock wave therapy have a physiological effect on erectile function? Short-term results of a randomized, double-blind, sham controlled study" *J Urol* 187: 1769–1775 [PubMed] (2012)
- [27] Yoo J., Lee I., Atala A. "Cartilage rods as a potential material for penile Reconstruction" *J Urol* 160: 1164–1168; discussion 1178. [PubMed] (1998)
- [28] Yoo J., Park H., Lee I., Atala A. "Autologous Engineered cartilage rods for penile reconstruction" *J Urol* 162: 1119–1121 [PubMed] (1999)
- [29] Young S., Dyson M. "The effect of therapeutic Ultrasound on angiogenesis" *Ultrasound Med Biol* 16: 261–269 [PubMed] (1990)
- [30] Yuan J., Hoang A., Romero C., Lin H., Dai Y., Wang R. "Vacuum therapy in erectile dysfunction– science and clinical evidence" *Int J Impot Res* 22: 211–219 [PubMed] (2010a)
- [31] Yuan J., Lin H., Li P., Zhang R., Luo A., Berardinelli F., et al. "Molecular mechanisms of Vacuum Therapy in penile rehabilitation: a novel animal study" *Eur Urol* 58: 773–780 [PubMed] (2010b)
- [32] Yuan J., Westney O., Wang R. "Design and Application of a new rat-specific vacuum erectile Device for penile rehabilitation research" *J Sex Med* 6: 3247–3253 [PubMed] (2009)
- [33] Lin G., Xin Z., Ferretti L., Zhang H., Lue T., et al. Effects of low-energy shockwave therapy on the erectile function and tissue of a diabetic rat model. *J Sex Med* 10: 738–746 [PMC free article] [PubMed] (2013)
- [34] Selph J., Carson C. "Penile prosthesis infection: Approaches to prevention and treatment" *Urol Clin North Am* 38: 227–235 [PubMed] (2011)
- [35] [21] Shafik A., El-Sibai O., Shafik A. "Magnetic stimulation of the cavernous nerve for the treatment of erectile dysfunction in humans" *Int J Impot Res* 12: 137–141



10.22214/IJRASET



45.98



IMPACT FACTOR:  
7.129



IMPACT FACTOR:  
7.429



# INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089  (24\*7 Support on Whatsapp)