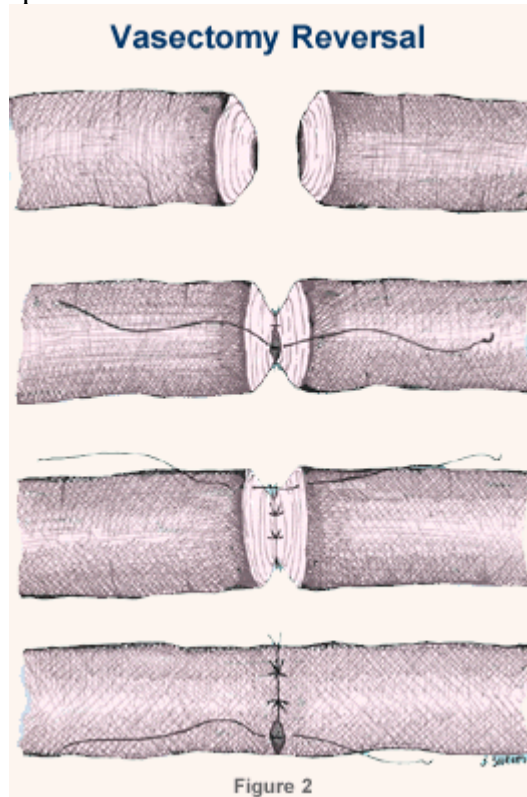
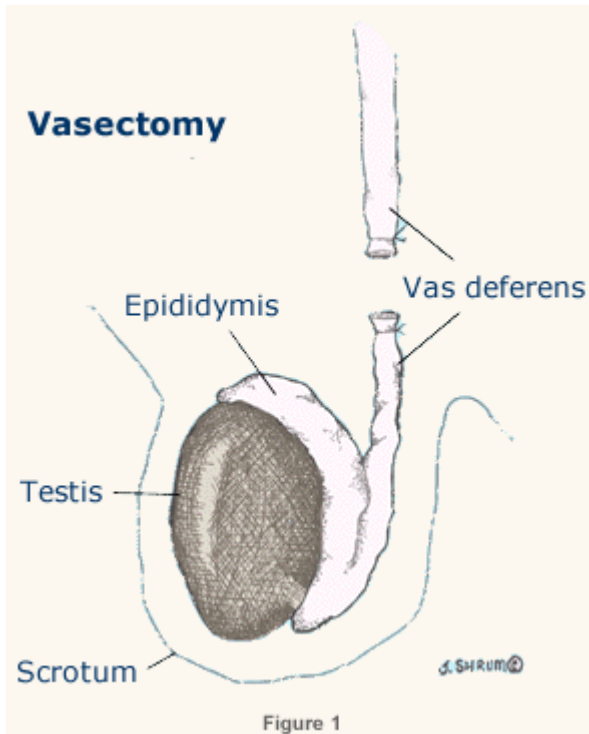


Vasectomy Reversal Details

What is vasectomy reversal?

A vasectomy reversal, or vasovasostomy, is a surgical procedure to reconnect the tubes that are cut during a vasectomy (Figure 1). These tubes (called the vas deferens) are each about the size of a strand of spaghetti, and the channels in the tubes that conduct sperm are barely visible to the naked eye. Sperm production continues after a vasectomy, and the sperm are reabsorbed.



During the

reversal, the vas deferens is cut above and below the site of the previous vasectomy, and the two ends are precisely aligned. Dr. Gould always uses an operative microscope and performs a "three-layer" connection (Figure 2). Less precise procedures are performed by some doctors because they take less time and do not require as much surgical skill.

In the United States, physicians are currently performing about 500,000 vasectomies per year. About 1 percent of men (1 out of 100) who have had a vasectomy will decide to undergo a reversal. The technique used for the vasectomy is largely irrelevant to the success of the reversal. The vas deferens is a long tube and it is very rare to be unable to accomplish a reconnection.

What are the chances of success?

"Success" may be defined in several ways. If success is the physical re-connection of the vas deferens, then success is virtually 100 percent. More commonly, success is defined as (1) the return of sperm cells to the ejaculate or (2) pregnancy. The following table shows "success" rates for a standard vasovasostomy:

<u>Years Since the Vasectomy</u>	<u>Sperm in the Ejaculate (%)</u>
less than 3	97
3 to 8	88

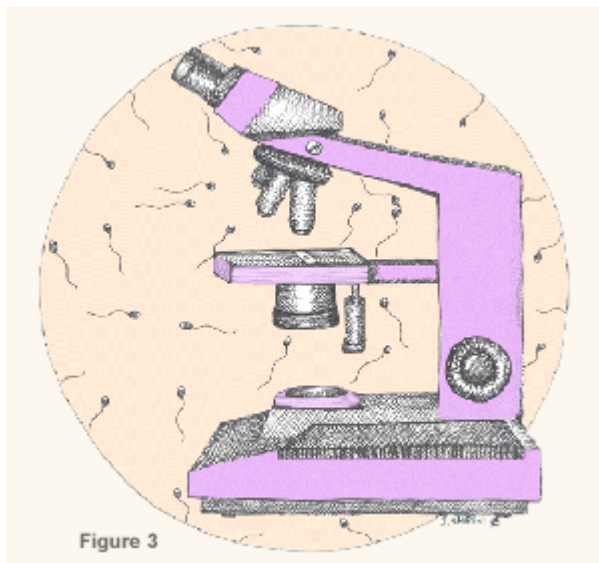
Pregnancy rates are never as high as the "surgical success" rates shown in this table. The pregnancy rates that result from intercourse at home will generally be slightly over half of the "surgical success" rates. For example, when the reversal is done within five years of the vasectomy, "home" pregnancy rates range from 60 to 80 percent; reversals 10 to 20 years from the vasectomy result in pregnancies in 40 to 60 percent of cases. However, pregnancy rates can be made even higher if a couple is willing and able to undergo new, office-based fertility techniques (see below).

Why are "surgical success" rates higher than pregnancy rates? There are three main reasons for this:

- (1) Surgery restores sperm cells to the semen but the sperm are weak or low in number*
- (2) Good numbers of strong sperm are found after surgery but "[antibodies](#)" that attack sperm are present*
- (3) There are unanticipated problems with the fertility of the female partner*

If the pregnancy rates after vasectomy reversal are not as high as you thought, remember that without the surgery your chances are zero! (unless you are prepared to spend two to three times more money for new technology options - see below). There are two other important points to make about the "success" table:

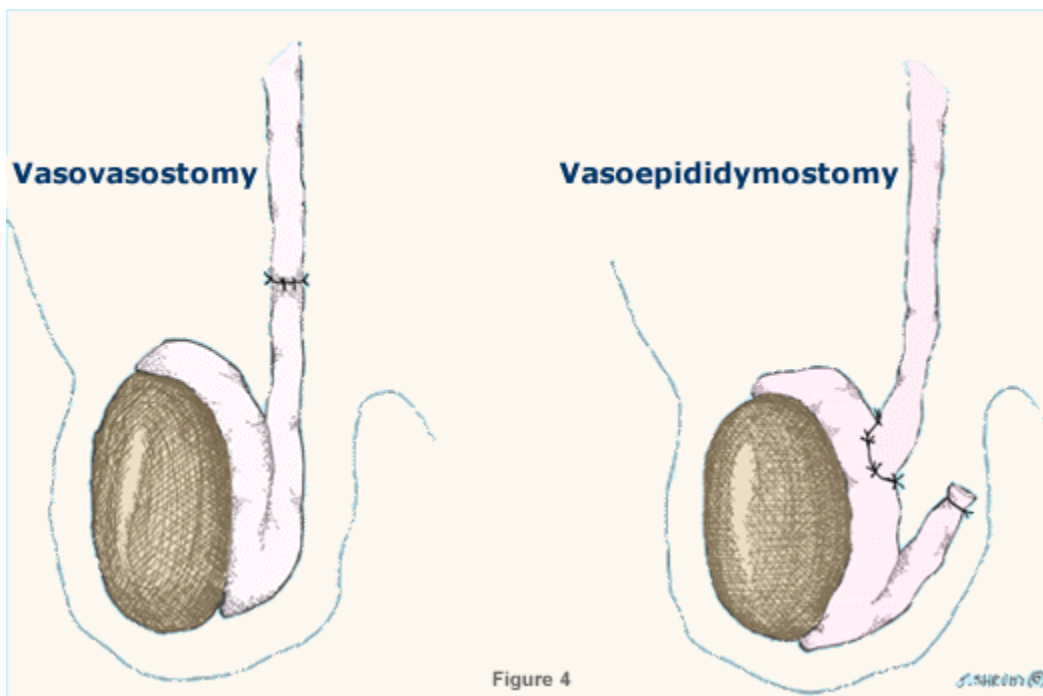
- (1) The pregnancy rates reflect the results of sexual intercourse at home. The new techniques of fertilization in the laboratory (in vitro) can be used when the surgery results in weak sperm or low numbers of sperm. These techniques can increase the pregnancy rates for those unable to conceive after a reversal.*
- (2) The success rates can be made higher if epididymal obstruction is recognized and corrected at the time of the reversal.*



Let's discuss this last point in more detail.

We know that certain findings at the time of the vasectomy reversal will give us more information about the chances of success. When the reversal is done, the vas deferens is cut between the testis and the vasectomy site. The fluid that comes out of the vas deferens can be examined with a microscope in the operating room (Figure 3). We know that if the fluid is thick and does not contain sperm, the chances of success (sperm in the ejaculate) are poor (less than 10 percent). Thick fluid without sperm is almost always a sign that the delicate tubes on the side of the testis (called the epididymis) have become blocked. It is possible to bypass the epididymal block by performing a vasoepididymostomy (don't try to pronounce this word!).

A vasoepididymostomy is a surgical procedure in which the vas deferens is hooked up directly to the epididymis above the blockage (Figure 4). Generally, the success rate of vasoepididymostomy (as defined by sperm in the ejaculate after surgery) is about 75 percent. This is very significant compared with the 10 percent rate of success following a standard vasectomy reversal when the fluid is thick and devoid of sperm.



So keep in mind that the success rates in the table above will be higher if the surgeon is prepared to perform a vasoepididymostomy if an epididymal block (thick fluid) is suspected at surgery.

One final point:

The fluid findings at surgery may be equivocal for epididymal blockage. For example, the fluid may be thick but nonetheless contain sperm or sperm fragments. Alternatively, the fluid may be thin or scant but may not contain sperm or sperm fragments. In these cases, it is impossible to know if the epididymis is blocked or not. Dr. Gould will usually perform a standard vasectomy reversal in these cases since the chances of success are higher than with vasoepididymostomy. In some cases, it may be necessary to perform the delicate vasoepididymostomy on one side and the "standard" vasectomy reversal on the other.

What's different about Dr. Gould's reversal?

There is a big difference! The vast majority of urologists will only do a standard vasectomy reversal. Many do not even examine the fluid with a microscope during surgery. In addition, many urologists have never attempted a vasoepididymostomy.

During the performance of the vasectomy reversal, if Dr. Gould determines that an epididymal blockage is likely and that a vasoepididymostomy would be beneficial, he will perform that procedure on one or both sides. In other words, if the fluid at surgery looks favorable, he will perform a standard vasectomy reversal procedure. If the fluid is unfavorable, he will perform a vasoepididymostomy. If the vasoepididymostomy is necessary, it will not increase the cost of your surgery.

How likely is it that I will need a vasoepididymostomy?

On the average, Dr. Gould performs one vasoepididymostomy for every 10 to 15 standard vasectomy reversals (vasovasostomies). However, the longer it has been since your vasectomy, the more likely it is you will need this procedure.

Can sperm be frozen at the time of a vasectomy reversal?

It is very rare to find large numbers of active sperm at the cut end of the vas deferens during a reversal. It would be possible to expose the epididymis, "nick" a tubule and recover active sperm, but this increases the risk of obstructing the epididymis at the site of the "nick". For this reason, we generally do not recommend freezing sperm during a vasovasostomy.

However, if a vasoepididymostomy is required, this is an entirely different matter. During the course of a vasoepididymostomy, the epididymal tubule is "nicked" to check for active sperm and to select a site for connection to the vas deferens. In this setting, it is very reasonable to collect and freeze sperm. Two important points should be clearly understood:

- 1) freezing sperm cells is optional and if chosen will add additional costs.
- 2) the quantity of sperm obtained is not enough for simple insemination.

In vitro fertilization (IVF), with micro-injection of sperm, (Intracytoplasmic Sperm Injection - ICSI) would be necessary to assist the fertilization process (see below).

What happens on the day of surgery?

You must fast (not eat or drink) the day of your surgery. You will arrive at the surgical unit at an appointed time and an IV (intravenous) line will be started. You will then be taken to an OR (operating room) and placed on a well-padded table. Your scrotum will be shaved and cleansed and a sedative will be administered through your IV. A local anesthetic will then be used to make you completely numb. A small opening will be made on each side of your scrotum to gain access to the vas deferens and the re-connection will be performed.

Typically, the surgery takes about two hours for a standard reversal and about four hours if you need a vasoepididymostomy. The sedative will probably make you sleep for most of the procedure. When your surgery is finished, you will spend a short time in the recovery room before you are sent home. You will be given printed postoperative instructions regarding activity restrictions and follow-up.

What are the risks of surgery?

It is very rare to have a serious complication from a vasectomy reversal. The most common complications are:

- (1) bleeding (bruising is common; an internal collection of blood or a "hematoma" occurs in approximately 5 percent of patients)
- (2) infection (occurs in less than 5 percent of patients and usually clears with oral antibiotic treatment)
- (3) nerve damage (occurs in less than 5 percent of patients and manifests as numbness at the incision sites)
- (4) loss of a testicle (very, very rare)

There is no reason why this type of surgery should affect either urination or erections.

What should I expect after surgery?

Contrary to popular belief, most men are not in severe pain after surgery. Some men tell us that the vasectomy was much worse! Ice is applied to the scrotum for about 36 hours following surgery and a pain pill may be used as needed. Warm soaks are started after 72 hours. Walking and light activity are resumed quickly but heavy lifting and vigorous exercise are restricted for four weeks. Sexual intercourse is avoided for ten days. Most men are able to return to work after only a few days.

Following the surgery, a time will be arranged to check the semen. Sperm are commonly seen at one month if a standard reversal was performed. If a vasoepididymostomy was performed, it may take several months before sperm are seen.

How long will it take to get pregnant?

Dr. Gould has had patients conceive within one month of surgery! However, data collected on large numbers of vasovasostomy patients show a mean (average) time between surgery and pregnancy of about 9 to 12 months.

What if we do not want to get pregnant right away?

Since pregnancies do not usually occur right away, most couples will not want to delay surgery. If you do not plan to conceive for several years, then a delay might be reasonable.

After a reversal, will the semen quality deteriorate over time?

There are data that show a deterioration of semen quality over time in 5 to 10 percent of men after vasovasostomy and in 10 to 20 percent of men after vasoepididymostomy. Sperm banking may be considered but this does not guarantee success.

Are birth defects more common after vasectomy reversal?

There is no evidence that vasectomy reversal leads to birth defects or to difficult pregnancies. Problems such as these appear to occur at the same frequency as in the general population.

What options do I have other than vasectomy reversal?

It is now possible to extract sperm cells from the testicle or epididymis. However, we do not recover enough sperm to produce a pregnancy by simply inseminating the woman. Instead, the sperm are used in the laboratory to fertilize eggs removed from the female partner (in vitro fertilization with intracytoplasmic sperm injection - see below). These lab techniques are much more costly than the reversal itself with success rates that are comparable over a few cycles of treatment. Therefore, in most cases, a vasectomy reversal is more cost effective and the best first option.

What if I had a previous, unsuccessful vasectomy reversal?

If you had a previous vasectomy reversal and now have no sperm, a "re-do" reversal may be a reasonable option. Success rates for re-do reversals are still very good, declining by only about 5 percent compared with the "first try". If sperm were ever seen after the first attempt, this is a good sign that a re-do could restore sperm to the ejaculate.

If we fail to get pregnant, what else can we do?

There are several techniques that can help to produce a pregnancy if it doesn't occur at home. Intrauterine insemination (IUI) of sperm can be performed in some situations (if the sperm count is adequate). With this procedure, the woman's cycle is monitored to detect the time of ovulation. At the appropriate time, a sperm sample is collected, washed, and concentrated. The sample is then placed into the upper uterine cavity by means of a small catheter.

Depending on the quality and quantity of sperm, some couples will require in vitro fertilization (IVF) in order to conceive. IVF is a technique where eggs are removed from the woman's ovaries and placed in a lab dish with sperm and fertilization occurs "naturally". Success rates are dependent on the age of the woman and the quality of the resulting embryos.

If the sperm count is very low, an assisted fertilization procedure may be necessary. This procedure, known as intracytoplasmic sperm injection (ICSI) is utilized in an IVF cycle and consists of injecting a single sperm into each egg. For those men who do not have any sperm in the ejaculate after vasovasostomy or those who elect not to have a reversal, sperm may be obtained surgically by percutaneous sperm extraction (PSE) or open sperm extraction (OSE). Information about PSE and OSE

can be accessed below.

Adoption or insemination with donor sperm are also other options for couples who are unable to conceive following a vasectomy reversal.

Summary

Making the decision to reverse a vasectomy is a big step. Considering all of the options currently available, vasectomy reversal represents the most cost effective option for having your own biological child in most cases. Dr. Gould will make every effort to make your experience as comfortable and convenient as possible. Please ask questions! We look forward to meeting you!

Financial Arrangements

We are currently able to offer one global fee for vasovasostomy (vasectomy reversal) and if necessary, vasoepididymostomy (correction of epididymal obstruction). The total fee is \$6,800.00. This global fee covers all aspects of the reversal including the "pre-op", surgery fees (professional and facility fees), and two postoperative semen checks. The global fee does not cover the sperm freezing option as discussed earlier.

Most of our patients find that their insurance company will not pay for the reversal. You may wish to submit a claim to your insurance company and we would be happy to assist you in doing so.

We are extremely proud that this global fee is much lower than comparable fees around the United States. Other programs offer this same arrangement for as much as \$20,000.00. Remember that this global fee will cover not only a bilateral vasectomy reversal but will also cover the more delicate correction of epididymal blockage if it is found. The \$6,800.00 global fee is due no later than the day of surgery.

Please call our office if you have any questions about the microscopic vasectomy reversal program. Free telephone consultations are available on request.