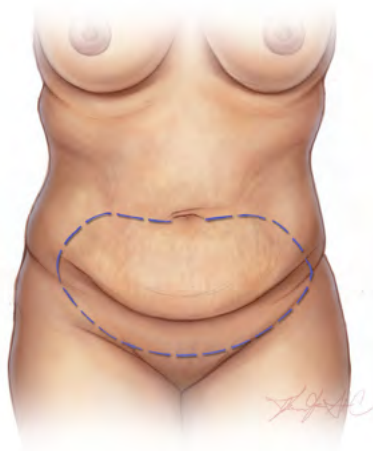


Tummy Tuck (Abdominoplasty)

Fitness and the appearance of fitness has become an obsession in our culture. Our torso shapes are revealed in form fitting clothing, in athletic garments and in the minimalist swimsuits for which there are little in the way of alternatives. Since mass produced clothing took the place of made to measure, we have been forced to wear clothing which is standardized, whereas our bodies are not. I call this the "tyranny of prêt-a-porter" (ready to wear).



Pre-op Markings



Post-Operation

When weight gain and loss, age, pregnancy and disease cause skin to be loose, more traditional surgical techniques must still be used to tighten skin and re-contour it to the underlying shape. Just like when you lose weight and clothing must be altered by "taking it in" or removing a dart, the skin, which is the fabric covering the body, must be altered by removal of excess.

You cannot exercise the skin to shrink it.

The fitness industry, combined with nutrition and weight loss sectors, accounted for over \$600 billion in sales in recent estimates. And we are by now well aware of the dramatic increase in obesity, with about 25% of adults now considered obese, according to Statistics Canada. Surgery for obesity (bariatric surgery) became safer and exploded in popularity in recent years but post bariatric surgery, patients are often left with loose and hanging skin. Plastic surgeons have expanded and refined techniques to deal with this and a whole field of post-bariatric plastic surgery developed

But many patients who are not overweight, let alone obese, may be dissatisfied with the contours of their bodies.

I divide body contour patients into those whose weight loss has been through diet and exercise and those who have undergone bariatric surgery, such as "Lap Band" and gastric by-pass. I generally refer patients with massive weight loss from surgery to a colleague who specializes in these patients, and to deal myself with those who have lost weight without surgery. In practice this means my open body contour surgery cases are mainly tummy tucks and I only rarely do brachioplasty, body lifts and thigh lifts, even though I did the first lower body lifts in Vancouver in the 1990s. In this chapter, we will help you understand what is involved with planning for and going through with one of the most successful operations in cosmetic surgery.

ABDOMINOPLASTY

The most common body contouring operation, aside from liposuction, is abdominoplasty or the tummy tuck.

This involves three or four elements:

- Removal of excess skin
- Tightening the abdominal muscles
- Relocating the belly button (umbilicus)
- (commonly) removal of fat in the upper abdomen and sides (flanks)

Why do I need to have that scar?

Although mini-tummy-tucks, which involved smaller incisions, were popular when I first started practice, the results often were significantly compromised and a return to longer incisions became the usual approach.

As with small incision breast lifts, scars fade over time, but if the contours aren't improved dramatically, a shorter scar is no advantage.

The average patient, who comes with skin looseness ("laxity") and some excess abdominal fat after pregnancies or previous surgery needs a full abdominoplasty with a traditional incision. In fact, the most common form of abdominoplasty which I currently use is not a lesser variation of a traditional procedure, but is, instead, more extensive, because so much more is known about how to achieve the best results. The incision is planned carefully, taking into account the bathing suit and undergarment lines. I go over this at the time of consultation with patients and suggest we mark the incision with her standing and wearing undergarments prior to surgery.

Anaesthesia

Surgery is done under general anaesthesia (completely asleep).

We add local anaesthetic by injecting it at the start of and during surgery which helps to minimize post-operative pain.

While there are some surgeons who advocate doing tummy tucks under local anaesthesia with sedation ("twilight") and this may sound attractive, and I think a modern well run general anaesthetic administered by a qualified anaesthesia specialist provides a patient with the best possible experience.

To view a video of a abdominoplasty with liposuction, please visit: www.youtu.be/9iTNdwJVJrw

PROCEDURE

Once you are put to sleep, and the torso has been washed with antiseptics and surrounded with sterile towels, the operating team has done a final “time-out” safety checklist.*

* The safety checklist can be reviewed here: www.who.int/patient-safety/safesurgery/ss_checklist/en/

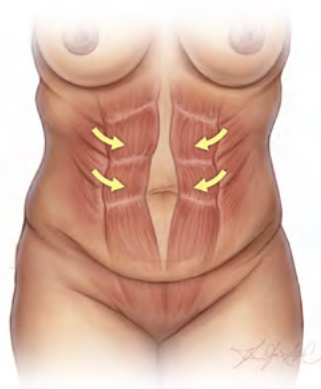
If liposuction is going to be done, we do it first, through small incisions, usually within the skin area that is going to be removed (please see liposuction chapter for details).

The incision is now created and the skin of the abdomen is separated from the underlying muscle layer, first up to the belly-button, which is next separated from the surrounding skin and left in place, we then carry on into the upper abdomen and up to the bottom of the breast bone, minimizing how much we separate the skin near the rib margins in order to preserve circulation and sensation as much as possible.

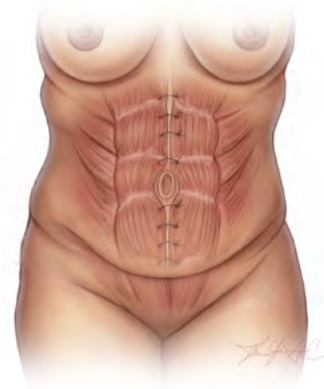
The muscles of the abdominal wall are now visible, and the rectus abdominis muscles—the ones you use to do “crunches” and “sit ups”—nearly always are separated after pregnancy (diastasis recti). I bring the muscles back together with a series of stitches, I usually do this in two layers:



Liposuction is often used to reduce the bulk of the skin-fat layer



Before: Rectus muscle separation is common after pregnancy



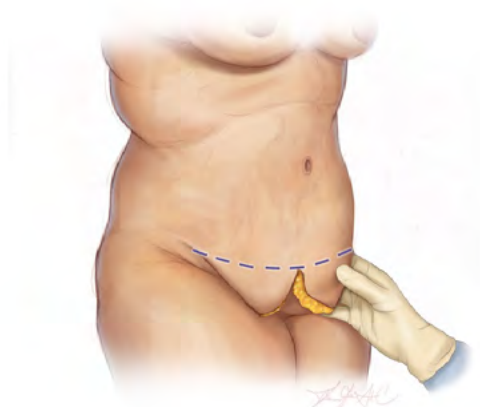
After: After repair with sutures

Tummy tucks no longer rely on skin tension for getting good results.

Skin Removal (resection) and Repair

Here's where I get to be a tailor, a disappearing craft in our culture.

Traditional abdominoplasty involved removing all the skin from the top of the belly button hole to the pubis, often needing to flex the patients hips and waist to an extreme, just to bring those edges together. This often left patients unable to stand up straight for weeks and weeks. It also put a lot of strain on the incision repair, and led to all sorts of healing problems and widening of scars. I think it increased the risk of Venous thrombosis (blood clot), a feared and potentially lethal complication.



The skin is being measured for trimming

Dr. Ted Lockwood, who practiced in Kansas City, revolutionized body contour surgery with his careful study of anatomy and applied his knowledge of the Superficial Fascial System (SFS) to put tension on the tissues than can really support the repair and leave little tension on the skin. I was fortunate to hear Dr. Lockwood in my early practice years and, later, see him operate. His techniques struck me profoundly right away, as they resonated with the same ideas which had come earlier in facelift surgery

As a result, we first estimate the amount of skin removal with gentle flexion of the OR bed, and then proceed to use a series of "basting" stitches

in the SFS to further refine that estimate. Finally, the skin removal takes place with minimal tension planned.

Drains—"To drain or not to drain"

Surgical drains are soft silicone or rubber tubes which are used to remove fluid (blood or serum) from a space that is or could be left after surgery. In tummy tucks, when the skin is closed, there is a space between the skin-fat layer and the underlying muscles. Especially when we have done liposuction first, there can be accumulation of serum in this space, a *seroma*.

For more informations on a seroma, please visit wikipedia.org/wiki/Seroma.

There are several things done to prevent seroma formation, including stitches that are put in between the two layers (quilting stitches), but the most common preventive measure is leaving a drain in place to remove the fluid as it forms, allowing the two layers to stick together until they begin to fuse. This usually takes a week or so. The drains are somewhat uncomfortable, and certainly a bit of a nuisance, but I still use them, although some surgeons no longer do. I use tow drains when I have done liposuction and one when I haven't. My seroma rate is very low, but not zero and occasionally I need to treat one, several weeks after the drains are removed.

This sometimes involves putting a new drain in for a few days.

Risks:

- Infection
- Bleeding
- Seroma
- Venous thrombosis and pulmonary embolus
- Wound healing complications (necrosis, etc.)

Abdominoplasty, and the related body contouring operations, all share similar risks and possible complications. Like all surgical procedures, bleeding or infection can occur, although both are unusual. If they do occur, they

may require surgical treatment, hospitalization, or may be managed with lesser measures in some cases. Infection, when diagnosed early and not severe, may respond to antibiotics by mouth, for example. *Seroma is discussed above under the use of drains*

Problems with poor or delayed healing of the incision can occur, leaving areas with widened scars after crust formation. This is a many times greater risk in smokers. **All smokers MUST quit for this surgery.**

Blood clots can form in the legs (thrombophlebitis), with possible passage of a clot to the lungs. *While rare, this is potentially a lethal problem.* At one time, abdominoplasty patients were routinely kept on bed rest for several days after surgery; today, patients are routinely up and walking within a day or so after surgery. Early mobilization has always been felt to be one of the best preventive measures against thrombophlebitis, and we believe it to be of value in body contour surgery. However, several years ago I attending a safety course at the American Society for Aesthetic Plastic Surgery (ASAPS) annual meeting. There was strong evidence in favour of putting all tummy tuck patients on post-op blood thinners and I have done so ever since. I have been fortunate in that I have never had a patient develop an embolus or even clinically evident venous thrombosis.

BUT our routine is:

- ALL patients must stop birth control pills and hormone replacement therapy.
- All smokers must quit.
- All cases have pneumatic compression devices on their legs during and after surgery
- All major body contour surgery patients are treated preventively with blood thinners (fractionated heparin).

Skin loss (wound necrosis may be minor, with a little scab formation in small areas, or (especially in smokers or previously radiated skin) major; the latter is very uncommon. In most cases if there is some skin loss it should be allowed to heal spontaneously.

We encourage early mobilization and ambulation.

Aftercare and Recovery

I keep my tummy tuck patients overnight.

Most of my patients have small kids at home and it is impossible to get started on recovery properly when, naturally, they want your attention. But even when that's not the case, going home immediately after a tummy tuck is not easy, no matter what pain relievers are used or whether there is a local anaesthetic "pain pump" (I don't use them) used. Spending a night in clinic is never seen as a waste. You are in expert hands with professional experienced nurses and I think this enhances the recovery. Intermittent venous compression pumps are used to keep blood flow in the legs until patient is up and moving about. The nurses give post-op teaching especially about our preventive measures for venous thrombosis, and I see my patient the morning after surgery.

The drains come out at somewhere between six and eight days after surgery, on average. In the first week, walking about is a little uncomfortable and this changes quickly after drains are removed so they can stand up straight.

Most patients are back to work in two weeks. We begin exercise with walking early, and progress rapidly during the time from two to six weeks.



Most tummy tuck patients are beginning to do some core exercises by four weeks, although *everyone's recovery is individual.*

Scars heal (mature) according to a schedule individual to each person, but generally look their worst between six and eight weeks after surgery, stabilize, and then begin to soften and fade, a process that takes from six to twenty-four months.

As with any scars, abdominoplasty scars reach a maximum thickness in a few weeks, "plateau" for a while, then begin to fade. The fading (what we call **maturation** process varies from person to person but runs anywhere from six months to twenty-four months depending your skin.

SUMMARY

Abdominoplasty can achieve dramatic and long lasting restoration of body contour after pregnancy and weight loss. As with any surgery, preparation including having a thorough understanding of the risks and benefits will help achieve your goals.