

Minimising the Risk of Parastomal Hernia

Parastomal Hernias - Overview

A parastomal hernia is a condition in which some part of the abdominal contents, usually the intestine, protrudes through the opening in the abdominal musculature created for the stoma. Parastomal herniation is a common postoperative complication, with studies suggesting that the incidence could approach 50%. The incidence can also vary depending on type of stoma formed, with colostomies being at greater risk.

End Colostomy (4 - 48.1%) Loop Colostomy (0 - 30.8%) End Ileostomy (1.8 - 28.3%) Loop Ileostomy (0 - 6.2%)

Several factors also influence the incidence of hernia formation including age, obesity, smoking, location of stoma, previous hernia repair, infection, oversized opening in the abdominal muscle and fascia to allow for the bowel to be brought to the surface, and inappropriate lifting of heavy objects. Note the reference to inappropriate lifting: if the abdominal musculature is in good condition there is no reason why heavy objects should not be lifted.

Once a hernia is present it can be difficult to treat, with two main options being available. Firstly surgery to repair the herniation, either by local repair or re-siting of the stoma, with or without a surgical mesh, and secondly by provision of an abdominal support belt. The second option is usually the initial treatment choice as it is non-invasive in nature and many support belts are widely available following assessment by a healthcare professional.

To minimise the risk of hernia formation advice can be given preoperatively, including weight reduction programmes, smoking cessation programmes and exercise regimes. However, when surgery is performed as a matter of urgency for life threatening conditions, there is little time, if any, for patients to undertake such programmes. Advice given postoperatively, once patients have recovered from surgery and associated treatments, includes the above recommendations, as well as advice regarding avoiding lifting heavy objects (even a full kettle) for as long as 3 months after surgery, and no abdominal exercises for the same time period. This somewhat rigid advice appears to take insufficient account of the condition of the patient's abdominal musculature prior to surgery. Another suggestion is that surgeons use a lightweight mesh inserted at the time of the initial surgical procedure to give added support and reduce the risk of herniation in at risk patients. This presupposes that "at risk" patients can be reliably identified. The insertion of a mesh also carries with it a slightly increased risk of infection.

It is normally ensured that the only people siting stomas are those who have been properly trained, usually only those working within the Stoma Care Department. Normal practice is to ensure that the stoma is situated within the *rectus abdominis*, because statistics suggest that this minimises significantly the risk of parastomal herniation, although there are surgeons who are not convinced about this. At least one hospital group has set up a programme to train selected ward nurses, who then had to pass a practical assessment and maintain their skills by ensuring they sited a set number of stomas within a specified time-scale. This helped to ensure that any emergencies out of normal Stoma Care Department working hours had the best chance of a well sited stoma.

Exercise Recommendations

The results of a three year research programme have demonstrated that post-operative exercise could have a significant effect in reducing the incidence of parastomal herniation. The statistical evidence was perhaps not as convincing as it might have been, because no account was taken of the physical condition of the patient before surgery, or the actual degree of compliance with the recommended exercise programme.

Writing as a former National Coaching Foundation Tutor, I would suggest that anyone who has enjoyed an active life before facing the prospect of a colostomy, and who wishes to continue such an active life with a colostomy, should consider undertaking a suitable exercise programme to strengthen the *rectus abdominis* (the "abs") before surgery, if possible, and resuming it at an appropriate time after surgery. It is essential, however, that such a programme is not embarked upon without prior discussion with the consultant responsible for the patient. One other piece of advice is essential: "Stop if it hurts!"

For those who were fit before surgery this could be started as soon as they feel like it: perhaps four weeks after surgery. I would recommend as a start working up to 20 abdominal curls on a horizontal surface (the floor!), with the knees bent, and making sure that the rib cage is moving towards the iliac crest of the pelvis (the hips) so that it is definitely the *rectus abdominis* which is being worked rather than the hip flexors. The less fit might be better advised to wait for a couple of months, and then start, in the same position, by contracting the abdominals so that they merely reduce the pressure of the shoulder-blades on the floor: it is barely necessary to make a visible movement. As strength increases it will be possible to lift the shoulder blades off the floor, and then work towards "curling" the abs up as far as possible. The pelvis should remain completely stationary throughout. It can be useful to check with the fingertips on the stoma site while exercising, to make sure that it feels "solid", and there isn't any tendency for a gap to open up. The temptation should be resisted to join the hands behind the head, which tends to place unnecessary stress on the neck; in the early stages just keep the hands on the floor, or on the abdomen to monitor its integrity. When you feel confident, you can increase the load somewhat by holding the hands beside the ears.

Any muscle strengthening exercise should be carried out only on alternate days: the muscle is weakened by the exercise, and strengthens in the following 48 hours. Exercise the same muscle every day, and the result will almost certainly be to weaken it: a process known as over-training.

Optimum strengthening of the *rectus abdominis* can only be achieved on a bench inclined at around 45°, in order to maintain a reasonable moment arm (load) over the full range of movement, otherwise over the last part of the movement gravity is doing most of the work, rather than the muscle. Accordingly I would suggest that when 20 situps can be achieved without difficulty on the floor, the exercise should be transferred to an inclined bench, and progressed to 20 situps on that before the addition of some weight is contemplated. This could be done initially by holding a 2Kg dumbbell in each hand at shoulder level. The weight could be increased when 15 situps can be achieved without difficulty, but for a stoma patient I would advise never using a weight which was too much to enable 10 situps to be completed as a "set". I used to work with 10Kg in each hand, but it is only fair to mention that

my principal sport was (and is) powerlifting.

The prevailing view among medical professionals appears to be that a programme of situps should only be undertaken under the supervision of a qualified practitioner. I am not sure that I necessarily agree with this in every case, because situps are about the one exercise where it is almost impossible to do harm if a reasonable programme is followed, avoiding excessive loads, and ensuring, as I have indicated, that it is the *rectus abdominis* that is being worked. I believe that an intelligent, well-informed and conscientious patient should be capable of doing this without supervision, although the consultant's advice should be the deciding factor.

Notes on Other Exercises and Sports

Using a Gym Ball

Some people favour using a gym ball to carry out abdominal exercises, but it makes me a trifle nervous because there is an element of instability involved in work with a gym ball. This could lead to the hip flexors being brought suddenly into play, which in turn can place a heavy load on the *rectus abdominis*. The floor, or a bench, are preferred options.

Running

Running is an excellent cardiovascular exercise, and improves both muscle tone and endurance in the legs, although it won't do much for the *rectus abdominis*. For post-operative exercise, consideration should be given to the running surface, which needs to be reasonably smooth. A very rough surface carries with it the risk of stumbling, which in turn can cause unexpectedly heavy muscular loads.

Skipping

This can be regarded as an essentially safe exercise, provided of course that the subject doesn't trip over the rope! Depending on how skilled the performer is, there will be an alternating pressure on the abdominal wall due to the need to accelerate the abdominal contents, so it would be wise either to have completed, or not needed, the introductory stage of abdominal curls. If skipping causes significant discomfort, it is possible that it is due to adhesions following surgery, and medical advice should be sought.

Swimming

Again, swimming sounds wonderful, but it needs to be approached with caution. It is actually quite a complex piece of bio-mechanics which hasn't been adequately studied. The only reference to work on the stresses on the *rectus abdominis* is in the very technical "Physiology of Sports", reporting on a study carried out at a Belgian university, but even they got the explanation for what they found completely wrong! It comes down to the fact that in swimming in the prone position, all the downward and backward forces applied by the arms, and the downward forces applied by the legs, have to be resisted by the *rectus abdominis*.

A front crawl swimmer in competition is pushing the *rectus abdominis* to its limit. Accordingly, my advice on front crawl to a former competitive swimmer would be "Swim at warm-down intensity", to a recreational swimmer "Take it very gently", and to both, the universal recommendation "Stop if it hurts".

Breast stroke is in a similar category, partly because the lack of streamlining in the leg action

means that there are intermittent reaction forces on the legs which have to be resisted, and these are likely to be more serious in the recreational swimmer who has a poor style. In this case advice to both must be "Take it very gently".

Back crawl has to be the recommendation for swimmers after abdominal surgery, because the reaction forces are resisted by the muscles of the lower back. The only caution for them, which applies to all swimmers, is to be careful how they stand up. The usual technique of taking up a tucked position in order to enable the body to be rotated more easily from the horizontal to the vertical position is best avoided, and the advice should be "Stand up slowly".

For completeness, the advice for any swimmer wishing to swim butterfly is "Don't". It wouldn't be too much of an exaggeration to say that this stroke is swum with the *rectus abdominis*, and it can't be done gently. When you can do thirty situps in the gym on a bench inclined at 45°, then go back to butterfly, but not before.

Aqua Aerobics

Exercise in water can be excellent, but when looking for a class, not all aqua aerobics teachers are equal. Given the opportunity, consider starting by joining an Aquafit post-natal class, because the ASA Aquafit Teacher certificate has to be regarded as the top qualification for water exercise, and the syllabus includes post-natal exercise. I taught Aquafit, and taught and examined Aquafit teachers for twenty years, but I never got round to adding post-ostomy work! Progressions from post-natal Aquafit are shallow water Aquafit, and finally deep water Aquafit. Participants in a deep water Aquafit class will discover just how much cardiovascular and endurance work can be done with nothing more than a floatation belt and water!

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