

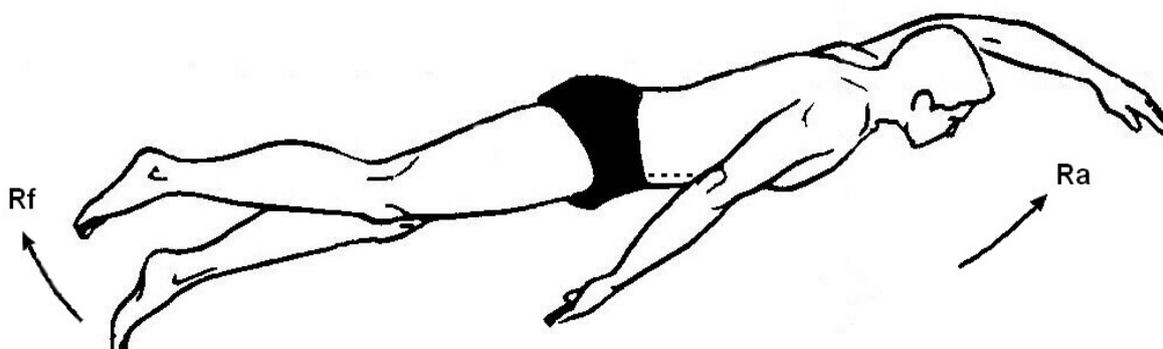
# Swimming After Abdominal Surgery

## Some Basic Anatomy

Almost everyone will have seen either a skeleton or a picture of one, and will be aware that the major motor muscles of the arms are attached to the upper part of the torso, and those of the legs are attached to the pelvis. The only skeletal connection between the two is the spine, of which the lower part is, or should be, fairly flexible. When we stand up, we are prevented from collapsing in a heap by the postural muscles in the vicinity of the waistline: the muscles of the lower back, the obliques at the sides, and the *rectus abdominis* at the front. The *rectus abdominis*, popularly known as the “abs”, runs in the front of the body from the lower part of the rib cage to the pelvis, and excessive stresses on this muscle can, in some cases, lead to a hernia.

## How Swimming Affects the Body

To understand what is happening to the body when swimming, it is necessary to consider the forces which the water exerts on the body. In the diagram of a front crawl swimmer, the arms push down and back, so the resistance of the water gives rise to a reaction on the arms forwards and upwards ( $R_a$ ). In the same way the legs are alternately pushing down, so that there is an upward reaction ( $R_f$ ).



In the absence of any controlling force, these two reactions,  $R_a$  and  $R_f$ , would have the effect of folding the body upwards like a penknife, with a hinge at about waist level. This can only be prevented from happening by tension in the *rectus abdominis*, represented by the dotted line in the illustration.

## Front Crawl

It is not generally appreciated that a front crawl swimmer in competition is pushing the *rectus abdominis* to its limit. Accordingly, the initial advice on front crawl to a former competitive swimmer would be “Swim at warm-down intensity”, to a recreational swimmer “Take it gently”, and to both, the universal recommendation “Stop if it hurts”. Power and speed can then be increased as the *rectus abdominis* is strengthened by exercise.

## Breast Stroke

Initial advice must be “Take it gently”. Many recreational swimmers tend in the leg action recovery to draw the knees up under the body, with the result that the water is hitting two large vertical obstacles, and generating substantial drag forces. These forces can be minimised by aiming to lift the feet up towards the buttocks, rather than by bringing the knees under the body. Try also to keep the legs, with the exception of the feet, within the width of the body.

It would probably be useful for a swimmer who is doubtful of his or her breast stroke action to request some advice from an instructor at the local pool.

### **Back Crawl**

Back crawl has to be the initial 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 vigorously 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".

### **Butterfly**

The basic advice for any colostomate after surgery who wishes 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.

### **Other Water Exercise Activities**

Apart from swimming strokes, enthusiasts will probably be interested in starts and turns. The fundamental principle must be to consider what use you are making of the *rectus abdominis*. Starts should be no problem, because the action is invariably one of straightening out, but every turn involves a tucked position, which has to be taken up briskly to enable a good leg drive off the wall to be obtained. Anything more than a gentle turn should wait until you are quite confident about your rehabilitation.

Exercise in water can be excellent, but if you are looking for a class, not all aqua aerobics teachers are equal. There are several different routes to an aqua aerobics qualification, and they don't all cover the same syllabus in the same detail. I would suggest watching a class, and then if you consider that you would like it, have a word with the teacher. If you explain your circumstances, the teacher should be able to advise you on any exercises you should omit, or take gently. I taught and examined Aquafit teachers for twenty years, but I never got round to adding post-ostomy work!

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