

Developing Strength & Power

Training for Slalom

In terms of physical effort Slalom is essentially a **Power Endurance** sport

- **Power** is about being able to exert a force quickly. (e.g. big strokes to accelerate the boat up to full speed).
- **Endurance** is about being able to do this repeatedly over the duration of the event (accelerating the boat up to full speed repeatedly throughout your run).

So, for slalom we want to develop our power – the best way to develop powerful strokes is in a boat.

But we can do a lot to develop strength and power off the water that enables us to do powerful paddle strokes.

Power means moving heavy weights quickly - which is why Olympic Lifting is the good option for slalom as it can only be done quickly. *But Olympic Lifting requires training to develop technique and specialist equipment.* However, there is plenty that you can do at home with simple or no equipment to become stronger and more powerful, and therefore help to improve the slalom performance.

Basically we are talking about doing **resistance training** (the resistance being the weights or your bodyweight). There are numerous benefits from this:

- Increased muscular strength
- Increased neural activation (being able to recruit more muscle fibres)
- Increased muscular endurance
- Increase bone density (important for later life – particularly in females)
- Increased metabolic rate (burn more calories)
- Increased energy stores in the muscles
- Improved muscle tone
- Improved posture

Young People and Strength Training

It is safe for young people to do strength training – however prior to PHV (Peak Height Velocity = teenage Growth Spurt) children are best developing strength through body weight exercises and play. Physiologically they can gain very little from dedicated strength training. Post PHV the body is very receptive to strength training.

A concern for girls is that doing resistance training will mean they are seen as too muscular. The reality is that it takes a considerable volume and intensity of training to get to this point.

Adults and Strength Training

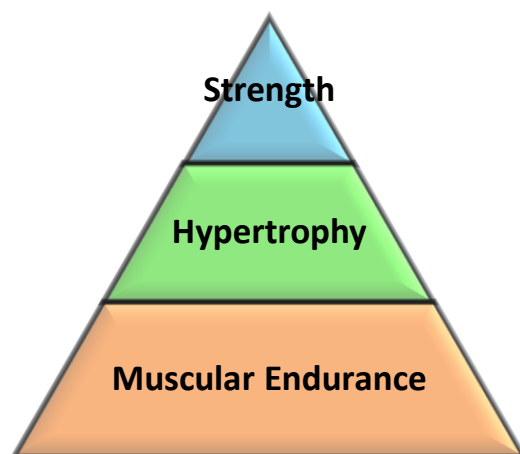
Adults can gain strength and power at any time through training.

It is important and recommended for all adults to retain muscles mass and bone mineral density (particularly important for women) to offset natural loss of strength in later life.

Safety Issues for training

- Always do a good warm up and cool down.
- Have adequate space for what you are doing.
- Health Issues: Don't train if injured or unwell, for existing medical conditions – get medical approval
- Breathing – don't hold your breath (can cause dangerously increased blood pressure)
- Ensure good posture throughout – bracing your core, neutral spine
- Always maintain good technique – poor technique risks injury. Start with low weights and simple exercise and build up when you have developed good technique.
- 'Red Flags' to watch for:
 - Head movement
 - Back alignment – should stay neutral and maintain natural curves (S shape) not rounding upper back
 - Knees collapsing inward / outward
 - Loss of technique – due to too many reps or too heavy a weight/load

How you train determines what effect it has:



Depending on how you train, you get different effects.

- **Developing Strength** = being able to lift heavier load, while minimising increase in muscle size
- **Hypertrophy** = increasing the size of muscles
- **Muscular endurance** = increasing how many times you can lift the weight

When you first start training, you'll probably need to initially develop some muscular endurance, then progress to hypertrophy and then start developing strength. **The key is to develop technique with low weights before you**

progress to training for other effects. You need to be able to maintain good technique throughout the exercise regardless of the weight and number of repetitions.

Some exercises can be progressed to **develop power** as well – remember power is about moving weights quickly, so variation that need to be done explosively develop power - clap press up, jump lunge etc.

The table below sets out how to organise training to achieve each effect:

| | Reps | Sets | Recovery time (between sets) | Intensity (% of max weight you can lift for 1 rep) |
|-------------------------------|--------|-------|---------------------------------|---|
| Strength | 1 – 5 | 2 - 6 | 3 – 5mins | >85% (i.e. heavy weights) |
| Hypertrophy | 6 – 12 | 3 – 6 | 1 – 2mins | 67 – 85% (i.e. moderate to heavy weights) |
| Muscular Endurance | 12+ | 2 – 3 | 30 – 60secs | <67% (i.e. low to moderate weights) |

Organising Training

Slalom is a whole-body sport, so we need a programme of exercises that will train (work) all areas of the body. This will probably include exercises that work the whole body or multiple movements, and some that target specific muscle groups. We should also make sure the programme is balanced. For example, paddling works the chest and shoulders, so need to work the back as well to balance our bodies and importantly to prevent injuries.

Generally you should do whole body exercises first in the programme, then exercises that work the major muscles groups and then exercises that target smaller muscle groups.

Rest between sets (and exercises) is an important part of training, not a waste of time - it allows recovery to do the next set properly (full number of reps, good technique).

Supersets - this is a way of organising training so that you make efficient use of time. You pair up exercise that work different muscle groups, and during the rest for one you do the other exercise.

Progression

You need to organise your home gym sessions so that you keep developing. If you keep doing the same thing session after session your body adapts to the training and you plateau. To avoid that you need to refresh what you do - that could be every few weeks or when an exercise becomes too easy.

Remember - You need to be able to maintain good technique throughout the exercise regardless of the weight and number of repetitions. *Don't progress until you can do all the reps and sets with the current weight/resistance.*

Things you can change to aid progression:

- increase the weight or resistance
- change what you are training for e.g. move from training for muscular endurance to hypertrophy to strength
- change number of reps in each set (within the ranges for the training type you are working towards)
- change the number of sets (within the ranges for the training type you are working towards)
- change the time under tension (i.e. quicker or slower) - while maintaining good technique
- change the exercise - often a different exercise for the same muscle group(s) will provide a different challenge

It is easy to get 'lazy' and not change things regularly - but you won't get the same effect if you do this.

Example programmes:

These use the same exercises throughout (for familiarity and developing good technique) but change from training for Endurance to Hypertrophy to Strength over 12 weeks (training say 2 x per week). Within each 4 week blocks you start with a weight you can complete the full set with good technique, then increase the weight if the exercise is no longer challenging – remember to achieve different affects you also need different weights in each block (use the info above as a guide of how heavy they should be in each block).

There are many possible variations (endless options really) that you can make to these programmes - different exercise, different progressions, different weights. You may be able to progress some exercises quicker than others

| Exercise | Equipment | For Endurance (eg use for weeks 1 - 4) | For Hypertrophy (eg use for weeks 5-8) | For Strength (eg use for weeks 9-12) |
|-------------------|------------|--|---|--|
| | | Sets / Reps | Sets / Reps | Sets / Reps |
| Squats | Dumbbells? | 2 set of 15 reps. 1min rest between (light – moderate weights) | 3 set of 8 reps. 90sec rest (moderate – heavy weights) | 3 set of 4 reps. 3min rest (heavy - very heavy weights) |
| Shoulder press | Dumbbells | | | |
| Lunges | Dumbbells? | | | |
| Press Up | --- | | | |
| Bent over Row | Dumbbells | | | |
| Lat Raises | Dumbbells | | | |
| Back Raises | --- | | | |
| Ab Curls | --- | | | |