

Headington School Oxford Boat Club Coaching outlines for Physical Education and Sport. - R.M. Demaine

Preamble

The matter of sweep rowing, sculling training and working with weights has been discussed at length at FISA Commission meetings and in Australian Rowing forums.

It is not a matter where there is indisputable scientific evidence on which we can base hard and fast rules. It is clear however that the decisive factor for the amount of load and load toleration is not the *age* of the youth but their *stage of biological development*.

These guidelines are prepared to assist coaches to make appropriate judgments on the selection of rowers and to prepare training programs that avoid the incidence of long-term injuries (following the FISA and ARA).

This is however preliminary until such time this can be reviewed by the boat club and those involved with coaching in order to fully endorse a more complete and purpose driven guideline that takes the schools timetable and overall goals into consideration.

Physical Development

High demands are put on the body during puberty and the effects of these vary greatly from one individual to another. The blood volume increases by almost 50% and the heart and lungs attain their final growth. This is not a reason to reduce training but it underscores the importance of a qualified coach and their responsibility to have a clear picture of the health of each athlete.

Unexpected surges in output and long plateaus of performance are caused by normal, but individual varying, biological developments.

Up to around 15 years of age the heart must work harder than in adulthood and will only achieve high performances with high beat frequency. The resting rate is likely to be around 80/min. and under stresses such as ergometer work it will reach values over 200/min.

The cardiac muscle will strengthen itself gradually at first and then adapt itself to the load with a greater beat volume. The frequency of breath and the volume of inhalation will behave in a similar way.

Under these circumstances, and up to the end of puberty, high intensity training should have a low priority compared with low and medium level work, which will better prepare the athlete for future high load requirements. Put simply, skill based work (rowers are competent with body preparation) over long duration at low intensity should dominate the training plan for all up to the age of 15.

Prior to the age of 15 the connective tissues (muscle, bones, cartilage, tendons and ligaments) do not attain a rigid structure. If in the lead up to this age level, an athlete was to concentrate on sweep rowing, and on one side of the boat the strain would invariably lead to deformation and damage.

In later years of adult competition the high strain demanded by rowing over long distances is only capable of being supported by fully intact connective tissues. It is important therefore to develop the muscles involved in trunk stability (this is essential) at an early stage to support the stresses of competition at the elite level. This is now a major focal point of the club in which core stability is pivotal in the overall development of the young athletes in order to prevent injury.

Accordingly it is advisable for rowers in the U14/15 year physical development stages to concentrate mainly on sculling and accompany this with resistance training using body weight or circuit work as well as a number of cross training activities such as swimming, bike riding, and running. However, it is beneficial for skill development if they undertake some sweep oar rowing at low intensity and on both sides of the boat.

This may even entail an occasional race up to 1000 meters in distance for the better developed of this group in the 14 to 15 years age levels.

At the developmental age of U15/16 years it is appropriate to move to sweep oar rowing providing the sculling apprenticeship has been served and the individual has reached a sufficient stage of physical development. It is essential to accompany this with a properly supervised strength and conditioning program and advisable for rowers to learn to row both sides of the boat.

Girls generally grow and mature earlier than boys. Cross sectional height values for girls are around 160cm and begin to plateau at age 14 or 15 years of age while boys grow steadily through this period to around 170cm. Similarly girls weights level off at the same time while boys grow. Personalised training programs can thus be implemented.

The differences in the range of values for those who do not fit the norm (age versus physical development) are significant. There are late developers and early developers. Late developers grow for longer than early developers and they are generally taller as adults (there are still exceptions).

The differences in the range of values for both sexes from these studies is significant. There are late developers and early developers. Late developers grow for longer than early developers and they are generally taller as adults. Late developers need different rowing preparations, they need more skill based work, constant strengthening programs without heavy weights and medium rather than high intensity in the boat. Early developers can cope with high levels of intensity and strengthening programs based on endurance principles. Neither group should ever be subject to hypertrophy programs (ever increasing weights). Boys or girls could begin these programs at 17 or 18 years depending on their development and only under the care of a qualified instructor. The program would be for a short period rather than a sustained term.

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There is common agreement that pre adolescent weight training will do little to increase the muscle size of a child. Some benefits may emerge in skill and technique. Young rowers may be introduced to weight training in the form of circuit work using body weight. Until an athlete stops growing in height, any weight program should be undertaken with great care, never without the guidance of a qualified instructor or coach.

We are fortunate generally that nutrition is not a factor in the development of young people in Britain. However diet education is an essential part of the training program and coaches should ensure it is included. The discussion should cover energy systems, the correct use of sports drinks and hydration techniques. Drugs in sport should also be part of the education of a young athlete. This should cover prohibited substances, prescribed medication and the status of over the counter medication.

The European Model

The general European model provides sculling racing for ages as young as 8 through to 14 years. Sweep oar rowing begins in the 15/16 year old group. The full program of all boat classes is available to all at the age of 16. Under the rules of the Amateur Rowing Association of the UK there is no sweep oar racing for women under 16 (under 16 at the commencement of the season in September). The same applies to males under 15 years.

Training Duration

For 12/13 to 16/17 year groups an athlete can sustain 5 to 9 sessions of 90 to 120 minutes duration per week. This advice is contained in "Guidelines for Children in Sport" ASMF 1989. These go on to say that training should be a mixed bag with long distance workouts and strength training using own bodyweight

complemented by sessions of stretching and emphases on flexibility and skill. They also say that it should be fun.

Clearly the five sessions will apply to the 12/13 year group working up to 9 sessions for the 16/17 year groups. It would be rare that any crew spent more than 120 minutes on the water in any one session.

The HSOBC Guidelines:

J12s – Novices:

- Primary activity is sculling with emphases on learning basic key concepts of rowing.
- A sculling test and swim test must be done in order to row.
- Secondary activities include running, stretching, swimming and fun circuit work.
- Ergo work simply focuses on teaching athletes about technique.
- Short pieces may be done to condition Novices for possible ergo regattas and regattas in the summer.
- Core stability and flexibility are primary focuses at this age.

J13s and J14s:

- Primary activity is sculling with emphases on low intensity training in 1x, 2x, 4x (Sculling test must be done and passed in order to start rowing and race at any regattas). A very important part of this is to encourage the kids to be confident in smaller boats thus following the ARA's World Class start guidelines.
- After a period of basic conditioning, training loads increase in respect to that which is required for racing. It is unsafe and unhealthy for girls not to be conditioned for racing, so from December onwards, interval training will occur particularly for J14s.
- Secondary activity in running, stretching, cycling, swimming and for anaerobic activities – fun ball games that require short intensity sprinting with rest periods (interval work).
- A 1000m-ergometer fitness trial may be conducted every 3 weeks (Preferably on the Concept 2 ergometer machine), and the details are encouraged to be recorded for future reference.
- Focus on flexibility and skill.
- Focus on circuit training and core strength.

J15 year - Development:

- Primary activity in sculling with an introduction to sweep oar rowing on both sides of the boat. They may compete in sweep or sculling events.
- Secondary activity on progressive resistance and endurance training.
- Cross training activity to form an integral part of the weekly schedule.
- Still a focus on core strength (stomach and lower back).
- A 2000m-ergometer fitness trial must be conducted every 2/3 weeks (Preferably on the Concept 2 ergometer machine), and the details must be recorded for future reference.
- Flexibility tests and conditioning.
- Organic and muscular-skeletal screening to identify problems that may be adversely affected by continued participation in sculling/rowing development programs (especially with regard to early identification of possible back problems).
- Girls only get the opportunity to race if they have been attending sessions.

J16 year – Development / Senior:

- Strength and conditioning programs are an essential part of the training plan.

- Continued sessions of sculling and cross training to be part of the training plan.
- Advice on health maintenance, personal care and nutrition to be available to all rowers.
- Advanced race preparation and skills for the following year need to be stressed, as this age group will be the "feeder" for the first team.
- Still a focus on core strength (stomach and lower back).
- A 2000m-ergometer test may be conducted every +2/3 weeks (Preferably on the Concept 2 ergometer machine), and these recorded for future reference.
- Flexibility tests and conditioning.
- Sweep oar rowing with emphases on both sides of the boat for those athletes at an appropriate stage of physical development and who have completed the sculling apprenticeship.

Open age group - Seniors:

- Sweep oar rowing may now be the primary activity for those having completed the sculling apprenticeship and at the appropriate stage of physical development.
- Strength and conditioning programs are an essential part of the training program.
- A 2000m-ergometer test may be conducted every +3 weeks (Preferably on the Concept 2 ergometer machine), and these recorded for future reference.
- Continuing education on health maintenance and nutrition to be provided.
- Rowers who are enthusiastic for future prospects should be guided into clubs or Universities that would suit their development both educationally (Degree etc) and in terms of rowing (if they wish to continue after school).

General

It is not possible to provide guidelines that cover every individual case and it is expected that these are read with common sense. If there is a problem coaches are expected to consult those who are specialised (in the case of a diabetic for example).

Coaches must also respect ones health and may not allow a student to row or compete with having the knowledge that the student has flu or other such illness that could result in permanent damage or extreme discomfort. This also applies to the ARA guidelines in the case of sever temperatures and inappropriate dress.

Further Reading:

It is suggested that coaches attain a formal qualification (Certification form the ARA) in rowing coaching. Suggested readings can be found in the following books:

Redgrave, S. Complete Book of Rowing, Partridge Press, London 1995. See chapter 11 for a discussion on rowing injuries and steps rowers should take to treat them.

Draper, J.A. Growth, Development and the Junior Athlete published in "Better Coaching - Advanced coaches manual" Pyke, F.S. Australian Coaching Council.

Reference:

Webb, B (1997) NSW Rowing Commission. Australia.

<http://www.rowingnsw.asn.au/handbook.shtml>