4 Basic Training Methodology

4.1 Introduction

The role of the coach in the development of athletic potential is very interesting and challenging. It is also a very demanding role because it requires knowledge of all aspects of the athlete's life and the requirements of the sport. With this information, you, as the coach, are in a position to prepare a training programme that will assist the athlete to achieve his or her training objectives. The training programme will provide the format that will guide the athlete through the proper sequence of development throughout his or her athletic career.

The FISA Coaching Development Programme provides information in this course on the basic principles of training, the concept of periodisation and the development of a training programme. This course is intended to provide you with the ability to design and implement simple training programmes. Courses to be offered in the FISA CDP Levels II and III will provide more specific information, particularly in regard to the integration of the principal components in the development of athletic potential – the physical, technical and psychological components.

4.2 Basic principles of training

Basic training methodology has its own principles, which are based on scientific investigations. These investigations provide guidelines which systematically direct the whole process of training and are known as the principles of training.

Active participation

The coach and athlete should be active participants in a joint effort to design and implement a training programme. This principle is more important with experienced athletes than with beginners since beginners do not possess the knowledge and are subject to the direct control and guidance of the coach. The coach and athlete should develop training objectives and work together in the development of short and long term training programmes. Experienced athletes may be encouraged to develop their own programme with the assistance of their coaches to ensure the quality of the programme.

The coach and athlete should establish tests and standards to be met periodically during the training season in order to monitor and control the effectiveness of the programme. This will provide information to assist in the modification of the programme during the training season and from season to season.

This active participation will provide a motivating force to enhance the commitment of the athlete and encourage the pursuit of excellence in training.

All-round development

All-round physical preparation is an essential part in the development of athletes. In fact, the establishment of a broad base of physical development should be considered a prerequisite for specialisation in any sport. This is particularly important for youth and beginners because it is necessary to build a large base of physical fitness and skill to prepare the athlete for the increasing demands of the rowing-specific training that will occur as the athlete develops.

Although the developing athlete will always maintain an all- round physical preparation programme, rowing-specific training will become more important both during the training season and from season to season throughout the athlete's career.

Specialisation

During the athlete's career, he or she trains with the purpose of specialising in rowing. This specialised training for rowing is necessary given the high level of competition in sport today. This applies to all aspects of training and results in the amount of special rowing exercises being progressively and constantly increased.

Although specialisation is a complex process, these special exercises may be divided into two groups. The first group comprises exercises that are similar to the sequence of the movement requirements of the sport (for example, utilisation of the rowing ergometer or on the water technical exercises). The second group comprises exercises that represent partial movements of the whole sequence of movements. These exercises activate single or multiple muscle groups in a way similar to the movement requirements of the sport (for example, utilisation of a strength training programme).

Therefore, the development of training programmes will present the interesting challenge of properly utilising exercises for both all-round development and sport specialisation while giving consideration to short and long term athletic development.

Individualisation

It is necessary to individualise training to enhance the prospects for reaching personal training objectives because of variations in each athlete's ability, potential, characteristics of learning and the specific requirements of rowing.

These variations will result in different individual capacities and, therefore, a training programme for one athlete may not provide the proper development for another athlete.

This realisation is particularly important in the event that a programme that has been designed for a senior or experienced athlete is utilised in training a junior or beginning athlete.

The sport of rowing with events for individuals and crews offers the challenge of developing training programmes that are both individual and crew specific with consideration also being given to short and long term objectives. This ability is the real art of coaching and is developed after years of practice.

Variety

The utilisation of a variety of physical activities provides two benefits. One is physical; the other is psychological.

A variety of physical activities, particularly during the early part of the training season, increases the all-round physical development of the athlete and, thereby, improves the peak performance capabilities that may be achieved with rowing specific training.

The increasing demands of rowing specific training, which necessitates a high volume of training and the utilisation of repetitive special exercises, may result in the athlete becoming stale and suffering mental fatigue.

Therefore, it is important for the coach to be creative by drawing upon a repertoire of variations in training in order to maintain the athlete's interest and motivation to achieve short and long term performance objectives.

Progressiveness of training

The improvement of physical performance comes with the adaptation of the human body to a certain quality and quantity of work. After the athlete's body has adapted to the given work, no further improvement can be expected unless an increased training load is used to force the body to a further adaptation and, therefore, to a further improvement of physical performance.

Essentially, the training programme must provide an adequate amount of work to cause the athlete to become fatigued. After the athlete has had an opportunity to recover and adapt, and is thus prepared for an increase in work, the training programme must systematically increase the amount of work. This will result in higher levels of adaptation and improved performance capabilities.

Systematisation

In the preparation of the training programmes, it is necessary to develop a systematic plan. This plan should be based on scientific and training principles and be arranged methodically in a form that organises the training of the athlete and ensures the proper regularity of training.

The development of a systematic plan will improve the quality of training because the plan would provide a format in which the athlete and coach could test, monitor and control performance capabilities. A systematic plan will also provide a model to be reviewed and revised for the next training season and throughout the athlete's career.

4.3 Periodisation

Periodisation is the process of dividing an annual training programme into periods of training to allow the programme to be set into manageable segments and to ensure a correct peaking for the main competition or training objective of the year.

The process of periodisation depends on the use of the concepts of training loads and the wave principle of training. This information will enable better understanding of the principal components of periodisation: training period, training cycle and training session.

Training load

The training load consists of the quantity and quality of work. Quantity is represented by distance of work, time of work, or number of repetitions, etc. Thus, a rowing training session may be described as, for example, 16km in distance during which three repetitions of ten minutes of work will be performed.

Quality is the effort exerted in the training session. It may be represented as the speed of running, the amount of weight lifted, heart rate maintained, or, in the boat, a combination of pressure applied on the blade and the stroke rating, etc. Thus, the example rowing training session above may be further described as three repetitions of ten minutes of work at a rating of 26 strokes per minute while maintaining a heart rate of 140 to 170.

In a systematic plan of training, the training load goes from quantity to quality. This means that, after a period of adjusting to a new training season, the training starts with a large quantity of a relatively low or medium quality of work to provide all-round development and improvement in endurance capabilities.

As the training season progresses, there is a gradual increase in quality and a corresponding decrease in quantity. This enables the development of the specific needs of the sport of rowing and the necessary performance capabilities to achieve the training objective.

Although this procedure is for the major part of the programme, it must be considered as a guide because training in any period of the year is complex and must cover all aspects of the work requirements of rowing.

Training cycles – the wave principle of training

The training cycle is a limited period of training, usually between four and eight weeks, during which the programme is directed toward a certain training objective. Training cycles follow the wave principle of applying alternating phases of increasing and decreasing training load.

It has been demonstrated that this step or wave approach is more efficient than the linear or continuous method of loading. As opposed to the continuous method, the wave principle requires that a training load increase must be followed by a decrease in training load during which the athlete's body is able to recover and adapt to the training load. This enables the athlete to be subjected to progressively increasing training loads.

It has also been demonstrated that the best results in improvement of performance can be achieved if the training load is gradually increased during three successive training sessions up to the athlete's maximum load capability (for example 50%, 75%, 100%) and followed by a very light training session or a complete rest. This applies to training programmes of five or more sessions per week. If the frequency of training sessions is less, the programme can be designed with one day off after every outing and with the training load being gradually increased to its maximum on the weekend.

The wave principle of changing the training loads will apply throughout the training cycle, which means that the maximum load will vary from week to week creating the wave approach to training. Appendix A provides an example of this principle.

Planning each training period

A systematic training programme based on scientific and training principles is fundamental to the successful pursuit of high level athletic performance. The systematic training programme is developed by working in reverse chronological order from the date of the main competition or training objective and dividing the training season into the appropriate number of training periods.

Each period has different aims and, to some extent, will continue the application of the concepts of training load and the wave principle of training.

The periodisation of the training season may be represented as follows:

- Preparation period (six months).
- Competition period (five months).
- Transition period (one month).

The aims of each period are:

Preparation period

1. To develop general physical fitness.
2. To develop rowing technique, specific physical fitness for rowing and psychological preparedness for the coming competition period.

Competition period

1. Further development of rowing technique, specific physical fitness for rowing and psychological preparedness for competition mainly by training in the boat.
2. To develop and stabilise competition performance.

Transition period

1. Physical and mental relaxation
2. Relief from the pattern of systematic training

Planning each training cycle

Each period is divided into one or more training cycles of four to eight weeks in length. The plan for each cycle gives the athlete an outline of the particular activities on the land and in the boat. It shows the kinds of exercises, the quantity and quality of the work, and a detailed programme for each training session in the cycle. The plan for each cycle takes into consideration the different degrees of training load and rest intervals within the week and within the whole cycle (see Appendices A & B).

Planning each training session

The aim of the period and cycle and the purpose of each session should be carefully explained to the athlete. Every training session must begin with a good warm-up on land (five to ten minutes of light jogging and five minutes of mobility exercises) and also in the boat (systems of warm-up in the boat vary from crew to crew).

After the warm-up in the boat, there is a time for technical exercises because the teaching of technique or correction of technical faults requires mental concentration, which deteriorates with the increasing fatigue of the athlete during the training session.

After the technical exercises have been completed, the main part of the session is devoted to the principal aim of the training period and the training cycle. The last part of the training session is for relaxation and a warm-down. During the training session, the coach should present a clear purpose for the session by keeping unnecessary communication to a minimum and concentrating on a few important points that will assist the athlete in maintaining the proper focus during each session.

At the conclusion of each session, the coach should exchange observations with the athlete or crew and evaluate the session. This procedure will assist in the process of monitoring and controlling the training programme and, thereby, increasing the benefits to be derived from each future training session.

A yearly training programme

Appendix B has been included to present an actual year-round training programme that you may use to train your club athletes. It is important to realise that these programmes must be adapted to the specific needs of your athletes giving consideration to their individual state of development and future training objectives.

4.4 Planning a training programme

An annual training programme is the most important tool for the coach to direct and guide athletic training over the training year. It is based on the principles of training and the concept of periodisation.

Planning a training programme requires a clear understanding of the objective of the programme and a procedure to achieve the objective. This purpose may be accomplished by utilising the following guidelines:

1 Establish an objective
2 Develop a systematic plan
3 Implement the plan
4 Monitor and review the plan

Establish an objective

The objective of a training programme will be the achievement of a defined performance level at a designated competition. This competition may occur at the culmination of either a few months of training (a short-term objective) or many years of training (a long-term objective).

It should be noted that, as athletic potential may only be optimised by year-round training, emphasis should be placed upon the development of year-round training programmes.

Develop a systematic plan

A systematic plan is developed by working in reverse chronological order from the date of the objective of the plan and dividing the training season into the appropriate number of training periods. This procedure is called periodisation (see section 3.0) and may be represented as demonstrated in diagram 1.

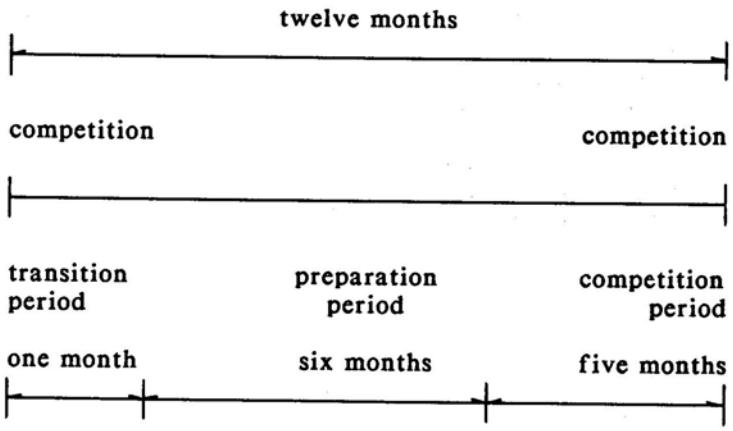


Diagram 1 – Periodisation plan

It is important to realise that a systematic plan must be developed in conjunction with an understanding of how to implement the plan. This is probably the most difficult aspect of designing and monitoring a training programme. It requires an understanding of the basic principles of training (see section 2.0), the concepts of training loads and training cycles (see sections 3.1 and 3.2), the energy systems, proper rowing technique and the methodology of learning.

Implement the plan

The coach and athlete must make a conscious decision to proceed with the plan and become active participants in the training process. This ensures that the athlete maintains the proper motivation in the pursuit of the training objective and that the athlete trains regularly and conscientiously.

Monitor and review the plan

It is important that the plan includes various tests and standards that are to be attempted and successfully completed, both on and off the water, during the training season. These tests and standards will provide valuable information on the athlete's developing capabilities and on the effectiveness of the plan in directing the athlete towards the training objective.

As well, it is important that both the coach and athlete maintain a training journal to document their observations and comments about the training. This information is invaluable in the process of reviewing the plan both during and after the training season. This review will allow modification to be made in the programme during the season and from season to season to enhance the athlete's opportunity to achieve his or her athletic potential.

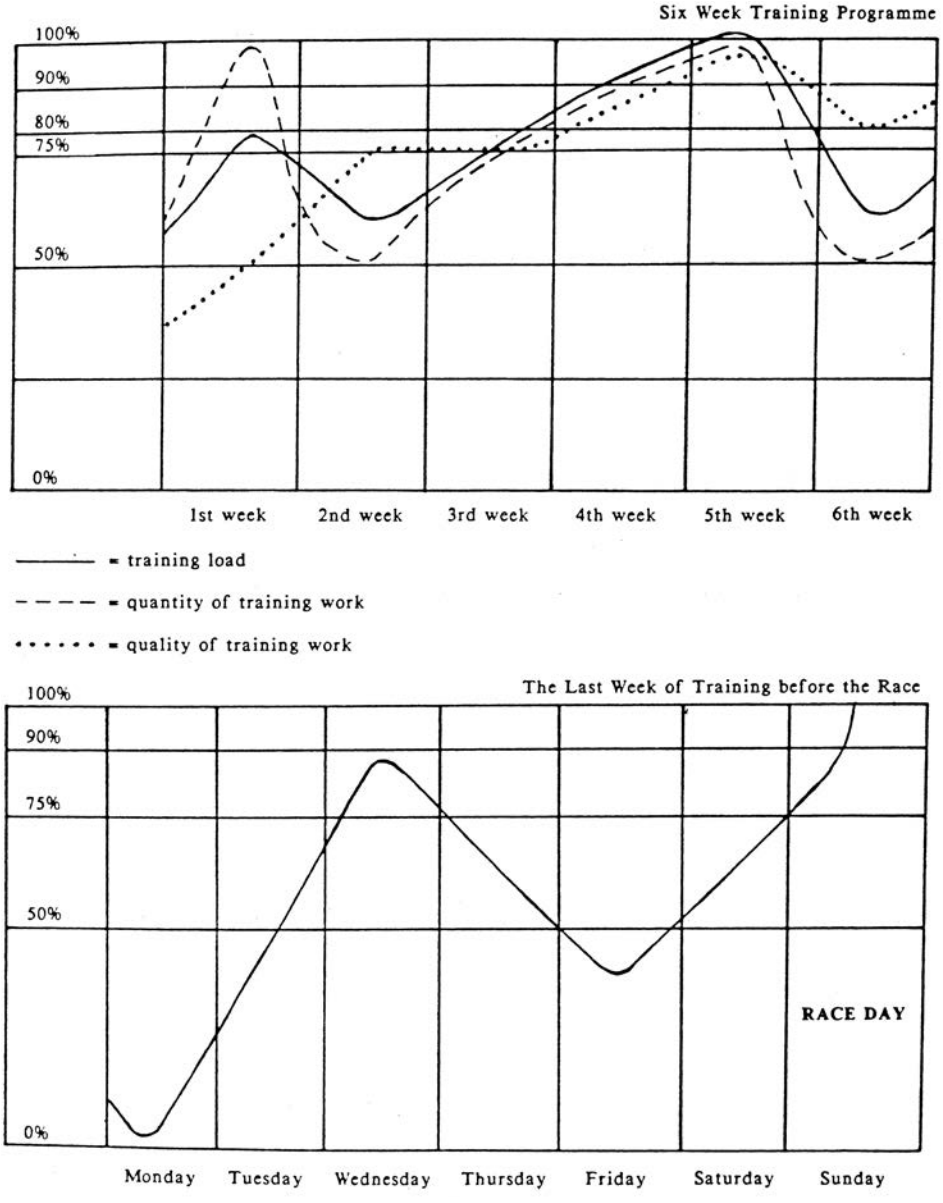
This procedure for the planning of a training programme should be repeated for each new training season in order to develop a training programme that is appropriate to the growing and ever- changing needs of the athlete.

4.5 Summary

The information presented in this course will enable you, the coach, to prepare training programmes that will assist your athletes in the achievement of their training objectives. This ability will be enhanced after practice and years of experience.

4.6 Appendices

Appendix A – Wave principle of training



Appendix B – Author: Thor S. Nilsen, NOR

Introduction

This "Training Programme for Clubs" is based on The FISA Development Club Programme distributed in 1993. Many coaches have asked for an update, but in training methodology and rowing technique not much has changed, and the basics stay the same. Anyhow, some training models have been improved and distribution of time looks a bit different.

The difference from 1993 is the higher number of hours invested in training by the international elite. With more than 40 hours a week in training a lot of injuries in form of stress fractures and lower back problems occurred.

Among the lightweight rowers it looks as if the immune defense got strongly reduced and common colds, influenza and other fever-related illnesses caused many breaks in the training system. This is probably a result of high training load and reduced intake of food to keep the weight down. A problem we must address strongly in the time to come.

In this programme we have two new appendices presenting a better programme for flexibility and series of additional exercises to give the clubs the possibility to create a more "all-round" training programme and avoid "disharmony" between the different groups of muscles. Many injuries could be related to underdevelopment in non-specific rowing muscles (see chapter 5 – General Fitness Training).

The aim of the programme will follow the same lines as the last edition:

- Increase maximum VO2
- Increase strength endurance
- Increase maximum strength
- Higher efficiency of rowing technique
- Better flexibility and coordination

The programme is divided into five periods as follows:

Period 1: October – January (Preparation period 1)

Programme October	Main effect:	Maximum strength
	Secondary effect:	General endurance
Programme November	Main effect:	Maximum strength and general endurance

Period 2: January – February (Preparation period 2)

Programme January- February	Main effect:	General endurance and muscular endurance

Period 3: March – April (Pre-competition period)

Programme March – April	Main effect:	Basic specific endurance and rowing technique

Period 4: May – June – July (Competition period)

Programme Weeks without competition	Main effect:	Increased specific endurance
Programme Weeks with competition:	Main effect:	“Supercompensation” effect and race preparation
Programme “Peak” for championships or important regatta	Main effect:	“Peak” for the championships

Period 5: (August) September. (Recovery period)

Programme September:	Main effect:	Active recovery.

How to use the programmes?

Intensity

The intensity is expressed in “heart rate” with an indicated “target zone”, based on percentage of “maximum heart rate”. Maximum heart rate is estimated as 220 minus age. In the programmes 200 HR is used as maximum and 180 HR as minimum. Individual variations will occur frequently.

All training models where HR is indicated show the physiological effect expected, and refer to the oxygen transport system.

Target Zone:	Percentage of Max:	Training effect:
130-150	Up to 75%	Utilisation
140-160	” ” 80%	Mainly utilisation
150-170	” ” 85%	Anaerobic threshold
170-190	” ” 95%	Transportation
Max.	” ” 100%	Anaerobic

It is not necessary to stay strictly within the “target zone”, but to obtain maximum training effect these rules should be respected:

Training effect:	Training time in ” “target zone”:
Utilisation:	80%
Anaerobic threshold:	70%
Transportation:	50-70%
Anaerobic:	5-10%

Indicated stroke rate

The stroke rate is closely connected to the heart rate, but has its own technical effect. Close to the regatta season, and inside the regatta season, it is important to train in the “stroke rate area” where we are supposed to compete.

The single sculler and the eight will use different “stroke rate areas”, and in the programme the lowest number is an indication for the slow boats and the highest number for the fast boats. Weather conditions must be taken into consideration with slower rate in headwind and upstream.

Lightweight rowers

Lightweight rowers should not use the “volume” or “maximum strength training”, because it will increase bodyweight and muscle volume. With the “top pyramid”, maximum strength can be improved without weight gain.

Junior rowers

Junior rowers should have passed puberty and have a settled body before they start with heavy weight training. The best period to improve muscle volume and strength seems to be between 18 and 23 years. For younger rowers their own body weight can be used as load. Circuit training and endurance training are to be preferred.

Women

Women can follow the same training principles as men. Their maximum strength is lower and muscle volume smaller, but their adaptation to endurance is as high as for men. Some scientists insist that women recover faster from heavy endurance load than men do.

Be careful with weight training, and take time to learn a good lifting technique.

Time requirement

To follow the programme completely from October to the end of August, you will need approximately 650 hours of effective training. Total numbers of kilometres on the water are of approximately 4,000.

An international elite rower will use up to 1,500 hours/ year and row between 7 and 9,000km. Remember: less quantity needs more quality.

Reduction of the programme

School and work problems might reduce the possibility to follow the programme and reduction will be needed. With reduction try to keep the endurance part, and give priority to the boat training.

Terminology

To avoid misunderstanding we will explain the following “terms” used in the programme.

Steady state

Aerobic training with metabolic balance. Energy covered 100% aerobic or with small amount of anaerobic capacity involved, but without accumulated production of acid lactate.

”LSD” Long Slow Distance

Training after the continuity principle to increase or maintain oxygen utilisation in the muscle fibres recruited. Energycovered 100% aerobic.

Interval

Interval principle: Training with periodic changes between exertion and rest, or between high and low workload (interval work).

The various types of interval training can be divided into two categories: short interval training and long interval training.

Short interval involves work periods of up to two minutes and rests that are so short that oxygen uptake and the pulse (in the rest) does not decrease appreciably before the start of the next work period.

Long interval involves work periods from two minutes and up to between 10 and 15 minutes, and rest lengths such that work intensity can be maintained approximately constant during each work period.

The short interval is very important during the regatta season to keep a good quantity of training in the right area of race velocity, and use of stroke rate valid for competition. Training after the interval principle will increase or maintain the heart’s stroke volume (increased aerobic capacity).

Rhythm variations

Training with mainly aerobic effect, but also with some input of anaerobic energy. The training gives a good opportunity to control and train the technique at different levels of intensity.

Fartlek

Training according to the interval principle, of relatively long duration (8-12km), with improvised alteration between high and low intensity, and with the main purpose of increasing or maintaining aerobic endurance. Gives a good opportunity to control the technique at different levels of intensity.

Model training

Training that simulates the race condition including warming up, start proceeding and tactic. Should be organised with other crews and made as close up to regatta conditions as possible. (Used in connection with “supercompensation”.)

Speed training

This term is used as a description of high intensity training in preparation for regattas (supercompensation principle.) It means mainly overproduction of speed (speed higher than race speed.). This is the only specific anaerobic training in the programme. It also has a technical element and overstimulates the muscular contraction velocity.

“Race-training: 4-2-1”

Training that stimulates race conditions, physiologically and mentally, about 60% aerobic and 40% anaerobic with increased load. The model has also a good technical element.

Technical “drill”:

Training with specific exercises to improve the rowing technique. The rowing stroke divided into sections and trained separately followed by combined sections – up to the full stroke.

Training Programme: October

Day	Program	Rec	Heart rate	Stroke rate	Km
Monday	A) Warming up: Running/Gymnastic 30 min		130-150		
	B) Weight training (Volume-training*)**				
	C) Flexibility – Gymnastic				
Tuesday	A) Warming up: Rowing/Running/ Gymnastic 30 min		130-150		
	B) Weight training (Volume-training)				
	C) Flexibility – Gymnastic				
Wednesday	A) Running: Slow Distance		130-150		10-12
	B) Flexibility				
Thursday	A) Warming up: Rowing/Running/ Gymnastic 30 min		130-150		
	B) Weight training (Volume-training)				
	C Flexibility – Gymnastic				
Friday	A) Running: Warming up		130-150		3-4
	B Hillrunning: Ca. 5 min 3-5 rep.	4'-6'	170-190		5-8
	C) Flexibility				
Saturday	A) Warming up: Rowing/Running/ Gymnastic 30 min		130-150		
	B) Weight training (Volume-training)				
	C) Flexibility				
Sunday	A) Rowing (or)		130-150	18-20	20
	Running (or)		130-160		14-16
	Cycling		130-160		35-50
	C) Flexibility				

* See program for Weight training. ** Lightweight rowers should use program “Top-pyramide”

Training Programme: November

Day	Program	Rec	Heart rate	Stroke rate	Km
Monday	A) Warming up: Running/Gymnastic 30 min		130-150		
	B) Weight training (Maximum strength training*)**				
	C) Flexibility – Gymnastic				
Tuesday	A) Warming up: Rowing/Running/ Gymnastic 30 min		130-150		
	B) Weight training (Volume-training)				
	C) Flexibility – Gymnastic				
Wednesday	A) Rowing/Running: Slow Distance		130-150	(15-18)	10-12
	B) Flexibility				
Thursday	A) Warming up: Rowing/Running/ Gymnastic 30 min		130-150		
	B) Weight training (Volume-training)				
	C) Flexibility – Gymnastic				
Friday	A) Running: Warming up		130-150		3-4
	B) Hillrunning: Ca. 5 min 3-5 rep.	4'-6'	170-190		5-8
	C) Flexibility				
Saturday	A) Warming up: Rowing/Running/ Gymnastic 30 min		130-150		
	B) Weight training (Volume-training)				
	C) Flexibility				
Sunday	A) Rowing (or)		130-150	18-20	20
	Running (or)		130-160		14-16
	Cycling		130-160		35-50
	B) Flexibility				

* See program for Weight training. ** Lightweight rowers should use program “Top-pyramide”

Training Programme: December

Day	Program	Rec	Heart rate	Stroke rate	Km
Monday	A) Warming up: Running/Gymnastic 30 min		130-150		
	B) Weight training (Maximum strength training*)**				
	C) Flexibility – Gymnastic				
Tuesday	A) Running: Long Slow Distance		130-150		10-12
	B) Flexibility				
Wednesday	A) Warming up: Rowing/Running/ Gymnastic 30 min		130-150		
	B) Weight training (Maximum strength training)				
	C) Flexibility – Gymnastic				
Thursday	A) Running: Warming up		130-150		3-4
	B) Hillrunning: Ca. 5 min 5 rep.	4'-6'	170-190		5-8
	C) Flexibility				
Friday	A) Warming up: Rowing/Running/ Gymnastic 30 min	130-150			
	B) Weight training (Maximum strength training)				
	C) Flexibility – Gymnastic				
Saturday	A) Rowing (or)		130-150	18-20	20
	Running (or)		130-160		14-16
	Cycling		130-160		35-50
	B) Flexibility				
Sunday	A) Rowing (or)		130-150	18-20	20
	Running (or)		130-160		14-16
	Cycling		130-160		35-50
	B) Flexibility				

* See program for Weight training. ** Lightweight rowers should use program “Top-pyramide”

Training Programme: January

Day	Program	Rec	Heart rate	Stroke rate	Km
Monday	A) Warming up: Running/Gymnastic 30 min		130-150		
	B) Weight training (Maximum strength training)				
	C) Flexibility – Gymnastic				
Tuesday	A) Running: Warming up		130-150		3-5
	B) Running: Short Interval				
	20/10 sec. x 12 min. 2 series.	3'-5'	180-190		4-6
	C) Flexibility				
Wednesday	A) Warming up: Running/Gymnastic 30 min		130-150		
	B) Weight training (Weight Endurance)*)				
	C) Flexibility – Gymnastic				
Thursday	A) Running: Warming up		130-150		3-4
	B) Hillrunning: Ca. 5 min. x 5 rep.	4'-6'	170-190		5-8
	C) Flexibility				
Friday	A) Warming up: Running/Gymnastic 30 min		130-150		
	B) Weight training (Weight Endurance)				
	C) Flexibility – Gymnastic				
Saturday	A) Rowing (or) NB!		130-150	18-20	20
	Running (or)		130-160		14-16
	Cycling		130-160		35-50
	B) Flexibility				
Sunday	A) Rowing (or) NB!		130-150	18-20	20
	Running (or)		130-160		14-16
	Cycling		130-160		35-50
	B) Flexibility				

* See program for Weight training Endurance. NB! = Rowing if possible.

Training Programme: February

Day	Program	Rec	Heart rate	Stroke rate	Km
Monday	A) Warming up: Running/Gymnastic 30 min		130-150		
	B) Weight training (“Top-pyramid”)				
	C) Flexibility – Gymnastic				
Tuesday	A) Rowing: Long Slow Distance		130-150	18-20	16-20
	B) Flexibility				
Wednesday	A) Rowing: Warming up/Technical "Drills"		130-150	18-20	3-5
	B) Rowing: 4 x 8 min.	3'-4'	140-160	22-24	10-12
	C) Flexibility				
Thursday	A) Rowing: Technical "Drills"				6-8
	B) Hillrunning: Ca. 5 min. x 3 rep.	4'-6'	170-190		5-8
	C) Flexibility				
Friday	A) Rowing: Warming up/Technical "Drills"		130-150	18-20	3-6
	B) Rowing: 3 x 12 min.	3'-4'	140-160	22-24	10-12
	C) Flexibility				
Saturday	A) Rowing: Technical "Drills"				3-6
	B) Rowing: Slow Distance		130-160	20-22	12-16
	C) Flexibility				
Sunday	A) Rowing: Technical "Drills"				3-6
	B) Rowing: "Fartlek"		130-170	18-28	12-16
	C) Flexibility				

OBS! “Drills” and “Fartlek” see descriptions.

Training Programme: March – April

Day	Program	Rec	Heart rate	Stroke rate	Km
Monday	A) Warming up: Running/Gymnastic 30 min		130-150		
	B) Weight training ("Top-pyramid")				
	C) Flexibility – Gymnastic				
Tuesday	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: Long Interval 3-4 x 5 min.	3'-5'	160-170	26-30	10-12
	C) Flexibility				
Wednesday	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: Short Interval 30/20 (strokes) x 10. 2 series	4'-6'	170-180	28-30	10-12
	C) Flexibility				
Thursday	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: 3 x 12 min	4'-6'	160-170	26-28	12-14
	C) Flexibility				
Friday	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: 4-3-2-1 x 3 (23-25-27-29)	3'-4'	130-170	23-29	12-16
	C) Flexibility				
Saturday 1	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: Short Interval 40/20 (strokes) x 8. 2 series	4'-6'	170-180	28-30	12-14
	C) Flexibility				
***2**	A) Rowing: LSD		140-160	22-24	16-20
	B) Flexibility				
Sunday	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: 2 x 8 min. (2000 m)	10'-12'	170-180	28-30	12-14
	C) Flexibility				

* = If possible

Training Programme: May – June – July

(Weeks before Regattas)

Day	Program	Rec	Heart rate	Stroke rate	Km
Saturday 1	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: 4-6 x 500 m	1'-2'	Max	Max	8-10
	C) Flexibility				
2	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: 2-3 x 1000 m	6'-8'	Max	Max	10-12
	C) Flexibility				
Sunday	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: 2-3 x 1000 m	6'-8'	Max	Max	10-12
	C) Flexibility				
Monday	A) Rowing 65-70%		140-150	22-24	20
	B) Flexibility				
Tuesday 1	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: 2-3 x 5 min	4'-6'	170-180	28-30	10-12
	C) Flexibility				
***** 2**	A) Rowing 60-65%		130-140	20-22	12
	B) Flexibility				
Wednesday	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: 1x1000 m + 1x500 m	8'-10'	Max	Max	8
	C) Flexibility				
Thursday 1	A) Rowing: Fartlek		130-180	18-36	12-16
	B) Flexibility				
***** 2**	A) Rowing: Fartlek		130-180	18-36	12-16
	B) Flexibility				
Friday 1	A) Rowing: Fartlek		130-180	18-36	12-16
	B) Flexibility				
***** 2**	A) Rowing: Fartlek		130-180	18-36	12-16
	B) Flexibility				
Saturday	A) Regatta				
Sunday	A) Regatta				

*** = Second rowing session if possible

Training Programme: May – June – July

(Weeks before Regattas)

Day	Program	Rec	Heart rate	Stroke rate	Km
Monday	A) Rowing 65-70%*)		140-150	22-24	16-20
	B) Flexibility				
Tuesday 1	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: 4-3-2-1 x 3	10'-12'	140-180	26-32	12-14
	C) Flexibility				
****2**	A) Rowing: 65-70%		140-150	22-24	12-16
	B) Flexibility				
Wednesday 1	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: Short Interval 30/10 (strokes) x 10 (60/20 sec) 2 series	6'-8'	170-180	30-34	12-14
	C) Flexibility				
****2**	A) Rowing: 65-70%		140-150	22-24	12-16
	B) Flexibility				
Thursday	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: Long Interval 3-4 x 5 min.	4'-6'	170-180	28-32	12-14
	C) Flexibility				
Friday 1	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: 3 x 12 min.	8'-10'	160-170	27-29	12-14
	C) Flexibility				
****2**	A) Rowing: 60-65%		130-140	20-22	12-16
	B) Flexibility				
Saturday 1	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: Short Interval 17/5 (strokes) x 20 (30/15 sec) 2 series	6'-8'	170-180	34	12-14
	C) Flexibility				
****2**	A) Rowing: 60-65%		130-140	20-22	12-16
	B) Flexibility				
Sunday	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: 2-3 x 2000 m (1250/500/250) or 7 min. (4-2-1) (30/32-32/34-34/38)	15'-20'	180-190	30-38	41974
	C) Flexibility				

* = Every two weeks one session with “Top-pyramid”. ** = Second session if possible.

Training Programme: (August) September

Day	Program	Rec	Heart rate	Stroke rate	Km
Monday	Any kind of activity (walking/jogging/ swimming/golf/tennis/soccer or any other ballgame) Rowing if you really feel for it.				
Tuesday	FREE, or some kind of aerobic				
Wednesday	As Monday				
Thursday	As Tuesday				
Friday	As Monday				
Saturday	Free				
Sunday	As Monday				

Do what you feel for; you should enjoy it!

Training Programme: “Peak”

Day	Program	Rec	Heart rate	Stroke rate	Km
Monday	A) Rowing: Long Distance		130-150	18-22	16-20
	B) Flexibility				
Tuesday	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: Long Interval 3 x 4 min.	4'-6'	170-180	30-33	8-10
	C) Flexibility				
Wednesday	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: Short Interval 30/10 (strokes) x 6. 3 series	4'-6'	170-180	30-34	10-12
	C) Flexibility				
Thursday	A) Rowing: Long Distance		130-150	18-22	16-20
	B) Flexibility				
Friday	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: 3-2-1 x 3 (28-30-34)	5'-7'	160-190	28-34	10-12
	C) Flexibility				
Saturday 1	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: Short Interval 20/10 (strokes) x 6. 3 series	8'-10'	180-190	32-36	10-12
	C) Flexibility				
2	A) Rowing: Long Distance		130-150	18-22	12-16
	B) Flexibility				
Sunday	A) Rowing: Warming up		130-150	18-20	4-6
	B) Rowing: 2 x 2000 m (1250/500/250) or 7 min. (4-2-1) (30/32-32/34-34/38)	15'-20'	180-190	30-38	12-14
	C) Flexibility				

Weight Training

Volume Training

FISA The International Rowing Federation

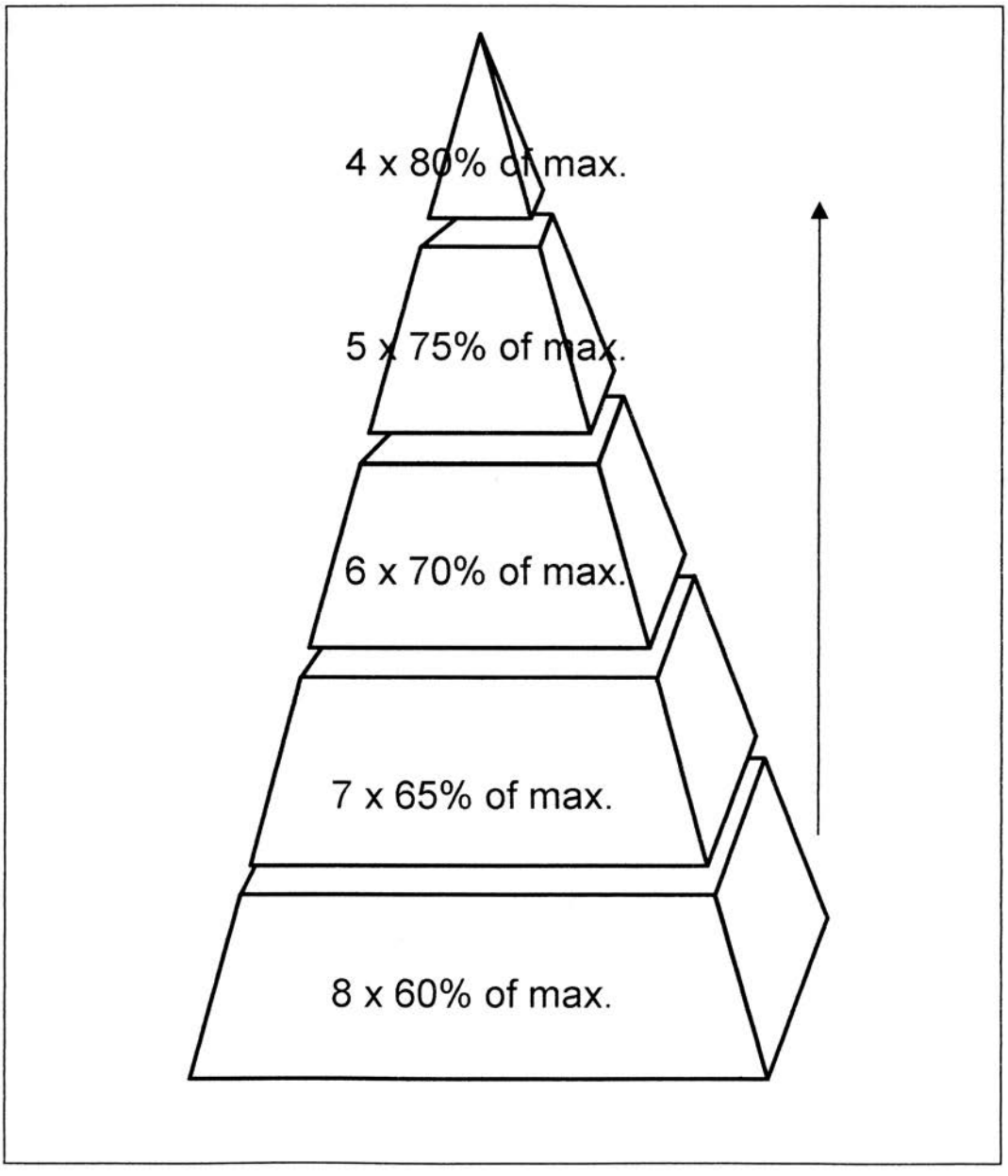


Fig. A

Weight Training

Maximum strength

FISA The International Rowing Federation

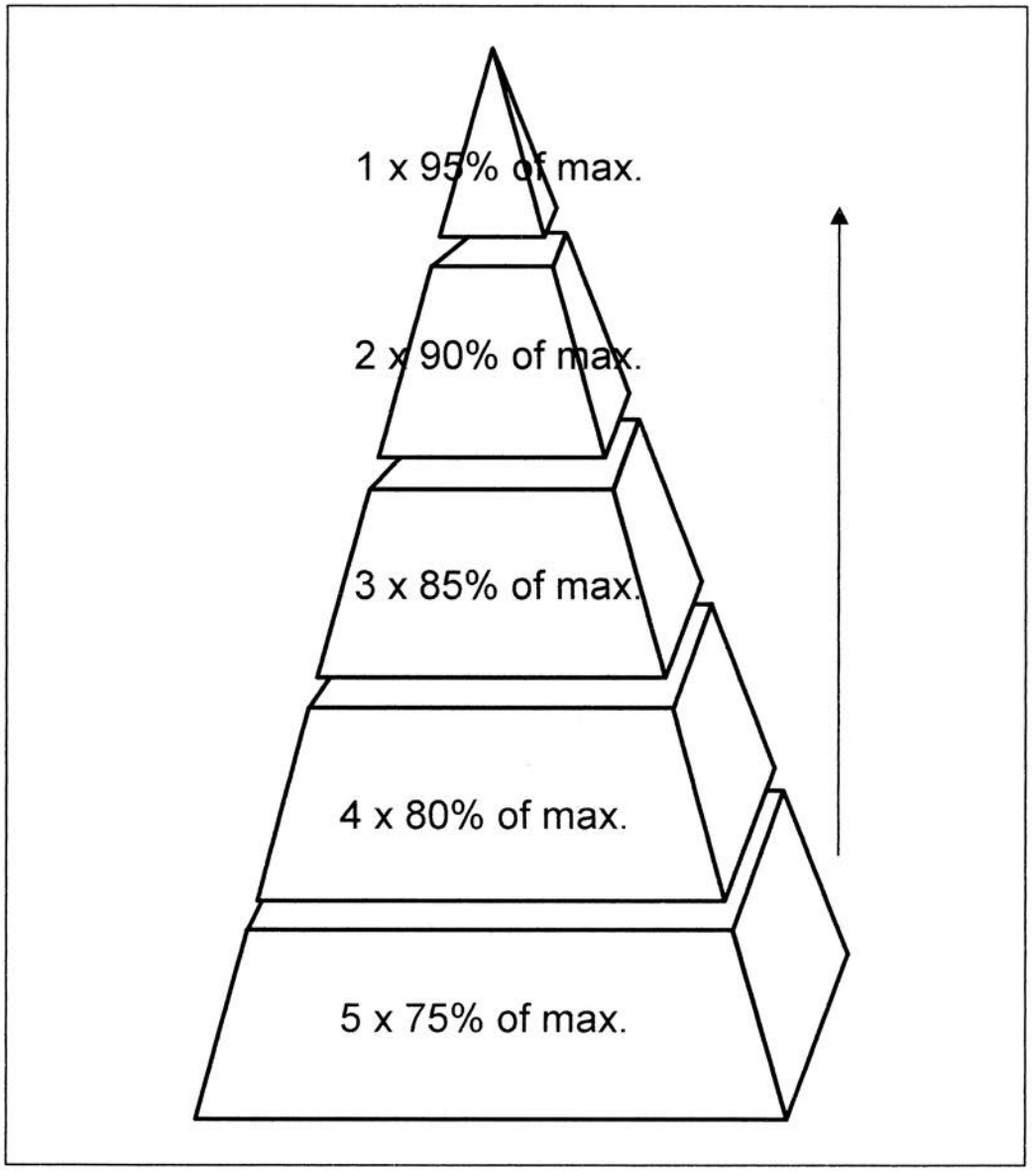


Fig. B

Weight Training

"Top-pyramid" training

FISA The International Rowing Federation

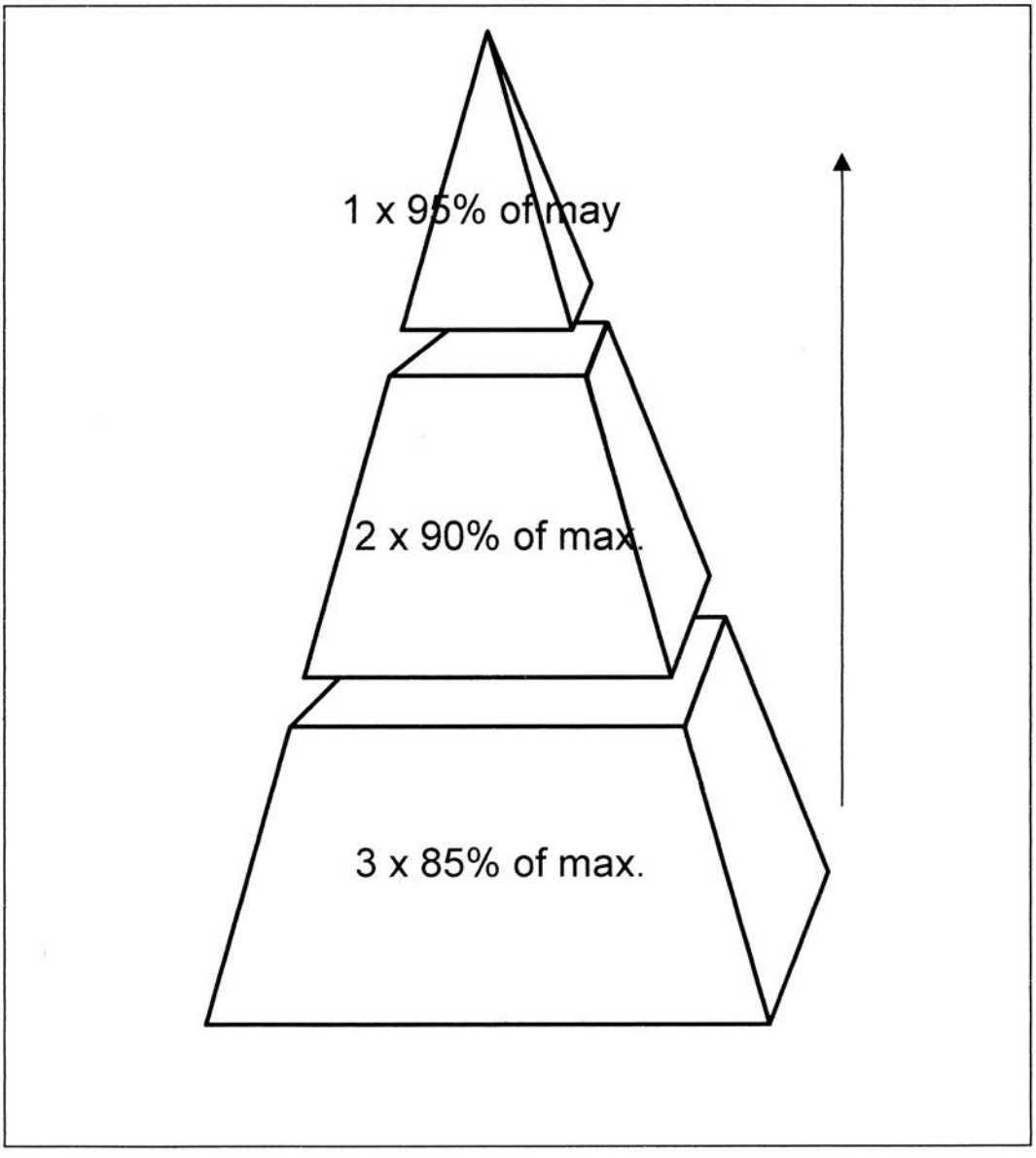


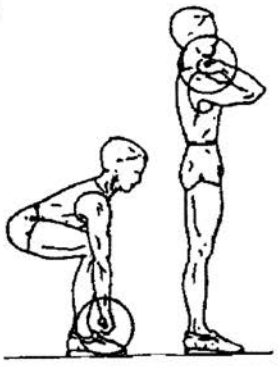
Fig. C

Weight Training

Endurance

FISA The International Rowing Federation

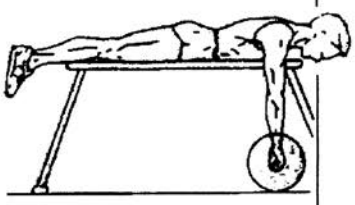
A



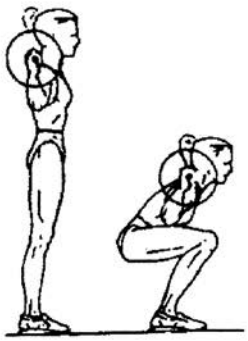
Exercise A and B

Load:
35-45% of max
Series: 3
Rep: 60-80
Rate: 20-26
Rest: 3-4 Min.

B



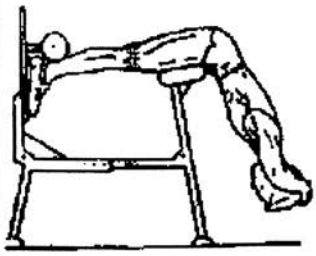
C



Exercise C

Load:
35-45% of max
Series: 3
Rep: 60-80
Rate: 20-24
Rest: 3-4 Min.

D



Exercise D and E

Load:
0-5 kg.
Series: 3
Rep: D/40 E/50
Rest: 3-4 Min

E

Fig. D