STROKEARCS

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TRAINING ADVISE

What Is The Stitch?

Stitch is a localised pain usually felt on the side, just below the ribs. It is sometimes accompanied by a stabbing pain in the shoulder joint. The pain can range from sharp or stabbing to mild cramping, aching or pulling. Sometimes people can exercise through the pain, but usually the sufferer is forced to slow down or cease exercise.

The pain usually eases within a few minutes after exercise has stopped, however, some people experience some residual soreness for a few days, especially after severe pain. Stitch seems to be more prevalent in activities that involve vigorous, upright, repetitive movement of the torso. Activities such as running (particularly when going downhill) and horse riding may be more prone to causing stitch, but it can occur as a result of any type of activity.

What causes stitch?
Scientists are unsure of the exact cause of stitch. For some time, stitch was thought to be caused by a reduction in blood supply to the diaphragm, a large muscle involved in breathing. It was thought that during exercise, blood was shunted away from the diaphragm and redirected to exercising muscles in the limbs. This theory has now lost favour with scientists. Both the diaphragm and the limb muscles have to work harder during exercise, so it is unlikely that an inadequate blood flow would be directed to them.

Another popular theory is that stitch is caused by organs pulling on the ligaments that connect the gut to the diaphragm. Ligaments that support organs such as the stomach, spleen and liver are also attached to the diaphragm. Jolting during exercise may cause these organs to pull on the ligaments and create stress on the diaphragm.

A more recent idea is that stitch is caused by irritation of the parietal peritoneum. Two layers of membrane (peritoneum) line the inside wall of the abdominal cavity. One layer covers the abdominal organs. The other layer (parietal peritoneum) attaches to the abdominal wall. The two layers are separated by lubricating fluid, which allows the two surfaces to move against each other without pain.

The parietal peritoneum is attached to a number of nerves. It is thought that stitch occurs when there is friction between the abdominal contents and the parietal peritoneum. This friction may be caused by a distended (full) stomach or a reduction in the lubricating fluid.

Eating and drinking inappropriately before exercise, causing a full stomach or dehydration, may exacerbate stitch. Poor fitness, an inadequate warm-up and exercising at high intensity may also be factors. A sudden change in biomechanics, such as increased stride length or frequency, may increase the risk of stitch by affecting the way the torso moves.

How can I avoid stitch?
Eating just before exercise or consuming inappropriate foods and fluids seem to exacerbate the stitch. High-fat foods, and foods and fluids with a high sugar concentration are more likely to cause problems. The likelihood of stitch occurring may be reduced by allowing two to four hours before exercising after a large meal and choosing high-carbohydrate, low-fat and moderate to low-protein options in the pre-exercise meal. During exercise, it is possible that a full stomach contributes to stitch. Concentrated fluids such as soft drink and cordial empty slowly from the stomach, therefore are likely to lead to a fuller stomach. Water and sports drinks empty more quickly and are a better option. It is also preferable to adopt a pattern of consuming small amounts of fluid at frequent intervals during exercise, rather than trying to drink large volumes all at once.

Stitch may also be minimised by following a training schedule that progressively increases in intensity and duration. Sudden increases in intensity are likely to cause stitch. It is better to start at an easy level and slowly build up.

How should stitch be treated?
Sometimes stitch eases if the athlete slows down and reduces the intensity of exercise for a period. However, the most common way to alleviate stitch is to bend forward while pushing on the affected area and breathing deeply.

Sometimes this can be done while exercising, but usually the pain eases more quickly when exercise stops. Another option is lying down and elevating the hips.

Does stitch indicate a more serious problem?
The stitch is rarely a sign of more serious problems. However, any pain that is persistent and does not ease when exercise ceases should be investigated by a doctor. For more information on this or related topics, visit the Australian Institute of Sport nutrition web site at www.ais.org.au/nutrition.

STRENGTH TRAINING

STRENGTH GOALS FOR MASTERS ROWERS

This is the third part of the series of articles that started with How Strong is Strong Enough. You should refer back to that article for the background information on the development of strength goals for rowers. The four points at the end of the article apply to masters as well as younger rowers.

Strength is important for rowers. It is even more important for Masters rowers. As I discussed in a previous article the start, where strength is most important, is a much larger

part of a 1000 m race than a 2000 m race. You don't have the time to make up the distance you could lose if you aren't strong off the start.

The strength factor tables below are based on the ideal strength level of younger club rowers and corrected for age. This was done to accommodate the greatest number of masters rowers possible. Basing these strength goals on international competitors would not create a realistic picture of the strength level a masters rower needs to be competitive against their peers.

Using the Tables
To use the table take your body weight and multiply it by the appropriate factor. If you were a 200 lb. 43 year old male rower you should be able to bench pull 176 lbs. one time (200 lb. Bodyweight x 0.88 strength factor = 176). If you currently are able to meet these goals you can focus your training on other areas. If you can't meet these goals strength may be one of the things holding back your performance.

Strength Concepts for Masters
1. Balanced Approach
While there are only strength factors for three exercises it doesn't mean these are the only three exercises that you do. Rowing strength exercises can be broken into two major categories, Specific and General. I will provide a brief outline of these categories in this article and provide a more detailed look at the exercises in the near future.

Specific exercises are those that are intended to strengthen all or part of the rowing stroke or that improve explosive power that can be converted to boat speed. Specific exercises can include traditional weight room exercises and rowing simulation exercises like a can or bungee row. Specific weight room exercises include cleans, deadlift, squats, front squats, bench pull, back extensions and seated row. It is tempting to build a program using only specific exercises. After all, these are the exercises that simulate part of the rowing stroke. Specific exercises will only improve rowing performance when they are balanced with the proper mix of general exercises.

Men

	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+
Squat	1.37	1.30	1.2	1.15	1.03	0.95	0.82	0.60
Deadlift	1.37	1.3	1.2	1.15	1.03	0.95	0.82	0.60
Bench Pull	1.02	0.98	0.94	0.88	0.78	0.71	0.62	0.45

Women

	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+
Squat	1.22	1.16	1.08	1.00	0.91	0.80	0.72	0.50
Deadlift	1.22	1.16	1.08	1.00	0.91	0.80	0.72	0.50
Bench Pull	0.93	0.88	0.82	0.76	0.69	0.60	0.55	0.38

General exercises help prevent injury and develop stability and balance. Muscle imbalances, either bilateral (differences between right and left side) or agonist/antagonist (muscles that are on opposite sides of a joint), have been implicated in the development of injury. Several studies have found that a muscle imbalance of greater than 10% increases the risk of injury by 20 times. Other researchers found that all their subjects with a strength imbalance of 25% or more developed an injury in the weaker leg.

Muscle imbalances are a serious problem for rowers. Sweep rowing in particular causes the oarside leg to become stronger and non-oarside trunk muscles to become over developed. The quads and hip flexors become strong and inflexible while the glutes and hamstrings remain relatively weak. The same thing happens with the back and abs. The number of general exercises that can be done is almost limitless. Stability ball exercises, step ups, split squats, snatch squats, bench press, arm curls, tricep extensions, rotator cuff exercises, trunk rotations and leg curls are some of my favorites.

It is important to include a specific and general exercises in a program. Choose exercise for the muscles on both the front and back of the body. Always make sure to train both the right and left sides equally. If you are strength training 3-4 times per week you don't need any more than six exercises per training session. Select two specific and four general exercises.

2. Machines vs. Free Weights
From the e-mail I have received I get the impression that many Masters us machines for strength training. I am not a fan of most strength machines for rowers. Some like a lat pulldown machine, seated row or leg curl have their place but they should not make up the majority of a program. The movement path is fixed in machines this means that the muscles don't have to work to stabilize the weight during exercise. The small deeper layers of muscle that provide balance and stability in the boat never get trained with machines. These small muscles become the weak link in your rowing strength and prevent you from transferring the strength you develop in the weight room to the water.

In addition, most machines don't allow the right and left to work independently. The stronger side will often take more of the load, leading to greater and greater muscle imbalances

and increasing your risk of developing an injury. I understand that many people use machines because they are easier to use than free weights and they may not know the right way to do a free weight exercise. Others have been given machine exercises by the trainer at their local gym. It is in your best interest as a rower to take the time to learn how to do at least some free weight exercises. The balance, stability, and athleticism used in free weight training will have a greater impact on your rowing performance and injury prevention than any machine.

3. Strength Train All Year

If you strength train during the winter months and then stop once you get back on water any strength gains you've made will be lost within 6-8 weeks. This may be fine if you are rowing for fun and fitness but if you are competing and trying to improve your race times you need to keep your strength during the season. I have always found it a little strange that many rowers are their strongest on the first day they get on water and weakest for their final, and often most important, race of the year. You will need at least 16 weeks of winter strength training to see appreciable gains that will transfer to rowing performance.

Once you get back on water you will need 1-2 days a week of strength maintenance training. If you notice the weight you are using during the maintenance training starts to decrease you are losing strength and will need to increase the amount of strength work for 2-3 weeks or until strength returns to normal.

DOPING

Why We Should Allow Drugs in the Olympics

This is a very controversial article on the war on Doping in Sport. I wanted to include it as it raises some interesting views regarding the way in which people think about the issues. – Jamie

In 490 BC, the Persian Army landed on the plain of Marathon, 25 miles from Athens. The Athenians sent a messenger named Feidipides to Sparta to ask for help. He ran the 150 miles in two days. The Spartans were late. The Athenians attacked and, though outnumbered five to one, were victorious. Feidipides was sent back to run back to Athens to report victory. On arrival, he screamed 'We won' and dropped dead from exhaustion.

The ancient Olympics ran every four years between 776 B.C. and 394 A.D., when they were banned by the Romans. The first new games were held in Athens in 1896. Now in 2004 the Olympics returns to its home. But this time it will be very different. Many athletes now compete on a drug cocktail. Scandals are already rocking the Olympics. Long gone is the ideal of Feidipides running barefoot from Marathon, a test of brute human endurance, courage and spirit.

Drugs in Sport

Performance enhancing drugs, however, have been around a long time. Early Olympians used extracts of mushrooms and plant seeds. From the 50s, amphetamines caused several deaths. East German swimmers won 11 out of 13 Olympic events in 1976 on steroids. In the 1988 Seoul Olympics, Ben Johnson was stripped of his 100m gold medal after testing positive for steroids. It hardly raises an eyebrow now when some famous athlete fails a dope test.

Attempts to eliminate drugs from sport have patently failed. And will fail. The drive to perfect performance is too great. *Sports Illustrated* surveyed past and aspiring Olympians. They were offered an imaginary banned drug with the guarantee that they would not be caught and that they would win. 195 said they would take it. 3 said they would not. [US physician Michel Karsten, who prescribed steroids to hundreds of world class athletes, stated, "There may be some sportsmen who can win gold medals without taking drugs, but they are very few. If you are especially gifted, you may win once, but from my experience you can't continue to win without drugs, the field is just too filled with drug users."

Drugs like EPO and growth hormone are natural chemicals in the body. As technology advances, drugs have become harder to detect because they mimic natural processes. In a few years, there will be many undetectable drugs. The goal of "cleaning" up the sport is hopeless. Further down the track the spectre of genetic enhancement looms dark and large.

Condemned to Cheating?

So is cheating here to stay? Drugs are against the rules. But we define the rules of sport. If we made drugs legal and freely available, there would be no cheating. But would it be against the "spirit of sport", as Raelene Boyle has said?

Human sport is different to sports involving other animals, like horse or dog racing. The goal of a horse race is to find the fastest horse. Horses are lined up and flogged. The winner is the one with the best combination of biology, training and rider. Basically, this is a test of biological potential. This was the old naturalistic Athenian vision of sport – find the strongest, fastest or most skilled man. Training aims to bring out this potential. Drugs which improve our natural potential are against the spirit of this model of sport. But this is not the only view of sport.

Humans are not horses or dogs. We make choices and exercise our own judgement. We choose what kind of training and how to run our race. We can display courage, determination and wisdom. We are not flogged by a jockey on our back but drive ourselves. It is this judgement that competitors exercise when they choose diet, training and whether to take drugs. We can choose what kind of competitor to be, not just through training, but through biological manipulation. Human sport is different to animal sport because it is creative. Far from being against the spirit of sport, biological manipulation embodies the human spirit – the capacity to change ourselves on the basis of reasons and judgement.

When we exercise our reason, we do what only humans do. The result will be that the winner is not the person who was born the best genetic potential to be strongest. Sport would be less of a genetic lottery. The winner will be the person with a combination of the genetic potential, training, psychology and judgement. Olympic performance would be the result of human creativity and choice, not a very expensive horse race.

Unfair?

Carl Lewis once said, " To be the best, work the hardest." Wouldn't it be wonderful if the fairy tale were true? Sadly, it is not. People do well at sport as result of the genetic lottery that happened to dish them up a good hand. Genetic tests are available to identify those with the greatest potential. If you have one version of the ACE gene, you will be better at long distance events. If you have another, you will be better at short distance events. Black Africans do better at short distance events because of biologically superior muscle type and bone structure. Sport discriminates against the genetically unfit. Sport is the province of the genetic elite (or freak).

The starkest example is the Finnish skier Eoro Maentyranta. In 1964, he won 2 gold medals. Subsequently it was found he had a genetic mutation that meant that he " naturally" had 40-50% more red blood cells than average. Was it fair that he had significant advantage given to him by chance?

The ability to perform well in sporting events is determined by the ability to deliver oxygen to muscles. Oxygen is carried by red blood cells. The more red blood cells, the more oxygen you can carry. Erythropoietin (EPO) is a natural hormone that stimulates red blood cell production, raising the haematocrit (HCT) – the percentage of the blood comprised by red blood cells. EPO is produced in response to anaemia, haemorrhage, pregnancy, or living at altitude. At sea level, the average person has an HCT of 40-50%.

HCT naturally varies. 5% of people have a HCT above 50%. Raising the HCT too high can cause health problems. Your risk of harm rapidly rises as HCT gets above 50%, especially if you also have high blood pressure. In the late 80s, several Dutch cyclists died because too much EPO made their blood too thick. When your HCT is over 70%, you are at high risk of stroke, heart and lung failure.

Use of EPO is endemic in cycling and many other sports. In 1998, the Festina team was expelled from the Tour de France after trainer Willy Voet was caught with 400 vials of performance-enhancing drugs. The following year, the World Anti-Doping Agency (WADA) was established as a result of the scandal. However, EPO is extremely hard to detect and its use has continued. Members of the Chinese swim team, which won four swimming gold medals at the 1992 Barcelona Olympics and then took 12 of 16 women's titles at the 1994 world championships, have used EPO (along with testosterone, anabolic steroids and growth hormone).

In addition to trying to detect EPO directly, the International Cycling Union requires athletes to have a HCT no higher than 50%. But five per cent of people have a HCT greater than 50%. Athletes with a naturally elevated level of HCT cannot race unless doctors do a number of tests to show that their HCT is natural. Charles Wegelius was a British rider who was banned and then cleared in 2003. He had had his spleen removed in 1998 following an accident - since the spleen removes red blood cells, this increased his HCT.

There are other ways to increase the number of red blood cells which are legal. Altitude training can push the haematocrit to dangerous, even fatal, levels. More recently, hypoxic air machines simulate altitude training. The body responds by releasing natural EPO and growing more blood cells, so that the body may absorb more oxygen with every breath. According to Tim Seaman, a US athlete, the hypoxic air tent has " given my blood the legal 'boost' that it needs to be competitive at the world level."

There is no difference between elevating your blood count by altitude training, by using a hypoxic air machine or by taking EPO. But the last is illegal. Some competitors have high HCTs and an advantage by luck. Some can afford hypoxic air machines. Is this fair? Nature is not fair. Ian Thorpe has enormous feet which give him an advantage which no other swimmer can get, no matter how much they exercise. Some gymnasts are more flexible, and some basketball players are seven feet tall. By allowing everyone to take performance enhancing drugs, we level the playing field. We remove the effects of genetic inequality. Far from being unfair, allowing performance enhancement promotes equality.

Unsafe?

Should there be any limits to drugs in sport? There is one limit: safety. We do not want an Olympics in which people die before, during or after competition. What matters is health and fitness to compete. Rather than testing for drugs, we should focus more on health and fitness to compete. Forget testing for EPO; test for haematocrit. We need to set a safe level of HCT. Currently that is 50%. Anyone above that level, whether through the use of drugs, training or natural mutation, should be prevented from participating on safety grounds. If someone naturally has a HCT of 60% and is allowed to compete, then that risk is reasonable and everyone should be allowed to increase HCT to 60%. What matters is what is a safe level of growth hormone – not whether that is natural or artificial.

We need to take safety more seriously. In the *Sports Illustrated* survey, athletes were also asked whether they would take a banned drug if it was guaranteed that they would not be caught and that they would win every competition they entered for the next five years, but then die from the side-effects of the substance. More than 50% of the athletes said yes. We should permit drugs that are safe, and continue to ban and monitor drugs that are unsafe. There is another argument for this policy based on fairness: provided a drug is safe, it is unfair to the honest athletes that they have to miss out on an advantage that the cheaters enjoy.

Taking EPO up to the safe level, say 50%, is not a problem. This allows athletes to correct for natural inequality. There will of course be some drugs which are harmful in themselves (anabolic steroids)– we should focus on detecting these because they are harmful not because they enhance performance.

Far from harming athletes, paradoxically such a proposal may protect our athletes. There would be more rigorous and regular evaluation of athlete's health and fitness to perform. Moreover, the current incentive is to develop *undetectable* drugs, with little concern for safety. If safe performance enhancement drugs were permitted, there would be greater pressure to develop *safe* drugs. Drugs would tend to become safer.

Just for the rich?
Would this turn the Olympics into a competition of expensive technology? Forget the romantic ancient Greek ideal. The Olympics is a business. In the 4 years prior to the Sydney Olympics, Australia spent $545 million on its athletes. On the basis of that expenditure, economists predicted that Australia would win 14 gold, 15 silver and 33 bronze. The final medal tally was close: 16 Gold 25 Silver 17 Bronze. A gold medal costs about $40 million. Australia came 4th in the medal tally in Sydney despite having the 52nd highest population. Neither our multicultural genetic heritage, nor our flat landscape and desert could have endowed us with any special advantage. We won because we spent more. Money buys success. We have already gone down the road of embracing expensive technology.

Paradoxically, permitting drugs in sport could reduce economic discrimination. The cost of EPO is around $150 month. The cost of a hypoxic air machine is around $10 000. Drugs are going to be more accessible than expensive technology and training facilities.

Test for health, not drugs
The welfare of the athlete must be our primary concern. But if drugs do not expose an athlete to an excessive risk, we should allow them even if they enhance performance. We have two choices: to vainly try to turn the clock back. Or to rethink who we are and what sport is, and to make a new 21st Century Olympics. Not a superolympics but a more human Olympics. Our crusade against drugs in sport has failed. Rather than fearing drugs in sport, we should embrace them.

Performance enhancement is not against the spirit of sport; it *is* the spirit of sport. To choose to be better is to be human. Athletes should be the given this choice. Their welfare should be paramount. But taking drugs is not necessarily cheating. The legalization of drugs in sport may be fairer and safer.

NUTRITION

MAKING WEIGHT & SPORTS PERFORMANCE

What is Making Weight
'Making weight' is the practice used by weight-class athletes to lose weight in order to compete. In weight-class sports, which include, among others, boxing, lightweight rowing, weightlifting, wrestling, judo and other combat sports, athletes must meet a certain weight classification to compete. Patterns of weight fluctuation vary among athletes. Some athletes chronically maintain a low body weight, whereas others lose weight for the competitive season and regain in the off-season. Conversely, some sports such as the Olympic sailing classes appear to have an optimum competitive weight, which may require athletes to gain weight to perform effectively (McCargar et al 1993).

Table 1: Physiological Effects of Dehydration

% Body Weight Lost as Sweat	Physiological Effects
2	Impaired Performance
4	Capacity for muscular work declines
5	Heat exhaustion
7	Hallucinations
10	Circulatory collapse and heat stroke

For a 70-kg person, a 2-3 percent fluid loss equates to 1.4 to 2-kg of body weight. (Greenleaf et al 1992)

How Do Athletes Make Weight
If an athlete needs to 'make weight' for a competition, the most common weight reduction strategy is rapid weight loss (within the week before the competition). Weight loss methods are varied and include severe dieting or starvation, fluid restriction, passive (sauna) or active (exercise in "sweat suits) dehydration, and the use of diuretics, laxatives, or self-induced vomiting. These rapid weight-making techniques reduce weight, principally by decreasing body fluids, food in the gastrointestinal tract and muscle energy stores (Fogelholm, 1994).

Implicatons Of Rapid Weight Loss

• Dangers and effects of rapid weight loss
There are two major health risks involved in losing weight rapidly for athletic competition: malnutrition and dehydration. Dehydration is the excessive loss of water from the body, which results in impairments in performance and proper body function. Malnutrition is caused by inadequate intake of nutrients. Dehydration is the most acute and the most dangerous. When rapid weight loss techniques are used, primarily water and lean body mass is lost, not fat. Muscle carbohydrate stores (glycogen) and muscle water are decreased. This impairs temperature regulation and cardiovascular function. A rapid reduction in weight will affect strength and endurance capacity and ultimately impact on performance. Rapid weight loss may result in psychological changes that influence performance negatively (Brownell et al, 1987).

• Short term consequences
There are a number of consequences associated with rapid excessive weight loss, which include mood swings, lack of energy and lack of motivation, which can all

contribute to impairments in performance (Table 1). An athlete will have less energy, slowed metabolism, loss of muscle mass, strength, power and a reduced endurance capacity leading to underperformance. Additionally, there is an increased risk of mental and physical exhaustion. The most extreme consequence of rapid excessive weight loss (of greater than 10%) may result in collapse and possible death. In 1997, three collegiate wrestlers died, while attempting rapid weight loss for their weight-class certifications (MMWR, 1998).

• Long term consequences

Athletes who strive to maintain body weight or body fat levels that are inappropriate, or have body-fat percentages below minimal, may be at risk for an eating disorder, such as anorexia nervosa or bulimia nervosa, or other health problems related to poor energy and nutrient intakes. The levels of body fat considered to be minimal levels compatible with good health are 5% for males and 12% for females (Lohman, 1992). However, the ranges of body fat for athletes vary by sport and by gender within a sport. Athletes should typically aim to maintain body fat levels within ranges of 8–12% for males and 16–20% for females. In addition, vitamin and mineral deficiencies may develop long-term due to an inadequate nutrient intake, and an athlete may experience changes to hormonal and metabolic function. These consequences not only damage athletic performance but may also have serious overall health implications.

• Dehydration

Dehydration is often used as a quick way to 'make weight'. Rapid weight loss by fluid restriction leads to dehydration—not fat loss. Fluid loss of as little as 1% of body weight (0.7 kg in a 70 kg person) has shown to decrease endurance performance. Rehydration strategies may negate this effect where sufficient time is allowed. Small to moderate water losses (2% to 4% of body weight) result in reduced maximal aerobic capacity (VO2max). A 2% decrease in body weight has been shown to impair endurance performance by 20% (Ivy et al 1988). Yet, in boxing, a 2% rapid weight loss strategy is relatively common without appropriate subsequent rehydration (Smith et al, 2000).

As the percentage of body weight lost as a result of fluid reduction increases, so too do the dangerous consequences of dehydration caused by the inability of the body to effectively regulate temperature. Dehydration increases the risk of heat injury, including muscle cramps, heat exhaustion, and heat stroke. Early signs of dehydration include nausea, dizziness, fatigue, and difficulty concentrating. Though you can largely rehydrate in 12 hours, it takes 24 - 48 hours for full rehydration.

It should be noted that if 1kg has been lost then rehydration of up to 1.5 litres of fluid is appropriate when also taking into consideration the production of urine. In these instances, isotonic drinks are the favoured option as the body absorbs them more readily than water and less of the fluid is lost in urine production

Note: Diuretics and Vomiting

As well as loss of fluid, diuretics also give rise to a loss of sodium and chloride from the blood, and potassium and magnesium from muscle cells. Losses of minerals and water increase the risk of muscle cramps and spasm.

The use of diuretics is not recommended, and is banned by many sports federations, including the IOC. Similarly, athletes who use vomiting and diarrhoea to lose weight rapidly not only induce dehydration but also cause excessive mineral loss with accompanying muscle weakness and impaired neuromuscular function.

Healthy Weight Loss

The healthiest way to lose weight is slowly, which is planned and controlled over a prolonged period of time and allows proper hydration and good nutritional practices. The only way to safely and effectively lose fat and preserve muscle is through modest calorie restriction and exercise.

Crash dieting is unhealthy for your body and detrimental to your performance.
An athlete should not reduce their energy intake below 1200–1500 kcal/day (4–6 MJ per day) unless supervised by a sports dietician (American Heart Association, 1994)

Weight Cycling

Repeated cycles of weight loss and regain is referred to as 'weight cycling.' In addition to impaired athletic performance, other consequences of weight cycling include a decrease in resting metabolic rate (which makes it harder to lose weight the next time), altered body composition, with increased ratio of fat to lean tissue, altered fat deposition, with greater abdominal fat relative to femoral fat, altered hormone profiles and possible nutrient deficiencies.

Table 2: Calorie Content of Selected Foods

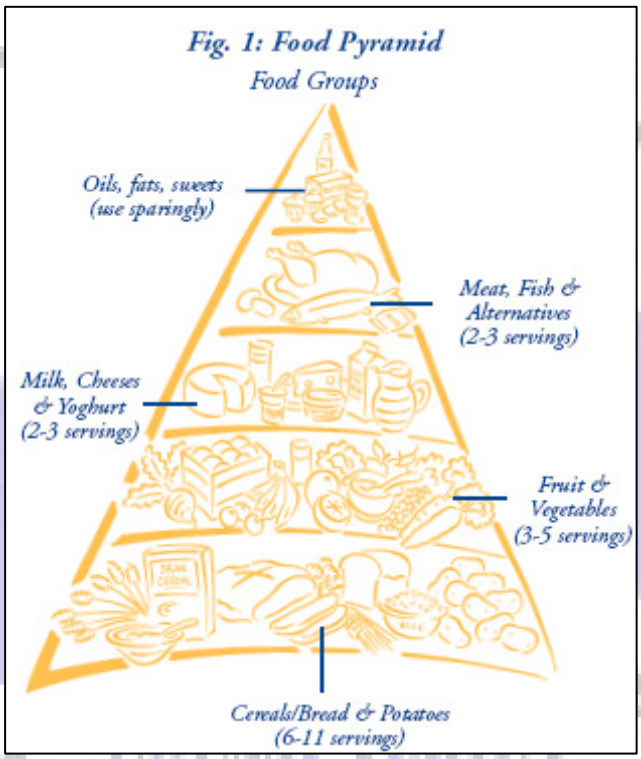
White bread	(1 slice)	78 Kcal
Butter	(average portion 10g)	74 Kcal
Low fat spread	(average portion 7g)	27 Kcal
Mayonnaise	(average portion 30g)	207 Kcal
Banana		95 Kcal
Apple		47 Kcal
Fig Rolls Bar	(34g)	130Kcal
Fig Rolls	(average portion 2 biscuits)	124 Kcal
Crisps	(30g bag)	159 Kcal
French fries/chips	(average portion)	308 Kcal
Cereal with whole milk	(average portion)	170 Kcal
Cereal with low fat milk		155 Kcal
Steak	(8oz lean, grilled sirloin)	239 Kcal
Potatoes	(3 average boiled)	126 Kcal
Potatoes	(mashed 3 scoops)	187 Kcal

Summary Points For Weight (Fat) Loss Or Making Weight

- Weight reduction/fat loss is best achieved by combining moderate food restriction with additional physical activity. This allows the athlete to train and compete optimally.
- Choose a body fat/weight that keeps you healthy in the long term and allows you to train and compete optimally.
- Choose a balanced diet, emphasising a high carbohydrate (60-70%) and a modest-low protein (10-15%) and fat (25-30%) intake.
- Eat a little less energy (kilojoules/calories) than you burn in training or competition to achieve a slight calorie deficit, and therefore a healthy weight (or body fat) loss. (Reducing food intake by 500 kilocalories/day
- should result in the loss of 1-2 lbs/week).
- Do not 'crash' diet.
- Be wary of times when weight (fat) levels may fluctuate more e.g. 'off season' or when injured. Monitor these changes and adjust your dietary intake and training to suit.
- Gradually reduce weight by setting realistic targets (not more than 0.5-1.0 kg [1-2 lb] per week) each week.
- Monitor your weight regularly, at the same time of day using accurate scales.
- Seek professional advice from a sports dietician and a sports scientist on dietary requirements for your sport, or whether a weight category or body fat level is realistic for your physique.

Athletes Who May Require Specialist Weight Control Advise

- Athletes returning from injury or a break from their sport where inactivity has lead to body fat/weight gain.
- Athletes competing in a weight-controlled sport who wish to compete in a weight division that is below their current weight, e.g. Boxing, weight-lifting, light-weight rowing, wrestling.
- Athletes competing in an endurance sport or power sport where a low body fat level and an increased power to weight ratio, is a physical advantage to performance, e.g. Distance running, cycling, triathlons, gymnastics.
- Athletes competing in a sport where leanness and low body fat levels are of aesthetic advantage, e.g. Gymnastics, diving, ballet, body building.
- Athletes competing in a skill-based sport where training hours are lengthy but essentially low-energy expenditure (and therefore do not contribute to a high energy turnover). The athletes may desire to lose weight for health and aesthetic reasons, e.g. Golf, archery.
- Athletes who have been required by their sport to move away from a stable home environment. These athletes may have poor cooking/food preparation skills, lead an irregular and/or disorganised life-style, and be reliant on takeaway and restaurant meals, e.g. Rugby and other team sports, tennis and other sports requiring extensive travel. Source:Burke, 1994



Recommendations

The daily caloric intake should be obtained from a balanced diet high in carbohydrates (60-70% of calories), low in fat (25-30% of calories) and adequate protein (10-15% of calories).

Handy Hints For Weight Loss

- The healthiest method of weight loss is to reduce weight gradually and to be as close as possible (ideally, no more than 1-2%) to the competition weight.
- It is very important to have a well balanced diet, which includes all nutrients in order to avoid any lack in particular nutrients.
- Refer to the food pyramid for the numbers of servings needed (Fig 1) for each food group per day.
- Athletes should at least consume the minimum number of recommended servings from each food group on the pyramid.
- In addition, consultation with a sports nutritionist/dietician may be important in order to individualise weight loss strategies.

WHAT IS A SERVING?

Bread, cereal, rice and pasta group

• 1 slice of bread
• cup of cooked rice or pasta (125g)
• cup of cooked cereal
• Medium bowl of breakfast cereal

Vegetable group

• cup of cooked or raw vegetables
• 1 cup of leafy raw vegetables
• 1 cup of tomato or vegetable juice (about 1 glass)
• Medium bowl of vegetable or tomato soup

Fruit group

• 1 piece of fruit (i.e. 1 banana, 1 apple etc.)
• or 1 piece of melon wedge
• 1 glass of juice (about 200ml)
• cup of canned fruit
• cup of dried fruit

Milk, Yoghurt and Cheese group

• 250ml milk or yoghurt (average glass is 200ml)
• 35g natural cheese (medium chunk)
• 60g processed cheese (3 slices)

Meat, fish, poultry, eggs, dry beans and nuts group

• 60-85g (2-3 oz) of cooked lean meat, poultry or fish (Examples: small portion of mince beef = 100g, average portion of roast beef = 100g, average chicken breast = 100g, slice of ham = 25g)
• cup of cooked dry beans
• 1 egg
• 3 tablespoons of nuts

Weight Gain

Gaining weight can be quite difficult. In addition, to the calories needed to meet the demands of training and competition extra calories are required to increase body mass. Similar guidelines to those found in the recommendations for athletes are advised, i.e. high in carbohydrate and moderate to low in fat and protein respectively (Burke and Inge, 1994). It is important to eat 6-8 times per day in order to gain weight. This should consist of 3 main meals and 3-4 snacks during the day. It should be noted, that although carbohydrate provides only 4 calories per gram
compared to fat, which provides 9 calories per gram. Athletes should still look to carbohydrate rather than fat to achieve weight gain. Fat is not the desirable or recommended energy source for athletes. Carbohydrate is the only fuel that can power intense exercise for prolonged periods. An additional 500 Kcal per day will result in weight gain of about 1-2 lbs per week. However, where increased amounts of carbohydrate is being consumed in the absence of activity, it should be noted that carbohydrate may be converted to fat which subsequently would result in increased
levels of body fat. Resistance training is essential for athletes looking to gain muscle mass rather than fat. Weight training stimulates muscle growth when adequate energy is available. It is of importance to note, when engaging in weight training programmes, that adequate rest and sleep is imperative for muscle growth and regeneration.
Protein requirement is slightly increased when resistance training is increased. However, a diet containing meat, poultry, fish and dairy products more than meets this slight increase in demand. Athletes consuming a well balanced diet do not need protein supplements to increase muscle mass. In fact such supplements often result in fat deposition rather than increased muscle mass.

Endurance athletes require about 1.3-1.4g of protein per kg of body weight (for a 100 kg athlete this is about 135g of protein per day). Strength athletes require between 1.4-1.8g of protein per kg of body weight (for a 100kg athlete this is about 160g protein per day).

Handy Hints for Weight Gain

- Athletes should plan in advance and have snacks on hand in gear bags, cars etc. eg. bananas, sandwiches or Fig Rolls bars.
- Athletes should consume a certain amount of their calories from liquid, to contribute to the increase in calorie intake and consequently weight gain, e.g. Squashes or cordials (non-sugar free), sports drinks (up to a litre a day), fruit juices, banana/fruit smoothies, yoghurt based drinks.
- In order to gain weight this increased food intake should be carried out consistently. If weight gain practice is only carried out 3 days per week and then forgotten about, it will negate the weight gain process. Consistency is important to gain weight effectively. Keep a diary of daily food intake along with a record of rest taken. This helps to monitor the additional calorie intake.
- Athletes need to eat, drink, rest and carry out relevant training, i.e. NOT additional or other activities, in order to allow the process to occur.
- Use of legal supplements should only be considered after consultation with a sports doctor or nutritionist.
- A specific hypertrophy (muscle building) weight-training programme should be incorporated. For specific information you should consult a strength and conditioning specialist.
- Seek advice from a nutritionist or a sports dietician for individualized diet plans.

Further Reading

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SPORTS MEDICINE

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Common autumn and winter illnesses can generally be split into two groups; those that only affect the lining of the nose and throat (colds and upper respiratory tract infections (URTIs)), and more serious infections where the virus or bacteria cause more widespread symptoms. The symptoms for colds and URTIs are generally localised to above the neck and include dry sore throat, nasal congestion and/or runny nose, sneezing and slightly swollen glands. If, in addition to the above symptoms, there is a significant rise in resting heart rate (greater than 20%), significantly swollen glands, cough, general aches, fever and fatigue then a more serious infection is likely to be present.

For colds and URTIs localised to above the neck, light exercise will help to speed recovery. This should be performed at a very low intensity (lower than UT2) for between five and seven days, until the symptoms have disappeared. It is important that only light exercise is performed at this time. This could take the form of cross-training such as walking or very light cycling. If hard exercise is performed whilst symptoms are still present, there is a significant risk of delayed recovery and of secondary infection such as sinusitis or bronchitis. If the symptoms are no longer present following 5-7 days of easy exercise, then training can be gradually increased over a period of three days, with normal training being resumed between the eighth and tenth day.

In the presence of symptoms below the neck that suggest a more severe and widespread infection, a medical opinion should be sought and complete rest for between three and seven days must be taken. Most of these infections are caused by viruses and will not benefit from antibiotics, but occasionally there is a secondary bacterial infection and antibiotics may be given. When symptoms have reduced, such that aches, fever, fatigue and productive cough are no longer present, light exercise can be performed. This should be done for a further five to seven days, until all symptoms have disappeared. This can then be followed by an escalation of training up to normal levels over three days. A cough may persist for up to three weeks after a chest infection and very intensive exercise should be avoided until this resolves.

It is important to note that during the early stages of any infection, extra rest and regeneration strategies, as well as light exercise will help to speed recovery. This means drinking large volumes of fluid (> 40 ml of fluid per kilogram of bodyweight per day), eating a healthy diet, using relaxation techniques and increasing 'lifestyle rest' to help maximise recovery. Taking paracetamol or aspirin will help to alleviate symptoms but unfortunately will not speed recovery. You are most infectious at the start of a cold, so to avoid spreading the illness it may be prudent to avoid other members of the team during this time.

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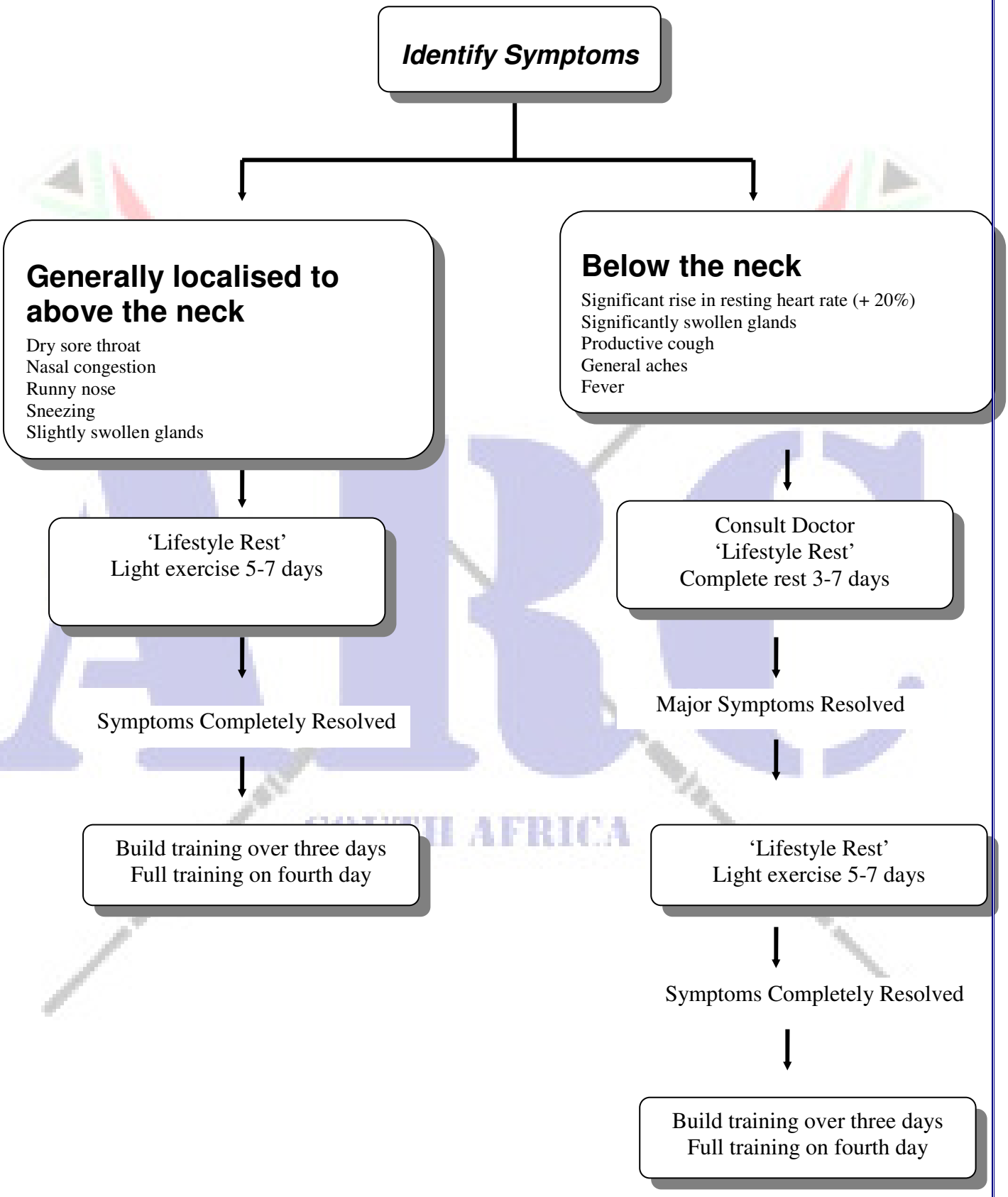

ROWING COACHES CONFERENCE 2007

THEME: GROWING ROWING IN AFRICA

Through the initiative of the International Rowing Federation (FISA) and with major support from RowSA, rowing has gained footholds in over 14 African nations

This conference will be structured to further strengthen the knowledge and experience of South African and African rowing coaches. Topics to be covered will be proper setting and rigging of boats for juniors, basic and advanced rowing physiology and rowing technique.

Guest speakers from Great Britain, Denmark and South Africa will present topics and will take part in discussion groups with attendees. Information from top international and national rowing equipment suppliers will be available.

DATES: Friday 21 September to Sunday 23 September

VENUE: University of Johannesburg, Bunting Rd Campus & University of Johannesburg, Soweto Campus

REGISTRATION: From 1st April 2007

COSTS: Provisional – R200.00 per person - to be finalized in March

Association of Rowing Coaches

Membership Application Form

First Name: _____

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Gender: _____

Nationality: _____

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Representation: International/National/Provincial:_____

This form must be completed and returned by fax to Jamie Croly (National Secretary) at 011 781 2987 or by Email at jcroly@stithian.com. You will be notified by email of the receipt and acceptance of the membership application.

Membership fee of R100.00 per year will be invoiced after membership has been accepted and processed.