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Editor

Dr Alan Pearce

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AUSSI Masters Swimming
148A Ferguson Street
Williamstown VIC 3016

Ph 03 9399 8861
Fax 03 9399 8863

ned@aussimasters.com.au
www.aussimasters.com.au

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Editorial

Welcome to the December 2001 edition of the AMSCN. As you may notice there is a new name at the bottom of this editorial. Our previous editor was Claire Reaburn, and I would like to take this opportunity to thank Claire for the excellent work she has done in making this newsletter interesting and enjoyable, and so popular among the Masters Coaching community.

So I guess your next question is "who is Alan Pearce?" Well, I've been a coach and sport educator for almost 17 years. My first coaching experiences were with badminton when I was 15 years old. Since then I have coached a number of different sports, mainly badminton where I have coached all ages and standards. My highlight of coaching so far has been that of assistant Olympic coach in 2000 for the national badminton team. However I have coached swimming at a junior level (enjoying it immensely) and also tennis at the state level. Currently I work at the Centre for Sports Studies at the University of Canberra, lecturing students at both undergraduate and postgraduate level in Coaching Theory and Practice.

Although I have never been an elite swimmer, I enjoy swimming as a participation activity, swimming at AUSSI clubs in both Perth (my original hometown) and Canberra (my new home).

I aim to continue with Claire's philosophy in making this newsletter as coach and swimmer

specific as possible. However, I would also like to introduce some new aspects into the newsletter that I am familiar with, such as strategies to improve your coaching effectiveness, ways to make training enjoyable for your elite athletes while not threatening your novice athletes, and developments in the coaching world, such as book reviews and Internet sites specific to coaching and swimming.

Coaching is such a rewarding activity and profession. Firstly, you interact with people face to face, no computerised voices or screens to deal with here. Also, the opportunities to travel with your squad are fantastic. To meet new people and make friends from across the world, and discover they are doing the same things in swimming as you are, is motivating in itself. However, the most rewarding aspect of coaching (for me) is that you, as the coach, have the opportunity to help people achieve their potential. Seeing people improve and achieve things that they never thought possible is what really drives me as a coach.

But the bottom line is that this newsletter is for you, the coach. I would welcome any thoughts or suggestions or even articles you think would be worth including in this newsletter. Please email or send them to Julia Phillips at the national office, or alternatively, please email me on alan.pearce@canberra.edu.au

Finally I wish you and your family a very Merry Christmas and all the best for 2002.

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Does Practice Make Perfect?

by Joseph Baker and Stephen Coble

School of Physical and Health Education, Queens University, Kingston, Ontario, Canada

You've heard the adage 'practice makes perfect'. Coaches and athletes know a lot about practice and training. It comes from the thousands of hours spent doing it. However, a new perspective on the benefits of practice recently presented in the field of expertise has the potential to change the way you think about training.

It revolves around a theory presented by K. Anders Ericsson from Florida State University (for more information see Ericsson 1998, Ericsson et al. 1993). The theory of 'deliberate practice' postulates that the difference between people who excel (experts) and people who do not excel (non-experts) in any field can be traced to the type of practice or training they perform. In training, experts spend more accumulated hours than non-experts in what he termed 'deliberate practice'.

Training activities classified as deliberate practice activities can be easily distinguished from other training activities. Deliberate practice activities (Table 1) require mental and physical effort, they are not the most enjoyable activities to perform, and they do not involve immediate gratification. Conversely, activities that are not deliberate practice include play type activities that rate high in fun and low in intensity.

To use an example from swimming, repetitive technique drills in the pool are usually not the most fun forms of swim training but they are quite valu-

able for improving technique. They require a great degree of mental effort and have little immediate gratification. By contrast, splashing around in the pool aimlessly can be great fun, very gratifying, and low in physical and mental effort, but probably has negligible effect in improving swimming performance.

A move to more 'deliberate practice' type activities corresponds with what many elite coaches have endorsed for years, that training should be heavy on quality rather than quantity. The purpose of deliberate practice is to improve the specific, competition-related skills that will net the greatest gains in performance. However, before changing your training approach to include only deliberate practice activities, consider that these activities require intense physical and/or mental effort and therefore cannot be sustained for long periods of time. In order to perform the amount of training required for athletes to make the physiological and psychological adaptations necessary for sporting success, it is probable that not all training will come in the form of deliberate practice.

In many sports, low intensity aerobic and weight training, while not deliberate practice per se, are essential for developing muscular strength and endurance as well as for refining the energy systems that will be used during competition.

Deliberate practice activities are also not confined to physical aspects of training. Sports such as rugby, cricket, and soccer involve high levels of decision-making, as well as a high degree of physical skill.

While skill and technical aspects can be more easily taught through instructional methods, the 'thinking'/mental and decision-making components are not so easy to instruct upon. More often the individuals who play a critical role in the athlete's performance development indicate that these elements can only be learned through performance experience.

Research across various professions indicates that evoking and increasing mental effort as part of practice is an essential

component for achieving expertise in activities that demand high levels of decision-making. Therefore, raising mental effort under deliberate practice conditions in instructional settings may be an important step for athletes with advanced skills. In summary, cognitive/ mental effort here refers to the mental work involved in problem solving and making decisions in the training and performance environment.

Incorporating more learner-focused approaches may have particular strength in developing athletes during intense periods of 'deliberate practice'. Coaches may be more aware of the physical approaches to improving performance, but facilitating mental effort in training requires consideration. Consider these suggestions for high strategy sports:

▶ Allow athletes to practise and perform in a variety of roles and positions. Interchanging between team members helps individuals to construct knowledge on how to attack or defend against opponents (eg a soccer 'winger' may develop ideas on attack by playing the role of an opposing defender).

▶ Construct practice to incorporate styles, tactics and strategies that will be used in competitive situations (eg in volleyball, manoeuvring the offensive set and methods of offence relative to various oppositions).

▶ Allow athletes to be involved in official, coaching, and leadership roles in game-play as part of deliberate practice. This provides athletes with insight on the various perspectives on performance.

▶ Encourage suggestion of personal ideas and allow trial and error in strategic decision-making elements of practice. Help facilitate decision and movement modification — for example, practising a new shot approach in a specific badminton game condition may facilitate the development of a variety of shots instead of a more predictable single shot option.

▶ Engage learners in periods of reflection on various aspects of practice (eg during and after

practice). Review individual and team dimensions if appropriate (eg in field hockey, reflect on strengths, weaknesses, and concerns of a 'set-piece' short corner performed in training, and then reflect upon its success in performance).

A practice diary or log may encourage athletes to review and reflect upon decisions made, as well as effecting on the traditional skill-related aspects of performance. Content should aim to develop the athlete's knowledge of their decisions and to facilitate expansion of appropriate decisions to performance situations. This approach may also help athletes to modify inappropriate decisions, strategies, and skills.

While these instructional strategies aim for you to reflect and refresh your practice objectives in facilitating the athlete to higher levels of attainment, some precautions have to be considered. It is understandable that being engaged in conditions of mental effort can be tiring, demanding and frustrating in some instances and so adjusting periods of involvement may be necessary. Another thing to consider is the possibility of overtraining. Because of the defining characteristics of deliberate practice (not the most fun activities to perform, require intense effort, and do not involve immediate gratification), an overemphasis

on these activities can easily lead to the training plateau and feelings of malaise associated with overtraining. Experiment by exposing athletes to these conditions by degree. Try breaking up the high physical and mental effort periods of deliberate practice with intermittent breaks or changes in activity. Shorter bursts of quality may be more beneficial to the athlete.

It is imperative that athletes acquire time to personally test and modify under practice conditions. Continuous intervention with feedback may only confuse and de-motivate athletes. Instead, reduce and summarise feedback after these periods while encouraging reflection. During instances of feedback and communication between group members a sense of trust, honesty and confidentiality has to be perceived if periods of reflection are to have influence and benefit. Improving decision-making and mental effort often engages athletes in constructive critiques of themselves, their teammates and their opponents to facilitate performance. Here, the coach plays an important role for creating the appropriate conditions.

More commonly, coaches may be required to assist athletes in maintaining motivation and help ensure 'quality-effortful' practice despite frequent stretches of often-meagre results. Adjusting

practice and coach roles within practice (eg providing a source of competition as well as advice) may help athletes overcome problems in learning and ensure continual high standards in practice (Salmela 1996). Striking the appropriate balance between meaningful, strenuous training and active or complete rest may be the coach's most important role. Careful introduction of more focused deliberate training may be what it takes to push you and your athletes to the next level of sporting success.

References

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Table 1: Identification of Deliberate Practice Activities in Swimming

| Deliberate practice | Non-deliberate practice |
|--------------------------------|---|
| Interval training of all types | Recovery workouts |
| Drills for stroke improvement | Training swims (moderate/low intensity) |
| Time trials | Long swims done for distance |

Joe Baker and Stephen Coble are graduate students at Queens University: Joe Baker is examining physiological and psychological components of expertise in ironman triathletes, Steve Coble is investigating the optimal practice conditions of expert coaches.

Masters Sport

Why do we do what we do?

by Dr John Dodd

Introduction

Masters sport is a phenomenon of the late 1900s, there being a large population of participants and a wide range of masters sports with participation available at local, regional, state and national levels. Current trends indicate that participation in masters sport is likely to increase in the future as the community ages and becomes more aware of the importance of maintaining a physically active lifestyle and as governments see opportunities to reduce health costs in the longer term.

The majority of masters sports research is concerned with the physiological aspects of aging and the effects on sports performance. In contrast there has been little interest in examining the motivations of masters sports participation, particularly in the two broad areas of intrinsic (such as ego and/or competition goals) or extrinsic (social approval and/or external rewards) motivational patterns. Table 2 shows categorized intrinsic and extrinsic goals for participating in masters sport. Research concerned with general, non-sporting populations and life cycle stages indicate that in younger men, extrinsic rewards such as recognition and status are stronger motivating influences, weakening with age. With age, achievement motivation of men is seen as being increasingly concerned with competence and intrinsic reward.

Therefore the research question posed in this study was "are motivating influences in general male populations reflected in male athletes participating in masters sport?" Information regarding the motivations of masters sportsmen would enable coaches to understand and be sensitive to the psychological

needs of masters athletes at various ages. This information could be instrumental in attracting adult males to sports activities (such as AUSSI masters) and ensuring adherence to training and competition regimes.

Participants and Results

All male members (1000 participants) of the New South Wales branches of AUSSI Masters Swimming and the veteran athletics association were approached to participate in the study. Responders (73% of the total number originally approached) of the questionnaires were clustered into four age groups: 20-39 years; 40-45 years; 46-59 years; and 60-90 years.

Results revealed a number of interesting findings. Firstly, unlike research in non-sporting populations, intrinsic motivation does not vary across age-groups, in other words younger masters athletes were equally motivated by the things that motivated older masters athletes. Secondly, extrinsic motivation for male involvement in masters sport was found to increase from middle (46-59 years) to late adulthood (60-90 years). This may be due to changes mid-life in personal values and non-sporting social outlook of males contributing reciprocally to changes in motivation in sports participation. Thirdly, social approval as an extrinsic motivating factor decreased between young and middle adulthood followed by a significant increase in late adulthood. For the coach and administrator of masters clubs, an understanding of the social needs of older masters sportsmen might well serve to initiate the development of increased social interaction in masters sport that may act to maximize the participation of this age group.

However the most significant finding of the study was that the ten most common reasons for participating in masters sport were all intrinsically motivated (Table 1). This suggests that although much of adult day-to-day behavior is extrinsically motivated, sporting and leisure time is the period when most behavior may well be

intrinsically motivated. The ever-increasing interest in masters sports attests to the high intrinsic motivation that exists when individuals undertake an activity of their own choice and can be fostered by well-designed training programs and good coaching.

Dr John Dodd is a lecturer in the Centre for Sports Studies at the University of Canberra. His main areas of research are men's motivations for participating in sport and leisure.

This article was reproduced with permission with some editing of the article. The full research article can be found in Dodd, J. R. & Spinks, W. L. (1995). Motivations to engage in masters sport. ANZALS Leisure Research Series Vol. 2, pp61-74.

Table 1 : The Ten Most Common Reasons for Participating in Masters Sport (in rank order)

- 1 I want to be physically fit
- 2 I like to get exercise
- 3 I want to stay in shape
- 4 I like the feeling of achievement
- 5 I like the challenge
- 6 I like to compete
- 7 I like to have fun
- 8 I want to see what my abilities are
- 9 I like to do something I'm good at
- 10 I want to improve my skills

Table 2 Questionnaire Items Categorised into Motivational Goals

| Intrinsic | Extrinsic |
|-------------------------------------|---|
| I want to stay in shape | I want to be with others |
| I want to be physically fit | I want to build friendships with others |
| I want to improve my skills | I want to interact with others |
| I like to have fun | I want to develop close friendships |
| I like the challenge | I want to meet new and different people |
| I like to get exercise | I want to gain a feeling of belonging |
| I like to do something I'm good at | I want to gain others respect |
| I like the excitement | I want to reveal my physical skills |
| I want to learn new skills | I want to please my spouse/friends |
| I want to go to a higher level | |
| I like to have something to do | |
| I want to see what my abilities are | |
| I like the feeling of achievement | |
| I like to get out of the house | |
| I want to release tension | |
| I want to get rid of energy | |
| Ego and competitions goals | Extrinsic reward goals |
| I like to compete | I want the rewards |
| I like to win | I like to use the facilities or equipment |
| I like to feel important | I like to travel |

The Cardiac Club Part 2

by Bill Volckening

Continued from Issue 13 No 3

Swimming Faster

The relays set the tone for Dave at nationals. In his first relay, he anchored in 29.15, but didn't believe it. After two more relays in the 29s, including a leadoff, he finally was a believer. In fact, Radcliff's 50 meter free in Minneapolis (29.89) was faster than his best pre-heart attack swim (29.94) at the 1998 NIKE Masters World Games.

He also flirted with the world record in the 100 meter freestyle, finishing in 1:05.95, less than 9-tenths behind fellow cardiac club member Ron Johnson, who tied the world record (1:05.09).

"I firmly believe that I am swimming better and more effi-

ciently now than before the heart attack," he adds. "My distance events are still slower than prior to the heart attack, but the speed has come back, and with it, a better feel for the water."

The Cardiac Club

As these stories illustrate, heart attacks can strike any of us at any time. Fortunately, the greatest risk factors are under our control. A healthy lifestyle, including a physical fitness program involving swimming, can greatly reduce the risk of death by cardiac arrest.

George Thayer offers some advice for others: "My message to swimmers is to keep in condition and train, but definitely be in tune with your body. If someone who knows you notices changes, it might pay to check yourself a little more carefully. Sometimes others see things that you don't. Does it persist? Is it new? Can you feel muscle soreness as opposed to something that doesn't change when you squeeze or poke it?"

Swimming can not only reduce the risk factors, but it can lessen the severity of damage from a heart attack and expedite recovery. So, whether you are trying to avoid becoming a member of the cardiac club or are learning to cope with your membership, a regular swimming routine is an essential part of the process.

For additional information about risk factors and prevention, visit the American Heart Association site www.americanheart.org

AHA-USA1. For information about safety certification, including CPR and first aid, visit the American Red Cross web site www.redcross.org

Warning Signals

Sometimes there are no warning signals, but usually there is some indication before a heart attack strikes. According to the American Heart Association, your body will most likely send one or more of the following warning signals of a heart attack:

Uncomfortable pressure, fullness, squeezing or pain in the center of the chest, lasting more than a few minutes.

Pain spreading to the shoulders, neck or arms.

Chest discomfort with lightheadedness, fainting, sweating, nausea or shortness of breath.

Not all of these signs occur in every attack. Sometimes they go away and return. If some occur, get help fast. If you notice one or more of these signs in another person, don't wait. Call your emergency medical services and get the person to a hospital right away!

Heart Attack Risk Factors and Prevention

The following list includes some of the primary risk factors associated with heart disease. Monitoring these factors can significantly reduce the risk of heart attack in most adults.

Family History: it is most important to know your family's medical history when evaluating your risk of having a heart attack. If there is any history of cardiac disease in your family, it is a good idea to inform your physician about it.

Exercise: just 30-60 minutes of physical activity three to four days per week can help reduce your risk of heart disease, stroke and diabetes. A regular physical activity program can also help lower your blood pressure and cholesterol.

Smoking: is the single greatest preventable cause of death in the United States today. Smoking greatly increases the risk of cardiac arrest.

Obesity: is a risk factor for five of the 10 leading causes of death in the United States, including cardiac arrest. A high-risk waist measurement is defined as 35 inches (89 cm) or more for women and 40 inches (102 cm) or more for men. Obesity is defined as a body mass index (BMI) of 30.0 or greater, or about 30 pounds (14 Kg) or more overweight.

High Cholesterol: studies of large groups of people show that the risk of heart attack for a

person with a blood cholesterol of 240 mg/dL (6.2 mmol/L) or more is twice that of a person whose cholesterol is 200 mg/dL (5.2 mmol/L). But total cholesterol is not the whole story. It is crucial to carefully consider the ratio of "good" cholesterol to "bad" cholesterol.

High Blood Pressure: one in four U.S. adults has high blood pressure. It's called the "silent killer" behind many heart attacks and strokes because it usually has no symptoms.

Reprinted with permission from SWIM Magazine. Bill Volckening is the US Masters Swimming Editor for SWIM Magazine.



AUSI Coach of the Year

This award has been in operation for several years now and is intended to recognise the very valuable contribution that coaching makes to AUSI Masters Swimming. Clubs are encouraged to take the time to consider their own coach(es) for this award, and submit nominations to their Branch office for consideration.

Previously, a call for nominations has been sent only to Branches. AUSI hopes that by including details of the award in the AMSCN, more coaches will become aware of it, and will be encouraged to nominate coaches

of their acquaintance for consideration. Often coaching is taken for granted. This should not be the case, so please, if you know of a coach who meets the criteria, consider nominating him or her to your Branch for this award.

Nominations for the "Coach of the Year" close with the National Executive Director on 1 March 2002. The basic criteria for evaluation are that the nominee must:

- be an accredited Masters Swimming Coach
- be a current AUSI Member, and have been a member from 1st January 2001
- demonstrate a proven capacity to improve the level of performance of Masters Swimmers
- practice and espouse a philosophy of fair play
- present a positive image of coaching and the role of the coach
- demonstrate concern for the development of Masters Swimmers in and out of the sporting arena
- demonstrate the application of relevant coaching theory
- have made an outstanding contribution in coaching and/or towards the development of coaching at Club, Branch or National level.

The judges will also consider any innovative ideas the coach has to improve coaching, or extra activities related to coaching. The evaluation will be made for activities and achievements that took place during 2001, but if this is the culmination of an extended period of activity pre-dating 2001, the preceding contributions will also be part of the consideration.

Nominations can only be submitted by Branches, and each Branch may nominate only one candidate. Nomination forms are available from the National Executive Director.

If you have any queries, or would like further information about this, please contact your Branch Coaching Director, or the National Office.

The Importance of Interval Training for Older Athletes

by Dr Peter Reaburn

Introduction

I'm getting older but refuse to believe I have to get slower. However, having just hit the big 4-0, I have to face the facts -the 10 km run time ain't what it use to be and the 400 m swim times are dropping. Sure, as a sports scientist I'm aware my ability to pump blood and oxygen is reduced and I'm losing strength — both of which will contribute to reduce endurance speed. However, as a sports scientist I am also aware there is something I can do to try and hold my speed -interval training.

The Theories on Why?

The few studies that have examined training habits of older athletes have shown that the older we become, the more we do mileage and the less we focus on intensity or how hard we train. Maybe this is due to us losing a little motivation, having family and career commitments, not being interested in hurting any more, or we're just training for enjoyment and health. Unfortunately, training slower means racing slower. To race fast we must train fast. Muscles are made up of small fibres. These muscle fibres are basically of three types — slow twitch, fast twitch a, and fast twitch b. The slow twitch are endurance fibres — they contract relatively slowly but are fatigue resistant. The fast twitch a fibres are speed fibres and are also quite fatigue resistant. The fast twitch b fibres are also for speed but fatigue very quickly. Genetics determine the percentage of these

fibres we are born with, so blame mum and dad if you're not fast or don't have endurance.

So why are we discussing muscle structure? Well the important point is that when we train slow, we only train the slow twitch fibres and therefore will have good fatigue resistance. This is obviously important for ironman triathletes, road cyclists or marathon runners, but what about the shorter events? The faster we train, the more fast twitch fibres we use to generate force and speed. The important point is that if we train hard enough to use the fast twitch b fibres that fatigue easily, we can convert them into fast twitch a fibres that give us speed but are resistant to fatigue — just what we need for speed endurance. However, if we do speed training too hard or too long using the fast twitch b fibres, we will produce lactic acid which leads to fatigue during training. The answer is therefore to train a particular way that uses those fast twitch b fibres but does not produce high levels of lactic acid that will slow us down. That is, interval training.

The Hows of Interval Training

While interval training can be used in a wide variety of ways, interval training to improve speed for endurance events should consist of relatively short (eg 30-90 second) intervals with short rest — half or less of the interval time. At an intensity of 85-90% of maximum heart rate, examples of intervals in different sports might be as shown in table 1.

The key to such training is that the quality of the last interval is as good as (or even better than!) the first. If we go too hard in the first interval, we'll have to recover for longer than we should, or the

speed of the rest of the intervals won't be as good. I see too many athletes (young and old) who either go too hard too early (generally the young bucks!) or take too long a rest. The key is to have fluctuations of 5-10 beats above and below this 85-90% of maximal heart rate during the interval and recovery, respectively.

A Word of Caution

'It sounds so easy', you might say. For masters athletes, such training is the answer to improving your speed over longer distances. In the older athlete this type of training becomes very important because muscle biopsy studies have shown that as we age we lose both the size and number of these all important fast twitch fibres we need for speed. I'd suggest the reason is that these fibres are rarely stimulated due to older athletes training slower but longer. Although not scientifically proven, interval training might go a long way to preventing this decline in fast twitch fibre size by firing them regularly. However, a word of caution! Interval training is hard work. It should be done when we are fresh, after we have developed a good aerobic base of easier work, after a good warm-up, followed by a warm-down and stretching, and be followed the next day by recovery training such as an easy 20-30 minute run/swim/bike. I would also suggest that only two sessions per week of this type of work be done. It can lead to injuries and visits to physiotherapists for athletes who do too much of it, have poor technique, or have not built their training program progressively to the point where they can cope with this type of work.

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Table 1

| | Swim | Bike | Run |
|------|-----------|----------|----------|
| Set | 10 x 100m | 15x 1min | 8 x 400m |
| Time | 1-25 | 1 min | 90 secs |
| Rest | 25 secs | 30 secs | 40 secs |

National Coaching Director

The National Coaching Director is Dr Kay Cox, currently Research Fellow/Project Director at the University Department of Medicine, University of WA. Kay is also a Life Member of AUSSI, and has been involved in the development of coaching education for Masters Swimming since 1984.

National Coaching Panel

The Members of the National Coaching Panel are Dr Kay Cox, Dr Peter Reaburn (QLD), Ted Tullberg (VIC), and Peter Jackson (NSW). The National Coaching Panel is appointed by the Board each year, following recommendation from the National Coaching Director.

From the National Coaching Director

As the year draws to an end perhaps it's a good time for reflection. How is your coaching accreditation? Are you due for updating? If you are Level 1M contact your Branch Coaching Director. If you are Level 2M then you should be collecting points from updating seminars, workshops, coaching sessions, etc.

Have you thought about moving on to the next level of coaching? Have you thought about mentoring other coaches? Next year we will be launching our Coaching Mentoring Program, and will be calling for participants hopefully to share their knowledge and experience as AUSSI Masters Swimming Coaches.

Have a safe and Happy Christmas, and best wishes for your coaching in 2002.

Kay Cox PhD

Branch Coaching Directors

Each Branch has a Coaching Director, who is responsible for the management and development of coach education and accreditation in his or her State. The current Coaching Directors are:

| | |
|-----------|-----------------|
| ACT | Les Worthington |
| NSW | Kathy Johnson |
| NT | Jacinta Stirrat |
| QLD North | Chris Bell |
| QLD South | Alina Graham |
| SA | Andy Wills |
| TAS | Katrina Clark |
| VIC | Ian Dear |
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