

Developing the potential of young skiers: an evidence based approach

The following document is to outline the evidence based approach that BSS has taken to evolve the current best practices of Talent Identification and Development (TiD) currently in use with BSS and Home Nations (HN). But first the facts of why we need to evolve.

1. Facts

- Our last medal was Alain Baxter
- Our only medal was Alain Baxter
- Our transfer from junior to senior podium, at World Level, is nil.

We have to be different and evolutionary in our approach or we will repeat the above. We have promised much in the past and produced well you decide.

With the undoubted successes of the London Olympics, it is even more important than British Skiing evaluates all aspects of the sport and this includes the competition structure. In spite of our best efforts over the years, the lack of results has resulted in a massive drop in funding. It is absolutely essential that we as a sport turn this problem around and firstly we need to address the flaws' in our current competition structure.

The key factors from our discussion within the group and outside have led me and others to believe that British skiing needs to think outside the box. Take the best practices and evidenced based systems around the world from Snowsports and non-snowsport and update and modernize if it is going to be competitive with the rest of the world. Simply, we need a British philosophy and model for British athletes, which give them the best chance to succeed in the long term.

1.1 Where we are now: same as most sports

- Young athletes under-train, over-compete
- We have Adult competition superimposed on young adults
- Training in early years focuses on outcomes (winning) rather than processes (optimal training)
- We have limited athletic movement vocabulary
- Chronological age dominates training rather than biological age
- The critical or sensitive periods of accelerated adaptation to training are not utilized
- The under development between 6-16 years can't be fully overcome
- The best coaches are encouraged to work at the Elite level
- Limited coaching education provided to those working at the youngest age groups
- Parent's education is neglected with regards to TiD knowledge
- Lack of integration of sport science, sport medicine and sport specific tech/tact activities

This is not a document to antagonise people: it is a set of recommendations to achieve the above. However, it will challenge some people's ideas and views. Thus this document is about information and evidence to support the learning and reasons why these recommendations are being made. It's all about education, in some cases it's about self-education. Focusing on how to make things work, not the problems, the point here is not about carrying out races for the sake of racing, but what's best for the racers long term development. As many know the current system is not working. The answers to these proposals should not be a straight 'no' it should be yes or what's the alternative.

Evidence and Rationale

Over the past 11 months a GB Alpine representative group has met 4 times and had numerous sub meetings to chew over the current research and the programmes of nations with sole purpose to evolve our TiD process. Specialist/expert TiD knowledge was brought to the group by Professor Dave Collins who has collated, trailed and created research.

This group has taken on-board evidence from research, other successful International Sports and fellow International Alpine Countries to produce a series of recommendations and steps to evolve our current status.

2. The 5 Ring of Improvement

In order to create a coherent language and dialogue for continued evolution of our TiD programmes I would like all Snowsport participants to familiarise themselves with the 5 Rings model (Collins, 2003).

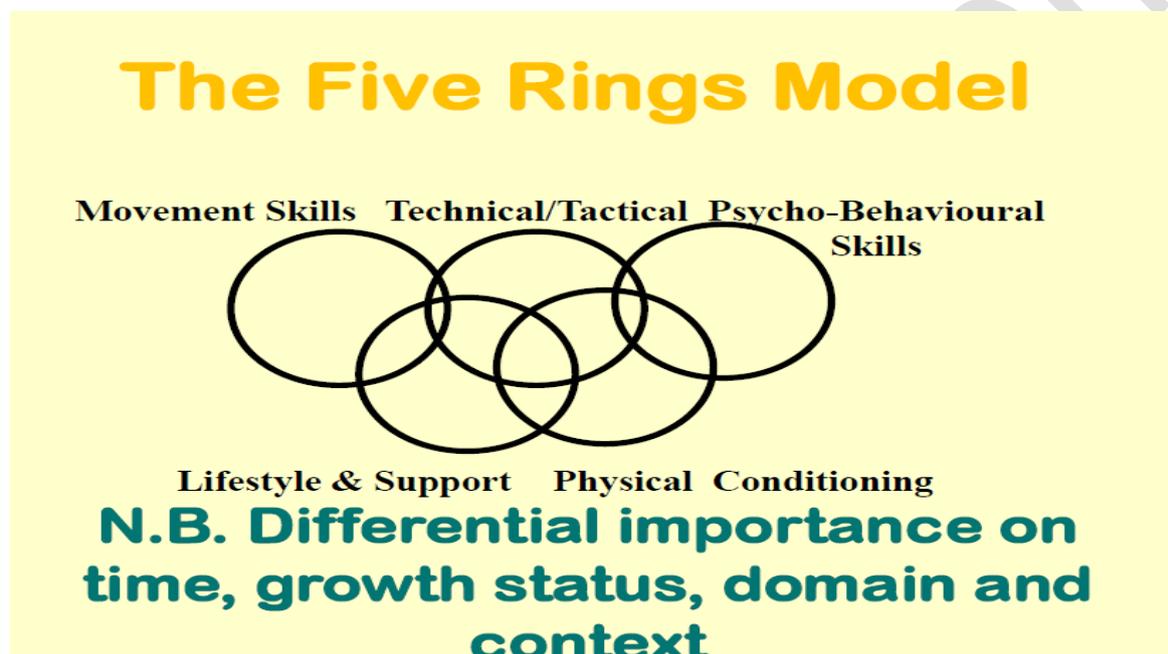


Figure 1. The 5 Rings Model (Collins, 2003). The 5 Rings of Improvement (5RI) represents the essential sections of the competitor and their improvement pathway to become an athlete. Each ring represents a factor of improvement and depending upon the stage of individual improvement the competitor will need to focus upon to become an athlete at World level (World level being Olympic Podium).

Over the next few months each of the 5 Rings of Improvement (5RI) will be discussed and described on the BSS and Home Nations web sites. But for starters I would like us to start to look at our Alpine, Indoor and Dry slope Race Structures. Please be cognisant of the fact that many race organisers have booked events and race calendars have been or are being produced and thus we may miss the window of opportunity to make changes and evolutionary progress immediately. So please park your anxiety when it comes to the implementation timelines.

What I can confirm is that BSS will be changing its selection policy for U16 programmes to include the new events, the BSS U16 programme will continue with 'Race Schools' events and the British Championships will include the new formats of races. It is up to the HN, BARSC and privateer race organisers to decide if they are able or indeed willing to adopt the modifications.

Factor of importance

6 – 14's need more deliberate play

Evidence and Rationale

We are looking for innovators and innovations to take our sport beyond the norm.

3. Alpine race structure – Alpine snow, indoor snow and artificial

The Alpine Race Structure for the 2012/13 and 2013 racing seasons RECOMMENDATIONS are detailed below. There are significant changes arising from the need to develop wider skills in athletes to enable them to have better opportunities to meet the demands of high level FIS/international competition.

The two most significant changes are the introduction of Combi races to increase athleticism and stretch skiing skill and the introduction of Stubby races to improve the lower body skill of our skiers and remove the upper body domination.

What follows is the evidence and reasoning for these changes.

3.1 The reasons and evidence to support the recommendations

As stated earlier in the document the working party has digested the research, international sport and fellow Alpine nation's evidence and reasoning to produce these recommendations. So what is the evidence that we are speaking of? We will consider the following areas;

- reported evidence from practitioners in Europe,
- research evidence from other sports,
- other internationally successful Alpine nations, and;
- detailed analysis of our past and current Gap to Podium (G2P).

3.2 Reported evidence

From discussions with coaches, who have been observing European nations, it has become clear that we are exposing our youngsters to gate training much too early. The skills that they produce are dominated by upper body and excessive arm action to 'batter' the gate out of the way. In some cases it is reported that skiers close their eyes. There is a strong belief that this is a necessary process to 'toughen' the ski racer up. What is now being proposed is to improve the ski racer from the bottom up.

The horizontal offset of the gates has noticeably increased. Making Slalom turns rounder and more complete. This required a higher degree of lateral balance and a larger amount of inclination.

Herman Nagler commented

Slalom skiing at the Junior level is on its way to a great disaster because Junior racers concentrate only on hitting Slalom poles and getting them out of the way. They don't learn how to use the feet properly.

Most Juniors are not physically strong enough to ski as tight a line as World cup skiers.

Swiss star Vreni Schneider had a hard time getting rid of the over-rotation in GS turns that carried over from her Slalom Skiing.

3.3 Use of Stubbies

From the discussions and evidence gathered from coaches of dry slope, International coaches, American Academies, other International Nations (Slovenian, Swiss, Norwegian, Italy) other International sports and Skill Acquisition research it appears to me that by using Stubbies we are able to create an environment of skill rather than power, and thus reward the slighter, leaner youngsters by creating better lower body movement. This process is carried out in training and racing has been 'strongly recommended' by European Countries.

3.4 Research evidence

In order for us to make evidence based recommendations we need to consult the most robust evidence across other sports and our own sister sports. In order to do this we recruited Professor Dave Collins who has published extensively in this area. The areas which are most pertinent to the evolution of our race programme were,

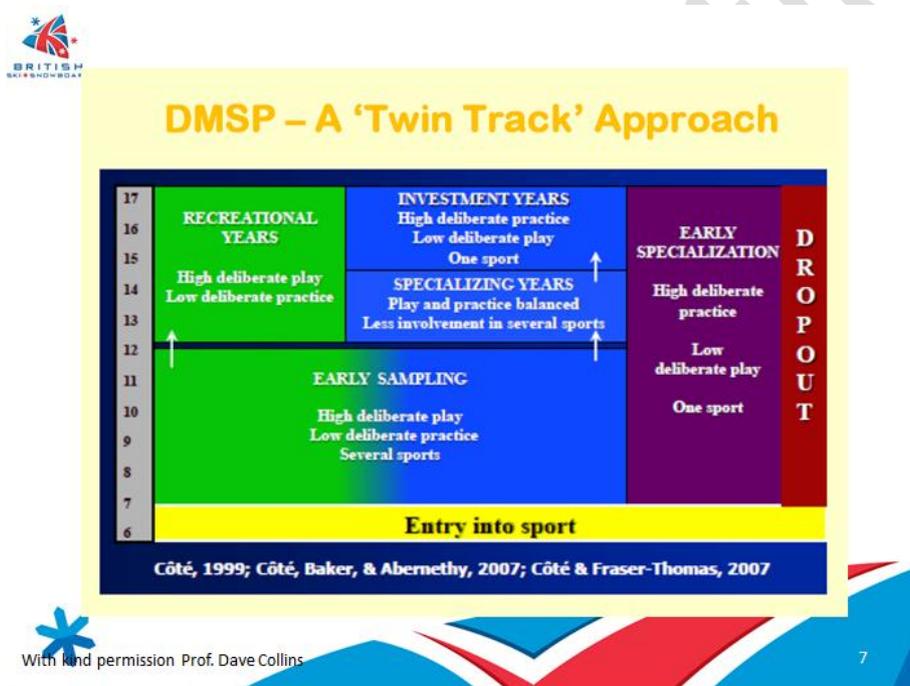
Evidence and Rationale

- movement vocabulary,
- replacing all terrain snow fun,
- closing the gap,
- working with our culture (multi-events and engagement so change the content not the event).

3.5 Movement vocabulary.

It is a well-established fact that our greatest athletes, sports men and women are supreme athletic talents who are more than able to work in two or more sports and win. To increase our talent pool we need to engage our younger skiers in programmes of deliberate play in complementary sports to create greater generality in their skill level and athleticism.

As we can see from the table below the blue path is one we should be following in order to avoid the purple path, which results in drop out or burn-out. Deliberate play in our sport is free skiing and all-terrain skiing. What the research is advocating through their evidence based published papers is that for senior elite performance you need to delay specialisation until 15/16 (this is a guide age as there is a maturation timelines to consider).



With kind permission Prof. Dave Collins

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Figure 2. Research evidence for early sampling and deliberate play being instrumental in elite performance development.

Our eternal and never to be changed, problem is that we cannot expose our skiers to free and all-terrain skiing enough. In order to solve this issue and reduce the advantage or even remove it, what does free /all-terrain skiing give you? From discussion and analysis it gives a skier, amongst other things, diversity in movement and an increased athletic movement vocabulary. We must be able to develop this as we have some of the best free style skiers in the world, so how have they developed these skills in Sheffield? Simple really.

To create the necessary movement vocabulary, developed by free/all-terrain skiing, we need to engage in sports that demand a similar movement vocabulary. There are numerous sports to choose from but I will give the top 3 and then a number of supplementary activities (see table 1).

Evidence and Rationale

Top 3 Sport – ‘free play sports’	What they give you	Comments
Judo, Gymnastics and Trampoline	Each of these disciplines will give you specific improvement in; <ul style="list-style-type: none"> • Body awareness and agility • Balanced muscular strengthening • ACL robustness • Athletic prowess 	Very adept for developing a sound robust athletic base for all sports and life. Participation will reduce the advantage gained from free skiing and riding. These sports will provide the fundamentals.
Supplementary Sports	What they give you	Comments
Skating, Skateboarding, Scootering, Martial Arts, Surfing, Basketball, GAA Sports, Shintee, and all other Team Sports.	These sports will give a more general development	These sports use the fundamentals and may not necessarily develop them. Team sports are important for socialisation skills.

Table 1. This table outlines the sport’s most able to create and enhance movement vocabulary. Increased movement vocabulary will decrease the advantage of free and all-terrain skiing.

By introducing these sports into the skiers weekly, monthly or yearly sporting diet we improve their athletic movement vocabulary. Rather like learning a language. Practice one and you become fluent. Practice two and you create greater diversity and ability to work, and so it goes on.

3.6 Other Nations

In support of the Swiss move to adopt more Stubbie racing we also consulted the Americans and the Slovenians. As you can see from Figure 3 (Appendix 1) the percentage of time spent on deliberate all mountain play, Combi, limited race entry and the limited disciplines is clearly marked.

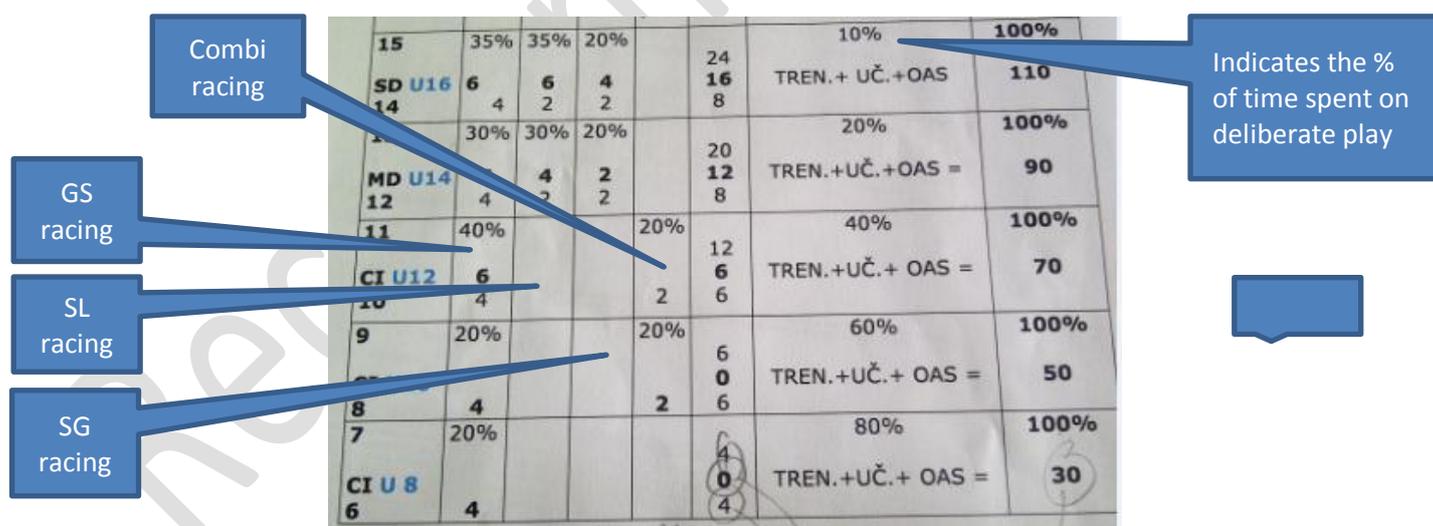


Figure 3. Show a sample of the Slovenian Alpine Guideline document 2012 for U8 to U16 competitors. Please compare the percentages for deliberate play and the similarity to Figure 1’s blue pathway of deliberate play.

Our discussions with Burke Mountain Academy (BMA) and reported observations of coaches have supported a move to encourage lower body skill development. BMA went on to highlight their experiences of GB skiers and observations on the European circuit of the G2P being attached to variable lower body skill.

Evidence and Rationale

In the few trials that have occurred using Stubbies the reports have been categorical and without acception positive in the improvement of lower body skill. There have been heated reports and displeasure due to factors of race organisation and difficulty in set-up. Not talent, ski development.

Factor of importance

The feedback to these suggestions has generated more complaints about race organisation and not questions about skill and talent development.

In the case of Combi race inclusion this is supported by the improvement and demand of athletic prowess or more precisely movement vocabulary. Increasingly it is becoming apparent that all terrain ski skill is vital to high performance. To create greater athleticism the introduction of Combi races will demand athleticism, mountain feel and will begin to address the movement vocabulary improvement we need.



Figure 4. Ted Ligety pays tribute to free skiing and fundamentals. Stubbies and Combi races will help us to achieve fundamentals.

By altering the content and not the event skiers can still participate each weekend and week if they wish as a Combi and a Stubby race will have a massive training effect for lower body skill and skier athleticism. We'd rather skiers, parent and coaches followed a play, train and competition supported process and not competition focused process.

Evidence and Rationale



Figure5. Norwegian ski racing Combi style.

4. Analysis of our past and current Gap to Podium (G2P)

Knowing what our G2P is and what will reduce that gap is a many factored process. Mountains and snow seem to be the most limiting factor. . So what can we deal with? I think it's clear that enhanced movement vocabulary and lower body skill levels would be a start to close the gap. Doing the amount of gates and specialisation has not resulted in senior podium positions but has resulted in 'not quite there'.

We can carry on being "not quite there" with the knowledge that staying put would produce the same facts which I started with or we can move into an evidence based, European supported new world, which may be strewn with perceived and actual difficulties, but will ensure our athletes are better prepared for the rigours of FIS/International competition.

Facts

- Our last medal was Alain Baxter
- Our only medal was Alain Baxter
- Our transfer from junior to senior podium, at World Level, is nil.

In order to close the G2P we need to develop skills that are transferable into senior competition. One particular areas of strength which we can evolve the 'movement vocabulary' quickly is dry slope skills and the amount of competitions/races there are on offer. At present the culture of participation each weekend can be excessive for young developing skiers. However, in order to generate a sound 'movement vocabulary' we need to evolve race content which demand athletic development (movement vocabulary). Therefore, to introduce Stubbies and Combi races we can cater for the demanding race programmes by changing the type and style of race.

5. Working party involvement.

The new structure has been developed with the involvement of Snowsport England, Scotland and Wales and BARSC. As yet BSS are the only organisation who is nailing our colours to the mast. We will have the new events in BSS

Evidence and Rationale

organised events and selection to the BSS squads will involve factors to appraise the movement vocabulary of skiers and will use 'Stubbies' and 'Combi' races at all ages U16.

Detailed rules will be published by the end of November 2012.

The minimum age for entry into British Calendar Races remains 8. The FIS Age Categories have been adopted. There is no change to the structure of races in Age Categories U18 and above. Only registered racers may participate in British Calendar Races, although the option of Day Registration remains where administered by HNs and Key Parties.

6. Other countries

From our contacts in the FIS world we have confirmation that the other countries are going one or two paces further forward. With the discussions and implementations focused upon of Combis v Slalom racing, where Germany, France, Italy, Austria and Canada who are advising no slalom training as a discipline U12.

7. Social side

As a result of conversations between dry slope participants and our group, it has become clear that the social side of weekend dry slope ski racing is very important to the race sponsors (parents). The car booting and camping and friendships that are created are vital to the dry slope success.

While I do not to reduce this occurrence I would like to alter the style and type of the events. It is clear that racing gates each weekend is not the best form of skier development. However, if the skier was to race Combi or Stubbies they would develop more all-terrain ski skills and greater athleticism (movement vocabulary). Not only is this beneficial to skiing but also to the person's physicality, future physical prosperity and the NHS.

8. In summary

Thank you for reading this document. It is intended to introduce deep seated changes in our GB race calendar and introduce the 5 Rings of Improvement. Essentially we are looking to introduce two alterations to the race calendar, the use of Stubbies and the introduction of Combi races.

Stubbies Races because, we need to engage the lower body and disengage the upper body from the pole. We have followed an upper body programme with limited senior transfer. We need to move to Stubbies in order to change what we do. To carry on working our talent through poles when there are numerous examples of countries using Stubbies to train and race is a refusal to accept that we are unable to close the G2P. I and the TiD group are unwilling to accept that view point.

Herman Nagler commented:

"Slalom skiing at the junior level is on its way to a great disaster because junior racers concentrate only on hitting Slalom poles and getting them out of the way. They don't learn how to use the feet properly. Most juniors are not physically strong enough to ski as tight a line as World cup skiers."

Swiss star Vreni Schneider had a hard time getting rid of the over-rotation in GS turns that carried over from her Slalom Skiing.

Canadian Coaching discussion

<http://www.youcanski.com/en/coaching/slalom.htm>

Combi Races because, they will increase the 'movement vocabulary' of our skiers' which will transfer to improved senior performances. Using an evidenced based approach (research and national programmes research and interventions) we have made a clear link between senior podiums and increase athletic movement vocabulary. Therefore, using Combi Races will;

- 1) Demand and improve athletic movement vocabulary, and;
- 2) Demonstrate athletic movement vocabulary.

Evidence and Rationale

Combi events will be part of the BSS selection process and will skiers will be required to participate in Stubbie and Combi events to contribute to their selection to BSS squads.

8.1 Implementation

The rapid application of this evolutionary race structure is imperative to our future improvement of BSS Alpine senior podium success.

BSS will implement from 6 to 14 year olds with immediate effect within the British Alpine Championships and all BSS selection to squads will involve the assessment of Combi and Stubbie racing.

It is hoped that the Home Nations, BARSC and private race organisations will follow suit with this evolution of ski improvement and I await the feedback of the 'can do' implementation strategy. There will be those of you who are unable and unwilling to implement these plans and as the Swiss (appendix 1) and Norwegian (appendix 5) have demonstrated in their plans you can carry on with that path.

However, BSS and its advisory working group feel that the weight of evidence inside and out with the sport requires a change in direction and traditional philosophy to alter the facts.

Please reply with your implementation plans through your Home Nations Race Committee or CEO who will then report to back to the BSS PD and working group. At which point we will be able to collate the plans and develop a coherent UK implantation acceptance and plan.

Appendix

Appendix 1 – Slovenian doc

1. Tabela kategorij po starostnih skupinah U8 do U21

Količine in razmerja med disciplinami za delo na snegu po starostnih kategorijah U8 U21.
(klubski, regijski in državni nivo skupaj) **PRIPOROČILO!**

Starostna kategorija	VSL	SL	SG	↑ DH KOM ↓	Σ DR RR	Skupno št. Državni starti Regijski starti	Priporočeno Število dni na snegu v % in dnevih
20 SM U21 18	35%	35%	20%		∞ 0	10% TREN.+ UČ.+OAS	100% 140
17 MM U18 16	30%	30%	20%		25+ 0	10% TREN.+UČ.+OAS =	100% 120
15 SD U16 14	35% 6 4	35% 6 2	20% 4 2		24 16 8	10% TREN.+ UČ.+OAS	100% 110
13 MD U14 12	30% 6 4	30% 4 2	20% 2 2		20 12 8	20% TREN.+UČ.+OAS =	100% 90
11 CI U12 10	40% 6 4			20% 2	12 6 6	40% TREN.+UČ.+ OAS =	100% 70
9 CI U10 8	20% 4			20% 2	6 0 6	60% TREN.+UČ.+ OAS =	100% 50
7 CI U8 6	20% 4				4 0 4	80% TREN.+UČ.+ OAS =	100% 30

Handwritten notes below the table:

- 99 SL SL
- COMBI
- # of tracks
- Rein Races
- Natural Races
- Day 5 snow
- 1540 in dnev

Evidence and Rationale

Reference 1 – Canadian discussion 15 years ago

<http://www.youcanski.com/en/coaching/slalom.htm>

Recommendations

Evidence and Rationale

Reference 2

Norwegian Ski federation

<http://www.aftenposten.no/nyheter/iriks/.Tx1eFCPDFyg>

Fun
<http://skiforbundet.no/BARNASSIKLUBB/SKIIDRETT%20FOR%20BARN/Sider/Bestemmelserombarneidrett.aspx>

Obstacle Course with variable terrain
<http://skiforbundet.no/BARNASSIKLUBB/TELENORKARUSELLEN/Sider/Alpint.aspx>

Recommendations