Talent Identification in judo

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What is Talent identification? Talent identification is a process that involves making a judgment about a performer’s qualities and offering that individual an opportunity to do something for which he or she is suited; talented youngsters must be identified on their potential ability to be the best players in the future, not their current abilities (Davids, Lees & Burtwitz, 2000). There are five common terms that should be considered at this stage; Talent, Talent Detection, Talent Identification (TID), Talent Selection (TS) and Talent Development (TD).

Talent is a marked innate ability defined as artistic accomplishment, natural endowment or an ability of a superior quality. Talent in sport can be defined as an individual’s special aptitude that is above average for specific functions. Physical talents may be functional, expressive or athletic (Peltola, 1992; Williams & Reilly, 2000).

Talent Detection (TD) refers to the detection of athletes who are not currently participating in the sport (Williams and Reilly, 2000). For example in judo, it may be possible to recruit athletes from wrestling, rugby, or gymnastics aged between 12 and 16 years and put these athletes into a specific development plan. This concept requires further investigation (relating to how sports interact, how can this be achieved, at which age etc) but this is beyond the scope of this booklet.

Talent Identification (TID) refers to the process of recognising current participants with the potential to become elite performers (Williams and Reilly, 2000).

Talent Selection (TS) is the process of further selecting the pool of athletes identified at the TID stage. This is often done because TID is a balance between specificity of testing and selection easily administered tests that allow coaching/scientists to identify across a broad spectrum of athletes in a short term, this helps to ensure no-one is missed in the identification process but can mean “less talented” individual are selected. The TS process removes these “less talented” individuals, often through sports specific physiological testing, technical assessment, psychological assessment or compatibility assessment.
Using the UK as a case study - In previous years the earliest stage of TID in British Judo was at World Class Start/World Class Talent (WCS/WCT). The criterion for selection onto WCS/WCT was based upon the results of players at two major events (The Heart of England and the Junior Age Banded Nationals). Players are awarded points for gold, silver, bronze medals and fifth place. Players who were not successful at these events could be selected through regional programmes based on one or two day training sessions led by WCS/WCT coaches (BJA, 2006a), in reality these programmes rarely occurred. Figure 1 shows how the previous system in British judo theoretically related to the scientific approach of TID, TS and TD.

The current BJA talent development and identification structure is similar but does have key differences, the England programme has set up a series of “England ExCells” and athletes are encourage to attend these weekly for technical and randori sessions. Coaches in these centres have been selected by the England coaching staff. Players already selected under the England programme have to attend these ExCells weekly, this means all England squad players and those aspiring to get
onto the national programme have at least one high quality randori per week. Although it is widely recognised that one Excell session per week is not enough (McIver et al. 2006) and that there is a requirement to further educate the coaches at the ExCell centres this is a good starting point.

From September 2013 England judo will also be running the Advanced Apprenticeship in Sporting Excellence (AASE) scheme through eight England bAASEs. This will mean than England players aged 16-18 years will be able to do 15hours of judo per week and this will be aligned to their tertiary education. It will also mean the ExCells can focus on pre-cadet and cadet and the BAASEs on juniors.

Other countries - With judo being so prolific around the world it is beyond the scope of this work to consider the TID in every country. However, countries can often be split into two or three types, Countries like France and Romania who have a single national training centre - although in France judo is also very strong throughout schools, universities and the academy structure (Pôle). In other countries, such as Japan, judo is very strongly linked to education, high schools and university. Countries such as Croatia, and Slovenia have a very strong club structure and certain clubs tend to provide the majority of the national team. Finally some countries (Germany for example) have a regional set up with Olympic training centres. It should be noted that France and UK also have regional centres for younger athletes.

The aim of this document is to create the beginnings of an integrated system and propose areas of research that will enable:

- The correct identification of potential high performance judo athletes
- A system of TID that is fair to all athletes and is based on scientific criteria
- Unbiased selection of players
- Early detection of players that allows development in a high performance environment

Condierations in Talent Identification

There are few models of talent identification and talent nurturing that are globally accepted at present (Pienaar, Spamer & Steyn; 1998). Of the models that exist there are several issues that surround them, these will be considered below.
At what age should TID take place? This is a sports specific question that should be answered from a physiological and psychological perspective. Physiologically TID in judo should take place around 12-16 years, the time of adolescence. This is because judo is a late speciality sport (McIver, 2006) and up until this age players would be focusing on learning the fundamental skills. There are two main thoughts as to the ages at which TID should be conducted. Bompa (1985), suggested that TID should take place over a number of years in the following three phases:

1) 3-8 years – Physician’s examination aimed at recognising malfunctions and physical deficiencies that may hinder athletic performance.

2) 9-17 years – These ages will vary dependant upon the sport and maturation of the athlete. Testing is conducted on athletes already participating in sports and is based on physiology and anthropometry.

3) 16 years and over – This area of TID is concerned with high calibre athletes and is very sport-specific. Focusing on physiological adaptations to training and potential for further improvement is recommended.

Peltola’s (1992) theory is possibly more pertinent to that in most countries and describes the first phase of TID at 10-12 years of age and involves easy to administer tests. Phase two (between the ages of 13-16 years) is also based on easy to administer field tests such as the vertical jump, sit and reach test and the multi-stage fitness test. Athletes identified at this stage may be selected for elite junior programmes for their sport.

From a psychological view, cognitive research suggests that children younger than 11 years are unlikely to be able to learn and retain knowledge of a technical, tactical and strategical form (Smith, Cowie & Blades, 2005). Indeed, according to Piaget (1951) children reach the “formal operations phase” of their cognitive development from 11 years onwards. This means that they can now consider a variety of solutions to a problem without having to act them out (Piaget, 1951).

**Early versus Late maturation** - There is a wealth of research that suggests early maturing individuals are more likely to be selected through TID programs than late maturing players (Davids, Lees & Burwitz, 2000; Malina, Peña Reyes, Eisenmann, Horta, Rodrigues and Miller, 2000; Morris, 2000; Williams & Reilly, 2000). The use of physiological and psychological testing means that there is an inherent bias towards stronger and more cognitively developed athletes. Whilst this can lead to late maturing athletes missing out on top quality coaching and/or dropping out of the sport at an early age (Williams & Reilly, 2000), the use of weight categories and two-year age banding at
competitions does help to limit this problem in Judo. The majority of research suggests that young players should be selected on skill and future potential rather than physical ability. In this respect, this could be compensated by a longitudinal approach to TID - athletes should be physically tested on initial TID and then monitored for improvement rather than against a baseline figure. Players who do not improve should have their training program reviewed or possibly be removed from the program. Caution should also be placed on “identification events” being in the same part of the year, as suggested by Helsen, Hodges, Van Winckel & Starkes (2000) in relation to soccer where they state that the advantage of being born early in the selection year may relate to physical precocity; that is, players have up to a 12-month advantage in physical maturation over their peers born at the end of the selection year. Hence individuals in charge of TID should be aware of this issue.

Coach versus Science - The initial TID in most sports is based upon the recommendation of talent scouts and coaches (Williams, 2000). This process is speculative, with predictive success being based on intuition rather than objective criteria. It is important therefore, to generate scientific observations that might compliment intuitive judgments about young talent (Reilly, Williams, Nevill & Franks, 2000). An interesting comment on this issue was written by Helsen et al. (2000) who suggest caution in supporting the notion that sport expertise can be predicted on the bases of any specific measure of talent. In a sport where scientific predictions on anthropometry and physiology are likely to hold less significance, more emphasis should be placed on the opinions of coaches. One area where this could prove prolific is in the assessment of game intelligence as described by Falk et al. (2004). This should be complimented by measurable variables such as agility, perception, will power, and motor skills.

Genetics - Heredity is another ambiguous factor that should be considered in TID, as children tend to inherit physiological and psychological characteristics from their parents (Bompa, 1985). There is strong evidence of genetic involvement in individual differences in sport-related performance attributes (Hoare & Warr, 2000). A particular area that heredity could be useful in TID is that of training limits. If an athlete has reached the limits set by his inherited physiological characteristics, it would be pointless for that athlete to attempt to reach a higher level of performance (Thomas & Beavis, 1985) although detecting this limit may prove very difficult.
Methods of Talent Identification/Talent Selection

TID is approached from many perspectives including physiological, psychological, sociological, technical ability, and game intelligence to name just some. Many also believe that TID is something that should only be done by the experienced coach (Abbott & Collins, 2004; Helsen et al, 2000). Good systems incorporate elements of all of these, although researchers are not in agreement as to the importance of each aspect (Falk, Lidor, Lander and Lang, 2004; Hoare & Warr, 2000). Although there is a general acceptance in the scientific community for such a multidisciplinary approach to TID, current knowledge in sports science with particular reference to judo precludes the inclusion of some of these variables (Hoare & Warr, 2000). This is possibly due to the lack of empirical inquiries that have been undertaken to explore the most advantageous methods, strategies and techniques to be used in searching for gifted athletes in any sport (Falk et al. 2004).

Physiological testing - Many studies have looked at the physiological responses to a single judo contest (Degoutte, Jouanel & Filaire 2003; Pulkkinen, 2001; Wolach, Falk, Gavrielli, Kodesh & Eliakim, 2003) but in reality, competitive-successful judo athletes must fight several judo contests in succession. Further to this, the demands of training in judo are high and as such, judo athletes need a level and type of fitness just to be able to train at a higher enough intensity and duration. Physiological testing is common in TID (Bar-Or, 1996, Bompa, 1999; Helsen et al, 2000; Pienaar, et al, 1998; Reilly et al, 2000; Williams & Reilly, 2000) but these tests are often based on the standards produced by elite athletes in that particular sport. In a sport such as judo where so many physical attributes can be functional, the identification of athletes based on physical parameters can be precarious (Davids et al, 2000; Hoare & Warr, 2000).

Physiological testing may be prevalent in the development of identified athletes as it may ensure that athletes on development programs are improving whilst enabling more in-depth laboratory testing due to the small number of individuals. This is not to say that mass field-testing does not have its place. One area where it may be used is in TID screening. If athletes were to attend a “TID day” rather than looking for the few who reach this high standard set by elite athletes it may be more productive to look for the masses who do not meet the minimum standard established for future success in a similar way to methods used by the military, police and fire brigade for screening. Such tests might include the achievement of certain base line scores in the multi-stage fitness test, sit and reach test, two minute press up test, or two minute sit up test.
Psychological testing - This area of testing can be split into two areas: personality and perceptuo-cognitive skills. The former includes self-confidence, anxiety control, motivation, task orientation, commitment and use of imagery (Abbott & Collins, 2004) whilst the latter can include attention, anticipation, decision-making and game intelligence aspects (Reilly et al. 2000).

Tests already exist for some of these criteria, such as the “Task and Ego Orientation in Sport Questionnaire (Duda, 1989) and the Competitive State Anxiety Inventario-2 (Jones & Swain, 1995). Indeed, Smith & Christensen (1995) found their Athletic Coping Skills Inventory (ASCI-28) to be a much better predictor of athletic success in basketball than an assessment of physical skill. Judo specific tests should be created for decision-making and such game intelligence is discussed below.

No judo specific motor test or perception test was identified during this study. It should be emphasised that these tests would be beneficial, as they will alleviate the issues of late versus early maturing individuals discussed above (Williams, 2000).

Anthropometric testing -
Reilly et al, 2000 used anthropometry to assess soccer players and found that three of their measures - namely skinfolds, percentage body fat, and endomorphy - successfully discriminated between sub-elite and elite players. However, the age group studied was older than currently used in judo TID (mean age= 16.4, range 16.2-16.6) and judo has a far more diverse population in terms of body composition. Despite this, Claessens, Beunen, Wellens & Geldof (1987) stated that outstanding judo players can be characterised as robustly built athletes with a rather “thick-set” stature with large breadth and girth measurements and little development of subcutaneous fat. Anthropometry based on current top-level judo players will potentially be of little use in modern TID due to the potentially diverse nature of the sport and the multitude of different somatotypes. Selection based on somatotype /anthropometry would be unethical although one area of use may be in talent selection where older athletes are tested - body composition can be used to check whether athletes can make the weight they have been selected for and if they will be able to keep making this weight in the future.

Game intelligence - Any identification of physical and mental attributes necessary for success in sport is likely to be limited in value unless complimented by information about proficiency in the skills of the games (Reilly et al. 2000). According to Falk et al (2004), the ability of a player to anticipate, respond and focus attention in order to produce the appropriate response is a key factor in performance success. Game intelligence cannot be measured directly by laboratory cognitive
variables and is therefore speculative in nature with predictive success being based upon the experienced opinion of a coach rather than objective criteria (Falk, et al, 2004; Williams, 2000). It may be possible to test game intelligence with simple tests; video footage of contests could be utilised whereby players are asked about their actions in particular situations ranging from winning/losing in the last 30 seconds to more complex situations where players would be expected to fight for a penalty rather than a score. They could also be asked to watch opponents and be questioned on what they would do if fighting them next – this is similar to the video analysis that is currently conducted at competitions. Their ability to assimilate this information and act on it could enable a player’s ability to be predicted.

Sociological considerations-
If an athlete does not have the necessary facilities or simply cannot afford to participate in a sport, TID will be of little benefit (Bompa, 1985). This has some weight in international judo, in many countries the pool of international players come from 2-3 clubs that are sometimes outside of the national federation structure (in terms of they are not funded by/managed by the federation they are clubs of the federation). Therefore TID developers should consider location when identifying potential athletes. This is discussed in more detail below.
Furthermore, supportive parents are seen as integral to future success (Bompa, 1999, Williams & Reilly, 2000). Davids et al (2000) suggest that elite athlete, who had been successful in the transition from junior to senior, acknowledge retrospectively the essential support provided by one or more coaches during this critical period.

Talent Identification in Judo
There is no doubt that judo is a complex sport in which to attempt TID. There are huge variations in the anthropometric measurement of elite players, a multitude of physiological qualities and the majority of psychological qualities are difficult to measure. TID in judo occurs in the former Eastern bloc, Cuba, China, Korea and many other countries (Bompa, 1999) but most of these countries are very secretive of their systems. Other counties such as France, Germany, and UK have a less scientific approach to TID and are less successful as judo nations.
Other sports are already processing athletes through TID. These include gymnastics, netball, hockey, rugby league and rugby union (Moore et al, 1998). During his investigation Moore observed the use of performance in trials to select future elite athletes in athletics, cricket, cycling, rowing, judo, sailing and swimming. Although, in the example above, British judo claims to be
using regional training sessions led by WCS coaches to identify talent based on coaches’
perception, it is worth noting that none of these coaches have not received any formal training in
TID. Indeed there is no published data for “judo scouting in the available literature either. Despite
this, the suggestion from the long-term Player Development Plan (McIver, 2006) is that our future
Olympians may not be medalling and these junior events.

Bompa (1999) suggest the following criteria for TID in judo:

- Coordination
- Reaction time
- Tactical Intelligence
- Long reach and large biacromial diameter

It is suggested the following should be added based on the information reviewed during this research:

- Concentration span
- High aerobic and anaerobic capacity
- Perseverance
- Courage

**Implementing Talent Identification in Judo**

The implementation of TID in judo should be viewed as a long-term objective. In the long term
countries need to consider one of three potential models:

1) Support the naturally strong clubs within the country
2) Create a regional network of “performance centres” that are funded and more player from the
   clubs to the regional centres when they meet certain criteria
3) A cenratlised programme - one national training centre
Table 1: The positive and negatives of the three TID systems described above. It should be noted that in fact there is often an combination of these systems. Remember this is describing a system for TID not talent development - these are two separate issues.

<table>
<thead>
<tr>
<th>Model</th>
<th>Positives</th>
<th>Negatives</th>
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<tr>
<td>Support the naturally strong clubs</td>
<td>• These clubs are already in place</td>
<td>• Sometimes the coaches in these clubs are not appropriate</td>
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<tr>
<td></td>
<td>• Often cheaper to do this</td>
<td>• Clubs retain quite a lot of power within the federation</td>
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<tr>
<td></td>
<td>• Existing athletes do not need to move</td>
<td>• It is not always possible to have the best facilities everywhere so there is a compromise of quality of facilities and equipment</td>
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<td></td>
<td>• Generally eliminates some of the sociological issue</td>
<td>• Sometime you do not get the volume of players required to make the training sufficient</td>
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<td></td>
<td>• A “wide net” to catch a large number of potential</td>
<td></td>
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<tr>
<td>Create a regional network of “performance centres”</td>
<td>• Generally eliminates some of the sociological issue</td>
<td>• Often there is politics about where the centres should be</td>
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<tr>
<td></td>
<td>• A “wide net” to catch a large number of potential</td>
<td>• Can be expensive (depending on how you set them up)</td>
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<td></td>
<td>• There is a degree of national federation control over who the coaches are (depending on how you set them up)</td>
<td>• Clubs may feel like they are losing players and coaches may disengage</td>
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<td></td>
<td>• The national federation controls how many there are and the training programme within these</td>
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<tr>
<td></td>
<td>• More quality control over coaches, facilities and equipment than support existing clubs</td>
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<tr>
<td></td>
<td>• Possibly can link to school system</td>
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<tr>
<td>A centralised programme</td>
<td>• 100% quality control</td>
<td>• Players often prefer their personal coaches</td>
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<tr>
<td></td>
<td>• Larger pool of players</td>
<td>• Players maybe to young to move</td>
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<tr>
<td></td>
<td>• The best coaches</td>
<td>• A need to provide education for the players if they move</td>
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<tr>
<td></td>
<td>• National federation has control</td>
<td>• A need to provide loco -parentis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Can be very expensive</td>
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Generally no single model works, even within a single country and therefore models tend to be a hybrid of all three.
This paper proposes a 4-phase approach to formulating a TID program regardless of the model used:

- **Phase 1** – The introduction of TID based on performance at UK based training camps. These camps should be open to all and the aim would be to allow high quality, experienced coaches to observe athletes in a high quality, demanding environment.
- **Phase 2** – Research into an exact event analysis on competitive judo to include the demands of competition and training.
- **Phase 3** – Based on the above event analysis criteria for TID in Physiology, Psychology, motor learning, game intelligence and perception should be introduced. This should include sports specific agility and motor tests. Testing should be closely monitored and recorded to aid phase 4.
- **Phase 4** – Bench marks in the above tests should be established based on a longitudinal research.
- **Phase 5** – The introduction of TID and TS based on the above test, training camp performance, sociological factors and competition results.
- **Phase 6** – Continued education for coaches in TID, TS and TD.

Phase one would be costly but very productive. Week long training camps at the regional “performance centres” could have several roles including TID, education of massed numbers of junior players, education of coaches in TID, as well as base line measurements for research. This phase would be based more on coaches’ intuition; simple tests in game intelligence and agility could be conducted. Although it is possible to conduct TID sessions over one day coaches would learn more about an athlete over a week, such as their interaction within group environments, long-term ability, assimilation of technical information, diary-keeping and self-sufficiency. Performance at a young age has been shown to be a poor indicator of eventual attainment of high performance at a senior level. Motivation, learning strategies and determination do appear to be clear indicators; coaches can observe all of this over a week-long period (Abbott & Collins, 2004). Coaches would also have the chance to discuss the sociological issue described above with the athlete and their parents.

Phases 2, 3 and 4 could be linked into research being conducted at Anglia Ruskin University, UK, as part of the judo research group and European Judo Union coach education programmes.
Phase 5 would be the introduction of a comprehensive TID and TS program, leading to a more streamlined and cost effective approach to the identification of future elite performer in British judo.

**Conclusion**

Bompa (1999) reported that 80% of the Bulgarian competitors who won medals at the 1976 Olympics had previously been identified as potential elite athletes; this is a fact that should not be ignored. Likewise, Cuba has a judo population of approximately 500 athletes yet won 1 silver medal and 5 bronze medals in the Athens Olympics in 2004. If talented youngsters are to be provided with the best coaches and training from an early age, the likelihood that they will become elite players will increase (Morris, 2000; Williams & Reilly, 2000).

For any sport that is conducting TID programmes, there needs to be an ideal accepted model for both the factors that influence sporting performance and TID that athletes and coaches can compare their own qualities with (Bompa, 1985). International judo has a long way to go in terms of talent identification often because of the coaches attitudes of “judo is too complicated” but this is not the case.

A TID programme is pointless without a united talent development plan. The current Long Term Player Development Plan (McIver, 2006) should be looked at to see how the two systems could be integrated.
References


Referencing this work: