

## **HIGH LEVEL PERFORMERS IN ATHLETICS ARE CHARACTERIZED BY PSYCHOLOGICAL PROFILES WHICH GENERALLY DISTINGUISH THEM FROM LOWER LEVEL PERFORMERS: A REVIEW**

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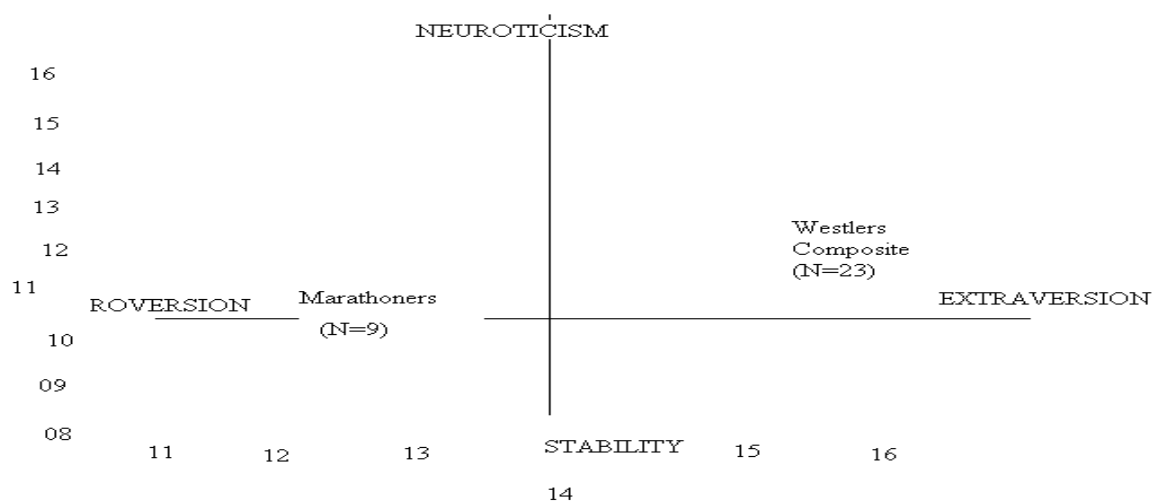
This particular viewpoint is not supported by all exercise scientists working in the area of personality. This matter has been reviewed in detail by Morgan (1972) in a recently edited volume, however, and the data included in that discussion is sufficient to simply state here that the failure to find psychological differences between athletes of differing ability levels reflects methodological problems to a great extent. For example, most of the literature in this area reports on attempts to make distinctions with psychometric scales designed to measure psychological *traits* rather than *states*. State theory would appear to be more efficacious from an intuitive standpoint, and recent research (Morgan et al. 1973; Morgan 1979) has provided support for the superiority of state theory. A second major problem with the majority of research in this field has been that inventions such as the 16 PF have been widely employed, but these scales do not contain psychometric correction scores. That is, the bulk of the null findings in this area of study should be viewed cautiously since investigators have historically failed to employ safeguards such as (1) lie, (2) guess, (3) random response scales. At any rate, the reader should understand that the author's position here has not been met with widespread agreement.

In one of our first investigations it was noted that wrestlers participating in the 1966 World Championships were characterized by extroversion and stability when taken as a single composite (Morgan 1968). When the Canadian, South African, and U. S. wrestlers were examined separately, however, a different picture emerged. In these tests, the South Africa contingent scored significantly higher on the neuroticism stability dimension. This may well have been a cultural factor, however, and one should be extremely sensitive to cultural differences when employing psychometric devices.

These investigations supported the viewpoint that high level competitors are both extroverted and stable. Furthermore, it seems fair to state that stability is a prerequisite for high level performance. It was also found in this study of high level wrestlers that extroversion was significantly correlated with success as measured by final placement in the 1966 World Tournament. More recently, it has been demonstrated that extroversion is not a requirement for success in all sports. For example, Morgan and Costill (1972) have reported that marathoners score low on extroversion and are generally characterized as tending towards introversion. This finding is illustrated in figure which graphically depicts marathoners as introverts and wrestlers as extroverts. Nevertheless, it will be noted that both of these athletic subgroups are still characterized by stability.

Reinforcement of concept one seems appropriate here since we are talking about group averages and profiles. While it is safe to generalize and state that world class marathoners are introverted and world class wrestlers are extroverted, one must not lose sight of the importance of individuality. For example, one of the best marathoners we have evaluated was an extrovert; and,

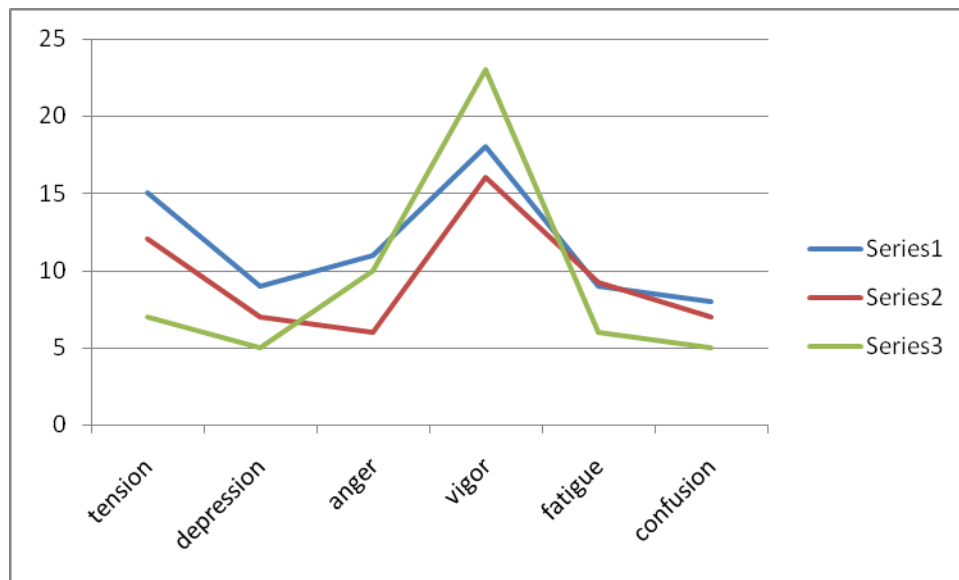
conversely, one of the best wrestlers tested was found to be an introvert. Extroversion is also correlated with a variety of other factors which are important in the athletic domain. For example, Ryan and Kovacic (1966) have found that contact athletes have higher pain tolerance than noncontact athletes, who in turn have higher pain tolerance than non-athletes. Ryan and Foster (1967) later demonstrated that such groups could be distinguished on the basis of perceptual style (augmentation-reduction) as well. Further, pain, tolerance, an important factor in many sports, is high in the extrovert and low in the introvert. As would be expected, contact athletes score high on extroversion, whereas, noncontact athletes score lower on this factor (Morgan and Johnson 1978). The reader is referred to Eysenck and Eysenck (1962) for a thorough discussion of extroversion-introversion and neuroticism stability as well as the method of measuring these two psychological traits.



**Figure:** Extroversion-introversion and neuroticism-stability for world-class wrestlers and marathoners as measured by the Eysenck Personality Inventory: Review

The 1972 Olympic Freestyle Wrestling Team was by far the most outstanding team ever fielded by the United States. They won a total of 6 Olympic medals among the 10 participants. It was possible to test these 10 Olympians as well as the 30 athletes who were eliminated in the final trials. Psychological testing of the 40 aspirants for the team was performed prior to the final selection process which consisted of round-robin wrestle-offs in each weight class. The results of this investigation (Morgan et al. 1973) are summarized in part in figure. It should be noted that the Olympians (successful group) scored lower on tension, depression, fatigue (psychic), and confusion and higher on psychic vigor. A substantial number of the unsuccessful wrestlers also exhibited high lie scores; therefore, L-corrected profiles are presented as well. The correction revealed that suppression of anger scores occurred for the unsuccessful athletes, although none of the remaining differences were of significance. The differences in tension, vigor, and confusion were regarded as significant, and it should be noted that the profiles for successful and

unsuccessful wrestlers alike differed markedly from the published norms for college males. The important point here is that the Olympians and unsuccessful athletes differed on a number of psychological variables.

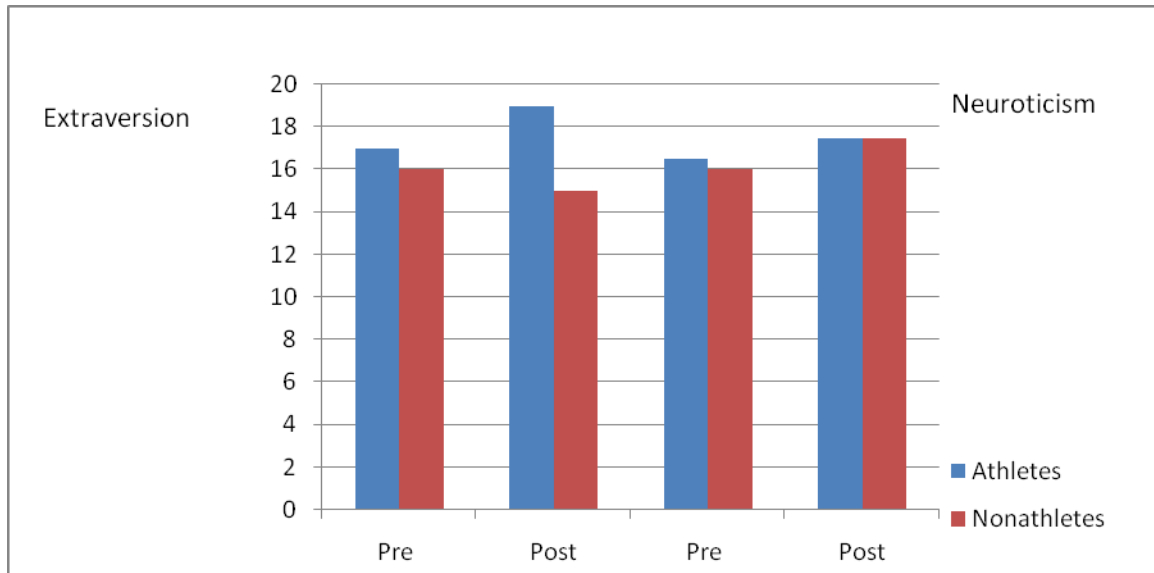


**Figure:** Psychological characterization of Olympic wrestlers (successful) and wrestlers who failed to make the team (unsuccessful) as measured by the profile of Mood Scores; Review

Throughout all of this research one question remains unanswered. Are the difference between (1) athletic subgroups (2) high and low level performers and (3) athletes and non-athletes the result of athletic participation or did these differences exist from the outset? Put another way; are these group differences due to heredity or environment? This is an important question since it bears on the matter of selection and prediction. This author has previously proposed that these differences can be largely attributed to genetic factors (Morgan 1972; Morgan 1974a). Space does not permit and exhaustive discussion of this topic and the reader is therefore referred to the original presentation of this hypothesis (Morgan 1972). It should be stated, however, that his viewpoint is based upon theoretical considerations to a greater extent than empirical evidence. One pioneering study has been performed by Lukehart (1969) who tested a group of 12 and 13 yr old boys prior to their decision to become members of an organized sports team. The findings of Lukehart's study (Lukehart 1969) are portrayed graphically in figure. It will be noted that those boys who elected to join the team (American Football) were significantly more extroverted than those who elected not to participate (non-athletes). Also, he retested both groups following the first year of competition and found these differences to have remained unchanged. It will be noted, however, that these athletes and non-athletes did not differ on neuroticism at either point. It would be predicted from Eysenckian Theory that the athletes would be more extroverted than the non-athletes from the outset of their careers, and athletic competition would not be expected to modify this trait. This, of course, is precisely what Lukehart (1969) found to be the case. The work of Yanada and Hirata (1970) offers additional support for the genetic or gravitation-

mortality model. They found that athletes who dropped out of their sport clubs at the University of Tokyo were more depressed, neurotic, and hypomania than those who remained. Hence, selective mortality (drop outs) also supports the genetic argument.

Implication: Since athletes of differing ability levels are characterized by different psychological profiles it would seem appropriate to pursue at least two avenues in attempting to counsel and advise athletes regarding sport adoption as well as in selecting and developing national teams. First, one might attempt through screening to identify athletes with desired profiles; and, second, behaviour modification might then be attempted where appropriate. Of course, an individual must be careful emphasized that no attempt at behaviour modification should attempted by persons without appropriate training in clinical psychology or psychiatry. Also, any decision regarding team selection or attempts at behaviour modification should be arrived at on the basis of input from the athlete, coach, trainer, team physician, and other appropriate consultants where necessary.



Based upon a discriminated function analysis of successful and unsuccessful oarsmen representative five separate classes at the University of Wisconsin, Morgan and Johnson (in preparation) recently proposed a mental health model for use in predicting success in oarsmen. This model was tested out by Morgan (1979) in a recent investigation. They tested the 60 candidates for the 1974 National Rowing Team; and, employing the above model (Morgan 1979), they attempted to predict who would make the team. Their predictions were accurate in 70% of the cases. This, of course, means that psychological states and traits played an important role in predicting whether or not a given oarsman would make the team. It should be emphasized, however, that this particular model was far from perfect, having an error rate of 30%. In other words, one would certainly not want to rely on psychological data alone in the selection of athletes. While this point probably seems rather obvious, it is not accepted by all contemporary sports psychologists.

Conclusion: successful athletes tend to be extroverted with the major exception of this generalization focused around the case of the marathoner and long distance runner who tend toward introversion. Outstanding athletes possess stable personalities in terms of the neuroticism stability dimension, and it is unlikely that unstable athletes can perform at a high level on a consistent basis. In behavioural state terms the successful athlete tends to be less anxious, depressed, and confused as well as possessing more psychic vigor than the unsuccessful athlete. On the other hand, we have consistently observed world class wrestlers, oarsmen, and marathoners, who were anxious, depressed, confused, and lacked psychic vigor. Therefore, the generalization being advanced is made with reservation. It is also noteworthy that athletes with “ideal” profiles frequently do not win berths on national and Olympic teams. This is understandable in view of the fact that 10 or 15 individuals are frequently selected from a sample of 100 or 200 aspirants.

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