ATTENTIONAL STYLE AND POWERLIFTING PERFORMANCE

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Summary.—In 1981 Nideffer stated that sport performance could be predicted if attentional demands of the task and the attentional abilities of the athlete were known. A simple closed type skill was chosen (powerlifting) where attentional demands were later suggested to be narrow and internal. Attentional style was assessed by Pratt and Nideffer’s abbreviated Test of Attentional and Interpersonal Style. 98 subjects volunteered while these powerlifters were participating in the United States Powerlifting Federation’s National Collegiate Powerlifting Championships in 1989. Analysis indicated significant differences in attentional style between successful and less successful powerlifters. Results are discussed in relationship to attentional theory.

Several studies have used the Test of Attentional and Interpersonal Style (Nideffer, 1974) to examine the relationship between attention and performance (Aronson, 1981; Furst, 1981; Jackson, 1980; Kirschenbaum & Bale, 1984; Landers, Boucher, & Wang, 1986; Nideffer, 1975; Reis & Bird, 1982; Vallerand, 1983; Van Schoyck & Grasha, 1981; Zaichkowsky, Jackson, & Aronson, 1982). A few of these studies have produced findings consistent with theoretical positions presented by Broadbent (1954), Easterbrook (1959), Landers (1978), and Nideffer (1981b). Specifically, individuals performing simple skills requiring few environmental cues and/or analytical skills under high arousal, exhibited narrow attentional styles (Nideffer, 1981a). Likewise, individuals performing complex skills under moderate to low arousal exhibited broad attentional styles. However, a later research did not support the prior findings (Dewey, Brawley, & Allard, 1989).

Nideffer (1981a, 1985) proposed that each sport may require different attentional styles. He suggested that golf required a very narrow focus and that basketball required a broader focus of attention when executing a fast break. Van Schoyck and Grasha (1981) interpreted Nideffer’s (1985) theory:

As a general rule, as situations become more complex and change rapidly, a participant will need an externally focused attentional style. Thus, a linebacker in football might need a broad external focus, whereas a tennis player or baseball batter might need a narrow focus to perform well. Conversely, as the demand for analysis or planning increases, the need for an internal and reflective attentional style becomes apparent. Thus, a weight lifter or shot putter would need a relatively narrow internal focus, whereas a quarterback in football determining what play to call might need a broad internal focus (Van Schoyck & Grasha, 1981, p. 274).

This research examined whether the subscales included in the abbreviated Test of Attentional and Interpersonal Style discriminated between suc-

1Send requests for reprints to Robert W. McGowan, Box 3176, Ruston, LA 71272.
successful and less successful performers when attentional demands and arousal levels were known (Nideffer, 1981a).

Given that previous research indicated that successful powerlifters tend to be highly aroused (McGowan, Talton, & Henschen, 1988) and that powerlifting is a simple skill requiring few performance cues and relatively little cognitive processing (Schmidt, 1982), it was hypothesized that successful powerlifters would score higher on measures of narrowing and internalization of attentional focus than less successful lifters.

**METHOD**

Subjects were 78 male and 31 female volunteer participants in the 1989 United States Powerlifting Federation's National Collegiate Powerlifting Championships held in Dallas, Texas. Subjects were treated in a manner consistent with APA guidelines and informed that the purpose of the research was to examine differences in attentional style between successful and less successful lifters. Immediately following the final lift, subjects reported to a roped off drug-testing area. Upon arrival, subjects were handed a pencil and a copy of the abbreviated scale, then were instructed to read the directions carefully and respond to each of the 12 items as quickly as possible.

Although much of the current research has been conducted utilizing the original full test (Nideffer, 1974), the abbreviated form was used in this research because it is brief (12 items) and has been reported to provide clinical indicators of attentional style (Nideffer, 1976; Nideffer & Sharpe, 1978; Pratt & Nideffer, 1985). Regarding the short form, Pratt and Nideffer stated "... this form is pretty good at identifying ... tendencies" (Pratt & Nideffer, 1985, p. 24). Although no validity or reliability statistics were provided for the abbreviated version by the author, items do not overlap as they do in the original or long form. The elimination of item overlap should have reduced the amount of common variance among subscales noted in previous research (Albrecht & Feltz, 1987; Nideffer, 1976). The abbreviated form of the test was first published in *The Inner Athlete* (Nideffer, 1975) and subsequently published in *Taking Care of Business: Tailoring Attention Control Training Through the Test of Attentional and Interpersonal Style* (Pratt & Nideffer, 1985).

**RESULTS**

Although 107 of the 115 championship lifters chose to take part in the study, 13 subjects were eliminated because their forms contained incomplete data. First through fourth place finishers were placed in Group 1 (Successful: \( n = 60 \)) while lower place finishers were classified into Group 2 (Less Successful: \( n = 38 \)). Scores analyzed with a discriminant analysis showed that groups differed significantly [Wilks Lambda = .94, \( \chi^2 (N = 96) = 6.22, p = .01 \)]. The only variable used in the discriminant solution was the Broad
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Internal subscore. However, univariate comparisons indicated that groups differed on two of the six attentional subscales: Broad Internal ($F_{1.96} = 6.46, p = .01$) and Narrowing ($F_{1.96} = 5.60, p = .02$). Unexpectedly, less successful lifters scored higher on the Narrowing and Broad Internal subscales than the successful lifters; see Table 1 for means and standard deviations.

<table>
<thead>
<tr>
<th>Group</th>
<th>Attention Subscales</th>
<th>Broad External</th>
<th>Overload External</th>
<th>Broad Internal</th>
<th>Overload Internal</th>
<th>Narrowing</th>
<th>Reduced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successful Lifters, n = 60</td>
<td>M</td>
<td>5.67</td>
<td>2.32</td>
<td>5.67</td>
<td>2.83</td>
<td>5.08</td>
<td>2.88</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>1.37</td>
<td>1.34</td>
<td>1.32</td>
<td>1.42</td>
<td>1.38</td>
<td>1.38</td>
</tr>
<tr>
<td>Less Successful, n = 29</td>
<td>M</td>
<td>5.92</td>
<td>2.10</td>
<td>6.37</td>
<td>2.84</td>
<td>5.79</td>
<td>2.71</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>1.12</td>
<td>1.25</td>
<td>1.34</td>
<td>1.30</td>
<td>1.53</td>
<td>1.39</td>
</tr>
</tbody>
</table>

*p < .05.

The apparent contradiction between theory and results may have been related to less successful lifters becoming over aroused. As noted by Easterbrook (1959), Landers (1978), and Nideffer (1981b), when arousal increases, attention narrows. It is possible that less successful lifters restricted their attention to less than optimal levels; however, no significant difference in reduced attention subscores was detected between less successful and successful lifters. Conversely, less successful lifters scored higher on one of the broad attentional subscales (Broad Internal scale). Although internality of attentional focus is symptomatic of high arousal states, if less successful competitors were somewhat overly aroused, they should have scored high on overload internal subscores rather than on the Broad Internal subscale.

<table>
<thead>
<tr>
<th>Attention Subscales</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Broad External</td>
<td></td>
<td>-.192</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Overload External</td>
<td></td>
<td>-.195</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Broad Internal</td>
<td></td>
<td>.482</td>
<td>-.192</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Overload Internal</td>
<td></td>
<td>.353</td>
<td>-.432</td>
<td>-.195</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Narrowing</td>
<td></td>
<td>.363</td>
<td>-.311</td>
<td>-.432</td>
<td>-.381</td>
<td></td>
</tr>
<tr>
<td>6. Reduced</td>
<td></td>
<td>-.196</td>
<td>.397</td>
<td>-.311</td>
<td>.261</td>
<td>-.373</td>
</tr>
</tbody>
</table>

An alternative explanation of the discrepancies between theory and results focus on the possibility that the test lacks factorial validity. Research
conducted by Dewey, Brawley, and Allard (1989) suggested that the test measured scanning and focusing rather than directionality and width suggested by Nideffer. A principal component factorial analysis (varimax rotation) of the data used in this study (SPSS PC+) also provided evidence for two factors; see Table 2 for the correlation matrix and Table 3 for the rotated factor matrix. Factor 1 included overload external and overload internal attention, reduced attention, and narrowing. The second factor was comprised of broad external and broad internal attention.

<table>
<thead>
<tr>
<th>Attention Subscales</th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broad External</td>
<td>-.159</td>
<td>.835</td>
</tr>
<tr>
<td>Overload External</td>
<td>.829</td>
<td>.002</td>
</tr>
<tr>
<td>Broad Internal</td>
<td>-.157</td>
<td>.828</td>
</tr>
<tr>
<td>Overload Internal</td>
<td>.610</td>
<td>-.235</td>
</tr>
<tr>
<td>Narrowing</td>
<td>-.632</td>
<td>.438</td>
</tr>
<tr>
<td>Reduced</td>
<td>.692</td>
<td>-.153</td>
</tr>
</tbody>
</table>

While researchers have suggested a directionality dimension of attention (Heilbrun, 1972; Keele, 1973; Shakow, 1962), it appeared that both the original and the abbreviated versions of the test did not adequately assess this dimension of attention. It is likely that the two factors assessed by Pratt and Nideffer's test reflect a focusing and scanning process as has been suggested by Van Schoyck and Grasha (1981) and Dewey, Brawley, and Allard (1989).

Research should continue to test Nideffer's theory of attention and the responsiveness of the test in assessing attentional focus. Research should compare the original version with the abbreviated one to confirm Nideffer's contention that the abbreviated form is "pretty good at identifying tendencies" of attentional focus.

REFERENCES


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