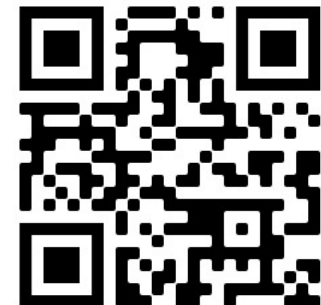


Do Athletes Have More of a Cognitive Profile with ADHD Criteria than Non-Athletes?

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Introduction

- 1. ADHD symptoms are part of a spectrum**
- 2. Genetic studies propose that it should be regarded as:**
 - a set of behavioral traits presented also in the general population, in a less extreme way.**
- 3. Ranges from hyperactivity/impulsivity to attentional difficulties**

Can cause emotional and behavioral problems if not being taken into consideration for the individual:

1. Motor, socially and academic problems
 2. Problems with unemployment, education and social functioning
Resulting in a risk for depression and other emotional problems
 3. In sport research, focus has been on problems such as higher prevalence of concussion, increased risk of injury, higher levels of aggression and emotional reactivity.
- Less focus has been on:
How ADHD can be used to advantage for the individual when the cognitive profile and environmental factors are considered.

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Described by the German Dr Weikard ADHD-like behaviors.
"Mangel der Aufmerksamkeit (attention deficit)"

inattentive person

won't remark anything but will be shallow everywhere.

studies his matters only superficially

his judgements are erroneous

he misconceives the worth of things because he does not spend enough time and patience to search a matter individually or by the piece with the adequate accuracy.

hear half of everything; they memorize or inform only half of it or do it in a messy manner.

they generally know a little bit of all and nothing of the whole ...

reckless, copious considering imprudent projects,

inconstant in execution.

They treat everything in a light manner since they are not attentive enough to feel denigration or disadvantages.



1846, the German doctor Heinrich Hoffmann describes in his book:
"A boy who could not sit still" **Fidgety Phil**,
he is characterized by a persistent pattern of ADHD.

The behavior was not considered as a mental problem.

1902, pediatrician Still presents "**defects of moral control**"

During the epidemic of meningitis 1917–1918

Detected effects such as behavioral problems:
hyperactivity impulsivity, anti social behavior and emotional
lability that could be an effect of childhood meningitis

Minimal Brain Dysfunction (MBD)

In 1980, the view of MBD changed

there was an increased interest in Attention and Hyperactivity
without the presence of any infection.

Core symptoms

- Inattention
- Hyperactivity
- “Selective attention”

i.e. selecting a “target item” while attenuating irrelevant stimuli in the presence of conflicting, distracting information.

- **“Selective attention” is the extreme form of attention “hyper focusing” and are not discussed in current conceptions of ADHD symptoms**
- **Hyper focusing can be an asset in sport and may even be crucial for high performance.**

Hyper focusing

It is most likely to occur in situations where the individual is:
goal-oriented
receives immediate feedback from the activity in progress,
i.e.,
the individual finds the activity stimulating and shuts out irrelevant information.



ADHD children are more active and involved in physical activity compared to non-ADHD children.

In adolescence, physical activity has been reported to improve the ADHD symptoms as well as academic performance and the adolescence overall attitude.

Sport activity involves:

physical activity, motivation,

stimulation, reward ,

structure, routine and social interaction

In Hartmans anthropological/sociological theory

ADHD is described as a hunter in a farmer society,
based on the hypothesis that the traits associated with ADHD are
better for hunters–gatherers and worse as settlers

Hartmann describes the ADHD individual as an expert on hunting with
ability to hyper focus and at the same time scanning the environment,
ready to take action (i.e., perceive information from attended channels
while also doing so from unattended channels)

Hartmans anthropological/sociological the

Attributes that render ADHD individuals as good “hunters”:

constant monitoring of environment, flexibility,
being able to throw themselves into a chase on a moment’s notice

Traits easily translated into sports such as football and the player highly active in a football match Thus, the findings support the suggestions that certain aspects of ADHD might be beneficial in a sport context, as long as the activity is interesting and stimulating. In the school environment, the activity might not be as stimulating and not as clearly goal-oriented

Traits

Hyperactivity, - energetic and tireless behaviour

High impulsivity

The ability to change the strategy quickly

Methods

ADHD SELF-REPORT SCALE: ASRS

- The most common and initial instrument used to identify ADHD is the ASRS, developed by the World Health Organization (WHO)
- The first six questions can be used as a short version of the instrument,
- Designed in accordance with DSM-IV criteria for inattention and hyperactivity and impulsivity for ADHD. There are 18 items and the response options range from 0 = never, 1 = rarely, 2 = sometimes, 3 = often, to 4 = very often. The possible total ranges from 0 to 72 .

The Swedish version is validated for adolescents

Methods

It was Administered to two groups of participants:

- 1. the athlete group**
- 2. the non-athlete group**

Estimated on ASRS for:

- a) leisure time/sports activities**
- b) school activities**

Procedure

ASRS is a self report scale but is recommended as an interview by trained personal

The students were interviewed by a trained psychotherapists with long experience and good knowledge of ADHD

and informed participants who gave their consent

ASRS

One question in the ASRS and ARSR-S relates to hyperactivity, a core symptom in ADHD, with children with ADHD reported to have a higher level of activity compared to typical children.

AQ / ASD

The athlete themselves also filled in the AQ

The purpose of the evaluations was to identify parallel criteria between the two instruments, and not to identify a diagnosis

The Autism Spectrum Quotient (AQ) was selected because several studies have shown that Autism Spectrum Disorder (ASD) symptoms coexist in individuals with ADHD,

especially in the core domains of ASD, such as social interaction, communication, and repetitive behaviors, and that these symptoms may contribute to greater stability of ADHD symptoms

Participants

200 students, 112 female and 88 male

Mean 16.94 years, age range 16–19 years)

Recruited from two high schools in Sweden,

athletes (40 women, 69 men) *Mean* 16.64; SD 1.79)

non-athletes (48 women, 43 men) *Mean* 17.23; SD 0.79).

Participants

- The athlete group were enrolled in the Swedish national sports talent program (Nationell Idrottsutbildning, NIU) and intensively involved in their sport and are considered among the most talented in the country
- They competed at club/local (11.2%), regional (23.4%), national (52.3%), and international (13.1%) level and represented a variety of sports including team sports (e.g., ice hockey and football: 79.8%) and individual sports (e.g., track and field, and tennis: 20.2%).

Participants

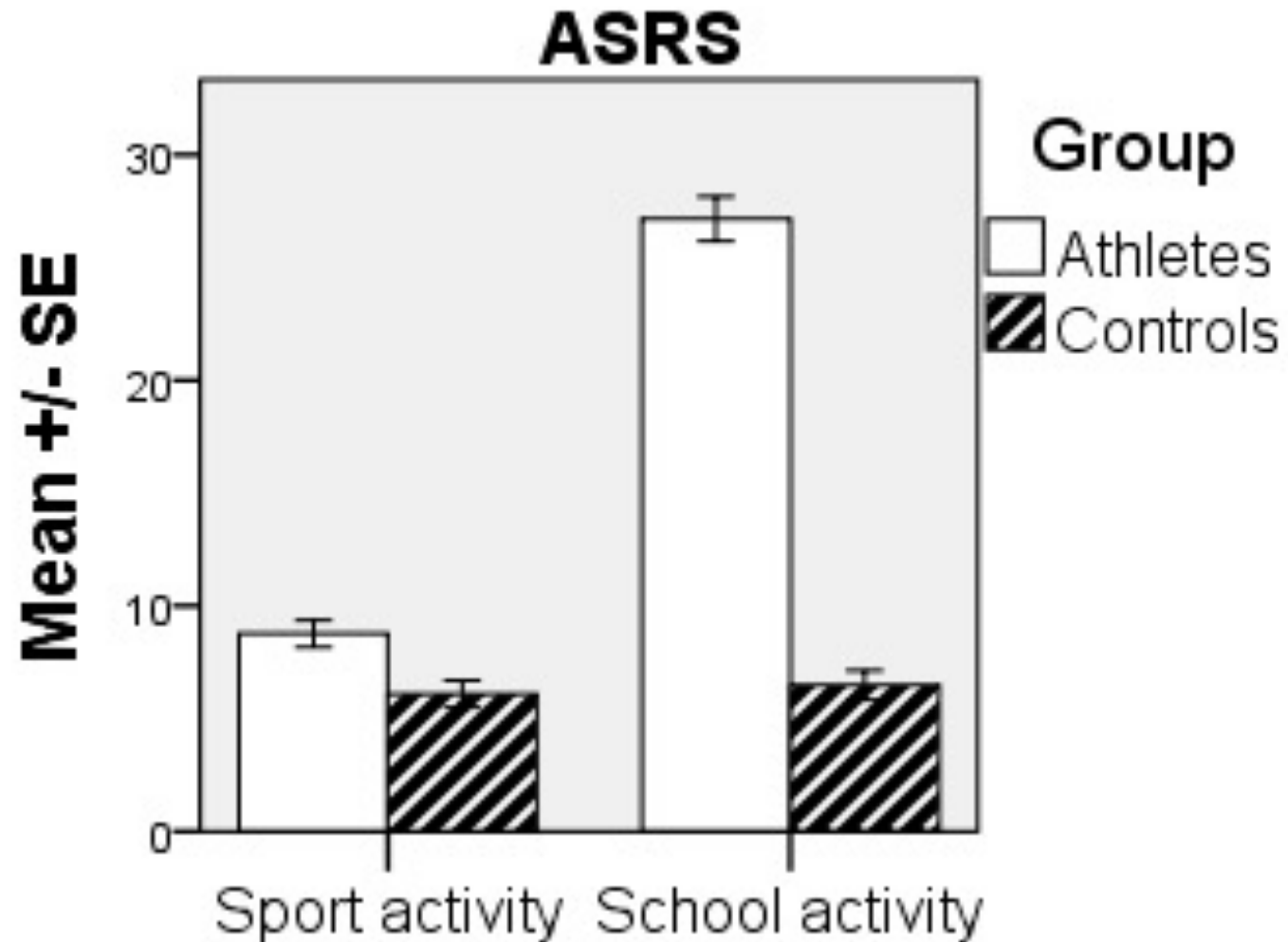
- The two groups did not have any diagnosis nor did they have academic difficulties

Statistical Analysis

- Data analysis was carried out to compare the two groups in terms of ASRS criteria, in leisure time and in the school environment.
- A two-way analysis of variance (ANOVA)
- F-test was used to analyse differences between the groups (athletes vs. non-athletes)
- pair-wise post-hoc comparisons with Tukey's HSD test was used to compare the sport athletes during sports activities and school.
- Data were screened for normality and homogeneity of variances was tested using the Levene statistic.

Comparison between groups in ADHD symptoms.

ASRS = Adult ADHD Self-Report Scale.



Results

Statistically significant differences in ADHD criteria ($p < 0.001$)

1.

Between the groups:

during school activities: *significant difference*
(with higher scores for the athlete group)

during leisure/sport activities: *no significant difference,*

2.

Within the athlete group - between the activities, i.e., sports activities and school activities: *significant difference*

3.

Within the non-athlete group - between the activities, i.e., leisure and school activities: *no significant difference*

In Conclusion

- in this study, we report that ADHD criteria are highly presented in the athlete group in the school environment and very low during sport activity – the leisure time
- This supports the suggestion that ADHD symptoms might be more prevalent in an athlete population *but importantly, it varies with contexts.*
- Potentially these athletes are able to inhibit the symptoms and learned to show appropriate behavior with the right training.

The ADHD “symptoms” can thus be seen as a profile with functional behaviors, as well as emotional and cognitive strengths

Discussion

How can we help Fidgety Phil and other children
with this profile:

To grow up and benefit by having a
cognitive profile of ADHD



Suggestions

Looking at ADHD “symptoms” as a profile with functional behaviors, as well as emotional and cognitive strengths (e.g., endurance and goal orientation) with the ability to “hyper focus”.

To look at the environmental factors and influence the profile before a diagnosis is considered instead of over diagnosing and overtreating children/adults.

This will probably not reduce all problems, but it might decrease some of them and help us to better see the advantage of these children’s traits

Further research is needed to learn more about how to early in life detect the profile and influence it by environmental factors.

How they best develop a functional daily life in school and in leisure time.



Link:

[http://kau.diva-portal.org/smash/resultList.jsf?query=&language=sv&searchType=RESEARCH&noOfRows=50&sortOrder=author sort asc&sortOrder2=title sort asc&onlyFullText=false&sf=all&aq=%5B%5B%7B%22personId%22%3A%22authority-person%3A4198%22%7D%5D%5D&aqe=%5B%5D&aq2=%5B%5B%5D%5D&af=%5B%5D](http://kau.diva-portal.org/smash/resultList.jsf?query=&language=sv&searchType=RESEARCH&noOfRows=50&sortOrder=author%20sort%20asc&sortOrder2=title%20sort%20asc&onlyFullText=false&sf=all&aq=%5B%5B%7B%22personId%22%3A%22authority-person%3A4198%22%7D%5D%5D&aqe=%5B%5D&aq2=%5B%5B%5D%5D&af=%5B%5D)

