Zentralinstitut
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Gesundheit

An introduction to therapeutic chess - background, methods and applications

International Day of Applied Chess

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Rehabilitation Center "Chovekolubie“ Bulgaria



Central Institute of Mental Health, Germany



Club de Ajedrez Magic Extremadura, Spain



GYMCHESS ®, Spain

- Therapeutic Chess
- Scientific Background

Therapeutic Chess

Ways of Therapeutic Chess



Relational therapy

Chess as a shared activity that builds rapport and opens conversation

Community programs

Clubs and group sessions that add structure, social contact and a sense of achievement

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Cognitive remediation

Structured chess exercises and guided play aimed at specific executive functions

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Relational Therapy





“Chess Therapy” as a form of Psychotherapy

Muhammad ibn Zakariyā Rāzī (*854, †925)
Persian physician, alchemist and chemist, philosopher
Chief physician of the Baghdad Hospital

Chess games between the therapist and patients or between patients
Tactics and strategies in board games
➔ Metaphors for real life situations

Fadul & Canlas “Chess Therapy” 2010

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http://www.minddisorders.com

Chess in community programs, as recreational therapy



- Structuring of free time
- Meaningful leisure activity
- Pleasure
- Newfound friendships
- Decrease in social anxiety
- Stress relief
- Improvement of self-efficacy
- Improvement of general cognitive ability

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Cognitive remediation

➔ Use chess as a tool for cognitive enhancement!

1 **Planning**
Thinking several moves ahead and weighing consequences.

2 **Working memory**
Holding the position, threats and candidate moves in mind.

3 **Attention & inhibition**
Filtering distractions and resisting the impulsive move.

4 **Cognitive flexibility**
Revising the plan when the opponent changes the position.

Scientific Background

EDITORIAL

Chess, a *Drosophila* of reasoning

GARRY KASPAROV Authors Info & Affiliations

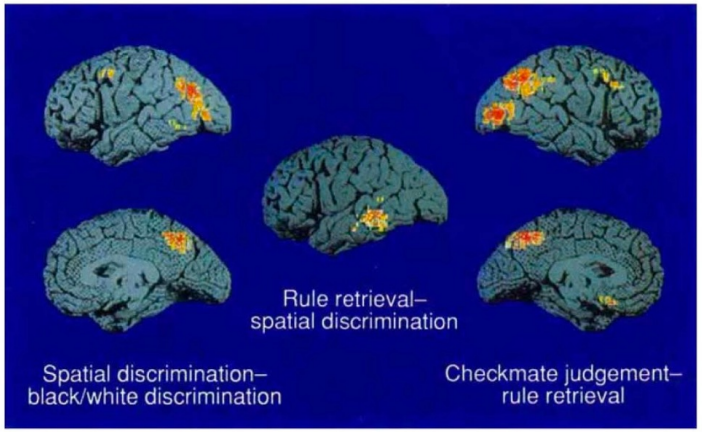
SCIENCE • 7 Dec 2018 • Vol 362, Issue 6419 • p. 1087 • DOI: 10.1126/science.aaw2221

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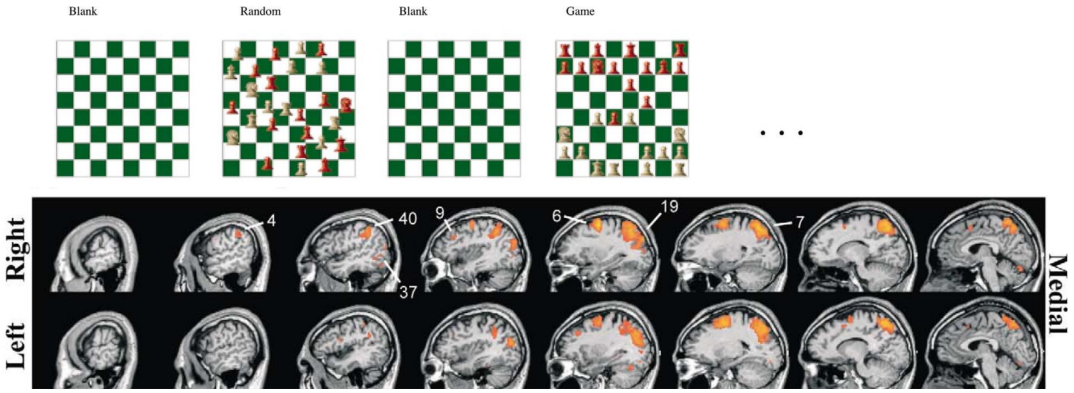


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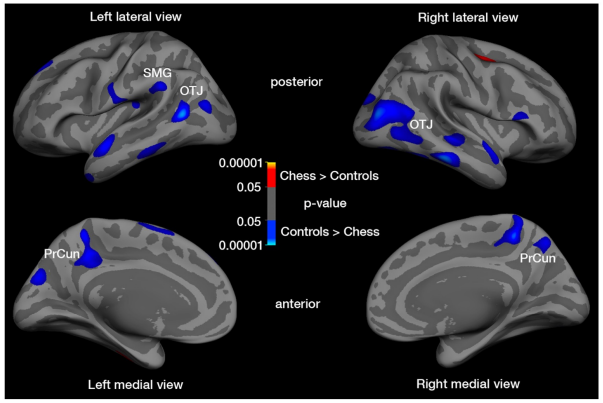
Brain activation through chess

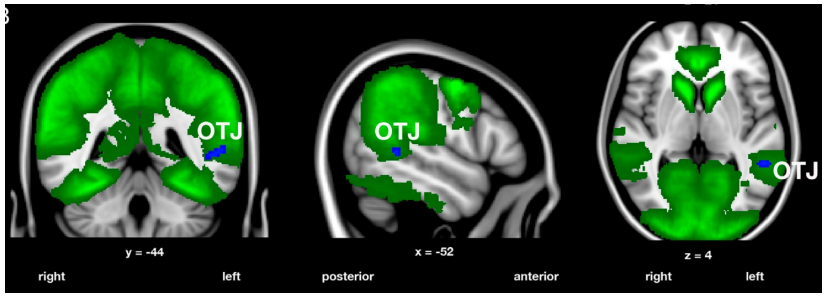


Nichelli et al. 1994



Atherton et al. 2003





Hänggi et al. 2014

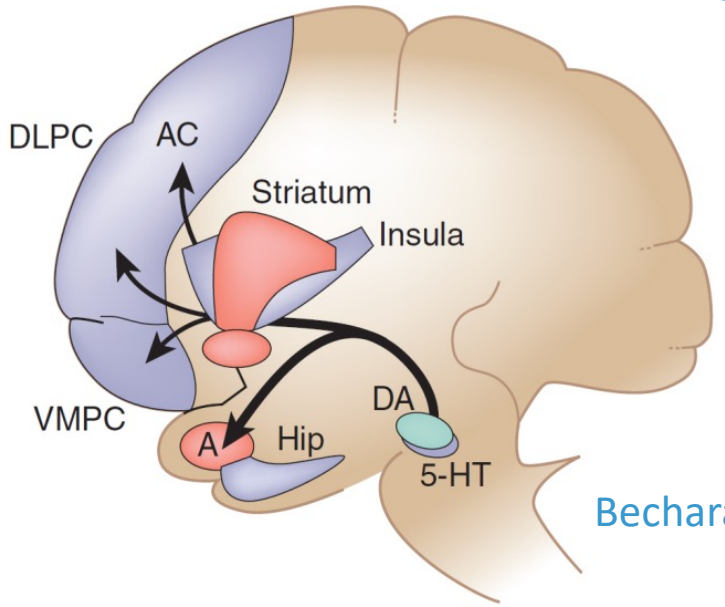
➔ prefrontal cortex activation

➔ increased neural efficiency in experts

‚Dual-System‘ models for mental health disorders

Imbalance between impulsive and reflective system

- ADHD
- Conduct disorder (antisocial behavior)
- Addictive disorders



Bechara 2005

Example Addictive disorders:
impulsive system
➔ immediate reward through drug use

reflective system
➔ long-term consequences of drug use

➔ How can this imbalance be influenced therapeutically?

Dekkers et al. 2022, Jansen et al. 2022, Vollstädt-Klein et al. 2020

Scientific Literature on Chess (as a Cognitive Remediation Training)

Studies on these topics

- Cognitive remediation therapy in mental health disorders
- Positive effects of playing chess for children and seniors
- Generalizability and divergent findings
- Finally: Positive effects of playing chess for therapy

➔ **Only shortly mentioned, you can download the complete reference list later!**

Cognitive remediation therapy (CRT)

Cognitive remediation therapy successful additional intervention for

- Schizophrenia (Bellani et al. 2019)
- Affective disorders (Siegle & Thase 2007)
- ADHD (Cortese et al. 2015)
- Eating disorders (Brockmeyer et al. 2014)
- Autism Spectrum disorder (Pasqualotto et al., 2021)
- Substance use disorders (Sofuoglu et al. 2016, Nardo et al. 2022)

Positive effects of playing chess for children and seniors

Chess playing school children ➔ better cognitive abilities, problem-solving skills and better socio-affective development (self-satisfaction and self-confidence) (Aciego et al. 2012)

30 hours of chess lessons improved problem solving skills in math problems (Meloni & Fanari 2019)

Chess lessons (one hour of chess instead of a math lesson) improved math skills (Barrett & Fish 2011, Rosholm et al. 2015)

Teenagers with mental health problems improved in working memory and showed increased life satisfaction (Gerhardt et al. 2026)

Older people (64 - 94 years) showed improvement in cognitive abilities and quality of life through chess training over 12 weeks (Cibeira et al. 2021)

Generalizability and divergent findings

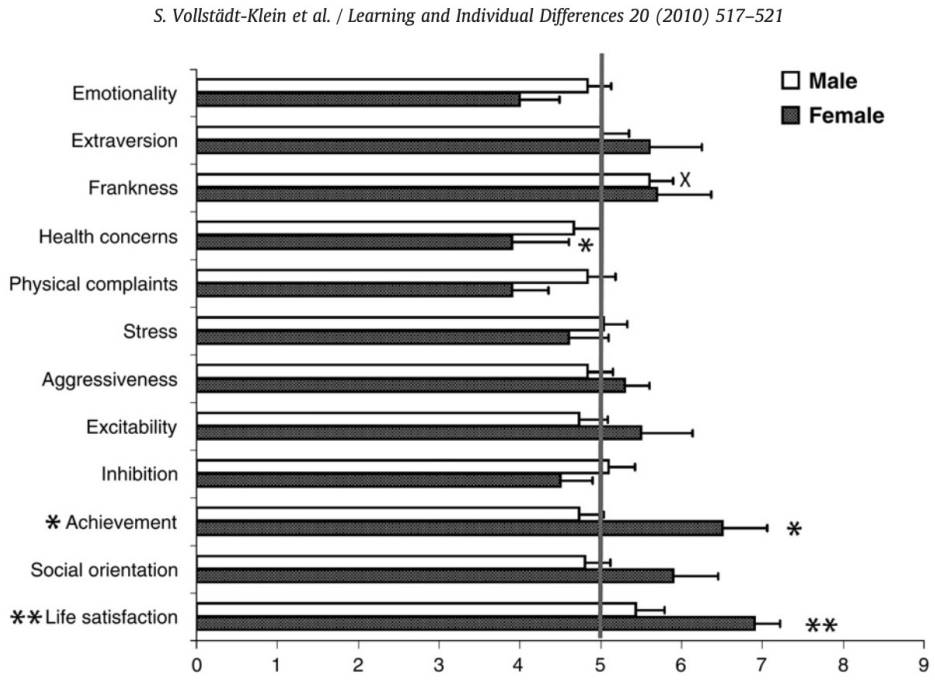
Meta-analysis (Sala & Gobet 2016):

- Only moderate link between chess and improved math or cognitive skills
- Most existing studies lacked proper control groups ➔ placebo effects?

Sala & Gobet 2017:

- Does chess instruction improve mathematical problem-solving ability? Two experimental studies with an active control group
- Chess showed no significant advantage in boosting academic performance (compared to Checkers and Go)

Chess and Life Satisfaction



Female chess players more performance-oriented, less worried about health than the general population and more satisfied with life

Vollstädt-Klein et al. 2010

Chess for therapy

Improvement of cognitive abilities (executive functions) in schizophrenia (Demily et al. 2009)

Offenders showed improvements in dealing with stress and aggression through an 18-week program with chess as a life skills intervention (Jordaan et al. 2018)

ADHD in children: Improvement in concentration (Mohammad Nour ElDaou & El-Shamieh, 2015), attention, hyperactivity, symptom severity (Blasco-Fontecilla et al., 2016) and inhibition (Gindi & Pilpel, 2020)

Chess improved working memory in cocaine addicts (Goncalves et al. 2014)

Chess-based cognitive remediation training well accepted in alcohol-dependent patients, positive effects on sustained attention and quality of life (Seeger et al. 2026)

Chess for therapy

Systematic Review

Medicine Bulletin
Open Access

REVIEW ARTICLE | Open Access

Chess in Mental Health: Therapeutic Potential and Neurocognitive Mechanisms—A Systematic Review

Maria Rodrigo-Yanguas, Fernand Gobet, Marcos Bella-Fernández, Marina Martin-Moratinos, Hilario Blasco-Fontecilla

Chess-based interventions in clinical and healthcare settings

Targeting cognitive and emotional domains, with recurrent applications in older adults and individuals with ADHD

Chess-based activities associated with changes in attention, executive functions, and emotional regulation

Brain: Structural and functional adaptations in chess experts suggesting neural efficiency, frontal regions supporting executive functions.

Literature list

You will find the complete reference list and PDFs of the presentation slides on

https://isac-appliedchess.com/index.php/en/news

Thank you for your attention!