

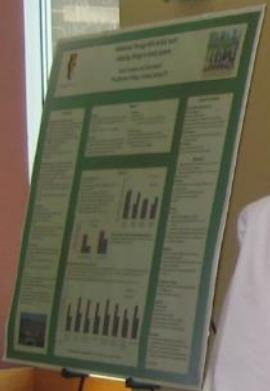
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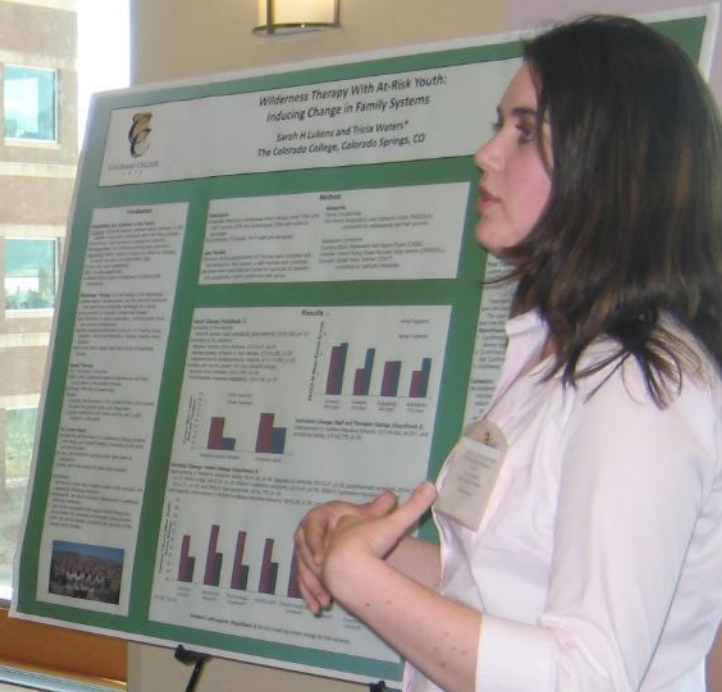
**Colorado Springs Undergraduate Research Forum**

**University of Colorado at Colorado Springs**

**April 10, 2010**

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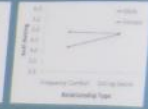
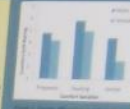
# Goodbye Dating, Hello Mating: Pluralistic Ignorance and the Hookup Culture in College

Annisa Harsha and Tomi-Ann Roberts  
The Colorado College, Department of Psychology



## Method

100 students completed a survey on campus...  
The survey included questions about dating, mating, and hookup culture...  
Results were analyzed using statistical methods...



## Results

Students who dated were more likely to report...  
Students who hooked up were more likely to report...  
Students who mated were more likely to report...

## Discussion

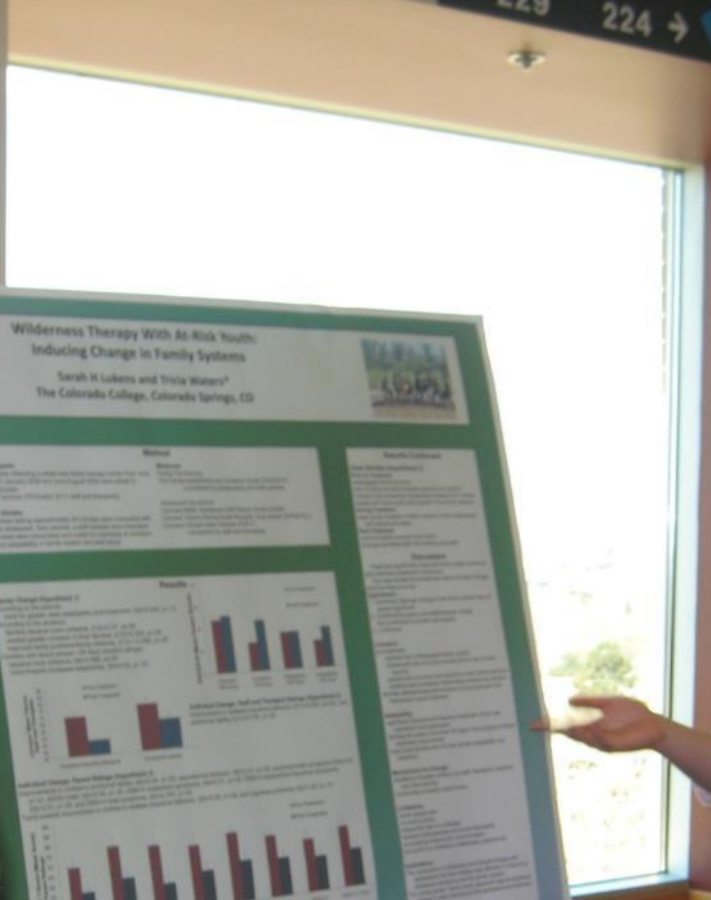
Pluralistic ignorance regarding mating in college at small colleges...  
The results suggest that students at small colleges...  
This study has implications for future research...

## Conclusion

Pluralistic ignorance is a common phenomenon...  
This study highlights the importance of...  
Future research should focus on...

Annisa Harsha, author of the poster, standing next to Tomi-Ann Roberts, co-author. They are in a room with large windows and a wooden bench.

Tomi-Ann Roberts, co-author of the poster, looking at the poster. He is wearing a dark jacket and jeans.



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# The Importance of Measuring Importance: Linking Sport Involvement to Self-Esteem

Kameron Moding and Tricia Waters\*  
The Colorado College, Colorado Springs, CO



## Introduction

### Sport Involvement

Sport involvement is the state of active participation ranging from non-involvement to active athlete. When sport involvement is higher, so is level of enjoyment and consistency of participation.

### Self-Esteem

Self-esteem, or global self-worth, is an overall judgment of one's worth as a person. Includes thoughts of how they feel in with their self and how much one likes themselves as a person.

### Word Results

Many research have found a positive relationship between sport involvement and self-esteem (Bridges, 1989; Taylor, 1980).

Other researchers have found that sport involvement may not affect or may even lower self-esteem (Bridges et al., 2001; Spillane, 1988; Kaminer and Swaffar, 2002).

### Importance Ratings

Researcher think that level of involvement, self-high level based on ability, positive correlation between athletic competence and self-esteem (Dill et al., 2002).

Charles Cooper (1980) used the self-esteem as only affected by domains that are important to an individual and the athletes have increased importance ratings.

### Purpose

To attempt to resolve disparities in the relation between sport involvement and self-esteem by including a measure of importance of the athlete domain in the relationship.

### Hypotheses

- 1) Male and intercollegiate athletes will have higher athletic competence than all recreational and non-athletes.
- 2) Male and intercollegiate athletes will rate athletes as more important than will recreational and non-athletes.
- 3) Importance ratings will affect the relationship between athletic competence and self-esteem.

## Method

### Participants

- 57 high school females
- 17 varsity athletes
- 25 Intercollegiate athletes
- 8 Recreational athletes
- 5 Non-athletes

### Measures

**Physical Self-Description Questionnaire (PSDQ):** 70 items rated on a 5-Likert scale ranging from 1 = true to 4 = false. The PSDQ includes 15 subscales.

### Subscales analyzed:

- General self-esteem (3 items)
- Sports competence (6 items)

**Self-Perception Profile for Adolescents (SPPQ):** 40-item self-report questionnaire measuring competence in eight domains, including athletic competence and importance ratings.

### Subscales analyzed:

- Athletic competence (3 items)
- Importance of the athletic domain (2 items)
- Global self-worth (3 items)

**Extracurricular Activity Questionnaire:** Each participant reports their level of involvement in up to five sports and five extracurricular activities. The questionnaire was used to split the participants into four groups: varsity, intercollegiate, recreational, and non-athletes.

### Procedure

- A consent form was completed by the parents of each participant.
- The PSDQ and the Self-Perception Profile were completed. The two measures were counterbalanced.
- The Extracurricular Activity Questionnaire was completed last.

## Results

### Preliminary Analyses

#### Internal Consistency Reliability

- PSDQ ranging from  $\alpha = .84$  to  $\alpha = .90$
- Self-Perception Profile ranging from  $\alpha = .88$  to  $\alpha = .93$
- Athletic competence ( $\alpha = .82$ )
- Importance of the athletic domain ( $\alpha = .88$ )

### Primary Analyses

#### Hypothesis #1:

A one-way ANOVA showed that there was a significant difference between the four athlete groups on the variable of athletic competence,  $F(3, 52) = 20.30, p < .001$ .



Figure 1: Mean athletic competence scores for the athlete groups. Error bars represent a 95% confidence interval for the mean.

#### Hypothesis #2:

A one-way ANOVA showed that there was a significant difference between the four athlete groups on the variable of importance ratings,  $F(3, 52) = 22.17, p < .001$ .



Figure 2: Mean importance ratings for the athlete groups. Error bars represent a 95% confidence interval for the mean.

### Hypothesis #3:

- There was not a significant difference between the four athlete groups on self-esteem.
- Importance ratings were then controlled.
- The participants were split into high and low importance groups based on their scores of importance for the athletic domain.
- Pearson correlations showed significant between sports competence and global self-worth and self-esteem for the high importance group (See Table 1).

Measure	High Importance Group	
	r	p
1. Self-esteem	.28*	.02**
2. Self-esteem	.16	.20**
3. Athletic Competence	.22*	.04**
4. Sports Competence	.18	.10**

Measure	Low Importance Group	
	r	p
1. Self-esteem	.07	.78
2. Self-esteem	.08	.75
3. Athletic Competence	.01	.97**
4. Sports Competence	.01	.97**

\* Significant at the .05 level. \*\* Significant at the .01 level.

- There were no correlations between sports competence and self-esteem without importance ratings.
- Only those who thought athletes were important showed a relationship between athletic competence and self-esteem.

- Importance may be the driving force that links sport involvement and self-esteem.
- It is necessary to include importance ratings in studies that examine influences on self-esteem.

### Future Directions

- Analyze the relationship between competence and self-esteem with importance ratings controlled for other domains, such as academic.
- Conduct the same study on high school males.





# Malingering on Concussion Baseline Testing in Athletes

Scarlett Prati and Dr. Kristi J. Erdal  
The Colorado College, Colorado Springs, CO

## Introduction

Malingering is a conscious effort to produce false or exaggerated symptoms of illness for secondary gain or to avoid military or civilian obligations. It is a form of deception that is often used to obtain financial gain, avoid military or civilian obligations, or to obtain medical attention. Malingering is a form of deception that is often used to obtain financial gain, avoid military or civilian obligations, or to obtain medical attention.

## Malingering in Athletes

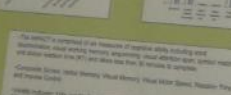
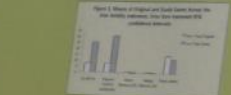
Malingering in athletes is a form of deception that is often used to obtain financial gain, avoid military or civilian obligations, or to obtain medical attention. Malingering in athletes is a form of deception that is often used to obtain financial gain, avoid military or civilian obligations, or to obtain medical attention.

## Method

The study was conducted on a group of athletes who were tested on a variety of cognitive and physical tasks. The study was conducted on a group of athletes who were tested on a variety of cognitive and physical tasks. The study was conducted on a group of athletes who were tested on a variety of cognitive and physical tasks.

## Results

The results of the study showed that a significant number of athletes were able to identify malingering techniques. The results of the study showed that a significant number of athletes were able to identify malingering techniques. The results of the study showed that a significant number of athletes were able to identify malingering techniques.



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## Discussion

The findings of this study have important implications for the field of sports medicine. The findings of this study have important implications for the field of sports medicine. The findings of this study have important implications for the field of sports medicine.

## Selected References

Kovacs, M., Gatsonis, C., & Hudson, J. (1994). The prevalence of depression in adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 33, 110-116.

**Qualitative Strategies**  
All the qualitative strategies and techniques reported by the participants were found to be successful in identifying malingering. All the qualitative strategies and techniques reported by the participants were found to be successful in identifying malingering.

**Physical Examination Factors**  
Of the 20 participants, 13 reported feeling that at least one indicator in their physical examination was useful in identifying malingering. Of the 20 participants, 13 reported feeling that at least one indicator in their physical examination was useful in identifying malingering.

**Confidence Factor**  
Confidence ratings were not significantly related to scores on the four malingering strategy indicators. Confidence ratings were not significantly related to scores on the four malingering strategy indicators.

**Conclusion**  
The findings of this study have important implications for the field of sports medicine. The findings of this study have important implications for the field of sports medicine. The findings of this study have important implications for the field of sports medicine.

## Selected References

Kovacs, M., Gatsonis, C., & Hudson, J. (1994). The prevalence of depression in adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 33, 110-116.



# The Neuronal Basis of Theory of Mind in the Autistic Brain

Samara M. Haver and Tricia Waters  
The Colorado College, Colorado Springs, CO



**Autism Spectrum Disorder (ASD)**

- Neurological condition that develops in infancy and persists throughout an individual's lifetime.
- Characterized by delayed or impaired:
  - Language and communication
  - Reciprocity of thought (empathy)
  - Social and emotional interaction
- Individuals with ASD have deficits in the development of theory of mind.

**Theory of Mind (TOM)**

TOM is the cognitive ability of an individual to understand and predict the behavior of others in terms of their internal mental states such as wishes, intentions, values, emotions, and desires.

TOM is a prerequisite for understanding and exhibiting appropriate behavior in social situations, and relies on an individual's ability to:

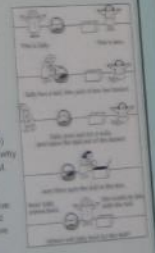
- Interpret other people's mien and thoughts about observed events.
- Maintain independent and internally-produced thoughts about other persons' expressions of others.

**Early Studies**

Baron-Cohen, Leslie, and Pith (1985) first hypothesized that the ASD brain either does not exist or is not capable of a TOM.

Study design based on Wimmer and Perner's Puppets Play Paradigm:

- Down syndrome and control groups predicted Sally would run in the basket, indicating they have a TOM.
- Children in the ASD group predicted Sally would look in the box, demonstrating a failure to appreciate that their knowledge of the dolls' location is different from Sally's, and therefore to appreciate a TOM.



Wimmer and Pith (1983) used "trick questions" to explain why children with ASD have a deficit in TOM.

"Mind blindness" suggests children with ASD do not exhibit normal social interaction skills because they have difficulty perceiving, interpreting, and understanding the emotions and cognitive states of themselves or others.

For example, children with ASD:

- Are typically unable to understand other's behavior.
- Have difficulty reading or predicting complex behaviors of others.
- Struggle to distinguish between observational actions.
- Struggle to distinguish between a TOM hypothesis and a "mind blindness" or the inability to demonstrate a TOM is hypothesized to be caused by a neurological deficit unique to ASD.

## The Mirror Neuron System (MNS)

First studies of the Mirror Neuron System (MNS) recorded cortical activity of macaques monkeys in response to performing or watching another individual perform a goal-related hand movement (e.g., tearing, grasping, or holding).

In both conditions, activation occurred in the same pre-motor cortex (PMc) when goal-related motor acts are performed.

Researchers proposed that the MNS is located in the PMc, because motor neurons are selectively responsive to affective actions related to social behavior (e.g., goal-related movements).

Effective action is related to TOM because it is motivated by an individual's reaction to others.

Therefore, MNS function is related to TOM capabilities.

Macaque monkeys and humans have similar MNSs.

Research shows both areas exhibit the PMc in response to imitation and observation of affective actions.



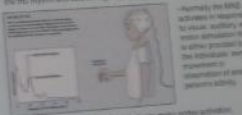
MNS activity is studied in humans using electroencephalography (EEG) and specifically targeted stimuli.

EEG measures the frequency and rhythm of neuronal activity from electrodes placed on the scalp.

Regular firing patterns indicate an accordance to the rhythmic coding response to stimuli.

In real time (not fully aware), neurons fire in sync in a rhythmic coding, large EEG response.

When physically or cognitively active, healthy dyads mirror synchronizing the rhythmic and decreasing EEG responses.



Children with ASD do not suppress the rhythmic coding observation of another person's activity and therefore are not considered to have a normally functioning MNS.

Because the rhythmic fluctuations indicate motor cortex activation, suppression of that physical movement indicates MNS activity.

## Current Research

The "Mirror Neuron" theory proposes that a Mirror MNS may be the basis for social interactions, abilities, or the development of a TOM.

The MNS is necessary to establish awareness and is essential to a child's ability to learn by observation and imitating the behavior of others.

The "Mirror Neuron" theory states that the social and communication difficulties associated with ASD are caused by information processing deficits.

Certain children in the ability to process social stimuli in a manner way to interact to predict, interpret and regulate interactions with ASD.

Researcher awareness in the ability to accurately understand non-verbal acknowledgment: higher cognitive skills such as empathy, theory of mind, and TOM are not possible.

Researcher studies are focused on studying TOM processes in healthy babies to better understand deficits of ASD.

For example, the understanding of facial expressions (EMFC) in the cortex may occur during self-reflection.

Studies of 18-month-olds found that young children with autism, the EMFC was most active when they were asked about themselves, and among ASD participants EMFC activation did not vary between questions about the self or other.

It is hypothesized that TOM may be related to sensory processing in the mirror neuron system or in another or distinct brain module of the MNS.

## Research Gaps and Future Directions

We know about how ASD influences the MNS.

Advanced fMRI studies to relate to MNS function in observational abilities.

EEG studies have effectively tested MNS activity.

We cannot understand what is causing social deficits about the specific activities of the MNS, but in the real world, when.

Understanding TOM is related to the MNS and individuals with ASD exhibit TOM deficits, further research should focus on gaining a better understanding of the MNS (e.g., neurons, function, and development) in healthy and ASD brains.

- How through activation of the MNS will help researchers understand TOM in the future.
- Identify more accurate diagnostic procedures for ASD, such as studying the TOM deficit.
- Understanding the same during early stages to identify MNS activity.
- Advances more effective therapies for ASD.

## Selected References

Baron-Cohen, S., Leslie, A. M., & Pith, I. (1985). Can autistic children be taught to understand other people's mental states? *Journal of Child Psychology and Psychiatry*, 26(2), 175-190.

Leslie, A. M., & Baron-Cohen, S. (1986). *Autism: A theory of mind approach*. London: Basil Blackwell.

Wimmer, J. M., & Pith, I. (1983). *The Wimmer and Pith Puppets Play Paradigm*. In S. Baron-Cohen, A. Leslie, & A. Pith (Eds.), *Autism: A theory of mind approach*. London: Basil Blackwell.





  
COLORADO COLLEGE  
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## Goodbye Dating Pluralistic Ignorance and the Annisa Harsha and The Colorado College,

### Introduction

This study is an exploration of college students' own attitudes toward the phenomenon of hooking up, their perceptions of other students' attitudes, and the extent to which these two are consistent or divergent.

**Hooking Up is:**  
When two people agree to engage in sexual behavior for which there is no future commitment. This behavior can include kissing, oral sex, and vaginal intercourse.

**Pluralistic Ignorance is:**  
A psychological state occurring when we believe that our own private attitudes are different from those of the majority of others, even though our public behavior is identical to theirs. Other people, such as a dating partner or a friend, often perceive us as a normative group member. Often, each group member will believe that they are the only one experiencing a conflict between private attitudes and public behavior.

**Prior Evidence**

Pluralistic ignorance in college has already been studied for risk behaviors such as binge drinking (Prentice & Miller, 1985), HIV/AIDS (only one study was related to hooking up: Lambert, Kahn, and Aspin (2005)).

- Increased undergraduate men have comfortable they were with the amount of hooking up at their college, as well as how comfortable they were with engaging in various activities during a hookup.
- Students indicated feeling less comfortable with the amount of hooking up on campus and with engaging in hookup activities than they believed their peers did.
- Men expressed greater comfort with more hookup activities than 502 women.



### Hypotheses

**Pluralistic Ignorance**

Participants would:

- Overestimate peers' level of comfort with hooking up on campus.
- Overestimate peers' level of comfort with hooking up during a hookup.
- Overestimate peers' level of comfort with engaging in various activities during a hookup.
- Underestimate the extent to which others worry about the consequences of hooking up.

**Gender Differences**

- Males would report hooking up more frequently than females.
- Males would report more comfort with the amount of hooking up on campus and with engaging in hookup activities, than they would not experience pluralistic ignorance as much.
- Females would have a stronger Dating Desire.

### Method

This study was a replication and extension of the research conducted by Lambert, Kahn, and Aspin (2005).

**Participants**

541 females and 180 male undergraduate students.

**Procedure**

A 20-minute online survey was used to collect responses to questions about hooking up, including:

- Frequency and Frequency Comfort
- Hooking Comfort (kissing, touching above the waist, and during a hookup)
- Gender Comfort (kissing and sex, hooking up, oral sex, and vaginal intercourse)
- Psychological Consequences (Dating Desire, Consequences, and Hookup Comfort)

Question format: Pre-test: Participants indicated their perceptions of hooking up at CC and their perception of the average female at CC.

Answer format:

- Increasing levels of a quality (such as Frequency)
- Statement (such as a health paper). Another example: Very Uncomfortable to Very Comfortable.



Figure 1. Gender Differences in Hooking Up and Dating Desire





# The Importance of Measuring Importance. Linking Sport Involvement to Self-Esteem

Kameron Moring and Tricia Waters\*  
The Colorado College, Colorado Springs, CO



### Introduction

**Sport Involvement**  
Sport involvement is the level of athletic participation among youth, measured as weekly activity. Youth sport involvement is higher, on average, than adult involvement or involvement of participation.

**Self-Esteem**  
Self-esteem is a global self-evaluation or appraisal of one's worth as a person. It is a positive thought of how one sees or feels about the self, based on how they compare to others.

**Research Goals**  
This study was designed to explore the relationship between youth sport involvement and self-esteem. The study was designed to explore the relationship between youth sport involvement and self-esteem. The study was designed to explore the relationship between youth sport involvement and self-esteem.

**Importance Ratings**  
Importance ratings were collected for various activities. The study was designed to explore the relationship between youth sport involvement and self-esteem. The study was designed to explore the relationship between youth sport involvement and self-esteem.

**Purpose**  
The purpose of this study was to explore the relationship between youth sport involvement and self-esteem. The study was designed to explore the relationship between youth sport involvement and self-esteem.

**Significance**  
This study is significant because it explores the relationship between youth sport involvement and self-esteem. The study was designed to explore the relationship between youth sport involvement and self-esteem.

### Method

**Participants**  
The study included 100 participants, including 50 males and 50 females, ranging in age from 18 to 25.

**Measures**  
The study used the Youth Sport Involvement (YSI) scale and the Self-Esteem (SE) scale. The YSI scale measures the frequency and intensity of youth sport participation, while the SE scale measures the individual's overall self-worth.

**Procedure**  
Participants completed the YSI and SE scales. The study was designed to explore the relationship between youth sport involvement and self-esteem.

**Data Analysis**  
The data was analyzed using Pearson's correlation coefficient. The study was designed to explore the relationship between youth sport involvement and self-esteem.

### Results

**Descriptive Statistics**  
The mean YSI score was 4.5 (SD = 1.2) and the mean SE score was 3.5 (SD = 1.0).

**Correlation**  
There was a significant positive correlation between YSI and SE,  $r = .45, p < .001$ .



**Significance**  
The correlation was significant at the  $p < .001$  level. The study was designed to explore the relationship between youth sport involvement and self-esteem.

### Discussion

The findings of this study suggest that youth sport involvement is a significant predictor of self-esteem. The study was designed to explore the relationship between youth sport involvement and self-esteem.

These findings have implications for youth sport programs. The study was designed to explore the relationship between youth sport involvement and self-esteem.

Future research should explore the relationship between youth sport involvement and self-esteem. The study was designed to explore the relationship between youth sport involvement and self-esteem.

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# The Neuronal Basis of Theory of Mind in the Autistic Brain

Samara M. Haver and Tricia Waters\*  
The Colorado College, Colorado Springs, CO

**Autism Spectrum Disorder (ASD)**

A neurological condition that develops in infancy and persists throughout an individual's lifetime.

Characterized by delayed or impaired language and communication

Flexibility of thought (rigidity)

Social and emotional interaction

Individuals with ASD have deficits in the development of Theory of Mind

### Theory of Mind (TOM)

TOM is the cognitive ability of an individual to understand and predict the behavior of others in terms of their internal mental states such as wishes, intentions, beliefs, emotions, and desires.

TOM is a prerequisite for understanding and exhibiting appropriate behavior in social situations, and relies on an individual's ability to:

1. recognize other people's reactions and thoughts about observed events
2. maintain independent and internally-generated thoughts about his/her personal interpretations of others.

### Early Studies

Baron-Cohen, Leslie, and Frith (1985) first hypothesized that the ASD brain either does not employ or is not capable of a TOM.

Study design based on "Wimmer and Penner's Puppets Play Paradigm"

Three conditions and control groups predicted Sally would look in the basket, indicating they have a TOM

Children in the ASD group predicted Sally would look in the box, demonstrating a failure to recognize that their knowledge of the facts (location is different from Sally's) and therefore to exercise a TOM

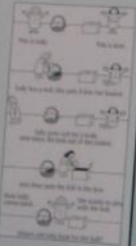
Chen, Tager-Flusberg, and Stockman (2000) introduced "blind discovery" to explain why children with ASD have a deficit in TOM

"Blind discovery" suggests children with ASD do not exhibit normal social communication skills because they have difficulties perceiving, interpreting, and anticipating the emotional and cognitive states of themselves or others.

For example, children with ASD

- often have trouble to understand other's behavior
- tend to address people and objects in the same way
- have difficulty reading or predicting complex behaviors of others
- struggle to distinguish responses from intentional actions

"Blind discovery" or the inability to demonstrate a TOM is hypothesized to be caused by a neurological deficit unique to ASD.



**The Mirror Neuron System (MNS)**

First studies of the Mirror Neuron System (MNS) associated cortical activity of macaque monkeys in response to performing or watching another individual perform a goal-related hand movement (e.g., tearing, grasping or holding).

On both conditions, activation occurred in the ventral pre-motor cortex (vPMAC), where goal-related motor acts are planned.

Researchers propose that the MNS is located in the vPMAC. Because some neurons are exclusively responsive to effective actions related to social behavior (e.g., goal-related movements).

Effective action is related to TOM because it is motivated by an individual's reaction to others.

Therefore, MNS function is related to TOM capabilities.

fMRI scans indicate that humans have similar MNS.

Research shows both species activate the vPMAC in response to execution and observation of effective actions.



MNS activity is studied in humans using electroencephalography (EEG) and specifically targeted stimuli.

EEG measured the frequency and rhythm of neuronal activity from electrodes placed on the scalp.

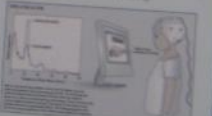
Abnormal firing patterns correlate in accordance to an individual's response to stimuli.

- As not (but not fully aware), neurons fire in sync in a rhythmic creating large EEG frequencies
- When presented or cognitively active, neurons desynchronize suppressing the rhythmic and decreasing EEG frequencies

Normally the MNS activates in response to visual, auditory, and motor stimulation that is either provided by the individual's own movement or observation of another person's activity.

Because rhythmic fluctuations indicate motor cortex activation, suppression without physical movement indicates MNS activity.

Children with ASD do not suppress the rhythmic during the observation of another person's activity and therefore are not considered to have a normally functioning MNS.



**Current Research**

The "Broken Mirror" theory predicts that children with ASD demonstrate

- The MNS is required for affective states to occur by observing an action.
- The "Central Coherence" theory predicts difficulties associated with ASD are deficits.

Central coherence is the ability to focus on a single task and is linked by parallel processing.

Without automatic awareness of one's surroundings, higher-level TOM are not possible.

Present studies are focused on the brain to better understand deficits of TOM.

For example, the ventromedial prefrontal cortex (vmPFC) was most active when they were most active during self-reflection.

Lombardo et al. (2008) found that an vmPFC was most active when they were answering ASD participants' difficult self-reflection questions about the self or others.

It is hypothesized that TOM may be related to the executive level instead of or in addition to the MNS.

### Research Gaps and Future Studies

- Little known about how ASD influences the MNS
- Unknown if TOM deficit is related to MNS function specifically
- Few EEG studies have effectively isolated the MNS
- Not enough empirical data to support the significance of the MNS, even in the non-ASD population
- Assuming TOM is reliant on the MNS and TOM deficits, further research should focus on understanding of the MNS (e.g., location, healthy and ASD brains)
- A more thorough definition of the MNS
- Better understand TOM in the non-ASD population
- Utilize more accurate diagnostic procedures (looking for TOM deficits)
- Rehabilitating the areas during memory
- Formulate more effective therapy options

### Selected References

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Roth, G., Tager-Flusberg, H., & Stockman, L. S. (2000). *Journal of Autism and Developmental Disorders*, 30, 1-10.



# Malingering on Concussion Baseline Testing in Athletes

Scarlett Prati and Dr. Kristi J. Erdal  
The Colorado College, Colorado Springs, CO

**Introduction**

Malingering is defined as the intentional production of false or grossly exaggerated symptoms of illness for secondary gain. It is a form of deception that is often used to obtain financial gain, avoid military or other service, or to obtain sympathy or attention from others. Malingering is a form of deception that is often used to obtain financial gain, avoid military or other service, or to obtain sympathy or attention from others. Malingering is a form of deception that is often used to obtain financial gain, avoid military or other service, or to obtain sympathy or attention from others.

**Malingering in Athletes**

The purpose of this study was to determine if athletes who were suspected of malingering on baseline testing would also show signs of malingering on other tests. The study was conducted at Colorado College, a liberal arts college in Colorado Springs, CO. The study was conducted at Colorado College, a liberal arts college in Colorado Springs, CO. The study was conducted at Colorado College, a liberal arts college in Colorado Springs, CO.



**Method**

The study was conducted at Colorado College, a liberal arts college in Colorado Springs, CO. The study was conducted at Colorado College, a liberal arts college in Colorado Springs, CO. The study was conducted at Colorado College, a liberal arts college in Colorado Springs, CO.

**Results**

The study found that athletes who were suspected of malingering on baseline testing also showed signs of malingering on other tests. The study found that athletes who were suspected of malingering on baseline testing also showed signs of malingering on other tests. The study found that athletes who were suspected of malingering on baseline testing also showed signs of malingering on other tests.

**Discussion**

The study found that athletes who were suspected of malingering on baseline testing also showed signs of malingering on other tests. The study found that athletes who were suspected of malingering on baseline testing also showed signs of malingering on other tests. The study found that athletes who were suspected of malingering on baseline testing also showed signs of malingering on other tests.

**Selected References**

1. Erdal, K. J., Prati, S., & ... (2014). Malingering on Concussion Baseline Testing in Athletes. *Journal of Athletic Training*, 49(1), 1-8.








### The Importance of Measuring Importance: Linking Sport Involvement to Self-Esteem

Kameron Moding and Tricia Waters\*  
 The Colorado College, Colorado Springs, CO



Psychology

**Method**

21 high school athletes

- 10 female athletes
- 10 male athletes

**Measures**

**Perceived Sport Involvement Questionnaire (PSIQ)** (15 items) - Measure of perceived sport involvement (PSIQ) (15 items)

**Self-Esteem**

General self-esteem (GSE) - 10 items

Academic self-esteem (ASE) - 10 items

**Procedure**

All athletes completed the measures at the same time. The PSIQ and GSE were administered first, followed by the ASE. The order of the measures was randomized.

**Results**

**Descriptive Statistics**

PSIQ (M = 3.4, SD = 1.2)


GSE (M = 3.2, SD = 1.1)

ASE (M = 3.1, SD = 1.0)

**Primary Analysis**

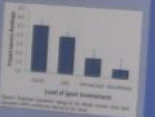
**Hypothesis #1**

A 2x2x2 ANOVA showed that there was a significant effect of the four athletes' groups on the amount of sport involvement.  $F(3, 18) = 4.2, p < .01$



**Hypothesis #2**

A 2x2x2 ANOVA showed that there was a significant effect of the four athletes' groups on the amount of self-esteem.  $F(3, 18) = 4.2, p < .01$



**Hypothesis #3**

There was not a significant difference between the four athletes' groups on self-esteem.

Significance ratings were then considered.

The athletes with the high and the importance group based on their state of importance for the athletes showed:

- 1. Athletes perceived significant importance between sports involvement and general self-esteem and athletes for the high importance group (see Table 1).

Measure	High Importance Group	Low Importance Group
1. GSE	3.8	3.2
2. ASE	3.6	2.8
3. PSIQ	3.8	2.8
4. Self-Esteem	3.6	2.6

See Table 1 for complete list of athletes' groups.

**Discussion**

Implications

- 1. There were no significant differences between athletes' perceptions and self-esteem without measuring importance ratings.
- 2. Only those who thought athletes were important showed a relationship between athletes' perceptions and self-esteem.
- 3. Importance may be the missing link that links sport involvement and self-esteem.
- 4. It is important to include importance in the athletes' self-esteem and self-esteem.

**Future Directions**

- 1. Analyze the relationship between athletes' self-esteem and importance ratings.
- 2. Analyze the relationship between athletes' self-esteem and importance ratings.
- 3. Conduct the same study on high school athletes.





### Goodbye Dating, Hello Mating: Pluralistic Ignorance and the Hookup Culture in College

Amika Marsha and Toni-Ann Roberts  
The Colorado College, Department of Psychology



**Abstract**  
This study examines the relationship between pluralistic ignorance and hookup culture in college. We hypothesized that students who believe that most of their peers are engaged in hookups are more likely to engage in hookups themselves, even if they personally do not want to. We tested this hypothesis using a survey of college students.

**Method**  
A survey of 100 college students was conducted. The survey measured students' perceptions of their peers' hookup behavior and their own hookup behavior. The survey also measured students' attitudes towards hookups and their beliefs about the prevalence of hookups on campus.

**Results**  
The results of the survey showed that students who believed that most of their peers were engaged in hookups were more likely to engage in hookups themselves. This relationship was mediated by students' attitudes towards hookups. Students who believed that most of their peers were engaged in hookups also had more positive attitudes towards hookups, which in turn led to more hookup behavior.

**Conclusion**  
The results of this study suggest that pluralistic ignorance plays a role in the hookup culture in college. Students who believe that most of their peers are engaged in hookups are more likely to engage in hookups themselves, even if they personally do not want to. This finding has important implications for college students and their relationships.



Perception of Peers	Hookup Behavior
Most peers are engaged in hookups	High
Some peers are engaged in hookups	Medium
Most peers are not engaged in hookups	Low





## Wilderness Therapy With At-Risk Youth: Inducing Change in Family Systems

Sarah H Luken and Tricia Waters\*  
The Colorado College, Colorado Springs, CO



### Introduction

**Adaptability and Cohesion in the Family**  
Cohesion: emotional bonding between family members in the degree of autonomy individuals wish for family process  
Enmeshment: high emotional bonding/overlapping boundaries  
Disengagement: low emotional bonding/high autonomy  
Adaptability: family's ability to respond to stress by changing its power structure and relationships  
Chaotic: too much adaptability  
Rigid: too little adaptability  
Healthy family system is balanced in cohesion and adaptability

**Wilderness Therapy** Find and therapy in the wilderness utilizes nature, experiential, and the trust and teamwork that arises from overcoming challenges in a group setting process to address wilderness therapy uses teamwork to teach cooperation, communication, trust and positive relationships  
Dynamic: which may translate to having a healthy family dynamic  
Family: which may translate to having a healthy family dynamic  
to be more intense than other forms of traditional therapy

**Genetic Therapy**  
From the white in German  
Health: when people are aware of themselves and the environment in the present moment  
Injury: from lack of awareness  
Therapy: engages when person in the context of their environment  
achieves the physical body and imagination  
utilizes interaction with others and the self to assist integration and health

**The Current Study**  
evaluates the effectiveness of a wilderness therapy program in family and Genes Therapy in leading at-risk youth  
and their families.  
and post-treatment questionnaires were given to pre- and post-treatment participants.  
3 families were interviewed for case study analysis.



### Method

**Participants**  
64 families receiving a wilderness family therapy intervention from June 2007-January 2008 and June-August 2008 were asked to participate  
48-52 families (19 males), 4-11 staff and therapists.  
**Case Studies**  
selected family adaptability of 30 families were conducted with the subsequent three years, staff member with a change in roles were interviewed and coded for presence of cohesion and adaptability in family system were coded

### Results

**Family Change: Post-treatment**  
According to the parents:  
Families became more cohesive: 11 (71.2%) of 15  
selected groups selected in the pre-test, 11 (71.2%) of 15  
improved family problem-solving abilities: 11 (71.2%) of 15  
Families with lower pre-treatment scores:  
Improved more cohesive: 11 (71.2%) of 15  
Improved family problem-solving abilities: 11 (71.2%) of 15



**Individual Change: Self and Family Adaptability**  
Individual Change: Self and Family Adaptability: 11 (71.2%) of 15  
Improved family problem-solving abilities: 11 (71.2%) of 15  
Improved family problem-solving abilities: 11 (71.2%) of 15



### Results Continued

**Case Study: Interview 1**  
The therapist:  
The family: adaptability and cohesion (pre-test)  
Interview 1: adaptability and cohesion  
**Case Study: Interview 2**  
The therapist:  
The family: adaptability and cohesion (pre-test)  
Interview 2: adaptability and cohesion  
The therapist:  
The family: adaptability and cohesion (pre-test)  
Interview 3: adaptability and cohesion

### Discussion

Wilderness therapy: wilderness therapy and wilderness therapy  
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The study: wilderness therapy and wilderness therapy

### Conclusion

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**The Neuronal Basis of Theory of Mind in the Autistic Brain**  
Barbara W. Pomeroy and Tracy Moore  
The Colorado College, Colorado Springs, CO

**Abstract:** Theory of mind (ToM) is the ability to understand and predict the behavior of others based on their mental states. ToM is a core skill in social interaction and is often impaired in individuals with autism spectrum disorder (ASD). This study investigated the neural basis of ToM in the autistic brain using functional magnetic resonance imaging (fMRI). We hypothesized that individuals with ASD would show altered activation patterns in brain regions associated with ToM, such as the superior temporal sulcus (STS) and the amygdala. Results showed that individuals with ASD exhibited significantly reduced activation in the STS and amygdala during ToM tasks compared to neurotypical controls. These findings suggest that altered neural connectivity in these regions may contribute to the social difficulties observed in ASD.

**Introduction:** Theory of mind (ToM) is a complex social skill that involves understanding and predicting the behavior of others based on their mental states. It is a core skill in social interaction and is often impaired in individuals with autism spectrum disorder (ASD). This study investigated the neural basis of ToM in the autistic brain using functional magnetic resonance imaging (fMRI). We hypothesized that individuals with ASD would show altered activation patterns in brain regions associated with ToM, such as the superior temporal sulcus (STS) and the amygdala. Results showed that individuals with ASD exhibited significantly reduced activation in the STS and amygdala during ToM tasks compared to neurotypical controls. These findings suggest that altered neural connectivity in these regions may contribute to the social difficulties observed in ASD.

**Methods:** Twenty individuals with ASD and twenty neurotypical controls participated in the study. All participants completed a series of ToM tasks while lying in an fMRI scanner. The tasks included watching short videos of social interactions and answering questions about the characters' mental states. fMRI data were collected during the tasks, and activation patterns were analyzed using statistical parametric mapping (SPM). Regions of significant activation were identified and compared between the ASD and neurotypical groups.

**Results:** Results showed that individuals with ASD exhibited significantly reduced activation in the STS and amygdala during ToM tasks compared to neurotypical controls. These findings suggest that altered neural connectivity in these regions may contribute to the social difficulties observed in ASD.

**Conclusion:** This study provides evidence for altered neural connectivity in brain regions associated with ToM in individuals with ASD. The findings suggest that altered neural connectivity in these regions may contribute to the social difficulties observed in ASD. Further research is needed to explore the underlying mechanisms of these findings and to develop interventions that target these neural pathways.





