

מחינוך מוצלח -- להצלחה בחיים

יורם יובל
מכון המוח לחקר רגשות
אוניברסיטת חיפה



להצליח בתנאים קשים: מהי עמידות?

או: מה קרה ל-698 הילדים שנולדו באי קוואיי ב-1955 ?

יש ילדים שהמריאו והגיעו כנגד כל הסיכויים...
מה הסוד שלהם?

עמידות: היכולת לשרוד אירועים ונסיבות קשים וממושכים בלי
להישבר, ובלי לאבד את הרצון והיכולת לנסות שוב ושוב

גורמים המאפיינים ילדים ומבוגרים בעלי עמידות גבוהה:

1. דמות מיטיבה – לא חשוב מי, חשוב שיאהב את הילד ויאמין בו
2. יכולת לקבל את המציאות הקשה כפי שהיא בלי לייפות אותה, אבל גם בלי לברוח ממנה
3. אמונה פנימית שהחיים הם בעלי משמעות ויש להם עתיד, ייעוד, וערך
4. יכולת להתור ויצירתיות שעוזרת להם למצוא פתרונות חדשים לבעיות קיימות, ולחפש אנשים ומוסדות שיסייעו להם לשרוד ולשגשג



RESILIENCE AND RECOVERY: FINDINGS FROM THE KAUAI LONGITUDINAL STUDY

For many years mental health professionals tended to focus almost exclusively on the negative effects of biological and psychosocial risk factors by reconstructing the life histories of individuals with persistent behavior disorders or serious emotional problems. This retrospective approach created the impression that a poor developmental outcome is inevitable if a child is exposed to trauma, parental mental illness, alcoholism, or chronic family discord, since it examined only the lives of the "casualties," not the lives of the successful "survivors."

During the last two decades of the 20th century, our perspective has begun to change. Longitudinal studies that have followed individuals from infancy to adulthood have consistently shown that even among children exposed to multiple stressors, only a minority develop serious emotional disturbances or persistent behavior problems. Their findings challenge us to consider

the phenomenon of *resilience*, a dynamic process that leads to positive adaptation, even with a context of adversity (Luthar, 2003).

Only about a dozen longitudinal studies have examined this phenomenon over extended periods of time—from infancy to adulthood. The Kauai Longitudinal Study is the only study to date that has examined development from birth to midlife. The study explores the impact of a variety of biological and psychosocial risk factors, stressful life events, and protective factors on a multi-racial cohort of 698 children born in 1955 on the Hawaiian island of Kauai, the westernmost county in the U.S.A.

In the Kauai study, a team of mental health workers, pediatricians, public health nurses, and social workers monitored the development of all children born on the island at ages 1, 2, 10, 18, 32, and 40 years. We chose these ages because they represent stages in the life cycle

that are critical for the development of trust, autonomy, industry, identity, intimacy, and generativity (Werner & Smith, 1982; 1992; 2001).

Some 30% of the survivors (n=210) in our study population were born and raised in poverty, had experienced pre- or perinatal complications; lived in families troubled by chronic discord, divorce, or parental psychopathology; and were reared by mothers with less than 8 grades of education. Two-thirds of the children who had experienced four or more of such risk factors by age two developed learning or behavior problems by age 10 or had delinquency records and/or mental health problems by age 18.

However, one out of three of these children grew into competent, confident and caring adults. They did not develop any behavior or learning problems during childhood or adolescence. They succeeded in school, managed home and social life well, and set realistic education-



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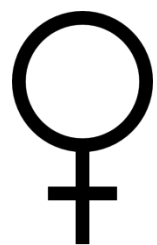
Risk, resilience, and recovery: Perspectives from the Kauai Longitudinal Study

EMMY E. WERNER

Division of Human Development and Family Studies, University of California, Davis

Abstract

This article summarizes the major findings of a longitudinal study that traced the developmental paths of a multiracial cohort of children who had been exposed to perinatal stress, chronic poverty, and a family environment troubled by chronic discord and parental psychopathology. Individuals are members of the Kauai Longitudinal Study, which followed all children born in 1955 on a Hawaiian island from the perinatal period to ages 1, 2, 10, 18, and 32 years. Several clusters of protective factors and processes were identified that enabled most of these high-risk individuals to become competent and caring adults. Implications of the findings for developmental theory and social action programs are discussed, and issues for future research are identified.



גורמים תלויי מגדר:



מה עזר לבנים? מה עזר לבנות?

נוסף על הגורמים שראינו, שהיו משותפים לבנים ולבנות, נמצאו במחקר האורכי של קוואי גורמים שניבאו יותר את הצלחתם של הבנים, וגורמים שניבאו יותר את הצלחתן של הבנות:

גורמים חיצוניים—

תלויים בסביבה ובנסיבות

- יציבות של משפחת המוצא
- פחות אחים ואחיות
- הזדמנות שנייה לקפיצת מדרגה
- "תהיה יפה (ותשתוק)"
- -- ויהיה טוב" (?)
- -- סוד היתרון היחסי הקטן:

גורמים פנימיים—

תלויים בילד עצמו



- תכונות אופי
- אינטליגנציה
- יכולות חברתיות
- הישגים אקדמיים
- "תהיי מוכשרת ותתאמצי"

איך הוקי קרח קשור להצלחה?

או: איך יתרון התחלתי קטן הופך להצלחה גדולה



Medicine Hat Tigers
2007 WHL Playoffs

■ זוהי רשימת השחקנים של המדיסין הט טייגרס מאלברטה, קנדה

■ האם אתם מבחינים כאן במשהו מוזר?

No.	Player	Pos.	Shoots	Ht	Wt	DOB	Hometown
9	Brennan Bosch	C	R	5'8	168	Feb. 14, 1988	Martensville, SK
21	Jerrid Sauer	RW	R	5'10	196	Sep. 12, 1987	Medicine Hat, AB
11	Scott Wasden	C	R	6'1	188	Jan. 4, 1988	Westbank, BC
12	Colton Grant	LW	L	5'10	186	Mar. 20, 1989	Standard, AB
14	Darren Helm	LW	L	6	182	Jan. 21, 1987	St. Andrews, MB
15	Derek Dorsett	RW	L	5'11	178	Dec. 20, 1986	Kindersley, SK
16	Daine Todd	C	R	5'10	173	Jan. 10, 1987	Red Deer, AB
17	Tyler Swystun	RW	R	5'11	185	Jan. 15, 1988	Cochrane, AB
19	Matt Lowry	C	R	6'0	190	Mar. 2, 1988	Neepawa, MB
20	Kevin Undershute	LW	L	6'0	178	Apr. 12, 1987	Medicine Hat, AB
22	Tyler Ennis	C	L	5'9	164	Oct. 6, 1989	Edmonton, AB
23	Jordan Hickmott	C	R	6'1	183	Apr. 11, 1990	Mission, BC
25	Jakub Rumpel	RW	R	5'8	166	Jan. 27, 1987	Hrnciarovce, SLO
28	Bretton Cameron	C	R	5'11	181	Jan. 26, 1989	Didsbury, AB
36	Chris Stevens	LW	L	5'10	197	Aug. 20, 1986	Dawson Creek, BC



Unequal Competition as an Impediment to Personal Development: A Review of the Relative Age Effect in Sport

Jochen Musch

University of Bonn, Germany

and

Simon Grondin

Université Laval, Québec, Canada

Children born shortly before the cutoff date for age grouping in youth sport programs suffer from being promoted to higher age groups earlier than their later-born peers. Skewed birthdate distributions among participants in youth sport and professional sport leagues have been interpreted as the result of this disadvantage. A growing body of research shows that this *Relative Age Effect* in sport is a worldwide phenomenon and that it exists in many, but not all, competitive sports. Both physical and psychological mechanisms that may be responsible for the effect are identified. Negative consequences on personal development and possible remedies to the problem are discussed. Finally, desirable and necessary directions for future research are formulated. © 2001 Academic Press

ינה הראשונים?
ה? פשטני קצת...
זכריע בהצלחתם

ר, המובילה להזדמנויות,
טוב יותר, וניסיון נוסף
ז לעומת ילד שנולד
יכול לכלוא את הילדים
עה, המתמידים עוד

■ אז איזה ילד כדאי להיות, מהגדולים או מהקטנים בכיתה?



חוק 10,000 השעות

או: אין מה לעשות, ככה זה – אימון, אימון ואימון

- במחקר שביצעו הפסיכולוג אנדרס אריקסון ועמיתיו באקדמיה למוזיקה של ברלין, הם חילקו את התלמידים לשלוש קבוצות: ה"כוכבים" (שיהפכו לסולנים), ה"טובים" (שיהיו נגנים בתזמורות) והמורים למוסיקה (פחות נחשב ופחות מתוגמל)
- כולם החלו לנגן באותו הגיל פחות או יותר - 5 לערך
- בגיל 8 החלו לצוץ ההבדלים: ה"כוכבים" כבר ניגנו 6 שעות ביום ויותר. הם צברו עד גיל 20 **עשרת אלפים שעות נגינה**; ה"טובים" צברו שמונת אלפים שעות נגינה; המורים למוסיקה ניגנו רק ארבעת אלפים שעות במצטבר



חוק 10,000 השעות

או: אין מה לעשות, ככה זה – אימון, אימון ואימון

■ אותו הדפוס התקבל אצל פסנתרנים חובבנים לעומת מקצוענים

■ הצטיינות יוצאת דופן בביצוע משימה מורכבת דורשת רמה מינימאלית -- ומכרעת -- של תרגול חוזר, וזה נכון בהרבה מקצועות, ענפי ספורט ותחומי עיסוק!

■ החוקרים הסכימו על מספר הקסם – 10,000 שעות (שנה = 8760 שעות)

■ מה הקשר לביטלס, ביל גייטס, ומוצרט?

■ כשאדם מתאמן, הוא מפתח גם משמעת עצמית – וזה חשוב ביותר! 

משמעת עצמית וטרגדיית

המרשםלו: אל תאכל את המרשםלו!

- בתחילת שנות ה-70 ערך הפסיכולוג וולטר מישל סדרה של ניסויים באוניברסיטת סטנפורד, שבה בדק האם ילדים בני 4 יעמדו בפיתוי של פרס מידיי (מרשםלו) על מנת לקבל פרס גדול יותר (2 מרשםלו) בהמשך
- כלומר, הוא בדק את המשמעת העצמית שלהם
- 2 מתוך 3 ילדים אכלו את המרשםלו!
- בפרק זמן של 40 שנה, מה שהחל כניסוי לכאורה טריוויאלי הפך למחקר התפתחותי מרתק ומפורסם
- מה קרה לילדים שלא אכלו את המרשםלו? **ציונים טובים יותר בבית הספר, 210 נקודות יותר בפסיכומטרי, משכילים יותר, יכולת עמידה בלחץ גבוהה יותר, ומה שהכי משמעותי -- מאושרים יותר**

ולמה זה חשוב? כי היום אין ספק: משמעת עצמית חשובה יותר מ IQ 
להצלחה בחיים -- ומשמעת עצמית אפשר ללמד וללמוד!

Predicting Adolescent Cognitive and Self-Regulatory Competencies From Preschool Delay of Gratification: Identifying Diagnostic Conditions

Yuichi Shoda and Walter Mischel
Columbia University

Philip K. Peake
Smith College

Variations of the self-imposed delay-of-gratification situation in preschool were compared to determine when individual differences in this situation may predict aspects of cognitive and self-regulatory competence and coping in adolescence. Preschool children from a university community participated in experiments that varied features of the self-imposed delay situation. Experimental analyses of the cognitive-attentional processes that affect waiting in this situation helped identify conditions in which delay behavior would be most likely to reflect relevant cognitive and attentional competencies. As hypothesized, in those conditions, coherent patterns of statistically significant correlations were found between seconds of delay time in such conditions in preschool and cognitive and academic competence and ability to cope with frustration and stress in adolescence.

To be able to delay immediate satisfaction for the sake of future consequences has long been considered an essential achievement of human development. After a series of investigations into the individual differences associated with the choice to delay gratification (e.g., Klineberg, 1968; Mischel, 1958, 1961a, 1961b, 1966; Mischel & Metzner, 1962; Schack & Massari, 1973; Walls & Smith, 1970), research turned to the processes underlying the ability to sustain self-imposed delay of gratification after the initial choice has been made (e.g., Mischel, 1974, 1981; Toner & Smith, 1977). In a recent follow-up study, preschool children who delayed gratification longer in the self-imposed delay paradigm (e.g., Mischel, Ebbesen, & Zeiss, 1972) were described more than 10 years later by their parents as adolescents who were significantly more competent (Mischel, Shoda, & Peake, 1988). Specifically, when these children became adolescents, their parents rated them as more academically and socially competent, verbally fluent, rational, attentive, playful, and able to deal well with frustration and stress. The study suggested that long-term prediction may be

possible from the self-imposed delay paradigm, adding to a growing tradition of research devoted to the identification of stability and coherence throughout development (e.g., Block, 1971; Caspi, Elder, & Bem, 1987; Erickson, Sroufe, & Egeland, 1985; Kagan & Moss, 1962). However, the small sample size required combining the different experimental situations in which delay behavior was measured. Therefore, it was not possible to compare major variations of the self-imposed delay situation to examine the characteristics that might render it more or less predictive of the obtained long-term outcomes. The present study is an effort to overcome this constraint.

In the present study, we attempted to identify the particular psychological conditions in which children's delay of gratification behavior is more likely to predict relevant individual differences in developmental outcomes. The identification of these conditions, which may be considered "diagnostic" (Quattrone & Tversky, 1984; Tversky & Hutchinson, 1986), is derived directly from the theoretical and experimental analyses of the cognitive-attentional processes that enable the young child to delay (e.g., Mischel, 1974, 1981, 1984). For this reason, we supplemented the original follow-up sample with a second, larger wave of outcome data collected about 3 years later, and thereby almost doubled the available number of respondents. The new follow-up wave also added expanded rating measures of both cognitive and coping competence, as well as Scholastic Aptitude Test (SAT) scores. These new data allowed us to compare long-term correlates of delay behavior in the major variations of the Mischel et al. (1972) self-imposed delay situations.

An important variation in the original preschool delay situations was whether or not the reward objects were more salient (i.e., exposed vs. obscured) during the delay period. In an extensive series of experiments (Mischel, 1974, 1981) to clarify the basic processes allowing young children to delay gratification, it was found that for children at this age (about 4.5 years old), physically exposing the rewards appears to increase the tendency to have arousing, consummatory thoughts about them.

Behavioral and neural correlates of delay of gratification 40 years later

B. J. Casey^{a,1}, Leah H. Somerville^a, Ian H. Gotlib^b, Ozlem Ayduk^c, Nicholas T. Franken^d, Mary K. Askren^d, John Jonides^d, Marc G. Berman^e, Nicole L. Wilson^e, Theresa Teslovich^e, Gary Glover^f, Vivian Zayas^g, Walter Mischel^{h,1}, and Yuichi Shoda^{a,1}

^aSackler Institute for Developmental Psychobiology, Weill Cornell Medical College, New York, NY 10065; ^bDepartment of Psychology, Stanford University, Stanford, CA 94305; ^cDepartment of Psychology, University of California, Berkeley, CA 94720; ^dDepartment of Psychology, University of Michigan, Ann Arbor, MI 48109; ^eDepartment of Psychology, University of Washington, Seattle, WA 98195; ^fLucas Imaging Center, Department of Radiology, Stanford University School of Medicine, Stanford, CA 94305; ^gDepartment of Psychology, Cornell University, Ithaca, NY 14853; and ^hDepartment of Psychology, Columbia University, New York, NY 10027

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We examined the neural basis of self-regulation in individuals from a cohort of preschoolers who performed the delay-of-gratification task 4 decades ago. Nearly 60 individuals, now in their mid-forties, were tested on "hot" and "cool" versions of a go/no-go task to assess whether delay of gratification in childhood predicts impulse control abilities and sensitivity to alluring cues (happy faces). Individuals who were less able to delay gratification in preschool and consistently showed low self-control abilities in their twenties and thirties performed more poorly than did high delayers when having to suppress a response to a happy face but not to a neutral or fearful face. This finding suggests that sensitivity to environmental hot cues plays a significant role in individuals' ability to suppress actions toward such stimuli. A subset of these participants ($n = 26$) underwent functional imaging for the first time to test for biased recruitment of frontostriatal circuitry when required to suppress responses to alluring cues. Whereas the prefrontal cortex differentiated between no-go and go trials to a greater extent in high delayers, the ventral striatum showed exaggerated recruitment in low delayers. Thus, resistance to temptation as measured originally by the delay-of-gratification task is a relatively stable individual difference that predicts reliable biases in frontostriatal circuitry that integrate motivational and control processes.

reward | behavioral suppression | functional MRI | inferior frontal gyrus | longitudinal

The ability to resist temptation in favor of long-term goals is an essential component of individual, societal, and economical success. Developmentally, this ability has been assessed by measuring how long a young child can resist an immediate reward (e.g., a cookie) in favor of a larger, later reward (e.g., two cookies) (1). Even as adults we vary in our ability to resist temptations. Alluring situations can diminish our control (2-4); what serves as an alluring situation that requires a capacity to control our impulses, however, changes as a function of age (e.g., from cookies to social acceptance). In the present study we examined the extent to which individual differences in delay of gratification assessed when participants were in preschool and in their 20s and 30s predict control over impulses and sensitivity to social cues at the behavioral and neural level when the participants were in their 40s.

Delay of gratification depends importantly on cognitive control (5). Cognitive control refers to the ability to suppress competing inappropriate thoughts or actions in favor of appropriate ones (6-11). Previously, we have shown that performance on the delay-of-gratification task in childhood predicts the efficiency with which the same individuals perform a cognitive control task (the go/no-go task) as adolescents and young adults (5). Individuals who as preschoolers directed their attention toward rewarding aspects of the classic delay-of-gratification situation, such as focusing on the cookies (high-temptation-focus group),

had more difficulty suppressing inappropriate actions than did their low-temptation-focus counterparts, especially for the most difficult trials. Difficulty was manipulated by increasing the number of "go" trials preceding a "no-go" trial, thus making the "go" response more salient and automated. Differences between the high- and low-temptation-focus groups increased as the number of preceding "go" trials increased, with the high-temptation-focus group having more difficulty, reflected in slower response times, suppressing responses. These findings suggest that performance in preschool delay of gratification may predict the capacity, in adulthood, to control thoughts and actions, as reflected in performance on cognitive control tasks, and that the ability to control one's thoughts and actions can vary by the potency of interfering information (12). Likewise, alluring or social contexts can diminish self-control (4, 13, 14).

Early experiments on delay of gratification demonstrated that part of the contextual effect was due to the different cognitive strategies that individuals used. For example, "cooling" the hot, appealing, or appetitive features of tempting stimuli by reappraisal or reframing strategies to focus on their cool, cognitive features (e.g., to envision the marshmallow as a cloud or a little cotton ball, rather than as a sweet, delectable treat) has been shown to be highly effective in enhancing delay of gratification (e.g., 1, 15-17). The same preschool child who yielded immediately to the temptation by representing the hot, appetitive features of the reward (e.g., its yummy, sweet, chewy taste) could wait for long periods for the same tempting stimulus by focusing on its cool qualities (e.g., its shape). At the same time, there seem to be important, naturally existing individual differences in the spontaneous use of such strategies (e.g., 5, 18).

Indeed, Metcalfe and Mischel (2) proposed "cool" and "hot" systems to explain the dynamics of resisting temptation during the delay-of-gratification task. These two interacting neurocognitive systems are implicated in self-control. Whereas the first, a "cool" system, involves cognitive control-related neural circuitry, the second, a "hot" system (19), involves desires and emotions that are under stimulus control and are associated with emotional brain regions. Recent brain imaging studies have provided evidence for dissociable brain systems related to immediate over long-term choice behavior consistent with the no-

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¹To whom correspondence may be addressed. E-mail: bj2002@med.cornell.edu, wms@psych.columbia.edu, or yshoda@u.washington.edu.

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Correspondence concerning this article should be addressed to Yuichi Shoda or Walter Mischel, Department of Psychology, Columbia University, New York, New York 10027.

זהירות, חיזוק חיובי!

(או: האם התאמצתי מספיק? -- על הצלחה ודימוי עצמי)

פרופ' קרול דוויק, חוקרת מאוניברסיטת קולומביה, לקחה 400 ילדים בכיתה ה' ונתנה להם לפתור פאזל. כשסיימו אמרה להם:

□ "איזה יופי! אתה בטח נורא חכם" או --

□ "איזה יופי! אתה בטח התאמצת מאוד"

ואז הזמינה אותם לנסות לפתור פאזל יותר קשה

50% מהילדים שאמרו להם שהם נורא חכמים לא היו מוכנים לנסות את הפאזל החדש

90% מהילדים שאמרו להם שהם התאמצו, לקחו את הפאזל החדש וניסו – והם גם הצליחו יותר!

אז אל תגידו להם שהם חכמים! -- אימרו להם שהם עובדים קשה

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Praise for Intelligence Can Undermine Children's Motivation and Performance

Claudia M. Mueller and Carol S. Dweck
Columbia University

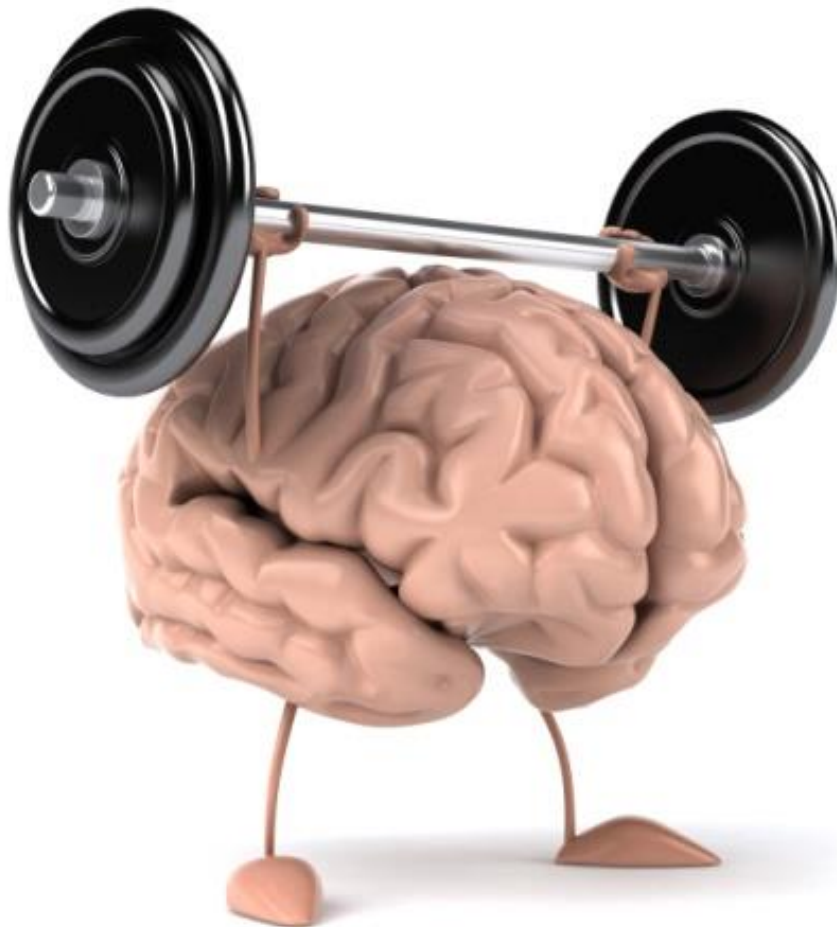
Praise for ability is commonly considered to have beneficial effects on motivation. Contrary to this popular belief, six studies demonstrated that praise for intelligence had more negative consequences for students' achievement motivation than praise for effort. Fifth graders praised for intelligence were found to care more about performance goals relative to learning goals than children praised for effort. After failure, they also displayed less task persistence, less task enjoyment, more low-ability attributions, and worse task performance than children praised for effort. Finally, children praised for intelligence described it as a fixed trait more than children praised for hard work, who believed it to be subject to improvement. These findings have important implications for how achievement is best encouraged, as well as for more theoretical issues, such as the potential cost of performance goals and the socialization of contingent self-worth.

אולי צריך כישרון בשביל להצליח? וכיצד משפיע בית הספר על הכישרון?

- "נבואה שמגשימה את עצמה" בחינוך - **אפקט רוזנטל**
- רוזנטל וג'ייקובסון הראו כיצד מידע כוזב על תלמידים השפיע על ציפיות המורים:
בתחילת שנת הלימודים קבוצת מורים קיבלה מידע על מספר תלמידים בכתתם כבעלי כושר "זינוק"; נאמר למורים שתלמידים אלה צפויים להראות התקדמות רבה בלימודיהם במהלך שנת הלימודים. לגבי שאר תלמידי הכיתה לא ניתן למורים כל מידע.
התלמידים שהוגדרו כבעלי כושר "זינוק" נבחרו באקראי.
בתום השנה נאספו נתונים על התלמידים. הישגי התלמידים שהוגדרו כבעלי כושר זינוק היו גבוהים יותר משל חבריהם לכיתה שלא צוינו כמו כן, תלמידים אלו זכו לחוות דעת חיובית על הסתגלותם החברתית, וכן נמצא כי הם נעדרו מן הלימודים פחות מאחרים
- **מסקנה: אם מאמינים שתצליח, יש לך סיכוי טוב הרבה יותר להצליח!**

"אל תפסיקו לחשוב על מחר"

כוחה של חשיבה: מחשבה מעצבת ומשפיעה על המציאות!



■ 30 אתלטים ממקצועות שונים
באוניברסיטה חולקו ל-3 קבוצות

■ כל קבוצה ביצעה מטלה שונה:

□ קבוצה 1 - אימון מנטאלי
לשרירים בירך (רק לחשוב
על זה)

□ קבוצה 2 – אימון פיזי
עם משקולות

□ קבוצת 3 – קבוצת בקרה
שלא עשתה כלום

"נצחון הרוח על החומר"

Mind Over Matter: Mental Training Increases Physical Strength

Erin M. Shackell and Lionel G. Standing
Bishop's University

This study tested whether mental training alone can produce a gain in muscular strength. Thirty male university athletes, including football, basketball and rugby players, were randomly assigned to perform mental training of their hip flexor muscles, to use weight machines to physically exercise their hip flexors, or to form a control group which received neither mental nor physical training. The hip strength of each group was measured before and after training. Physical strength was increased by 24% through mental practice ($p = .008$). Strength was also increased through physical training, by 28%, but did not change significantly in the control condition. The strength gain was greatest among the football players given mental training. Mental and physical training produced similar decreases in heart rate, and both yielded a marginal reduction in systolic blood pressure. The results support the related findings of Ranganathan, Siemionow, Liu, Sahgal, and Yue (2004).

The idea of using mental practice to enhance performance has recently become common. In this procedure, participants are asked to rehearse a motor or cognitive skill by using mental imagery of themselves performing it successfully, without any overt behavior or muscular activity on their part. In the field of sports psychology, websites and books now proliferate which promote mental training to enhance athletic performance (e.g., Cohn, 2006; Ungerleider, 1996). Professional teams today often utilize mental training programs for their athletes, and some have suggested that mental strength training should receive as much emphasis as physical training.

There are now several hundred papers in the literature which support the idea that prior mental practice produces measurable gains in skilled performance, for both cognitive and physical tasks, as summarized in meta-analyses by Feltz and Landers (1983) and Driskell, Copper, and Moran (1994). Concurrent mental set or mood may also of course influence motivation and skilled performance either positively, as shown by improved scores for speed and accuracy in subjects who adopt a positive mental attitude (e.g., Ainscoe & Hardy, 1997; Spencer & Norem, 1996), or negatively, as shown by reduced scores when the test

Author info: Correspondence should be sent to: Erin M. Shackell & Lionel G. Standing, Department of Psychology, Bishop's University, Sherbrooke QC, Canada J1M 0C8.

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■ המשתתפים בשתי הקבוצות

הראשונות התאמנו

(מנטאלית או פיסית) 3 פעמים

ביום במשך שבועיים

■ חוזק השריר נמדד בתחילת ובסוף

התקופה

■ חוזק השריר עלה ב-28% אצל

קבוצת האימון הפיסי, ולא השתנה

אצל קבוצת הביקורת

■ ומה קרה בקבוצת האימון

המנטאלי? עלייה של 24%!

תודה על ההקשבה! מאחל לכם –
ובעיקר לתלמידים שלכם – הרבה הצלחה!

