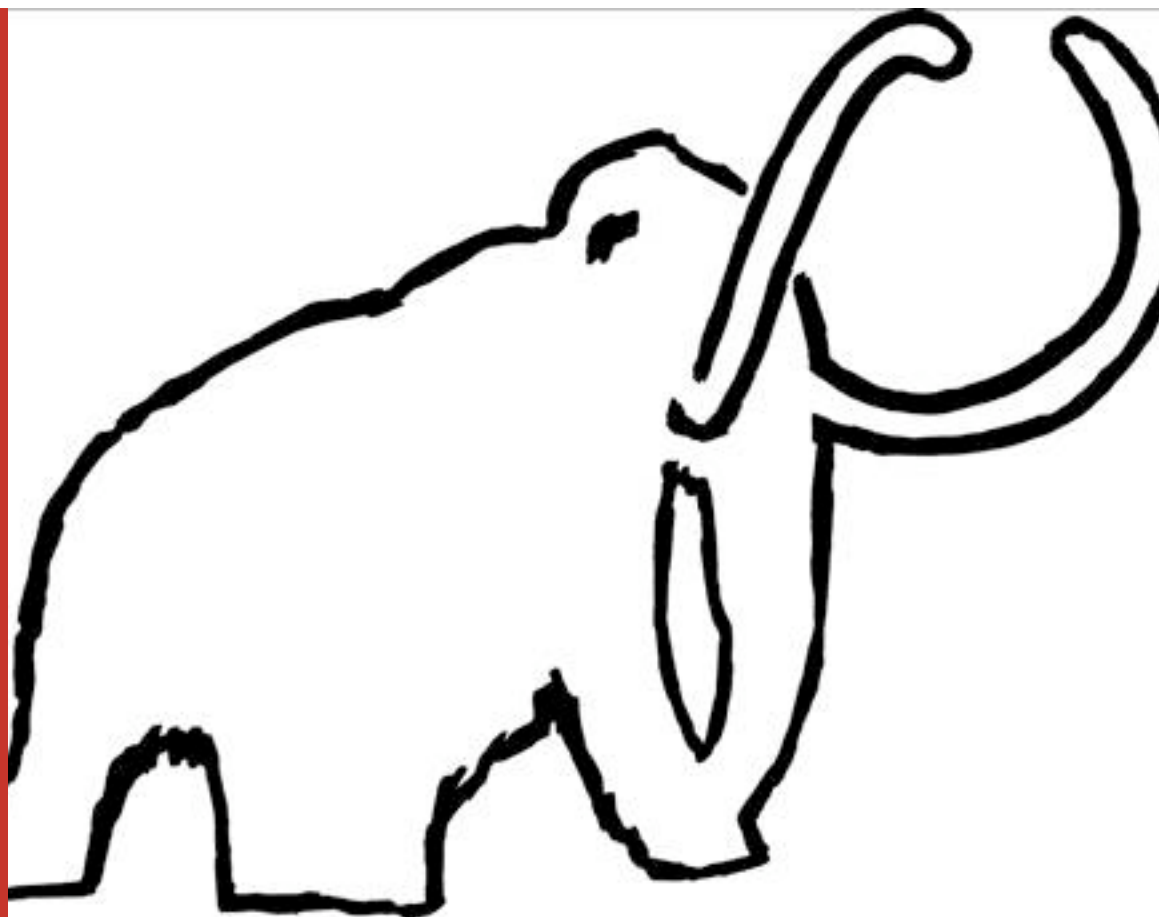


# MAMMOTH-MAGAZINE

THE OFFICIAL  
MAGAZINE OF  
THE CENTRE FOR  
STUDIES ON  
HUMAN STRESS

The Centre for  
Studies on  
Human Stress is  
dedicated to  
improving the  
physical and  
mental health of  
individuals by  
empowering  
them with sci-  
entificall  
y grounded  
information on  
the effects of  
stress on the  
brain and body.



## The Centre for Studies on Human Stress

### A bridge between scientists and the public

By Tania Elaine Schramek, M.Sc.



Welcome to the first issue of Mammoth-Magazine! What a pleasure it is to be discussing our favorite topic –Stress- with you, especially these days. In fact, the World Health Organization, who in the past has mostly been concerned with epidemics and the like, has predicted that by the year 2020, stress-related disorders (i.e. heart disease and depression) will be the two leading causes of disability in adults.

That being the case, the scientists and graduate students of the Centre for Studies on

Human Stress thought it timely to share with you the important knowledge and understanding of stress they have gained over the years. As such, the Centre for Studies on Human Stress was born. The ultimate goal of the Centre is to improve the physical and mental health of individuals by empowering them with scientifically grounded information on the effects of stress on the brain and body. We also wish to serve as a reference centre for scientists, educators, and clinicians performing interventions aimed at reducing stress in children and/or families, by helping them to

evaluate the physiological and/or cognitive effectiveness of their interventions.

### **Getting the Scoop**

We have all heard the adage 'knowledge is power'. Well, the co-founders of the Centre, Sonia Lupien PhD and Jens Pruessner PhD whole heartedly agree that a more thorough understanding of stress will provide you with a greater ability to live and deal with stress in your every day life. Dr's Lupien and Pruessner are indeed well-versed on the matter as they have spent their career's investigating the impact of stress on children and adults of all ages. Their studies were among the first to show that in humans, stress and, more specifically stress hormones, can affect not only one's memory functioning but also the integrity of the brain areas that are involved in memory. Moreover, they have devoted considerable efforts to understanding what types of individual variables affect the way one responds to stress, from genes, the environment (e.g. conditions in which one is raised), to personality characteristics (e.g. self-esteem).

We all know that stress can have a negative impact on our health, countless news reports and medical studies have shown this. Although you surely know what stress feels like, you may not know what exactly leads to the type of stress that can result in bad health outcomes. This is because the popular definition of stress is **very** different from the scientific definition of stress. The researchers of the Centre feel that you need to know the scientific definition of stress to deal with it effectively. This is where the Centre for Studies on Human Stress comes in!

Through an interactive website, school-based programs, easy to read newsletters, and public lecture series, the Centre for Studies on Human Stress pledges to help individuals to learn the scientific definition of stress, how to recognize stress, learn who is affected by stress, how stress affects the brain and body, and how to deal with stress. In addition to being a window on the public full of essential information and resources, the Centre will also lend its expertise to the public by letting you know what they think about some of top selling books, stress management programs, and websites out there. For instance, we are currently testing the scientific validity of a new product available on the market that promises to be able to monitor the stress one experiences on a daily basis. Some of you may remember special rings that changed colors as a function of one's mood. These stress dots claim to work in a similar manner. We will keep you posted on what we find after we see if the feedback the dots provide is consistent with stress hormone levels we measure during a stressful task. Also, keep an eye out for our 'Survival Guide of Internet sites dealing with stress'!

### **It takes a Village**

Although combined, Dr. Lupien and Dr. Pruessner are working extensively at studying human stress, when it comes to understanding stress, the mission of the Centre for Studies on Human Stress cannot be fulfilled alone. In fact, the Centre is made up a group of over 50 dedicated scientists, medical doctors, psychologists, educators, specialists from the Quebec Mental Illness Foundation, and graduate students in Psychology and Neuroscience. Our members have internationally recognized expertise in topics ranging from Attention Deficit Hyperactive Disorder, Irritable Bowel Syndrome, Memory and Alzheimer's disease, Depression, to child and adolescent development. Thus, the general public, researchers, and health care professionals alike will be able to gather useful information on these topics through our scientific board. We will also keep you updated on the latest research findings and how they apply to you in your every day life through our newsletter.

The Centre for Studies on Human Stress also wishes to help other researchers and health care professionals working in stress-related areas or those who wish to start looking at the impact of stress and stress hormones in their work. As such, our website will provide information about good stress questionnaires, stress hormone sampling and analyses techniques, and propose a 'must have' list of scientific articles when researching stress.

Finally, the founders of the Centre for Studies on Human Stress continue to conduct research in their respective laboratories based at the Douglas Hospital Research Centre of McGill University. This research is funded in a large part by the Canadian Institutes of Health Research (CIHR), which is the federal government-based funding agency, and by the National Science and Engineering Research Council of Canada (NSERC). Thus, the founders of the Centre feel that by informing you of all the newest scientific findings on stress, they provide a good 'return on investment' for each tax payer's dollar that is invested in scientific research. They also hope that their findings and those of others will ultimately be shared with policy makers who could effect change that would improve the physical and mental health of Canadians and the members of our ever-growing global community.

**Please join our efforts and come and see us at our official opening at the Douglas Hall Room of the Douglas Hospital on September 17<sup>th</sup> 2006. Welcome to the intriguing world of stress!**



## The 'De-Stress for Success' Program

A program designed by scientists of the Centre for Studies on Human Stress, for Children and Teenagers.



By Sonia J. Lupien, Ph.D. and Nathalie Wan, M.Sc.

The De-Stress for Success Project offered by the Centre for Studies on Human Stress (CSHS) aims at building capacity for improving the physical and mental health of children and teenagers by exposing them to scientifically grounded information on the effects of stress on the brain and body in a stimulating, intriguing, fun and entertaining manner in order to de-emphasize the negative view of stress. The focus of our efforts will be to primarily inform children and teenagers on the effects that stress has on learning, and to train them on ways to prevent and cope with stress.

Two age groups are the target of the program, i.e., children from elementary grade 6, and adolescents from High School grade 1. The directors of the Centre for Studies on Human Stress have a particular reason to

target these two age groups. Indeed, in a previous study<sup>1</sup>, they have shown that stress hormones increase significantly during the transition from elementary to high school. Moving social status from being the oldest of elementary school, from being the youngest of high school is indeed one of the first major stressor in the life of children. It is often during this period of time that behavioral problems arise and/or suicidal thoughts occur. The Centre for Studies on Human Stress has thus decided to act and help these two age groups recognize and deal with stress.

The objective of the project is to foster awareness of human stress, to create a greater public understanding of the topic, and to stimulate interactions between researchers, teachers, parents and their children/

<sup>1</sup> Lupien S, King S, Meaney MJ, McEwen BS. (2001). Can Poverty Get Under Your Skin?: Basal Cortisol Levels and Cognitive Function in Children from Low and High Socioeconomic Status. *Development and Psychopathology*, 13:651-674. *A study funded by the John T. and Catherine D. MacArthur Foundation.*

teenagers so that target groups are prepared with the tools and knowledge necessary to prevent and manage stressful situations effectively at the present time as well as later in life. Through involvement in various knowledge transfer initiatives; the publication of our research resources on the Project's website and newsletters, and the participation of our experts on stress in interactive workshops, the De-Stress for Success Project will change the way that people think about and act on stress.

The rationales of the De-Stress for Success Project are:

- To build capacity in knowledge transfer on stress in order to provide teachers, parents and their children/teenagers with the tools necessary to prevent, recognize, and manage stress. As well, to enhance awareness of the impact that stress has on the capacity to learn.
- To create better knowledge of stress in teachers, parents and their children/teenagers so that they may avert from the damaging mental and physical effects caused by stress.
- To impact public policy whereby more innovative intervention programs are created to identify critical target populations.

### **What is the De-Stress for Success Program?**

The De-Stress for Success Program involves three 40 minutes visits to schools, and each visit presents a different topic on stress and learning/memory using interactive discussions with children/teenagers, role playing by the members of the *Stress Buster teams*, and children/teenagers.

#### **WORKSHOP 1 : “Recognizing Stress : NUTS” :**

This first workshop will involve the description of what is stress and how we can recognize it. A stressful situation is characterized by four main characteristics : Novelty, Unpredictability, Threat to you and low Sense of Control (NUTS). Interactive games will be organized with children/teenagers in order to teach them these characteristics and how to recognize them and remember them (using the word “NUTS” is a method). The second portion of the workshop will involve helping the children/teenagers recognize their body's response to stress (increase in heart rate, perspiration etc.) so they can recognize more easily a stress response the next time they encounter it. At the end of the first visit, a “homework” will be given to children/teenagers, along with an activity logbook in which the child/teen will be asked to describe, for a week, each situation that led to a body's stress response. For each situation, the child/teen will be asked to write down which of the NUTS characteristics best represented the situation. This will teach children/teenagers how to recognize

stress, it will teach them that different characteristics of the NUTS can lead to a stress reaction, and consequently, it will help the child/teen contextualize the determinants of a stress response.

#### **WORKSHOP 2 : “Dealing with Stress : Don’t**

**Go NUTS!” :** At the beginning of the second visit, which will occur one week after the first visit, we will first debrief the children/teenagers on their activity logbooks of the previous week and a discussion of the most frequent characteristic of the NUTS that led to a stress response in the children/teenagers will follow. After the debriefing, we will present the second part of the De-Stress for Success Program which will involve helping the child/teen recognize the different ways that someone can use to deal with a stressful situation (avoidance, emotion-based coping, strategy-based coping). We will help them understand that each of these methods is by itself a good coping strategy, although its efficiency may depend on the stressor itself and/or the personality of the child/teen. At the end of the second visit, a “homework” will be given to children/teenagers, along with an activity logbook in which the child/teen will be asked to describe, for a week, each situation that led to a stress response, and what was the coping method that was used by the child/teen to deal with it. The child/teen will also be asked to describe whether the method was successful or not at dealing with the stressor. If the method was unsuccessful (they still felt stressed about the situation and recognized it by using their body's stress response), we will ask the child/teen to write down what other method was used and whether it led to better results. This will help the child/teen recognize his/her preferred method of dealing with stress, realize whether this method is successful at helping him/her cope with the stressor, and realize that changing coping method can sometimes lead to very positive results.

#### **WORKSHOP 3 : “Remember This : Forget me**

**NUTS!” :** At the beginning of the third visit, which will occur one week after the second visit, we will first debrief the children/teenagers on their activity logbook of the previous week and a discussion of the most frequent coping method(s) used by children/teenagers and their success will follow. After the debriefing, we will present the third part of the De-Stress for Success Program which will involve helping the child/teen understand how a piece of information is taken from the environment and placed into memory. Although it may seem difficult to conceive that a concept as difficult as “*Learning and Memory*” can be taught to children or teenagers, the director of the Centre for Studies on

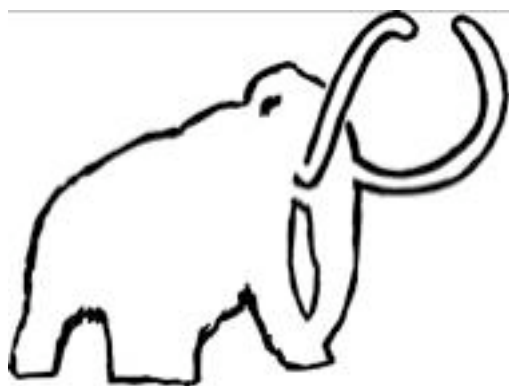


Human Stress has been teaching this concept to the general public of various ages for many years and has developed easy and interactive ways (the public becomes the subject of an experiment in which they realize how their memory works) to teach learning and memory in a fun, entertaining and interactive way. The second part of the visit will involve learning how stress can impact on learning and memory and how the child/teen can avoid the negative impact of stress on learning and memory. At the end of the third visit, a “homework” will be given to children/teenagers, along with an activity logbook in which the child/teen will be asked to describe, for a week, each time that they he/she has consciously worked on learning something and what method he/she used in order to do so. This will increase the child’s/teenagers’s knowledge that learning is a process that can be developed and that this can be easy and fun. Debriefing for this homework will be performed on a fourth short visit, perform a month later which aims at assessing with the children and the teenagers the short-term impact of the intervention. This will be done by discussing with them and see whether they consider that this workshop helped them understand stress and its effects on learning and memory. The teachers of each class will also be involved in this discussion in order to assess whether they detected any interesting changes in the behaviors of the children/teenagers. If subjective reports of the impact of the De-Stress for Success Program are positive, then the Centre for Studies on Human Stress will embark on Phase 2 of the De-Stress for Success Program, which will involve evaluating whether the De-Stress for Success Program induces a significant decrease in stress hormone levels and an increase in learning and memory in the children and teenagers exposed to the program.



## WANT TO HELP?

The DeStress for Success Program is presently seeking funds in order to be able to cover the expenses for presentation of the workshops (transportation of graduate students, flyers, posters, etc). If you wish to make a donation so that the De-Stress for Success can be launched on September 2006, or if you wish for your school to benefit from the Program (teachers and educators), please contact Mrs. Tania Schramek, Co-ordinator at (514) 761-6131 ext 3452, or by email at : [stress.centre@douglas.mcgill.ca](mailto:stress.centre@douglas.mcgill.ca)



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chose a mammoth for our logo?*

*See the next issue of Mammoth-  
Magazine for the answer!*

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## Stress in children and parents : Are they one and the same?

By Sonia Lupien, Ph.D.



### Stress does not discriminate between a child and a parent...

(Translation : Tania Elaine Schramek)

Mary is 6 years old. Her parents separated last year but are nonetheless on good terms. Like many children, she lives with her mom one week and with her father the next. Five days a week she goes to daycare before and after school. On Fridays, she goes to school with her travel bag so she can start 'her week' with the other parent. Mary is a rather busy child, but does this necessarily mean that she is stressed?

Although the separation itself was difficult, with the help of family counseling, her parents have managed to find a middle ground where all are happy. Despite each parent having one week 'off', juggling work and family is still difficult. After all, they must rush to get Mary to school in the morning, to bring her home at night, to get supper ready, laundry, bath time, etc. Of

course, all this is without the benefit of sharing these responsibilities with another parent. Moreover, in order to catch up on time lost while she was with them, both parents double-up on work during their week 'off.' Clearly, Mary's parents are busy people, but does this necessarily mean that they are stressed?

#### Facts and Fiction

Most of us would reply yes to this question, and our answer would be consistent with the popular definition of stress. In fact, stress is largely thought to be the result of time pressure, such that we feel stressed when we cannot get everything we need to get done in the time we have. If this were the case, then Mary could be a stressed child because she is under constant time pressure: rushing to

get to day care, then school, and between each of her parent's houses. Mary's parents would also be stressed, given that they are always playing catch-up. Although intuitively this rings true, it is a myth nonetheless.

In reality, scientific studies conducted over the last 30 years have shown that the definition of stress as time pressure is inaccurate, and surely makes it difficult for individuals to identify the true factors that render a situation stressful. By extension, this leads to ineffective coping with stress, both in the lives of parents and their children. Researchers have discovered that time pressure is a consequence of stress and is not its cause. For a situation to be stressful, it must be characterized by one or more of the following: Novelty, Unpredictability, pose a Threat to one's personality, and more importantly, leave one with a poor Sense of Control. An easy way to remember these characteristics is the phrase 'don't go N.U.T.S. with stress!' So, time pressure in and of itself is not the source of stress but rather the result of a loss of control over time.

Novelty, unpredictability, threat to the ego, and poor sense of control are the perfect recipe for a stressful situation. Given this definition of stress, it is clear why children are more vulnerable to the effects of stress than adults. Children rarely have the ability to control situations in a way that would decrease its novelty or unpredictability. Stress management in children necessarily occurs via the control parents exert over a situation that is either novel and/or unpredictable. Several studies have shown that when parents act in a way that decreases the novelty or unpredictability inherent to a situation, they can increase the child's sense of control, thereby decreasing the child's stress and stress hormones.

### **Stress is an Equal Opportunity Factor**

Stress does not discriminate on the basis of age and the characteristics of a stressful situation remain the same for parents and children: novelty, unpredictability, threat to the ego, and sense of control. What differs between the two are the sources of novelty, unpredictability, threat to the ego, and poor sense of control. In children, for instance, lack of control can come in the form of the first day of kindergarten, while in parents, a downsizing or reorganization at work can decrease one's sense of control.

A good example of a stressful situation that crept up on many of us was the threat of daycare workers and teachers going on strike. Although the threat of a strike was not novel, it was nonetheless unpredictable and out of the parents' control. Adding to the parents stress was the anticipation and worry about how they would manage work-strike-family. Mary's parents surely wondered who would take care of their daughter throughout this period. Anticipating a loss of control can be just as bad as an actual novel or unpredictable situation because it can lead to a stress response. In fact, the body will secrete the same stress hormones that make our hearts and minds race and make us anxious.

### **Stress is Not Married**

Stress does not discriminate on the basis of marital status either. You don't need a spouse and children to fall prey to its effects. Young, old, single, married, rich, poor, everyone is vulnerable to the effects of stress. We can all feel a poor sense of control or be faced with novel, unpredictable or self-threatening situations, only the source of these characteristics of stress will differ between us.

**Novelty, unpredictability, threat to the personality, and poor sense of control are the perfect recipe for a stressful situation. Given this definition of stress, it is clear why children are more vulnerable to the effects of stress than adults.**

What the last 30 years of research have shown is that stress is relative. In other words, stress is a personal experience and thus, the origin of stress is different for each person. Now, back to Mary and her family. When her parents separated, the situation was undoubtedly extremely stressful, because in Mary's eyes, it was totally novel, unpredictable, and she surely had no control over the situation. However, if Mary's parents managed to maintain good communication throughout, gradually exposed Mary to their new apartments and allowed her to determine how often she wanted to visit, then Mary's parents likely decreased her initial stress response. It is therefore highly possible that today Mary is well adjusted and is not a stressed child.

### **Is Daycare Stressful?**

When you think of it, we are thousands of families in Quebec leading fast-paced lives, shuttling our kids back and forth between home and daycare/school trying to make it to work on time. We drop our kids off in environments filled with screams and noise, only to pick them up 8-10 hours later. Are we stressing our children? Results from recent studies say that we are not inducing stress if we leave our kids with quality caregivers/teachers. If the individuals to whom we entrust the care of our children are sensitive, loving, and in tune with our children's needs, then we are, in essence, providing them with a buffer that results in fewer stress hormones being secreted, despite them being in a somewhat chaotic environment. Once again, adult behavior patterns and their ability to decrease the impact of novelty, unpredictability, threat to the ego, and low sense of control is the key. By far, the most resounding finding from numerous studies is that parents and caregivers/teachers are the major players when it comes to stress management in children. That



being said, for adults to act as stress-buffers for children, they need to manage their own stress.

### **Managing Stress : Having a Plan B**

For many, stress management translates to relaxation. Here again, scientific studies prove us wrong. The flip-side of stress is not relaxation but rather resilience. Simply put, resilience refers to a healthy ability to come up with a 'Plan B' in the face of a stressful situation. Now to come up with a Plan B one must be able to identify, think about, and deconstruct the situation that resulted in stress. In other words, was the situation new, unpredictable, did it threaten our ego, or did it decrease our sense of control? Do we feel stressed because the boss keeps pushing for a project to be done yesterday, or do we feel stressed because we fear our marriage will not survive the tumultuous year that has past? Once we determine what is the exact source of our stress, then we can work on developing a Plan B.

**The flip-side of stress is not relaxation but rather resilience. Simply put, resilience refers to a healthy ability to come up with a 'Plan B' in the face of a stressful situation. Now to come up with a Plan B one must be able to identify, think about, and deconstruct the situation that resulted in stress.**

Coming up with Plan B can sometimes be rather anxiety-provoking, as many of us feel that Plan B must be put into motion. In reality, most Plan B's never see the light of day, and this is perfectly fine because the simple act of putting it together can make a difference. I would like to challenge you to try the following: The next time you feel stressed, ask yourself what it is about the situation that is stressful (novelty, unpredictability, threat to your personality, and low sense of control). Once you figure out the source, develop your Plan B. "My work stresses me because we never know how long the company will stay afloat. This unpredictability is killing me. What's my Plan B? Find another job... ouf!...OK, I'm done, there is not much else I could do." Wrong! Think again and take the time to truly explore all avenues. "Oh yes, at Easter last year, my brother-in-law John mentioned that my experience with heavy metals would be a great asset in that government agency...."

The next time you are in a meeting with the board of directors, deciding on the financial future of the company or announcing yet another round of reorganization, and you feel your stress mounting, bring to mind your Plan B. This will dampen your body's hormonal response to the stressful situation. Why? The mere act of coming up with a Plan B will increase your sense of control over the situation and decrease the impact of the unpredictability. So even if the stressor is still present, you have developed resilience.

We will never be able to eliminate all sources of stress in life. This is a good thing, because stress and stress hormones are necessary for our normal functioning. Just keep in mind that stress is relative and that its presence and impact depend on a multitude of factors in both our social and home environments. The one constant we can speak of when it comes to stress is its fundamental causes: Novelty, Unpredictability, Threat to the personality, and low Sense of control. Work with these and you and your family will surely benefit.



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#### ***Mammoth-Magazine***

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