

Informal Assessment of Fatigue and Learning

Student Name _____ Grade _____ School _____ Date _____

The purpose of these scales is to estimate student fatigue and potential impact on learning. Read the items on this page to students (grades 4-9) or ask them to complete the brief checklists independently. Compare with age norms.

Learning Effort-Reward Imbalance (LERI) Scale		
1. When I am in school or during class, I must often stop my learning because the actions or noises of other students disturbs me	Yes	No
2. I should be performing well in class or be a well-behaved child	Yes	No
3. I often do extra learning outside of school (more homework or tutoring than my class mates)	Yes	No
4. My family members or teachers let me know how much they appreciate my learning in school	Yes	No
5. My friends let me know regarding my learning in school	Yes	No
6. I am afraid that I will not be able to catch up with learning in school in the future	Yes	No
7. My school grades depend on my effort in learning	Yes	No
8. I have a promising future because of my effort and grades	Yes	No
9. As soon as I get up every morning, I begin to think about learning in school	Yes	No
10. I am almost always thinking about learning in school, when I am going to bed	Yes	No

Orange items total

Green (light + dark) items total

Yellow items total

Fatigue Scale					
0 = less of a problem than is usual for my age	2 = more than usual	0	1	2	3
1 = no more than usual	3 = much more than usual				
1. Do you have problems with tiredness?		0	1	2	3
2. Do you need to rest more?		0	1	2	3
3. Do you feel sleepy or drowsy?		0	1	2	3
4. Do you have problems starting things?		0	1	2	3
5. Do you lack energy?		0	1	2	3
6. Do your muscles have less strength (feel weak)?		0	1	2	3
7. Do you feel weak?		0	1	2	3
8. Do you have trouble concentrating?		0	1	2	3
9. Do you make slips of the tongue when speaking?		0	1	2	3
10. Do you find it more difficult than others to find the correct word?		0	1	2	3
11. How is your memory?		0	1	2	3
Fatigue Total					

As compared to responses for typically developing students in his/her age range this student is
 ○ typical ○ at risk (consequences of fatigue include refusal to attend school, depression, behavioral problems and decreased academic performance). Comments:

Adapted 2014 by Karen Anderson, PhD from Fukuda, S., et al, (2010) Effort-reward imbalance for learning is associated with fatigue in school children. *Behavioral Medicine*, 36(2), 53-62; authors of the LERI Scale. Research results incorporated use of the Chalder Fatigue Scale, as shown above.

SCORING the Informal Assessment of Fatigue and Learning

Scoring the Learning Effort-Reward Imbalance (LERI) Scale: Yes = 2, No = 1 point

Orange items = effort score

Green (light + dark) items = reward score

Yellow items = over-commitment score

LERI Ratio = (orange/effort total ÷ green/reward total) x 1.33

	Elementary School (gr 4-6)				Secondary School (gr 7-9)			
	Boys		Girls		Boys		Girls	
	Mean	95% Confidence Interval	Mean	95% Confidence Interval	Mean	95% Confidence Interval	Mean	95% Confidence Interval
Fatigue score	14.5	13.66 to 15.34	14.1	13.37 to 14.83	17.6	16.82 to 18.38	19.2	18.66 to 19.73
Effort score	4.2	4.09 to 4.29	4.1	4.04 to 4.22	4.4	4.37 to 4.43	4.3	4.23 to 4.38
Reward score	6	5.82 to 6.12	6.1	5.99 to 6.25	5.7	5.55 to 5.79	5.6	5.53 to 5.71
OC score	3.7	3.61 to 3.81	3.7	3.57 to 3.73	3.5	3.41 to 3.55	3.5	3.44 to 3.54
LERI ratio	0.98	0.95 to 1.01	0.95	0.92 to 0.98	1.07	1.04 to 1.10	1.08	1.06 to 1.10
# hours of sleep	8.4	8.2 to 8.53	8.3	8.16 to 8.34	7.4	7.25 to 7.45	7.0	6.9 to 7.04

To be considered typical, a student's scores must fall within the 95% confidence range for their gender and age group. Scores not falling within the typical range can be considered at higher risk for school issues due to fatigue or excessive effort. Associated consequences include refusal to attend school, depression, behavioral problems and decreased academic performance. NOTE: research has shown that children with hearing loss can underestimate their level of expended fatigue and resulting effort.

Example: A 5th grade student with hearing loss named Maria responded yes to all of the effort items (score of 6). For the reward items numbers 4, 5, 8 were marked no (3 points) and numbers 6 and 7 were marked yes (score of 4). Number 9 was marked yes (2 points) and number 10 was marked no (1 point). Totals were:

Orange/Effort items total 6 Green/reward items total 7 Yellow/over-commitment items total 3

The LERI ratio was $6 \div 7 \times 1.33$ or $0.857 \times 1.33 = 1.14$ Marie reported getting 8 hours of sleep per night.

On the Fatigue Scale items 1, 2, 4, 8 and 10 were all marked 2 (10 points), items 3, 9, and 11 were marked 3 (9 points), items 5, 6 and 7 were marked 1 (3 points). Her Fatigue Scale total was 22.

Maximum typical Fatigue score = 14.83	Maria's Fatigue score = 22	Area of concern? Yes
Maximum typical Effort score = 4.22	Maria's Effort score = 6	Area of concern? Yes
Maximum typical Reward score = 6.25	Maria's Reward score = 7	Area of concern? Yes
Maximum typical Over-Commitment score = 3.73	Maria's score = 3	Area of concern? No
Maximum typical LERI ratio = 0.98	Maria's LERI ratio = 1.14	Area of concern? Yes
Maximum typical hours of sleep = 8.34	Maria's hours of sleep = 8	Area of concern? No

Maria's is expending more effort in school than her return of rewards resulting in a high level of fatigue, likely due to her listening challenges in the classroom and learning gap that has increased over the last 3 years. She requires accommodations to decrease her level of fatigue and consider reducing her workload (i.e., half of the items for each homework assignment) and team consideration of the need for other supports to address her increasing learning gap.