

EASI **(Eczema Area and Severity Index)**

REGENERON

Objectives

- Review the elements of EASI scoring
- Practice EASI from photographs and compare with assessments of experienced investigators

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Why the EASI?

- Initially developed and validated by modifying the PASI (Hanifin 2001)
- Further validation (Barbier 2004) showed good:
 - Correlation with physician and patient assessments
 - Sensitivity to change, thereby detecting change over time
 - Assessor internal consistency
- In a systematic review of instruments to measure physician-assessed clinical signs in atopic dermatitis (AD), the EASI was found to be one of the best instruments available (Schmitt 2013)

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REGENERON

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EASI Assessment and Calculation

Line	Area	Erythema	Infiltration/ Papulation	Excoriations	Lichenification	Area of Involvement	Multiplier	Score
1	Head/Neck	(___+)	(___+)	(___+)	(___)	x ___	x 0.1	
2	Trunk	(___+)	(___+)	(___+)	(___)	x ___	x 0.3	
3	Upper Extremities	(___+)	(___+)	(___+)	(___)	x ___	x 0.2	
4	Lower Extremities	(___+)	(___+)	(___+)	(___)	x ___	x 0.4	

Sum intensity
scores per region

Multiply
by area
score

Multiply by
preset
factor

Total EASI =
Sum of products

REGENERON

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EASI Process

Step 1 – Assess extent of eczema
For that region



Step 2 – Assess intensity of eczema
For that region
Erythema (0–3)
Induration/Papulation/Edema (0–3)
Excoriation (0–3)
Lichenification (0–3)

**x 4
regions**

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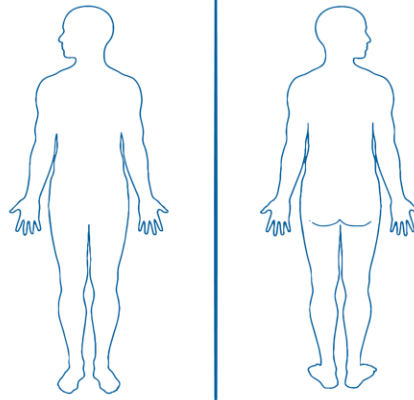
**x 4
regions**

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Step 1 – Extent of Eczema

Four body regions

1. Head and neck
2. Upper extremities
3. Trunk
4. Lower extremities



Each region will be assessed separately

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Four body regions will be assessed for extent of eczema separately: head and neck, upper extremities, trunk, and lower extremities. You will assess the percentage of involved skin out of 100 percent per region. During the EASI calculation, each area will be multiplied by a multiplier reflecting its relative contribution to the total body surface area (BSA). For example, the head and neck will be multiplied by 0.1, while the trunk will be multiplied by 0.3.

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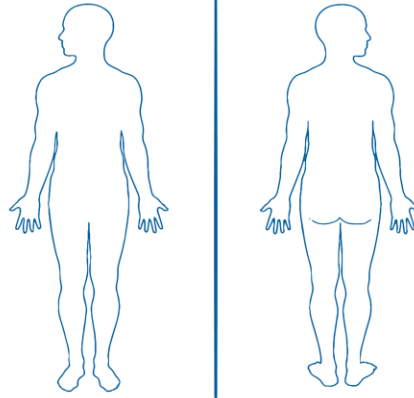
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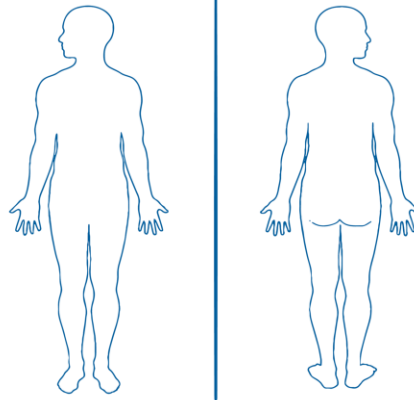
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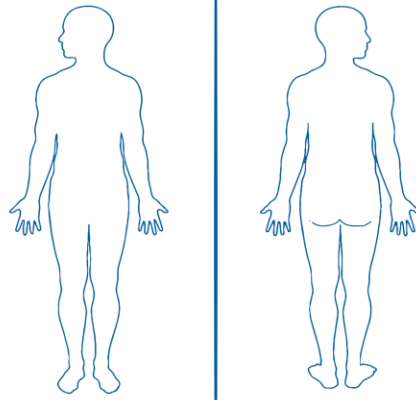
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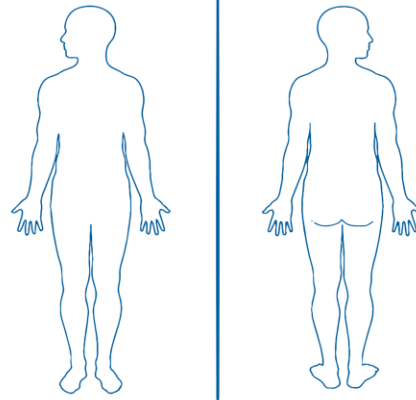
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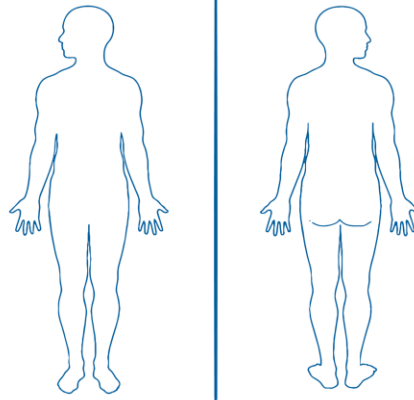
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Step 1 – Extent of Eczema

Things to Remember

- Include only inflamed areas
- Do not include:
 - Xerosis, ichthyosis, or keratosis pilaris
 - Urticaria
 - Infection – unless underlying eczema
 - Post-inflammatory hyperpigmentation
- Each region has potentially 100% involvement

REGENERON

Assume in all examples that only the presented body areas are involved.

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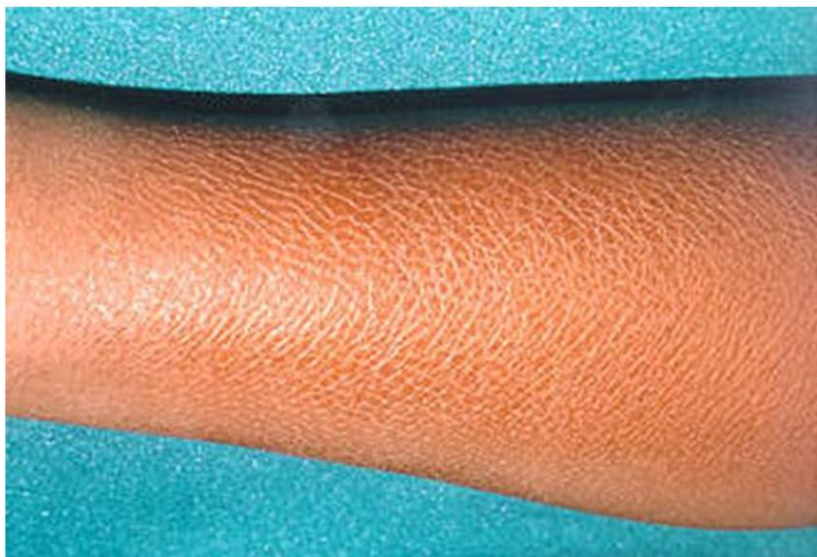
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REGENERON

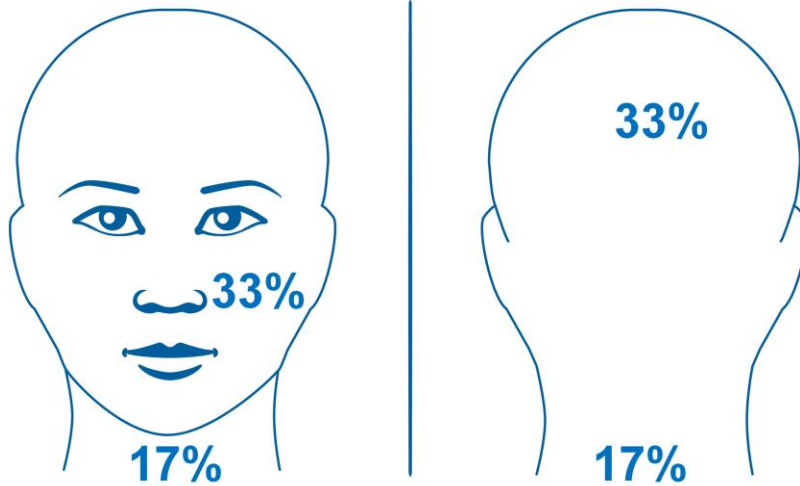
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Do Not Include Ichthyosis



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Region 1: The Head and Neck



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The head and neck region includes face, scalp & neck.

Each represents approximately one third of the total head/neck region.

What Percent of the Head and Neck Is Affected in This Patient?

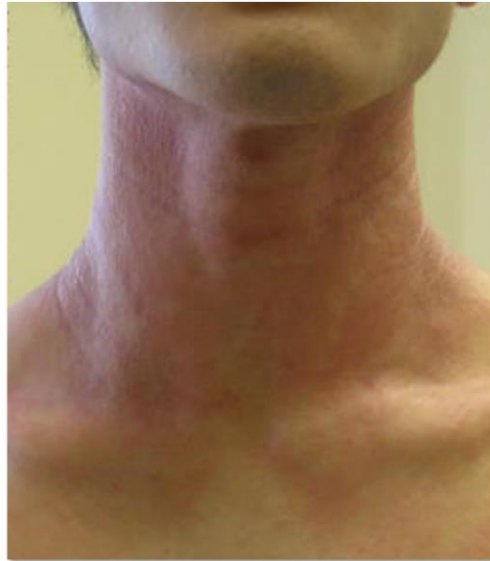
Estimate: 25%



REGENERON

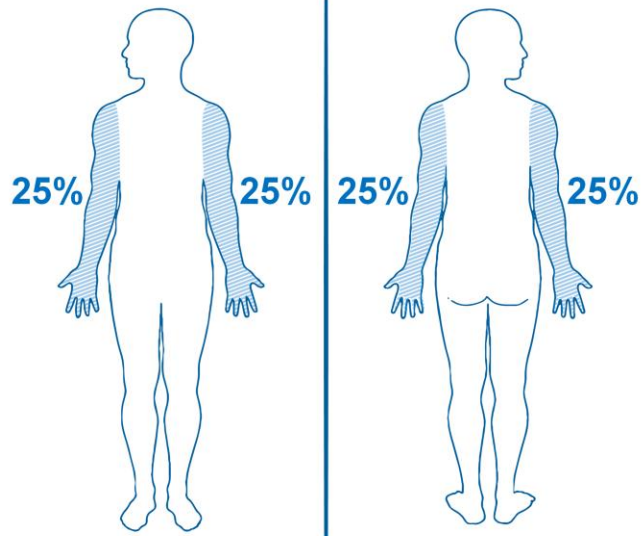
What Percent of the Head and Neck Is Affected in This Patient?

Estimate: 17%



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Region 2: Upper Extremities



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- Includes both arms
- Includes the hands and external axillae
- Each arm represents 50% of the total for upper extremities

What Percent of the Upper Extremities Is Affected?

Estimate:
12.5% x 2 = 25%



REGENERON

Back of arms clear

What Percent of the Upper Extremities Is Affected?

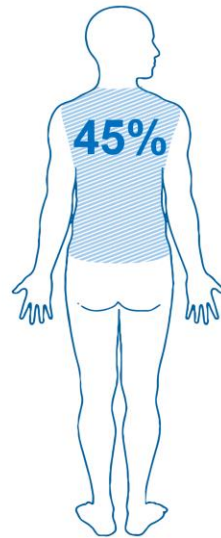
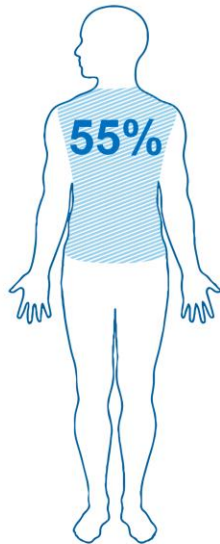
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REGENERON

Back of arms clear

Region 3: The Trunk



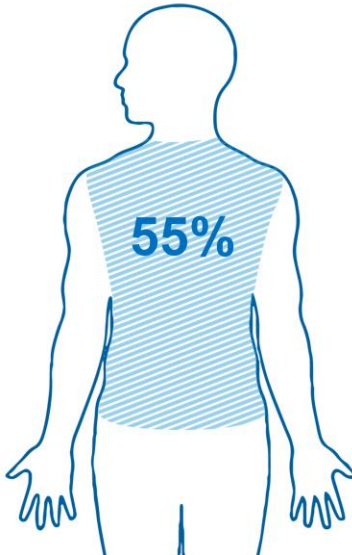
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All areas from the base of the neck to:

- the inguinal fold, anteriorly
- the waistline, posteriorly
- also includes the medial axillae

NOTE: The buttocks are not part of the trunk region

Region 3: The Trunk



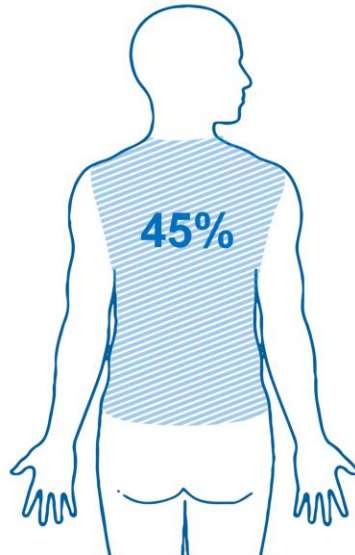
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What Percent of the Trunk Is Affected?



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What Percent of the Trunk Is Affected?



Estimate: 90%

REGENERON

What Percent of the Trunk Is Affected?



Estimate: 75%

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What Percent of the Trunk Is Affected?



Estimate: 85%

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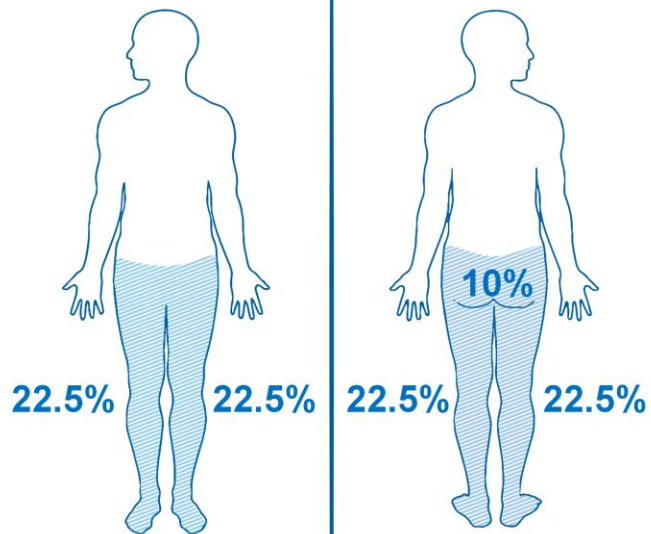
What Percent of the Trunk Is Affected?

Estimate: 25%



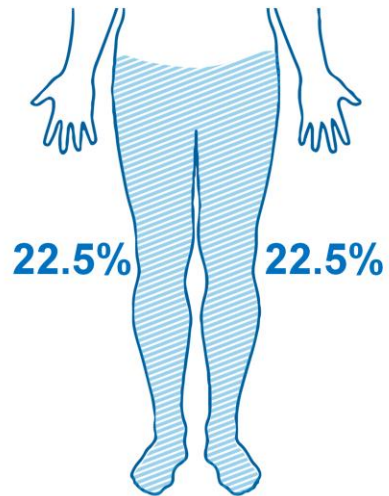
REGENERON

Region 4: Lower Extremity



- Anteriorly, below the inguinal fold
- Posteriorly, below the waist (includes buttocks)

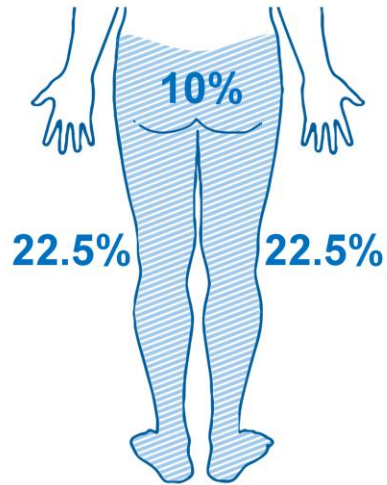
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Region 4: Lower Extremity



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What Percent of the Lower Extremity Region Is Affected?

Estimate: 25%



REGENERON

Area Score (AS)

The percentage involvement of each body region is translated to an area score based on the following:

0 = no involvement

1 = <10%

2 = 10%–29%

3 = 30%–49%

4 = 50%–69%

5 = 70%–89%

6 = 90%–100%

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Induration/Papulation/Edema (0–3)
Excoriation (0–3)
Lichenification (0–3)

**x 4
regions**

REGENERON

EASI Process

Step 1 – Assess extent of
eczema
For that region



**Step 2 – Assess intensity of
eczema**

For that region
Erythema (0–3)
Induration/Papulation/Edema (0–3)
Excoriation (0–3)
Lichenification (0–3)

x 4
regions

REGENERON

Intensity Score

Four parameters are assessed:

1. Erythema
2. Induration/Papulation/Edema
**Please note that the terms induration, papulation, edema and infiltration are used interchangeably*
3. Excoriation
4. Lichenification

Each parameter receives a grading:

- 0 = none
- 1 = mild
- 2 = moderate
- 3 = severe

**Record the
average intensity
across a region**

REGENERON

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**Record the
average intensity
across a region**

REGENERON

Erythema



None = 0



Mild = 1

Faintly detectable,
very pink



Moderate = 2

Clearly
distinguishable,
dull red



Severe = 3

Deep, dark or
fiery bright red

REGENERON

From PASI session – erythema is the most sensitive to variations in body temperature, position, topical agents, ethnicity or skin pigmentation, camera exposure or computer display.

None; Mild (faintly detectable erythema, very pink); Moderate (dull red, clearly distinguishable); Severe (deep/dark red)

Erythema

Faintly
detectable,
very pink



Mild = 1

REGENERON

From PASI session – erythema is the most sensitive to variations in body temperature, position, topical agents, ethnicity or skin pigmentation, camera exposure or computer display.

None; Mild (faintly detectable erythema, very pink); Moderate (dull red, clearly distinguishable); Severe (deep/dark red)

Erythema

Clearly distinguishable, dull red



Moderate = 2

REGENERON

From PASI session – erythema is the most sensitive to variations in body temperature, position, topical agents, ethnicity or skin pigmentation, camera exposure or computer display.

None; Mild (faintly detectable erythema, very pink); Moderate (dull red, clearly distinguishable); Severe (deep/dark red)

Erythema

Deep, dark or
fiery bright
red



Severe = 3

REGENERON

From PASI session – erythema is the most sensitive to variations in body temperature, position, topical agents, ethnicity or skin pigmentation, camera exposure or computer display.

None; Mild (faintly detectable erythema, very pink); Moderate (dull red, clearly distinguishable); Severe (deep/dark red)

Progressive Improvement in Erythema

Mild = 1



Moderate = 2



Severe = 3



Observe the plaque margin for
the tone difference from
background skin

REGENERON

Observe progressive improvement of erythema with treatment.



Observe progressive improvement of erythema with treatment.



Observe progressive improvement of erythema with treatment.



Observe progressive improvement of erythema with treatment.

Mild Erythema = 1



REGENERON

Moderate Erythema = 2



REGENERON

Severe Erythema = 3



REGENERON

Pitfalls in Erythema Estimation

- Avoid underestimation on dark skin
- Adjust for underlying pigmentation



REGENERON

Pitfalls in Erythema Estimation

- **Avoid underestimation on dark skin**
- Adjust for underlying pigmentation



REGENERON

Pitfalls in Erythema Estimation

- Avoid underestimation on dark skin
- **Adjust for underlying pigmentation**



REGENERON

Induration/Papulation/Edema



None = 0



Mild = 1
Barely perceptible
elevation



Moderate = 2
Clearly perceptible
elevation but not
prominent



Severe = 3
Prominent
elevation

REGENERON

None; Mild (barely perceptible elevation); Moderate (clearly perceptible elevation but not prominent); Severe (prominent elevation).

Induration/Papulation/Edema

Barely perceptible elevation



Mild = 1

REGENERON

None; Mild (barely perceptible elevation); Moderate (clearly perceptible elevation but not prominent); Severe (prominent elevation).

Induration/Papulation/Edema

Clearly perceptible elevation but not prominent



Moderate = 2

REGENERON

None; Mild (barely perceptible elevation); Moderate (clearly perceptible elevation but not prominent); Severe (prominent elevation).

Induration/Papulation/Edema

Prominent
elevation



Severe = 3

REGENERON

None; Mild (barely perceptible elevation); Moderate (clearly perceptible elevation but not prominent); Severe (prominent elevation).

Mild Induration/Papulation/Edema = 1



REGENERON

Moderate Induration/Papulation/Edema = 2



REGENERON

Severe Induration/Papulation/Edema = 3



REGENERON

Pitfalls in Induration/Papulation/Edema Estimation

Confusing lichenification with papulation

- Differentiate based on edema (papulation) from firm thickening of epidermis (lichenification)
- Both are often present in same lesion



REGENERON

This is probably a mild papulation = 1

Pitfalls in Induration/Papulation/Edema Estimation

Confusing lichenification with papulation

- Differentiate based on edema (papulation) from firm thickening of epidermis (lichenification)
- Both are often present in same lesion



REGENERON

This is probably a mild papulation = 1

Excoriation



Mild = 1

Scant, superficial excoriations



Moderate = 2

Moderately diffuse, superficial excoriations or deeper excoriations, limited in extent



Severe = 3

Diffuse excoriations, some deep

REGENERON

None; Mild (scant, superficial excoriations); Moderate (diffuse, superficial excoriations or deeper excoriations, limited in extent); Severe (diffuse excoriations, some deep)

Excoriation

Scant, superficial
excoriations



Mild = 1

REGENERON

None; Mild (scant, superficial excoriations); Moderate (diffuse, superficial excoriations or deeper excoriations, limited in extent); Severe (diffuse excoriations, some deep)

Excoriation

Moderately diffuse, superficial excoriations or deeper excoriations, limited in extent



Moderate = 2

REGENERON

None; Mild (scant, superficial excoriations); Moderate (diffuse, superficial excoriations or deeper excoriations, limited in extent); Severe (diffuse excoriations, some deep)

Excoriation

Diffuse
excoriations,
some deep



Severe = 3

REGENERON

None; Mild (scant, superficial excoriations); Moderate (diffuse, superficial excoriations or deeper excoriations, limited in extent); Severe (diffuse excoriations, some deep)

Mild Excoriation = 1



REGENERON

Moderate Excoriation = 2



REGENERON

Severe Excoriation = 3



REGENERON

Lichenification



None = 0



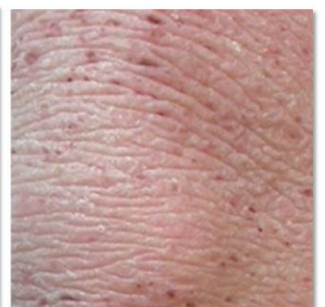
Mild = 1

Slight thickening of the skin determined only by touch, with skin markings minimally exaggerated



Moderate = 2

Clearly thickened skin with exaggerated skin markings



Severe = 3

Prominent skin thickening with exaggerated skin markings creating deep furrows

REGENERON

None; Mild (slight thickening of the skin determined only by touch with skin markings minimally exaggerated; Moderate (clearly thickened skin with exaggerated skin markings); Severe (prominent thickening of the skin with exaggerated skin markings creating deep parallel furrows)

Lichenification

Slight thickening of the skin determined only by touch, with skin markings minimally exaggerated



Mild = 1

REGENERON

None; Mild (slight thickening of the skin determined only by touch with skin markings minimally exaggerated; Moderate (clearly thickened skin with exaggerated skin markings); Severe (prominent thickening of the skin with exaggerated skin markings creating deep parallel furrows)

Lichenification

Clearly thickened skin with exaggerated skin markings



Moderate = 2

REGENERON

None; Mild (slight thickening of the skin determined only by touch with skin markings minimally exaggerated); Moderate (clearly thickened skin with exaggerated skin markings); Severe (prominent thickening of the skin with exaggerated skin markings creating deep parallel furrows)

Lichenification

Prominent skin thickening with exaggerated skin markings creating deep furrows



Severe = 2

REGENERON

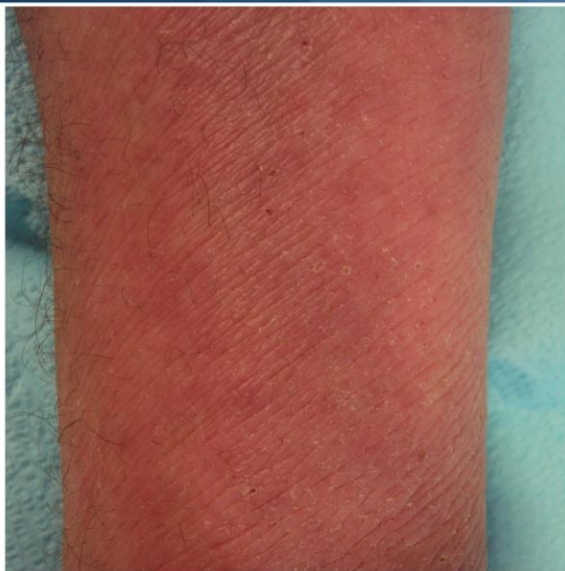
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Mild Lichenification = 1



REGENERON

Moderate Lichenification = 2



REGENERON

Severe Lichenification = 3



REGENERON

Other Challenges in Lesion Intensity Grading

- Record the average intensity of involved skin in a region, not the most intense
- Grading prurigo nodules
 - Rate as lichenification
- Differentiating xerosis, ichthyosis, and hyperlinearity from active eczema
- Use the same assessor to reduce variability

REGENERON

Other Challenges in Lesion Intensity Grading

- Record the average intensity of involved skin in a region, not the most intense
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REGENERON

EASI Assessment and Calculation

Line	Area	Erythema	Infiltration/ Papulation	Excoriations	Lichenification	Area of Involvement	Multiplier	Score
1	Head/Neck	(___ +	___ +	___ +	___)	x ___	x 0.1	
2	Trunk	(___ +	___ +	___ +	___)	x ___	x 0.3	
3	Upper Extremities	(___ +	___ +	___ +	___)	x ___	x 0.2	
4	Lower Extremities	(___ +	___ +	___ +	___)	x ___	x 0.4	

Sum intensity
scores per region

Multiply by
area score

Multiply by
preset factor

Total EASI =
Sum of products

REGENERON

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REGENERON

Summary

- EASI is a composite scoring system- extent and intensity
- Use the same assessor to reduce variability
- Thank you for listening and engaging in research to advance the field of atopic dermatitis!

REGENERON

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REGENERON