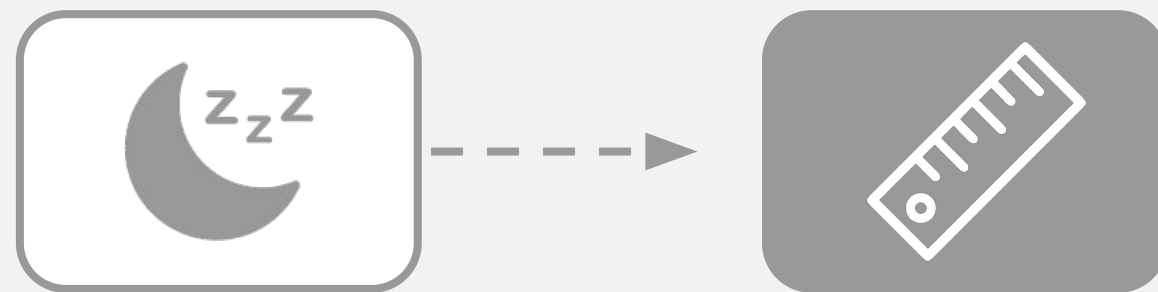


Nocturnal Scratch:

Ontology & Terminology



NOCTURNAL SCRATCH



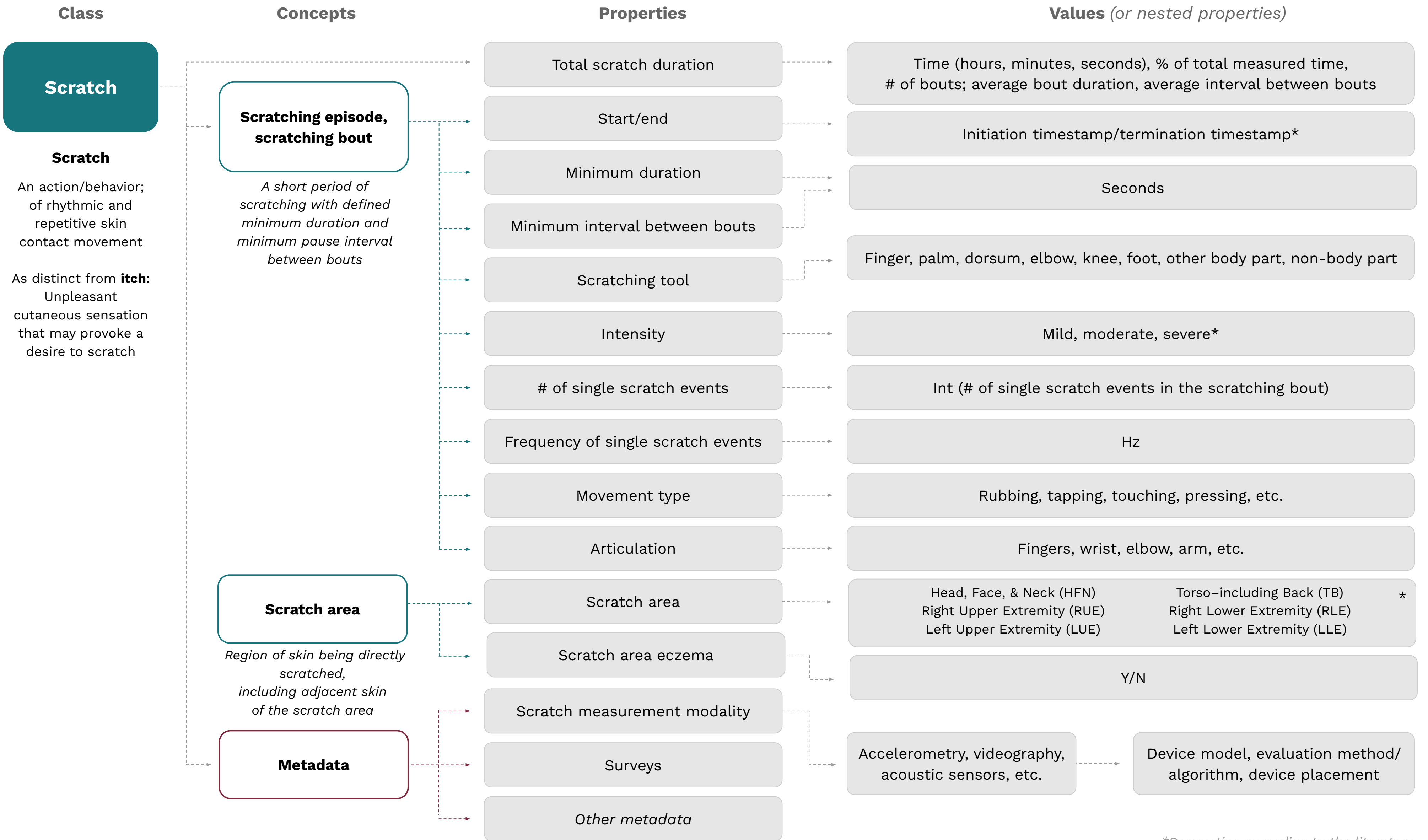
Digital Measures Development

www.dimesociety.org/tours-of-duty/digital-measures-nocturnal-scratch

A project by the



Ontology of "Scratch"



*Suggestion according to the literature

Measurement of Scratch

Defining the scratching bout

- Consistent with the literature, for each scratching episode (scratching bout), the following must be defined:
 - Minimum bout duration (e.g. 1s, 3s, 5s)
 - Minimum interval between bouts (e.g. >3s)
- Scratching bouts with intervals between that last less than the minimum interval between bouts are considered to be a single bout
- The initiation and termination timestamp (or frame) delimiting the scratching bout is required to be defined and determined by a suitable measurement modality (accelerometry, videography, acoustic sensors, etc.)

Total scratch duration is the main outcome measure of scratch, and is calculated as the **sum of all scratch bouts** during the measured period

Defining other scratching properties

- If using intensity property, each intensity label and differences between labels should be defined
- Scratch measurement modality needs to be defined in the metadata

“ Scratch intensity could be its own outcome measure, but in the ontology it makes sense to be a property of the scratching episode.”

-Nocturnal Scratch Project Team

Table 2. Outcome measures & properties for measurement of scratch

Nocturnal scratch outcome measures	Property	Use of property
Total scratch duration	(sum of all scratching bouts)	Required
	# of bouts	Optional
	Average bout duration	Optional
	Average interval between bouts	Optional
Scratching episode, scratching bout	Start/end	Required
	Minimum duration	Required
	Minimum interval between bouts	Required
	Scratching tool	Optional
	Intensity	Optional
	# of single scratch events	Optional
	Frequency of single scratch events	Optional
	Movement type	Optional
	Articulation	Optional
Scratch area	Scratch area	Optional
	Scratch area eczema	Optional
Metadata	Scratch measurement modality	Required <i>(Device model, sensor & evaluation method/algorithm as optional sub-properties)</i>
	Surveys	Optional
	<i>Other metadata</i>	Optional

“ Measuring scratch is meaningful both as a COA (how patients feel & function), but also as a disease biomarker of the disease itself. One measure can thus contain two aspects.”

-Nocturnal Scratch Project Team

“ Some aspects may be different depending on the COU: disease biomarker vs. clinical outcome assessment. For example, scratching intensity may be more relevant as a disease biomarker measuring response to therapy, while total scratch time may be more patient-relevant as a clinical outcome measure.”

-Nocturnal Scratch Project Team

Summary: Definition & outcome measures of nocturnal scratch

Definition of nocturnal scratch

Scratching is an action/behavior, of rhythmic and repetitive skin contact movement

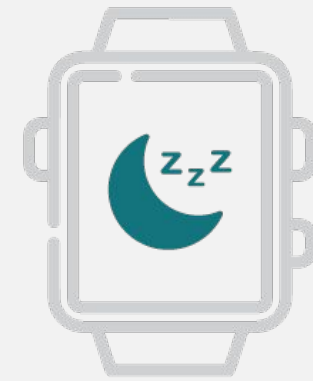
Performed during a delimited time period of **intended and actual sleep**; not restricted to any specific time of the day or night

Outcome measures of nocturnal scratch

Total scratch time (sum of all scratch bouts) measured during a delimited measured period of intended and actual sleep within the **total sleep opportunity**

Total scratch time can be also represented as a percentage of the measured total sleep opportunity period

NOCTURNAL SCRATCH



Digital Measures Development



Additional Relevant Resources

- *Publication of the literature review will be available here*

Acknowledgements

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- Jessilyn Dunn, Assistant Professor of Biomedical Engineering

Let us know how you've used this resource in action!



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