Documenting the Relationship between Scent Character, Rest Time & Fatigue in Descriptive Analysis Panellists

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INTRODUCTION/OBJECTIVE

Often when dealing with descriptive or consumer panellists, we are concerned about overexposing them to too much stimuli which could induce fatigue and affect the results. While some sources have discussed the optimal amount of exposure to scent for a panellist, there have not been studies that relate expert panellist fatigue to different scent characters (which typically have different threshold and intensity levels). This study will look at different characters and rest times between exposures and reveal how much scent type and frequency of exposure may drive fatigue.

METHODS

Descriptive analysis panellists who typically grade for perfume odour intensity were asked to smell 18 samples across 2 scents (lavender essential oil diluted in mineral oil and lemon essential oil diluted in mineral oil). The samples were presented in this way for each study (wait time):

- 3 randomized "dummy" samples presented first which had blank, low, or med-high odour intensity in the specific variant. This was to prevent panellists from noticing no differences between samples and giving 'correct' answers throughout each study.
- 15 randomized samples which **all had the same med-high odour intensity (this was the only data considered below).**
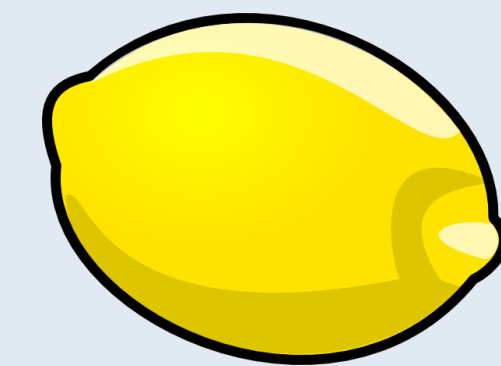
Samples had 4 different break times presented between sniffs: 120 seconds, 60 seconds, 30 seconds, and 15 seconds.

RESULTS

Wait time (s)	Perfume Intensity Mean- Lemon	Perfume Intensity Mean- Lavender
15	34 d	40 d
30	38 c	43 c
60	42 b	47 b
120	47 a	52 a

The table to the left shows the overall panel mean for each study (with different wait times). **All of the samples had a significantly lower intensity as the wait time decreased.** This reflects the fatigue and adaptation experienced by the panellists within the study due to decreased break time. However, we did not notice a stronger drop in one variant or the other due to character. **We hypothesize that overall intensity matters more than character of the** sample. The graphs below break the results out by panellists. Note that most panellists had a positive intensity response when presented with more wait time. **However, not all panellists experienced the same effect due to wait time.** This is expected when dealing with panellist-to-panellist variability. Last, we found that intensity dropped over time within the study, even though the samples were the same. Therefore, **the number of samples also matters when considering wait time and its effect on intensity ratings - a greater effect with more samples.**

Lemon Intensity vs. Wait Time by Panellist
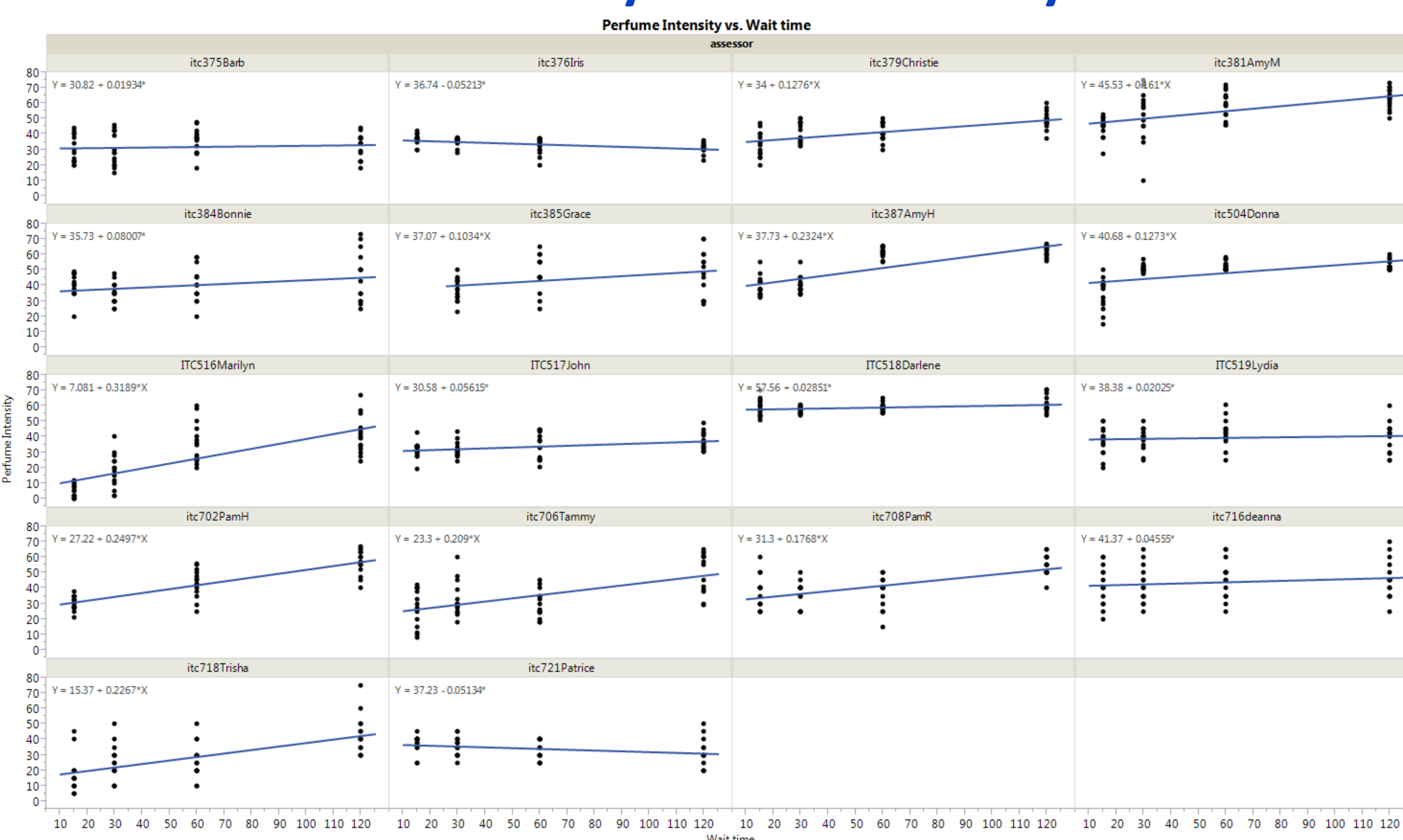
Lavender Intensity vs. Wait Time by Panellist
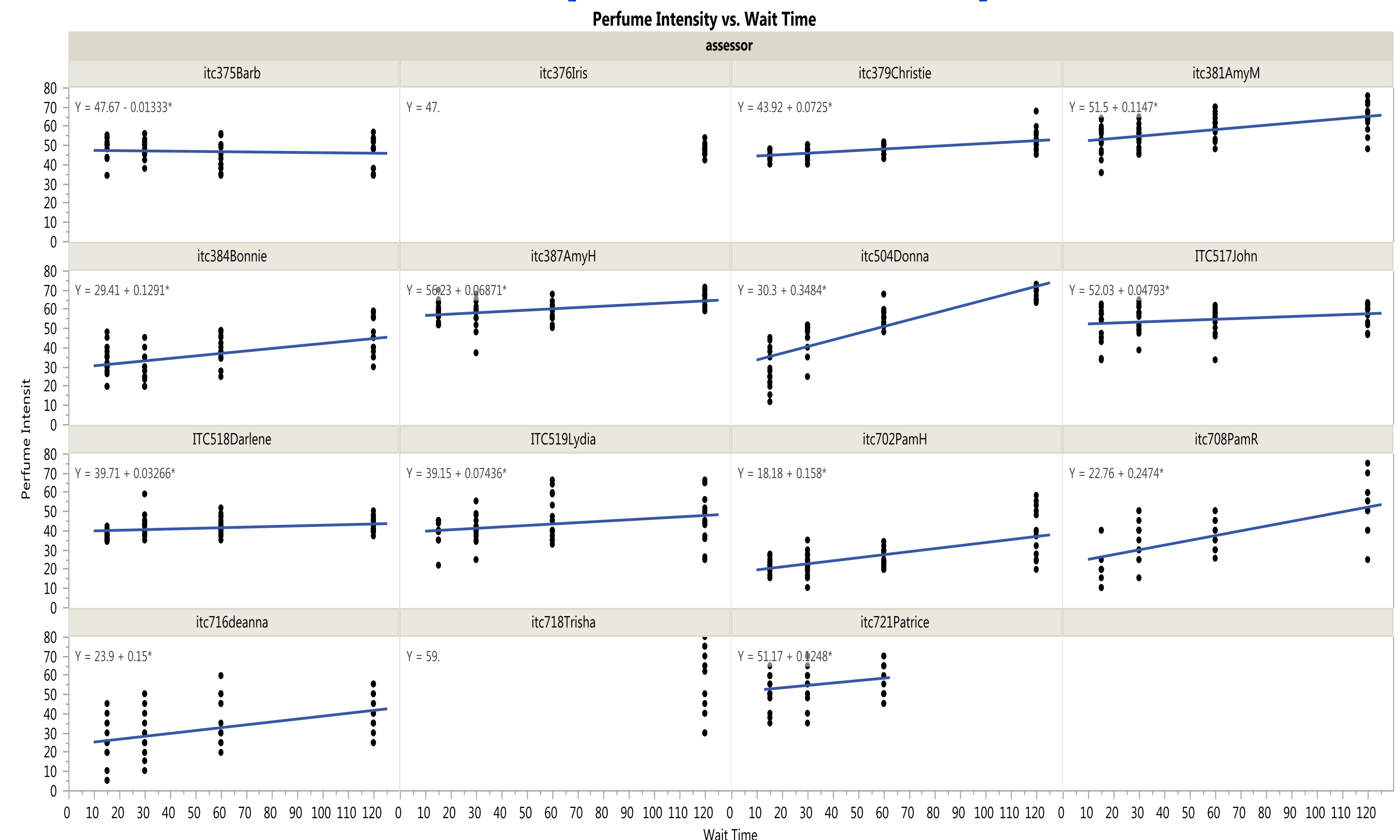
CONCLUSION

We found that wait time between samples does have an effect on odour intensity ratings.. We encourage experimenters to consider the following factors when choosing the appropriate wait time:

- Number of samples, intensity of samples, and speed with which the study must be completed. Character was not shown to have a strong effect.

When in doubt , the recommendation is to use the conservative 2 minute (120 second) wait time—this is also the number recommended by ASTM for odour grading. It's possible even 2 minutes is not enough wait time to prevent fatigue; this could be investigated in a future experiment.