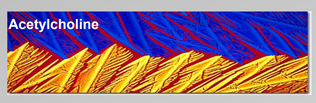
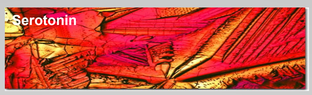
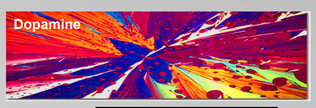
Ambient Lighting Interventions
REDUCE Negative Behaviors by 83% &
INCREASE Positive Behaviors by 90%

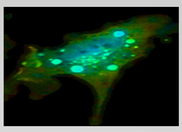
PREMISE – Environmental behaviorists now know that the built environment can affect human behaviors & the structural organization & physiological actions of the brain. LIGHTING is known to influence production of neurotransmitters, enzymes, & hormones in the brain



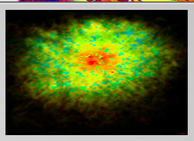




that, in turn, affect mood disorders and agitated & disruptive behaviors in patients with dementia & related disorders.



Alzheimer's Neurons & Plaques



Quality of light in interior environments is determined by:
. The light source – what color of light is it?
. Management of light source – direct, indirect, strong contrast?
. Reflectance & color of all major surfaces in the space

Therefore – entire environment becomes the light source & design of that LUMINOUS ENVIRONMENT must give careful consideration to effects of light known to affect human behavior, particularly in special care environments.

Facts - 1 yr. long research funded by Illinois Department of Public Health in typical 135-bed Long Term Care Facility in rural south Illinois w/30 participants in study

Interventions	Negative Behaviors	Positive Behaviors
white electric lamps (CRI = 93 5500 K)	lethargic	alert
wall & ceiling coatings (ultra pure white)	non-responsive to people	responsive to people
	non-responsive to environment	responsive to environment
	wandering	verbalizing appropriate to situation
	anxious/fidgeting	calm
	combative	emotional behavior appropriate to situation
	inappropriate emotional behavior	conversational
	repetitive statements/behaviors	

Methodology – baseline before interventions – Systematic Behavior Observation (SBO) by video recording 100 hrs. of residents' behaviors to determine behavior markers

after interventions – 654 hrs. of video recordings of residents' behaviors; SBO of 100 hrs. randomly selected at same time of day as pre-interventions baseline for comparative analysis

Findings - approx. 5070 Negative Behaviors for 30 residents before interventions
approx. 862 Negative Behaviors for 30 residents after interventions

approx. 500 Positive Behaviors for 30 residents before interventions
approx. 5000 Positive Behaviors for 30 residents after interventions

Conclusions - the interventions DO work – findings are consistent w/large body of scientific research – consistent w/recent seminal discoveries of direct physiological links of light ~~~~ to eye ~~~~ to brain ~~~~ to behaviors

Measurable Outcomes - provide evidence to warrant consideration for broad implementation in the long term care community;
- can reduce facility's caregiving costs and pharmacological costs;
- and improve the quality of life for all residents and caregivers.

Ambient Light Comparisons in similar facilities: