# **ALZHEIMER'S**

& periodontal disease



Alzheimer's Disease (AD) is the most common cause of dementia among older people.

### **DEMENTIA:**

The loss of cognitive function—thinking, remembering, and reasoning—and behavioral abilities, to such an extent that it interferes with a person's daily life and activities.

### **SPIROCHETES:**

Spirochetes form plaque, tangles, and curly fiberlike lesions in the brain. Their number progressively increases in patients with mild, moderate, and severe AD. Spirochetes escape destruction of the host immune response and establish chronic infection and sustained inflammation.

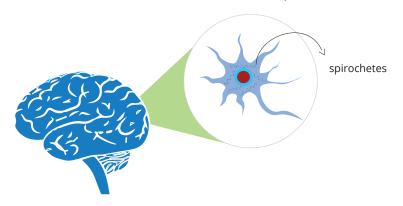
PATHOGENIC ORAL

BACTERIA CALLED

MAY CAUSE AD.

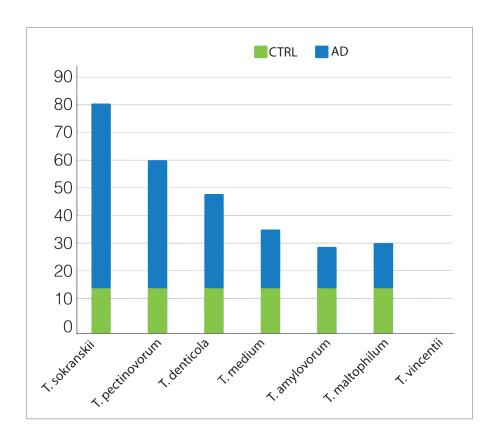
# INSIDE THE AD BRAIN

AD brain lesions are infiltrated with oral spirochetes.



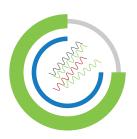


# **Association of oral invasive periodontal** Treponema (T.) spirochetes with Alzheimers disease



The presence and frequency of spirochetes are significantly higher in the brains of Alzheimer's patients compared to controls.

## **SALIVARY DIAGNOSTICS**



### **Salivary Diagnostics**

Salivary genetic test to detect type and number of oral pathogens including spirochetes.



#### **Periodontal Treatment**

Proper periondontal treatment eliminates oral spirochete infection.

#### References

Stein PS, Scheff S, Dawson DR. III. Alzheimer's disease and periodontal disease: mechanisms underlying a potential bi-directional relationship. Grand Rounds Oral-Sys Med. 2006;3:14-24.

Mikalossy J. Alzheimer's disease: a nuerospirochetosis. Analysis of the evidence following Koch's and Hill's criteria. J of Neuroinflamm. 2011; 8:90.

Alzheimer's Disease Fact Sheet. Alzheimers Disease Education & Referral (ADEAR) Center. U.S. Department of Health and Human Services. Riviere GR, Rivere KH, Smith KS: Molecular and immunological evidence of oral Treponema in the human brain and their association with Alzheimer's disease.

Oral Microbiol Immunol 2002, 17:113-118

Miklossy J, Kis A, Radenovic A, Miller L, Forro L, Martins R, Reiss K, Darbinian N, Darekar P, Mihaly L, Khalili K: Beta-amyloid deposition and Alzheimer's type changes induced by Borreila spirochetes. Neurobiol Aging 2006, 27:228-236.

