

# BTI APNiA®

SYSTEM OF DIAGNOSIS  
AND TREATMENT FOR  
SLEEP APNOEA  
AND SNORING





## THE APNIA SYSTEM ENABLES THE DIAGNOSIS AND SUBSEQUENT TREATMENT OF OBSTRUCTIVE SLEEP APNOEA

- 1 NEW ELECTRONIC DEVICE THAT PERFORMS THE SLEEP STUDY
- 2 NEW DIAGNOSIS SOFTWARE
- 3 INTRAORAL DEVICE TO TREAT THE PATIENT

### 1 NEW ELECTRONIC DEVICE APNIA

#### SMALLER, MORE ERGONOMIC AND INTUITIVE

APNIA records **7 different information channels**. The obtained data is later analyzed, enabling a more efficient patient diagnosis and treatment.

- Nasal Flow
- Respiratory effort
- Oxygen saturation
- Heart rate
- Body position
- Snoring
- Respiratory rate

Elastic strap



Electronic device

Nasal cannula



Oximetry sensor



## 2 THE APNiA SOFTWARE PROVIDES TWO DIFFERENT WAYS TO READ THE SLEEP STUDY<sup>(1)</sup>:

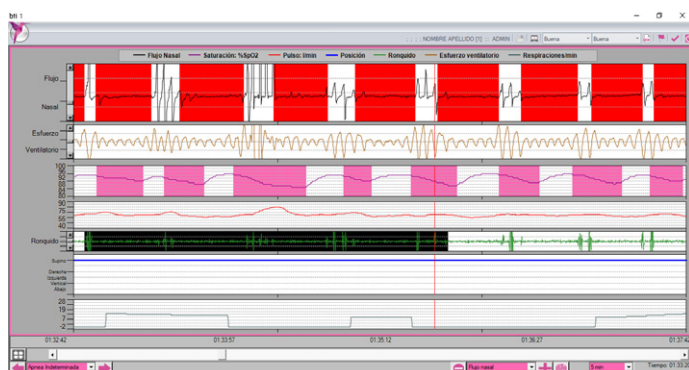
### A MORE ACCURATE AND COMPLETE VERSION

#### 1. AUTOMATIC:

- The device software lets you know simply, reliably and fully automatically whether the pathology is present and its level of severity.
- The sleep records can be sent by e mail to another health professional.
- The reports can be printed out and handed to the patient.

#### 2. MANUAL:

- The clinician can also read the data manually, identifying the different events on the graph.



- 1. Nasal Flow
- 2. Respiratory effort
- 3. Oxygen saturation
- 4. Heart rate
- 5. Snoring
- 6. Body position
- 7. Respiratory rate

Like many other professionals involved in respiratory sleep disorders, we recommend that any dentist who wishes to work in this field collaborate with a sleep unit and receive training through the courses organised by BTI and/or in the official courses organised by the scientific companies with responsibility in the OSA.

## 3 APNiA INTRAORAL DEVICE (DIA)

### MORE RESISTANT TENSORS AND SPLINT

- The intraoral device APNiA (DIA) is a splint for both maxillae that are connected through some tensors which avoid the mandible retraction and/or allow the mandibular advancement, thus diminishing the number of apnoeas and snoring the patient suffers<sup>(2)</sup>.
- The splints are manufactured in the prosthetic laboratory. Each one has a thickness and certain characteristics that enable it to maintain the protrusive and lateral movements.
- The kit for making these DIA devices consists of 7 tensors of different lengths, fixings and guides for processing.
- To adjust the intraoral device to each patient, sleep tests must be performed accompanying the changes in tensor.



DIA splint

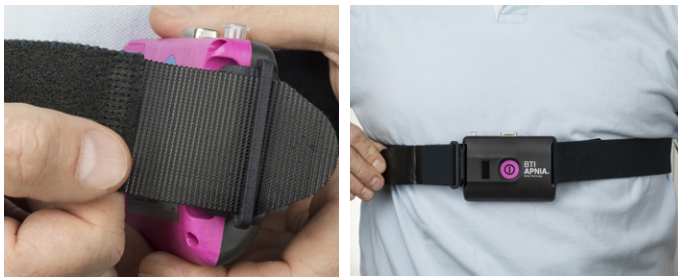


Anchors and tensors

# INSTRUCTIONS FOR USE

## 1.- PUTTING ON THE MODULE:

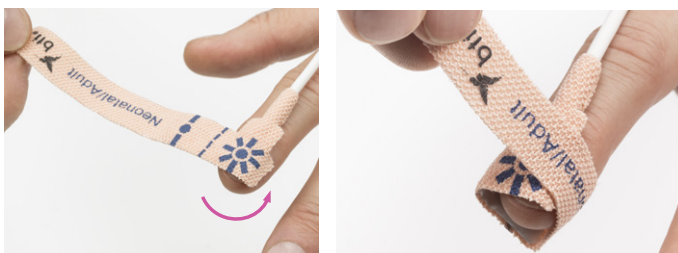
- Adjust the unit on the thorax, positioning it at the front.



- Insert the cannula into your nose; holding it down (in the right position) with adhesive tape.




- Place the pulse oximeter in your index finger (*index, ring and middle fingers are the most suitable*). Make sure that there is no disturbing circumstance for the cardiac pulse or something to restrict it, as this may provoke the loss of the pulse oximeter signal (for example blood pressure cuff, artificial nails, nail polish, etc)



- Insert the sensors in the unit.



## 2.- SWITCHING ON THE UNIT JUST BEFORE SLEEPING:

- Press and hold the button  for 1 second until you hear a short beep. The light will come on and recording will begin. The light on the finger sensor will come on.



Once switched on, for the first minute you must remain seated and still with the device connected to gather the baseline parameters.


## 3.- RECORDING:

- In the 3 first minutes the lights of the unit are on. Then they will go off to avoid excessive energy consumption.



- If at any time during the night you wish to check that the unit is still functioning, you can check that the light on the pulse oximeter finger sensor is on.

## 4.- TURNING OFF THE UNIT:

- To stop the recording, press and hold the button  until you hear a beep (approximately 5 seconds).



approx.

## 5.- PACKING UP AND RETURNING THE BTI APNIA:

- Remove the connections from the sensors and store the unit with the belt and the optional hook, just as you received it. *The nasal cannula and the pulse oximeter are disposable. Hand them to the health care staff for disposal.*



## WHAT IS SLEEP APNOEA?

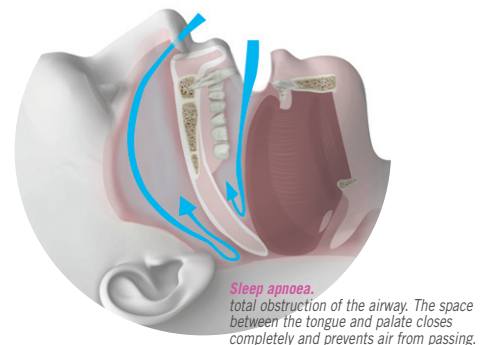
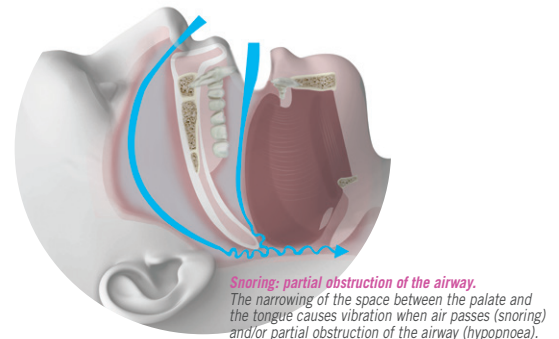
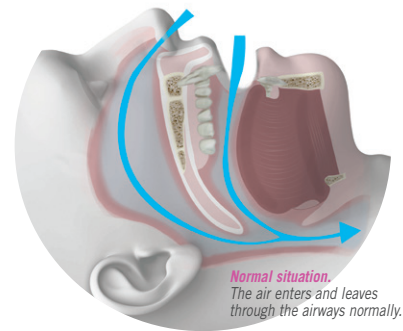
Obstructive sleep apnoea (OSA) is a very common pathology (it affects 25% of the population) that entails a number of risks for health of the patients.

OSA consists of the repetition during sleep of a transient (of at least 10 seconds) closure of the upper airway, blocking the passage of air (apnoea) or limiting it (hypopnoea). The severity of this pathology can be classed as mild (if the number of respiratory stoppages per hour of sleep or AHI is between 5 and 14.9), moderate (if the AHI is between 15 and 29.9), severe (AHI between 30 and 49.9) and very severe (AHI of 50 or more). Mild/moderate cases are usually treated with intraoral devices. Severe and very severe cases are usually treated with the CPAP machine.

Currently only patients with severe apnoea are treated in Sleep Disorder Units, while those classed as mild or moderate, up to now largely do not receive treatment, except general recommendations. Nevertheless, these patients would benefit from treatment with intraoral devices.

Intraoral devices are the treatment of choice all over the world for patients with mild to moderate sleep apnoea. Nevertheless, adjusting the mandibular advancement (title) through a variety of sleep tests is, in fact, impossible in sleep units, which are usually overloaded with the most severe cases of OSA.

Thanks to APNiA the patients with mild and moderate apnoea can be diagnosed and treated in dental clinics using personalised splints. It is also useful for patients with severe apnoea who reject or do not tolerate treatment with the CPAP machine, provided by sleep units, or to establish combined treatment.



## WHY TREAT THIS AT A DENTAL CLINIC?

Recently published studies show that there is a direct relationship between bruxism and OSA<sup>(3)(4)</sup> and between tooth wear and OSA<sup>(5)(6)</sup>, so dentists become the first port of call for the detection of sleep apnoea and thanks to APNiA they are also the first port of call for the diagnosis and treatment of mild-moderate cases of OSA and patients with chronic snoring.

Dentists design and monitor the APNiA intraoral device which consists of upper and lower splints, designed to avoid the retraction of the mandible and to limit lateral movement. The aim is to free the pharynx, reduce snoring and let more air enter during sleep.

- (1) Durán-Cantolla J, Zamora Almeida G, Vegas Díaz de Guereñu O, Saracho Rotaache L, Hamdan Alkhraisat M, Durán Carro J, Egea Santaolalla C, Anitua E; Spanish Sleep Network. Validation of a new domiciliary diagnosis device for automatic diagnosis of patients with clinical suspicion of OSA. *Respirology*. 2016 Sep 13. doi: 10.1111/resp.12894.
- (2) Eduardo Anitua, Joaquín Durán-Cantolla, Gabriela Zamora Almeida, Mohammad Hamdan Alkhraisat; Minimizing the mandibular advancement in an oral appliance for the treatment of obstructive sleep apnea. *Sleep Med*. 2017 Jun;34:226-231. doi: 10.1016/j.sleep.2016.12.019
- (3) Kato T. Sleep bruxism and its relation to obstructive sleep apnea-hypopnea syndrome. *Sleep and Biological Rhythms* 2004;2:1-15.
- (4) Ohayon MM, Li KK, Guilleminault C. Risk factors for sleep bruxism in the general population. *Chest* 2001;119:53-61.
- (5) Durán-Cantolla J, Alkhraisat MH, Martínez-Null C, Aguirre JJ, Guinea ER, Anitua E. Frequency of obstructive sleep apnea syndrome in dental patients with tooth wear. *J Clin Sleep Med*. 2015 Apr 15;11(4):445-50.
- (6) Eduardo Anitua, Joaquín Durán-Cantolla Juan Saracho, Mohammad Hamdan Alkhraisat; Obstructive Sleep Apnea and Tooth Wear: Association and Confounding Factors. *Journal of Dental Sleep Medicine*.



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