copdconnect

Spirometry Testing

ONTARIO LONG TERM CARE ASSOCIATION

Boehringer Ingelheim

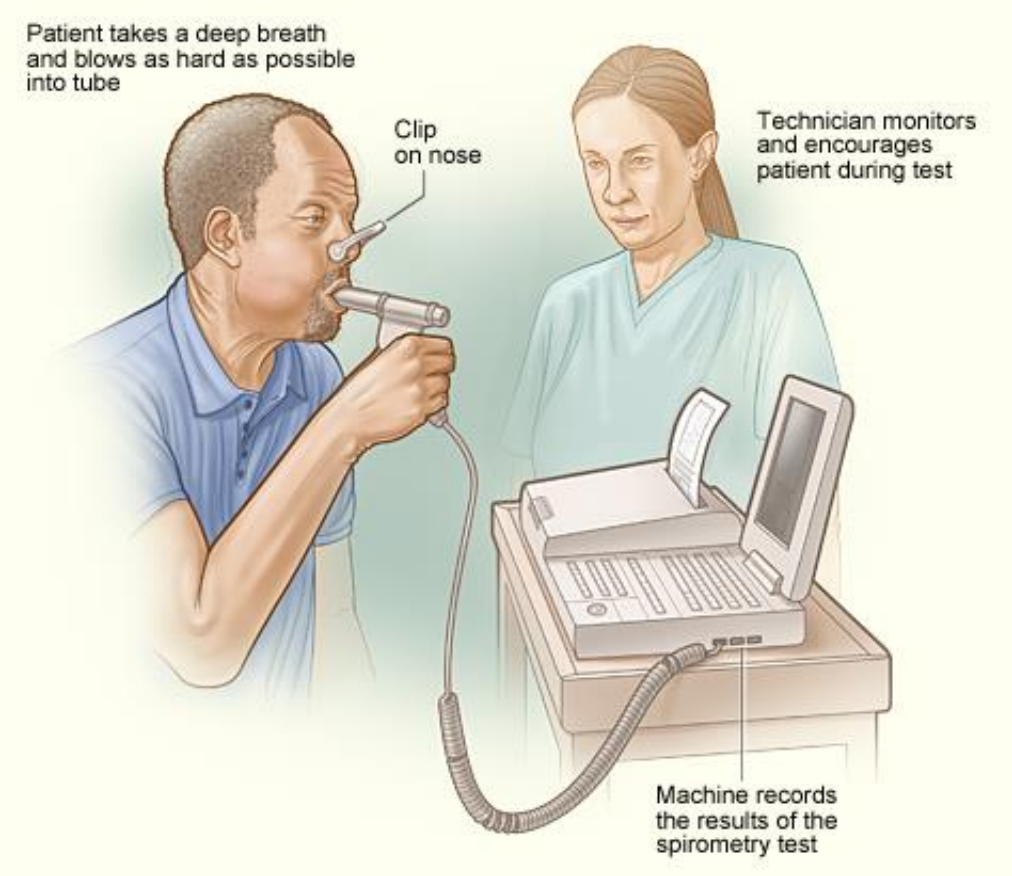
IN INITIATIVE

Spirometry

"SPIRO" -From the Greek language; Breathing

"METRY" -Measurement

SPIROMETRY -The measurement of breathing



Spirometry for COPD

- Spirometry plays a key role in the diagnosis and assessment of Chronic Obstructive Pulmonary Disease
- It can be used to establish the severity of COPD
- It can detect COPD before symptoms becomes apparent
- It is simple and safe test : https://youtu.be/ZZdSkvf9l6U

Who to test- Screening

- Over 40 and history of smoking or current smoker
- Frequent coughing
- Shortness of breath
- Lung health concerns
- Already have lung disease

When to perform spirometry

At the time of diagnosis to confirm Obstruction and severity of COPD.

To reconsider a diagnosis severity if the resident shows an exceptionally good response to treatment

Annually to monitor the disease progression

Measuring

Speed- FEV_1- Forced Expiratory Volume after 1 second from full inspiration. The speed will reflect how obstructed are the airways. It is measure in litre per second.

Capacity-FVC-Forced Vital Capacity. Total volume of air that can be breath out. It can be reduced if air is trapped in the lung. It is called hyperinflation.

Speed / Capacity ratio - FEV_1/FVC in % or ratio gives the over all dynamic performance of the lungs.

COPD experienced

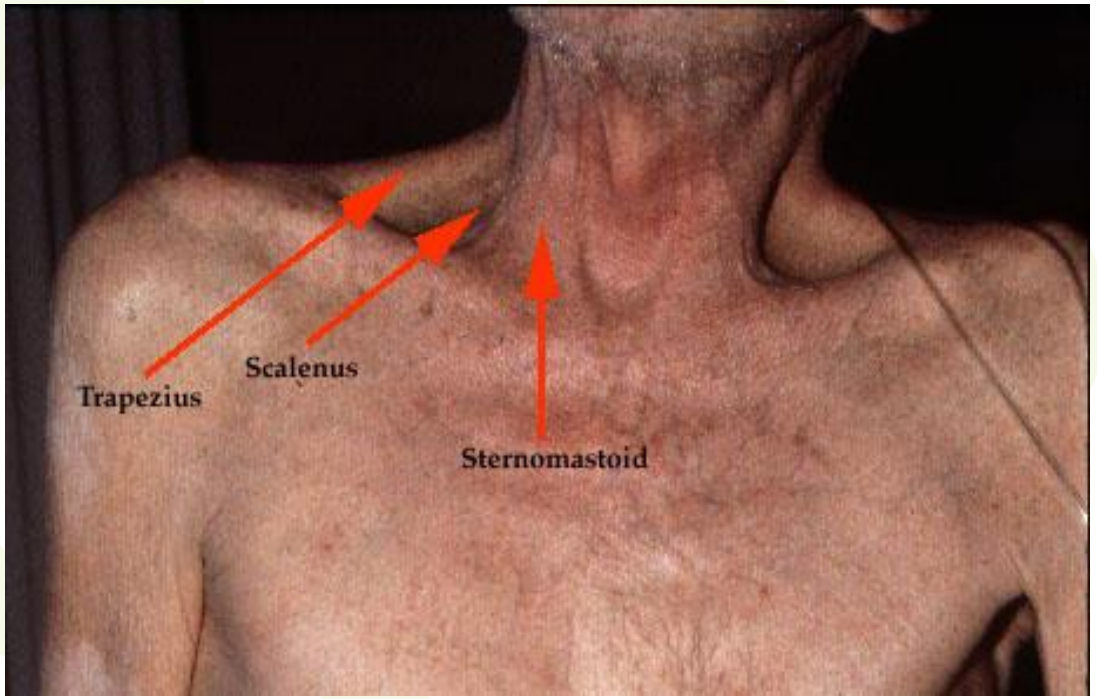
Resident who suffers from COPD have obstructed airways that feels like breathing through a straw.

Compliance (elasticity) of their lungs is compromised . The lung are loose so it is difficult to empty the air. Air becomes trapped inside the lungs. Try breathing with your lungs already full.

Breathing muscles

Humans have a active inhalation and a passive expiration.
We have a muscle dedicated for inhaling: a cupola called the diaphragm.
All other respiratory muscle are used when more air is needed: accessory muscle.

In COPD the diaphragm is flatten by the hyperinflation. Accessory muscle are used for normal breathing; burning a lot of energy.



Results what to look for

Spirometry		LLN	PRE-RX BEST	PRE-RX %PRED	POST-RX BEST	POST-RX %PRED	% Chg
FVC	Liters	2.42	3.01	95	2.92	93	-3
FEV1	Liters	1.76	2.13	89	2.09	88	-2
FEV1 / FVC%		66	71		71		
FEF 25-75	L/sec	0.56	1.32	70	1.36	72	3
PEF	L/sec	3.92	5.64	98	5.42	94	-4
Lung Volumes							
TLC	Liters	4.45			5.08	97	
RV	Liters	1.43			1.97	92	
RV / TLC	%	29			39		
FRC PL	Liters	1.51			2.32	94	
VC	Liters	2.01			3.11	104	
Diffusion					Hb: 14.9		
DLCO	mL/mmHg/min	16.5			6.7	30	
DL Adj	mL/mmHg/min	16.5			6.4	29	
DLCO/VA	mL/mmHg/min				1.82	44	
DL/VA Adj	mL/mmHg/min				1.75	44	
VA	Liters	4.31			3.68	69	
Max Pressures							
MIP	cm H2O	43					
MEP	cm H2O	91					
SNIP	cm H2O	51					

Results

Date MM/D D/YYYY	Pre-Bronchodilator		Post-Bronchodilator	
	Actual value	% Predicted	Actual value	% Predicted
FEV_1	2.13	89	2.09	88
FVC	3.01	95	2.92	93
FEV_1/FVC (%)	71	Missing	71	M

Predicted values of spirometry

- Are mean values obtained from large survey of normal people
- They are used to detect abnormal lung function
- Based on age, gender, height and race.

Thank you for taking the time to learn more about Spirometry testing

Questions???

Acknowledgements

Medigas
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Medical Pharmacies

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Bayshore HealthCare

Ontario Long Term Care Association

Living Well with COPD™
Chronic Obstructive Pulmonary Disease
A plan of action for life

Boehringer Ingelheim

IN Initiative

Jarlette Health Services
Generations of Caring

Sienna Senior Living

Chartwell retirement residences

Remedy's Rx Specialty Pharmacy

It takes a community to fix COPD