

realistic goals for this population. Interventions may not be as effective if there is an underlying sleep problem. The use of a simple device to monitor patients' sleep as they enter the study could actually predict who is going to respond better to the intervention therapy. Additional efforts in improving the quality of sleep among physically inactive subgroups may increase the overall impact of these interventions since we showed that patients having had a better night of sleep spontaneously engaged in more physical activity the following day. We may speculate that poor sleep quality could make the motivation to exercise by day worse and contribute to the vicious cycle of deconditioning that affects COPD sufferers.

- Any apparently unstructured collection of data may hide grouping variables that could be found applying data driven mining algorithms, and therefore organize the collection of data according to thematic coherent groups. These hidden variables can be seen as probabilistic features representing each instance of the collection. This approach, applied to healthcare data, and more specifically to physical activity and sleep data, generates features that could be valid constructs to quantify both physical activity and sleep behaviour changes in patient with limited exercise capacity such as with COPD. The author promotes practical applications of these techniques in daily life to design, for instance, interventions and coaching systems with realistic goals for this population. Moreover, this approach has been demonstrated to be effective in diagnosis support systems. In all likelihood this approach will also be relevant for other diseases than COPD; further studies should aim to confirm this hypothesis.