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Periodic waves in the fractional Korteweg–de Vries equation have been previously characterized as constrained minimizers of energy subject to fixed momentum and mass. Here we characterize these periodic waves as constrained minimizers of the quadratic form of energy subject to fixed cubic part of energy and the zero mean. This new variational characterization allows us to unfold the existence region of travelling periodic waves and to give a sharp criterion for spectral stability of periodic waves with respect to perturbations of the same period. The sharp stability criterion is given by the monotonicity of the map from the wave speed to the wave momentum similarly to the stability criterion for solitary waves. The results are extended to the fractional modified Korteweg–de Vries equation. This is a joint work with Fabio Natali (Universidade Estadual de Maringá, Brazil) and Ph.D. student Uyen Le. (Received September 09, 2021)