Can geometry produce work?

GR textbooks begin with a “massive body” (Wikipedia) that somehow, and for some unknown reason, would create particular influence in non-flat 4D spacetime (watch the clip below), and then “the Christoffel symbols play the role of the gravitational force field and the metric tensor plays the role of the gravitational potential”, etc.

Can non-tensorial Christoffel symbols produce work? What kind of “influence” is that? It doesn’t look like electromagnetism. All we know for sure is that gravity can alter the rate of time, as demonstrated in GPS navigation and time dilation. But again, the rate of time cannot produce work either.

Let’s read the experts in GR. Quote from John Baez and Emory Bunn, The Meaning of Einstein’s Equation, January 4, 2006, Sec. Spatial Curvature:

“One dimension is suppressed in this picture, so the two-dimensional spherical surface shown represents the three-dimensional universe. The small shaded circle on the surface represents our tiny sphere of test particles, which starts at the equator and moves north. The sides of the sphere approach each other along the dashed geodesics, so the sphere shrinks (emphasis mine - D.C.) in the transverse direction, although its diameter in the direction of motion does not change.”

This last sentence may sound comprehensible only to my dog. I certainly see in the drawing above that “the sphere shrinks”, but the ‘shrinking’ itself cannot produce work. Let me offer an explanation of the puzzle posed in the title.

Consider two kitchen scales, A and B, on a table at rest, and two apples on them, with different weight, say, an apple with 200g on scale A, and another apple with 400g on scale B. How would you relate their “trajectories” in 4D spacetime to the non-tensorial Christoffel symbols, so that the latter will produce different weight?
Obviously, an apple with weight 400g will resist acceleration *harder* than 200g apple. Obviously, something is doing *work* by pressing the scales A and B on the table.

**What is it?**

If you cannot answer this question, read *Über Die Gravitationsfeldrelativitätstheorie*.

**D. Chakalov**  
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**General Relativity : Einstein vs. Newton**  
https://www.youtube.com/watch?v=DdC0QN6f3G4

![Einstein diagram](image.png)