CLAIMS

(Amended under PCT, Article 19)

1. A lower limb bouncing device, comprising: a flap on which a heel of a foot is to be placed; and a motor coupled to the flap,

the flap being configured so that a heel resting surface thereof is swung up and down by a driving force of the motor, but does not fall below a minimum height position that is not more than 4 cm above a toe resting surface on which toes are to be placed,

the motor including: an output axis on which an eccentric cam is provided; and a pivotable plate sitting on the eccentric cam, the pivotable plate having an end thereof pivotally attached so as to be pivotable, and

the flap being disposed on a side of an enclosure so that the heel can be placed at a minimum height position that is not more than 4 cm above a floor surface when the foot is placed on the floor surface on which the enclosure is disposed,

the flap being connected to another end of the pivotable plate so as to be swung up and down by the pivotable plate pivoting up and down around the pivotally attached end in response to rotation of the eccentric cam.

2. The lower limb bouncing device as set forth in claim 1, wherein the flap, when at the minimum height position, has therebelow a gap of 1 cm or larger, and when at a maximum height position, is elevated not more than 10 cm above the floor surface.

3. The lower limb bouncing device as set forth in claim 1 or 2, wherein the flap is swung up and down 2 cm ± 1 cm between the minimum and maximum height positions.

4. A method of stimulating a hip joint which is a base end of a lower limb,

said method comprising mechanically moving a heel of a foot up and down by using a lower limb bouncing device that moves the heel up and down relative to stationary toes of the foot while the user is sitting, so as to stimulate the hip joint while the lower limb is relaxing.

5. The method as set forth in claim 4, wherein while the heel is being moved up and down relative to the toes, the foot stays within any desired angle range between a state where an ankle joint is dorsiflexed 20° or less relative to a horizontal position thereof and a state where the ankle joint is plantar flexed 45° or less relative to the horizontal position so that the ankle joint is not overloaded.

CLAIMS

1. A lower limb bouncing device, comprising: a flap on which a heel of a foot is to be placed; and a motor coupled to the flap,

the flap being configured so that a heel resting surface thereof is swung up and down by a driving force of the motor, but does not fall below a minimum height position that is not more than 4cm above a toe resting surface on which toes are to be placed,

the motor including: an output axis on which an eccentric cam is provided ; and a pivotable plate sitting on the eccentric cam, the pivotable plate having an end thereof pivotably attached so as to be pivotable,

the flap being disposed on a side of an enclosure so that the heel can be placed at a minimum height position that is not more than 4 cm above a floor surface when the foot is placed on the floor surface on which the enclosure is disposed, and

the flap being connected to another end of the pivotable plate so as to be swung up and down by the pivotable plate pivoting up and down around the pivotably attached end in response to rotation of the eccentric cam.

2. The lower limb bouncing device as set forth in claim 1, wherein the flap, when at the minimum height position, has therebelow a gap of 1 cm or larger, and when at a maximum height position, is elevated not more than 10 cm above the floor surface.

3. The lower limb bouncing device as set forth in claim 1 or 2, wherein the flap is swung up and down 2 cm ±1 between the minimum and maximum height positions.

4. A method of stimulating a hip joint which is a base end of a lower limb, said method comprising mechanically moving a heel of a foot up and down by using a lower limb bouncing device that moves the heel up and down relative to standing toes of the foot while the user is sitting, so as to stimulate the hip joint while the lower limb is relaxing,

wherein the lower limb bouncing device comprises a flap on which a heel of a foot is to be placed; and a motor coupled to the flap,

wherein the flap is configured so that a heel resting surface thereof is swung up and down by a driving force of the motor, but does not fall below a minimum height position that is not more than 4cm above a toe resting surface on which toes are to be placed,

wherein the motor includes: an output axis on which an eccentric cam is provided ; and a pivotable plate sitting on the eccentric cam, the pivotable plate having an end thereof pivotably attached so as to be pivotable,

wherein the flap is disposed on a side of an enclosure so that the heel can be placed at a minimum height position that is not more than 4 cm above a floor surface when the foot is placed on the floor surface on which the enclosure is disposed, and

wherein the flap is connected to another end of the pivotable plate so as to be swung up and down by the pivotable plate pivoting up and down around the pivotably attached end in response to rotation of the eccentric cam.

5. The method as set forth in claim 4, wherein the flap, when at the minimum height position, has therebelow a gap of 1 cm or larger, and when at a maximum height position, is elevated not more than 10 cm above the floor surface.

6. The method as set forth in claim 4, wherein the flap is swung up and down 2 cm ±1 between the minimum and maximum height positions.

7. The method as set forth in claims 4 to 6 wherein while the heel is being moved up and down relative to the toes, the foot stays within any desired angle range between a state where an ankle joint is dorsiflexed 20°or less relative to a horizontal position thereof and a state where the ankle joint is plantar flexed 45° or less relative to the horizontal position so that the ankle joint is not overloaded.