



Russian Current stimulation

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Outline

- DEFINITION
- CHARACTERISTICS
- PHYSIOLOGICAL EFFECTS
- INDICATIONS & CONTRAINDICATIONS
- SUMMARY

Introduction

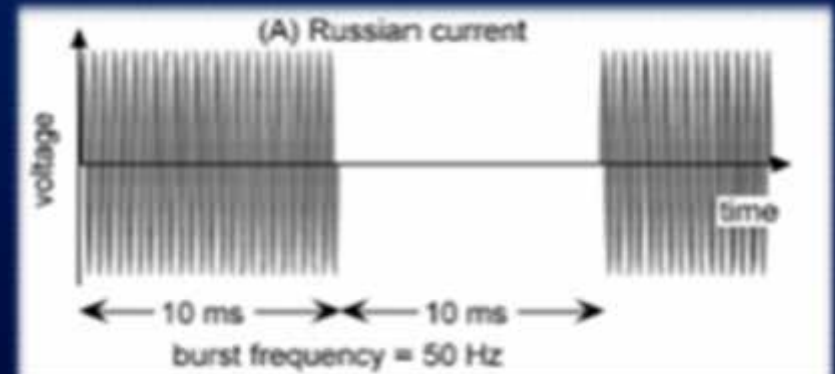
- 1977 Yakov Kots (Russian physiologist)
- *It is basically:*
 - Medium-frequency current (carrier frequency of 2500 Hz)
 - Alternating sinusoidal waveform current
 - Waveform delivered in bursts or series of pulses.
- Hence, it is known as **B**urst **M**odulated **A**lternating **C**urrent (**BMAC**)

Russian Current Characteristics

- Carrier Frequency
- Waveform
- Current Amplitude
- Bursts Frequency
- Burst Duration
- On / Off Ratio
- Duty Cycle
- Ramp Up & Down
- Training protocol
- Duration & Frequency of Treatment
- Electrode Placement

Russian Current Characteristics

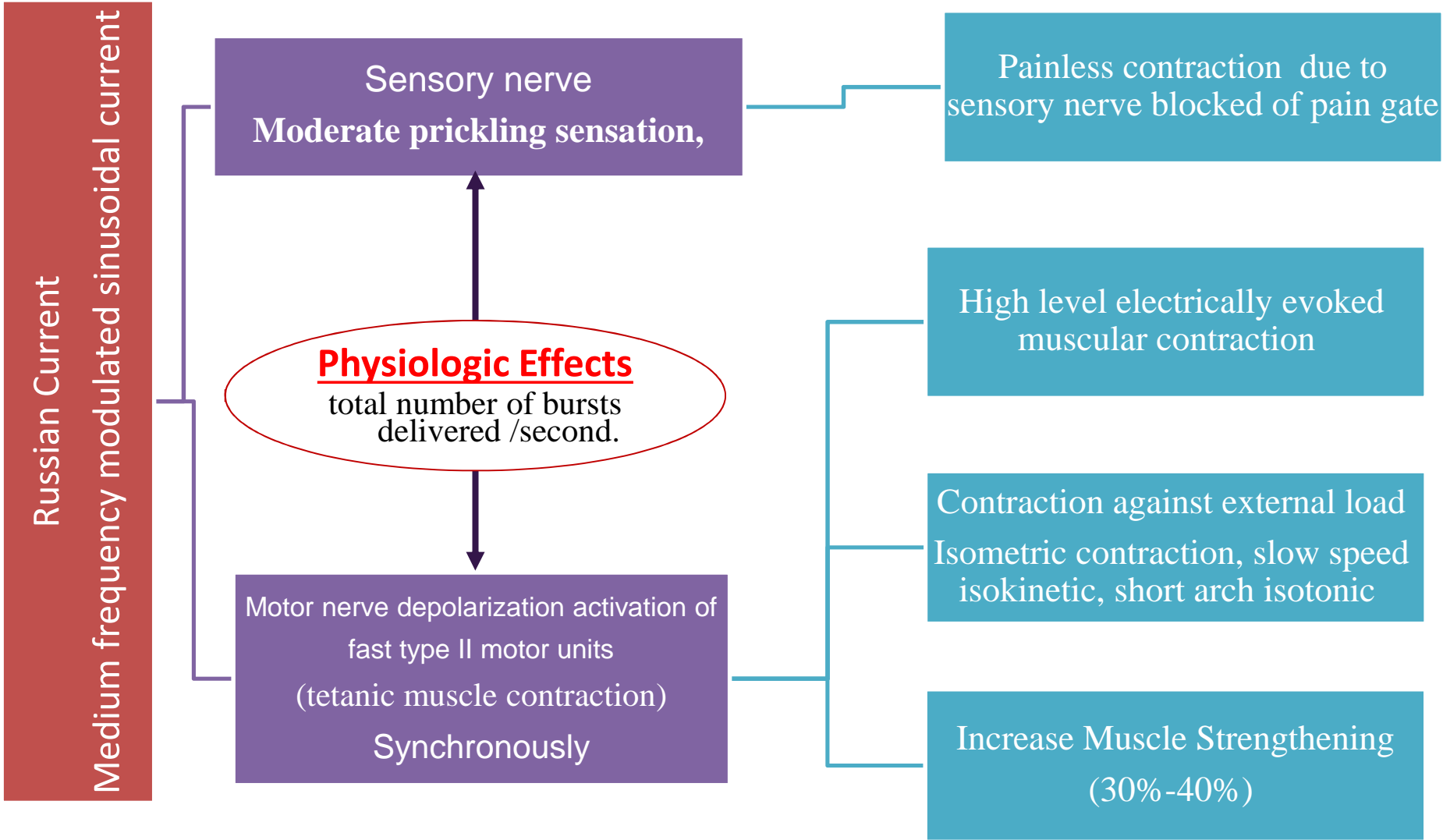
- Carrier Frequency: **2.500Hz (2.5KHz).**
- Waveform: **Biphasic alternating sinusoidal waveform.**
- Current Amplitude: **Maximum current amplitude is 100mA ,
Clinical used at 70mA.**
- Bursts Frequency: **50 Hz.**
- Burst Duration: **10ms**
- On : off ration: **10ms:10ms**
- Duty cycle: **50%**
- Ramp-Up and Down: **1-2seconds**



Russian Current Characteristics

Training protocol with Russian current: (10/50/10)

- ❖ 10 = Muscle contractions, lasting for 10 seconds
- ❖ 50 = off time (no contraction) for 50 seconds
- ❖ 10 = cycle repeated for 10 times
- ❖ Amplitude/ Intensity: (**70mA**) strong but comfortable muscle contraction
- ❖ Pulse rate (frequency): **50 – 70 Hz (tetanic muscle contraction)**
- ❖ Duration of treatment : **10 minutes,**
- ❖ Frequency of treatment: **once daily, for 3-6 months**
- ❖ Electrode placement: **Arranged parallel to the direction of muscle fibers**
- ❖ Apply current during volitional activities (voluntary activities)
 - ❖ **Isometric/isotonic /isokinetic**



Therapeutic Clinical Uses

IMPROVE MUSCLE STRENGTH

Amplitude: Tetanic muscle contraction.

Pulse rate (Burst freq): 50-70 Hz

Pulse duration: 150 -200 μ s

Apply current during

volitional – isometrics in different ROM,
slow speed isokinetic

short arc movements (10/50/10)

Treatment time: 10-15 mins/session/daily for 3-6 months

TO REDUCE OEDEMA

Amplitude: small visible muscle contraction.

Pulse rate (Burst freq): 35-50 Hz

Pulse duration: around 400 μ s

On : Off Time: on time of 1-2 secs off time 1-2 secs – promote muscle pumping

Treatment time: 10-15 mins/session

indications/ Contraindications

Indications

The only indication for use of Russian current is to strengthening the muscular system of healthy and athletic persons

- Post-knee ligaments surgery
- Post-arthroscopic knee surgery
- Following ligament sprain

Contraindications

- Over the anterior cervical area
- Over the trnasthorcic area
- Over the lumbar or abdominal area during pregnant
- Over hemorrhagic area
- Over neoplastic area
- Over metallic and electronic implant
- Over area of impaired skin sensation